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E. W. TAYLOR, M.D., Editor
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Original Articles.

CARBON MONOXIDE POISONING.

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Most writers on the subject believe that carbon monoxide poisoning receives but scanty attention from physicians, and this is probably so since the average physician of city practice sees but few cases. Edsall points out that carbon monoxide poisoning in addition to the acute illness and possible fatality which it may cause is also responsible for the production of certain subacute or chronic disorders, and Sedgwick considers the various obscure consequences as more important than the acute poisoning. Its sequelae are varied in nature and, unless the history of the acute poisoning is known, are difficult of interpretation. Acute poisoning with its sequelae has been, of course, much better studied than the chronic forms as it is difficult to prove that carbon monoxide has been the cause of conditions found in certain persons living under bad hygienic circumstances.

Professors Sedgwick and Nichols, in their excellent report on "Coal and Water Gas," as given in the Sixth Annual Report of the State Board of Health, 1885, mention the case of a lady in fair health who began somewhat suddenly to suffer from intolerable headaches. They were worse on awakening from sleep, and wore off gradually during the day to return on the following morning. After much effort to diagnose and control the headaches her physician was told of or discovered a faint odor of illuminating gas in the room. A leak was found in a pipe running under the floor, and when it was stopped the patient quickly recovered. This was one of the simpler forms of poisoning from illuminating gas which would not be so obscure if one had the cause in mind.

Another source of poisoning is the escaping of gas from broken mains in the earth and thence into houses. This is particularly so in winter when the ground is frozen and perhaps covered with a coating of ice. Even if the ground is bare, the temperature of the houses is considerably above that of the outer air, converting them into so many chimneys to which the air in the ground is drawn from all sides. Leaks and resulting poisonings of this nature are much more obscure and difficult of solution. Pettenkoper has shown that the gas may travel many yards through the ground and reach a dwelling a considerable distance from the leak, while the odor is lost in transit. This method of producing carbon monoxide poisoning probably forms now but a trifling per cent. of the cases and is almost disregarded by the majority of writers since Pettenkoper's time.

Sedgwick recently has called attention to the insidious effects of constantly inhaling illuminating gas in houses and public places. The intoxication by carbon monoxide in factories and foundries is not uncommon, but this paper is not concerned with poisoning produced by manufacturing processes.

It is believed that obscure poisoning of various kinds plays a large part in diminishing vital resistance and in increasing susceptibility to disease. The number of acute cases is ever increasing. There are many reasons for this, such as the greater use of household appliances for cooking and heating, especially when they are used in small and ill ventilated rooms. Professor Sedgwick in a recent article in the *Journal of Infectious Diseases*, November, 1911, on "The Relation of Illuminating Gas to Public Health," calls particular attention to the increasing manufacture of water gas as the cause of a great number of carbon monoxide poisoning cases in recent years. In 1884 Professors Sedgwick and W. R. Nichols and Dr. Samuel W. Abbott predicted that if water gas should replace coal gas in Massachusetts the consequence to public health would probably be dangerous if not disastrous. Other experts of eminence took precisely the opposite ground and even ridiculed the possibility of any such consequence. Among these were Professor C. F. Chandler of Columbia University and the distinguished English chemist, Dr. E. Frankland, who stated in a letter read during the hearings, "I have no hesitation in saying that it (water gas) may be used with safety both in public buildings and private houses. I should be delighted to substitute this pure and powerful illuminating agent for the gas with which my house in London is at present supplied, although it is used in all the bedrooms."

Previous to 1885, according to Dr. S. W. Abbott, there had been only four deaths during twenty years in Massachusetts. It is a question how much reliance can be placed on this statement because of imperfect methods of recording cases. As a result of the coal and water gas agitation the Massachusetts Legislature in 1885 created a State Gas Commission and since 1888 the Commissioners have been required to keep a record of all fatalities and other subsequent results from gas poisoning.

Let us pause for a moment at this point to consider the nature of coal and water gas. Poisoning from pure carbon monoxide is extremely rare, because opportunities for its occurrence are unusual; it has occurred in laboratories and factories.

Intoxication with illuminating gas is commonly regarded as being practically carbon monoxide poisoning, but experiments have shown that its poisoning is usually more severe than from simple carbon monoxide. Nevertheless, the latter is the chief agent.

Illuminating gas is poisonous whether made from the destructive distillation of bituminous

coal, from wood or other organic substances, or derived from coal and water by their action on each other at high temperatures (water gas). It is, nevertheless, a single gas of uniform composition, and while the mixture may vary from day to day within narrow limits, the expressions "coal gas" and "water gas" stand for a reasonably definite substance or mixture. Various analyses by different chemists have shown that water gas contains about four times as much carbon monoxide as coal gas. The amount of carbonic oxide requisite to produce a fatal result varies considerably with different individuals. A variety of conditions enters into this factor. Carbon monoxide enters the system solely by inspiration unless experimentally introduced. Its chief effect is to displace the oxygen from oxyhemoglobin and form carbon monoxoglobin, thus rendering the affected portion of the red blood corpuscles incapable of performing their function as oxygen and carbon dioxide carriers.

Sedgwick and Nichols carried out numerous experiments on the relative effects of coal and water gas on animals. Their experiments and conclusions are given under four headings:—

1. With ordinary gas fixtures it is generally difficult to get more than three per cent. of illuminating gas into an ordinary room. By using one burner alone, it is difficult to exceed one per cent. The "natural ventilation" through walls and cracks is the reason for this.

2. With coal gas it is a matter of some difficulty to get into an ordinary apartment through the ordinary burners gas enough to produce upon healthy animals distinctly poisonous effects. With water gas, on the contrary, it is comparatively easy to get into an ordinary apartment through the ordinary burners gas enough to produce poisonous and even fatal effects. The same quantity of gas would be present in the room in either case. Water gas does not flow more freely or accumulate in the room any more than coal gas.

3. It does not follow that because one illuminating gas contains three, four or five times as much carbonic oxide as another that it is, therefore, only three, four or five times as dangerous to life.

4. Carbonic oxide is not a cumulative poison. That is, the breathing of a small quantity for a long time is not equivalent to the breathing of a large quantity for a short time. A similar conclusion may be drawn in all the constituents of illuminating gas. These authors state: "From the fact that carbonic oxide is not a cumulative poison and from the considerations concerning the rapid increase of danger above and the decrease of it below the 'danger line,' it follows that within certain limits the less carbonic oxide there is in illuminating gas the safer it is for public use, for about the danger line a very moderate decrease of carbonic oxide may very greatly enhance its safety, while a moderate increase may greatly multiply the dangers arising from its use. Far above and below the danger line the effect of slight variations is very little."

The record of the experiments with animals conducted by Professors Sedgwick and Nichols to prove the above conclusions may be found in the Sixth Annual Report of the State Board of Health.

Since 1890 the careful records of the State Gas Commission and the Medical Examiner's office show that more than 1,200 deaths from carbon monoxide poisoning have occurred in Massachusetts in a twenty-year period from 1890 to 1909. Sedgwick and Schneider in their recent article in the *Journal of Infectious Diseases* have compared the mortality from scarlet fever, measles and illuminating gas in Massachusetts for a period of twenty years. For example, the death-rate was:—

	Scarlet Fever	Measles	Illuminating Gas
1887	28.80	22.08	0.29
1898	5.25	2.05	2.91
1909	7.86	4.77	3.10

I have merely shown the changes at the end of two ten-year periods—the authors give the death-rate for each year in tabular form.

Since 1890 some companies have made only water gas, others only coal gas, while many have made a mixture of the two, and some have made both intermittently. For a short time (1900) the amount of water gas manufactured was much less, and there was a corresponding diminution in the number of gas poisoning cases. Sedgwick and Schneider give an interesting table derived from the Reports of the Gas Commissioners showing the amounts of illuminating gas (coal gas and water gas) manufactured each year in Massachusetts. Figures in this table show a marked increase in water gas and a corresponding increase in the number of deaths. In 1886 the total coal and water gas made in million cubic feet was 2,625, and water gas 12, with no deaths. In 1896, total 4,639, water gas 3,090, and 63 deaths. In 1908, total 10,902, water gas 4,862 and 148 deaths. In 1900 and 1901 when the New England Gas and Coke Company installed a large coal gas plant in Everett, the effect of the introduction of their product was to cause an actual decrease in the water gas manufacture in the state and in 1901 a significant diminution in the number of deaths from gas poisoinng.

There were 174 cases of illuminating gas poisoning admitted to the Boston City Hospital from 1900 to 1910 inclusive. Of this number, 35 had a definite history of attempted suicide, and 27 had been drinking more or less heavily before the accident; 8 gave a history of being overcome while at work, principally in trenches; 2 cases were due to slot gas machines, the persons going to bed with the gas lighted, the gas giving out in the night but being started up in the early morning by somebody depositing the requisite coin. There were half a dozen cases of blowing out the gas, this accident occurring with

foreigners of the peasant type recently arrived in America. Most of the non-fatal cases fully recovered in from two to four days. In cases that recovered from coma in two to four days and then died, the death was usually caused by pneumonia or by some pathological condition which had existed prior to the exposure and which was precipitated by the gas poisoning. All of the nineteen cases in this series which died were accidental as far as could be ascertained. No one of the 35 cases of attempted suicide proved fatal. Eleven died from gas poisoning without complications, three cases were complicated by pneumonia, two by burns, one by uremia and one by cerebral embolus. With reference to the subsequent effects of acute gas poisoning, we have been unable to find the record of but three re-admissions, all men and admitted for alcoholism.

It would be natural to ask how it is that the Boston City Hospital had only 174 cases admitted in eleven years when in the year 1910 alone there were 80 cases of gas poisoning in the city of Boston. It is probably the only point which this paper will show, viz., that with the appalling number of cases as shown by the Report of the Gas Commission of Massachusetts so few ever have a chance for treatment because of immediately fatal results. Forty-two of the 80 cases in Boston in 1910 died, leaving 38 non-fatal cases, 21 of whom were received at the hospital.

The crux of the matter is that the increased amount of carbon monoxide in water gas makes a small volume of gas fatal in a much shorter time. Coal gas by its very strong odor made its presence known sooner to other inmates of the house, and while the victim might be unconscious when found, he had not as a rule inhaled sufficient carbon monoxide to make treatment useless.

A comparison of figures shows that with the large amount of water gas, containing about four times as much carbon monoxide as does coal gas and having a less striking odor, many victims are fatally poisoned by a volume of gas which in the same cubic space and length of time would have resulted only in unconsciousness and are therefore dead or nearly dead when found.

The cases were as follows:—

	Admitted to the Boston City Hospital			In Boston and Suburbs					
				Fatal Cases			Non-Fatal Cases		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females	Total
1900	5	1	6	21	3	24	19	6	25
1901	13	6	19	16	0	16	159	4	163
1902	5	7	12	25	3	33	49	7	56
1903	8	9	17	20	6	26	25	25	50
1904	9	5	14	22	2	24	19	9	28
1905	8	1	9	22	6	28	22	11	33
1906	10	4	14	17	14	31	28	15	43
1907	9	8	17	45	25	70	32	15	47
1908	21	8	29	26	16	42	33	9	42
1909	13	2	15	36	8	44	22	14	36
1910	13	9	22	36	9	45	32	10	43

The seasonal distribution was as follows:—

January	15	July	2
February	10	August	7
March	16	September	9
April	19	October	15
May	11	November	18
June	9	December	40

In most of our cases the patients felt a sense of drowsiness, to which they yielded and could tell nothing more about themselves. A few complained of headache and most all had severe nausea and vomiting. Some noticed the odor of gas in the room, but paid no attention to it and remembered nothing else until they recovered consciousness in the hospital.

A rather large number of the cases have this record:

Skin mottled and lips and lobes of the ears cyanosed. Unconscious; stertorous respiration; involuntary dejecta; odor of gas on breath. In one case the urine drawn by catheter had a strong odor of gas. The eyelids react when the lashes are touched. Conjunctivae suffused. Pupils contracted but react to light. Eyeballs immovable. Teeth slightly clinched. Mucus on lips. Arms slightly flexed at elbows. In one case which showed the above signs, the man had gone to bed with the gas lighted in a house supplied by a slot machine. At five in the morning, another inmate put a quarter in the machine and the patient was found at seven o'clock in the condition as detailed above. The gas company estimated that from 3 to 3.5 feet of gas had escaped into the room. The patient was mentally confused for several days but was discharged well after remaining nine days in the hospital. Case 11 showed rigid flexion of forearms and wrists and the feet in plantar flexion.

Most of this series where there were marked reflex changes the patients were suffering from organic nervous disease before the gas poisoning.

Treatment. Prophylaxis is of the greatest importance. Sedgwick and Schneider think that we should return to the use of coal gas exclusively, believing that with its much lessened power to poison, the majority of cases would be discovered in time to save their lives. Even if one-half of the deaths are voluntary or suicidal, as physicians we cannot overlook this part of the question. Within the last few years the state of Massachusetts has sought by law to regulate the sale of poisons and firearms, and may well regard with concern the general distribution to the public of a dangerous gas so readily available for self destruction. It has been argued even by some excellent physicians that persons who have once displayed a suicidal intent may as well not be thwarted since sooner or later they will carry out their design. We all know of young persons who during a temporary despondency have considered suicide—the thought may never occur to them again, but if a too easy means is at hand they may yield to the impulse. We know of many persons who have confessed that they have considered suicide at some time in their lives. Again, when a form of suicide is vividly detailed

by the press, repetitions occur for a time in various parts of the country.

In the treatment of acute poisoning, the cases received principally local heat, fresh air and cardiac stimulation. In a good many cases oxygen was given, although some authors regard it as useless. In a few selected cases venesection was used with apparent relief. Cardiac stimulation was given when necessary.

I wish to express my thanks to the visiting staff for the privilege of referring to the cases, and to Dr. T. Leary, medical examiner for Norfolk County, for helpful suggestions.

OLD AND RECENT IDEAS CONCERNING TREATMENT OF FLAT-FOOT.

BY H. W. MARSHALL, M.D., BOSTON.

THE importance of foot defects, included in the class of strains and weaknesses of the feet, can be appreciated properly only from the enormous numbers of persons who are wearing orthopedic appliances or shoes of orthopedic design. Arch supports, shoes with correct shapes, shoes with flexible shanks, others with rigid shanks, and shoes with heels or soles constructed to alter the position of the feet in weight-bearing attitudes, are very familiar now in many stores in all large cities.

Additional interest is lent to the present situation by the circumstance that wear of these special shoes and supports is determined now more by business enterprise, and by fancies of customers, than by medical advice and supervision. This condition of affairs has arisen naturally because such foot ailments in the majority of instances are not very grave in character. The general public is free to choose without medical opinion, and with good success very often, such kinds and varieties as appeal to their fancies, or those styles which friends have found to be beneficial.

Orthopedists and some enterprising shoe men during the period of development of new ideas about flat-foot have studied the anatomy of the feet again with care, so that nearly all important pathological changes have been described now in great detail.

It is very generally known there are longitudinal and transverse arches in the feet that can become weakened. The anatomical arrangement of the small bones of the feet, their normal positions and pathological variations have been examined; and it is well understood that, when weight is borne, pressure from above tends to push the astragalus downward and inward as it rests upon the os calcis beneath. Also that there may be considerable tilting of the calcaneum when the bones of the leg, with the astragalus, in bad cases of flat-foot, tend to slip down off the inner side of the foot until they are checked by ligaments and muscles, and as the foot tends to slip forward.

It is a familiar fact that these tendencies are resisted by the calcaneonavicular, the deltoid and the interosseous ligaments; and that when marked relaxations occur considerable slipping in the astragalonavicular joint takes place and that the scaphoid bone becomes very prominent. It is also known that other small joints of the tarsus are influenced in lesser degrees.

In typical flat-foot the front of the foot is forced outward and downward. The internal malleolus is more prominent, and motions of the feet are restricted. Adduction of the forefoot becomes greatly restricted, plantar flexion is limited, and dorsal flexion appears increased.

Special studies have been so numerous that a few of them only can be mentioned. R. B. Osgood[1] has studied, among other things, the strength of muscles in normal and weakened feet. He concludes that the adductors of the feet are stronger than the abductor group in normal persons, and he found in acute flat-foot that the normal average ratio of strength, 10:8, became 10:12 in weakened feet. Lloyd T. Brown[2] has considered the action of extrinsic and intrinsic muscles of the foot from an anatomical and mechanical standpoint. And the studies of Whitman, Lovett, Dane, Legg, Cotton, Feiss, Gibney, Thomas, and many others are too extensive and too important to be enumerated briefly.

It has been shown that the first metatarsal bone with its phalangeal bones is most important in locomotion, while the outer metatarsals are essential in maintaining the balance when standing.

In text-books, Whitman,[3] Goldthwait, Painter and Osgood,[4] Bradford and Lovett,[5] and others have described the two-fold function of the foot as a passive support of the weight of the body, and as an active lever to raise and propel it. And they have explained the many anatomical details which relate to development of weakness and deformities. Deformed feet of the Chinese have been made objects of study; and great attention has been paid to normal shapes of normal feet in the barefooted races. Anatomical dissections have been made which show that gradual anatomical changes in the bones take place, as the bones adjust themselves to new conditions long imposed upon them. It is now well understood that shapes of shoes have much to do with development of weaknesses and strains, that extreme styles in pointed shoes in the past contributed perhaps as much as any one thing in calling attention to foot defects, and in leading to corrections in footwear. It is known that present styles of high heels are throwing disproportionate pressures upon anterior arches, and that the latter in consequence are giving out more frequently now. It is known that, notwithstanding the fact persons possess high arches, that they suffer frequently with foot strains; and causes of foot strains, as mentioned in text-books of orthopedic surgery, are described as being

due to faulty footwear; occupations that compel unusual amounts of standing; injuries, especially fractures of leg bones at the ankle that result in subsequent abnormal pronated positions of the feet; genu valgum; debilitated states; rachitis; great increase in weight, etc.

However, in spite of the precise knowledge which has accumulated, there still are a very considerable number of persons who are made worse, instead of better, by wearing shoes of orthopedic shapes. Others are made worse by shoes with flexible shanks, many are not improved by arch supports, and some continue to have weak feet after trying all methods now in use.

These facts are as well established as the ones that many individuals are benefited; and unfavorable results need understanding if successes are to be attained with more uniformity. The first important reason for failure lies in the circumstance already mentioned, e.g., that wearing of orthopedic shoes and supports often is dependent simply upon whims of customers, upon experiences of their friends, upon persuasions of persons selling the articles, instead of upon physiological requirements of individuals' conditions. A second reason lies in the failures of physicians to understand precisely the needs of their patients; and it is interesting to trace past developments which have led to present medical ideas.

When attention was first drawn to the barefoot tribes, it was seen that forms of their feet differed materially from those found in persons who have been cramped always in shoes. As a result of these observations, correctly shaped shoes were constructed with broad toes and with room for expansion of the anterior part of the foot, and especially to avoid outward deflection of the great toes. And then it was found that some persons with very deformed feet were unable to walk in these improved styles. They were more comfortable in their own improperly shaped ones.

Long subjection to tight shoes had changed bones and ligaments structurally, so that normal shapes were as injurious to these persons as modern styles would be to savages. It came to be realized then that many individuals are no longer predatory savages, as regards their feet; and that it is necessary to fit them with shoes suited to their existing deformities. Physicians learned that in extreme cases natural shapes could be restored only very gradually, and that consideration of other factors besides forms of footwear must be kept in mind. Some foot deformities now are recognized to go so far as to necessitate forcible manipulations and operations to restore even approximately normal conditions again.

With arch supports there has been a similar negative phase in progress; and from the positive benefit which many persons have derived, others have been induced to try supports with unfavorable results. It has been found that persons with acute foot strain frequently have so much tenderness that additional pressures upon the arches cannot be endured. Others are relieved for short times, and then have slow return of painful symptoms from muscle weakness. Frequently the latter are benefited by minimizing instead of increasing artificial aids, and by exercising the feet with flexible shoes.

Flexible shoes consequently have been tried in routine manner like shoes with orthopedic shapes and as arch supports have been used; and many persons have been relieved by them, while many others find that they cannot wear flexible shoes.

From these various groups of cases, and from advocacy of single routine forms of treatment, have arisen partisanships which convincingly show that numerous deficiencies still exist in our understanding of flat-foot. There is need for understanding that physiological considerations, more than anatomical or pathological ones, furnish final solutions for difficulties in treatments. Treatments primarily should be designed to remedy physiological defects ahead of anatomical ones, although the latter must necessarily be corrected when they exist, because they prevent restoration of normal functions.

Structural defects are causes of present and future functional abnormalities, and simultaneously also they represent results of past physiological defects or primary congenital peculiarities. These more remote causes must be sought for, as it is possible to have perfect understanding of all anatomical peculiarities and of all pathological appearances, and yet be unable to deal with patients successfully when there is lack of understanding of underlying physiological forces which regulate health and weaknesses.

There ought to be unhesitating recognition that normal conditions in feet depend always upon a combination of elements, and never upon any one of them independently. These underlying factors are grouped into three divisions: first, the amount of weight borne and the lengths of times it is endured; secondly, the degree of healthy vitality existing at the particular time in ligaments and muscles supporting the arches that is represented by their strength; and thirdly, favorable and unfavorable qualities of blood circulating through the feet at the given time. This is the only working formula that is applicable universally to all cases, and it should come to mind as the most practical way of viewing each patient, instead of by special features alone in each one, such as shapes of feet, height of arches, occupations, body weights, physical conditions, etc.

All the latter considerations must be thought of, however, yet ideas of treatment must not stop at that stage for best results. These special details of each individual case should be fitted into the general comprehensive idea of the whole situation which has been stated. Broad comprehensive qualities are features in treatments that are often lacking, and it is purely a

matter of chance at present with many persons whether their shoes and supports are suited to their needs. Chosen without medical advice, and unnecessarily tried in many instances through curiosity rather than actual need, footwear and orthopedic appliances are worn frequently in complete ignorance of unfavorable consequences which are possible, the only guide observed being the degree of temporary comfort afforded. Yet practically it has been found that many persons are benefited for a time at least, although they have no ideas of physiological ways in which feet maintain their strength and function. And the principal complaint made by such persons is that they become very dependent upon arch supports, and that their feet become weakened by continued use of the latter.

The proper view to take toward various orthopedic devices and shoes is one of recognition that most of them have merits, and that they indicate the number of phases which any single case may pass through. This seems to be the correct idea in contrast to the erroneous one that some devices must be useless or harmful because some others are beneficial. For faults do not lie with shoes or supports as much as in defective understanding of conditions which lead to their inappropriate uses. All devices may be beneficial or harmful in turn in any selected case according as they are prescribed, or accidentally happen, to fit the needs that exist and that vary from time to time.

Indications and contra-indications can be determined, however, usually very easily from the general conception that has been stated. Health always represents a balanced state between various physiological elements; and treatments are directed always toward restoring usual ratios between these several forces. In health, if persons become heavier, then compensatory changes in strengths of muscles and ligaments are seen so that normal balances between pressures upon arches and muscle strengths are not upset. If the individual is very large instead of very small, then changes in absolute strengths of muscles and ligaments have, too, to be very great instead of small, in order to maintain the healthy balance. Absolute values of the same factor in different persons may vary within wide limits and yet be relatively unimportant. The most vital relationship always is the ratio between the different factors as they are combined in the same person. In order to restore normal conditions in weakened feet, pressures and strains, that are endured, can be diminished by supporting the arches or by subjecting them to less mechanical strain by rest, or by combining supports with partial rest.

Usually it is more convenient to begin treatment by increasing supports instead of diminishing amounts of daily activities of life. The ways of strengthening the arches are familiar. They may be artificially held with adhesive straps which extend around the sole of the foot upward upon the two sides of the lower leg, so that a part of the pressure upon the arches is taken by the pull upon these leg straps. Felt pads, spring steels, celluloid, rubber, and other varieties of support have been used. The strength of the foot may be increased also at times by regular exercises or by wearing limber shoes which, unconsciously to the wearer, exercise foot muscles more than when they are supported by thick soled boots. Improved shapes in shoes indirectly may help to strengthen the feet by allowing more natural shapes to be restored.

There is no certain way of estimating which variety of treatment will prove most beneficial except by a few simple preliminary trials with supports of some sort, alternating them with exercises; but these quickly furnish the required information.

Usually persons who walk and stand very little, and who have been wearing heavy soled shoes or supports constantly will be benefited by flexible shoes and by diminishing artificial aids, provided blood conditions remain unchanged. And vice versa, persons who use their feet continually, or have worn very thin shoes, will find temporary relief in thicker shoes and more support. Both may be followed by return of symptoms if they are long continued; and changes from time to time ought to be made, if physiological needs are to be perfectly met. A constant feature of all cases is the one that artificial aids ought to be kept down to a minimum degree from time to time; and the feet should perform their functions always as nearly normally and unaided as their strength permits. Whether patients with weak feet shall be kept off of them a part of the time, or completely, can be told from experiment and from indications furnished by the past history; and these trials should be made and right amounts quickly estimated. Changes that have to be made in these mechanical elements may vary from no change at all to complete rest in plaster casts; but in every case the mechanical factors should be thought of at least although nothing has to be done.

Vascular elements in development of foot strains are ones most commonly poorly understood, despite the fact they undoubtedly are as important as mechanical features. It is possible, though rarely advisable, to cure pains in the feet from the lesser degrees of foot strains simply by medicinal tonics, iron, cathartics and eliminants without paying attention to local conditions. This medical phase of treatments, however, is lost sight of at present very commonly in search for local anatomical defects; but the important influence of vascular states is convincingly indicated nevertheless by the frequency with which debilitated conditions initiate development of foot symptoms. Debility is a matter orthopedists, as a class, have rather vague ideas about, dealing as they do mainly with tangible mechanical devices and anatomical considerations. Debilitated states are poorly

understood by all, yet there are a few rough quantitative defects in normal physiological processes which are recognizable, and which can be corrected frequently with good results.

It is known that digestive disturbances are starting points for many troubles. Normal digestive functions frequently become temporarily poor through fatigue or worries; and ordinarily harmless products of intestinal bacterial activity become increased temporarily from increased bacterial action upon the food residues left as a result of poor digestive function. Larger quantities of bacterial products than usual are absorbed in consequence, and circulate in abnormal amounts, exerting mild deleterious influences, and show themselves finally in the fluctuations of indican and allied substances in the urine. The blood stream temporarily has slightly changed proportions among its usual constituents, and if these fluctuations are repeated often, or continue long enough, they give rise indirectly or directly to mild anemias, articular pains, etc., etc. Individuals feel below their usual standards, muscle tone is lessened, and weaknesses become accentuated. Feet frequently suffer in this way; and the remedy primarily consists in diminishing amounts of useless substances in circulation by diminishing absorptions from the intestinal tract and by increasing their eliminations. This is accomplished with the aid of stimulating tonics to increase normal digestive, peristaltic and cardiac functions, by cathartics to remove food residues promptly, and by increasing the excretion of urine. Iron in some form is beneficial simultaneously to correct deficiencies that have arisen in the iron content of the blood.

These are extremely well known measures, but their importance in treatment of many types of flat-foot the writer has seen repeatedly overlooked. Many patients have been treated with strappings, plates, shoes, Thomas heels, etc., and have dragged along without being crippled, and yet without recovering their normal strength; and then, when a few weeks' attention has been paid to defects in circulating blood, normal conditions have been restored again promptly. Prescription of drugs cannot be made in haphazard ways, and their effects have to be watched as carefully as those of mechanical appliances in order to rectify the defects in alimentary tract and circulation that are producing the slightly unfavorable conditions. When it is remembered that every person's start in life begins with certain initial vitalities in each organ and in every living cell, as well as in all collectively; that these initial vitalities vary in different persons and that the blood is the common soil in which all tissues grow, then it can be realized that what is brought to, and what is taken away from, living cells by the blood stream constitute the most important influences to which tissues are subjected. If proportions of substances in circulation remain constantly favorable the individual thrives, and may grow strong and robust even from a very poor beginning; and vice versa, unfavorable quantitative proportions of vascular substances soon produce delicacy and debility in persons originally strong, as a barren soil always produces scanty crops. What is true of the person as a whole is true of his organs individually. Some organs are stronger and better developed than others at birth and often keep their lead throughout life; and if vascular conditions are unfavorable for ligaments and muscles, then these show the effects of the unfavorable influences in drooping attitudes, round shoulders, weak backs, flat feet, visceral ptoses, etc., so commonly observed. Knowledge of these changes in the blood from time to time, also the biological needs of living tissues are the matters that should have more universal understanding now when anatomical details of foot structure have been so thoroughly investigated. Some types of flat-foot, however, must be recognized to be almost, or entirely, beyond control when chronic progressive diseases of the gastro-enteric tract, kidneys, or other organs prevent correction of vascular conditions. This is true although harmful mechanical pressure and strains always can be perfectly eliminated and controlled. Patients with flat-foot in the future probably will select their own supports and shoes very frequently without advice, as now; but when they consult physicians they should receive directions that are based upon physiological principles as well as upon pathological changes. Then patients will be made to realize that no one style of shoe, or principle of treatment, is universally applicable, and that their needs necessarily change from time to time, so that a number of entirely different measures are likely to be tried before normal balance between blood, mechanical pressures, and tissue resistances is again restored.

Too much cannot be known about anatomy and pathology, yet it should be remembered that of themselves, they offer only incomplete suggestions as to proper treatments; and equally important physiological and biological needs must be understood and familiarized before functional defects can be perfectly corrected.

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—At the ninth annual meeting of the American Red Cross in Washington, announcement was made of the completion of the $300,000 fund, which was necessary in order to secure the $400,000 appropriated by Congress for the erection in Washington in memory of the women of the Civil War of a building to be used as headquarters for the Red Cross. This assures erection of the memorial at an early date.

Medical Record.

HAIR CAST OF THE STOMACH WITH REPORT OF A CASE.

BY G. A. MOORE, M.D., BROCKTON, MASS.

Of the pathological curiosities found in man, no region has yielded such an abundance as the gastro intestinal tract. The most remarkable of these are the foreign bodies, especially those found in the stomach; an enumeration of which would fill a small volume. These objects vary in size from pins, nails and screws to ketchup bottles and masses of roots and hair weighing several pounds.

With the exception of objects found in the stomachs of professional glass-eaters, knife swallowers, etc., foreign bodies may be divided roughly into two classes: First, hard objects, such as knives, spoons, nails and screws, found almost exclusively in the insane; and Second, those composed of roots, strings, rags and hair, discovered in patients a great proportion of whom are mentally sound.

To this second class of cases and especially to the foreign bodies composed of hair this paper will be limited, including a report of a case.

While these cases are not common, they can hardly be considered of rare occurrence, for after a fairly exhaustive search, the writer has found 53 mentioned in the literature.

The occurrence of bezoars or hair balls in the human stomach might well be used as an argument in favor of evolution, as they are frequently found in animals in the season when the hair is shed. In animals, however, except in certain breeds of Angora cats, serious symptoms are never observed, since the masses are usually much smaller than those found in man, and are firmly felted together, due to the projection of the outer layer of epithelial cells on the hairs. They are frequently expelled in the vomitus or feces covered with a thick coating of food particles and mucus.

In man felted masses are rarely observed, since human hair is much smoother than that of animals. The hairs are loosely woven or matted together with food particles caught in the meshes. It is probably due to the loose arrangement of the hairs, that symptoms of pyloric obstruction are rarely if ever encountered; the food either being filtered through the mass of hair or pushed past it.

Another class of foreign bodies found in sane patients merits consideration. These are the so-called gastroliths or bodies found in the stomach as a result of drinking varnish, shellac, etc., to satisfy a craving for alcoholic drink. The occurrence of gastroliths is very rare indeed as compared with hair balls. Early operation is, however, more frequently necessitated, owing to ulcerations and symptoms of obstruction.

CASE. A. B., 28 years old. Shoe factory worker. Referred to me by Dr. W. H. Pulsifer, Whitman, Mass., March 13, 1912.

F. H. Unimportant.

P. H. Had all children's diseases. Never had diphtheria, pneumonia or typhoid. Always well up to six years ago when she states she contracted syphilis. Bore two healthy children prior to 1906. The first one died of marasmus; the second, of ileocolitis. (Both died at Boston Children's Hospital.)

In 1906 a third child was born which was said to be syphilitic. Since 1906 she has occasionally noticed a rash over her body and sore spots in her mouth, nose and scalp. Has had many self-induced abortions, the last one occurring in December, 1911. Had very severe abdominal pain and high fever following last abortion, since which time she has had considerable pain and burning on micturition and frequent attacks of pain in both lower quadrants of abdomen. Catamenia: Began at 14; always regular and copious. Constant leucorrhea since 1906. Appetite always good up to beginning of present illness. No digestive disorders.

P. I. About Jan. 1, 1912, began to complain of pain in right side of abdomen on level of umbilicus, which frequently radiated over entire right side of abdomen and chest. Pain often so severe that patient was unable to breathe. The pain was never localized in the epigastrium. Soon after onset of the present illness, patient noticed a mass in abdomen just to right of the umbilicus, about the size of an orange, which has gradually increased in size. She has had frequent attacks of vomiting, lasting a few hours, at times before eating, at others, after. Vomitus frequently composed of "white slimy stuff," occasionally dark and frothy. Bowels constipated, no noticeable change of late. Usual weight 115, present weight 96.

P. E. A pale, sickly, emaciated woman, apparently suffering severe abdominal pain. Skin dry and parched, scalp clean, no ulcerations. A few small pigmented scars over left thigh and both tibiae. Pea-sized glands in left cervical region and both groins. Teeth: Upper false, lower in fair condition. Nose normal. No ulcerations. Eyes: Pupils equal, regular and react normally. Tongue clean, mucous membrane of mouth and throat pale but otherwise normal. Nothing abnormal found in lungs. Heart normal in size, sounds normal, except for slight systolic murmur at apex not transmitted. Abdomen: Moderately distended, but lax and tympanitic throughout. Moderate prominence in left hypochondrium. Moderate diastasis of recti. Considerable tenderness without spasm or rigidity over entire right side of abdomen and left hypochondrium. On palpation a very firm, rounded, movable and extremely tender mass was found extending from one and one-half inches to the right of the median line just below the level of the umbilicus to the left beneath the costal margin. The upper border of the mass was two inches below the xyphoid cartilage, the lower border one and one-half inches below the umbilicus, roughly three and one-half inches vertically by six inches transversely. On standing the entire mass sank lower down in the abdomen and extended further to the left. (See Fig. 1.)

In the dorsal position the tumor could be moved to right or left so that the fingers could be inserted between it and the costal margins. Liver dullness normal. No hilum could be felt in tumor. Splenic dullness normal. Kidneys not palpable. On careful palpation over the tumor a sense of crackling or deep crepitation could be made out. Pulsations of

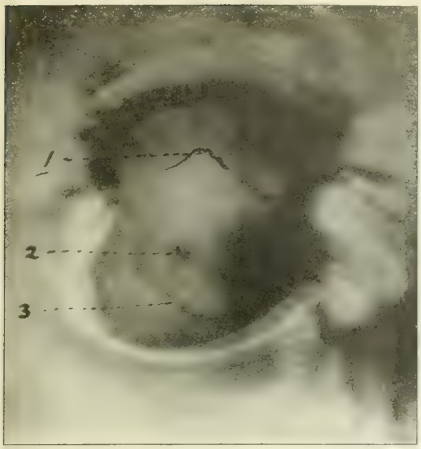


Fig. 1.

Patient standing.

1. Ensiform.
2. Umbilicus.
3. Black line indicating right and lower border of tumor.

aorta apparently transmitted through the mass, no expansile pulsations or bruit.

Vaginal Examination. No cicatrices or ulcerations observed about vulva or vaginal walls, moderate leucorrhea, cervix bilaterally lacerated, uterus normal in size, freely movable, retroflexed into hollow of sacrum. Knee jerks normal.

A provisional diagnosis of tumor of syphilitic origin was made and the patient put on iodides, which were pushed to the limit of tolerance. Under this treatment there was an apparent increase in the size of the tumor and the patient lost ground. Operation, which was at first refused, was finally consented to and the patient entered the Brockton Hospital July 7, 1912.

Physical Examination on entrance was practically the same as four months previously, except that the tumor was larger, extended further to the right and was more freely movable. Just to the right and above the umbilicus was a small area of tenderness. Over no other part of the mass was any tenderness elicited. The stomach was inflated and the lower border found to be two inches below the umbilicus while the upper border was in normal position.

Patient was put on house diet and had no gastric symptoms except a slight attack of nausea and vomiting after eating oranges. This she stated was a common occurrence.

Temperature, pulse and respirations normal. Urine normal.

Blood. Hemoglobin 70% Tallquist, white count 12,000, red count 5,300,000. Smear: Moderate achromia, otherwise normal. Differential count: Polynuclears 63%, lymphocytes 35%, transitionals 2%.

Wassermann and Noguchi reactions strongly positive.

The diagnoses considered were: (1) Mesenteric tumor of specific, malignant or tubercular origin. (2) Omental tumor. (3) Spleen. (4) Kidney. (5) Fecal impaction. Of the provisional diagnoses a malignant tumor of the mesentery seemed the most probable in view of the fact that it had increased in size under forced antisyphilitic treatment. Gumma of the mesenteric glands was the next choice. Omental tumor was thought to be improbable as there was tympany over the entire tumor. Spleen was ruled out by absence of a hilum in the tumor and by the presence of normal splenic dulness.

A kidney would hardly be as freely movable nor would there be tympany over the entire mass. The firm consistency, form and absence of pitting on pressure, ruled out fecal impaction.

The patient's general condition had not improved in the four months she had been under observation, the tumor had increased in size and she still complained of occasional pains in the right hypochondrium. Exploration was advised in the hope of finding an operable condition.

Operation July 19, 1912. Dorsal position, five-inch median incision from xyphoid to below umbilicus. Peritoneum opened revealing normal omentum. Mesentery and transverse colon normal. Nothing abnormal in gall-gladder and ducts. Spleen normal. Stomach: upper border in normal position, lower border about two inches below umbilicus, apparently completely filled by a large, smooth, sausage-shaped mass roughly nodular near the pylorus. Stomach was partially delivered from the abdomen and carefully walled off. Silk stay sutures were then placed in the anterior wall and a three and one-half inch incision made between the stays from the lesser to the greater curvature of the stomach about three inches from the pylorus. Through this opening the tumor, which proved to be a mass of human hair, was delivered. The upper pole of the mass extended up into the esophagus about two inches and the lower pole rested against the pylorus. (See Fig. 2.)

The stomach was carefully sponged out. No ulcerations were found, mucosa was moderately injected. Stomach incision was closed with three rows of Lembert sutures, No. 1 chromic-gut through mucosa and two rows of silk in muscular and serous coats. Abdominal wound was closed in layers with chromic and silk-worm gut.

Convalescence was uneventful and the patient was discharged well Aug. 7, 1912. She persistenly denied ever having eaten any hair. Patient was last seen Sept. 8, 1913. Health has been excellent since operation, except of late she has "occasional attacks of dyspepsia."

The mass of hair shown in Fig. 2 was found to be composed entirely of long, curly black hairs, loosely woven together, between the meshes of which were many food particles. It weighed before being washed and dried thirty-one ounces. For dimensions see Fig. 2.

The odor from the mass was not unlike that of a very ripe Limburger cheese. The patient's hair was light brown and very thin; but according to Bell[1] the prolonged action of the gastric juice on human hair deepens the shade.

In reviewing the case after operation, the chief error in diagnosis seemed to be in discrediting the patient's gastric history on account



FIG. 2.

Tumor suspended approximately in position it occupied in stomach. Scale showing dimensions. P: Pole resting against pylorus. C: Pole extending up into œsophagus.

of her freedom from symptoms while under observation in the hospital. Had a stomach tube been passed, it would doubtless have been obstructed by the mass of hair extending up into the oesophagus. Washing out the stomach, had it been possible, would probably have brought back a few hairs in the wash water as occurred in Hüttenbach's[2] case. X-ray after a bismuth meal would have shown the mass in the stomach. After entrance to the hospital the patient was able to eat anything and was practically free from any gastric disturbance, which led the writer to believe that had there been any symptoms previously, they were of minor importance.

A careful review of the literature on the subject of hair balls was made by Butterworth[3] in 1909 with a brief resumé of the forty-two cases which he found reported. To these cases I am able to add eleven[4] more from the literature, which with my own makes the present number reported fifty-four.

The important conclusions to be drawn from a study of these cases are that:

(1) This is a condition rarely found in men. Forty-eight or over eighty-nine per cent. of the cases were girls or young women, the average age of whom was nineteen and one-half years. This, however, is the age at operation or death. Where the duration of the habit has been carefully inquired into, it has been found to extend over periods varying from two to twenty-two years, which would tend to verify the statement made by many authors that the habit of hair eating is most frequently formed in childhood when the hair is worn loose or in long braids.

(2) Confession of the habit before or after operation, was obtained in less than half of the cases. Therefore, a denial of having eaten hair as in my case is of very little importance.

(3) The prevalent idea that foreign bodies in the gastro-intestinal canal are found only in the insane is erroneous. But six or eleven per cent. of the entire number were mentally deficient or insane.

(4) Nausea or vomiting, though mentioned in but twenty-eight of the cases, probably occurs more frequently, as gastric symptoms are less pronounced, when the patients are kept at rest. Hematemesis, which is considered an important symptom by English writers, is of rare occurrence. In only three, or five per cent., of the reported cases was it observed. Doubtless, this is due to the fact that the masses of hair caused ulceration in but seven cases.

(5) In thirty-nine of the cases a tumor was reported to have been found which was situated in the epigastrium in eighteen patients, in other regions of the abdomen in eleven cases, and the location is not mentioned in ten.[1] These masses are sausage-shaped, very firm, smooth and freely movable.

(6) Of the diagnoses suggested, the spleen seems to be the most frequent offender, being reported in eight cases, malignant tumor in five cases, floating kidney in four cases. Omental tumor, tubercular infiltration, twin pregnancy, hydatid, gumma and cyst of the pancreas are the rarer diagnoses.

(7) The masses of hair vary in size with the duration of the habit and the amount that has been passed in the stool. The largest reported by Mermet D'Hautville[5] weighed six pounds, the smallest two and one-quarter ounces, Thorburn's reported by Pell-Ilderton[6].

Prognosis apparently is uninfluenced by the size of the tumor, the mortality being as high in the cases where large masses are found as in those where only a few ounces had been ingested.

(8) Regarding treatment of these cases, little need be said. Statistics, especially of the earlier cases, prove conclusively the futility of expect-

ant methods. Of the twenty-two cases treated without operation, nineteen died, a mortality of eighty-six per cent. Three vomited masses of hair or passed hair in the stools and recovered.

Twenty-eight patients were operated upon with two deaths, a mortality of seven per cent. In the two fatal cases, the masses of hair had passed into the small intestine and caused obstruction. In four of the cases treatment and result are not mentioned.

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THE WORKMEN'S COMPENSATION LAW AND THE PHYSICIAN.*

BY HON. JAMES B. CARROLL,

Chairman, Massachusetts Industrial Accident Board.

As the Workmen's Compensation law has worked out, it is quite evident that the provision which provides for "reasonable medical and hospital bills" for two weeks is unsatisfactory from many points of view. This waiting period of two weeks was originally intended to stop malingering, and fraudulent claims for disability. But it has been shown to the Industrial Accident Board in many ways that when there is a real disability, it is a great hardship for the injured employee to have to wait two weeks before his compensation begins, and this has already brought great suffering to the families of many injured workmen.

In addition to this, it is also manifest that in many cases the two weeks medical attention, which is all that can be legally claimed, is not sufficient in all cases. Only injuries of minor character can be cured in two weeks, and when men are seriously injured and require the attention of a nurse and a doctor more than two weeks, the law is entirely inadequate to fit such cases. In many cases it is quite conceivable that the injured workman might receive compensation at the maximum of $10.00 a week, and still not receive enough to pay his doctor's bill, and that this law, which was intended to relieve the families of workmen injured in industry, would operate to bear down very hard upon them.

But in all these cases, if the medical profession and the public generally will realize the importance of the question, we hope to be able to present the defects of the law to the Legislature in such a manner as to bring relief.

The original medical problems arising under the Act have been at least partially solved by the selection of a committee of seven representative physicians, who from a patriotic desire to benefit the industrial classes primarily benefited by the Act, and to place the medical profession in a proper attitude towards it, have untiringly and unselfishly spent a large amount of time in working out this matter.

That medical matters relating to the Act, under consideration by the Medical Advisory Committee, have been finally settled, cannot, however, be claimed. The desire for dividends, at whatever cost, on the part of certain insurance corporations, and the fact that there are undoubtedly some physicians who are greedy to take advantage of the Act, in order to get fees which they otherwise could not hope to obtain, will probably continue to make trouble. But, happily, the road has been cleared towards an understanding, which we hope will prove satisfactory all around.

When the Act was passed there was no doubt that a majority of the physicians of the State felt the Act was an unwarranted infringement of their rights, and at the meeting of the physicians at the State House, with the Industrial Accident Board, the hostility on the part of the majority of the physicians was only thinly veiled, only to end up with a better understanding all around, and a more charitable appreciation by the physicians that the Industrial Accident Board understood the rights and obligations of the profession.

At this meeting, and in its subsequent actions, the Industrial Accident Board has tried to show that it considers only the best interests of the physicians, and that in the long run, any solution of this matter, which does not satisfy the honest physician who is ready to deal squarely with this subject, cannot be a satisfactory one.

Contract Physicians. When it can be shown, as in one city, that the work formerly done by four or more physicians and paid for at the rate of $5,000 a year, is turned over to one physician, at the rate of $1,200 a year, the contract system, as a whole, cannot justly be defended. Even if it can be shown that the contract system of treating injured employees may work out satisfactorily in rare cases, as a rule it is bound to create trouble. The injured workmen will not, in the majority of cases, receive as satisfactory or skilful treatment, and even the principal object sought by the insurance company favoring the contract system, to wit: The reduction of the cost of medical services, will be a failure, because in the end things of this kind which are cheap, are likely to prove more costly.

Benefits. The medical profession was benefited by the Workmen's Compensation Act in many ways. From the standpoint of money, it

* Read before the Worcester District Medical Society, Sept. 10, 1913.

can be shown that the doctors will get more for services to injured people than was paid out for all kinds of claims, under the former Employers' Liability Act.

But the money in this matter is the least important consideration. Workmen's compensation is only the beginning of a chain of laws to insure workmen against accidents, disease, and ultimately, perhaps old age, and even unemployment.

It is easy to conceive with the progress of these laws, unless properly safeguarded, they may result in the practical enslavement of the medical profession to a bureaucracy created by legislative act. The recent history of certain European countries will bear this out. The Industrial Accident Board has foreseen the possibility in such laws, and this is the reason why such extreme care has been taken that the initial steps in planning procedure shall be along lines approved by the profession generally.

In criticizing the inevitable mistakes of the Board, or of the Medical Advisory Committee of seven, chosen by the medical men themselves, doctors should not forget that the Board and this Committee have always kept in view the ideal of the future of the medical profession who, when things work out as planned, will be left free from the bureaucratic trammels and retain all the rights of which, in the progress of social laws in European countries, in large measure they have already been deprived.

Fees. It seems to the Industrial Accident Board, and to the medical men who have been assisting them in trying to solve the medical problems of this work, that it will be absolutely necessary shortly to agree that the medical fee table shall be put on an industrial basis, and once the principle that industrial accidents shall be classed on an industrial basis, different from the fees in private practice, is established, the whole question of fees will gradually be settled.

Hospitals. In regard to patients who are treated in hospitals, the present law is full of contradictions, and there are many questions to be decided. The injured workman taken to his home is entitled, by virtue of the agreement which the Board has worked out with the insurance companies, to send for his own doctor, but is not entitled to any reimbursement for his board or care. If he goes to a hospital, in ordinary cases the doctor is not entitled to any payment for his services, but board and care are paid for by the insurance company. Many of the hospitals in Massachusetts are charging the insurance companies for the board and care of injured workmen, an amount less than it actually costs them for food.

The Industrial Accident Board is now arranging a conference with hospital superintendents, at which conference charges for hospital services to injured workmen shall be determined, and also the rights of the staff physicians to charge fees to injured employees.

In addition to this, an attempt will be made to define the proper procedure in regard to making employees who are injured, private patients. And it is to be hoped that this conference will result in some kind of an agreement as to the principles of justice which are governing these matters.

THE PASSING OF PARANOIA.*

BY JOHN B. MACDONALD, M.D., HATHORNE, MASS.,

Assistant Superintendent, Danvers State Hospital.

IN the Kraepelin sense paranoia may be regarded not as a disease process but a variety of psychical mal-development showing itself in a morbidly perverted reaction to the problems and affairs of life. Or, to use the words of Meyer, "it is the fulfilment of a fate of peculiar make-up." The disease-picture, if we may apply the term to a condition which is but the expression of an anomaly dependent upon evolutional forces, limits the application of the name true paranoia to a type of individuals perhaps more commonly met outside than inside the walls of institutions. Adhering strictly to Kraepelin's conception we would expect them, for the most part, to be able to adjust themselves after a fashion to their environment, without serious conflict, though often perilously near it.

Briefly stated, as I understand them, the characteristics of true paranoia are delusions representing an unfolding and elaboration of thought processes normal to the make-up of the individual, distinguished by a perverted but clear logic, contact with reality, and originating from actual occurrences; a chronic, incurable course, unyielding faith in, though not necessarily fixity of, the delusions; absence of intellectual impairment and perfect retention of the integrity of the personality.

Upon this hypothesis the task of classifying the true paranoiacs among the insane in institutions is beset with extreme difficulties and perplexities. To determine with any assurance of correctness a diagnosis of this kind in the early stages of a psychosis, one needs not only a clear insight into the nature of this abnormality of mental make-up, a knowledge of the changed opinions on the problem, the variety and number of which indicate they are but stages on the road to a more complete understanding of the subject, but also hindsight and foresight beyond the ordinary endowment of mortals. In determining the existence and value of a peculiar trend arising from make-up as a factor, and in prejudging and fortelling the absence of intellectual impairment and the retention of the integrity of the personality in advance of the prolonged and chronic paranoiac career, the prac-

* Read at a meeting of the New England Society of Psychiatry September, 1913. Danvers State Hospital Contributions, No. 45.

tice of psychiatry becomes a decidedly more intricate and delicate business than the toughest sort of theorizing.

The wealth of material available for study in the case records of the Danvers State Hospital, and the method of case-indexing carried on there for years, offer a fine opportunity for checking up end-results in just such cases as these in the diagnosis of which terminal conditions play so important a part. For the purposes of this meeting we have made a somewhat hurried study of cases diagnosed paranoia and entered as such upon our index-cards. The series undergoing this review comprises all cases so classified since the year 1884, a period sufficiently long in most cases for the detection of deterioration, or developmental symptoms not in accord with Kraepelin's definition. The result of this review by present-day standards of classification is anything but encouraging to one ambitious of attaining to that degree of skill in psychiatric diagnostics involving the power of prophecy. From another point of view it is interesting when considered in relation to the different conceptions of paranoia prevailing at different periods, the incidence of cases for a certain series of years varying according to the trend of psychiatric thought of the time, and marking off quite distinctly the stages of development of our present-day notion of paranoia.

In the twenty-nine years under review the number of admissions primarily classified as cases of paranoia was 51. In the first 15 years of the period we find only three cases, admitted one, each, in the years 1884, 1888, and 1899. The following four years, 1900 to 1903 inclusive, are remarkable by reason of the great increase of cases under this classification, the number comprising 37 or 72.5% of the total for the twenty-nine years. This increased incidence corresponds fairly exactly with the period when the Kraft-Ebbing conception of paranoia was orthodox doctrine. Hallucinations formed an important part in the disease-picture of this time, and mental deterioration, while not considered an integral part of the pathological process was not at all uncommon, the prognosis in this respect being uncertain, depending upon what was considered the accidental development of intercurrent diseases, mania, melancholia, etc., to which it would seem this class of cases was regarded as particularly susceptible.

The influence of the Kraepelin school is seen in the markedly diminished incidence since 1904, —a total of 11 cases for the years 1904 to 1909 inclusive, and the latter year marks the last appearance on our records of a case under this classification.

Of the total 51 cases originally placed in this group, the later histories of 35 show the development of symptoms, or a termination, inconsistent with the primary diagnosis. Of the remaining 16 cases five were under observation for periods not exceeding one year, and four not exceeding two years. In these cases the lack of an adequate after-history following their removal from the hospital renders it expedient to consider them apart as cases where clinical judgment must be suspended for lack of evidence as to their final condition.

We have thus a clear margin of error of 68.6% in the original classification, and ruling out cases not sufficiently long under observation the number of "possibles" determined is reduced to 7 or 13.7% of the total originally classified as cases of paranoia.

In the re-classification of the 35 cases showing the development of symptoms or a termination inconsistent with the paranoia concept, evidence of deterioration was found in 30 cases, or 85% of the number. Of these, probable dementia praecoxes and paranoid conditions comprised the majority. Five cases of the group recovered, one being an acute paranoic condition, two manic-depressive and two alcoholics.

Hallucinations formed a part of the disease-picture in all but three cases of this group. Two of these three presented conditions of beginning apathy and deterioration at admission and the previous history as respecting hallucinosis was inconclusive. In only one of the whole group could it be said with any degree of certainty that hallucinations were non-existant at any stage of the psychosis.

On the other hand in the total of seven "possible" cases hallucinations were definitely determined in only one case. Even here the question of the existence of hallucinations, and the diagnosis, may be open to doubt, the patient being a person of criminalistic tendencies who excused his acts in this connection on the ground that he was driven to them by the promptings of a devil which resided within him and urged him on by audible commands when the opportunity of gain by breaking, entering and stealing was favorable. Strong ideas of reference and illusional misinterpretations gave a pseudo-hallucinatory coloring to the picture in another of these cases.

Summing up our findings by this review of case histories, attention is directed to the relationship between the incidence of cases and the stages of development of our present-day conception of paranoia; the large margin of errors in the classification of early years when the question of prognosis and the study of life histories formed an insignificant or unimportant factor in diagnosis, the rapid decrease in number of cases on record coincident with the acceptance of Kraepelin's idea of absence of intellectual impairment as an essential condition of the picture down to the more recent years when the psychiatric trend seems to have caused "the passing of true paranoia" from the list of the common psychoses. Of equal interest are the findings in relation to hallucinosis, the prevalence of this symptom at some stage of the psychoses in those cases with a mistaken classification of paranoia, and its practical absence in those where the original diagnosis was sustained.

Clinical Department.

REPORT OF A CASE OF BRACHIAL NEURITIS DUE TO PERIOSTITIS OF RIB.

BY R. W. FRENCH, M.D., FALL RIVER, MASS.

THE following case seems interesting because of its rarity and the fact that the condition escaped unrecognized for many years.

The patient, a woman of forty, single, a native of Canada, presented herself at the Highland Hospital, Fall River, for treatment. Her family history and past history were both good. Her present trouble began fifteen years ago and has consisted solely of pain in the third finger of the left hand. It was of very gradual onset, soon became persistent and steadily increased in severity. There was no history of injury nor was there any reason to suspect that her occupation, a dressmaker, contributed to the cause.

For five years she had not worn a glove on the affected hand, inasmuch as contact of the finger tip with any object caused acute pain, as did also gently tapping the end of the finger. Motion of the finger, however, caused no added discomfort.

For the past three years it had been severe enough to keep her awake unless she took aspirin. At first five grains were sufficient, but at the time that she entered the hospital, it required fifteen grains to control the pain so that she could obtain sleep. She was never awakened by the pain.

Various local treatments and internal medications had been tried, and section of the digital branches of the median nerve along the sides of the finger had been proposed.

Local examination was negative, except for acute pain which was caused by tapping the finger tip. In the routine physical examination, however, a small, hard, fixed mass was found just above the left clavicle. It was not tender, but pressure on it increased markedly the pain in the finger. Physical examination was otherwise not remarkable. X-ray examination excluded the possibility of a cervical rib and showed a faint outline of the mass, apparently connected to the superior surface of the first rib.

At operation an incision was made over the mass and dissection carried down to the brachial plexus, one trunk of which was found resting upon an indurated nodule, 2 c.m. in diameter, involving the first rib. The nerve trunk was retracted and the nodule together with a portion of the rib, 3.5 c.m. long, was resected. Subsequent examination of this specimen showed a periostitis. Her convalescence was rapid and uneventful.

She reports now, a year following the operation, that she has had no recurrence of the pain in her finger, and feels perfectly well.

—The secretary of the Michigan State Board of Health has informed the health officer of Benton Harbor that the state has no provision for the care of lepers and cannot, therefore, assume responsibility for Jacob Goldstein. There is no state institution to which Goldstein can be admitted.

Jour. Am. Med. Asso.

Medical Progress.

PROGRESS IN GYNECOLOGY.

BY STEPHEN RUSHMORE, M.D., BOSTON.

FASCIA TRANSPLANTATION.

FREE fascia transplantation in plastic operations is a procedure which has proved of value in a number of applications. Ach[1] has employed it successfully in fixation of the rectum and of the kidney.

In the treatment of floating kidney the steps of the operation are as follows: A vertical incision is made over the edge of the sacro-lumbalis eight to ten centimeters long, exposing the kidney. The necessary displacement is easy. A longitudinal incision is made on the posterior surface of the kidney through the capsula fibrosa, followed by a similar incision on the anterior surface. The capsule is then freed from one incision to the other over the convexity of the kidney by blunt dissection. A strip of fascia from the fascia lata, six centimeters wide and twenty centimeters long, is then drawn under the fibrous capsule from one incision to the other, and the two incisions are closed, perforating the strip of fascia with the closing sutures. The kidney is then restored to its place and the two projecting flaps of fascia are attached respectively to the deep and superficial layers of the lumbo-dorsal fascia. Ach has employed this method in ten cases; all gave anatomical cures, nine symptomatic. The tenth case was a hysterical individaul, who was improved, however.

Ach's experience with rectopexy by this method is limited to one case, but the result was satisfactory after nine months, rather a short time to claim a cure. The method is ingenious and worthy of note, for while the principles of plastic operations may be few and fixed, the practice must be adapted to the individual case, as perhaps in no other department of surgery.

A transverse abdominal incision was made, with considerable elevation of the pelvis. Strong traction on the pelvic colon exposed the cul-de-sac. A wide incision was made around the rectum, freeing that organ down close to the sphincter, especially anteriorly. A strip of fascia lata was then taken, eight centimeters wide and twenty-five centimeters long. Of this one end was split to make two flaps which were attached low in the pelvis. One of these flaps was passed almost circularly around the rectum, to which it was attached by numerous sutures. The other flap was passed low down between the bowel and the vagina and sutured by its free border to each organ. In order to avoid adhesions, the upper end was passed upward, external to the peritoneum, which was dissected free, over the right ureter and through the right broad ligament. Drawing it up to lift the

vagina and rectum as far as possible, it was sutured laterally to Cooper's ligament, and its free end was sutured to the muscle of the abdominal wall. The result immediately and after nine months was good, in spite of the condition of the pelvic floor, which had not been operated on otherwise.

Although free fascia transplantation to close a vesico-vaginal fistula was first suggested by Koenig, there appeared no report of its use until the case of Schmid was published.[2] Schmid employed it in the third operation to close a vesico-vaginal fistula, which occurred after a radical operation for carcinoma of the cervix. The two persistent openings were small, close together, and about in the median line, with considerable scar tissue on both sides. After the usual denudation, the bladder mucous membrane was closed transversely. A rectangular piece of fascia lata, three centimeters by two, was then sutured between the bladder and the vaginal mucous membrane, attaching it by four cat-gut sutures under as much tension as possible. The vaginal mucous membrane was then closed as well as possible, making lateral incisions to loosen the tissues. A retention catheter was left in the bladder until the eleventh day. The wounds healed, giving no trouble with bladder or thigh. The method suggests itself as applicable to those cases of small fistula in which the first operation fails, and as the operation of choice, from the first, in all large fistulas.

ESSENTIAL UTERINE BLEEDING.

In spite of numerous studies and reports of many cases, there is as yet no unanimity of opinion among gynecologists as to the so-called "essential uterine bleedings."[3] "Sclerotic changes" in the blood vessels are often referred to as a cause, but these are due to a physiological process and are not to be confounded with true arteriosclerosis. The old view set forth by Ruge and Veit, and accepted for years, was that endometritis is an important cause of uterine bleeding, for the cases were cured by curettage and microscopical examination showed a hyperplastic condition of the endometrium. But the large number of cases which were not relieved by curettage, or in which no hyperplasia was found, or in which no bleeding occurred, even though hyperplasia of the endometrium was present, suggested the probability of the views expressed by Hitschmann and Adler and by others. Recently renewed interest has stimulated a large number of studies of the subject, the results of which have modified the prevailing opinion, so that now the view is that in the great majority of menorrhagias and metrorrhagias endometritis is not an etiological factor.

The hypothesis of a local hemophilia or of a disturbance of relationship between the glands of internal secretion, has no clinical nor anatomical basis. Since normal menstruation is dependent on the presence of the ovary, there arose naturally the theory that disturbances of menstruation were due to disturbances of ovarian function. But no generally accepted basis for this connection has been found. If a series of cases of ovarian tumors is studied and compared with normal cases with reference to the question of bleeding, there is found no anatomical basis for the correlation of bleeding to ovarian changes. In general, as is well known, the hemorrhages occur most frequently about the time of the menopause, when the function of the ovaries is rapidly diminishing. If hypersecretion or hyperfunction of the ovary were the cause of uterine bleedings it is extremely improbable that it would occur about the menopause rather than at the time of greatest sexual activity.

Hirsch claims that while the chief factor in uterine bleeding is defective contraction of the uterine muscle, another important factor is involved. This is a hyperemia which affects not only the uterus but the whole pelvic area. The condition of the uterine musculature which renders its strength inadequate for the blood content of the uterus, that is, insufficient to withstand the blood pressure and drive the blood on through the pelvic circulation to the heart, may be spoken of as uterine insufficiency.

Against this theory of uterine insufficiency is the fact that typical changes in the endometrium or myometrium are not found. But such typical findings are not necessary for proof, for the weakness is not absolute, but relative, there is simply a disproportion. In the presence of a typical anatomical picture there would be no bleeding if no hyperemia occurred. Even in almost complete degeneration of the uterus into connective tissue, as in the senile state, hemorrhages do not necessarily occur. Only slight bleedings occur if hyperemia is absent, as in anemia, chlorosis, general adiposity, chronic intoxication and all wasting diseases.

Hirsch describes normal menstruation as follows: There is hyperemia of the uterus and other pelvic organs due to an ovarian hormone, leading to diapedesis and bleeding. Before it becomes considerable, uterine contractions set in and the bleeding often diminishes or even ceases for hours, the uterine contractions being perceptible to the patient as "drawings" in the abdominal or sacral region. Insufficiency of uterine contraction or of the uterine muscle occurs if there is a maladjustment between the blood content of the uterus and the strength of the uterine musculature. This means simply that hemorrhages are due to functional disturbances of the uterine muscle based in the majority of cases on anatomical changes in the uterine wall. Such changes, however, may be entirely lacking. Uterine insufficiency is thus exactly analogous to uterine atony found in the so-called chronic metritis in which the hemorrhage is due to functional disturbances and not to anatomical impairment. In the case of bleeding from the subinvoluted uterus, we find very well developed musculature, but it is unable to control the

marked overfilling of the puerperal uterus with blood.

In the study of the hemorrhages in virgins, anatomical investigations are not possible, as the patients do not die, or if death does occur, hemophilia cannot be excluded. But even from the hypoplastic uterus hemorrhage does not arise if the general condition of the body is so poor that the usual stimulus at menstruation is insufficient to cause hyperemia. If, however, hyperemia occurs and the uterine muscle is too weak to resist the pressure of blood by contracting, hemorrhage takes place.

Schickele's view that changes in the metabolism of the ovary affect the coagulability of the blood in the uterus, Hirsch does not accept. Therapeutic tests indicate that no such hypothesis is needed, for the usual means of checking hemorrhage are such that in no way can they affect the ovarian metabolism. These measures are in fact only variations in the means of stimulation of uterine contractions.

Among drugs ergot is the most important in producing contractions, and it should be injected directly into the uterine muscle. The effect is astonishing and not exactly comparable to subcutaneous or oral administration. Often one injection is sufficient, the contraction lasting for several hours (2-3-6-7). Occasionally the injection has to be repeated on several days.

The treatment is indicated in nearly all cases of bleeding from uterine insufficiency, and in the past three years Hirsch has employed it in about two hundred cases. There are certain contraindications, as in the case of young girls in whom local treatment is not advisable. In most myomata there is danger of necrosis and infection, but small, interstitial myomata present no contraindication. In all acute inflammatory conditions of the uterus and of the appendages ergot is to be avoided, and especially in malignant disease and in extra-uterine pregnancy. In postpartum atony with hemorrhage the injection into the tissue of the cervix is far safer than packing the uterus or applying the Momberg belt.

The technic is as follows: The portio is exposed and disinfected. It is then grasped with a hook or bullet forceps and an injection is made with a sterile syringe deeply into the muscle of the portio, introducing the needle parallel with the surface of that organ, and using one-fourth. one-half or one gram of ergot preparation. If the injection is made as directed, large uterine vessels are avoided, and thus faintness, nausea and vomiting, which occur if injection into vessels takes place. Following the injection the patient should lie quiet for a while.

CARE OF THE WOUNDS IN THE RADICAL OPERATION FOR CANCER OF THE CERVIX.

The general line of procedure in the radical operation for cancer of the cervix would seem to be for the present fairly well established. The results, however, are not satisfactory for the mortality is high in spite of the marked improvement which has been evident in the more recent reports as familiarity with the operation has increased. A large proportion of the deaths have been due to infection, arising in the pelvic or abdominal wounds and causing fatal peritonitis. Bumm[4] presents the method used in his clinic to obviate this danger. It is worthy of careful consideration on account of its evidently wise provisions and also because of the reduced mortality, which in a series of one hundred cases reached only six per cent. With the exception of the care of the wounds the procedure is the same as that previously employed, and the operability was practically unchanged (65%).

This gratifying result, which Bumm says a few years ago he would have regarded as impossible of attainment for the radical operation, he attributes chiefly to the treatment of the pelvic wound, namely, the complete rejection of the use of drains and the complete closing in of the peritoneal cavity. Infection is sometimes unavoidable, but, by the complete closure of the peritoneum the danger of infecting its cavity is markedly reduced. The objections to drain are well known, the chief one being that they do not drain. Gauze as a pack to check oozing which there is not time to check by sutures, is useful but dangerous.

The important points in Bumm's technic may be noted briefly. Operation on febrile or subfebrile patients is avoided, if possible, but not refused, as the danger of post-operative complication is greatly increased if infection is already present. The carcinoma is curetted and cut away and thoroughly cauterized with the thermo-cautery, which latter process will sometimes considerably reduce the size of the mass, through contraction due to drying out by the heat. The vulva and vagina are disinfected with an alcohol-sublimate solution and the vagina is treated with a 10% solution of silver nitrate until the mucous membrane is of a gray-white color. Finally a gauze tampon wet with the silver nitrate solution is left in the vagina until just before it is cut across from above.

During the abdominal operation protection against infection is careful. The wound surfaces of the abdominal wall are covered with gauze tacked in place by sutures. The high Trendelenburg position is employed, with large gauze compresses to wall off the general cavity, which compresses are not changed until they are removed at the end of the operation. The instruments are frequently boiled, the gloves washed in running water, and finally the escape of carcinomatous material on cutting into the vagina, is prevented by a special clamp.

The thorough vaginal disinfection has perhaps shown its value in eleven cases, in which the carcinoma thinned by curette and cautery was torn into or through, during the abdominal operation, with apparently no bad results. Formerly this accident was regarded as of ominous import.

Of importance equal to the disinfection is the complete hemostasis, with needle and suture, and avoidance of injury of neighboring organs. As a rule the areolar and adipose tissue from the bifurcation of the iliac artery almost to Poupart's ligament and down to the stump of the uterine artery is removed with the glands. Suturing of the iliac artery or vein, if injured, is preferred to ligation, and has been entirely adequate in Bumm's few cases of this accident. The ureter is less frequently injured than formerly and Bumm prefers ligation if it should for any reason be cut across too high for implantation into the bladder.

The treatment of the pelvic wound is, after complete hemostasis, to suture the peritoneum and of bladder and rectum to the vagina. This closes in two large raw areas. Then the raw areas laterally are closed in by running sutures, or, if there is tension by interrupted sutures. Care should be taken to see that no dead spaces are left. There is then run a catgut suture from one infundibulo-pelvic ligament to the other, low down in the pelvis, approximating the peritoneum of the anterior and posterior walls just above the first line of suture. Thus the general cavity is closed off from the vaginal vault.

Bumm mentions numerous other minor but valuable points in the technic, for a description of which the original article must be consulted.

SARCOMA AND THE X-RAY TREATMENT OF MYOMATA.

When the conservative treatment of myomata was introduced, the question of operation on account of fear of sarcoma was raised for the first time. It has of late again come into prominence chiefly through the opponents of the x-ray treatment who have pictured the situation in dark colors. They say that every patient with sarcoma is lost without operation and nearly every patient operated on is saved. But before these dicta can be accepted and before the matter can be decided, several questions have to be answered, according to Miller.[5]

1. Are sarcomata as frequent among myomata as the opponents of the x-ray treatment claim?
2. Are sarcomata so difficult to diagnose?
3. Are practically all sarcoma patients saved by operation?
4. Is it not possible that sarcomata may be healed by x-ray or at least controlled and restrained?

To these questions just such answers as we would wish are not at hand, because the number of cases operated on far exceeds the number of cases treated with the x-ray, and the time of observation for the latter group of cases is too short. But a study of the literature will throw light on some of the points under discussion.

The percentage of frequency of sarcoma in cases of myoma is about two, judging from statistics based on nearly eighteen thousand myoma cases. The results of radical operation in myoma cases show a collective mortality of between four and five per cent., while the results of operation in sarcoma of the uterus show at best not more than 25% of cures.

In regard to diagnosis there is little to be made out in the early stage of the disease, for then differential diagnosis of malignancy is practically impossible. So that on this point the literature may be studied to advantage to see from the histories what cases would have been treated by x-ray and thus the diagnosis have been overlooked. From the cases subjected to this test, there were first excluded all frank cases of sarcoma of the cervix, chorionepithelioma and carcino-sarcoma as they do not come into the group considered, and for the same reason cases under twenty-five years of age. One hundred and eighty cases were found reported in the literature and were considered in some detail. The histories were subjected to the judgment of Professor Koenig who applied the tests now in force at the Freiburg clinic.

Of one hundred and eighty cases, 55, or 30.5% were considered suitable for x-ray, 64.4% not suitable, and in regard to 5% a decision could not be made on account of the defective history. The actual error of diagnosis was found from the various tables which are given to have been 43.2% per cent. Now since sarcoma occurs in about 2% of the myoma cases, the error of diagnosis would be for all cases approximately .8%. This then represents the mortality which could be directly traced to sarcoma developing in myoma cases subjected to x-ray treatment. Recalling then the collective mortality of myoma operations of from 4 to 5%, and the percentage of cures of sarcoma operated on as only 25, it is seen that there is good reason for stating emphatically that the fear of sarcoma should not be a determining factor in deciding between x-ray and operative treatment for myomata. The decision should be made on other grounds.

SUGAR IN THE TREATMENT OF INFECTIONS

The principles underlying the use of sugar in dealing with bacterial infections Kuhn has published previously [6, 7]. They would seem to deserve more attention than they have received. In recent articles[8, 9] Kuhn briefly reviews the essential parts of what he has written before, and applies the principles to gynecology and obstetrics. The acidity of the vaginal secretion is connected with its bactericidal action, for as the acidity is diminished this action decreases. The acidity is due chiefly to the presence of lactic acid, but the anti-bacterial action is due chiefly, not to the lactic acid, but to biological processes, of which lactic acid is an end product. For bacteria produce acid, that is to say cause fermentation, or produce alkali, that is to say, cause putrefaction, according to the kind of food they have. It is the presence of some carbohydrate

substance in the vaginal secretion which makes possible the production of the lactic acid. If sugar, then, is introduced into the vagina, it will increase carbohydrate decomposition, decrease proteid decomposition, as most bacteria show a preference for the carbohydrate, and by its presence change over the pathogenic bacteria, temporarily, at least, into harmless saprophytes. Sugar has also a distinct antiseptic action in strong solutions and rapidly causes bacterial degeneration in weak solutions.

In obstetrical cases, a prophylactic use of sugar solutions might be made, increasing the resistance of the birth canal to infection, by physiological processes. During the puerperium, in any case in which intrauterine douches are indicated, the introduction of a sterilized solution of sugar, 25 to 50% in strength, would perhaps prevent uterine infection. Through osmotic action a free flow of lymph would be set up into the cavity of the uterus; by this the products of bacterial action would be neutralized, and the metabolism of any accessible germs would be so changed that they would no longer produce harmful toxins, but simply cause fermentation. Kuhn does not report results as shown by the treatment of cases, but the basis of treatment is well founded. Clinical results in several conditions are reported by others.

Prager-Heinrich[10] calls attention to the excellent results which have been obtained in the treatment of leucorrhea by means of "xerase," which consists chiefly of sugar and yeast. The treatment with a dry powder has given better results than douches or moist tampons. The cervix is exposed and the vagina is dried as thoroughly as possible. The powder may be introduced by a "powder blower," which is rather time consuming, or by means of a long handled small spoon, or just "shaken in." The powder is kept in place by a tampon. The next day "camomile tea douches" are given, but any mild astringent might be employed. Any form of leucorrhea can be benefited and even acute gonorrheal infection is amenable to a course of these applications. The per cent. of failures (all kinds of cases) as given by Prager-Heinrich is small, 7%.

There is an especially troublesome form of discharge which can be relieved by the use of sugar, namely, that from inoperable cancer of the cervix. Here Berczeller[11] has employed powdered sugar, introduced through a tubular speculum. The vagina is half filled with sugar, which is kept in place by a tampon of iodoform gauze. The treatment may be repeated daily or less frequently as occasion demands up to once a week. The foul odor and the discharge quickly disappear, the bleeding diminishes and the patient's general condition improves.

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PRESIDENT'S ADDRESS.

In all organic life there exists two principles for action, viz., desire and fear; desire showing itself as a tendency on the part of the individual to acquire for himself what is beneficial, and fear a tendency to avoid, by whatever means possible, what is harmful. There soon become associated with these two motives, the emotions of pleasure and pain. As evolution proceeds, these two motives become enormously elaborated to form instincts, and through all the instincts, one or both of them can be found. With the development of the intelligence, the instincts become very much checked and modified, so that desire shows a constructive purpose and fear becomes sunk in the unconscious, showing itself chiefly as prudence. Human personality is a combination of the instincts with fear and desire back of them, modified by the checks of the intelligence, but the fundamental motives can always be detected, and man, however much his primal characteristics may be hidden by the teachings of his intelligence, nevertheless remains essentially an egotistic individual. This can be shown by analysis, in his ordinary actions, and becomes very evident under any circumstances which accompany an unhinging, temporary or permanent, of his intellect. Thus, under the stress of violent emotions, of fatigue, of physical disease and especially of mental disease, the teachings of the intelligence are more or less lost sight of, and a man reverts or regresses to earlier types of behavior. Under these circumstances, he shows various phases of the evolutionary stages through which the race has passed.

PRESENT STATUS OF NEOSALVARSAN IN THE TREATMENT OF PARASYPHILIS OF THE NERVOUS SYSTEM.

DR. EDWARD D. FISHER, New York: Since the finding of the spirochetes in the brain and cerebrospinal fluid in general paresis and tabes the term parasyphilis must be discontinued. All diseases of the nervous system due to syphilis are due to the same active agent which is the cause of the pathological changes both in cerebrospinal syphilis and in the more chronic manifestations formerly classed under the head of parasyphilis. The discovery of the spirochetes gives us a rational basis for the use

of neosalvarsan. The question arises: What is the relative efficiency of this remedy in the later manifestations of syphilis of the nervous system, i.e., in tabes and general paresis? In my experience the hopes raised by Prof. Ehrlich's discovery have not been fully realized and can not be. We have only to consider the pathological changes in these diseases to understand the reason why. We have, however, with the Wassermann reaction test a rational plan of treatment in the use of neosalvarsan and mercury with iodides. As we find the Wassermann test negative we can stop our medication and resume it as it becomes again positive. It is certainly rational to remove the active agent of disease, as we can by the use of neosalvarsan, and thus prevent further extension of the disease. In the light of our present knowledge, we are in a position to make an early diagnosis, and the importance of beginning treatment early is emphasized. The importance of being conservative in our claims for this most valuable remedy should be emphasized as it must be many years before we can know whether its early employment, *i.e.*, at the time of the initial lesion, prevents the later manifestations of syphilis of the nervous system.

DISCUSSION.

Dr. Joseph Collins, New York: I find myself accord with Dr. Fisher in regard to the necessity of once now and forevermore dispensing with the terms parasyphilis and metasyphilis. I am not sure that we all recognize a fact which seems to be a fact, namely, that when face to face with tabes and general paresis and what is known under the term of meningeal syphilis, we are not dealing with a nervous disease, but dealing with the disease syphilis. I understood Dr. Fisher to say that the spirochetes are found in the cerebrospinal fluid. I supposed that they had never been found in the cerebrospinal fluid.

Dr. Philip Coombs Knapp, Boston: The clinical and pathological distinction thus far justify the division into ordinary syphilis and parasyphilis and this a convenient distinction which I think might still be held. In regard to the use of neosalvarsan and salvarsan my experience has been that there is a good deal still in Ehrlich's original claim that in syphilis of the nervous system the results are not so likely to be beneficial as in the early stages of syphilis manifesting itself in other organs of the body. Experience both with neosalvarsan and salvarsan in syphilis of the nervous system has not, on the whole, led me to believe that we have gotten so much more than we had in the use of mercury and iodine. In the last two months I have been trying the intraneural method and thus far the benefits of the method seem to be uncertain and possibly not of sufficient value to warrant the increase of danger that accompanies the use of that method.

REPORT OF A CASE OF JUVENILE TABES.

Dr. C. Eugene Riggs, St. Paul: A boy seven and a half years old, no luetic history in either parent, no symptoms of hereditary syphilis began to have gastric crises when about ten months old; they now occur every three months. Marked ataxic gait, muscular weakness, knee and Achilles jerks absent. Positive Wassermann in blood serum and spinal fluid; no lymphocytosis, no globulin excess.

DISCUSSION.

Dr. Philip Coombs Knapp, Boston: Cases of juvenile tabes are so rare that it seems permissable to speak of a case now in my wards, which, altho not confirmed by autopsy, seems to me probably a case of juvenile tabes. A girl of 16 of whom nothing can be learned in regard to her family history. At the age of five she was run over and her head injured, suffering several scalp wounds and being unconscious for a day. After that there was no trouble at all until the age of eleven, when her sight began to fail. At the age of twelve she had lost vision completely. Someone examining the eyes found optic atrophy of the so-called traumatic origin. There had been a history for one or two years of typical tabetic pains, sharp, shooting pains of brief duration. On examination there was some perception of light and well-marked primary atrophy of both disks, no indications of any keratitis, no radiating scars about the lips. The two central upper incisors were peculiar in that they were somewhat broad, but not characteristic of Hutchinson's. The knee jerks were absent on one side, obtained only by reinforcement on the other. There is marked Wassermann in the blood and the cerebrospinal fluid and globulin reaction, but no increased lymphocytosis.

Dr. H. M. Thomas, Baltimore. A boy of seven was sent to the surgical department of Johns Hopkins with the diagnosis of tumor, probably of the cerebellum. I was asked to see him in consultation. The child had been extremely bright up to the fifth year, when he had begun to deteriorate, and then it was thought that he had an injury. His deterioration took the form of being unable to speak as well as he had before; he had been loquacious; he became noisy and fretful and hard to manage and his walk became so unsteady that he could hardly get about. On examination he showed no sign of hereditary syphilis. He had no choked disk, his walk was distinctly cerebellar, his pupils were distinctly unequal; they did not react to light and his reflexes were exaggerated. The boy's blood gave the positive Wassermann reaction, and the diagnosis of cerebral syphilis was made. He was given two doses of neosalvarsan and changed markedly. He became quieter, his walk became steadier and he left the hospital having done pretty well. However, on getting home he became extremely quiet and in a week he was brought back in an absolutely different condition. At that time he was speechless, his walk was perhaps a little less ataxic, still he made no attempt to walk. The physical signs were the same. We did a lumbar puncture. He had a cell count of 33, positive globulin and positive Wassermann and a Wassermann in his serum was also positive. The case then seemed to be one of juvenile general paresis, and, as it was the only case, we did not venture to make that diagnosis, yet we have been extremely interested.

TWO CASES OF REMOVAL OF EXTRA-DURAL TUMOR OF THE SPINAL CORD.

Dr. Philip Coombs Knapp, Boston: Tumors of the spinal cord are rare. In 3617 autopsies at the Boston City Hospital a tumor was found only four times, but the spinal cord was not always spared.

In 1294 patients in the neurological service a tumor was diagnosticated 10 times. In 11 cases operation has been performed in six cases with fatal results, in four with some improvement, so that the patient could get about on crutches, and in the fifth with marked improvement followed by a return of symptoms and a second operation. Two of these cases were reported:—

CASE 1. Woman, 40, married, nullipara. Menopause at 37. Considerable alcohol. Entered hospital May 20, 1912. For six months or more had had pain between the shoulders, shooting into arms and worse on motion. For three or four months the pain had been growing worse; for six weeks the legs had been numb and for two weeks paretic. Micturition was difficult, and the urine at times had to be drawn. Sexual desire unimpaired. Some rigidity of dorsal spine. Legs paretic and spastic. Knee jerks exaggerated, double Babinski. Sensibility diminished from level of ensiform cartilage downward. Unable to pass urine, which contained a trace of albumen and some pus. Wassermann and Noguchi in blood, positive. The cerebrospinal fluid was clear, 20 lymphocytes to a cubic millimetre; globulin reaction absent. Wassermann and Noguchi negative. Somewhat vague shadow in upper dorsal region. The paresis increased to complete paralysis, the spasticity was much greater. Salvarsan and mercury did not benefit her. July 30 laminectomy by Dr. E. H. Nichols. Two small masses were removed from external posterior surface of dura at level of sixth dorsal spine. Made a good surgical recovery. She gradually improved, regaining control of her bladder, being able to stand alone and walk with crutches, and having normal sensibility. She was still somewhat spastic and had exaggerated reflexes. She is still on crutches and in the hospital for chronic diseases.

CASE 2. Woman, 33, married, four children. Entered hospital July 30, 1912. Three years before, in the sixth month of her fourth pregnancy, began to have pain in right loin, buttock and leg. After delivery legs grew weak. Pain subsequently appeared in left leg. Loss of sexual desire, micturition and defecation imperative, occasionally incontinence. Gradual increase in weakness of legs. When first seen was unable to stand or walk without support. Sensation diminished below a line two inches below umbilicus. Tender over lower dorsal vertebrae. Some spasticity. Wassermann and Noguchi negative. Lymphocytes 20 to a cubic millimeter. Laminectomy August 16, by Dr. J. A. Hubbard. Small growth, apparently fatty, removed from posterior external surface of dura at level of eleventh dorsal spine. Dura opened, arachnoid bulged, no pulsation. Considerable fluid drained from arachnoid. Some fever and bedsore, but otherwise she made a good surgical recovery. Gradual recovery of motion and sensation. Able to stand and take a few steps on Sept. 7. Toward the end of October walked without crutches, and later improved so that she could walk half a mile, dance, and travel in the trolley cars alone. Early in January, 1913, she took cold, and her symptoms gradually returned, so that early in February she returned to the hospital in much the same condition as in the previous July, but the hyperesthesia extended to two inches above the umbilicus. There was a good deal of pain in the back and the legs were weak and spastic. March 15 the wound was re-opened by Dr. Hubbard, and the spinous process above was removed. No adhesions were found, but the cord was tense and did not pulsate. The dura was opened and much cerebro-spinal fluid escaped. She made a good recovery and was discharged April 21. There was then a very slight hyperesthesia with some allocheiria in the right leg. The right leg was somewhat hypertonic, but she had good strength in both legs and could walk with crutches or with very slight support. The operations that had been done in Boston, 14 of which had been already reported, had been collected, and showed the following results: Tumor removed 8, 6 improved, 2 died; tumor partly removed 7, 3 improved, 4 died; tumor found, not removed 4, 2 improved, 2 died; lesion found, not tumor 6, 3 improved, 3 died; nothing found 6, 3 improved, 2 died, 1 result uncertain. Shersburg collected 119 operations; of these 49 were benefited, 42 died.

A PECULIAR AND UNDESCRIBED DISEASE OF THE NERVES OF THE CAUDA EQUINA.

DRS. FOSTER KENNEDY AND CHARLES A. ELSBERG, New York: During the last five years, in a large number of spinal operations, 84 of which were performed by one of the writers, they have met with five cases alike in their histories, their clinical findings, and in the peculiar swelling and discoloration of the roots of the cauda equina, that they have been led to class them together in the belief that they form a definite clinical and pathological entity. Pain was present in the back of the thighs and legs in all of the patients; atrophy of the anterior muscles with loss of the power of dorsal flexion of the foot was present in 4; the objective sensory changes consisted of loss in the sacral and lowest lumbar nerves. The disorganization of the functions of the bladder and rectum was complete in four patients. The abdominal reflexes were regularly present, while the ankle jerks were lost in four; the knee jerks became lost coincident with the upward progress of the disease. The conditions found at operation were mainly a swelling and reddish-blue discoloration of many or all of the roots of the cauda equina. A thorough search of the literature failed to reveal any proven case like those described. A few cases have been reported in which a clinical diagnosis of neuritis of the cauda equina was made and the condition believed to be syphilitic, but in none of these was the diagnosis verified by operation or autopsy. A very similar disease has been described in the horse, and in these animals the postmortem examination revealed a condition very like that found in the patients operated upon and reported in the paper. The Wassermann test both in the blood and cerebrospinal fluid was negative in all of the cases, therefore the condition is not luetic; nor were there any signs of a meningeal lesion.

GIANT TUMORS OF THE CONUS AND CAUDA EQUINA.

DRS. JOSEPH COLLINS AND CHARLES A. ELSBERG, New York: The patient begins to complain of pain and stiffness in the back, extending down the posterior aspect of one and then of the other thigh. The pain is intermittent at first, later it is continuous. After the expiration of one year or more, the symptoms become worse, one or double drop foot appear, the lower limbs become weaker and stiffer, knee and ankle jerks disappear. Then follow difficulties in the functions of the bladder and rectum,

irregular sensory loss, rigidity of the lumbar vertebral column, tenderness of the lumbar spine. Peroneal palsies are regularly found with electrical changes. The patients are often suspected of tabes, and have usually been treated for long periods for sciatica. The important features of the clinical histories were the following. A history of one or more years' duration; pain in the small of the back, sooner or later extending down one and then the other extremity; stiffness of the back in the lumbar region; increasing weakness and stiffness of the lower extremities, with loss of power of dorsal flexion of the foot; slight disturbances of the bladder and rectum. The important features of the clinical examination were the following: Rigidity of the lumbar vertebral column; weakness and stiffness of the lower limbs; paralysis of the peroneal groups of muscles and sometimes of the tibialis anticus group; dropped foot on one or both sides; absence of knee and ankle jerks; tenderness of the lower lumbar spines; irregular and unsymmetrical sensory disturbances; lumbar puncture usually negative, no fluid obtained, Wassermann test and x-ray negative. The typical findings at operation consisted of a large reddish-brown, not vascular, tumor within the dura, which filled up the entire lower part of the spinal canal, surrounded the roots of the cauda equina and extended upward on the conus, with which it was not closely connected. The growth is not intimately connected with the inner surface of the dura, and can be easily freed, from after which the inner surface of the dura is found to be smooth and glistening. The growths are well encapsulated above, but are closely connected with the nerve roots below. The peculiar features of the tumors are: their large size; the late appearance of bladder and rectal disturbances; the relatively small amount of sensory loss in spite of the fact that the tumors fill up the entire lower part of the spinal canal; the benign course of the disease, without tendency to perforate the dura. Operative interference should be done in two stages by the "extrusion" method. If the cases are recognized early, radical removal of the growths should be possible.

The above three papers were discussed jointly.

Dr. Archibald Church, Chicago: I am reminded by Dr. Knapp's paper of an experience of comparatively recent date, which, while it might not be edifying, might be interesting; that was, the recurrence of three tumors followed by three successful operations on the same patient. The first tumor made its appearance four years ago. At the end of a year the patient was entirely paraplegic. Dr. Patrick saw the case in consultation. Dr. Murphy operated. A tumor was removed from the cervical region. She made an uneventful recovery and in the course of six months recovered. At the end of two years she began to have the same symptoms of spinal tumor and within six months had developed the same symptoms. A second operation found another growth in connection with the pia about an inch lower than the first tumor. Whether this was a recurrence of the first growth was not known. It was supposed to be essentially an independent neoplasm. For nine months she had comparative freedom. Two weeks ago she came back to Chicago for recurrence. Early last week a third operation was done and a third tumor removed. So there was one on the right, one on the front and one on the left. I have had two cases of cauda equina. Some eight years ago a surgical friend had the typical manifestations of caudal lesion. This endotheliomatous growth filled the entire neural cavity and was supposed to be so intimately related to the cord that no attempt was made to remove it. The man perished from kidney trouble. About three years ago I saw a young boy with terrible pains in the legs who had been treated as hysteria. After many months of observation he showed a little area of sensory loss corresponding to the cauda and upon this comparatively slight symptom, although the bladder was not materially affected, an operation was done and an infiltrating endotheliomatous neoplasm extending from the middle of the lumbar spine to the lower end of the sacral canal was uncovered. It was not thought feasible to remove it and safest to let the case take its course. The operation wound has remained perfectly solid. The symptoms have not increased, but a tremendous growth has invaded the abdomen so that he looks like a six-months' pregnancy. Apparently the pressure has been relieved from the caudal region so that further neural symptoms are inhibited and the growth has gone in the anterior direction. This large caudal involvement may be more frequent than we suppose.

Dr. W. M. Leszynsky, New York: In regard to the difficulty of diagnosis in tumors of the cauda equina and inflammation of the roots, the mere fact that one can obtain no cerebrospinal fluid should lead one to make the differential diagnosis between the two conditions.

Dr. William G. Spiller, Philadelphia: This subject of the root neuritis confined to the lower portion of the cord is one of great interest. One can't help wondering whether in this case there was a meningitis of a certain degree, possibly of a considerable degree, and whether the root changes were not part of this meningitis. Dr. Elsberg said that the cord showed nothing by the naked eye. There may be marked meningitis which is not to be detected by the naked eye at all. Tumors vary very greatly as to whether they are in the upper part of the cord or in the lower. In the upper they are more of the type of fibroma and endothelioma, well defined tumors that may be readily removed in most cases. In the lower part of the cord they are very much more malignant, infiltrating, liable to be of greater size and offering much more unfavorable conditions for removal. In one case of inoperable tumor I got Dr. Martin to cut the antero-lateral columns to remove the pain. It was very successful. The patient lived two years after that operation. He died a few months ago, with an enormous tumor filling a large part of the abdomen.

Dr. Joseph Collins, New York: It seems useless, so far as the patient's restoration to a degree of health and usefulness is concerned, to operate on these caudal tumors as they are now being operated upon, my experience being that it does not give them any considerable degree of life and does not restore them to any degree of health. The significance of this fact is that we must diagnosticate these cases earlier than we do now. If we rely upon the presence or absence of the cerebrospinal fluid in a case that has the symptoms of caudal tumor in making the differential diagnosis, we will go wrong very frequently. I would make a plea for operation on caudal tumors in every instance at the time when suspicion enters our mind that these are present, and, second, for operation in tumors of the conus five, six, eight, ten years before the time they are now operated on.

A CONTRIBUTION TO THE PATHOLOGY OF MYASTHENIA GRAVIS.

DR. SIDNEY KUH AND DR. MORRIS BRAUDE, Chicago: Ours was a typical case of myasthenia gravis in a physician fifty years of age, of a duration of about five years. Examination of nervous system was made with the Weigert myelin sheath stain and Pal's modification of the same, Mallory's chloride of iron hematoxylin, Ford-Robertson's toluidin blue, thionin, Nissl's methylene blue, toluidin blue counterstained with erythrosin, uranium carmin, Van Gieson's stain, Weigert's fibrin stain and the same author's stain for elastic fibres were used on about 400 sections. Small areas of vascular sclerosis, recent (agonal?) hemorrhages, increase in glia tissue, corpora amylacea were found in the spinal cord. In the cervical region there was an aberrant bundle of fibres. In the higher levels of the cord capillary polymorphonuclear thrombi and chromatolysic and pigmentary changes were seen in the nerve cells. The relative intensity of these latter findings remained approximately constant, *i.e.* where the thrombi were numerous the changes in the nerve cells were greater. The same applied to medulla and corpora quadrigemina. In the cortex there was but little of these changes to be seen; more in the optic thalami. The muscles showed nothing that had not previously been described. There was no trace of the thymus found.

BILATERAL OCULOMOTORIOUS PALSY FROM SOFTENING IN EACH OCULOMOTORIUS NUCLEUS.

DR. WILLIAM G. SPILLER, Philadelphia: Bilateral oculomotorius palsy developing in an apoplectic attack, syphilitic in origin, implicating every muscle supplied by the eculomotorius in each eye, resulting from bilateral softening as two separate lesions confined to the nuclei of these nerves; without implication of other cranial nerves except the opticus, and without other symptoms except preceding mental disturbance, convulsions and some change in the patellar reflexes and succeeding extension of each big toe from plantar irritation are the chief features in the case reported in this paper. The author discusses the several symptom-complexes resulting from vascular occlusions he has studied, viz. the occlusions of the posterior inferior cerebellar artery, of the uppermost portion of the anterior spinal and adjoining portion of the vertebral arteries, of the cervical anterior median spinal artery, of the vessels supplying the inner segment of each lenticular nucleus, and (in the case reported in this paper) of occlusion of the vessels to the oculomotorious nuclei. In the last mentioned condition there are symmetrical softening and paralysis of all branches of the oculomotorius, although the paralysis may not be complete in all the muscles enervated by the nerve; there are also involuntary incoördinate movements and great rigidity with unconsciousness at the onset of the attack.

THE PERIMETRIC DEVIATIONS ACCOMPANYING PITUITARY LESIONS.

DR. HARVEY CUSHING, Boston: In a series of 104 examples of pituitary diseases, the greater number accompanied by manifestations of tumor, due either to an enlargement of the hypophysis itself or to a superimposed lesion, changes in the fields of vision have been present in a large proportion of the cases.

Few physicians at the present time venture to make a diagnosis of an hypophysial lesion in the absence of a bitemporal hemianopsia; and it has been our experience that the majority of the neurologists and ophthalmologists through whose hands these patients have passed, have hesitated to make such a diagnosis—although there were obvious deviations from the normal in the perimetric outlines—for the reason that these deviations did not show the characteristic bitemporal defect with a more or less definitely vertical meridian separating blind from seeing fields.

As a matter of fact, in a considerable number of these cases the field defect has been an homonymous one, for when the enlarging gland bursts through its dural capsule it may extend into the interpeduncular space to one side of the chiasm rather than in a median posterior position.

The opportunity has been given in this series of cases, not only in many instances to follow the progressive changes in the visual fields as the defect advances, but also to follow the steps by which the normal peripheries become restored after a transphenoidal operation, when partial removal of the growth has afforded relief from pressure. These experiences have shown that in the majority of instances the defect advances in very characteristic fashion, usually beginning in the upper and outer temporal field and affecting color vision before vision for form.

These minor changes are as typical of a retrochiasmal lesion as is the full-blown text-book picture of complete bitemporal hemianopsia. Furthermore, the defect rarely advances with equal steps in the two eyes, and consequently for each individual eye it proves to be a matter of clinical convenience to divide the advancing process into stages, as follows:

Stage 1 shows merely a notch, often quadrantal, in the upper temporal field for color, though there may be in addition some slanting off of the form field. This is due to the fact that the ventral crossed fasciculus is affected by the pressure at an earlier stage than is the dorsal crossed fasciculus, the transmission of color impulses suffering earlier than the transmission of form impulses.

Stage 2. In this stage a beginning quadrantal constriction in the form field follows upon the quadrantal defect for colors.

Stage 3. Here color vision is more or less completely lost in the entire temporal field, the form constriction remaining practically quadrantal, with beginning encroachment upon the lower temporal field.

Stage 4. In this stage hemianopsia is complete for form and colors, the macula still being spared by the otherwise practically vertical meridian.

Stage 5. Hemianopsia remains complete for form and color, the macula now being included in the vertical meridian, there being in this stage often an actual complete macular blindness for colors.

Stage 6. Macular vision is lost for form as well as colors and the nasal field begins to shrink from the vertical meridian.

Stage 7. Color vision is entirely lost and a patch of vision for large objects remains, usually in the lower nasal quadrant.

Stage 8. Blindness.

The least affected eye progresses in the meantime along the same route; for it cannot be emphasized too strongly that the process rarely advances with equal steps in the two eyes. Indeed, commonly

enough, one eye may be completely blind, whereas the other may show a condition in Stage 1, or indeed with no observable change whatsoever.

Even after Stage 8, with blindness, has been reached some vision may be regained by operative measures; which goes to show that the disturbance is brought about, not only by an anatomical destruction of the fibres through a process of degeneration, but also by a physiological block to the transmission of impulses superimposed on the actual atrophic changes.

Though the prospect of a return of vision, therefore, is not utterly hopeless, even when blindness has supervened, it is, nevertheless, of great importance for us to recognize these evidences of chiasmal pressure in their early stages.

Pituitary disease, as I must continue to emphasize, is a common malady, heretofore largely overlooked. One serious complication of the disorder is a so-called primary optic atrophy; and this is in many respects the most obvious of the neighborhood symptoms and one for which surgical measures are as definitely indicated as when dyspnea is produced by pressure against the trachea in cases of goitrous enlargement of the thyroid gland.

(*To be continued.*)

Book Reviews.

Therapy at the Bonn Univeristy Clinics. Edited by PROF. DR. RUDOLF FINKELNBURG. Bonn: A. Marcus and E. Weber. 1914.

This German volume presents a purely practical therapeutic compendium from the medical, psychiatric, neurologic, surgical, ophthalmic, otologic, rhinologic, gynecologic, and dermatologic clinics at Bonn. The attempt is made by the editor to coördinate the methods of the various departments on the basis of etiologic treatment. Emphasis is also laid on negative therapeutic results and on special technic. Each section is by the chief of the respective clinic. Much of interest will be found by students and practitioners in every division of this book, which represents the cumulated experience of years in the professional life of leaders in the several departments of medicine.

The Principles and Practice of Medical Hydrology. By R. FORTESCUE FOX, M.D. (Lond.); F. R. Met. Soc. London: Hodder and Stoughton and Henry Frowde. University of London Press. 1913.

In the sub-title of this book, medical hydrology is defined as "the science of treatment by waters and baths." It is the work of a recognized English expert, issued in the series of London Medical Publications. The author aims "to discuss the various actions of water and baths on the body, without more detail than may enable medical men to apply for themselves these methods of treatment. The first section of the book describes the physiology of bathing, with a note on children's baths and school baths. The second section considers hydrotherapy, with a note on hydrotherapeutic institutions. The third deals with medicinal springs and baths, and the fourth with indications for hydrologic treatment. The volume is an interesting and convenient manual for those concerned with this important but often neglected department of therapeusis.

Medical and Sanitary Inspection of Schools. By S. W. NEWMAYER, A.B., M.D. Illustrated with 71 Engravings and 14 full-page plates. Philadelphia and New York: Lea and Febiger. 1913.

This volume, by the chief of the division of child hygiene of the Philadelphia Bureau of Health, is intended as a guide "for the health officer, the physician, the nurse, and the teacher" in the physical examination of school children. There are also chapters on the sanitation of school buildings and on methods of preventing epidemics of contagion in schools. The introduction describes the development of medical inspection of schools in the United States, a procedure first established in Germany, tentatively introduced in Boston a score of years ago, and now recognized universally as a measure of undisputed importance for the present and future public welfare. This work on the subject should prove an excellent practical manual for all concerned with the hygienic and sanitary administration of schools.

Text-Book of Anatomy and Physiology for Nurses. By AMY E. POPE. With 135 illustrations. New York and London: G. P. Putnam's Sons. The Knickerbocker Press. 1913.

"The object of this work is to provide a textbook containing more physiology than the books on anatomy and physiology hitherto provided for nurses." It is unfortunately true that physiology often gets scant attention or is altogether neglected in the instruction of nurses in training-schools, yet it is really more important than detailed knowledge of form. Interest in structure should not be allowed to overweigh interest in function; for the product is really the object of ultimate importance, not the machine. Hence the author's purpose in this book is especially laudable, and she has fulfilled it exceptionally well. The text is clearly written and well arranged, the illustrations are abundant and helpful, a number of them being in colors. There is an extensive and serviceable glossary, and a useful appended table of food values compiled by Miss Alice C. Keith. The book should find immediate recognition and prove a great aid to pupil nurses and to their teachers.

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MEDICAL LEGISLATION. THE PRACTICE OF DENTISTRY IN MASSACHUSETTS.

THE importance of medical legislation and of legislative measures affecting not only the public health but the practice of medicine, can hardly be overestimated in any community. Naturally such legislation, to be sound and equitable, should rest fundamentally on enlightened professional opinion. Unfortunately this opinion is often imperfectly formed, vague, or based on inadequate information. To crystallize the professional judgment of physicians on topics of legislative concern not only should be of advantage to them, but should be a definite aid to legislators desirous to further the public welfare by acting on the concerted counsel and opinion of medical men.

During the early part of the year, therefore, the JOURNAL will, as heretofore, devote especial editorial attention not only to legislative measures pending before the General Court, but to the discussion of desirable measures not yet shaped into actual form. It will aim in every case to state the facts clearly and impartially, to indicate the opinion of experts on the subject in hand, and to point out the probable effects, advantageous and disadvantageous, of the passage of the law or bill under consideration.

Of the measures early to come before the present session of the legislature, one of the most important is that affecting the practice of dentistry in Massachusetts. This measure was before the General Court in 1913, and was defeated by the opposition of those who did not approve the opportunity which the bill afforded for the employment of dental assistants to clean teeth, when such assistants were not themselves trained dentists. The present bill has been revised in such a way as apparently to make such employment free from any possibility of abuse, and at the same time productive of much good to the community. Its provisions are in substance as follows:—

"Section 1. There shall be a Board of Dental Examiners consisting of five persons, each of whom shall be a legal resident of this Commonwealth, a reputable dentist and a graduate of a reputable dental college, with an actual practice in dentistry in this Commonwealth for the five years next preceding his appointment. Said board shall examine candidates for registration in dentistry. The present members of the Board of Registration in Dentistry shall constitute this board and shall serve out the respective terms for which they have been appointed. No member of the board shall be a member of the faculty or board of trustees of any institution engaged in educating dentists.

"The governor, with the advice and consent of the council, shall have power to remove from office any member of said board for continual neglect of duty required by this act, or for incompetency or dishonorable conduct.

"Said board shall have full power to make and shall publish necessary rules and regulations for the proper fulfilment of its duties under this act. It shall choose one of its members chairman and one secretary and shall hold at least two regular meetings each year in Boston. A majority of the board shall constitute a quorum for the transaction of business. Said board shall keep a full record of its proceedings and a full registry of all persons certified as denists by said board, which shall be public records and open to inspection.

"A transcript of any of the entries in such record, certified by the secretary, shall be competent evidence of the facts therein stated. The board shall have the power to summon witnesses and to administer oaths and hear testimony in all matters pertaining to the duties imposed upon it by law. On or before the first day of January in each year, said board shall render to the Governor a full and accurate account of its proceedings, receipts and disbursements during the year immediately preceding."

The remainder of this section specifies the salaries, fees, time and place of meeting of members of the board.

"Section 2. After the passage of this act, any person over twenty-one years of age and of good moral character, who is a graduate of an accredited high school or presents proof of equivalent training and has received a diploma from the faculty of a reputable dental college,

as defined in this act, shall upon fulfilment of requirements for applicants as hereinafter specified, be entitled to examination by the Board of Dental Examiners. If found competent, he shall be registered by said board and shall receive a certificate of such registration signed by the secretary of the board, which shall be prima facie evidence of the right of the holder to practice dentistry in this Commonwealth. In proof of this right the certificate or a duplicate shall be kept in his office and shall be shown to any member or agent of the board on application.

A dental college shall be considered reputable which possesses the following qualifications:

"First: It shall be chartered and authorized by its charter to confer degrees of doctor of dental medicine or doctor of dental surgery.

"Second: It shall deliver a full course of lectures and instruction by a competent faculty and corps of instructors, said course to consist of not less than three separate academic years of not less than thirty-two weeks each of six days for each week, and shall require each matriculate to be a graduate of an accredited high school or to present proof of equivalent training."

The remainder of this section describes the details of application for examination:

"Section 3. No person not a registered dentist shall directly or indirectly practice dentistry in the Commonwealth of Massachusetts, except as provided in this act.

"It shall be unlawful for any person or persons to operate any dental office under any name or corporation name other than the name of the person or persons therein actually engaged in the practice of dentistry.

"Any person shall be said to be practicing dentistry within the meaning of this act who shall use the word or letters 'dentist,' 'D. M. D.', 'D. D. S.,' or any other letter or title in connection with his name, which in any way represents him as engaged in the practice of dentistry, or who shall for a fee, salary or other reward paid or to be paid, either to himself or to any other person, perform dental operations of any kind, diagnose or treat diseases or lesions of the human teeth or jaws, replace lost teeth by artificial ones, or attempt to correct or diagnose malposition thereof, or who shall advertise or permit it to be done by sign, card, circular, hand bill, newspaper or otherwise, that he will perform any or all of the aforesaid operations.

"But nothing in this act shall prevent any person from cleaning teeth under the direction of a registered dentist. The cleaning of teeth shall include only the removal of all stains and deposits from the exposed surfaces of the teeth and polishing said surfaces. Nothing in this act shall apply to treatment by a registered physician not practicing dentistry as a specialty, nor prevent a registered dentist of another state or his assistant from operating at a public clinic under the auspices of a duly organized and reputable dental college or association, nor prevent a student of a reputable dental college, incorporated under the laws of this Commonwealth, from performing operations as part of the regular college course.

"A registered dentist shall have the same right to prescribe or buy drugs or medicine for use in the conduct of his practice as the registered physician of this Commonwealth."

It will be seen that the object of previous contention lies in this third section of the bill, which makes it possible for an assistant or nurse, not a dentist, to be employed in "cleaning teeth under the direction of a registered dentist." This provision is intended especially for the benefit of the public in school dental clinics, where the cleaning of teeth is a large part of the work to be done and is an agent of great prophylactic value in anticipating dental caries. Obviously it is impossible that this should all be done by dentists. It must, therefore, either be left undone, or must be done by such competent assistants as those for which this act makes express provision. The possibility of violation of the spirit of the law seems obviated by its restrictions:

"Section 4. The Board of Dental Examiners, after giving due notice and hearing, may revoke or suspend the certificate of any dentist:

"First: For felony or misdemeanor involving moral turpitude, in which case a record of conviction or finding of guilt or a certified copy thereof, certified by the clerk of the court or the judge in whose court the conviction or finding of guilt is had, shall be conclusive evidence.

"Second: For gross ignorance or inefficiency in his profession or for obtaining a certificate of registration or any fee, by fraud or misrepresentation, or for the advertisement of dental practice, treatment or devices in which untruthful or improper statements are made, or for habitual intemperance or gross immorality, or for wilful violation of the provisions of this act.

"Said board by a majority vote may reissue a revoked certificate after one year from date of revocation.

"A dentist aggrieved by the action of the board in the revocation or suspension of his certificate, may apply to the Supreme Judicial Court in the county in which he resides, or in the County of Suffolk, for a writ of mandamus requiring them to revoke their decision if the same is found on hearing to have been erroneous."

Sections 5, 6, and 7 respectively provide the penalty for unregistered practice, repeal pre-

vious conflicting legislation, and fix the date at which the act shall take effect.

This measure, as it now stands, is approved by a majority of members of the Massachusetts Dental Society and, from a socio-political standpoint, by the Massachusetts Civic League. The latter organization has stated the following as some of the reasons why it advocates the passage of this bill:

"1. The Massachusetts dental law is behind those in most of the states. Other New England states have modern laws enacted in recent years. The aim of the proposed law is to bring Massachusetts up to date.

"2. This law will get under many of our difficulties. From ninety to ninety-eight per cent. of our school children have dental defects. Eighty per cent. of these defects could be prevented by proper cleaning of the teeth. Under the Massachusetts law no one but a registered dentist may clean teeth. There are not enough dentists to handle the school children alone. Cleaning teeth is a simple matter. The proposed law provides that it may be done by anyone under the supervision of a dentist, and that a dentist who abuses his privileges shall have his certificate taken from him. In short, under the new law we can prevent an enormous amount of dental decay and other defects.

"3. Bad teeth have an important part in the break-down of physical and nervous conditions. They are also directly responsible for the spread of contagious diseases. Cases are known where decayed teeth have carried disease germs for many months after the patient recovered, others catching the disease. Decayed teeth offer one of the best breeding grounds for germs.

"4. There is some tendency to the belief that this is not a social problem. To all who believe that it is better to take care of broken-down individuals there is perhaps no answer. To those who believe that it is the function of society to keep people on their feet there seems to be a good case to present. It is because of the constructive elements in the proposition that the Massachusetts Civic League has taken it up."

These reasons seem cogent.

The opponents of the proposed measure object to its provision for dental assistants on the ground that the latter may usurp the functions of dentists and interfere with the work of legitimate practitioners. It does not seem that with the careful restrictions now imposed by the revised measure this objection is any longer valid.

The present bill has been carefully drafted by a body of dentists after conference with all persons and parties concerned. We feel that it is a desirable and progressive piece of legislation, and recommend its passage into law.

THE MENTALLY DEFECTIVE IMMIGRANT VIEWED FROM A SOCIOLOGICAL STANDPOINT.

IN a recent number of *The American Magazine*, Arnold L. Gesell, now a teacher in Yale University, presents us with a eugenic study of "The Village of a Thousand Souls." The village contains 220 families and may be accepted as typical. In the course of his very interesting and illuminating article Professor Gesell states:

"We can appraise and classify the families of our Village of a Thousand Souls with reference to certain large characteristics. We can do this to some success without the assistance of a psychological laboratory because, after all, life itself is the most comprehensive test and the token of the character of these villagers. The school, the street, the places of work and business, the yards, the gardens and the playgrounds have been the public stage upon which the lives of the inhabitants of The Village of a Thousand Souls have been manifested."

In discussing the definition of feeble-mindedness Professor Gesell approaches the subject from the medical, pedagogical, psychological and sociological standpoints. From the medical standpoint feeble-mindedness may be said to be a permanent arrest of development of the nervous system, especially of the brain cortex. From the pedagogical viewpoint a feeble-minded person is one who cannot be taught to read, write or cipher, with any marked advantage to himself or to society. Psychologically, feeble-mindedness means that there is a condition of "permanent, incurable mental retardation limiting the individual to an intelligence less than that of a normal thirteen-year-old child." Viewed from the sociological aspect, Professor Gesell states that feeble-mindedness is a condition of relative mental incompetence, dating from birth or infancy, which makes it impossible for the individual to get along in the world on equal terms with his normal fellows. And it is this last definition which Professor Gesell found most useful for his eugenic survey of "The Village of a Thousand Souls."

A recent article by Dr. Bernard Glueck, of the United States Public Health Service at Ellis Island, deals with the problem of the mentally defective immigrant from the sociological standpoint. He has given us an original, sane paper which is well worth careful reading by all those who are interested not only in the immigrant but in the mentally defective in general.

After first reminding us that what we regard as the normal mind is but "the usual, the common, the everyday mind as we encounter it determining the usual, the common, the everyday conduct and behavior," and after calling our attention to the wide range of normality with its infinite possibilities for variations, Dr. Glueck next considers the definition of feeble-mindedness. He chooses the definition adopted by the British Commission for the Study of the Feeble-Minded. According to this definition the feeble-minded are individuals who on account of incomplete cerebral development are unable to perform their duties as members of society in the position of life to which they were born. This, it will be seen, is a social definition. It takes into account the native qualities and capabilities of the individual, his age, education, opportunities, race, etc. It considers the individual as a biological unit, as a member of the society or the community in which he will take his place.

The various measuring scales of intelligence, such as the Binet-Simon scale and the American modification by Goddard, although of the greatest usefulness in detecting feeble-mindedness, depend upon the comparison of the examined individual's intelligence with a given standard of average normal intelligence, for a certain race, under certain conditions. It gives us an artificial classification of feeble-mindedness, which can only serve to augment but cannot entirely replace the social one. This applies especially to the adult, and more particularly to the immigrant, in whom, in order to arrive at a rational conclusion with respect to the feeble-mindedness of an individual, as judged by the measuring scales, we must first have a definite idea of the average standard with which the results to be obtained are to be compared. It is necessary to know his past life history, his degree of adaptability in life as judged by his past performances, his daily conduct, his ability to earn a living and to lead a normal, law-abiding life. We must know whether he was able to look after himself and whether the normal instincts of man were properly controlled and directed.

In studying the defective immigrant from this standpoint Dr. Glueck endeavored to gain a correct idea of the average normal intelligence of a given race and for this purpose he selected at random fifty individuals of the Polish race, ranging from 18 to 40 years of age, whose outward appearance suggested nothing abnormal, who had never attended school and did not know how to read or write. The tests employed were chiefly performance tests, the element of language being thus eliminated to as great an extent as possible. For the series of tests employed reference should be made to the original article. Dr. Glueck's conclusion is worthy of quoting verbatim: "Here we have fifty individuals who were as near alike in most respects as is possible among human beings. Under circumstances which were as nearly alike as possible, these individuals were given the same thirty-eight problems for solution, and the results of correct answers varied all the way from eighteen to the full thirty-eight."

The lesson is plain: The measuring scales have, up to the present, consisted in an examination of the knowledge or intellect of the individual. We have too often lost sight of the fact that man is a feeling, living, active being, with emotions and instincts. The biologic and sociologic approach to the study of the mind of man is the only rational method of approach It is fundamental and basic. The psychologic tests cannot entirely replace but must be considered in connection with the life-history of the individual. We believe, with Dr. Glueck, that it is possible to evolve a set of questions which would represent, as nearly as possible, what the average immigrant of a given race should be able to accomplish mentally, if he is to be considered normal.

NATIONAL INSURANCE IN GERMANY.

The first of January marks the culmination of an important struggle in Germany between the medical profession and the insurance societies through which the national sick and benefit insurance is administered. The grievance of the German doctors, as of the British, is that they are not adequately recompensed for panel work, and that free choice of physicians by patients is not allowed. Negotiations between them and the insurance companies were pending throughout the past summer, but were frustrated by representatives of the companies.

Finally on Oct. 26, a representative meeting of physicians, held in Berlin, voted that "on and after Jan. 1, 1914, the insured population of Germany.—Dresden, Hamburg, and Berlin ex-

cepted,—shall not receive treatment through the insurance societies unless the latter meet the demands of the profession or the government sees fit to interfere." Following this action special meetings and conferences of medical societies and insurance agents were held on Nov. 5 in Munich and Baden. The federation of insurance societies, however, refused to comply or to recognize the right of the doctors to organize the profession for the protection of the general practitioner.

On Nov. 12 the Berlin Medical Society, at a special meeting, endorsed the action of the representative meeting of Oct. 26 by the passage of the following resolution:—

"In consideration of the fact that the manner in which the insurance societies desire to regulate the relation between the doctors and the societies under the new State Insurance Order most seriously imperils the freedom and independence of the medical profession, both of which are absolutely necessary for the continued scientific education and for the beneficial activity of the doctors, in the interest both of the patients and themselves, the *Berliner medizinische Gesellschaft* joins whole-heartedly with the German medical profession in its struggle with the managers of the insurance societies."

Thus matters have stood until the present time. If the doctors remain firm and united, they will effectually block the operation of the national insurance law on and after today. Either the companies must yield or the crown will intervene to settle the dispute.

We have not yet the subject of national insurance among the vexing problems of professional life and legislation in our country; but it may come to vex us sooner than we now expect. Meantime the experience of our German and British brethren is full not only of intense interest, but perhaps of profitable precedent.

MEDICAL CERTIFICATION FOR MARRIAGE.

THE reported refusal of members of the Milwaukee Medical Society to issue for three dollars certificates of complete physical examination and fitness for marriage, is evidence of a sensible reaction against the impracticability of enforcing a so-called eugenic marriage law requiring such medical certification of the contracting parties before the issuance of a marriage license. Such an examination as could reasonably be expected for that fee would be worth little for the detection of possibly communicable venereal infections, or of susceptibility to other undesirably transmissible diseases. Moreover, even with the most complete possible physical examination, a conscientious physician must in many cases hesitate to guarantee a man or a woman fit for matrimony. Finally, if the state makes it impossible to procure marriage licenses without medical certificate, the very persons whose procreation is least desirable will take measures to secure the ends of matrimony without license. After all, marriage, in the long run, must, like all other contracts, rest ultimately on the mutual confidence of the contracting parties. A man whose word cannot be trusted that he has not had syphilis or gonorrhea prior to marriage, cannot be trusted not to acquire them after the issuance of his medical certificate.

THE DIAGNOSIS OF HAMLET.

THE interest manifested from time to time in the medical problems afforded by Shakespeare's characters is only another evidence of the intense and vital reality of the personages whom he created. Indeed, in this respect, they equal Napoleon and the monarchs of England in the amount of post-mortem discussion to which they have given rise.

Recently an editorial in *The Medical Press and Circular* has essayed another inferential diagnosis on Hamlet. "Gouty diathesis, ptosis, and auto-intoxication" are held to be the pathologic trilogy which accounts not only for his obesity, cardiac symptoms, and other physical signs, but for his alternate saturnine gloom and hysteric gaiety. It is not long since one of the Freudians settled upon him the universal Oedipus complex. (This, by the way, will doubtless also soon be found in Peter Pan.) Next the endocrinologists will probably "explain" Hamlet, like Napoleon Bonaparte, on the basis of hypopituitarism.

As a matter of fact, Hamlet, whatever his physical organization, had a sane and noble mind; which remains for us as the most nearly perfect portrait that Shakespeare has left of himself.

MEDICAL NOTES.

Edward N. Gibbs Memorial Prize Fund.—This fund was established by the wife and daughter of the late Edward N. Gibbs, and its income, which amounts to about five hundred dollars, is used in aiding investigators into the cause and treatment of diseases of the kidney. The recipient of the fund is chosen annually. The committee will select the worker for 1914, about the first of February, and requests all persons who desire to work under this fund, to send to the committee of the Edward N. Gibbs Memorial Prize Fund, 17 West 43rd Street, New York City, their application, together with a statement of their fitness to prosecute such investigations, giving the laboratory in which they have studied, and any researches conducted by them, in order that the committee may be guided in the selection of the recipient of the fund for 1914.

Amalgamation of Ohio Medical Schools.—Report from Ohio on Dec. 24 states that all details have finally been arranged for the projected union of the Starling Medical College with the medical school of Ohio State University.

Manufacture of Mesothorium in America.—It is announced on Dec. 21 that a Philadelphia corporation is to begin the commercial manufacture of mesothorium in this country, from extensive thorium-bearing deposits which it controls in the Carolinas.

Typhoid Fever in Washington.—Report from Centralia, Wash., on Dec. 19, states that typhoid fever is at present epidemic in that town. On Dec. 15 and 16, 42 new cases of the disease were reported, making a total of 160 since the beginning of the outbreak.

Dangers of Trichinosis.—On Dec. 21 the United States Department of Agriculture issued at Washington, D. C., a statement warning the public against the dangers of consuming uncooked pork. It has been found that of all hogs examined by government inspectors 1.41% are infected with trichinosis.

An Abstinent Centenarian.—William E. Tearis, who died in Jersey City, N. J., on Dec. 18, 1913, is said to have been born in 1810 at Huddersfield, England. He migrated to the United States in 1820. It is reported that he ascribed his persistent good health and longevity to his habits of deep breathing, interest in public affairs, and abstinence from alcoholic beverages.

Smallpox on the Ohio.—Report from Guantanamo on Dec. 18 states that the United States battleship *Ohio* was quarantined at that port on her arrival from the Mediterranean with smallpox aboard. One sailor died of the disease during the voyage, and 11 cases are now under treatment. The source of the infection has not been determined.

Eugenics in Milwaukee.—Report from Milwaukee, Wis., on Dec. 17, states that the Milwaukee Medical Society has voted that its members shall not issue, at the statutory charge of $3, certificates of complete physical examination and fitness for marriage, as required by the new eugenic marriage law in that state.

BOSTON AND NEW ENGLAND.

Hospital Concerts for January.—It is announced the concerts of the Boston Hospital Music Fund for January, 1914, will be given at 2 p. m. as follows:—

Jan. 4 Cambridge Homes for the Aged.
" 11—St. Elizabeth's Hospital, Boston.
" 18 St. Luke's Home for Convalescents, Roxbury.
" 21—Home for Destitute Catholic Children, Boston.
" 25—Boston City Hospital.

Honor to a Boston Scientist.—It is announced that Dr. Charles Sedgwick Minot, professor of comparative anatomy at the Harvard Medical School, has been recently elected an honorary member of the Anatomical Society of Great Britain and Ireland.

Work of Rhode Island Hospital.—The recently published fiftieth annual report of the trustees of the Rhode Island Hospital, at Providence, records the work of that institution for the year ended Sept. 30, 1913. During this period the total number of patients treated in the hospital was 7881; the total attendance in the out-patient departments, 40,414; and 4278 cases were treated in the accident rooms. Thirty-six nurses were graduated from the training school, and 101 autopsies were performed by the pathologist. There was a large pecuniary deficit.

Infectious Diseases.—Cases of infectious diseases reported to the Boston Board of Health

for the week ending Dec. 23, 1913: Diphtheria, 42, of which 3 were non-residents; scarlatina, 89, of which 11 were non-residents; typhoid fever, 8; measles, 44; tuberculosis, 56, of which 1 was non-resident. This last item was for the week ending Dec. 20, 1913.

The death-rate of the reported deaths for the week was 19.57.

NEW YORK.

AMENDMENT OF SANITARY CODE.—At a recent meeting the City Board of Health passed a resolution amending the Sanitary Code by adding a new section, to take effect March 1, 1914, and to read: Bichloride of mercury, otherwise known as corrosive sublimate, shall not be held, kept, sold or offered for sale at retail in the dry form, except in colored tablets individually wrapped, the wrapper to have the word "*Poison*" in plain letters conspicuously placed, and dispensed in sealed containers of glass conspicuously labeled with the word "*Poison*" in red letters. This section, it is announced, does not apply to tablets containing one-tenth of a grain of bichloride, or less. The board has also placed trichinosis among the notifiable diseases.

HEALTH EXHIBIT.—On Dec. 17 a permanent health exhibit was opened in the building of the Department of Health, on Centre Street, and on this occasion the principal speaker was the venerable Dr. Stephen Smith, known as the "father of the New York Health Department," who was health commissioner from 1868 to 1875. Commissioner Lederle presided, and others who spoke were Prof. Charles F. Chandler, health commissioner from 1875 to 1883, and Drs. A. Jacobi, H. M. Biggs, and T. Mitchell Prudden. Among the exhibits is a fine model of the Otisville tuberculosis sanatorium.

A WET CLEANER.—The New York Edison Company, against which the Health Department has so long been bringing complaints for maintaining a smoke nuisance, has now, after a course of experimentation lasting three years and involving, it is said, an expenditure of $500,000, succeeded in securing an apparatus, known as a wet cleaner, which removes the objectionable qualities from the smoke from its plants. The smoke is driven at high speed through a large tank of water, and in this is left practically all the material which constituted a nuisance.

WORKMEN'S COMPENSATION LAW.—The workmen's compensation law, which was recently passed by the legislature, fixes rates of compensation the general basis of which is two-thirds of the average rate of wages paid at the time of injury, and each specified disability is to be compensated for by the payment of this average weekly sum for a defined number of weeks. In case of permanent partial disability the aggregate of weekly payments is limited to $3,500, while in case of death the employer is to pay funeral expenses not exceeding $100 and to pay to dependents of the deceased workman, as specified, an amount not more than two-thirds of the weekly wages. This ceases in case of a widow, with re-marriage; when, however, two years' compensation may be paid in a lump sum. In case of children the payment ceases when the age of 18 is reached. The only exception to the employer's liability is when "the injury is occasioned by the wilful intention of the injured employee to bring about the injury or death of himself or another, or where the injury results solely from the intoxication of the injured employee while on duty."

NEW HOSPITAL IN BROOKLYN.—A recent ten-day campaign in Brooklyn to raise $100,000 to erect a hospital for the House of St. Giles the Cripple, a home for crippled children at Garden City, resulted in the securing of $105,000. The movement was under the direction of Dr. B. B. Mosher, surgeon-in-chief to the institution. It is purposed to locate the new hospital in Brooklyn, and when the patients become convalescent they will be transferred to the Garden City home.

INADEQUATE PROVISION FOR FEEBLE-MINDED.—In a report of the committee on idiots and feeble-minded of the State Board of Charities it is stated that, while it is estimated that in the state of New York there are not less than 30,000 persons who should be segregated for their own protection and the good of the community, the state, including the minor political divisions, up to the present time has made provision for less than 4,000. With the completion of Letchworth Village and the contemplated extensions at the institutions at Rome and Newark, provision will have been made for the care of approximately 7,000; and the committee urges the expediting of the plans for these.

Current Literature

MEDICAL RECORD.

DECEMBER 13, 1913.

1. KERRISON, P. D. *Surgical Treatment of Diffuse Suppurative Labyrinthitis.*
2. *LEVIN, I. *Radium and Roentgen Therapy in Cancer.*
3. DIEFFENBACH, W. H. *Radium in the Treatment of Cancer.*
4. HARTSHORN, W. M. *Chorioepithelioma—with Report of a Fatal Case.*
5. ROUSSEL, A. E. *Acute Phlegmonous Cholecystitis: Report of a Case with Gangrenous Enteritis.*
6. GROS, E., AND REHFUSS, M. E. *Radiography in Pulmonary Gangrene.*

2. Levin discusses the value of radium in the treatment of cancer. It is indicated, he says, in all inoperable cases. Some cases are made operable by radium treatment, the malignancy being greatly diminished. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

DECEMBER 13, 1913.

1. PEDERSEN, V. C. *Pus in the Urine.*
2. FITCH, W. E. *The Theory and Treatment of Diabetes.*
3. KNOPF, S. A. *The Physical, Mental, and Moral Vigor of Our School Children.*
4. HOGNET, J. P. *Spina Bifida.*
5. ORBISON, T. J. *The Kinetic Neuroses and Psychoses.*
6. ALEXANDER, R. M. *Intestinal Obstruction Due to a Benign Pelvic Tumor.*
7. MACY, M. S. *Medical Sociology in the Public Schools.*
8. BALLAGI, J. *An Epidemic of Trichinosis in Pennsylvania.*
9. PARKER, G. H. *The Nervous System: Its Origin and Evolution.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

DECEMBER 13, 1913.

1. *PEARCE, R. M. *The Scientific Basis for Vaccine Therapy.*
2. *WRIGHT, H. W. *The Problem of the Criminal in the Light of Some Modern Conceptions.*
3. BILLINGS, F., AND ROSENOW, E. C. *The Etiology and Vaccine Treatment of Hodgkin's Disease.*
4. LOWENBURG, H. *Etiology of Artificial Feeding. A Plea for the Study of Breast-Milk Problems.*
5. *HUFFMAN, O. V. *A Theory of the Cause of Ectopic Pregnancy.*
6. VOEGTLIN, C., AND WACHT, D. I. *Isolation of a New Vaso-constrictor Substance for the Blood and the Adrenal Cortex. Presence of the Substance in the Blood and Its Action on the Cardiovascular Apparatus.*
7. OTTENBERG, R., AND KALISKI, D. J. *Accidents in Transfusion. Their Prevention by Preliminary Blood Examination, Based on an Experience of One Hundred and Twenty-eight Transfusions.*
8. GREY, E. G., AND EMERSON, L. E. *A Striking Acquirement of Visualizing Power and the Development of Dreams Following a Cerebral Tumor Extirpation.*
9. HEMMETER, J. C. *Hyperthyroidosis of Intestinal Origin.*
10. THOMPSON, W. G. *Efficiency in Nursing.*
11. BEARD, R. O. *The Trained Nurse of the Future.*
12. HOWLAND, J. B. *Obligations of Hospitals and the Public to Training Schools for Nurses.*
13. EISENBREY, A. B. *Arteriovenous Aneurysm of the Superficial Femoral Vessels.*
14. CHRISTIAN, S. L., AND SANDERSON, E. L. *A New Method of Anastomosing the Ovarian Tube or Vas Deferens.*
15. LAWSON, G. B., AND THOMAS, E. A. *A Case of Hodgkin's Disease Treated with Benzine.*

1. Pearce believes that prophylactic vaccination rests on a sound scientific basis, but curative vaccination has no sound experimental basis. The only logical method is the use of autogenous vaccines. Mixed vaccines commercially prepared are unscientific and non-ethical. Vaccines rarely cure but rather aid by stimulating a languid process of immunization.

2. Wright makes a very sane plea for the more careful and systematic study of the criminal class and the individual criminal with the view to the gradual abolition of the penitentiary and the treatment of the criminal as a diseased individual and not a social malefactor.

5. Huffman, examining 68 specimens of tubal pregnancy found malformation of the tube in 54%. He believes that this evidence, besides the negative findings in regard to any obstruction or inflammation, is sufficient to warrant the establishment of the anomalous-embedding-area theory as the most logical of all explanations for ectopic pregnancy. [E. H. R.]

THE ARCHIVES OF INTERNAL MEDICINE.

NOVEMBER, 1913.

1. LUSK, G. *The Cause of the Specific Dynamic Action of Protein.*
2. *HARMER, T. W., AND DODD, W. J. *Sources of Error in the Use of the Stomach-Tube for Diagnosis. Preliminary Report.*
3. ASCHOFF, L. *Thrombosis.*
4. *HAWLEY, M. C. *Studies of Blood-Pressure in States of Excitement and Depression.*
5. WELLER, C. V. *Age Incidence in Carcinoma.*
6. WARTHIN, A. S. *Heredity with Reference to Carcinoma.*
7. HOPKINS, A. H. *A Clinical Study of Vagotonia.*
8. *LAMB, A. R. *Experiences with Prophylactic Typhoid Vaccination: Its Effect on Menstruation.*
9. *HAUGLIK, P. J., AND COLLINS, R. J. *Hexamethylenamin: The Liberation of Formaldehyd and the Antiseptic Efficiency under Different Chemical and Biological Conditions.*

2. Harmer and Dodd present a series of x-ray photographs which show gastric stasis in cases where the stomach tube had failed to obtain fasting contents. The source of error lies in the fact that the tube does not always accommodate itself to the curves of the stomach wall and its tip may become impinged so that it does not reach the most dependent portion of the organ. The writers point out that failure to recover gastric residuum with the unaided stomach tube cannot be accepted as conclusive evidence of the absence of gastric stasis.

3. Aschoff discusses at length the experiments of many investigators on the subject of thrombosis. Neither endothelial damage nor a direct coagulation

of the blood play any rôle in thrombosis formation. Slowing of the blood stream and alteration of the blood elements themselves, especially the platelets, are the chief factors in the production of both static and toxic thrombosis. In the formation of static thrombi slowing of the blood stream is of prime importance, while for the toxic varieties changes in the blood elements have the dominating influence. Coagulation of fibrin almost inevitably follows thrombosis. First comes the erection of a morphological structure by a process of agglutination. Fibrin ferment is obtained from the agglutinated elements and cements them together by coagulation.

4. Hawley studied the blood pressure in mental cases at the Illinois Psychopathic Institute. In mania, he observed that pressure was always elevated. In stuporous cases it was low, probably because of relaxed blood vessels. In depressed states blood pressure is lower than in manic states, but higher than in stuporous states. In melancholia it is normal unless there is muscular resistance or some other factor to produce a rise.

8. Lamb reports the results of prophylactic inoculation against typhoid fever among nurses and attendants at the Presbyterian Hospital, New York. Of especial interest are his observations on the effect of the vaccine upon menstruation; 53% of the nurses vaccinated showed some type of menstrual disturbance, the type being very variable and more than one occurring occasionally in one person. Allowing for unavoidable errors in deduction, there is a very striking relationship between the vaccine and the menstrual disturbances, and between these disturbances and those seen in typhoid fever. The writer believes that the vaccination of women should be so arranged that the first inoculation will come a few days after a period. The second and third injections can then be given at seven-day intervals, leaving about a week before the succeeding period. A pregnant woman should not be vaccinated unless there is urgent indication for it.

9. Hanglik and Collins report on an elaborate clinico-chemical study of the antiseptic action of hexamethylenamin in body fluids. They find that hexamethylenamin itself is not bactericidal and that its beneficial therapeutic effects depend upon the formaldehyde liberated from it. This liberation depends upon the excess hydrogen ion concentration of the solution above the neutral point. Alkalies prevent and acids facilitate this liberation of formaldehyde in all normal and pathologic body fluids. After administration hexamethylenamin is present, but does not liberate free formaldehyde in blood, cerebrospinal, pleural, pericardial and synovial fluids, vitreous and aqueous humors, and alkaline urine. Formaldehyde is liberated in acid urine and in the acid gastric contents. The administration of monosodium phosphate with hexamethylenamin, by rendering the urine acid, facilitates this liberation. The administration of alkalies with hexamethylenamin is irrational.

[L. D. C.]

THE LANCET.

NOVEMBER 22, 1913.

1. GODLEE, R. J. *The Origin and Growth of the Royal College of Surgeons of England.*
2. DUCKWORTH, D. *Some Requirements for Modern Clinical Teaching.*
3. RUSSELL, J. S. R. *The Treatment of Neurasthenia.*
4. *COLLINSON, H. *Notes on Four Cases of Ureteral Calculus, in One of Which a Complete Cast of the Ureter was Present.*
5. *CROWE, H. W. *The Primary Cause of Rheumatoid Arthritis.*
6. TAYLOR, A. L. *A Case of Tumor of the Pituitary Body.*

4. This is an interesting clinical description of four cases of ureteral calculus, including one in which there was a remarkable calculous cast of the entire left ureter. The treatment and diagnosis of this condition is discussed briefly.

5. Crowe describes rheumatoid arthritis as a disease caused primarily by a common inhabitant of the skin, the micrococcus epidermidis deformans. These conclusions, if true, are of interest. [J. B. H.]

NOVEMBER 29, 1913.

1. GRIFFITH, T. W. *The Development of Our Knowledge of the Diseases of the Heart.*
2. MERCIER, C. A. *Astrology in Medicine.*
3. BAYON, H. *The Leprosy Problem in the British Empire.*
4. *STEPHENSON, S. *Tuberculosis of the Eye.*
5. GLOYNE, S. K. *The Examination of Tuberculous Pleural Fluids.*
6. ALLAN, G. A. *Tuberculous Meningitis (Bovine Infection) in an Infant Aged Twelve Weeks.*
7. JONES, A. R. *The Free Air Treatment of Skin Grafts.*
8. DYKES, A. L. *Eye Coloration in Relation to the Incidence, Severity and Fatality of Scarlet Fever and Diphtheria.*

4. This paper is a careful review of the general subject of ocular tuberculosis, including a fair bibliography. It presents nothing new. [J. B. H.]

BRITISH MEDICAL JOURNAL.

NOVEMBER 15, 1913.

1. *MOTT, F. W. *The Degeneration of the Neurone in the Light of Recent Research, Especially in Relation to Syphilis and General Paralysis.*
2. *BELL, W. B. *The Relation of the Internal Secretions to the Female Characteristics and Functions in Health and Disease.*
3. SHARP, J. G. *Epidemic Cervical Adenitis.*
4. WILSON, A. C. *Treatment of Gonorrheal Epididymitis by Bur's Method.*

THE BRITISH MEDICAL ASSOCIATION.

SECTION OF TROPICAL MEDICINE.

5. *DOUGLAS, S. R., ET AL. *Discussion on Dysentery.*
6. PRICE, G. B. *Discussion on the Causes of Invaliding from the Tropics.*
7. CANTLIC, J. *Some Recent Observations on Sprue.*
8. BIRT, C. *Phlebotomus Fever and Dengue.*
9. LOW, G. C., ET AL. *Discussion on Filariasis.*

1. Mott discusses the evidence supporting the syphilitic origin of general paralysis and tabes dorsalis, describes the work of Noguchi, and his own investigations on this subject. There are some interesting plates.

2. Bell discusses the effects of excessive ovarian, thyroid, suprarenal and pituitary secretion upon the female characteristics, as well as insufficiency of the same secretions and their effects.

5. Douglas and others discuss the subject of amebic dysentery from various points of view, as to diagnosis, treatment, statistics, pathology and morphology. [J. B. H.]

NOVEMBER 22, 1913.

1. GEBHARD, T. W., AND HARRISON, L. W. *The Treatment of Syphilis in Its Earlier Stages.*
2. *SCOTT, G. B. *The Treatment of Syphilis at the Royal Naval Hospital, Chatham.*
3. JORDAN, A. E. *"Standard" Opaque Meal for Radiographic Examinations.*
4. ALDONS, G. F. *Some Acute Abdominal Cases.*

THE BRITISH MEDICAL ASSOCIATION.

SECTION OF BACTERIOLOGY AND PATHOLOGY.

5. *Dixon, W. E., Woodhead, G. S., Thiele, F. H., Embleton, D., and Goodall, E. W. *Anaphylaxis.*
6. Coplans, M. *The Action of the Asbestos Minerals and Allied Materials on Bacterial and Other Substances.*
7. Farrant, R. *Hyperthyroidism: Its Experimental Production in Animals.*
8. Galt, H. M. *On the Value of the Blood Count as an Aid to Diagnosis in Obscure Bacterial and Other Infections.*
9. *Buchanan, R. M. *Empusa Muscae as a Carrier of Bacterial Infection from the House-fly.*
10. Crofton, W. M. *Two Cases of Paratyphoid B. Infection Treated with Vaccine.*
11. Coplans, M., and Lloyd, W. G. *On the Action of Asbestos on Certain Physiological Substances.*
12. Lyons, W. C. *Proteose-free Tuberculin.*

1, 2. These are excellent short practical papers dealing with syphilis and its treatment. Although nothing new is presented, the subject is handled so clearly and concisely as to render the article of distinct value.

5. These papers are of scientific rather than clinical interest. The difficult and complex subject of anaphylaxis is discussed from various standpoints.

9. Buchanan discusses the house-fly as a carrier of infection, especially of various fungoid growths such as empusa muscae. There are numerous excellent plates descriptive of this growth. [J. B. H.]

November 29, 1913.

1. *Lewis, T. *Paroxysmal Dyspnea in Cardio-Renal Patients, with Special Reference to "Cardiac" and "Uremic" Asthma.*
2. Bayon, H. *The Clinical and the Bacteriological Aspects of Leprosy.*
3. Blaxland, A. J., and Claridge, G. P. C. *Remarks on Acute Pancreatitis, with Notes of Seven Cases.*
4. *Deanesly, E. *The Diagnosis and Treatment of Intestinal Obstruction.*
5. Lawrence, H. G. *A Case Contributing to the Study of Fever Without Other Physical Signs.*
6. Heath, O. *The Significance of Frequency and Tenesmus in Acute Cystitis.*
7. Parker, R. *A Simple Splint for Flail Elbow.*

1. Lewis discusses cardiac and renal asthma as seen in many cardio-renal cases and discusses the cause of this phenomenon. Fundamentally he believes it to be due to an increased acidosis of the blood, which he discusses in some detail.

4. Deanesly discusses at some length the diagnosis and treatment of intestinal obstruction. He believes that large numbers of patients die each year from intestinal obstruction of a mechanical nature easily remedied by operation, who have been treated for chronic constipation with drugs, etc. He describes the symptoms, signs, etc., and operative treatment of this condition. [J. B. H.]

The Quarterly Journal of Medicine.

Vol. 7. No. 25. October, 1913.

1. *Ritchie, W. T. *Further Observations on Auricular Flutter.*
2. *Graham, G., and Poulton, E. P. *On the Variations in the Excretion of Endogenous Uric Acid Produced by Changes in Diet.*
3. Hall, I. W. *Review. Uricemia and Gout.*
4. *Parkinson, J., and Rowlands, R. A. *Strychnine in Heart Failure.*
5. *Sutherland, G. A., and Paterson, H. *On a Type of Cerebral Mal-development (Forebrain Aphasia).*
6. *Wallis, R. L. M. *On Sulphemoglobinemia.*

1. By auricular flutter is meant an extremely rapid but rhythmical action of the auricles, as distinguished from auricular fibrillation, in which there is a complete absence of rhythm. Ritchie has observed one case of auricular flutter and complete heart-block for seven and one-half years; the auricular rate varied from 250 to 276 a minute. Lately, however, the auricular rate has fallen to 190, and there has been a change in the electro-cardiagram and the auricular rate has become subject to vagus control, so that Ritchie considers the present state of the heart to be one of auricular tachysystole rather than true flutter. Ritchie also describes in detail the findings in the heart of a fatal case of flutter, in which lesions of the sino-auricular node were the most conspicuous. Lastly, he reports a case in which there were transitions between fibrillation, flutter, and an intermediate state. Under the influence of digitalis, as often happens, the condition changed to one of permanent fibrillation. This change has an analogy in the change from flutter to fibrillation noted experimentally when the vagus is stimulated during faradization of the dog's heart.

2. Graham and Poulton found a fall in the endogenous uric acid output under three conditions of nutrition: (1) On a diet of protein and fat of insufficient caloric value, while if most of the fat in this diet were replaced by carbohydrate there was no fall in the output; (2) in starvation during the first few days; and (3) on a diet of carbohydrate and fat. They consider that the cause of the diminution is "the interaction of protein and carbohydrate metabolism."

4. This article by Parkinson and Rowlands should be read by all who swear by strychnine as a cardiac stimulant. A careful study of the action of this drug in fifty cases of severe cardiac failure failed to show any effect whatever on the pulse rate, respiratory rate, blood pressure or general symptoms. The dose was one-fifteenth grain given subcutaneously, and the observations were continued for an hour after a single dose.

5. Sutherland and Paterson describe what they claim to be a new disease of the brain, on the basis of two cases. The symptoms during life were striking, and pointed to complete failure of development of the cerebral cortex, viz., absolute lack of intelligence, sight or hearing, and of sensation. Tonic and clonic spasms were a constant feature, the most frequent position being one of opisthotonos with pleurosthotonos, with the arms flexed and the legs extended. Tachycardia and tachypnea were very marked. At the autopsy there was almost complete aplasia of the cortex, with the exception of the occipital lobes. The vacant space was filled by a large amount of fluid in the pia-arachnoid.

6. Wallis throws new light on that remarkable disease, sulphemoglobinemia. The condition is characterized by cyanosis, often intermittent, headache, weakness and constipation. In methemoglobinemia the symptoms are the same except that there is diarrhea instead of constipation. The diagnosis depends upon the spectroscope examination of the blood, which shows a single band in the red in each of these two conditions. The band due to sulphemoglobin remains after the addition of ammonium sulphide to the blood, while that due to methemoglobin disappears. Wallis found a very strong reducing substance in the blood serum in all his five cases, the nature of which was not determined. Furthermore, the saliva in all contained large amounts of nitrites, and on cultivation yielded constantly a nitroso-bacillus (*i.e.* a bacillus yielding nitrites on cultivation in protein-containing media). A powerful reducing substance was also found in the cultures. [W. T.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT

No. 47. NOVEMBER 25, 1913.

1. *PAYR, E. *The Prophylaxis and Treatment of Peritoneal Adhesions.*
2. PÄSSLER, H. *Are the So-called Diatheses Anomalies of the Constitution?*
3. V. OPENCHOWSKI, T. *The Localization of Gastric Ulcer.*
4. SCHICK, B. *The Diphtheria-toxin Skin Reaction as a Measure for Prophylactic Diphtheria Serum Injections.*
5. FRITSCH. *Roentgen-ray Treatment of Tubercular Glands of the Neck.*
6. LOCH, R. *The Treatment of Scarlet Fever by the Injection of Serum from Convalescent Scarlet Fever Patients.*
7. FUNK, C. *Diet in Treatment from the Point of View of Studies with Vitamin.*
8. *DUNZELT, H. *The Differentiation of White Blood Corpuscles in the Counting Chamber.*
9. HEINZ, R. *Diogenal, a Bromide Containing Derivative of Veronal.*
10. BOAS, H. *Two Cases of Syphilitic Re-infection in Patients Treated by Salvarsan and Mercury Combined. The Results of Such Combined Treatment.*
11. V. BAEYER, H. *The Mechanical Treatment of the Ataxia of Tabes.*
12. BARDACH, K. *The Therapeutic Use of Intravenous Injections of Arthigonin.*
13. BUFE. *Results with Urea Bromin in the Treatment of Alcoholism.*
14. FRANKHAUSER, K. *The Treatment of a Severe Burn by Hot Air Currents.*
15. BACHEM, C. *A Stable Substitute for Tincture of Iodine in Solid Form.*
16. CIMBAL, W. *The Prevention of Poisoning from Hypnotics.*
17. ORLOVIOUS. *A New Flask for the Sterile Withdrawal of Blood for Bacteriological Investigations.*
18. LESCHKE, E. *A Trochar with a Side Opening.*
19. FRIEDRICH. *The Greek Military Hospitals at Saloniki and Athens at the End of the Second Balkan War. (Conclusion.)*
20. NASSAUER, M. *The High School for Physicians and Patients.*

1. Payr reports preliminary observations on the treatment of intestinal disturbances with the electromagnet. Payr has found that reduced iron oxide given in capsules is insoluble in neutral or weakly alkaline solution and is therefore not absorbed from the intestinal canal. In this way the intestines become rendered magnetic and in experimental animals were drawn in the direction of an electro-magnet placed on the abdominal wall. Experimentally, Payr found that the large intestine, stomach, or loops of small intestine could be moved in any desired direction, and that it was possible to break up artificial adhesions induced by iodine. His observations were controlled by x-ray plates. The process was harmless, since the animals showed no toxic manifestations, and as the intestines so treated showed no abdominal histological changes. Identical studies were made on a few patients. The results confirmed those made on animals, but as the technic was not perfected, Payr does not describe them in detail. Payr believes that by magnetizing the intestines in such fashion, much assistance may be derived in the treatment and diagnosis of intestinal adhesions. Future work will determine the value of his preliminary notes.

8. Dunzelt has devised a stain which may be used in an ordinary white blood counter to differentiate the types of leucocytes without coloring the red corpuscles. Its advantages are its simplicity and accuracy of staining. [R. F.]

ARCHIV FÜR KLINISCHE CHIRURGIE.

VOL. 102. PART 3.

24. *KÖRTE, W. *The Surgical Treatment of Malignant Disease of the Large Intestines (Except the Rectum).*
25. ROTTER, J. *Surgical Treatment of Cancer of the Colon.*
26. *NUNBERG, M. *Clinical Aspect of Epidural Hematoma.*
27. SCHANZ, A. *Treatment of Scoliosis.*
28. BÜDINGER, K. *Plastics on the Curvature in Hourglass Stomach.*
29. ALAPY, H. *Resection of the Knee-joint in Children.*

24. Körte's article is a detailed review of the treatment of cancer of the large intestine. His conclusions are as follows: (1) The particular dangers of resection of the large intestine, *i.e.* collapse and peritonitis, are due at one time to the peculiar anatomical relations of the portion of the intestines, at another time to the difficulty of handling its contents. (2) In acute obstruction it is possible to attain the drainage of the intestine only by means of colostomy; the radical operation must be done later. 3. In chronic obstruction, as well as in case of uncertain nourishment of the intestinal ends, the bringing out and suturing of the loops to the abdominal wall is the safer though slower method. (4) With sufficient drainage, good blood supply and apposition of the ends without tension, primary resection and suture are indicated. (5) The different anatomical relations of each part of the large intestine require correspondingly different operative technic. (6) The likelihood of cure is favorable.

7. Of the palliative operations, enteroanastomosis is the best procedure provided there is no obstruction. In cases with obstruction, colostomy is the best method. Colectomy and enteroanastomosis should be done secondarily to drainage of the intestine.

26. Nunberg, from a study of the cases of intracranial hemorrhage in Kraske's clinic, concludes that epidural hemorrhage can cause death without giving any of the classical symptoms of increased intracranial pressure. Certain other signs appeared, however, among which may be noted motor unrest and disturbance of the oculomotor nerve. He believes that exploratory trephine or puncture should be done more frequently, and that such procedure has been without ill effect in Kraske's clinic. [G. G. S.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 37. SEPTEMBER 11, 1913.

1. *HERING, H. E. *The Pathology of Cardiac Insufficiency.*
2. LAMPE, A. E. *Abderhalden's Test in Phthisis.*
3. FULCI, F. *Power of Regeneration of the Mammalian Thymus.*
4. STRAUSS, H. *Tests of Liver Function.*
5. BUSCHKE, A. *The Relation Between Human and Animal Syphilis.*
6. BECKER, W. H. *Internal Treatment of Exophthalmic Goitre.*
7. DREESEN, H. *Diathermia.*
8. *WOLFF, G. *A Case of Tetanus Neonatorum with Recovery.*
9. SAVINI, E. *Varicella in Adults.*
10. GAUSE, A. *Simple Qualitative and Quantitative Test for Sugar in the Urine by Means of Fermentation.*
11. LOEB, S. *Tests of Light and Color Perception.*
12. PICK, J. *Treatment of Chronic Frontal Sinusitis.*

1. Hering states that cardiac insufficiency comprises not only diminished contractility, but also any other change affecting its function, as, for example, hyperirritability. The early symptoms of cardiac

weakness are largely subjective, and are often overlooked. Irregularity, extra systole and dropped beats are all early symptoms, and denote, besides loss of contractility, less power to generate and transmit impulses. Often these symptoms are accompanied by areas of hypersensitiveness in the skin, as Mackenzie has pointed out. The author speaks of these symptoms as the economic symptoms, and believes that they signify loss of tonus. In syphilitic aortitis, they denote either beginning occlusion of the coronaries or involvement of the aortic cusps. The author lays great emphasis on the importance of searching for these economic symptoms in all cases, and in establishing their presence or absence in the presence of other symptoms of cardiac disease.

9. Wolff's patient was a child nine days old when symptoms first developed. It was given 300 units of tetanus antitoxin during three days. The first dose of serum was injected near the umbilicus, the rest in the abdominal wall, part subcutaneously, part intramuscularly. Chloral, 0.5 gms., was administered by rectum daily for eighteen days. The maximum dose given in one day was 1.5 gms. The child was kept in profound stupor, and was fed through a stomach tube. The author believes that the profound narcosis conserved the child's strength, and allowed the administration of nourishment. After the eighteenth day the chloral was reduced to 0.25 gm. On the twenty-seventh it was omitted and natural feeding begun. [C. H. L., Jr.]

No. 38. September 18, 1913.

1 and 2. *Hirsch, C., and Loeb, O. *Arteriosclerosis.*
3. Kauffmann, R., and Popper, H. *Paroxysmal Tachycardia.*
4. *Möllers, B. *Etiology of Surgical Tuberculosis.*
5. Hahn, B. *Treatment of Acute Pleural Emphysema.*
6. Steiner, M. *Spontaneous Cure of Echinococcus Cyst of the Lung.*
7. Senge, J. *Hypophysin.*
8. Lange, H. *A New Method of Sterilizing Small Quantities of Drinking Water.*
9. Nördenloft, S. *Endoscopy by Means of a Trocar.*

1 and 2. Hirsch's article is a discussion of the theoretical causes of arteriosclerosis.

Loeb reports the production of arteriosclerosis in dogs; the first time the lesion has been produced in animals other than rabbits. He has demonstrated that lactic acid may be instrumental in producing the condition, a finding of importance in view of the fact that muscular work greatly increases the lactic acid content of the blood. Loeb suggests that this increased production may be combated by avoiding extreme exertion and by dietetic limitation, or that the action of the acid on the arteries may be in some degree neutralized by increasing the ammonia content of the blood.

4. The author has collected 163 cases of tuberculosis of the bones and joints in which careful bacteriological examinations were made. Of these, only 4 cases showed the bovine type of bacillus. In marked contrast are the findings of Frazer, who in 70 cases found 41 of the bovine type, 26 of the human type, and 3 of mixed infection. [C. H. L., Jr.]

Bulletino delle Scienze Mediche.

April, 1913.

1. *Beccari, L. *The Function of the Sinus and the Automatism of the Frog's Heart.*
2. Lougo, C. *The Action of Sodium Chloride on Normal and Pathological Kidneys.* (*To be continued.*)

1. Beccari presents three graphic tracings from experiments on the frog's heart, from which he concludes that the only really automatic centre of cardiac activity is the venous sinus and its gangliary elements.

Miscellany.

REPORT OF BRITISH ROYAL COMMISSION ON VENEREAL DISEASES.

The British Royal Commission on Venereal Diseases, which was appointed as a result of the action taken by the International Medical Congress at its meeting in London last August, has recently issued its first official report of its first two meetings on Nov. 7 and 10. Preliminary evidence was given by Dr. Stevenson from the general register office, and statistic evidence by General May as to the prevalence of venereal diseases in the Navy:—

"Dr. Stevenson thought that although the quality of certification generally was improving, there undoubtedly existed a reluctance on the part of medical practitioners to certify venereal diseases as a cause of death, and that consequently the figures contained in the report were minimum figures. He agreed also that there were doubtless many cases of death indirectly due to venereal diseases which are not demonstrated by the tables of the report. At the same time he considered that although the figures do not express the facts, they bear some relation to the facts, and must be regarded as having a distinct comparative value. For instance, he attached importance to figures showing that the death-rate from syphilis in London is four times as high is in the rural districts, and that in descending the scale from the densely populated to the rural districts the death-rate becomes progressively lower.

Dealing with the question of improving certification, Dr. Stevenson strongly advocated a general system of confidential certification under which certificates of the cause of death would not be handed over to the surviving relatives.

"The director-general of the Navy Medical Department gave figures extending over the period from 1905 to 1912. These figures showed evidence of decline both in regard to syphilis and gonorrhea. The figures of the number of cases, and of the number of days lost through sickness for 1912 showed a far more accentuated fall as regards venereal diseases than for any other disease.

"The director-general considered that the reduction in the figures might be due rather to the better education of the sailor in health matters than to the diminution in the prevalence of diseases in the ports. He thought that the men had absolute confidence in their medical officers, and that concealment of the disease was practically non-existent. It is the practice in the navy for medical officers to give lectures on hygiene to the men, and this system was beginning to show very good results, and the admiralty had great hopes of it. With regard to invalidings from the service on account of venereal disease, the director-general thought that the rather sharp fall in

1911, which was disclosed in the tables, should be attributed to improved methods of treatment."

FREE PUBLIC LECTURES ON MEDICAL SUBJECTS.

THE faculty of medicine of Harvard University offers a course of free public lectures, to be given at the medical school, Longwood Avenue, Boston, on Sunday afternoons, beginning Jan. 4, and ending May 10, 1914. The lectures will begin at 4 o'clock and the doors will be closed at five minutes past the hour. No tickets are required. The schedule of lectures is as follows:—

Jan. 4—Dr. W. B. Cannon, Recent studies of the bodily effects of fear and rage.
Jan. 11—Dr. John Lovett Morse, Rational infant feeding.
Jan. 18—Dr. J. E. Goldthwait, The effect of habits of posture upon health.
Jan. 25—Dr. R. B. Greenough, The tumors and diseases of the breast. (To women only.)
Feb. 1—Dr. J. S. Stone, Some surgical diseases of childhood and their causes.
Feb. 8—Dr. A. Coolidge, Jr., Adenoids and tonsils.
Feb. 15—Dr. Charles S. Minot, Microscopical mechanisms of the brain.
Feb. 22—Dr. E. W. Taylor, Some Causes of nervous instability.
March 1—Dr. William P. Cooke, Tooth preservation in children and adults.
March 8—Dr. Charles J. White, Skin nostrums.
March 15—Dr. E. H. Bradford, Chairs, backache and curved spine.
March 22—Dr. Charles H. Williams, Spectacles and eye-glasses. Their use and abuse.
March 29—Dr. E. P. Joslin, Diet in relation to diseases of the kidney.
April 5—Dr. Clarence J. Blake, Aid for the deaf.
April 12—Dr. E. E. Southard, Eugenics versus cacogenics.
April 19—Dr. F. S. Newell, The hygiene of pregnancy. (To women only.)
April 26—Dr. J. Bapst Blake, The diagnosis and immediate treatment of lesser injuries, including the use and abuse of antiseptics.
May 3—Dr. W. H. Smith, Arteriosclerosis.
May 10—Dr. E. H. Nichols, The sexual instinct: its use and abuse. (To men only.)

APPOINTMENTS.

DR. LIVINGSTON FARRAND, professor of anthropology in Columbia University, has been recently elected president of the University of Colorado.

DR. WILLIAM JOSEPH GALLIVAN, of South Boston, chief of the division of child hygiene in the Boston health department, has recently been appointed by the Mayor to the vacancy on the Board of Health left by the resignation, over two years ago, of Dr. Samuel Holmes Durgin.

RECENT DEATHS.

DR. JAMES P. SIEDMAN, who died Dec. 24 in Brockton, Mass., was born at Yarmouth, N. S., in 1857. He received the degree of M.D. in 1882 from Boston University Medical School, and since 1892 had practised his profession in Brockton. He was a member of the American Institute of Homeopathy and of the Massachusetts Homeopathic Medical Society. He is survived by his widow, by one daughter, and by one son.

DR. EDGAR MARTINDALE HERMANCE, a prominent physician of Yonkers, N. Y., died from pneumonia on December 22, at the age of 59 years. He was a native of New York City, and was graduated from the College of Physicians and Surgeons in 1878. He had served as commissioner of public safety and as president of the board of health of Yonkers, and at the time of his death was consulting surgeon to St. John's Riverside Hospital and the Westchester County Hospital.

DR. WILLIAM C. BARTRAM, of Newburgh, N. Y., assistant surgeon and radiologist to St. Luke's Hospital in that city, died on December 17 from septicemia resulting from a needle prick received while operating a few weeks previously. He was 34 years old and was graduated from the medical department of Columbia University, New York, in 1904; after which he took a course of post-graduate study in Vienna.

DR. GABY H. WOOD, of Antwerp, N.Y., died from Bright's disease on December 18, at the age of 50 years. He was for some time a member of the Legislature from Jefferson County.

DR. RICHARD G. P. DIEFFENBACH, of Newark, N. J., died from cerebral apoplexy on December 17, at the age of 62. He was attending surgeon to the Newark German Hospital and treasurer of that institution.

SOCIETY NOTICE.

THE BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on Tuesday evening, Jan. 6, 1914, in the amphitheatre of the Peter Bent Brigham Hospital at 8.15 o'clock. The meeting will be conducted by the Historical Club of the Harvard Medical School (Mr. William J. Kerr, secretary).

Papers will be presented as follows:—

Dr. Thomas Ordway, "Hodgkin's Disease." Exhibition of a case.

Dr. L. W. Hackett, "The Medical Side of Benjamin Franklin."

Dr. E. E. Southard, "Some Neuropathological Worthies."

THOMAS ORDWAY, *Secretary and Treasurer,*
Harvard Medical School.

BOOKS AND PAMPHLETS RECEIVED.

Northwestern University Bulletin. Medical School Announcement, 1913-1914. Chicago, Ill.

A Model State Law for Morbidity Reports. Reprint No. 133, from Public Health Reports. Washington, D. C.

Fumigation of Vessels for the Destruction of Rats. Reprint No. 132 from Public Health Reports, Washington, D. C.

Coprostasis by Sir James Sawyer. Cornish Bros., Birmingham. 1912.

Proceedings of the Pathological Society of Philadelphia. New Series Vol. xv, Old Series Vol. xxxiii. Philadelphia. 1913.

The Impossibility of Differentiation between Monkey Blood and Human Blood by Means of Antisera Derived from Monkeys, by Hugh K. Berkeley. Reprint.

Protein-Split Products in Relation to Immunity and Disease, by Victor C. Vaughan, M.D., Victor C. Vaughan, Jr., and J. Walter Vaughan, M.D. Lea & Febiger. 1913.

Principles and Practice of Gynecology, by E. C. Dudley, A.M., M.D. Sixth Edition. Lea & Febiger. 1913.

Original Articles.

THE EFFECT OF DIGITALIS ON THE BLOOD PRESSURE AND PULSE PRESSURE IN THE PRESENCE OF CARDIAC DECOMPENSATION.

BY CHARLES H. LAWRENCE, M.D., BOSTON,

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From the West Medical Service, Massachusetts General Hospital, Dr. Richard C. Cabot, Chief of Service.

In the majority of writings upon digitalis, it is stated that one effect of the drug is to raise the systemic blood pressure[1] and that for this reason its use is contraindicated in those conditions in which an increase of circulatory tension might give rise to unfortunate results. Thus Allbut,[2] writing in a recent system of treatment, states that, "In angina pectoris digitalis and its kind are for obvious reasons to be eschewed." Likewise, it is the opinion of a large number of writers that in the hypertension of arteriosclerosis and chronic nephritis there exists a strong contraindication to the administration of the most efficient cardiac tonic known. As a result of this teaching, digitalis is not administered in many cases of cardiac decompensation because there is a co-existing arteriosclerosis, hypertension, or angina pectoris.

It is an undoubted fact that digitalis does raise the blood pressure in animals.[3] There is reason to believe that it has the same effect when administered to healthy individuals. The basis for this belief is found in the recent work of Marvin,[4] who administered tincture of digitalis to a series of medical students. He found that a single dose of the drug (14 minims) caused no rise in pressure for an hour and twenty minutes after its administration, but that there was a marked rise later, reaching its maximum in five hours, and reaching normal by a gradual fall occupying fifty hours.

It is upon the basis of this work on animals and normal individuals that the conclusion has been reached that digitalis causes a rise in blood pressure when administered to individuals suffering from cardiac decompensation. Such observations, however, as have been reported on this question seem to show that this is not the case. Price[5] made observations on the systolic pressure of twenty-one patients who were receiving therapeutic doses of digitalis, and noted a rise in pressure in only one instance. He concludes from his work that "judged by the methods in use for observing the blood pressure clinically, the internal administration of digitalis does not raise the blood pressure in man by constricting the peripheral arteries." Of a similar tenor are Mackenzie's conclusions.[6] "Contrary to expectations," he found a rise in pressure following the administration of digitalis "only in exceptional cases," even though he repeatedly pushed the dose until distinct evidence of its physiological action was produced. "Even when the patient was greatly benefited by the drug," says Mackenzie, "I have frequently seen little or no evidence of a rise in blood pressure."

It is the purpose of this paper to contribute to our knowledge of the effect of digitalis when administered to patients with cardiac decompensation from various causes. Observations are reported on twenty-five cases taken at random from the records of the Massachusetts General Hospital. In the majority of cases these readings were made by the house officers in the routine treatment of the case, and without special reference to the effect of digitalis. In five cases, observations were made twice daily by the writer. Both systolic and diastolic pressure were recorded. The cases include valvular cardiac disease, arteriosclerosis with myocardial degeneration, angina pectoris, and chronic nephritis with hypertension. All the patients had more or less cardiac decompensation, as shown by the presence of one or more of the classical symptoms of that condition. The digitalis was administered in the form of digipuratum in all but a few cases. These received an active tincture. The accompanying table gives a brief description of each case, together with the average blood pressure readings before, during, and immediately after the use of the drug; also at discharge from the hospital. The presence or absence of diuresis, and the other effects of treatment, are also noted.

Case 1. Male, 57 years. Arteriosclerosis. Marked edema of feet and legs. Urine at entrance, ℥50. Given digipuratum, two tablets daily for six days. Blood pressure: before digitalis, S. 185, D. 110; tafer digitalis, S. 190, D. 120; at discharge, S. 200, D. 120. No diuresis from digitalis, discharged relieved.

Case 2. Male, 49 years. Syphilitic aortitis, Hypertrophy and dilatation of heart, infarct of lung. Shifting dullness in abdomen, marked edema of feet, legs and thighs. Urine at entrance, ℥50. Given digipuratum, nine tablets in four days. Urine rose to ℥65 the fourth day. Blood pressure: before digitalis, S. 200, D. 95; after digitalis, S. 180, D. 85. Discharged relieved.

Case 3. Female, 45 years. Acute bronchitis, chronic endocarditis of mitral and aortic valves. Slight edema of ankles and shins. Urine at entrance, ℥40. Given digipuratum, two tablets daily for three days, then one tablet daily for four days. Urine rose to ℥70 on fourth day. Blood pressure: before digitalis, S. 145, D. 85; after digitalis, S. 115, D. 75. Discharged relieved.

Case 4. Male, 26 years. Acute vegetative endocarditis, chronic endocarditis, streptococcus infection of kidneys, syphilis. No edema. Urine at entrance, ℥35. Digipuratum, three tablets daily for seven days. No diuresis. Blood pressure: before

digitalis, S. 140, D. 55; after digitalis, S. 170, D. 50. Discharged not relieved.

CASE 5. Male, 58 years. Syphilis, myocardial weakness, arteriosclerosis, hypertrophy and dilatation of heart. Edema of lungs, liver and legs. Urine at entrance, ʒ16. Digipuratum, three tablets daily for nine days. Urine rose to ʒ40 on the third day. Blood pressure: before digitalis, S. 175, D. 130; after digitalis, S. 170, D. 110; at discharge, S. 150, D. 95. Discharged relieved.

CASE 6. Male, 60 years. Myocardial weakness. Marked edema of thighs and legs, edema of lungs. Urine at entrance, ʒ12 (?). Digipuratum, four tablets daily for four days, then three tablets daily for three days. Urine rose to ʒ58 on the fifth day. Blood pressure: before digitalis, S. 180, D. 90; after digitalis, S. 170, D. 90; at discharge, S. 150, D. 90. Discharged relieved.

CASE 7. Male, 67 years. Arteriosclerosis, coronary sclerosis, angina pectoris, hypertrophy and dilatation of heart, terminal pericarditis. No edema. Urine at entrance, ʒ35. Digipuratum, three tablets daily for five days, then one tablet daily for eight days. No diuresis. Blood pressure: before digitalis, S. 160, D. 115; after digitalis, S. 160, D. 110; at discharge, S. 160, D. 110. Discharged dead.

CASE 8. Male, 64 years. Syphilitic aortitis, aortic regurgitation. Trifling edema of ankles. Urine at entrance, ʒ40. Digipuratum, three tablets in 24 hours. Urine rose to ʒ60 on the third day. Blood pressure: before digitalis, S. 150, D. 60; after digitalis, S. 130, D. 45. Discharged relieved.

CASE 9. Male, 53 years. Chronic nephritis, myocardial insufficiency, anasarca. Marked edema of legs, abdominal wall, back and lower part of chest. Urine at entrance, ʒ40. Digipuratum, two tablets daily for six days. Urine rose to ʒ75 on the fourth day. Blood pressure: before digitalis, S. 200, D. 110; after digitalis, S. 170, D. 95; at discharge, S. 170, D. 100. Discharged relieved.

CASE 10. Male, 53 years. Aortic stenosis and regurgitation, adhesive pericarditis, arteriosclerosis. Marked soft edema of legs. Urine at entrance, ʒ50. Digipuratum, three tablets daily for 14 days. No diuresis. Blood pressure: at entrance, S. 160, D. 60; after digitalis, S. 130, D. 50. Discharged dead.

CASE 11. Female, 40 years. Mitral stenosis and regurgitation, auricular fibrillation. Slight edema of lungs, shins and ankles. Urine at entrance, ʒ15. Digipuratum, two tablets daily for 11 days. Urinary output thought increased, exact measurement impossible. Blood pressure: at entrance, S. 150, D. 105; after digitalis, S. 120, D. 80. Discharged relieved.

CASE 12. Female, 46 years. Mitral and aortic stenosis and regurgitation, stasis. Left hydrothorax, marked edema of legs and back. Urine at entrance, ʒ35. Digipuratum, 11 tablets in five days. No diuresis. Blood pressure: at entrance, S. 130, D. ? twice later during and after digitalis, S. 130, D.? Discharged dead.

CASE 13. Female, 41 years. Mitral stenosis. Slight edema of shins. Urine lost. Digipuratum, two tablets daily for five days. Tincture, m. 10 every six hours for four days. Blood pressure: at entrance, S. 100, D. 80; after digitalis, S. 120, D. 80; at discharge, S. 120, D. 80.

CASE 14. Male, 37 years. Myocardial disease. Double hydrothorax, marked edema of legs. Urine at entrance, ʒ40. Digipuratum, two tablets daily for five days, one tablet daily for four days. No diuresis. Blood pressure: at entrance, S. 125, D. 100; after digitalis, S. 110, D. 90; 48 hours after digitalis was omitted, S. 120, D. 100. Discharged dead.

CASE 15. Male, 52 years. Chronic glomerulo nephritis. Slight edema of lungs, ankles and shins. Urine at entrance, ʒ35. Digipuratum, two tablets daily for five days, one tablet daily for seven days. No marked diuresis, slight permanent increase in urinary output. Blood pressure: at entrance, S. 195, D. 120; four days after beginning digitalis, S. 180, D. 120; at discharge (digitalis previously omitted), S. 200, D. 120. Discharged relieved.

CASE 16. Male, 43 years. Aortic and mitral disease, broken cardiac compensation. Edema of lungs, legs, and sacrum. Urine at entrance, ʒ50. Digipuratum, one tablet daily for six days. No diuresis. Blood pressure: at entrance, S. 125, D. 70; after digitalis, S. 140, D. 50; at discharge, S. 140, D. 50. Discharged relieved.

CASE 17. Male, 54 years. Myocardial weakness, broken cardiac compensation. Edema of lungs and legs. Urine at entrance, ʒ45. Digipuratum, two tablets daily for nine days. No diuresis. Blood pressure: at entrance, S. 115, D. 85, after digitalis, S. 115, D. 80; at discharge, S. 125, D. 90. Discharged relieved.

CASE 18. Male, 25 years. Malignant endocarditis. Slight edema of lungs. Urine at entrance ʒ15. Digipuratum, two tablets daily for three days. Urine rose to ʒ60 on the third day. Blood pressure: at entrance, S. 130, D. 20; after digitalis, S. 130, D. 20; eight days later S. 115, D. 50. Discharged dead.

CASE 19. Male, 47 years. Myocardial weakness, hypertrophy and dilatation of heart, chronic nephritis, uremia. Edema of lungs and ankles. Urine at entrance, ʒ25. Digipuratum, three tablets daily for six days. No marked diuresis, but gradual increase of urinary output. Blood pressure: before digitalis, (four readings during seven days), S. 150, D. 120. During and immediately after digitalis, (three readings), S. 125, D. 90. Discharged unrelieved.

CASE 20. Male, 57 years. Arteriosclerosis, myocardial weakness. Ascites, edema of legs and abdominal wall. Urine at entrance, ʒ45. Digipuratum, 2 tablets daily for 21 days. Passed ʒ200 of urine five days after digitalis was begun. Blood pressure as follows:

Before digitalis, S. 180, D. 125.
48 hours after digitalis was begun, S. 180, D. 95.
96 hours after digitalis was begun, S. 170, D. 80.
7 days after digitalis was begun, S. 175, D. 90.
9 days after digitalis was begun, S. 180, D. 80.
12 days after digitalis was begun, S. 170, D. 90.

20 days after digitalis was begun, S. 185, D. 100. Discharged relieved.

CASE 21. Male, 48 years. Arteriosclerosis, hypertrophy and dilatation of heart, specific aortitis, pericardial adhesions. Edema of lungs, liver, lower legs. Urine at entrance, ʒ35. Digipuratum, 12 tablets in four days. Urine rose to ʒ70 on the fourth day. Blood pressure: at entrance, S. 190, D. 130; after digitalis S. 150, D. 80; at discharge, S. 120, D. 70. Discharged relieved.

CASE 22. Male, 60. Arteriosclerosis, hypertrophy and dilatation of the heart right hydrothorax, moderate edema of lower legs and thighs. Urine at entrance, ʒ35. Digipuratum, average dose for 13 days, three tablets daily. Urine rose to ʒ50 on the sixth day. Digitalis heart block produced. Blood pressure: at entrance, S. 130, D. 90.
24 hours after digitalis was begun, S. 130, D. 80.
48 hours after digitalis was begun, S. 130, D. 80.
9 days after digitalis was begun, S. 120, D. 75.
During period of heart block, S. 140, D. 85.
Discharged relieved.

CASE 23. Female, 11 years. Chronic endocarditis, double mitral disease. Soft edema of both shins. Urine at entrance, ʒ35. Tincture of digitalis, m. 10 t. i. d. for seven days. Urine rose to ʒ70 on the fourth day. Blood pressure, at entrance, S. 100, D. 70; after digitalis, S. 95, D. 60, at discharge, 10 days after digitalis was omitted, S. 100, D. 75. Discharged relieved.

CASE 24. Female, 34 years. Chronic endocarditis, double mitral disease. Urine at entrance, ʒ30. Digipuratum, s. c. two ampules daily for 20 days. No diuresis. Blood pressure: at entrance, S. 95, D. 80. Six days later, S. 95, D. 65. Fifteen days later, S. 95, D. 60. Discharged relieved.

CASE 25. Male, 28 Chronic glomerulo nephritis, hypertrophy and dilatation of the heart, albuminuric retinitis. Marked edema of lungs, liver, legs and thighs. Urine at entrance ʒ30. Digipuratum, two tablets daily for seven days. Urine rose sharply to ʒ60 on fourth day. Blood pressure: at entrance, S. 180, D. 120; after digitalis, S. 160, D. 100; ten days after digitalis was omitted, S. 170, D. 100. Discharged dead six weeks after last reading recorded here.

CASE 26. Male, 32 years. Chronic glomerulo nephritis, hypertrophy and dilatation of the heart, marked edema of feet, legs and thighs. Urine at entrance, ʒ60. Digipuratum, one tablet t. i. d. for six days. Slight diuresis. Blood pressure: at entrance, S. 170, D. 130; after digitalis S. 140, D. 100; at discharge S. 140, D. 90. Discharged much relieved.

SUMMARY OF CASES.

Case.	Age.	Diagnosis	Blood Pressure. Before Digitalis.	After Digitalis.	Diuresis.*	Remarks.
1	57	Arteriosclerosis	S. 185 D. 110	S. 200 D. 120	None	
2	49	Syphilitic aortitis	S. 200 D. 95	S. 180 D. 85	30%	
3	45	Chronic endocarditis	S. 145 D. 85	S. 115 D. 75	75%	
4	26	Ac. and chr. endocarditis Syphilis	S. 140 D. 55	S. 170 D. 50	None	Streptococcus infection of kidneys developed.
5.	58	Syphilis Myocardial weakness	S. 175 D. 130	S. 170 D. 110	100% –	Pressure at discharge, S. 150, D. 95.
6	60	Myocardial weakness	S. 180 D. 90	S. 170 D. 90	400% -	Pressure at discharge, S. 150, D. 90.
7	67	Arteriosclerosis Angina pectoris	S. 160 D. 115	S. 160 D. 110	None	Some relief from anginal attacks.
8.	64	Syphilitic aortitis	S. 150 D. 60	S. 130 D. 45	50%	
9	53	Chr. nephritis Myocardial insufficiency	S. 200 D. 110	S. 170 D. 100	90%	
10	53	Aortic stenosis and regurgitation Adhesive pericarditis	S. 160 D. 60	S. 130 D. 50	None	
11	40	Mitral stenosis and regurgitation	S. 150 D. 105	S. 120 D. 80	Urine increased, exact amount not known	Auricular fibrillation.
12	46	Mitral and aortic stenosis and regurgitation	S. 130 D. ?	S. 130 D. ?	None	

SUMMARY OF CASES.

Case.	Age.	Diagnosis.	Blood Pressure. Before Digitalis.	Blood Pressure. After Digitalis.	Diuresis.*	Remarks.
13	41	Mitral stenosis	S. 100 D. 80	S. 120 D. 80	Urine lost	
14	37	Myocardial disease	S. 125 D. 100	S. 110 D. 90	None	Died
15	52	Chronic nephritis	S. 195 D. 120	S. 180 D. 120	No marked diuresis, slight permanent increase.	
16	43	Aortic and mitral disease	S. 125 D. 70	S. 140 D. 50	None.	
17	54	Myocardial weakness	S. 115 D. 85	S. 115 D. 80	None	
18	25	Malignant endocarditis	S. 130 D. 20	S. 130 D. 20	300%	Died
19	47	Myocardial weakness Chronic nephritis	S. 150 D. 120	S. 125 D. 90	Slight	
20	57	Arteriosclerosis Myocardial weakness	S. 180 D. 125	S. 170 D. 80	300%	Passed 3200 of urine on the fifth day of digitalis.
21	48	Arteriosclerosis Syphilitic aortitis	S. 190 D. 130	S. 150 D. 80	100%	
22	60	Arteriosclerosis	S. 130 D. 90	S. 130 D. 80	35%	Heart block produced.
23	11	Chronic endocarditis	S. 100 D. 70	S. 95 D. 60	100%	
24	34	Chronic endocarditis	S. 95 D. 80	S. 95 D. 65	None	
25	28	Chronic nephritis	S. 180 D. 120	S. 160 D. 100	100%	
26	32	Chronic nephritis	S. 170 D. 130	S. 140 D. 100	Slight	

*The percentage figures in the diuresis column represent the relation of the increase in urinary output to that before digitalis was administered.

Of the 26 cases recorded, 5, or 19%, showed a rise in systolic pressure, the greatest increase noted being 30 m.m. in Case 4. There was present in this case an acute infection, involving the heart and kidneys. Of the group of cases showing a rise in systolic pressure, none showed a diuresis.

Four cases, or 15%, showed no change in systolic pressure. Of these, none showed a diuresis.

Seventeen cases, or 66%, showed a fall in systolic pressure either during or immediately after the administration of digitalis preparations. Of these, 88% showed a diuresis.

Only one case showed a rise in diastolic pressure. There was no diuresis.

Four cases, or 15%, showed no change in diastolic pressure. Of these, 75% showed a diuresis.

Twenty cases, or 74%, showed a fall in diastolic pressure, 63% of these showing a diuresis.

Twelve cases, or 45%, showed an increased pulse pressure, a diuresis occurring in 50% of this group.

Three cases, or 11%, showed no change in pulse pressure. A diuresis occurred in every case in this group.

Eleven cases, or 42%, showed decreased pulse pressure. A diuresis appeared in 81%.

From these figures it appears that in the presence of cardiac decompensation digitalis preparations cause, as a rule, a fall in blood pressure, which is usually associated with an increased urinary output. An increased systolic pressure occurs in a small number of cases, and is not associated with a diuresis. It would appear, therefore, that conditions in which an increased systolic pressure might produce untoward results do not constitute a contraindication to the administration of digitalis, if cardiac decompensation indicates its administration. Such conditions include arteriosclerosis, angina pectoris, and nephritic hypertension. The effect of digitalis on the diastolic pressure is similar to that on the systolic, but as the writer has pointed out in a previous paper,[1] changes in

diastolic pressure are usually of less amplitude than those observed in systolic pressure. For this reason a fall in systolic pressure usually means a diminished pulse pressure. Such a diminished pulse pressure does not necessarily mean a decreased efficiency of the circulation, if the ratio of pulse pressure to maximum pressure is increased. Indeed, such a change may coincide with an increased efficiency of the circulation, as is shown by the fact that in 81% of the cases showing a decreased pulse pressure there occurred a diuresis.

Of the 26 cases studied, 18 were discharged relieved. Of these, 76% showed a fall in systolic, and 86% showed a fall in diastolic pressure during or immediately after the administration of digitalis. It appears, therefore, that such a fall is entirely compatible with improvement in the patient's condition. Two cases were discharged unrelieved, and six cases died. No conclusions can be drawn from this last small group of observations, especially as the changes in blood pressure noted were about evenly divided as to increased or diminished readings.

CONCLUSIONS.

1. The effects of various drugs on the blood pressure, as determined by experiments on animals, do not furnish reliable criteria for the administration of such drugs to man, since the effect may be quite different in the latter.

2. The pressure-raising effect of digitalis noted in animals and in healthy individuals does not occur, as a rule, when the drug is administered to individuals suffering from cardiac decompensation.

3. The cause of the cardiac decompensation does not appear to affect the action of the drug.

4. Digitalis preparations may be safely administered to patients suffering from arteriosclerosis, angina pectoris, or nephritic hypertension, if cardiac decompensation is present; under such conditions it rarely causes a rise in blood pressure.

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Report from Centralia, Pa., on Dec. 30, states that Mrs. Mary Horn, who died lately in that city, was locally reputed to be 107 years of age. She is said to have been born in 1806.

RECTAL ALIMENTATION.*

BY HARRY W. GOODALL, M.D., BOSTON

Recent investigations of the physiology of the alimentary tract have explained in a large measure why food materials introduced by the rectum fail to satisfy the needs of the body as they do when administered by mouth. At the same time sufficient evidence regarding the ability of the large intestine to absorb nutritive materials has accumulated to stimulate renewed efforts in this direction, with results that are encouraging and promise to be of some practical value.

Inasmuch as there can be no question as to the value of successful rectal alimentation the subject is worthy of a complete review.

PHYSIOLOGY OF DIGESTION AND ABSORPTION.

Digestion and absorption occur chiefly in the small intestine. It is now an established fact that foodstuffs must be disintegrated into comparatively simple fragments before they can be absorbed. Proteins are absorbed as amino-acids, carbohydrates as monosaccharide sugars, fats as soaps, fatty acids, and probably as emulsified fats. One of the chief causes of the failure of earlier attempts at rectal feeding was the fact that the food was not presented in an absorbable form and that the large intestine contains no digestive ferments.

The more recent experiments have had to do with the introduction of compounds which do not require digestion for their absorption. The belief that the body could be nourished under these conditions was encouraged by the experimental proof that amino-acids, simple sugars, fatty acids, glycerol and inorganic salts are built up with apparent ease into living tissue when fed to animals, that not only is excellent nutritive equilibrium maintained, but that animals even gain weight. Work along this line, however, has shown that the problem is not a simple one. While the mucous membrane of the entire alimentary tract from the mouth to the anus is an absorbing surface, and while osmosis and diffusion play a part in the process of absorption, of far greater consequence is the selective activity of specialized epithelial cells which are found only in a portion of the alimentary tract, chiefly in the small intestines. In general it may be said that osmosis and diffusion play a more important part in the absorption of water and salts, while the selective action of the cells is chiefly concerned in the absorption of organic material. Again the path of absorption is not the same for all substances which are absorbed: fats are taken up by the lymphatics, while practically all other substances are absorbed by the blood vessels.

* Read at the quarterly meeting of the staff of the Boston Dispensary, October 3, 1913.

With these facts in mind the physiological problems of the large intestine may be considered.

NORMAL PHYSIOLOGICAL FUNCTIONS OF THE LARGE INTESTINE.

As an Excretory Organ. The work performed by the large intestine is chiefly excretory. For besides the fact that the digestive residue remains in this part of the alimentary tract for twenty-two hours and is then excreted, the walls of the large intestine play an important part in the excretion of lime, magnesium, iron and phosphates. Furthermore, it is the main channel of excretion for certain substances which are not normal food constituents, such as bismuth and mercury, and it is probable that ulcerations in the large intestine may be due to this excretory function. This is certainly so in the case of mercury.

As a Digestive Organ. Normally the large intestine plays a very minor part in digestion. Solitary glands and follicles of Lieberkuh have been demonstrated, but for the most part the mucous membrane shows the typical goblet cells which secrete mucus. The presence of any digestive ferments is very doubtful and would be unnecessary since absorption is very complete in the small intestine. Digestion may, however, occur in this region provided digestion is not complete in the small intestine as some of the enzymes secreted in the small intestine may pass along with the bowel content. Furthermore, carbohydrates and proteins, if present, are attacked and disintegrated by the bacteria normally present in the large gut.

As an Absorbing Organ. As an absorbing organ it is of little importance, as might be expected in the absence of villi and valvulae conniventes. Normally no absorption of food material worth mentioning takes place. It has been estimated that about 500 c.c. of water pass the ileo-cecal valve in twenty-four hours, and of this about 400 c.c. are absorbed.

In considering the results of animal experimentation it must be borne in mind that with dogs and some other animals absorption is never completed in the small intestine, but continues in the large intestine, carbohydrates and fats being absorbed more rapidly than protein.

EXPERIMENTAL ABSORPTION FROM LARGE INTESTINE.

From the accumulated evidence it may be briefly stated that water and salts are rapidly taken up by the large bowel. Amino-acids and monosaccharide sugars are absorbed much more slowly than they are from the small intestine, but yet promptly enough to permit of the introduction of sufficient quantities for nutritional requirements. Fats are absorbed too slowly to be of value. Alcohol is readily absorbed.

Unfortunately, certain difficulties arise when an attempt is made to apply this experimental knowledge to actual practice. Exact experimental work with such amino-acids as glycocoll and alanine has been successfully made, but aside from the fact that the preparation of these bodies is difficult and expensive, our knowledge as to the particular kinds and the proportions of these bodies requisite for nutrition is as yet very fragmentary. Attempts have been made to overcome this lack of knowledge by predigesting proteins with pancreatic extract and by introducing pancreatic extract with the nutrient enemata, but the limitations of this artificial digestion and the irritation resulting from bacterial decomposition make such attempts impractical. Hence, for practical purposes at the present time, the only rational enemata would consist of water, salts, simple carbohydrates and alcohol.

RECTAL ALIMENTATION.

The introduction of enemata constitutes an abnormal occurrence and new conditions arise, which in the main are irritative in character and which necessarily modify the rate and ease of absorption of the substance introduced.

First of all enemata not only simulate normal peristalsis, but anti-peristaltic waves are always set in motion. With small enemata the injected material is seldom carried beyond the ileo-cecal valve, but with large injections it may be carried to the small intestine and even to the stomach. If the material is carried to the small intestine it is promptly absorbed, but in practice one can place no dependence upon this occurrence.

Aside from the mechanical irritation caused by enemata, a thing which in itself often makes repeated injection impossible, the material itself may act as a chemical irritant. This may result from the osmotic action of the material injected, and this is especially true if concentrated solutions are injected, or the reaction of the solution may be such as to irritate, or the chemical changes resulting from bacterial action may cause the formation of acids, gases, etc., which are irritative.

This not only makes it more difficult to retain the enema for the long period of time (at least one hour) necessary for absorption but it may actually prevent absorption, as the mucous membrane of the entire alimentary tract is capable of exercising a protective function whereby it inhibits or prevents the absorption of irritative or poisoning substances.

Sugar Enemata. Most investigations have been made with dextrose in solutions varying between 3% and 16%. Usually there is resulting irritation, especially with the more concentrated solutions, and if 16% is exceeded diarrhea always results. An isotonic 5.4% solution is said to be less irritating, and pure dextrose is preferable to commercial glucose. Better results

are in any case obtained by beginning with the weaker solutions and gradually increasing.

Experiments made with enemata of 500 c.c. volume retained five hours, followed by a rest of one hour, showed that with 3% dextrose solution from 42 gm. to 52 gm. dextrose were absorbed. With 10% solutions 157 gm. to 163 gm. dextrose were absorbed, and with 15% solutions 144 to 193 gm. dextrose were absorbed in twenty-four hours. The amount of sugar destroyed by bacteria under these conditions has been shown to vary between 0.5% and 1%, and is therefore negligible. These results have been confirmed, and it seems possible to provide in this manner about one-third of the total number of calories required to maintain the body while at rest with dextrose enemata.

Alcohol Enemata. Alcohol is probably absorbed more readily than dextrose when given in concentration between 5% and 10%. Owing to its high caloric value it would be very desirable in certain cases. Like dextrose, it is irritating, but it is less so in the weaker solutions than in the stronger. Absolute alcohol is the best form to use. When added to a dextrose enemata it apparently does not increase the irritation and greatly increases the fuel value of the enema.

It has been shown clinically that enemata of the following proportion, yielding 555 calories, are practically completely absorbed in eight hours.

Dextrose	50 grams
Absolute alcohol	50 grams
Water	1000 c.c.

If larger enemata with the same proportions are given, or if the concentration of enemata of this volume are increased, then absorption is not complete.

Water and Salt Enemata. It has been repeatedly shown that water is rapidly absorbed from the large bowel. Likewise experiments have shown that salt is absorbed from the rectum quantitatively almost as completely as in the case of oral administration. Clinical experience has agreed with these findings and it is only necessary to add that in any case where a salt poor diet is indicated salt enemata should not be employed.

Indication for Nutrient Enemata. At present, alcohol and simple sugars are the only practical nutrient materials available for rectal alimentation, and their successful administration would be of the greatest value in any acute case, medical or surgical, in persons that would suffer from the effects of temporary withdrawal of food and in subacute or chronic cases in which nourishment by mouth is impossible or inadvisable. Clinical experience, however, teaches that the resulting irritation and exertion often make their employment inadvisable. This is especially true in cases associated with emaciation and general weakness, inasmuch as marked discomfort, distress, and exhaustion may accompany the retention of the sugar enemata. Disregarding the introduction of drugs by rectum there are certain cases in which the prompt introduction of dextrose may be of distinct therapeutic value, and if for any reason it cannot be taken by mouth, enemata may be employed.

These cases may be classified as follows:—

1. Simple exhaustion from any cause where recovery is doubtful, as exposure to cold, starvation, etc.

2. In some acute infections during critical periods, based upon the present theory that sugar is important for febrile conditions and that the heart muscle is augmented by dextrose, especially advised in septic conditions.

3. As an antidote for certain poisons, as chloroform, alcohol, or some other poisons which cause fatty livers, since it has been shown experimentally that the fatty changes can be prevented by giving sufficient quantities of glycogen forming material. In the case of phosphorous poisoning dextrose fails, but levulose is said to be efficient.

4. In diabetic acidosis and in acetonuria from any cause.

In any of these cases, however, if the demand for sugar is urgent it is promptly and more satisfactorily supplied by subcutaneous or intravenous injections. Isotonic 5.4% solutions injected under the skin of the thighs can be given with impunity and considerable quantities of 10% solutions have been given to human beings without harm and with practically no local discomfort.

Given intravenously, a dose of ½ gm. dextrose per kilo is sufficient for its tonic effect and ordinarily the dose should never exceed 1 gm. per kilo. It may be given in concentration varying between 3% and 10% without harm, but the injection should be given very slowly, drop by drop if possible, inasmuch as more sugar can be taken without the occurrence of glycosuria and without harm if this caution is observed. The purest dextrose obtainable should be used, dissolved in water, plain saline or, preferably, Ringer loche solution.

The following solution is advised in children and very weak adults:—

Dextrose	55.0 grams
KCl	0.2 grams
$CaCl_2$	0.2 grams
$NaHCO_3$	0.1 grams
Aq. Dest. qr.	1000.0 c.c.

Dextrose Enemata in the Treatment of Diabetic Acidosis. It has been stated that diabetics tolerate sugar better by rectum than by mouth. Experiments in which the sugar is absorbed by the hemorrhoidal vessels, thus avoiding the liver, show fairly rapid absorption without glycosuria. Likewise, it has been claimed that the injection of isotonic 5.4% solution of dextrose into the general circulation is better tolerated than when

an equal amount is injected into the portal vein. Equally competent observers doubt the accuracy of these conclusions, believing that the explanation lies in the slow absorption of the sugar and not in the avoidance of the portal circulation. Without further experimental evidence it cannot be concluded that the greater part of sugar enemata does avoid the liver or that sugar is better tolerated when thus introduced by rectum. Clinical experience has failed to yield any positive evidence on this point. It is reported on the one hand that with the same quantity of sugar given by rectum as by mouth, the acidosis subsides and the glycosuria diminishes; on the other hand, cases are reported in which the glycosuria is not favorably influenced, and in certain instances a marked acidosis has developed when sugar by mouth was withdrawn and the same quantity given by rectum.

OTHER FACTS REGARDING ENEMATA.

Dextrine is said to be preferable to dextrose, as it irritates the rectum less. Its ultimate absorption compares favorably with dextrose, although more time is required. Inasmuch as infant foods consist largely of dextrin it is more easily obtainable.

Much has been said regarding the advisability of the drop method in giving enemata, but the preference of the patient must be always taken into consideration. Absorption is slower by the drop method, consequently this method is preferable in cases of diabetes.

Whenever repeated enemata are given it is essential to note with accuracy the quantity of fluid injected. This is especially true in unconscious or collapsed or extremely debilitated persons, since in such cases it may happen that absorption is retarded or fails altogether, with the result that the fluid finds its way into the small intestine and stomach, and if large quantities are injected these organs may become distended, giving rise to urgent symptoms.

The addition of ten drops of tincture of opium to the enemata may allay the mechanical irritation somewhat and does not delay absorption to any degree.

It has been claimed that nutritive enemata cause a reflex secretion of gastric juice which contra-indicates their employment in cases of gastric ulcer. Experimentally a flow of gastric juice of a half hour's duration has been shown to follow enemata. This corresponds to the period of psychic secretion; consequently it is attributed to the desire for food rather than to a reflex from the rectum. No secondary secretion of gastric juice has been noted.

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A STUDY OF LEUKEMIA.*

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LEUKEMIA is ordinarily defined as a disease characterized by an enormous increase in the number of leucocytes in the circulating blood. Some of the familiar facts concerning the disease are as follows:—

Its course may be chronic, lasting from six months to several years; or acute, from a few weeks to six months. The termination is invariably fatal. The chronic cases are much the more common, and the diagnosis is readily made. The acute cases, on the other hand, although at present they are much more often recognized than they formerly were, are comparatively rare. They are characterized by severe anemia, weakness and a tendency to hemorrhage.

An interesting feature of acute leukemia is that the patients often present some evidence of infiltration of the normal tissues outside the blood vessels by the white cells from the circulating blood. These "leukemic infiltrations," so-called, may be demonstrable only on microscopical examination of the various organs, or they may be sufficiently prominent to be easily recognized as definite tumors. Sometimes they are large and numerous enough to be the most striking clinical feature of the case. Many of these tumors are on section of a definite green or greenish color, and to such the name "chloroma" has been applied. The relation of chloroma to the leukemic process has been but recently demonstrated.

* Received for publication, November 5, 1913.

In dealing with a case of leukemia, the practitioner ordinarily classifies it as either myelogenous or lymphatic in type, according as he finds granular or non-granular mononuclear cells predominating in the blood picture. Some cases in which the cells appear to be more or less equally divided between these two types, and in which many cells are rather indeterminate in character, are called "mixed-cell leukemia." These have been regarded as evidence that the myelogenous and the lymphatic types of leukemia are by no means separate entities, but that the leukemic process represents a disease of all the hematopoietic tissues.

What may be considered as the opposite to this view, is the idea that there are two definite and separate diseases, viz.—lymphatic and myelogenous leukemia. This conception is founded on the view that the lymphocyte and myelocyte are not so closely related in origin as is ordinarily supposed, but arise in definitely different regions, viz., the lymphoid tissue of the lymph nodes, alimentary tract and spleen in the case of the lymphocyte, and the red bone marrow in the case of the myelocyte.

The microscopical examination of the material from a large number of autopsies, inclines the writer strongly to this idea of the separateness of lymphoid and myeloid tissues. The chief cause for confusion seems to be the fact that the undifferentiated cells of both types are large and pale staining, with vesicular nuclei, and are absolutely indistinguishable one from the other by ordinary methods. The myeloblasts, as Naegeli has named the undifferentiated bone marrow cells, are, therefore, often called "bone marrow lymphocytes." When in the course of a myelogenous leukemia such cells appear in the blood, the picture naturally appears "mixed." When they predominate, the disease is considered "lymphatic."

The writer has pointed out in a previous communication[1] the fact that a large proportion of the cases diagnosed as acute lymphatic leukemia are probably myelogenous; that a certain number of them undoubtedly are, and among this latter group are included probably all those cases giving rise to green nodules, known as "chloroma." If, then, the two types of leukemia are separate processes, the mixed cell cases must be in fact myelogenous, and their blood must contain a sufficient proportion of the non-granular myeloblasts ("marrow lymphocytes") to give the appearance of a mixture of myelocytes and lymphocytes.

Since the publication of the article referred to above, another case of chloroma[2] has come under the writer's observation. In this case, as in the others, the invading cells gave a positive indophenol reaction, and the cytoplasm of a large proportion of them, including many that were actively dividing, was finely granular. The indophenol reaction, which is a test for the presence of an oxydizing ferment, is positive in all cells of the myelocyte series, except the most primitive undifferentiated forms. It is constantly absent in cells of the lymphocyte series. In this case then, as in other cases of chloroma, the process is myelogenous. The blood picture, however, seen in specimens stained by "Wright's" modification of "Leishman's" stain, showed a very large proportion of cells resembling lymphocytes, both large and small, and the clinical diagnosis of acute lymphatic leukemia was made. Sections of the invaded tissue, on the other hand, when stained with eosin and methylene blue showed that these cells, which were supposed to be lymphocytes, did not possess the characteristic lymphocyte nucleus, and were apparently of the same type as the large granular cells present. Furthermore, even in the specimen stained by "Wright's" stain, many of these cells which resembled small lymphocytes contained a few large and small basophilic granules. It is probable that almost all of them were of myeloblastic origin, as all gradations between them and fully developed myelocytes could apparently be traced.

As to the essential nature of leukemia, the limit of our knowledge is reached when it is said that leukemia is, beyond a doubt, a malignant tumor whose cells invade the blood stream and grow there. The clinical course of the disease, with its invariably fatal issue, and all the histological and anatomical evidence, point to this view. That a tumor arising from the cells which give rise to the polynuclear leucocytes should occur cannot be considered unnatural, in view of the fact that from practically every other tissue in the body neoplasms are known to arise. Viewed in this light, leukemia can be considered as comprising two definite tumors: (1) a tumor arising from the lymphocyte, and (2) a tumor arising from the myelocyte. The terms "lymphoblastoma" and "myeloblastoma" are applied to these two tumors respectively to indicate that each arises from the primitive cell of its type (lymphoblast or myeloblast) and can manifest any stage of cell differentiation.

In other tumors there is marked variation, both in the degree of differentiation reached by the tumor cells, and in the tendency to invade normal tissues and form metastasis. For example, the cells of a fibro-sarcoma may produce a fair number of intercellular fibrils, and may resemble closely an adult connective tissue cell. Such a tumor tends to grow and invade slowly. On the other hand, the cells may be larger and closer together and may produce very little intercellular substance, and thus may resemble the younger less differentiated fibroblast. In such a tumor growth is usually much more rapid, and invasion of the normal tissues more marked. In many rapidly growing tumors a large proportion of the cells differ distinctly from any normal type. (They are often larger than the normal cells and usually contain a relatively increased amount of chromatin. Sometimes, giant cells with one or many nuclei are common.) Thus in general it may be said that the

younger and less differentiated the cells of a given tumor, the greater their tendency to invasion, and conversely, the more they resemble the adult type, the less do they invade.

If we apply this idea to the tumors of myelocyte origin, we expect to find cases in which the cells are, most of them, well developed granular cells, which multiply slowly, and rarely, if ever, leave what may be considered the normal habitat of their type, viz., the bone marrow and blood stream. Such cases are those of ordinary chronic myelogenous leukemia. We expect also to find cases in which the cells are, a large proportion of them, undifferentiated, non-granular and sometimes atypical, their growth rapid, and their tendency to invade normal tissues well marked; cases in which, furthermore, the course of the disease is relatively short. We find these cases are those of acute myelogenous leukemia. In many of them it is evident that invasion of normal tissues has gone on to such an extent that definite tumor masses are present. These masses, when green or greenish in color, as is usually the case, are called "chloroma."

Of the three cases of this acute condition which have come under the writer's personal observation, all showed a "mixed celled" blood picture; a definite infiltration of normal tissues, and a rapidly fatal course. In two of them, greenish masses or nodules were present in various organs, and were found microscopically to consist of fairly rapidly proliferating cells, which were identical with those seen in the blood stream. In the other case, infiltration of normal tissue was present, especially in the kidney, but was relatively small in amount, and nowhere gave rise to a green coloration or definite nodules which could be recognized in gross. This case and one of the two others were diagnosed clinically as acute lymphatic leukemia, while the remaining case was from the beginning, considered myelogenous. In all of them, however, the invading cells gave a positive indophenol-oxydase reaction, and in sections a fairly large proportion of the cells were seen to be granular. These three cases, then, are examples of rapidly growing tumors arising from the myeloblast in the bone marrow, and invading not only blood and bone-marrow generally, but also to a marked degree, the normal tissues outside the blood stream.

No acute cases of leukemia, in which the invading cell was undoubtedly of lymphoblastic origin, have come under the writer's personal observation. In the chronic cases, just as in chronic myelogenous leukemia, normal tissues outside the blood stream are rarely invaded. The tumor cells arise in some part of the lymphoid tissue and invade lymph nodes and the blood stream. The cells are—most of them—mature in type and resemble the adult lymphocyte (small lymphocyte). These are the cases of chronic lymphatic leukemia. In certain other tumors of probable lymphoblastic origin, the blood stream is apparently never invaded, and the tumors either invade the surrounding normal tissues locally, metastatize into lymphoid tissue only, or show general metastases into various organs. These cases include the conditions ordinarily spoken of as lympho-sarcoma, pseudo-leukemia and malignant lymphoma. The writer has recently studied a tumor whose cells were apparently lymphoblastic which gave rise to multiple metastases in the liver, spleen, kidneys, lymph nodes, bone-marrow and dura. When all are considered, then, we have, arising from the lymphoblast, tumors which invade blood stream and lymphoid tissue more or less exclusively, giving rise to the clinical picture of lymphatic leukemia, as well as certain other tumors which seldom or never, invade the blood stream.

As far as the question of treatment is concerned, leukemia may be regarded in the same light as other inoperable malignant tumors. Certain agents undoubtedly serve to inhibit the proliferation of the tumor cells, and to lengthen the course of the disease. The chief of these are arsenic, benzol, the x-ray and the radio-active substance, thorium-x.

In general, we may summarize our knowledge of leukemia by saying that it represents the invasion of the blood stream by two distinct types of tumor cells, the one derived from the myeloblast and the other from the lymphoblast. The two tumors, therefore, are of separate and distinct origin. The myeloblastoma arises from the myeloblasts of the bone marrow, which are the parent cells of the polynuclear leucocytes; the lymphoblastoma from the undifferentiated cells of lymphoid tissue. The tumors are usually of slow growth and invade only the blood stream and the tissue from which they arise. More or less invasion of other tissues is characteristic of the rarer rapidly growing forms, which constitute the clinical cases of acute leukemia.

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THE OFFICE OF CORONER AND THE MEDICAL SCHOOL AT SYRACUSE.

BY H. G. WEISKOTTEN, M.D., SYRACUSE, N. Y.

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THROUGHOUT the United States medical men are lamenting the fact that in this country there is so little opportunity to perform autopsies. It is a recognized fact that advancements in scientific medicine have gone hand in hand with, and have depended upon advancements in pathology. So today they feel that one of the greatest handicaps to the advancement of medicine in this country is the lack of opportunities to per-

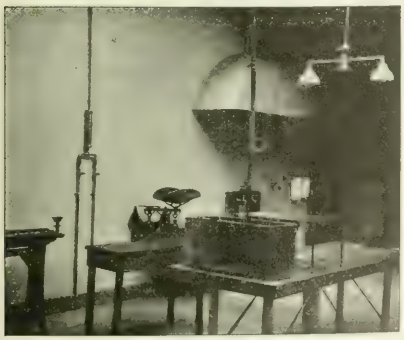
form autopsies. The tables of statistics of autopsies in American and foreign hospitals incorporated in the report of the Public Health, Hospital and Budget Committee of the New York Academy of Medicine show 19.7% autopsies in American hospitals and 83.1% in foreign hospitals. Were there opportunities for autopsies here such as there are in Europe we would not see American internists flocking yearly to Vienna and other European centers.

No medical student who has not had opportunities for performing or seeing autopsies upon cases seen in the hospital can be expected to think anatomically and pathologically; in other words can be expected to practice scientific medicine after his graduation from the medical school. The problem thus is one that presents itself as an all-important one to the medical schools of the country that wish to train doctors who will be worth while.

Until the problem is solved it behooves us to use to the fullest extent every available opportunity which is presented to us. Now one positive way of securing autopsies is through the office of coroner. During the past few years much has been written concerning the ancient office of coroner. Many feel that the coroner's system has outlived its usefulness and should be replaced by the medical examiner's system now in force in Massachusetts and a few other states.

Rather than discuss the propriety of the office of coroner I will outline the system which exists today in Onondaga County which seems to work both for the welfare of the community and to the advantage of the medical school. New York State still maintains the coroner's system.

Two years ago the county built and equipped a morgue at an expense of about thirty thousand dollars. The department of pathology of the Syracuse Medical School volunteered its services and superintended the construction and equipment of the autopsy facilities. As a result the autopsy room is spacious, well lighted and well ventilated and is provided with freezing microtome, microsope, stains, desks and other equipment essential to a modern autopsy room. Adjoining the autopsy room is a laboratory and preparation room. Upon the completion of the morgue, through the efforts of Dean Heffron and other members of the faculty, the writer, one of the members of the department of Pathology, was appointed to a newly created office of county necrotomist at a salary of $1,000 a year. The sole duty of the necrotomist is to perform the coroner's autopsies. These autopsies were formerly performed by the coroner's physicians, all of whom were general practitioners. There was practically no opposition to the creation of the office of necrotomist after one of the members of the faculty explained to the County Board of Supervisors the necessity and the opportunity for scientific autopsies. It seems to us an added advantage that the necrotomist can stay entirely within his sphere and confine himself solely to autopsy work. Coroner Kinne himself has assumed a very generous attitude in relation to the new arrangements and has cooperated to make the new office of county necrotomist a success



Autopsy room in the Onondaga County Morgue at Syracuse, N. Y

About one hundred and seventy-five autopsies are performed at the morgue in a year. Many of these autopsies are upon hospital cases. When physicians are not satisfied in their own minds as to the diagnosis of cases terminating in death in hospitals they refer the case to the coroner without a diagnosis. The body is then brought to the morgue and an autopsy is performed. Accompanying each body brought from a hospital to the morgue is a clinical history of the case.

The morgue is located within three minutes walk of the medical school. As a result of the present arrangements there is opportunity for special instruction of the student in autopsy technique and in pathology. The class in pathology is taken to the morgue in groups of four and the students perform the autopsies themselves under the supervision of the necrotomist. They write descriptions of the organs and make frozen sections, smears and cultures. The third and fourth year students see at autopsy cases which they have studied in the hospital. Plenty of room, good light and good ventilation permit a student to give his best efforts to the study of autopsy findings instead of being a more or less passive onlooker under unfavorable circumstances.

The morgue also furnishes excellent material for instruction in gross pathology at the school and for the weekly clinical-pathological conferences which are attended by the third and fourth year students.

This paper was suggested by numerous enquiries from other cities in regard to the morgue arrangements at Syracuse. Although not a complete solution of the great problem of increasing the opportunities for autopsies in this country it seems to us that these arrangements offer a very satisfactory solution of the problem of obtaining autopsy facilities for medical students. At the same time it offers to the public the ad-

vantages of carefully performed autopsies and full autopsy records.

A SIMPLE AND EFFECTIVE METHOD FOR DISINFECTION OF TYPHOID STOOLS.

BY HARRY LINENTHAL, M.D., BOSTON,

State Inspector of Health; Assistant Physician to Out Patients, Massachusetts General Hospital.

AND

HENRY N. JONES,

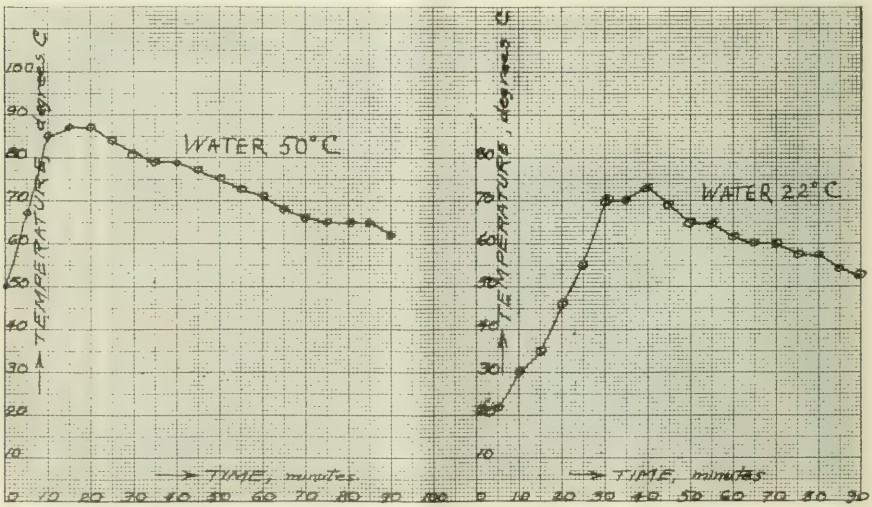
Bacteriologist to Massachusetts State Board of Health.

IT is now a well established fact that the immediate destruction of the typhoid organism in the excreta of the typhoid patient is one of the most important steps in the control of typhoid fever. Unfortunately, however, in the vast majority of cases of typhoid fever ill at their homes nothing that might reasonably be called efficient disinfection of stools is carried out.

One of us (H. L.) has had occasion at various times to investigate isolated cases of typhoid or outbreaks of the disease. The instances where he observed any procedure of what might be regarded as a serious effort to disinfect the stools were extremely rare. Only in a few communities in the state does the board of health issue any instructions when a case of typhoid is reported to them as to methods to be used in disinfection of the excreta. It is usually left to the attending physician to instruct the family in the matter. The methods usually in vogue consisted in sprinkling a little chloride of lime or sulphonaphthol over the stool, which was promptly deposited in the water closet or privy without being mixed or without letting it stand. Even in many instances where trained nurses were in attendance the procedure was not any more effective. The use of the disinfectants in such a perfunctory manner simply gives a false sense of security to the family and attendant. Not much need be said of how serious this situation becomes in communities where no public sewer exists and where the excreta are deposited in privy vaults accessible to flies, or, as often happens, when such privies are situated on some watershed.

The bedside disinfection of stools is not as simple a matter as it might appear. The proper utensils are often not available and the treatment of the stool, the thorough mixing with the disinfectant and the necessary exposure of the stool to its action, will in the great majority of cases not be carried out even when detailed instructions are given. Moreover, it has been questioned whether the disinfectants as ordinarily recommended, can be depended upon for thorough disinfection. Dr. Alvah H. Dotty carried on experiments with the various disinfectants recommended for the purpose as they are usually employed. He found that at the end of twenty hours of exposure to the disinfectant but one-eighth of an inch of the fecal mass was disinfected. Heat—boiling water or steam—is the only effective way of dealing with typhoid discharges, but clearly the apparatus needed to do that is not available in households.

A method to disinfect typhoid discharges to be both practical and effective, must be one which should require only such utensils which are available in every household and must be so



simple as to require little intelligent effort on the part of the attendant. Such a method was described by Dr. Prausnitz of Austria at the Fifteenth International Congress on Hygiene and Demography, held in Washington in September, 1912. The method was devised by Dr. A. M. Kaiser in the Hygienic Institute of Gratz University. It consists of adding enough hot water to cover the stool in the receptacle and then adding about one-fourth of the entire bulk of quick lime (calcium oxide), covering the receptacle and allowing it to stand for two hours. The hydration of the lime generates enough heat to destroy the typhoid organism.

We undertook to test out this method. In the first place we set out to determine the quantity of heat generated and the length of time the heat is retained. To make the conditions as rigid as possible we used an ordinary tin pail with a loose fitting cover. To a litre of cold water we added from 300 to 400 grams of ordinary commercial quick lime, and the temperature was observed. We found that the lime varied in its action, while in some experiments the temperature would rise to 80° or even to 90° in about ten minutes, in others it would take twenty minutes to one-half hour for the temperature to go up to 75° or over and maintain a temperature of over 60° for one and one-half hours. We found, however, in several observations that the temperature did not go above 55° due undoubtedly to the poor quality of the lime, although it came from the same lot.

If, however, hot water was used, ranging in temperature from 50° to 65° C. it invariably rose to 75° or over in ten minutes, and in twenty minutes it reached 85° and often 90°, and a temperature was maintained over 60° for an hour and a half or longer. We found that the temperature was maintained for a longer period when an earthen vessel was used than in the tin vessel.

Of the many readings that we took using hot water we found that, starting ten minutes after the addition of the lime and continuing for one and a half hours we got maximum temperatures of 90° and minimum temperatures of 58°. The average temperature for the hour and a half period, taking readings every five minutes, was in no case less than 74°.

The accompanying chart shows the temperature readings taken every five minutes for one and a half hours, (*a*) with water 50° C. and (*b*) cold water. These curves may be regarded as fairly typical.

It was clear, therefore, that this process generates enough heat to destroy the typhoid or any other organism, with the exception of spore bearers. The next question was as to whether the heat is sufficiently penetrating to destroy the organisms in the centre of the fecal mass. To determine this we buried in the center of the fecal mass capillary tubes containing living typhoid organisms, distributed over the mass small lumps of lime, about 400 grams, and added enough water to cover the stool, and permitted the mixture to stand for one and a half hours. In all the experiments with the typhoid organisms cold water was used. The capillary tubes were then taken out and broken into a bouillon culture. No growth took place.

CONCLUSIONS.

The addition of about a cupful of commercial unslaked lime and water to a typhoid stool will generate enough heat to kill the typhoid organism. While cold water may often suffice, it cannot be depended upon owing to the variable quality of the lime. Hot water from 50° to 60° C. will always give the desired results. The lime used should be in lumps, broken up in small pieces and distributed over the stool.

We believe that this is a simple, efficacious method and should take the place of the various methods now recommended by local boards of health.

CANCER OF THE LOWER LIP.*

[CANCER CONTROL.]

BY JOSEPH C. BLOODGOOD, M.D., BALTIMORE.

WHAT facts have we today in regard to cancer of the lower lip which should be known to the laity, the general practitioner and the expert surgeon?

In the surgical pathological laboratory of the Johns Hopkins Hospital I have investigated critically about 200 cases, which have been treated in the Johns Hopkins Surgical Clinic, or at the Union Protestant or St. Agnes Hospitals, or cases which have been sent to the laboratory from other sources for diagnosis and record.

In not a single case did a cancer of the lower lip begin in normal skin and mucous membrane. There was always a previous defect, as a rule, present some months before the signs of the development of cancer. In many cases the original, or precancerous, lesion had been observed by the patient for years before the signs of cancer developed. Therefore, there was ample opportunity in every case for the healing or excision of the lesion in its benign state.

We rarely observe on the lower lip congenital subepidermal nodules which later grow and form cancer. These are more frequent on the face and scalp. Any irritation of the skin or mucous membrane gives rise to one of two results: If the epidermis is destroyed there results an ulcer; if this ulcer does not heal we have a chronic ulcer. If the epidermis is not

* Author's abstract of paper read before the [illegible] Medical Association, at [illegible], 1913. N. Y. Med. Jour., [illegible]

destroyed there is a hypertrophy, both of the superficial horny layer and of the papillary epithelial body as a downgrowth. This hypertrophy gives rise to a gross lesion variously called "wart, papilloma, corn, callosity"; each of these varies slightly in its gross appearance, explaining perhaps the different terms.

In both resulting lesions, the ulcer and the wart, there is epithelial activity of a far greater degree than in the normal skin. What the factor is which starts the epithelial activity giving rise to a local growth called cancer, we do not know.

I have had the opportunity to investigate critically fifteen benign precancerous lesions of the lower lip. In the first place it is interesting to note that only five of these were observed previous to 1908; the remaining ten have come under my observation since 1908. Practically every one of these new cases can be traced to an educational suggestion.

In all of these cases a v-shaped piece of the lower lip was excised, giving the lesion, except in one instance, a good margin. All of these cases have been traced. In 14 there has been no recurrence. In the one case (a burn from smoking) the margin was insufficient; the lesion was excised later and has not recurred. The scar from the operation in these cases is not mutilating. The case just noted, in which there was a recurrence, was one sent to the laboratory for diagnosis.

Smoking seems to be the most common etiological factor. In five cases we have the typical burn from smoking a pipe or a cigar. This I will describe later in detail in its relation to cancer. There are two benign ulcers from smoking, undoubtedly the original lesion was a burn. There were two ulcers, one from the wound and one secondary to a pimple. In six cases the result was a wart. The etiological irritating factors previous to the development of the wart were, wound, one case; fever blister, two cases; biting of lips, one case; smoking, two cases.

In nine of fifteen cases the irritation or burn from smoking has produced the precancerous lesion.

The duration of these precancerous lesions is very interesting. In two cases the lesion was present less than one month before it was excised: one a wart from biting the lips, and one a smoker's burn. In the third case the lesion had been present about six weeks—an ulcer of the lower lip associated with the excessive use of tobacco.

In all the other twelve cases the lesion had been present more than six months; in four cases three to four years. Three of these were warts, one a chronic ulcer.

These twelve patients who waited longer than six months took their chances of cancer, as I will show later in discussing the interval of time before the development of cancer in precancerous lesions of the lower lip.

SMOKERS' BURN.

This apparently is a distinct lesion in the gross, and apparently quite distinct microscopically. At the muco-cutaneous border, at the point of contact of cigar or pipe, there appears a small depression, oblong in shape, with its long axis at right angles to the muco-cutaneous line; the color and consistency of the mucous membrane and skin is changed; the tissue looks charred; it is not a scab because it cannot be picked; on palpation this little surface defect is leathery, and not moist and soft as normal mucous membrane and skin. The induration, however, of cancer is absent.

I have had an opportunity to study microscopically such a smokers' burn lesion of four weeks' duration and one of one year's duration. In both cases the charred tissue consisted of degenerated hornified epithelium; beneath this there was a thin zone of epidermis resembling the epidermis one finds in experimenting with the healing of wounds and skin-grafts. That is, there is no papillary body, no hair follicle, or gland. In the burn of four weeks' duration there are still some areas which are not covered with epithelium. In the burn of one year's duration the entire defect is covered with a layer of epidermis, the surface of which is covered with degenerated hornified epithelium. A smokers' burn, therefore, may be only a partial charring of the superficial layers of epidermis, but this must lead to the entire destruction of the epithelium of the epidermis. The charred dead cells remain as a cover and new epithelium grows across, so that if the burn is not continued and there is no other injury, this defect may heal without evidence of ulceration or any discharge.

MALIGNANT WARTS.

During the same period we have observed seventeen malignant warts. All of these cases, except one, have remained well since operation. In nine cases the operation consisted of an excision of a v-shaped piece only; in the remaining eight cases the glands of the neck were also removed. In not a single instance did the glands show metastasis.

In the one case which has not been cured, the wart extended almost from angle to angle of the mouth; it had been present two years. A careful reading of this history and of the operation notes, combined with the pathological report, will show that the wart was incompletely excised. The failure to cure in this case, therefore, was due to the operation, and not to the disease, although the necessary operation in this case would have been mutilating, and this necessary mutilation to cure a malignant wart of the lower lip resulted because the patient allowed the evident warty growth during a period of two years to grow over the entire lower lip.

In two instances the duration of the malig-

nant wart has been two months. In one instance five months; in the remaining cases more than six months; the case of longest duration was ten years.

Apparently a proper local operation is sufficient to guarantee a cure in a malignant wart. For this reason the surgeon need not do any more for such a tumor. As a matter of fact, it will be difficult sometimes to distinguish the malignant wart from the benign. As a rule the wart is larger and may show some ulceration on its surface or base. But the diagnosis of malignancy is a microscopic one.

The same etiological factors are given in the cases which came under observation with malignant warts, as those with benign. Whatever the irritating factor is, the result is a wart.

The importance of the duration of the disease is shown when we come to investigate the fully developed cancer of the lower lip.

There is not a single case of cancer of the lower lip which sought advice within one month after the beginning of the trouble. Two cases came under treatment within two months after the onset of the disease: both of these cases have remained permanently well for more than five years since operation; in both the precancerous lesion was a pipe burn; in both the glands were removed at operation, but did not show metastasis. These two cases demonstrate that carcinoma of the lower lip may develop within two months after the onset of such a simple lesion as a smokers' burn which I have just described, but as yet the patient still has 100% chances of a cure, if the surgery is good.

Among the five-year cases there is but one lesion of three months' duration. This was a fully developed cancer in a smokers' burn, and there has been no recurrence now more than fifteen years since operation.

In those cases which inform us that the lesion has been present from three to six months we find for the first time metastasis to the glands of the neck in which the probability of a cure is but fifty per cent.

With our experience up to date with five-year cases, we may safely say that if the lesion on the lip has been present three months or less, the chances of a permanent cure, if the surgery is good, should be 100%. The lesion should be excised under cocaine with a good margin; it should be studied microscopically; if it proves to be a fully developed carcinoma the glands of the neck should be removed. This operation is by no means a simple one, and should not be performed by an inexperienced surgeon. Unless properly done, it would be better for the patient to have it left undone. In this operation the submental, submaxillary and subparotid glands should be removed *en-bloc*. The submaxillary salivary and a piece of the parotid are included in this dissection. In a later paper I will show that in the great majority of cases this dissection has not been complete enough. Of course, if the glands show no metastasis, the poor dissection makes no difference. Our results show that among 21 cases in which the lip and the glands (no metastases) were removed, there have been 20 five-year cures, or 95%. The failure to cure in this one case was due to a local recurrence. When the glands have shown metastasis, we accomplished cures in but six out of twelve cases, 50%.

Everyone, therefore, should know the potential danger of a simple lesion on the mucocutaneous border of the lower lip, whatever that may be, and if healing is not accomplished within one month the lesion should be excised. As I have just written, warts may become malignant within two months, cancer may develop in a pipe burn within two months, and a fully developed cancer with metastasis to the glands is possible after three months. The greatest danger is from delay of more than six months.

The general practitioner should know that the best treatment is the excision of the lesion with a good margin of healthy tissue. All should know that it is unnecessary and not advantageous to perform such an operation under general narcosis. It had best be done under local anesthesia. All should know and should insist upon a careful microscopic investigation of an excised piece of tissue. If this proves to be a fully developed carcinoma of the squamous or spinal-cell type, the patient should be urged to have the operation upon the glands of the neck. But the general practitioner should know that this operation should only be performed by an experienced surgeon, or not at all.

Surgeons should study the results in their cases of cancer of the lower lip in which the glands showed metastases. My own investigation showed but 50% of five-year cures. In a careful study of the cases I find that in the early operations both submental and subparotid lymph glands were left behind; in recent operations the subparotid. I feel that it is impossible to completely remove these glands without the ligation and excision of the upper portion of the internal jugular vein behind which they lie.

It seems to me that a clear statement such as this in regard to cancer of the lip should be given to the laity and the general practitioner, and surgeons should attempt to keep such records that they will be able from time to time to make a report of this kind.

Colonel Gorgas, M.D., Chief Sanitary Officer of the Panama Canal, has been elected a honorary Fellow of the Royal Sanitary Institute; and Colonel Guy Carleton Jones, M.D., Director-general of the medical service of the Militia of General of the medical service of the Militia of Leith, have been elected Fellows.

—*British Medical Journal.*

Clinical Department.

URETHRAL CHANCRE.

BY L. J. WALKER, M.D., BOSTON.

THE case reported below is interesting from the point of view of diagnosis, also because of the fact that it appeared while the patient was being treated for another lesion of the urethra:

CASE. January 7, 1913, L. R., male, single, age 26. Born in Canada.

F. H. Negative.

P. H. Children's diseases. Pneumonia in June, 1910. Gonorrhea contracted one year ago, the discharge of which has never ceased.

P. I. Comes for treatment of urethral discharge which is seen only in the morning.

P. E. Negative except for examination of genitalia. Meatus slightly reddened and moist. Prostate slightly enlarged on right but not tender. Both urines clear with few shreds.

The patient was given treatment for chronic anterior and posterior urethritis with prostatic infection.

Feb. 10, 1913, patient at visit complained of hard area on underside of penis also of intense burning micturition. Examination showed an indurated area oval in shape on floor of the urethra about one inch from meatus. No enlargement of inguinal glands. On questioning the patient the latter said that five days before on the advice of a friend he had used a urethral injection of strong sulpho naphthol. Immediately after this he experienced severe pain along the course of the urethra which lasted several hours. Later on urinating, he passed some blood and several shreds some an inch in length. The latter undoubtedly were parts of the urethral lining. The following day he had difficulty in urinating because of pain and for the first time noticed the hard area described.

The induration was interpreted as being due to inflammatory tissue. All local treatment was stopped for the time being. The patient acknowledged exposure to venereal disease several times during the last two months.

Two weeks later the patient developed a well-marked secondary rash of syphilis. Wassermann reaction was positive. On Feb. 28, 1913, the patient was given .9 gm. of neosalvarsan intravenously. Two similar doses were given at three-week intervals. The rash had disappeared on March 20. The indurated area gradually diminished in size following the first injection of neosalvarsan and had entirely disappeared by April 25. Since then the patient has been on mercurial treatment.

Urethral chancre, while not common, has been reported by Baye, March, Whitney, and many others. Tanton (*Le Progrès Médical*, Paris, 1910, vol. xxvi, pp. 607 and 619) reviews the subject thoroughly and adds a most complete bibliography.

New Instrument.

BONE DRILLING AND BONE PLATING SET.

BY LOUIS A. C. GODDU, M.D., BOSTON.

From the Clinic of the Orthopedic Department of the Massachusetts General Hospital.

IN presenting the following set of instruments the writer appreciates the fact that he does not bring to notice anything surprisingly novel in the device, but varies only in its application. It has always occurred to him that our measures, for drilling holes in bone were, either too complicated, or in some way inadequate for a great many cases. For instance, in the common twist drill we have always to deal with the problem of small gears, also that the drill was not at all times under the immediate control of the surgeon. This perfect control of the drill, it must be conceded, is a thing to be greatly desired.

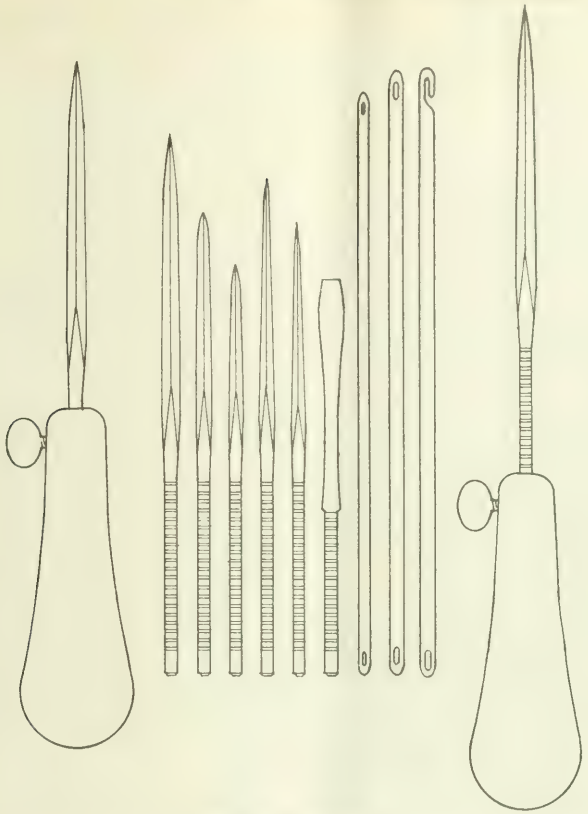
The accompanying illustration shows the set of drills that has been used by the writer, and some of his associates at the Massachusetts General Hospital, and it seems that the results of their use justify this description and advocating their use.

The drill, as the picture shows is a modification of the common reamer used by machinists. It is triangular in shape, and has a sharp cutting edge at each of its three corners; the points are made especially sharp and abrupt to give strength combined with a cutting edge. It is made of hard tool steel, and capable of penetrating the hard corticle bone which is sometimes met with.

The shank portion of the drill is half round, with the flat surface corrugated so that the thumb screw can set at the desired position of length. This shank can be set in the hole bored in the handle for a short or long drill as desired. The object of this is to meet the different requirements of cases, that is whether the bone is near the surface or a distance from it, the drilling being done with greater ease if the hand is free from surrounding tissue.

The handle is of solid steel with a hole bored in it almost to the top, this is for adjustment as mentioned above. As it is practically solid it is somewhat heavy, but not too much so, just enough to be handled easily and to add weight to the drilling force materially. The thumb screw is purposely large and flat, that it can readily be handled with sterile gloves, also that it gives a point of support for the index finger during drilling.

In the bone plating the shank with the screw-driver is adjusted to same handle. Thus, a bone plate is put in position, the drill makes the hole after which, the drill is left in position and handle removed. The screw-driver is set in the handle, the drill taken out of the bone then the screw is inserted in the hole, and the screw-driver drives it tight.



Bone Drills. ¼ actual size.

With this set the writer, as illustration shows, has bodkins that are used to pass through holes in the bones, to carry tendons or sutures in tendon transplantation work. The bodkins are not tempered but are of sufficient strength to hold, and capable of being molded in the shape desired for the passing of tendons at different points.

The advantages of the drills seem to be: —

1. Different sizes to one handle.
2. The drill is always under the control of the surgeon, while the hole is being drilled.
3. Simplicity and ease of sterilization.
4. Changes that can be made quickly from one drill to another, or to the screw-driver as desired, during operation.

Medical Progress.

RECENT PROGRESS IN LARYNGOLOGY.

BY A. COOLIDGE, M.D., BOSTON,

AND

P. C. GREENE, M.D., BOSTON.

TRANSPLANTATION OF BONE IN THE CORRECTION OF NASAL DEFORMITIES.

Carter[1] has successfully transplanted bone from a rib to make up the deficiency in cases of external nasal deformity with absence of bony structures as well as soft tissues. He resects a piece of the right ninth rib about three inches in length, splits it and scrapes away the cancellous tissue from the outer half, then transplants this half between the superficial and deep fasciae over the biceps of the left arm. At the end of ten days the bone becomes incorporated in the tissues, and a flap about one-third larger than is needed to reconstruct the nose, is dissected up. This flap includes the bone graft and is made large in order to allow for contraction which always takes place. The upper end of the flap is sutured into proper position on the face, the end of the bone graft being placed under the

periosteum over the naso-frontal process. The lower end of the flap remains attached to the arm which is bound to the head by means of plaster strips and bandages. Three days later, skin grafts are removed from the thigh and placed on the under surface of the flap. Union between the flap and the face becomes complete in about two weeks after the operation, and the attachment to the arm is then severed. The circulation in the flap immediately becomes feeble, and there is apparent danger of necrosis. Carter believes that this condition can be partially relieved by attachment of a leech to the distal end of the flap, the suction of the leech producing a strong flow of blood through the recently formed capillaries at the connection of the flap with the face. Subsequent minor operations are necessary to mold and shape the flap into the desired form.

A similar method is recommended by McWilliams[2] who, following the procedure of Finney and McGraw, uses the left ring finger. The skin from the whole circumference of the last phalanx is removed, and the tip of the phalanx is nipped off with a rongeur. The metacarpophalangeal articulation is opened, the head of the metacarpal bone is removed and the tendons and ligaments about the joint divided. The finger is then slipped into place, the extremity of the last phalanx going up to the frontal bone under a bridge of undivided soft parts which have been elevated by knife dissection. Immobilization of the head and hand is accomplished by plaster of Paris bandages, including left arm, body, neck and head. In three weeks the finger is amputated through the metacarpo-phalangeal articulation. Eight days later, the first phalanx is flexed to a right angle relative to the second phalanx, and its tip sutured into position. More or less sepsis is apparently inevitable, but the infection is not severe and healing takes place with only moderate delay.

VACCINE THERAPY OF NASAL DISEASES.

During the past few years a large number of practicing physicians have been treating their patients with vaccines to combat some definite or indefinite infection. Among these infections are included the acute inflammations of the upper respiratory tract commonly called "colds," and also more chronic conditions of the nose and accessory cavities. For various reasons practitioners have tended to divide into two groups, those who use vaccines frequently and those who use them very infrequently or not at all. Under such circumstances it is reasonable to suspect that both of these groups are extremists, and that the time is ripe for a better understanding of the limitations and the benefits of this form of treatment. A committee appointed by the Council on Pharmacy and Chemistry of the American Medical Association has prepared a series of articles dealing with the whole subject of bacterial vaccine therapy, from which a few quotations briefly describe existing conditions.*

Formerly the autogenous bacterial vaccines were cautiously administered by the expert bacteriotherapeutist, now any physician is supposed to be competent to inoculate patients with all sorts of commercial vaccines. In little more than half a decade a method of biologic treatment of unusual intricacy, the value and limitations of which are still far from being accurately determined, has gone into the hands of the medical profession as a whole. In the midst of this chaotic situation the prudent and thoughtful physician finds himself sorely perplexed. He who would use and not abuse bacterial vaccine therapy has no unprejudiced guide as to its administration, value and limitations.

That the popularity of clinical vaccine therapy has far exceeded its scientific aspects is clearly shown by the still prevailing uncertainty which exists in the minds of many relative to the exact nature of serum and vaccine therapy. Vaccine therapy is a method of producing an active immunity by the injection of bacteria or their products directly into the patient. The active agent is the bacterial vaccine, which is actually a suspension of bacteria in water or in normal salt solution.

Theoretically, autogenous vaccines are the agents par excellence of vaccine therapy. By their use antibodies of precise specificity are aroused and specificity is found to be a predominating characteristic of antibodies as further progress is made in their study. Autogenous vaccine therapy makes prerequisite a bacteriological diagnosis, the only really scientific method of approaching the treatment of an infection.

Bacterial vaccines were originally used only in chronic and subacute infections, and theoretically this limitation is justified, but improvement of both local and general conditions following the inoculation of a correctly graduated dose of autogenous vaccine in acute cellulitis and phlegmon has been observed and recorded by a sufficient number of competent workers to justify its further trial.

As material for his experiments in vaccine therapy the practitioner who relies on the market products should supply himself with vaccines of individual bacterial species. He should learn to discriminate cases in which stock vaccines can be successfully used, and procure a stock representing this selection.

For use under circumstances in which autogenous vaccines are not available staphylococcus vaccine is prominent among the comparatively few which by common consent are valuable as stock preparations. In the literature advertising commercial vaccines, staphylococcus vaccine is recommended in otitis media, mixed infections, mastoid infection, frontal sinus and an-

* The committee consisted of Drs. Ludvig Hektoen, Chicago; David L. Edsall, Boston; John Howland, Baltimore; Reid Hunt, Washington, D. C.; and Albert P. Ohlmacher, Detroit.

The first article appears in the *Journal of the American Medical Association*, April 26, 1913, p. 1298.

trum of Highmore infection. Such a list embraces both localized and general infections of variable etiology with staphylococci as exceptional factors, or if involved usually secondarily.

The field of usefulness of the stock streptococcus vaccine is strictly limited, and this limitation seems to be directly related to the variations which streptococci from different sources and different morbid conditions present which lead to the appearance of those diverse biologic characteristics by which they are differentiated into the groups, races, or strains which subdivide the pathogenic streptococci as a species.

In such affections as streptococcus angina and adenitis following milk infection, autogenous vaccine therapy has been advocated.

The organisms included under the species pneumococcus vary as to races, strains or groups much as streptococci. For specific therapeutic effects one must recognize this variation to the extent of providing for autogenous vaccines in such cases as offer promise for bacterial inoculations. There is little evidence that stock or autogenous vaccines are of value in pneumococcic infection.

The committee concludes that vaccine therapy is a highly specialized field of medicine whose successful pursuit calls for a particular training in bacteriology, immunology and clinical medicine. The therapeutic possibilities of vaccine therapy have been exaggerated. The promiscuous use of the stock bacterial vaccines of commerce in the treatment of acute and chronic infections is an irrational procedure. Ready mixed commercial vaccines should be abolished. In cases suitable for bacterial therapy, autogenous vaccines are with few exceptions superior.

DIPHTHERIA CARRIERS.

Cases which continue to show positive cultures for diphtheria for weeks after the disease has clinically disappeared frequently worry the boards of health and are the despair of the attending physician. The bacilli reappear after vigorous local antiseptics. Cases have been reported in which removal of the tonsils and adenoids has been followed by prompt disappearance of positive cultures, but this rather radical treatment has not always been successful. Vaccine therapy with Klebs-Loeffler vaccine is also of doubtful value. Recently Schiotz[3] has sprayed cultures of staphylococci into the throats of diphtheria carriers and obtained a quick disappearance of the diphtheria bacilli with no bad results to the patients. Similar results have been reported by others, although in one case[4] the use of the staphylococcic spray was followed by an attack of acute tonsillitis with abundant staphylococcus growth.

Wood[5], suggests the use of a spray of Bacillus Acidi Lactici. He has used it in five cases with good results after failure with local antiseptics.

On the other hand, Bissell* concludes from work done by the Buffalo Department of Health, that these cultures do not destroy the bacilli of diphtheria, but merely make their detection impossible.

REMOTE RESULTS OF TONSILLOTOMY AND TONSILLECTOMY.

In a comparative study of 110 cases of tonsillotomy in Harmer's clinic and an equal number of cases of tonsillectomy, with reference to the remote effects of operation, Whale[6] finds that with the single exception of voice troubles tonsillectomy is more likely to cure the complaint for which advice is sought. Impairment of the voice or failure to improve vocal disturbances was noted in 27% of the tonsillotomy cases and in 48% after tonsillectomy. It is to be remembered in determining the value of such statistics as these that standards of voice production differ with individual observers. That a change in the quality of the voice corresponding more or less to the amount of tissue removed, may take place, is to be expected, and in view of this fact, due caution should be exercised in recommending professional singers and speakers for tonsil operation.

SUSPENSION LARYNGOSCOPY.

The direct method of inspection of the larynx has long since established its value in connection with operative procedures in the larynx, trachea and bronchi. An interesting and promising adjunct to the method has been devised by Killian[7] in an apparatus for suspension laryngoscopy. The object of the apparatus is to enable the operator, after placing his laryngeal speculum in the position giving the proper view of the larynx, to fix it in that position by mechanical means so that both his hands may be available for the operative purpose. Its function is that ordinarily performed by the assistant who holds a retractor in a general surgical operation, but in this case it does the work better than an assistant because here an assistant is unable to tell whether his retraction is effective or not since he cannot see the laryngeal region which is only visible to the operator. An assistant's retraction is therefore ineffective and it is necessary either for the operator to do his retracting himself, thus leaving only one hand available for operating, or to use some mechanical device which will hold the speculum and the head of the patient in the desired position.

Killian's apparatus reduced to its simplest terms consists of two parts:—(1) a right angled laryngeal speculum having a hook at the end of the handle, and (2) a gallows on which the speculum is hung by the hook. The gallows is adjustable in all directions.

The patient being placed in the dorsal position on the operating table with his head and neck extending beyond the end of the table, the laryngeal speculum is introduced in the usual manner until a good view of the larynx is ob-

* *Journal American Medical Association*, Oct. 11, 1913, p. 1372.

tained. The speculum is then held in this position by attaching it by its hook to the gallows which is adjusted to the proper position. The weight of the patient's hanging head is thus chiefly supported by the apparatus at its point of pressure at the base of the tongue.

It is admitted by Killian that suspension laryngoscopy has its limitations. Patients whose mouths cannot be opened wide, those who have long projecting upper teeth, and those with thick, resisting tongues, present, in some instances, great difficulty in the use of the apparatus. It has been used and favorably reported on in this country by Freudenthal[8] and Mayer[9].

Albrecht[10] has made an alteration in the speculum with a view to securing a better view of the anterior commissure.

CHRONIC STENOSIS OF THE LARYNX AND TRACHEA.

Lynah[11], in an interesting study of chronic laryngeal stenosis confined principally to stenosis following diphtheria, gives a general résumé of the pathology. He considers that all of the pathological lesions met with in the various forms of chronic stenosis, whether the primary cause be diphtheria, syphilis, or what not, follow the same course of new connective tissue, cartilaginous, and bony development.

In laryngeal diphtheria the basis for the whole of the pathology of the condition is laid down in the beginning with the acute diphtheritic exudate and primary intubation. When the exudate resolves early the patient is able to remain without the tube on the first extubation, but when the exudate does not resolve early and extubation is performed the subglottic infiltration necessitates the wearing of a tube for a longer period. The tube virtually acting as a foreign body, causes pressure on the swollen laryngeal soft parts, and as it rides up and down or antero-posteriorly during the acts of coughing and swallowing, the unhealed ulcerations are increased, which also add to the necessity of prolonged intubation. These pressure ulcerations are most marked at the cricoid cartilage, and when of sufficient degree cause necrosis with absorption of the whole of the cricoid ring, with the frightful sequelae of persistent auto-extubation. With the absorption of the cricoid cartilage the tube can no longer be held in place by the retention swell, and is, therefore, auto-extubated, and as the tube is coughed out the larynx collapses, or the walls are sucked together by the first inspiration of the patient.

The necrosis is the starting point of the subacute and chronic cases. Round cell infiltration, followed by productive inflammation, which leads to the formation of new connective tissue, altogether reconstructive, obliterates the lumen. This new connective tissue is richly supplied with blood vessels. Now the changes next involve the cartilage, and the regeneration of the thin areas left results in ossification, and where we once had a cartilaginous cricoid we now have new bone formation.

In treatment, gradual dilatation with special tubes measured in millimeters with increasing diameters, is advised. The tubes should dilate antero-posteriorly as well as laterally, and tubes of cigar shape accomplish this purpose. They are gradually increased in size until the largest possible dilatation is accomplished, and are changed once each week for the purpose of cleansing, a size one millimeter larger being introduced at each change.

LARYNGECTOMY FOR CANCER.

In no department has progress been more marked than in external operations on the larynx. During the past year two notable contributions on this subject have been made by Crile[12] and Gluck[13]. The former in a series of twenty four cases reports an operative mortality of two while the latter has had no deaths in the last sixty-three cases operated upon by him. In striking contrast with these figures are those of Sendziak published in 1888. In 147 cases of laryngectomy reported at that time there was an operative mortality of 39%. The cause of death in by far the largest number was inhalation pneumonia; next came sepsis about the larynx or trachea; other and less frequent causes of death were secondary hemorrhage and shock. It is evident that the improvement in results in the series now reported is to be traced directly to improved technic based upon a study of the causes of death above mentioned and of the most effective methods of combating them. Gluck maintains that inhalation pneumonia and sepsis can be avoided by what he considers the essential step of his operation, namely the complete segregation of the trachea from the laryngeal wound. The order of his operation is as follows:—

1. Dissection of larynx and trachea and ligature of vessels before opening the air passage.
2. After separating the larynx from the pharynx, closure of the pharyngeal opening.
3. After separation of the larynx from the trachea, suture of the latter to the skin.
4. Closure of the entire wound by suture except for iodoform gauze drainage at the upper and lower limits of the wound.

Crile's[14] technic differs in some essentials from Gluck's. He considers the dangers from the operation to be: 1. Inhalation pneumonia. 2. Local infection. 3. Mediastinal abscess. 4. Vagitis. 5. Shock and collapse due to injury of the laryngeal nerves. The first danger is avoided by scrupulous maintenance of a dry field in the entire course of the preliminary dissection, and control of the bleeding in the later stages by posture or the use of novocain and adrenalin, preference being given to the latter. The second danger is combated by attention to foci of infection in the mouth and throat, by

careful sharp dissection and by the use of iodoform gauze packing. The occurrence of mediastinal abscess is avoided by preliminary tracheotomy and at this operation packing of the lateral planes of the neck with iodoform gauze. By this means a barrier to infection is produced in the form of a wall of granulation tissue. The danger of vagitis caused by trauma to both pneumogastric nerves is a real one. It is serious only if both nerves are simultaneously injured. Therefore at the preliminary operation it is advised to carry the dissection along side of the larynx on one side all the way to the upper margin of the field of operation and then pack this territory with iodoform gauze, and so let one vagus take the brunt of exposure and adjustment before the larynx is removed. By the time the laryngectomy is done the first vagus would be likely to resume its function, should it have been affected, or at any rate the heavy onslaught of the vagi simultaneously is avoided.

The hypodermic injection of atropin 1-100 grain with the local application of novocain is a protection against the danger of shock and collapse.

Crile advises against freeing the trachea and stitching it to the skin on account of the danger of necrosis of the stump, cutting out of the stitches and consequent retraction of the trachea into the thoracic cavity.

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Reports of Societies.

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY.

The regular meeting was held at the American House, Boston, Nov. 19, 1913. Dinner was served at 6.30 p. m., President, Dr. William H. Kelleher presiding; Dr. A. E. Small, Secretary.

Dr. L. R. G. Crandon of Boston, read the paper of the evening on

SURGICAL DRESSINGS.

He said in part that the topic is timely inasmuch as our attitude toward the treatment of wounds is approaching a more rational and reasonable basis. A beginning infection is local first, then more and more diffuse. To combat it we must get more blood to the part. We get arterial blood by means of heat and moisture in the form of the old-fashioned poultices; and venous blood by Bier's hyperemia. An increased amount of blood in the part kills the infection, it remains localized and we can then drain. The right cut for a septic process is a delicate matter. The active process is a core with a wall round about. A big cut through this protecting wall is the worst possible thing. The incision should be made into the centre and only large enough to let the pus out. "Drains" do not drain. We must have something to keep the drainage going. This is accomplished by Wright's solution, where action is based on the principle of osmosis with the additional benefit of dissolving the blood clot, etc., thus preventing the plugging of the opening. The dressing is put on hot and sopping wet and kept so for 24 to 36 hours. If kept in longer the wound becomes macerated and soggy and loses its power of healing. No wick is put in and the wound remains wide open. Thus the acme is past when the incision is made. We have dropped the use of most of the chemicals. Corrosive sublimate has absolutely gone by. It forms an albuminate and keeps the wound hot and uncomfortable. With regard to sulpho naphthol, certain bacteria seem to prefer it to anything else as a culture medium. Chlorinated soda has some virtue in that it sets free one atom of nascent chlorium and so helps combat the infection. A watery solution of myrrh is good in the convalescent stage, as it is stimulating, pleasant and comfortable. After Wright's solution it is desirable to use something soft and emollient. This is obtained by balsam Peru, a drachm to the ounce of castor oil. Also glycerine which is slightly antiseptic and at the same time dehydrates. Mild chemicals such as boric acid, eucalyptol 5% in vasaline base may also be used. Scarlet red probably does not cause much spread of epithelium.

Boils may have a general significance, but when there is a crop close together it is a reproach upon the doctor. To treat them, smear the surrounding skin with boric acid ointment, and powder the top with boric powder. It takes a week to ten days for one to mature, and everything is ready when it opens. Never incise, but wait.

Carbuncle. Staphylococcus vaccine may abort one-fourth to one-third of the cases if seen early. In the late stages, as usually seen by the surgeon, we must excise, cutting deep and removing all the infected tissue. Then apply emollient dressings.

Burns need to be covered with something anesthetic, antiseptic and wet. A saturated solution of picric acid answers all these requirements. Best applied with a thick absorbent cotton dressing and kept wet.

Appendiceal abscess is no longer washed out, but carefully wiped dry so as not to carry infectious material. A spiral cut drain is better for sucking out material and protects the gauze. After once placing leave the wick alone for five days. The cause of the abscess has been removed and all the pus gotten out. There will be no more unless necrotic areas present. The wick is to render the region external to the rest of the body by causing adhesions and making one big cavity. On the fifth day the wick comes out easily and leaves a unit cavity. If removed earlier the intestines are liable to collapse, leaving a lobe deep in, which may cause a secondary abscess. After the wick is removed, pour in balsam Peru and let alone. The same principles hold for any pelvic abscess.

Tuberculous nodes of the neck if localized and freely movable can be excised without cutting into

the gland. Remove the tonsil also. If the node has broken down, we cannot dissect without breaking into it. Make a small incision to let out the pus and then we have to deal with a cavity wall which is alive with germs. The curette is a criminal instrument: it plows up the field and carries germs far and wide, causing a serious spread of the disease. One may wipe out the cavity with gauze, then paint the inside of the cavity with iodine.

The preparation of the field of operation goes through stages of fashion. The iodine preparation is a good way. There may be a hundred others. The preparation is done under ether, cleaning first with benzine, then applying the iodine, following with Harrington's solution and lastly alcohol. This prevents any irritation to intestines drawn out upon the skin. The day of soap and water preparation has gone by. There are enough disadvantages to put it in the discard. The soap is not all saponified. The skin is covered with grease under which the germs grow. Besides the patient all through the operation lies in a pool of water and is liable to suffer from shock.

After a brief discussion the meeting adjourned.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

MEETING OF WEDNESDAY, NOVEMBER 12TH, 1913, AT 8.30 P. M.

The President, Dr. Charles A. E. Codman, in the Chair.

THREE CASES OF MYXEDEMA, ONE ASSOCIATED WITH PITUITARY DISEASE; WITH PRESENTATION OF PATIENTS.

DR. WILLIAM HARMAR GOOD, three cases cited: Mr. J. B., married; 58 years; electrician; rapid onset 15 years ago; typical myxedematous infiltration with markedly subnormal activity of all the organs. Leucocyte count 3020; polymorphonuclear 32%. Improved rapidly up to a certain point on three grains daily dessicated thyroid U. S. P. Then on account of tolerance to glucose, sexual atrophy, an x-ray examination showing absence of posterior clinoid processes, and continued subnormal temperature 96.5°, systolic blood pressure 73 to 80 mm., he was given three grains of dessicated pituitary with great improvement.

Mrs. M. M.; 29; married at 15 years; 4 children; typical myxedematous infiltration; subnormal blood pressure; temperature and pulse, amenorrhoea, obstinate constipation, scanty urine, marked depressional delusional insanity, and profound asthenia of mind and body. Rapid return to normal on 2 grains daily U. S. P. thyroid.

Mrs. T. L., 38 years; two children; seven years duration typical myxedematous infiltration, and subnormal activity of all the organs. Five grains of thyroid in four days caused most profound prostration, but great improvement in symptoms. In three months took but 23 grains of dried thyroid with great improvement and then became very intolerant to but smallest doses of thyroid (¼ every four days). At times could take one or two grains daily.

In the three cases one grain of thyroid was given never more frequently than four times daily and often in but fractional daily doses. The dose of four grains given in U. S. P. is very dangerously excessive.

THE TREATMENT OF PNEUMONIAS.

DR. ROBERT N. WILLSON, The very few who make the distinction between lobar or fibrinous pneumonia and that which we may term for sake of accuracy of description, broncho-catarrhal pneumonia, avoid speaking of the "treatment of pneumonia" and never include under the one term conditions as different as darkness from light. It is most important to determine very early which form of involvement is present. The temperature, pulse, and respiration chart usually suffices to make the differentiation. In most respects the treatment of the two conditions is the same. In certain essential points, however, the methods of handling must be as divergent as two opposite-traveling roads. In both forms of pneumonia an abundance of fresh air is an essential. If possible the patient should be placed bodily out of doors, *provided, and only provided the case is of a febrile type of fibrinous pneumonia.* In exceedingly few, if in any such cases, does the temperature curve average as low as 100°F, and the patient cannot "take cold." He must, however, be protected from the discomfort of extreme weather. The patient with broncho-catarrhal pneumonitis needs the fresh air and oxygen as seriously as does he with the fibrinous inflammation and exudate. If supplied in the form of cold air, however, to a body whose poverty in heat and vital energy is already low, death may be the result. I have seen such result from the use of the "cold fresh air treatment for pneumonia" where the distinction was not made between the types of lung involvement. It would be comparatively safe to entrust the decision between the application of cold, or warm, fresh air to the patient. The regulation of the food supply is important in both types of pneumonia. In the fibrinous inflammation, probably the entire seven or nine days might be experienced by a well nourished patient with no food intake with more surely favorable result. For the comfort of the family, at least, food must be administered. It becomes an object, however, to use as little as possible of the most nourishing, and easily digestible form of food, at as infrequent intervals as the exigencies of the case permit. Milk forms the ideal diet so long as tympanites. To this one staple may be added or substituted for it, simple soft foods such as junket, custard, one minute boiled eggs and soft milk toast. In the broncho-catarrhal pneumonias the patient requires from the first a supporting diet, but not more than is needed for the body requirements or can be digested. I have found it helpful to prescribe approximately two quarts of milk in the 24 hours and in addition, three times during the day, a one minute boiled egg and some agreeable addition, such as custard, finely chopped meat, mashed potatoes, lettuce, dry toast, or a little of any simple vegetable desired. This regime cannot be safely followed unless the intestinal canal is kept clean. An adequate supply of drinking water is an essential in the treatment of the pneumonias. Three pints or two quarts should be taken by the average adult patient during the twenty-four hours. A valuable aid to the favorable prognosis in both types of pneumonia is a thorough initial intestinal sweeping by means of castor oil repeated every second day throughout the course of the disease. Under

this regime, provided a sufficient supply of clean fresh air of the proper temperature be afforded, the vast majority of patients will require no other drug treatment from start to finish. Of the non-medicinal measures the care of the skin is one of the most important. Serous collections should be removed as soon as recognized. Every measure of treatment which interferes with the patient's rest of mind and body should be interdicted and the patient should have an interval of rest of at least three hours. After the initial intestinal housecleaning drugs should not be administered without definite indication. Aconite which in fibrinous pneumonia will quiet the over-acting heart, in broncho-catarrhal pneumonia is not safe. Alcohol is a cardiac muscle poison and a vasomotor paralyzant. "Purging, diet and bathing" were the watchwords of Aesklepiades and of a long succession of the Ancients. Add both cold and warm fresh air to this triad, and we have the outline of the most successful modern treatment of one of the most treacherous and dread forms of systemic and pulmonary disease.

DISCUSSION.

Dr. S. Solis Cohen. Dr. Willson's division of the pneumonias into acute, lobar, croupous, catarrhal or inflammatory catarrhal is not quite complete, because the broncho- or catarrhal pneumonia must be subdivided according to the causative organisms. The treatment that would be suitable to a case of tuberculous broncho-pneumonia would be unsuitable to a case of influenza broncho-pneumonia. From a study of the statistics it is found that the average mortality of pneumonia in the last thirty years is in the neighborhood of 33%. Previous to the last thirty years it was about 25%. The measures used by our fathers were rather vigorous,—venesection and heavy doses of various drugs. The expectant treatment has not been as successful as even the misguided treatment of an earlier period. The one greatest advance of modern treatment is the exposure of the patient to fresh cold air. Excluding the sort of cases that come to the Philadelphia Hospital, having been exposed to all sorts of weather and with pathological conditions in the various organs, the mortality should be reduced to 20%. I believe we can do still better by the proper administration of quinine and other indicated measures.

SOME REMARKS ON A PHASE OF THE COCAINE EVIL IN PHILADELPHIA.

Dr. J. Norman Henry: Two cases are cited of young men seventeen years of age who acquired the habit of using cocaine by obtaining the drug in the streets of Philadelphia. My object in presenting the matter is to call attention to the accessibility of the drug; also to the fact that there is an effort made by the authorities to prevent its sale and to say that if our cases are reported to the Department of Public Safety measures will be taken to trace the selling of cocaine, secure evidence and the conviction of the sellers.

EXPERIENCES FROM A NINE YEARS' SERVICE IN SEVERANCE HOSPITAL, SEOUL, KOREA.

Dr. J. W. Hirst: It is about thirty years since the first foreign doctor went into Korea. The city of Seoul with a quarter million of people knew nothing of surgery until 1888. It so happened that an American surgeon at that time was able to serve one of the members of the royal household. Twenty years later a hospital was established which was the first building in that country in which it was possible to accept patients and attempt to treat them. These are the conditions under which it was my privilege to enter nine years ago. The first operation ever done in the Seoul Hospital was for cataract. Facial blemishes the result of inflammatory diseases are frequent. I also have seen many cases the result of smallpox which in earlier days was so prevalent there. Today under vaccination there is a generation which does not know the disease. I have seen the largest series of empyemas in our service that I have ever read of anywhere else. Why it should be that empyemas are so prevalent I am not able to determine. Pneumonia is just about as prevalent in Korea as in this country. Appendicitis is almost unknown. The people are a rice-eating people and as a rule are not so subject to constipation as people in this country. They also are a people who do not chew their food. Typhoid fever is not very prevalent, but typhus fever becomes a great scourge.

There are some fevers which do not show the same characteristics as the conditions laid down in our text-books. The people in their acceptance of surgical aid in the first instance were afraid of a foreigner, but gradually a change has come. Not long ago we had two women living in the same room one of whom had ascites and the other a large abdominal tumor. The woman with the tumor was operated on and the other woman demanded that she also be operated on. So that the leaven is leavening the whole lump and one patient satisfactorily treated in a community will affect a large number. The Chinese practice of surgery is a series of needles, long and short, hot and cold and sometimes they are twisted like a small corkscrew, also triangularly. I removed a fibroid uterus the size of a child's head which had been treated by a native surgeon by passing needles through the abdominal wall and three needles were imbedded in it when removed. We have records of other cases in which a mass was removed from the body containing needles which had been forced into the tumor. The native doctors never attend labor cases. These were always in the hands of the old mothers in the homes. Prolapse of the uterus was treated by the insertion of a pledget of cotton soaked in alcohol. This was set on fire and the parts would be so badly burned that the uterus was held in place by contraction.

THE AMERICAN NEUROLOGICAL ASSOCIATION.

Thirty-ninth Annual Meeting, Held at Washington, D.C.

May 5—7, 1913.

The President, Dr. Pearce Bailey, New York, in the Chair.

(Continued from page 57.)

LESIONS OF THE HYPOPHYSIS AND OF THE UNCINATE REGION, WITH THE RECORD, CLINICAL AND PATHOLOGICAL, OF A SERIES OF CASES.

Dr. Charles K. Mills and Williams L. Campbell, Philadelphia: The paper is based on a

series of eight cases, two of which had been previously shown at another society, both before operation. Of the eight cases, one had presented uncinate without pituitary symptoms, necropsy in this case showing a large tumor involving the uncinate convolution, but extending into other regions of the cortex and subcortex. Of the other seven cases, three presented both pituitary and uncinate phenomena of a decided character. In the other four uncinate symptoms were absent, pituitary phenomena being pronounced. These phenomena, however, were of a mixed character, illustrating dyspituitarism rather than either hypo- or hyperpituitarism. In one of the cases with decided uncinate symptoms no lesion of the temporal lobe was discoverable. In one case in which the patient died after operation, a necropsy showed a tumor involving the infundibulum and pineal gland and adjoining structures. In three of the operated cases pathological conditions of the hypophysis were found at the operation and confirmed by microscopical examinations of parts of the tissue removed. The authors are favorable to the fronto-orbital operation of Dr. Frazier for the exposure of the hypophysis. They believe it has distinct advantages over that of approach by the nasal route. Operation, however, gives successful results only in a limited number of cases. The authors of the paper discuss the manner of the production of the conjoint pituitary-uncinate symptom complex.

DR. J. RAMSAY HUNT, New York: Has Dr. Cushing had any cases of complete transitory blindness referred to him? I saw quite recently with Dr. Kinnicutt at the Presbyterian Hospital a case of pituitary disease in which there were no changes in the sella turcica. The man was placed on extract for two or three weeks. He returned to the hospital saying that he had been seized quite suddenly in the engine room, where he was working, with blindness which had lasted for four hours at the time Dr. Ramsey saw him. It seems that the blindness had something to do with the acromegalic signs.

DR. HARVEY CUSHING, Boston: In reply to Dr. Hunt's query, I would say that I have seen many cases of scotomata and these scotomata, as de Schweinitz has pointed out, are very apt to occur in the upper, outer quadrant. They are largely due to the fact that there is apt to be fluctuation of these symptoms. The gland swells against the chiasm which accounts for the loss of vision in the upper and outer quadrant. In cases which have passed beyond the stage to be cured by operation I would limit myself to a minor measure such as the mere relief of pressure rather than a large major operation such as the exposure of these structures through the frontal region. Such a lesion as a cyst is, of course, easily approached from below. The duration of the stay of the patient in the hospital from operation by the trans-sphenoidal route is comparatively a few days. It is not much more than a submucous resection of the septum, which the laryngologist not infrequently practices in the out-patient department. There have been 104 patients in my series and there have been 75 surgical cases. In 46 of the 75 there has been the trans-sphenoidal operation; in 22 subtemporal decompressions and 8 have had trans-sphenoidal and temporal decompressions. So that there have been 93 operations. There have been 9 fatalities, about 10%. Most of these fatalities occurred in the early series. Thus of these fatalities most of them were cases which today we would recognize as inoperable or would adopt a simple measure. Two of them were simple subtemporal decompressions with very large tumors. I think the operation merely takes part of the growth. It is inconceivable that one can remove the entire growth. If the growth is accessible from below I think it should be approached from below. What we want to do is to make room for enlargement of the growth. We cannot remove it entirely. I feel that this measure to which Dr. Frazier has again called attention, and which was first advocated by Hartley and subsequently by Krause, is in Dr. Frazier's skilful hands a measure that very likely can often do good, but it is one which I should feel very badly to have come into general use.

HUNTINGTON'S CHOREA: A STUDY IN HEREDITY.

DRS. SMITH ELY JELLIFF, ELIZABETH B. MUNSEY, and C. B. DAVENPORT, New York: In the last ten or twelve years we have been able to get together enough information to show that one could group these cases of Huntington's chorea into four large groups. For the last four years Dr. Munsey has spent all the time working on this material, with the result that practically all of the old family Huntington chorea in this country has come from five distinct families. The names of these families are now fairly well known. It has taken thirteen years to collect the material, and it will take five or ten years more to present complete analyses of what the material shows us. At the present time it confirms the statement frequently made that Huntington's chorea does not skip a generation. If any individual is free from the disease that individual's offspring will be free. Once the line of descent is free, always free. If one individual does not have the disease it means that he does not have it in his germ cells and hence cannot transmit it. The practical application of this rule to eugenics is diminished by the fact that Huntington's chorea does not come on until late in life. As to marrying, each member feels that he may escape and if he considers the matter at all runs the chance. In a person whose onset is relatively late in life it is to be expected that the parents will often die before the disease is due to develop in them. In certain of the families one will find the cropping out of the Huntington chorea, nothing in the antecedent heredity and later it turns out that there was illegitimacy, so that occasionally comes into these charts to explain the law of Mendelian dominance.

THE VALUE OF X-RAY ANALYSIS OF THE GASTRO-INTESTINAL TRACT IN SOME TYPES OF SO-CALLED FUNCTIONAL NERVOUS DISORDERS.

DR. L. PIERCE CLARK and DR. ARCHIBALD H. BUSBY, New York: In a careful and complete x-ray analysis of eight cases of idiopathic epilepsy associated with severe gastro-intestinal disorder the authors found some form of abnormal position of the viscera (ptosis) which they judged to be pathological in each case and which they connected up with some of the clinical symptoms in the individual case. They outlined a system of physical therapeutics to overcome the gastro-intestinal ptosis which had been of functional benefit. They advised a routine x-ray examination in every case of genuine epilepsy with severe indigestion as an aid in exact diagnosis and treatment of the indigestion and the convulsive disorder itself.

DISCUSSION.

Dr. D. J. McCarthy, Philadelphia: I can support what Dr. Clark has said in his paper from an extensive study of the past year on not only this group of cases but the entire group of functional cases that come to the neurologist's office. Wherever there has been suspicion of gastro-intestinal involvement, I have had x-ray tests made. The percentage of cases of what has been considered the functional neuroses in which one gets lesions, not only equal to those shown in Dr. Clark's group of cases, but even more intense, is surprising. Among those cases operated on, where they have been well selected, uniformly excellent results have been obtained.

Dr. Herman H. Hoppe, Cincinnati: I believe that, while the study of this condition is very interesting, before the profession can come to any conclusion as to the therapeutic results a larger number of cases must be studied. There is, on the part of a great many patients an objection to having an operation of a serious character done for a primary condition that has existed for a long time. Some practitioners have found the straight front corset to answer nearly all purposes. One case of epilepsy occurs to me as presenting complete recovery following operation.

Dr. J. W. McConnell, Philadelphia: I am not interested in the surgical side of these cases, believing, as I do, that the matter of internal therapeutics has not been sufficiently worked out. There is too much tendency to go ahead and carve up these patients. For several years I have been working very carefully at the condition of displacement of the abdominal organs with direct reference to their effect upon the nervous system and incidentally upon the general digestion. In the matter of treatment of these cases I have largely been depending upon abdominal supports made of very heavy adhesive plaster. Up to the present time I have had certainly 300 or more cases in which there has been very distinct relief of the gastro-intestinal symptoms and a very definite improvement to the peculiar toxic condition which those patients naturally get into.

Dr. C. A. L. Reed, Cincinnati: Having had a number of these cases referred to me, notably by Dr. Hoppe and Dr. Langdon, I have had some very satisfactory results following surgical restoration of these displacements. It is no more possible to reduce these displacements by medicines than it is to reduce a dislocated elbow with a dose of pills. I have not infrequently applied bandages, trusses and so on with benefit, temporary or partial. But that that treatment can by any possibility restore the patient to normal condition is something not for a moment believable.

Dr. Edward B. Angell of Rochester, N. Y., said that as soon as you have corrected the intestinal fermentation that distends the bowel and causes the pressure, permanent relief will be afforded the patient. He has many times had the pleasure of taking off the supports and leaving the patient much more comfortable.

THE INTERPRETATION OF DIFFERENCES IN MAMMALIAN BRAIN WEIGHT IN TERMS OF THE STRUCTURAL ELEMENTS.

Dr. Henry H. Donaldson, Philadelphia, Pa.: Among different species of mammals of increasing size and increasing brain weight, present information justifies the general conclusion that the larger brains are composed of the greater number of structural elements.

Within a given species, however, the question arises whether the number of elements in the large brain is really greater than in the small brain, or whether we are to regard the large brain as composed of the same number of structural elements as the small brain—the size of the elements accounting for the difference in gross size.

In man we find differences of 10 to 20% in the brain weights among the two sexes and at different ages after maturity. There is about the same range of difference in brain weight in the rat—the brain of the very large wild Norway being about 20% heavier than that of the corresponding domesticated albino.

Using the rat as the species for study, the following relations have been found: The brain weight is alike in the two forms (wild Norway and albino) during the first three weeks of life. The relative weights of the divisions of the brain are alike in the two forms, despite the difference in absolute weight. The percentages of water in the several subdivisions are similar in both forms. The observed number of medullated fibres in one peripheral nerve (nervus peroneus) is the same in both forms. The size of the cell bodies in several localities is found to be greater in the Norway than the albino. Finally, as the weight of the brain is closely correlated with the body size, it is possible to produce from the same litter, by modification of diet, animals with brains of different absolute sizes. These brains presumptively contain the same number of neurones.

All this points to the general conclusion that in the case of the rat the differences in the size of the brain are due to differences in the size of the elements.

If we apply these tests to man, we find that so far as the observations exist the results are similar.

It is concluded, therefore, that within a given species of mammals—illustrated by man and the rat—the difference in the absolute weight of the brain either within the same sex, or when the two sexes are compared, is mainly due to differences in the size of the constituent elements.

DISCUSSION.

Dr. E. E. Southard, Boston: As to the question of agenesia versus aplasia connected with the dementia precox brains which I have been studying, I find that the various persons with whom I have talked felt that, for instance, in a small brain in dementia precox patients there might well be agenesia. If these conclusions of Dr. Donaldson be correct, it might be that the small brain of dementia precox, like the small heart or small aorta, is an instance of aplasia or hypoplasia rather than agenesia. Agenesia should mean a condition in which certain elements are lacking; while aplasia should mean an alteration in the negative direction, in the size or other qualities of the cells. There are no gradations in respect to agenesia; it is either genesis or agenensis. We should be careful how we speak of the brains as examples of agenesia. If we get used to employing the word agenesia, we will come to think that dementia precox means an absence of certain elements; whereas, it may not at all mean such. In fact, the evidence would seem to the speaker to be rather that the dementia precox brains are in pos-

session, perhaps, of their normal quantity of elements. Many counts would have to be made to make this point good.

DR. HENRY H. DONALDSON, Philadelphia: I have recently been over a short series of brains belonging to deficient and defective children from the Vineland, N. J., institution, and, separating them into their larger divisions of cerebral hemisphere involvement, etc., and taking the weights of these, I was rather surprised to find that the weight relations were those of the normal brains, in most cases. My own interpretation, in fact, is in favor of the view that the elements composing these brains are small in size, rather than deficient in number.

EXPERIMENTAL STUDY OF INTRANEURAL INJECTIONS OF ALCOHOL.

DR. ALFRED GORDON, of Philadelphia: The experiments were carried out on dogs with the object of determining the effect of alcohol on motor and sensory or mixed nerves. The facial infraorbital and sciatic nerves were exposed by dissection during anesthetization with chloroform and 5 minims of 80% alcohol were injected. The first series of dogs were kept alive nine days, the second series twenty-nine days. Not only the peripheral nerve-trunks, but also the nuclei (Gasserian and spinal) were examined microscopically. The facial nerve was traced through its course in the medulla. The histological and clinical findings were then given in detail. The conclusion to which I have arrived is, that while very little or no damage is done to a motor nerve, the sensory and mixed nerves present very little resistance to the effect of alcohol. Irreparable damage may be done in the latter case, but in the case of motor nerves restoration of function was almost the rule. Illustrations of the histological findings were appended.

DR. ISRAEL STRAUSS, of New York: I can in a way bear witness in confirmation of the author's results. Two years ago I saw a patient into whose sciatic nerve there had been an injection of alcohol, the result of which injection was a complete paralysis of the muscles of the leg. This paralysis lasted over one year; and, in addition to said paralysis, there developed trophic ulcers upon the foot, also a marked edema. There was at the end of a year, almost no sign of restoration of the power of those muscles and the trophic ulcers, while they would heal, would appear in new regions. It was his opinion that probably the trophic condition of the foot put that patient in such jeopardy that amputation might eventually be necessary.

DR. EDWARD B. ANGELL, Rochester, N. Y.: I would inquire whether Dr. Gordon had examined the sciatic nerve after the injection of a saline, rather than alcohol. This would be rather interesting because such injections are now made by men who are using injections for the relief of neuralgias.

DR. PETER BASSOE, Chicago: I consider it my painful duty to tell about an experience I had with an injection in a case of sciatica, not with alcohol, but with salt solution, a method which I have used a great deal, and which I am still using. In the summer of 1908 I injected a number of cases at the Cook County Hospital of Chicago; and a number of cases were injected by the internes, both in the speaker's service and in that of his colleagues. There was one typical case of sciatica injected by an interne; and within, say half a minute, or at most within one minute, a complete sciatic paralysis was produced. The needle was introduced through the buttocks rather high up, using the landmarks advised by some French writers and drawing the line from the conjunction of the coccyx and sacrum over to the upper border of the trochanter. The patient was a nervous man; he did not like the feeling of the needle and jumped. Possibly that had something to do with it; but at any rate the paralysis and loss of sensation were instantaneous. I at once examined him and found there was complete paralysis of all the muscles below the knee and loss of all forms of sensation. The man's sciatica was cured and never returned. The patient still had a complete paralysis of those muscles.

DR. ALFRED GORDON, Philadelphia: In reply to Dr. Angell's query regarding my personal experience in injecting saline solution, I have had quite a number of cases that have been relieved, but not cured, by physiological salt solution. I have tried in two cases the injection of plain distilled water and have obtained equal results as with the saline solution. I have never observed such a danger as Dr. Bassoe has mentioned from injecting saline solution into the sciatic nerve.

(To be continued.)

Book Reviews.

Artificial Parthenogenesis and Fertilization. By JACQUES LOEB, member of the Rockefeller Institute for Medical Research. Originally translated from the German by W. O. REDMAN KING, B.A., assistant lecturer in zoölogy at the University of Leeds, England. Supplemented and revised by the author. Chicago, Ill.: The University of Chicago Press. 1913.

This translation of Loeb's book appearing in 1909, entitled *Die chemische Entwicklungserregung des tierischen Eies*, has been amplified and enlarged by the author in consequence of new observations made since its publication. The investigation concerns itself with the possibility of the development of an embryo from an unfertilized egg, and allied questions. The book is a monument of painstaking chemical and physiological research, and possibly paves the way toward an understanding of the fundamental problem of life and its method of production. If the thesis which the author sets himself to prove is finally established, it may well prove the beginning of an entirely new conception of biological problems and lead to a reconstruction of certain very generally accepted postulates. Much, naturally, remains to be done before this result can be attained. In the meantime Loeb has certainly established facts which may no longer be ignored.

THE BOSTON

Medical and Surgical Journal

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STANDARDIZATION OF HOSPITAL RECORDS.

On another page of the Journal we print the report of the committee on the standardization of hospitals, presented before the recent meeting of the Clinical Congress of Surgeons in Chicago. In addition to sending to every hospital in the United States and Canada a copy of this report, it is the intention of the committee also to send a leaflet illustrating the practical working of the plan and giving various facts regarding its application and usefulness.

Should the simple suggestions in this leaflet be adopted, as we hope they will be, by the great majority of hospitals, we can see the possibility of a very far reaching effect. In a way it marks the beginning of real clinical science, for each operation or each attempt at any other form of curative treatment in any hospital is an experiment. It seems curious that these experiments should not be recorded in most hospitals. Often the facts thus obtained would be of the greatest scientific value. We must record all cases, since it is impossible to predict beforehand just which cases will be most important; we do not know today what may be of essential value tomorrow. The majority of hospitals nowadays have some sort of record system referring to the condition of their cases while in the hospital, but the real test of the value of operations and other forms of clinical treatment often comes after the expiration of years, long after the patient has left the hospital doors. The Massachusetts General Hospital endeavors by a method similar to that suggested in the leaflet, to trace its cases as a routine, and we feel that the adoption of such a system may well be undertaken by other hospitals, so that they will know whether "their product is sound or damaged." Even if it means the expenditure of much money it may be actual economy, since to expend money for poor results is as wasteful as any other form of extravagance.

It seems probable if the hospitals of the United States should take up this system in a uniform way, that it would lead to a more direct method of eliminating some of the modern surgical abuses than will even the formation of the American College of Surgeons. As far as statistics are concerned, the ordinary hospital morbidity report is nearly useless. It would be much better for the statistician to make his own statistics from a series of abstracted cases than by the method now in vogue. For instance, in the usual report, a patient operated on at the same time for two diseases, such as fibroid of the uterus and adenoma of the thyroid, is classed in the statistics under both of these operations. In reality, the risk of the two performed at the same time is not the same as the risk of either one. In these days it is very common for two or three organs to be removed at the same operation, and we think that the exuberant growth of modern surgery is likely soon to make it necessary to compare the statistics of different operators on this basis.

Correspondence regarding the plan should be addressed to Dr. E. A. Codman, chairman of the committee, 227 Beacon Street, Boston.

MEDICAL LEGISLATION. THE REGISTRATION OF DRUG-STORES IN MASSACHUSETTS.

On January 1, 1914, there went into effect throughout this Commonwealth an act, passed by the legislature last year, requiring the registration of all drug-stores in the state. This law was aimed primarily at establishments which, under the name of drug-stores, existed chiefly for the sale of alcoholic liquors. Secondly, it was expected to prove a means of controlling much of the clandestine and illicit sale of alcohol, morphine, cocaine, and other habit-forming drugs which has been surrep-

titiously carried on by some ostensibly legitimate drug-stores.

The registration of pharmacists in Massachusetts has for some time been on an ethical basis in the hands of the State Board of Registration in Pharmacy. This board will now in addition control the registration of all drug-stores, and will have the power at any time to revoke the license of any such establishment found guilty of evading or transgressing the pharmacy statutes of the state. Any store, in which there is not a registered pharmacist or assistant pharmacist, will be forbidden to sell any drug except a few harmless substances enumerated in a specified list. The board will have full power to investigate all cases and inflict fines for all infractions.

In a statement to the public press, the secretary of the State Board of Registration in Pharmacy has said, relative to the new law:—

"It has been requested that the Board of Registration in Pharmacy state what is expected to be gained by the enforced registration of drug stores. In answer to such inquiry, the members of the board say that they expect to have on hand a complete personnel of every drug store in the state on Jan. 1, 1914, and each year thereafter.

"They expect gradually to eliminate all apologies for drug stores created to do a mercantile business seven days in the week when other stores are obliged to close on Sundays.

"They expect to eliminate certain drug stores capitalized by ex-liquor dealers for the purpose of doing an illegal liquor traffic in no-license localities.

"They expect to assist in stopping the illegal sale of narcotics by having the power to refuse a permit to such drug stores as violate the law in this manner.

"The board feels that the enforcement of this law will bring about a better condition of the business of pharmacy throughout the state, and that the public health will be better protected in having skilled pharmacists conduct the business."

There seems every reason to believe that this new measure is a judicious piece of medical legislation, and that its enforcement should do much to raise the standards and prevent abuses of the sale of drugs in Massachusetts.

AN IMPORTANT DISCOVERY.

ON Dec. 27, 1913, Dr. William David Coolidge, of New York, demonstrated, before a meeting of physicians, physicists, and radiographic experts, his new method for the generation, control, and application of Roentgen rays. In brief, his invention consists of a tube in which both anode and cathode are made of tungsten, and by means of which the penetration and dosage of rays may be most accurately gauged. The advantages claimed for it are as follows:—

"(a) The intensity and the penetrating power of the Roentgen rays produced are both under the complete control of the operator, and each can be instantly increased or decreased independently of the other.

"(b) The tube can be operated continuously for hours, with either high or low discharge currents, and as either a hard or a soft tube, without showing an appreciable change in either the intensity or the penetrating power of the resultant radiations.

"(c) It permits of the realization of intense homogeneous primary Roentgen rays of the desired penetrating power."

It seems that this discovery is likely to prove of great importance in the medical use of Roentgen rays, and a more detailed and technical account of it and of Dr. Coolidge's work will be given in a subsequent issue of the JOURNAL.

MEDICAL NOTES.

INCIDENCE OF POLIOMYELITIS IN NOVEMBER.—The weekly report of the United States Public Health Service for Dec. 26, 1913, states that during the preceding month of November, 38 cases of poliomyelitis were reported in Massachusetts, 14 in California, and 13 in Ohio, these being the three states with the highest incidence of the disease. Of the Massachusetts cases, 10 were in Middlesex, and 8 each in Suffolk and Worcester counties respectively.

SUICIDES IN 1913.—Report from Chicago states that the number of suicides in the United States in 1913 was 13,106, as against 12,981 in 1912. Of the suicides in 1913, 8602 were males and 4504 females. Among professional men, the largest number of suicides was 34, among physicians.

TWO CENTENARIANS.—Mrs. Elizabeth Coburn, who died last week at Guys Mills, Pa., is said to have been born in September, 1813.

Lemuel Coffin, an ancient mariner, died last month at Sailors' Snug Harbor, Staten Island,

N. Y., at the supposed age of 101 years, 5 months. He had been an inmate of the institution for 33 years.

Radium Research Laboratory.—Report from Denver, Colo., states that on Dec. 26 the National Radium Institute secured in that city a site on which will be erected a laboratory for radium research under the direction of the United States Bureau of Mines.

Radium Deposit in Pennsylvania.—Report from Philadelphia on Dec. 27 announces the discovery near Mauch Chunk, Pa., of an extensive deposit of carnotite, a radium-bearing ore. Assayists have stated that this ore contains 2% of uranium oxide, from each ton of which 108 milligrams of radium can be extracted.

London Death-Rates in November.—Statistics recently published show that the total death-rate of London in November, 1913, was only 13.5 per 1000 inhabitants living. Among the several districts and boroughs, the highest rate was 19.5, in Finsbury, a crowded central quarter, and the lowest was 9.1, in Lewisham, a populous southern suburb.

New Methods to Increase French Birth-Rate.—To encourage the raising of children in France, it is proposed to exempt from taxation all families of more than four, and to give each married voter an additional vote for his wife and for each minor child.

A Parisian Gastropagus.—Report from Paris on Dec. 25 states that a case of Siamese twins has recently been brought to that city for operative surgical separation. The infants, which are a month old and both females, are joined by a fleshy band between their abdomina.

BOSTON AND NEW ENGLAND.

Work of the Boston Child Hygiene Division.—The recently published report of the division of child hygiene of the Boston Board of Health shows that during the past year the city nurses have made 33,392 visits on 18,438 newborn babies. Of these, 14,065 were bottle fed, 2766 were breast fed, and 1607 were fed on both breast and bottle. The report further comments on the cordial relations and coöperation between the board and the 12 milk stations of the Boston Milk and Baby Hygiene Association.

Action Against Two Massachusetts Cities.—At the instance of the Massachusetts State Board of Health, a writ of mandamus was issued on Dec. 30 by the Superior Court, directing the city of Gloucester to prepare plans for a hospital for patients with diphtheria, smallpox, tuberculosis, and other diseases dangerous to the public health. Request has been made for a similar writ against the city of Lowell. The building of such hospitals by cities of over 20,000 inhabitants was required by a statute of the year 1910. Gloucester and Lowell have hitherto failed to comply with this requirement, though specially requested by the State Board of Health to do so in 1911 and 1912.

A Centenarian.—Mrs. David C. Chamberlin, who died on Dec. 28 at Melrose, Mass., was born in Lexington, Mass., on Sept. 10, 1813, the eldest of a family of eight children. She was one of the school-children who in 1825 strewed flowers in the path of General Lafayette when he visited Boston, and is said to have been kissed by the general on that occasion. She was married in 1836, but has been a widow since 1884. She is survived by three daughters, one son, three grandchildren, and nine great-grandchildren.

NEW YORK.

Progress in Sanitation.—In severing his connection, of twenty-six years, with the Department of Health, Dr. H. M. Biggs, general medical officer, addressed a communication to Commissioner Lederle in which he reviews the advances made in sanitation in the city during this period. In the course of it he says: "A complete and remarkable transformation has taken place in the sanitary administration of New York. No one twenty-five years ago could have anticipated the wonderful progress which has been made in preventive medicine. This progress has been possible only through the scientific developments of this period, especially in bacteriology and in the discovery of new curative and protective methods. But the Department of Health of New York City has set the pace, for this and other countries, in the prompt practical application of the new achievements of science and the lessons of experience. I do not believe the citizens of New York fully realize how far in advance of most of the great cities of the world our administrative [illegible] service has been. During [illegible] visits to

Europe in the last twenty years I have made a careful study of the work of the health authorities in Great Britain, France and Germany, and have been greatly impressed with the fact that they were but slowly, and often very incompletely, adopting the measures which had proved most successful here. This fact has been long recognized in Europe, and the authorities there constantly look to New York for suggestions and directions in new methods in sanitary work. A glance backward over this quarter of a century shows a prompt and complete readjustment of the administration of the department to meet the new and more precise conception of the infectious diseases which the new bacteriology created."

LIFE EXTENSION INSTITUTE.—On Dec. 29 a "Life Extension Institute" was incorporated in New York, for the purpose of prolonging human life by examining periodically the physical condition of insurance policyholders and other individuals, and by disseminating life-saving knowledge. Its president is Mr. E. E. Rittenhouse, of New York. Mr. William H. Taft is chairman of the board of directors, and Dr. William C. Gorgas consultant in sanitation and hygiene. The chairman of the hygiene reference board is Prof. Irving Fisher, of Yale, and among other members of this board are Dr. George H. Simmons, of Chicago; Dr. William J. Mayo, of Rochester, Minn.; Dr. William H. Welch, of Baltimore; and Dr. Harvey W. Wiley.

"The Institute plans to make arrangements not only with life insurance companies, but with schools, industrial establishments, clubs and individuals, as well as to coöperate with hygienic agencies and movements of all kinds, including those connected with the tuberculosis movement, the social hygiene movement, the eugenics movement, the public health departments, federal, state and municipal, and even popular gymnastics and sports. It will establish laboratories in the larger cities for analysis of blood, urine, etc., of the persons examined. Its central office will be at 25 West 45th Street, New York City.

"The Institute is fashioned somewhat after the Model Homes Associations, that is, it will be a philanthropy conducted on a self-supporting basis. It will charge a small fee for its work, and the persons who furnish the capital with which to start this Institute have agreed that two-thirds of any profits which there may be beyond five per cent. on the capital invested will be devoted to extending its public usefulness.

"A striking feature of the scheme is that all concerned are benefited—the insurance companies, the policyholders, the individuals examined, and the public.

"This newly invented institution is the result of a sentiment which has been growing several years among life insurance companies to reduce their losses from life-waste, just as the fire insurance companies have for a long time striven to reduce their losses from fire-waste.

"The Hygiene Reference Board will aim ultimately to settle scientifically, so far as possible, the many disputed questions of personal hygiene. As yet personal hygiene has been neglected, especially in America, and "how to live" is a debatable question even among experts. The board will secure the coöperation of savants throughout the world to solve such fundamental problems as how best to ventilate our houses and how best to clothe and feed our bodies. In this way it is hoped to steer a scientific course between the Scylla of foolish fads which beguile the unwary and the Charybdis of conventional ways of living, which most of us accept blindly because others have accepted them before us."

Current Literature

MEDICAL RECORD.

DECEMBER 20, 1913.

1. HELD, I. W. *Aortitis Syphilitica.*
2. BARRETT, C. W. *The Carcinoma Question as It Pertains to the Uterus.*
3. DAVIDSON, B. *Thirty-three Cases of Thyroid Disease.*
4. BAKER, S. J. *School Medical Inspection in New York City.*
5. DAVIS, W. S. *A Comparison of Methods for the Diagnosis of Tuberculosis by Sputum Examinations.*
6. PETERY, A. K. *Some Early Symptoms of Mental Disturbances.*
7. *LUTTINGER, P. *Vaccine Therapy of Pertussis.*
8. GRIFFIN, E. A. *Turbinotomy.*

7. Luttinger reports results obtained with vaccine therapy in ten cases of pertussis. The micro-organism used resembled very closely that described by two Germans as the cause of whooping cough. The writer observed a reduction in severity and a shortening in duration of the disease after inoculation. He says that pertussis vaccine should be given in much larger doses and at shorter intervals than are generally recommended. Prophylactic inoculation was apparently completely successful in one of the writer's cases. The dose recommended for this purpose is fifty million. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

DECEMBER 20, 1913.

1. LEPINE, R. *The Question of Diabetes at the International Congress of Medicine in London.*
2. ROE, J. O. *Orbital Abscess from Infection Through the Ethmoid.*
3. MULLAN, E. H. *Epilepsy.*
4. BROWN, C. P. *The Bacteriology of Pyorrhea Alveolaris.*

5. *Cyriax, E. F. *The Mechanotherapeutics of Acute Croupous Pneumonia.*
6. Rubenstone, A. I. *Cerebrospinal Fluid and Its Diagnostic Significance.*
7. Gehring, E. W. *Pellagra in Maine.*
8. Wachenheim, F. L. *Atypical Infantile Paralysis.*
9. Hoffman, F. L. *The Cancer Mortality of Greater New York.*

5. Cyriax attacks the subject of croupous pneumonia from the mechanical point of view. He considers reflex contraction of the muscles of respiration the most important cause of respiratory distress in this disease. The effect of these persistent contractions is limitation of respiratory movement with consequent pulmonary congestion, insufficient oxygenation, cardiac strain, etc. The object of manual treatment is to increase respiratory movements by diminishing muscular contraction and inflammation in lung and pleura, and to improve the patient's general condition. The manipulations and exercises recommended are vibrations, active respirations, subdiaphragmatic suction, friction on the posterior spinal and the intercostal nerves, abdominal petrissage. Treatments should be given twice a day, and in bad cases three times, each sitting averaging half an hour.
[L. D. C.]

The Journal of the American Medical Association.

December 20, 1913.

1. *Rosenow, E. C., and Hektoen, L. *Treatment of Pneumonia with Partially Autolyzed Pneumococci.*
2. *Riesman, D. *Entericoid Fever—Febris Entericoides.*
3. Burns, N. B. *The Treatment of Hemoptysis in Pulmonary Tuberculosis.*
4. Craster, C. V. *Ship-Borne Cholera. The Sea as a Factor in the Transmission of Asiatic Cholera.*
5. Kaplan, D. M. *The "Wassermann-Fast Tabes": a Serologic Precursor of Taboparesis.*
6. Dandy, W. E., and Blackfan, K. D. *An Experimental and Clinical Study of Internal Hydrocephalus.*
7. Bassler, A. *Some Recent Conclusions on Abdominal Roentgen Ray Work.*
8. Frauenthal, H. W. *The Treatment of Paralysis of Anterior Poliomyelitis.*
9. Geraghty, J. T., and Playgemeyer, H. W. *The Practical Importance of Infantile Kidney in Renal Diagnosis.*
10. Dietrich, H. *Heliotherapy, with Special Reference to the Work of Dr. Rollier at Leysin.*
11. Head, J. *Treatment of Loose Teeth Due to Inflammatory Degeneration of the Gums and Alveolar Process.*
12. Boot, G. W. *A Case of Congenital Myotonia.*
13. Coerr, F. D. H. *Enteroliths. Review of Literature with Report of Case.*
14. Rossiter, P. S. *An Unusual Combination of Conditions Producing Appendicitis.*
15. Mace, L. S. *Combined Oxygen and Nitrogen Compression in Early Lung Hemorrhage.*

1. Rosenow and Hektoen have found that when virulent pneumococci are suspended in physiologic salt solution the substances on which their resistance to phagocytosis depends pass into solution. The soluble part at a certain stage of autolysis is highly toxic and has little immunizing action, while the insoluble remnants have well marked antigenic properties and practically no toxic effects. The protective value of detoxicated pneumococci has been found to be greater than that of heat killed pneumococci. The authors have, therefore, treated pneumonia patients by subcutaneous injection every day till the temperature fell, with an injection of virulent pneumococci from which the soluble and toxic parts have been removed. The dose has been from ten to twenty billion at a time. The type of case treated has been of the worst, *i.e.* the alcoholic in hospital practice, and yet the mortality has been greatly reduced and the treatment seems of distinct value.

2. Riesman believes that the term "typhoid fever" as commonly used by physicians includes more than one variety of disease, and that only that in which typical serologic and cultural tests are obtained, should be called typhoid fever. To the others the term entericoid fever might be applied, meaning that this type was due to different strains of the paratyphoid group and to others morphologically similar; the source of infection is chiefly food derived from unhealthy animals.

3. Burns has given up the use of morphia and opium in pulmonary hemorrhage because of its depressing effect and danger of subsequent pneumonia, and in its place has substituted purgation by depletion by use of magnesium sulphate. No bad results have followed its immediate use, such as vomiting, and the control of hemorrhage has been marked.
[E. H. R.]

The Journal of Experimental Medicine.

November 1, 1913.

1. Musser, J. H., Jr., and Krumbhaar, E. B. *The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice.*
2. Pearce, R. M., and Peet, M. M. *The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice.*
3. Ghoreyeb, A. A., and Karsner, H. T. *A Study of the Relation of Pulmonary and Bronchial Circulation.*
4. Karsner, H. T., and Ghoreyeb, A. A. *Studies in Infarction.*
5. Long, E. R. *The Purines and Purine Metabolism of Some Tumors in Domestic Animals.*
6. McPhedran, W. F. *On the Hemolytic Properties of Fatty Acids and Their Relation to the Causation of Toxic Hemolysis and Pernicious Anemia.*
7. Wollstein, M., and Meltzer, S. J. *Pneumonic Lesions Caused by Bacillus Megatherium.*
8. Wollstein, M., and Meltzer, S. J. *The Character of the Pneumonic Lesions Produced by Intrabronchial Insufflation of Virulent Streptococci.*
9. Robinson, G. C., and Auer, J. *Disturbances of the Heart-beat in the Dog Caused by Serum Anaphylaxis.*
10. *Noguchi, H., and Cohen, M. *Experiments on the Cultivation of So-called Trachoma Bodies.*
11. Churchman, J. W., and Herz, L. F. *The Toxicity of Gentian Violet and Its Fate in the Animal Body.*
12. *Gillespie, L. J. *The Comparative Viability of Pneumococci on Solid and on Fluid Culture Media.*
13. Jobling, J. W., and Strouse, S. *Studies on Ferment Action.*
14. Jobling, J. W., and Strouse, S. *Studies on Ferment Action. IV. A Note on the Relation Between Lysis and Proteolysis of Pneumonia.*

6. McPhedran comes to the conclusion from his work with fats that there is no support for the theory that toxic hemolysis results from the liberation of hemolytic fatty acids. In certain pathologic conditions associated with hemolysis, he was unable to find on analysis any evidence for the existence of fatty acids more toxic than the common oleic acid which is constantly being set free by hydrolysis from common fat in health.

10. Noguchi and Cohen describe the cultivation from cases of conjunctivitis accompanied by the so-called trachoma bodies inclusions of an organism resembling the various [illegible] stages of the [illegible]

choma bodies. Animal inoculations were not successful.

12. Gillespie studied the viability of the pneumococcus on artificial culture media. He found that it required a smaller number of pneumococci to start a growth on agar than in broth. The explanation does not seem to depend upon chemical differences, but upon physical differences in the two kinds of media. [R. I. L.]

DECEMBER 1, 1913.

1. *MANWARING, W. H., AND BRONFENBRENNER, J. *On Intraperitoneal Lysis of Tubercle Bacilli.*
2. *MACCALLUM, W. G., AND VOGEL, K. M. *Further Experimental Studies in Tetany.*
3. ROUS, P., AND LANGE, L. B. *The Characters of a Third Transplantable Chicken Tumor Due to a Filterable Cause. A Sarcoma of Intracanalicular Pattern.*
4. KRUMBHAAR, E. B., MUSSER, J. H., JR., AND PEARCE, R. M. *The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice.*
5. LONGCOPE, W. T. *The Production of Experimental Nephritis by Repeated Proteid Intoxication.*
6. ROBINSON, G. C. *The Relation of Auricular Activity Following Faradization of the Dog's Auricle to Abnormal Auricular Activity in Man.*
7. COHN, A. R. *The Effect of Morphine on the Mechanism of the Dog's Heart after Removal of One Vagus Nerve.*
8. COHN, A. E., AND LEWIS, T. *The Predominant Influence of the Left Vagus Nerve upon Conduction between Auricles and Ventricles in the Dog.*

1. Manwaring and Bronfenbrenner found that tubercle bacilli injected into the peritoneal cavities of tuberculous animals rapidly disappear from the peritoneal fluids, while persisting in the peritoneal fluids of normal control animals. This intra-peritoneal lysis seems to be due to specific changes in the fixed peritoneal cells of the tuberculous animal.

2. MacCallum and Vogel have continued their researches on tetany and have brought forward additional experimental evidence tending to show that tetany is closely dependent upon a disturbance of the calcium content of the blood. [R. I. L.]

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.

DECEMBER, 1913.

1. *BARKER, L. F., AND GIBBES, J. H. *On the Treatment of Leukemia with Benzol.*
2. *BOGGS, T. R., AND GUTHRIE, C. G. *Bence-Jones' Proteinuria in Leukemia: A Report of Four Cases: The Effect of Benzol on the Excretion of the Protein.*
3. *KELLY, H. A., AND NEIL, J. C. *Cauterization of "Inoperable" Carcinoma of the Cervix of the Uterus.*
4. *BLOOMFIELD, A. L., AND HURWITZ, S. H. *Tests for Hepatic Function: Clinical Use of the Carbohydrates.*
5. *HERWITZ, S. H., AND BLOOMFIELD, A. L. *Tests for the Hepatic Function. Lactose Tolerance as Influenced by the Liver Necrosis of Chloroform Poisoning.*

1. Barker and Gibbs describe in brief the cases of leukemia which have been treated with benzol by various investigators in the past and the results. The writers add one more case to this list, which they report in great detail. It is important to note that there was a positive Wassermann in this case. They emphasize the fact that benzol does possess dangerous toxic properties; second, that its chemical effects are not yet clearly understood; and third, that the greatest care should be exercised in its administration. No patient should be given benzol unless he can be kept under strict observation. The white cells fell in this case from 345,000 Nov. 24, 1912, to 6,800 April, 1913, with a marked improvement in all the symptoms.

2. This paper, as stated in the title, describes in great detail four cases of Bence-Jones' proteinuria.

3. Kelly and Neil believe that the extensive radical operation offers the greatest hope of absolute cure in patients suffering from cancer of the cervix uteri; the percentage of operability has gradually increased with the adoption of the radical abdominal operation; an exploratory operation is occasionally necessary. In advanced cases a preliminary curettage and cauterization is advisable. They describe the details of several cases and the technic.

4. In a paper describing tests for hepatic function, the writers find sugars to be theoretically unsatisfactory as tests for liver insufficiency and that the value of these tests from a practical point of view has been neither proved nor disproved.

5. The same writers as above mentioned describe in detail their experiments and investigations and results in animals on lactose tolerance as influenced by the liver necrosis of chloroform poisoning. [J. B. H.]

THE LANCET.

DECEMBER 6, 1913.

1. SMITH, B. P. *The Value of the Clinical Polygraph in Certain Cardiac Disorders.*
2. SHAW, H. B., AND COOPER, R. H. *On a Change Occurring in the Pelvis in a Case of Prepuberal Atrophy of the Testicles.*
3. COCKIN, R. P. *Treatment of Yaws by Intramuscular Injections of Salvarsan.*
4. HANN, R. G. *Chronic Polyorrhomenitis (Multiple Serositis) Simulating Intrathoracic Growth.*
5. WILSON, W. *Some Causes of Disappointment Following Removal of Tonsils and Adenoids.*
6. TYLECOTE, F. E. *A Note on Perforation of Gastric Ulcers into the Heart Itself, with Report and Photograph of a Case.*
7. CRAWFURD, R. H. P. *Martial and Medicine.*

BRITISH MEDICAL JOURNAL.

DECEMBER 6, 1913.

1. *GRIFFITHS, J. *An Address on the Large Intestine and Its Work.*
2. STIRLING, W. *On Health, Fatigue, and Repose.*
3. *MORLEY, J. *Traumatic Intramuscular Ossification; Its Pathology and Treatment by Excision and Autogenous Grafting on Fascia.*
4. ANDERSON, H. G. *A Post-graduate Lecture on the Operative Treatment of Hemorrhoids.*
5. WEBER, F. P. *Rheumatic Nodules (Rheumatismus Nodosus) Associated with Rheumatic Torticollis.*
6. CROWE, H. W. *The Daily Weight Chart as a Guide to Tuberculin.*
7. PICKERELL, H. P., AND CHAMPTALOUP, S. T. *The Bacteriology of the Mouth in Maori Children.*

1. Griffiths describes in a plain and interesting way what are the functions of the large intestine, the rôle it plays in handling food, getting rid of waste matter and in metabolism in general. He reviews a subject that should be already fairly well known.

3. Morley cites three theories as explaining the growth of bone in muscles and fascia following trauma. These theories, which he discusses and explains are that this is due to: (1) tumor formation, (2) inflammatory changes, and (3) mechanical causes. He describes in great detail a case where this occurred, and discusses differential diagnosis, prognosis and treatment. He believes the process

to be similar to that of collus formation. In case of difficulty in diagnosis from sarcoma an exploratory incision is advisable. Single excision is usually followed by recurrence; conservative treatment is of little use; excision combined with grafting of deep fascia onto the denuded bone surface is the most likely to produce a cure. [J. B. H.]

EDINBURGH MEDICAL JOURNAL.

DECEMBER, 1913.

1. *FALCONER, A. W. *Dyspituitarism.*
2. *KER, C. B. *Scarlet Fever in the Aged.*
3. *RICHARDSON, G. *The Rumpel-Leede Phenomenon in Scarlet Fever.*
4. MATHEWSON, G. D. *Case of Auricular Flutter.*
5. *CYRIAX, E. F. *Cardiac Mechano-Therapeutics.*
6. ORR, J. *Note on Modern Prescription Writing.*

1. In this clinical lecture, illustrated with several plates, Falconer discusses in an interesting way on various abnormalities of pituitary secretion and their results in man.

2. This is an interesting discussion of a few cases of scarlet fever in the aged. The article is of value in that it calls attention to the fact that this condition is not so rare as is commonly supposed.

3. The Rumpel-Leede test for scarlet fever is elicited as follows: A bandage is tied tightly round the arm immediately above the elbow, with enough pressure so that the pulse is just perceptible at the wrist. It is kept in place ten to fifteen minutes, at the end of which time the arm should be markedly cyanosed. On removing the bandage the skin at the fold of the elbow distal to where the bandage was applied is examined for the reaction. This consists in the appearance of a widely varying number of minute petechial hemorrhages, fairly deeply seated which do not disappear on pressure, and are in fact made much more evident by stretching the skin. In the ordinary case no reaction is seen on the extensor surface of the arm. The usual explanation is that scarlatinal exanthema causes a certain "capillary vulnerability." Richardson found this reaction invariably present in a series of 210 cases of scarlet fever. No reaction was obtained before the rash had spread to the arms. In various normal persons and in those with other diseases, such as pneumonia, influenza, whooping-cough and chicken-pox the test was negative. In measles, rubella, and drug exanthems, the test was more often positive. In certain doubtful cases the writer believes this phenomenon to be an additional diagnostic sign.

5. Cyriax, evidently an enthusiastic believer in the beneficial effects of massage on certain circulatory diseases and others, describes in great detail, with the help of many excellent illustrations, his methods of treating various cardiac conditions. [J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 48. DECEMBER 2. 1913.

1. HEINEKE, H. *The Reaction of the Blood-forming Organs to Modern Deep Ray Exposures.*
2. *SINGER, G., AND HOLZKNECHT, G. *The Radiological Diagnosis of Chronic Appendicitis.*
3. VERAGRUTH, O., AND SEYDERHELM, R. *The Rapid Production of Abnormal Leucocytes by a New Method. (Second communication.)*
4. HENRICH, T. *Direct Means of Clinical Investigations.*
5. GWERDER, J. *Compression of Tuberculous Lunus. (Preliminary communication.)*
6. FÜRTH. *A Bacterium of the Faecalis-alcaligenes Group as a Probable Cause of Six Typhoid-like Infections in Eastern Asia.*
7. MÖRCHEN, F. *Diogenal, a New Sedative.*
8. *NEUMAYER, V. *The Dosage of Neosalvarsan.*
9. WACKER, L. *The Active Principle of Beck's Bismuth Paste.*
10. ZIMMERMANN, R. *Tenosin.*
11. EMMERICH AND LOEW, O. *The Treatment of Fever by Long Continued Daily Doses of Calcium Chloride.*
12. SCHWYZER, F. *The Fluorine Content of Carlsbad Water.*
13. THEDERING. *The Treatment of Herpes Tonsurans.*
14. GEIGEL, R. *A Convex Laryngeal Mirror.*
15. V. FELLENBERG, R. *A Suture Carrier to Reach the Deep Pelvis.*
16. HENGGE, A. *"Antileukon," a Vaginal Powder Blower.*
17. PIPO-BARMEN, W. *The Seventieth Birthday of Ludwig Heusner.*
18. COBDS, R. *A Central Printing Establishment for Academic Papers.*
19. NASSAUER, M. *The High School for Physicians and Patients.*

2. Singer and Holzknecht state that the diagnosis of chronic appendicitis is often difficult on account of its indefinite signs and symptoms. The x-ray alone has proven of no value as a means for discovering this condition.

Singer and Holzknecht have studied in the following way, 25 cases which had suggestive symptoms of chronic appendicitis and were confirmed by operation or autopsy. The patients were given a bismuth-meal six hours and aften, in addition, thirty hours before exposure, in order to fill the large intestine with bismuth. They were then x-rayed and palpated at the same time, with a lead line drawn over the tender areas. By this method the position of the cecum, and large intestine with adjacent coils of small intestine, was mapped out in relation to the painful area, and the motility or fixation of these organs was determined. Thus Singer and Holzknecht believed that in chronic appendicitis they were able to make a more accurate diagnosis than by physical examination alone, and were able to differentiate appendicitis from disease of the pelvic organs, ureter, or from a ptosis which might account for the symptoms encountered.

8. Neumayer reviews the literature on the dosage of neosalvarsan. There has been a tendency among various authors to decrease the amount injected. From five years' experience with salvarsan, however, Neumayer believes that the best results in the treatment of syphilis are obtained by large doses of therapeutic agents. Therefore Neumayer gives men neosalvarsan in amounts corresponding to .8-1.00 gms. of salvarsan, and women a dose corresponding to .6-1.00 gms. of salvarsan. He has seen a few cases where transitory albuminuria developed, but otherwise has noted no ill effects. He concludes with Ehrlich that the number of relapses in syphilis are in inverse proportion to the intensity of the treatment and are reduced to a minimum the more energetically the early stages of the disease are treated. [R. F.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 43. OCTOBER 27. 1913.

1. SCHWABACH. *Chronic Suppurative Otitis Media.*
2. *KIRÁLYFI, G. *Experiments in the Therapeutic Use of Benzol in Carcinoma.*
3. LENNÉ. *The Treatment of Pneumonia with Ethylhydrocuprein and Pneumococcus Serum.*
4. PRZEDBORSKI, J. *An Interesting Case of Ascariasis and Tuberculous Meningitis, and the Action of the Oil of Chenopodium on the Ascaris.*
5. HEYMANN, E. *A Case of Retro-pharyngeal Tuberculous Gland.*
6. *HENDERSON, Y. *The Immediate and After-effects of Spinal and Local Anesthesia Compared with Those of Inhalation Anesthesia, as Regards Shock.*

7. ARNOLDI, W. *A Belt for Emaciated Enteroptotic Patients.*
8. BLUMENTHAL, F. *The Present Status of the Treatment of Malignant Tumors.* (*Continued from the last number.*)
9. LOEWY, E. *The Surgery of the Central Nervous System.*
10. RUNGE, E. *The Use of the Gonococcus Vaccine in the Gonorrhea in Women.*

2. The author reports two cases of recurrent cancer of the breast treated by local injections into the tumor, of benzol. He found that where the drug came into contact with the tumor cells, the latter were destroyed and the tissues in the immediate vicinity became necrotic. This was clearly a local action and the tumor cells outside the radius of activity of the benzol continued to grow just the same. His results do not argue strongly in favor of this treatment.

6. The author emphasizes especially the predisposing influence toward shock of fright, anxiety and nervous hyperirritability in the patient, and says that these should be avoided as much as possible during the induction of general anesthesia, and during the course of an operation under local or spinal anesthesia. He says that the chief seat of trouble in shock is in the medulla, and that noxious psychic stimuli coming to the medulla from the brain may at times have quite as much evil effect as afferent impulses coming to it from the injured periphery. To this end he advises the constant use of nitrous oxide in the induction of general anesthesia—that it may be as speedy and as comfortable for the patient as possible. [R. H. M.]

ANNALES DE L'INSTITUT PASTEUR.

OCTOBER 25, 1913.

1. BRIDRÉ, J., AND BOQUET, A. *Vaccination Against Rot by Sensitized Vaccine.*
2. SEJOWENANT, J. *Mediterranean Fever in Algiers in 1912.*
3. *KLING, C., AND LAVADITI, C. *Studies upon Acute Epidemic Poliomyelitis.*
4. LEMOIGNE, M. M. *Assimilation of Saccharose by the Bacteria of the B. Subtilis Group.*
5. TRUCHE, C., COTOUI, L., AND RAPHAEL, A. *Studies upon the Pneumococcus. Action of Bile upon Human ad Animal Pneumococcus.*

3. This is the continuation of the article reviewed in the September number of this journal. The authors take up here a study, first of the serum of those afflicted with the disease and others not. They find that in the serum of patients cured of this disease and in some of the people who remain immune in the midst of a severe epidemic who have been exposed, there are properties capable of destroying the poison in vitro. From a study of cases at different stages of the disease they find that the antibodies develop early in the disease. In fact they think that during the incubation period, before there is any evidence of the disease, the body is reacting to the poison and forming antibodies. The abortive cases show these same protective properties. [C. F., JR.]

JOURNAL OF MEDICAL RESEARCH.

DECEMBER, 1913.

1. *MEYER. *The Specific Paratuberculous Enteritis of Cattle in America.*
2. OLIVER. *The Relation of Hodgkin's Disease to Lymphosarcoma and Endothelioma.*
3. WADE. *Primary Hodgkin's Disease of the Spleen.*
4. VAN ALSTYNE AND BEEBE. *Diet Studies in Transplantable Tumors.* 1. *The Effect of Non-carbohydrate Diet upon the Growth of Transplantable Sarcoma in Rats.*
5. WEIL. *Studies in Anaphylaxis versus Desensitization; Its Theoretical and Practical Significance.*
6. LECOMTE. *Adenomata of the Islands of Langerhans.*
7. *HAYTHORN. *Some Histological Evidences of the Disease Importance of Pulmonary Anthracosis.*
8. BARTLETT AND SMIENOW. *Hydropic Condition of Rabbits' Livers.*
9. *ORTON. *A Note on the Occurrence of B. Aerogenes Capsulatus in an Epidemic of Dysentery and in the Normal.*
10. *SMITH. *Some Bacteriological and Environmental Factors in the Pneumonias of Lower Animals, with Especial Reference to the Guinea-pig.*
11. *MEYER AND BOERNER. *Studies in the Etiology of Epizootis Abortion in Mares.*

1. Meyer shows that American paratuberculous enteritis is similar to the European form, one of the earliest cases of which was reported by Frothingham. The organism is a member of the "acid-fast" group, and is more closely allied to the Avian Tubercle Bacillus than any other. Inoculation experiments were successful in the three cases attempted. Radioscopic stool examination was positive in only 40% of the advanced cases. The author advises an investigation of "paratuberculin" and of serological reactions.

7. Haythorn has conducted a careful study of the pathological histology, in man and lower animals, of anthracosis. The investigation was carried out under ideal physical conditions, *i.e.* in Pittsburgh. He finds that the quantity of carbon taken up by the lining cells of the upper air passages and of the bronchi and alveoli is insignificant. Phagocytosis of pigment takes place by the endothelial cell, which is in all likelihood the large mononuclear basophile of the blood. These cells pass into the pulmonary lymphatics, where they often lodge and become surrounded by connective tissue. This lymphatic obstruction has a great pathological significance since it tends to limit the spread of tubercular processes and in that way promotes healing. But a detrimental effect is seen in the case of acute inflammatory conditions, *i.e.* pneumonias, since this lymphatic obstruction prevents rapid resolution and absorption. The presence of pigment granules in the "epitheloid" cells (endothelial) of the tubercle does not interfere with the cells' action in forming the lesion.

9. Orton finds the B. Aerogenes Capsulatus with greater frequence in the stools of residents of the hospital who have not been attacked by diarrhea or dysentery, than he does among the sick during or following the acute stages of this disease. The percentage of positive findings among students, living without the hospital, is somewhat smaller, but still large enough to throw considerable doubt upon the significance of this organism as a causal factor of dysentery.

10. Pneumonia in guinea-pigs is produced by the B. Bronchisepticus and by the Pneumococcus, the latter often secondary to the former. The motile bacillus lives from winter to winter in old pneumonic foci or in the air tubes. It is not found in the latter site in all guinea-pigs. The latter is a fact of importance in connection with the breeding of that animal.

11. In an outbreak of epizootic abortion in mares in Pennsylvania, Meyer and Boerner have established as an etiological factor a member of the paratyphoid enteritidis group, which they have called the B. abortus equi. Morphologically and biologically, it is more closely related to the group B. Paratyphosis B. than to any other. It is agglutinated by the specific serum to high degree and also by that of B. Paratyphosus B. and B. Enteritidis (Gaertner), though only in low dilution. The same organism was recovered from the fetal envelope in one case and twice from vaginal secretions in five infected animals. Artificial infection was produced by subcutaneous, intravenous, intravaginal and alimentary routes in a pregnant cow, goat, sow, and small animals such as

guinea-pigs and rabbits. The surest methods of diagnosis lie in agglutination and complement fixation reactions. [L. H. S.]

Obituary.

GEORGE HENRY TORNEY, M.D.

Dr. George Henry Torney, surgeon-general of the United States Army, who died of bronchopneumonia on Dec. 27, 1913, at Washington, D. C., was born in Baltimore, on June 1, 1850. After obtaining his preparatory education in Carroll College, New Windsor, Md., he studied medicine at the University of Virginia, from which he received the degree of M.D. in 1870. On Nov. 1, 1871, he was appointed assistant surgeon in the United States Navy, becoming a passed assistant surgeon on Nov. 1, 1874. On June 30, 1875, he resigned from the navy, and was immediately appointed assistant surgeon in the United States Army. He was promoted to the rank of captain on July 1, 1880; became surgeon major on June 6, 1894; and in the latter position saw active service in Cuba during the Spanish War, and subsequently in the Philippines. He was made lieutenant colonel and deputy surgeon-general on Aug. 8, 1903; and on April 23, 1908, received the rank of colonel of the Army Medical Corps. On Jan. 14, 1909, he was appointed surgeon-general of the United States Army, a post which he filled ably until his death. He was a member of the American Medical Association, the Association of Military Surgeons of the United States, and the American Red Cross.

Miscellany.

REPORT OF COMMITTEE ON THE STANDARDIZATION OF HOSPITALS.*

We have believed it to be the wish of this congress that we should examine the ways and means by which this body might best do its share in the general movement which the public is beginning to demand toward increasing the efficiency of hospitals.

We shall presently offer to you three definite suggestions for action by which you may materially aid this important movement, but first we should like to call your attention to the method by which we have approached this subject.

By what standards can we compare hospitals? It is obvious that there are many. There may be a standard of architecture, of cleanliness, of kindness to the patients, of nursing, of medical education, etc. To some persons the per capita cost, the number of patients annually treated, the success in private practice of their medical and surgical staffs, the quality of the scientific papers produced, or the up-to-dateness of the laboratories may seem the important elements. Some hospitals seem satisfied with the famous contributions to medical science which some member of their staff made a hundred years ago!

We believe that you will agree with us that even cleanliness, marble operating rooms, famous physicians and surgeons, up-to-date laboratories and time-honored reputation do not necessarily mean that the individual patient will today be freed from the symptoms for which he seeks relief.

Even the standard of kindness cannot replace the actual facts of the relief or prevention of symptoms or of the prolongation of life. For does a scientific paper written about the autopsy give the patient the satisfaction that a successful operation might have done!

The more time we have spent on this subject, the more obvious it has seemed to us that the only firm ground on which we can compare hospitals is by the actual results to the individual patient. Even a statistical comparison of the results of the treatment of the disease is less satisfactory. A patient operated on at the same sitting for fibroids of the uterus, gallstones and epithelioma of the nose cannot properly be classified under one of these headings for comparison with other individuals, nor does this combination of diseases form a group frequent enough to tabulate.

A comparison of the morbidity reports of many of the best institutions in this country has convinced us of the futility of the great labor and expense which has been expended on them. Owing to diversity of methods of classification they are not comparable except in the most gross way. Some are arranged by disease alphabetically, some by regions, and others by elaborate systems modelled after the International List of the Causes of Deaths.

Our impression of the futility of such praiseworthy efforts without coöperation and coördination, we have found to be shared by the members of the staffs of even those institutions making the greatest efforts in this direction. We believe that those who compile these statistics would welcome a more simple and direct form. We also believe that it is almost useless for one hospital to undertake statistics of this kind unless other similar institutions adopt like methods.

Since these tables are compiled only from the condition of the patient at the time of discharge from the hospital, they are at best a mere rough statement of immediate mortality and do not represent the real result to the patient of the treatment received. Nevertheless, we are convinced that no standardization of hospitals can be fair which is not based on what

* Presented at the meeting of the Clinical Congress of Surgeons, Chicago, Nov. 11, 1913.

the hospital is actually doing for its individual patient, and that some form of hospital report must be devised which will show that each hospital is, at least, making an effort to ascertain whether the results of its treatment are satisfactory or not. From this point of view a successful operation done in a barn is equivalent to a similar one done in an expensive modern operating room. Likewise, one which was unsuccessful because a famous surgeon or teacher was careless or pressed for time is worse than one which failed because the operator was not a member of the American College of Surgeons!

Further personal investigation of a number of the best institutions in the country developed the astounding fact that no effort is made to trace the patient beyond the gate of the hospital except such investigation as is individually made by members of the staff for their own interest. A patient might be operated upon, leave the hospital with the wound healed, and yet no effort be made to record the result of the operation. In other words, we have the paradox that neither the hospital trustees, the physician, or the surgeon or administrator consider it their business to make sure that the result to the patient is good.

A factory which sells its product takes pains to assure itself that the product is a good one, but a hospital which gives away its product seems to regard the quality of that product as not worthy of investigation.

In a way, trustees of hospitals who do not investigate the results to their patients do not audit their accounts.

We believe it is the duty of every hospital to establish a follow-up system, so that as far as possible the result of every case will be available at all times for investigation by members of the staff, the trustees or administration, or by other authorized investigators or statisticians. We believe that the publication of such material in abstract by case numbers is practical and does not entail a disproportionate expense.

The committee have distributed a leaflet suggesting a form of report based on the idea of a brief abstract of the individual case. Such a report would, at least, be uniform in character and could be expanded indefinitely, according to the means of the hospital. It would, at least, show the essential fact of whether the hospital was making an effort to trace its cases. It would also put its material at the service of medical science in a form much more practical to a statistician than even the best prepared morbidity reports at present published.

If hospitals kept such abstracts in available form, even if not published, we believe that the practical standards of their work would be greatly improved and that a definite basis of the comparison of the efficiency of such institutions would be fixed.

A method such as suggested is at present in use at the Massachusetts General Hospital of Boston, and other similar plans are being tried by a few other institutions.

It would be obviously inappropriate for this Clinical Congress of Surgeons to attempt any specific suggestion as to forms of hospital reports. Bodies such as the American Medical Association and American Hospital Association are more fitted to do this since they represent general medical science and not a special branch.

Your committee has been in touch with the various committees of these associations and has found them already actively working. The committee of the American Medical Association on medical education, whose chairman is Dr. Bevan, has approached the Carnegie Foundation with a petition that it should investigate the efficiency of American hospitals after a similar manner to that in which they recently investigated medical education. Since such an investigation would entail great expense and require much time and effort it is unlikely that an unpaid board from the medical profession would be able to conduct it thoroughly. It is also probable that such a question of efficiency would best be studied by modern efficiency engineers—not by medical men with preconceived ideas. For these reasons your committee would favor any action you may see fit to take in adding the petition of this body to that of the American Medical Association and American Hospital Association to broaden the scope of the investigation beyond that of medical education.

As it is highly probable that the Carnegie Foundation will undertake this matter, at least so far as it concerns medical education, we may now consider what this congress can do to aid them.

Representing, as you do, almost all the hospitals of the country, there is much which you may accomplish by a united or rather a uniform effort. It is safe to assume that those employed by the Carnegie Foundation will thoroughly investigate such matters as business efficiency, laboratory equipment and the relations of medical education, etc.

It is in matters connected directly with the results of surgical treatment in which they will need your help. When you return to your hospitals you can do much to aid the coming Carnegie representative by systematizing the methods which you already use to trace the results of your operations. If you have no such system, you would do well to get your hospital to establish one now, for the demand for it is sure to come. In our leaflet we have offered you some suggestions.

When a follow-up system is once established it will do much toward weeding out the superannuated, the lazy and ill-trained surgeons of your community, even though they hold high places. The delayed misfortunes of the brilliant operators who do not do the right thing will appear from the invisible, and the true surgeon

who uses his knife to relieve and prevent suffering will come to his own.

Remember that when the question of efficient treatment comes up, that it will be the results of the surgeon which are the easiest to put in the limelight.

Your committee, therefore, have to offer the following three suggestions:

1. That this congress give the stamp of its approval to an investigation of hospitals by the Carnegie Foundation and empower its representatives to urge the Foundation not to limit their inquiries purely to the bearings on medical education, but to classify hospitals according to their actual efficiency.

2. That each of us do what we can to induce the trustees of our own hospitals to organize a follow-up system for all patients treated.

3. That each of us do what we can to induce the fellow members of our staffs to appoint efficiency committees who may look into present conditions in our hospitals, in order that we may, as far as possible, do our own housecleaning.

Such efficiency committees should be composed of a member of the trustees, a member of the staff and a superintendent.

If tracing the results to the patients is equivalent to auditing the accounts, the trustees should take a hand in it.

In closing this report your committee wishes to again state their conviction that the essential factor which will most contribute to raising the standard of American hospitals is the establishment in each hospital of a follow-up system of tracing the outcome of treatment given to each individual patient.

We have spoken of a united or uniform effort on the part of individual members of this congress, and we urge you in the strongest way to obtain at your own hospitals the establishment of efficiency committees on which the trustees or managers, as well as the staffs, are represented.

Let us make this effort uniform. Let us not have the efficiency committee composed in some hospitals entirely of members of the staff, but let us aim to have all three of the important branches of hospital management represented so that each may bear in part the burden of the responsibility to the community of the efficient treatment to the individual.

Let it not be said, as it may justly be at present, that neither the superintendent nor the manager nor the staff feel it their duty to ascertain whether the product of their hospital is sound or damaged.

E. A. Codman, M.D., Boston,
Chairman,
W. W. Chipman, M.D., Montreal,
J. G. Clark, M.D., Philadelphia,
A. B. Kanaval, M.D., Chicago,
M. J. Mayo, M.D., Rochester, Minn.

MASSACHUSETTS MEDICAL SOCIETY.

SPECIAL MEETING OF COUNCIL.

A special meeting of the council of the Massachusetts Medical Society was held December 30, 1913, at twelve o'clock, noon, in Sprague Hall, Boston Medical Library, with the president, Dr. W. P. Bowers, in the chair. There were sixty-two members of the council present.

The records of the last meeting were read and accepted.

Dr. Hugh Cabot spoke on the midwife question. He thought the society through its council should give definite instructions to its committee hearings at the State House, this committee has been made to appear without authority and the policies which it favors are regarded as personal expressions of opinion rather than those advocated by the Massachusetts Medical Society. Dr. Cabot presented the following letter to the president, which was signed by the Obstetrical Society of Boston and by forty-four physicians of Boston, Haverhill and Springfield:

Last year in the legislature, by House Bill No. 678, an attempt was made to legalize the midwife and admit her on equal terms with the physician to the practice of Obstetrics. Certain members of the Massachusetts Medical Society favored this bill. In all probability there will be another attempt this year to legislate in the midwives' favor. By a decision of the Supreme Court handed down by Justice Rugg, Commonwealth v. Porn, the midwife was excluded from practicing obstetrics. Yet in Chapter 29 of the Revised Laws of the Commonwealth, the word midwife repeatedly occurs (Section III, "a midwife shall make and keep a record, etc.", "the fee of the physician or midwife shall be twenty-five cents;" later, "the physician or midwife who neglects"), thus seeming to give her a legal status. There are persistent reports about Boston that members of the Massachusetts Medical Society are signing birth returns of infants delivered by midwives, the physician not being in attendance. We, the undersigned, members of the Massachusetts Medical Society, feel that the practice of obstetrics is a vital and essential branch of the practice of medicine and that no training other than that leading to the degree of M. D. is to be considered adequate or sufficient for engaging in this practice. We recognize that this consideration may, however, demand an ideal situation. Therefore, until public sentiment can be roused sufficiently to raise the standard of obstetrics so that the midwife is admitted to be an unnecessary evil, we advise that no legislation should be sanctioned by the Massachusetts Medical Society other than bringing the statute books up to date by omitting the word midwife wherever it occurs in those sections pertaining to the reporting of births.

As a step in advancing the status of the practice of obstetrics, we ask you to bring before the council of the society the proposal that the practice, said to be carried on by certain doctors, of returning birth certificates on cases over which they have had no supervision, and failing to state that they were not in attendance, is contrary to the ethics of this society; that any member so doing is guilty of a misstatement of fact and should be debarred from the privileges of this society.

(Letter addressed to the president, dated Oct. 6, 1913)

In order to bring the matter into definite form, Dr. Cabot presented the following preambles and resolutions:

Whereas, by Chapter 76, Sections 8 and 9, of the Revised Laws of the Commonwealth of Massachusetts, the midwife was excluded from the practice of her profession within the confines of this state, and by a decision of the Supreme Court handed down by Justice Rugg in the case of the Commonwealth v. Porn the law was held to directly cover the activities of the midwife and thus made effective:

And whereas, Chapter 29 of the Revised Laws of the Commonwealth of Massachusetts repeatedly uses the word *midwife* (Section 3, "Physician and midwife shall make and keep a record," etc., and later, "the fee of the physician or midwife shall be twenty-five cents," etc., and later, "the physician or midwife who neglects," etc.), thus seeming to give her legal status;

And whereas, by House Bill 678 presented to the Great and General Court of the Commonwealth of Massachusetts, January 9, 1913, a definite, although unsuccessful, attempt was made to legalize the midwife and admit her on equal terms with the physician to the practice of obstetrics, this bill being favored by certain members of the Massachusetts Medical Society;

And whereas, persistent reports are being received that members of the Massachusetts Medical Society are signing birth returns for infants delivered by midwives without a physician in attendance;

Be it resolved, that we, the council of the Massachusetts Medical Society, put ourselves on record as of the firm opinion that the practice of obstetrics is a vital and esssential branch of the practice of medicine, and requires the care and supervision of a graduate in medicine, and that there is no place for the untrained practitioner in this field of medicine within the Commonwealth of Massachusetts: that no training other than that leading to the degree of M. D. is to be considerd adequate or sufficient for engaging in this practice; that untrained persons practicing obstetrics are in open defiance of the law and should be prosecuted when apprehended; that as soon as public sentiment within and without this society can be sufficiently aroused, a bill shall be presented to the Great and General Court of the Commonwealth of Massachusetts which shall provide for the omission of the word *midwife* from the statute books, thus bringing the law up to date; that members of this society are hereby enjoined from handing in birth returns on cases over which they have had no supervision when delivered by a midwife; and that it is the opinion of this body that a physician signing a birth return assumes the responsibility for that case.

These were discussed by Drs. H. P. Walcott, F. C. Shattuck, H. D. Arnold, F. E. Bateman, C. H. Cook, the president and Dr. C. F. Withington. Dr. Withington pointed out four alternatives that are open at this time: 1. To leave the present law; 2. To leave the present law with the elimination of expressions which tolerate or legalize midwives; 3. To legislate positively prohibiting midwives to practice; and 4. A licensure of midwives after examination.

The question was further discussed by Dr. Buckingham and others. The preambles and resolutions being put to vote, were adopted unanimously.

It was moved and

Voted, That the committee on ethics and discipline be directed to look into the matter of the signing of birth certificates by fellows who have not been actually in attendance, and to take such action as it deems advisable.

Dr. M. W. Richardson, for the committee on public health, presented the question of ophthalmia neonatorum, and made the following motion:

Moved, That the council approves amending Section 49 of Chapter 75, of the Revised Laws relative to the better control of ophthalmia neonatorum as follows:

"Section 49 of Chapter 75 of the Revised Laws is hereby amended by adding after the word "necessary" in the eighteenth line, the following words: "including as far as may be possible consultation with an oculist and the employment of a trained nurse."

This was discussed (by invitation) by Dr. F. E. Cheney. He said that in recent years he had treated many cases of ophthalmia neonatorum at the Massachusetts Charitable Eye and Ear Infirmary; that last year in 20% of the cases that were admitted blind, the blindness was due to ophthalmia neonatorum. He read extracts from data as to seven members of the Massachusetts Medical Society who had been derelict either in reporting or in treating cases of ophthalmia neonatorum, most of these being in the neighborhood of Boston, and none in the remote country districts. The inexperienced practitioner rarely notices the involvement of the cornea in these cases, and thinks that because the discharge has become less, the cornea is not affected. Dr. Cheney thought that the Massachusetts Medical Society should go on record as opposed to the treatment of cases of ophthalmia neonatorum by the general practitioner, and he favored Dr. Richardson's motion. After some further discussion, the motion was put by the president and passed unanimously.

Dr. M. W. Richardson, for the committee on public health, read the five sections of an act to enable the State Board of Health to better protect the public health through adequate supervision of the conditions under which milk is produced, transported, kept for sale and sold, and he moved that it be approved by the council; and on being put to vote, it was approved unanimously.

The president nominated the following as a committee to audit the treasurer's accounts, and they were elected:

D. N. Blakeley, Brookline
J. L. Huntington, Boston.

Dr. Homans, for the committee of arrangements, asked for advice from the council as to the annual dinner. He pointed out that the expense had increased of late, and queried whether it was worth while to spend so much on the dinner when the other activities of the society needed part of the funds. His committee planned to charge a nominal amount, say one dollar apiece, to cut down the expense of the dinner, but not to change the character of the dinner; and he made a motion that the committee of arrangements be instructed if it sees fit to impose a charge of one dollar on all fellows who attend the annual dinner.

Dr. Broughton pointed out that the last dinner was not more expensive per diner than

usual, but that more fellows attended; and that each one over one thousand (the number contracted for) costs fifty cents extra. Dr. Hough said that he didn't see why the two-thirds of the society who did not attend should pay for the third who ate the dinner, and that he thought there were very many fellows who did not require an elaborate dinner and would rather have the funds of the society expended for more worthy ends.

Motions were made to substitute two dollars and three dollars in place of the one dollar in the original motion. On being put to a vote, these were lost.

On motion by Dr. Arnold, the words "if it sees fit" were struck out of the motion, and the amendment being accepted by Dr. Homans, the motion was passed as amended.

Dr. Goss, for the committee on membership and finance, reported as follows:

The committee on membership and finance reports that at a meeting of the council held October 1, 1913, the following votes were passed:

I. That its secretary be instructed to send to each member of the society a copy of that part of the report of the Judicial Council of the American Medical Association which refers to secret fee splitting and "contract practice."

II. That the president be empowered to direct the legal counsel of the society to bring before the Superior Court, and if need be before the Supreme Court, a test case under Part III. Sections 11 and 16 of the Workman's Compensation Act (Chap. 751, Acts of 1911, as amended by Chaps. 172 and 571, Acts of 1912) in order to clear up in part the vexed matter of the ultimate payment of physicians' fees in disputed cases.

By direction of the president, these votes were referred to the committee on membership and finance. A meeting of the committee was held October 13, 1913, and after full discussion, it was voted to recommend to the council that $64.00 be appropriated from the treasury of the Massachusetts Medical Society for the printing and distribution to its members of that part of the report of the Judicial Council of the American Medical Association relating to secret fee splitting and contract practice.

Also, that $100.00 be appropriated to enable the legal counsel of the society to bring before the courts a test case to clear up in the Workman's Compensation Act the matter of the ultimate payment of physicians' fees in disputed cases.

Voted, To accept the report and adopt its recommendations.

The report of a committee appointed to consider the petition of one former fellow for reinstatement was accepted and six committees were appointed to consider the petitions for reinstatement of six former fellows.

The treasurer spoke of the case of the estate devised under the will of Isaac P. Smith, a fellow of the Massachusetts Medical Society, who died in 1862, late of Gloucester, and said that the Massachusetts Medical Society is a residuary legatee but that there are so many young heirs-at-law the possibility of the society's receiving anything from the will is rather remote. He queried whether the president had authority to sign documents relating to the estate submitted by the trustee, and whether the society should bear any of the legal expenses connected therewith.

On motion by Dr. H. P. Walcott, it was

Voted, That the president be authorized to do as he sees fit in the case of the Isaac P. Smith will, without expense to the society.

Voted, That the two bills submitted by the committee on public health be introduced to the legislature by some member of the council, and that the committee on state and national legislation be instructed to support the measures.

The president announced the death on December 20th, of Dr. A. E. Mossman, of Westminster, councillor and supervisor.

Adjourned at 1.45 P. M.

WALTER L. BURRAGE,
Secretary.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE 3 WEEKS ENDING DEC. 27, 1913.

December 10, Surgeon R. R. Richardson, detached: *Virginia* to *New Jersey.*

Surgeon G. L. Angeny, detached: *New Jersey* to *Virginia.*

P. A. Surgeon G. B. Crow, detached: Naval Medical School, Washington, D. C., to Naval Hospital, Brooklyn, N. Y.

P. A. Surgeon C. E. Strite, detached: *Virginia* to *Michigan.*

Assistant Surgeon J. J. O'Malley, detached: *Albany* to home, wait orders.

December 12, P. A. Surgeon P. R. Stalnaker, detached: *Prairie* to New York Hospital, for treatment.

P. A. Surgeon E. L. Woods, ordered to Naval Proving Grounds, Indian Head, Maryland, temporary duty.

December 13, P. A. Surgeon J. B. Pollard, ordered to *Prairie.*

P. A. Surgeon H. F. Strine, detached: Norfolk Hospital to *Solace.*

Surgeon A. M. Fauntleroy, detached: *Solace* to waiting orders.

P. A. Surgeon L. W. McGuire, to Receiving Ship at Norfolk, Va.

December 17, Surgeon H. A. Dunn, detached: *Solace* to *Kearsarge.*

Surgeon W. M. Garton, detached: *Kearsarge* to *Solace.*

December 23, Surgeon D. N. Carpenter, detached: *Tennessee* to First Regiment, Advance Base Brigade.

P. A. Surgeon L. W. McGuire, detached: Receiving Ship, Norfolk, Va., to First Regiment, Advance Base Brigade.

P. A. Surgeon F. X. Koltes, detached: *North Dakota,* to First Regiment, Advance Base Brigade.

P. A. Surgeon C. F. Charlton, detached: *Panther,* to First Regiment, Advance Base Brigade.

Assistant Surgeon R. F. Sheehan, detached: Atlantic Reserve Fleet, to First Regiment, Advance Base Brigade.

SOCIETY NOTICE.

THE BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on Tuesday evening, January 13, 1914, in the out-patient amphitheater of the Massachusetts General Hospital, at 8.15 o'clock.

The meeting will be conducted by the staff of the Massachusetts General Hospital, Dr. Roger I. Lee, secretary.

Papers will be presented as follows:

Dr. C. A. Porter, "Graves' Disease." (15 minutes.)

Dr. J. H. Pratt, "Uric Acid Content of the Blood in Gout by the Method of Folin and Dennis." (15 minutes.)

Dr. A. E. Steele, "Cornyebacterium Hodgkini in Lymphatic Leukemia and Hodgkin's Disease." (5 minutes.)

Dr. W. A. Hinton, "Lange's Colloidal Gold Test in the Cerebro-spinal Fluid." (15 minutes.)

Dr. F. B. Talbot, "Respiratory Metabolism of Infants." (15 minutes.)

THOMAS ORDWAY, *Secretary and Treasurer*,
Harvard Medical School.

MASSACHUSETTS GENERAL HOSPITAL.

A surgical meeting open to the Medical Profession will be held at 8.15 p.m., Friday, January 9, 1914, in the lower amphitheatre of the Out-patient Department. Entrance on either Blossom or Fruit Streets.

DR. FARRAR COBB will present: "Cancer of the Uterus with Comparative Analysis of the Hospital Cases and End Results, with Special Consideration of the Radical (Wertheim) Operation for Cancer of the Cervix."

DR. HAROLD GIDDINGS will present: "A Preliminary Report on the Study of Blood Pressure in Hysterectomies and other Radical Operations."

APPOINTMENTS.

BOSTON BOARD OF HEALTH.—*Dr. James J. Scannell*, of this city has been appointed director of the bacteriologic laboratory of the Boston Board of Health.

BOSTON DISPENSARY.—*Dr. Edward O. Otis* has been appointed consulting physician and *Dr. Robert W. Lovett* consulting orthopedic surgeon. Dr. Otis is just retiring after a service of 27 years in the tuberculosis department, which hereafter will be united with the department of internal medicine. *Dr. A. Warren Stearns* has been appointed physician in charge of the department of mental diseases. *Dr. P. S. McAdams* has been promoted to be surgeon in the ophthalmic department, *Dr. Robert L. De Normandie* in the gynecologic department, and *Dr. Hilbert F. Day* to be assistant surgeon in the general surgical department.

RESIGNATION.

It is announced that DR. WILLIAM ALLEN BROOKS, of Boston, has resigned his position as surgeon-in-chief of St. Elizabeth's Hospital in this city.

RECENT DEATHS.

DR. EMMA E. MUSSEN, who died at Philadelphia on Dec. 28, was born in 1863. She was a member of the American Medical Association, and professor of otology at the Woman's Medical College, Philadelphia.

DR. FRANK H. O'CONNOR, who died of cardiac disease on Dec. 26 at Brattleboro, Vt., received the degree of M.D. in 1898 from Long Island Medical College. He was on the surgical staff of the Brattleboro Hospital.

DR. HENRY STIER POLL, of Virginia Hot Springs, who died of cardiac disease recently in Lewisburg, W. Va., was born at Baltimore, Md., in 1845. He had practised his profession at Hot Springs since 1867. He is survived by his widow and nine children, two of his sons being also physicians.

DR. CHARLES PHELPS, of New York, died on December 30. Dr. Phelps was born on December 12, 1834, in Milford, Mass., and was a lineal descendent of William Phelps, who came to Massachusetts in 1630. He was graduated from Brown University in 1855 and from the College of Physicians and Surgeons, New York, in 1858. He was a contract surgeon during the Civil War, and had practised in New York from its close until 1909, when he retired. For forty years he was surgeon to Bellevue and St. Vincent's Hospitals, and at different times he served as president of the New York State Medical Society, the medical board of Bellevue Hospital, and the board of police surgeons. He was the author of a work on injuries of the brain, as well as of numerous surgical papers. He is survived by his widow and by one son.

DR. ALFRED E. M. PURDY, a widely known physician of New York, died on December 25. He was the son of Dr. Alfred S. Purdy, and was graduated from the College of Physicians and Surgeons in 1861. Dr. Purdy was for many years editor of the Medical Register of New York, New Jersey and Connecticut, now superseded by the Medical Directory, published by the State Medical Society, and recording secretary of the Medical Society of the County of New York. He was also the organizer of the Methodist Episcopal (Seney) Hospital in Brooklyn, to which he was consulting physician at the time of his death.

DR. HOWARD BECK REED, of Seabright, N. J., the son of Dr. James J. Reed of that place, died at the Neurological Institute, New York, on December 27. He was graduated from the medical department of Columbia University in 1910.

DR. SILAS WEIR MITCHELL, of Philadelphia, died of broncho-pneumonia in that city on Jan. 4, at the age of 85 years.

DR. J. FRANCIS DE SILVA, who died last week at Atlantic City, N. J., was born in 1875, and graduated in 1900 from the University of Pennsylvania.

BOOKS AND PAMPHLETS RECEIVED.

Hygienic Laboratory, Bulletin No. 87. Digest of Comments on the Pharmacopoeia of the United States of America and on the National Formulary, by Murray Galt Motter and Martin I. Wilbert. Washington.

Dock-Outlines for Case-Taking and Routine Ward and Laboratory Work, by George Dock, A.M., M.D., and George Mahr, Ann Arbor, Mich.

Psychology and the Medical School, by E. Stanley Abbot, M.D. Reprint.

Hygienic Laboratory, Bulletin No. 90. Epidemiological Studies of Acute Anterior Poliomyelitis, by Wade H. Frost.

Diagnosis and Indications for Treatment of Suppurative Diseases of the Nasal Accessory Sinuses, by Robert Levy, M.D. Reprint.

The Differential Diagnosis between Vincent's Angina and Primary Syphilitic Lesion of the Tonsil, by Rovert Levy, M.D. Reprint.

The Dignity of Otolaryngology, by Robert Levy, M.D. Reprint.

Laryngeal Tuberculosis, by Robert Levy, M.D. Reprint.

Tumors of the Larynx, by Robert Levy, M.D. Reprint.

Urinary Diseases by Stephen H. Blodgett, M.D. Whitcomb and Barrows. 1914.

Some Interesting Data on Recently Reported Research Work on Dysentery, by S. R. Klein, M.D. Reprint.

Some New Methods Applied in Research Laboratories, by S. R. Klein, M.D. Reprint.

Whooping Cough, by S. R. Klein, M.D. Reprint.

Die medizinische Hoole in den Vereinigten Staaten Nord-Amerikas, by Dr. S. R. Kelin, M.D. Reprint.

Diseases of the Rectum and Pelvic Colon, by Martin L. Bodkin, M.D. E. B. Treat and Company. 1913.

Ulcer of the Stomach, by Charles Bolton, M.D. Longmans, Green and Company, New York, N. Y. 1914.

Surgical Diseases of Children, by Samuel W. Kelley, M.D. E. B. Treat and Company, New York. 1914.

Original Articles.

A STUDY OF CANCER.

BY SEELYE W. LITTLE, M.D., ROCHESTER, N. Y.

Let it be plainly stated at the outset that the writer does not claim to present a "cure for cancer." He does maintain that the theory here offered is at variance with no known facts, that it explains many hitherto puzzling facts, and that the practical clinical results obtained in every case of scientifically proven cancer and in every case of clinically certain cancer thus far put to the test not only confirm the general truth of the theory, but convincingly indicate that ultimately "cure" is possible. This goal can be reached, however, only by careful scientific treatment of many cases with recorded findings. Warning must be given that inoperable cases alone should be considered until we have more clinical data. Otherwise we are playing with fire.

The writer has much misgiving as to the wisdom of publishing so unfinished a report. He first submitted the report to about thirty of the best medical men in the vicinity and it is through their advice that he now publicly asks that his ideas be put to a general trial that we may the sooner know their true worth.

Acknowledgment should be made to numerous investigators all over the world, for without their long and careful research this report would be not only worthless but impossible. The facts stated can be easily verified by anyone familiar with the literature. It is unnecessary to give the list of authorities as such a list would cover many pages. To any physician interested, however, the author will gladly furnish the source of his information on any point.

Cancer appears primarily only in highly specialized cells. It is presumed that, like other highly specialized things, these cells are comparatively easily gotten out of order; that, doing special work, they need outside help to enable them to do the things an unspecialized cell does for itself, *i.e.* have their food properly prepared, their waste matter properly cared for, etc.,—in short, their nutrition. For this purpose certain cells from the same blastodermic layer are set aside to specialize in this nutrition business. This statement is made here without comment. The evidence in favor of its truth will appear later. These are the so-called ductless glands. As the special work in each case is increased there is a corresponding increase in work of the corresponding cells. For example, during growth the thymus is large and active. The reverse is also true normally; when the need for the special work slackens there is a corresponding slackening of work of the corresponding cells. The thymus (again as a single example) atrophies normally when its work is done, about the time of adolescence. So as age advances both the activity of the specialized cells and the activity of the nutrition governing specialized cells (the ductless glands) normally diminish *pari passu* to a normal physiological death.

Now suppose the balance is upset in any way. The specialized tissues may be overworked to such an extent that their specialized helpers cannot keep up with them; the helpers (the ductless glands) may be congenitally too large and active or too small and inactive; they may by accident or disease likewise over or under functionate; either the ductless glands or the specialized tissues they govern metabolically may from overwork, accident or disease begin their physiological death before their complementaries. We then, in every case of such unbalance, have a pathological process arising,—a disease in short. With some such processes we are fairly familiar: Addison's disease, Graves' disease, myxedema, for example. The conclusion is inevitable that there are other pathological conditions, the basis of which is deranged metabolism and which are caused by similar lack of balance in these highly specialized organs. We have already acquired from many patient workers an immense array of known facts concerning hyper and hypo function of the ductless glands and concerning absolute failure of such glands. Many of the proven facts seem absolutely contradictory, but that must be because we do not yet know the whole truth. One stumbling block is the assumed interrelation of these organs, one hypertrophying when another is quiescent, one apparently preventing the action of another or aiding such action. It is certain that removing one of these glands from an organism does not produce the exact opposite to an excess of the secretion of the same organ, the others being normal in each case. But there is another explanation than the assumption that one deters or aids another, as the case may be. An analogy will best show what is meant. Suppose a man with very poor teeth. Such a man is very apt to have indigestion, though the digestive organs are perfectly normal. He is then apt to be badly nourished, not part of him, but all of him, brain, bone, muscle, everything. But it would be absurd to attribute the irritability of the undernourished nerves, for instance, to an essential correlation between teeth and nerves in the sense that the thyroid and the suprarenals are supposed to be correlated. In the case of teeth and nerves we recognize easily the sequence to be purely mechanical because we can follow every step of the process. Is it not at least as good a hypothesis as any that the thyroid secretion is perfectly independent essentially of the suprarenal secretion and that the apparent intimate relation between them is really an indirect relation, precisely as teeth and nerves are indirectly related? That is, supposing the thyroid secretion fails.

Certain tissues of the body fail to get what they need. In turn they cannot deliver their quota to the organism and the whole organism necessarily suffers more or less, including other ductless glands. At all events, it is certain that failure or excess of secretion of one of these glands soon or late affects the others more or less with resulting symptoms. So no two cases of Addison's disease or of myxedema or of acromegaly or of Graves' disease will be exactly alike and in part may be widely different.

Another thing to consider is the probability of two or more of these organs being primarily at fault in some cases. When we think of the variations possible, the complexity of symptoms in certain cases is no less puzzling, but is at least more capable of explanation. Take, for example, only two glands and arrange the possible combinations which would produce a lack of balance in the whole organism. Such combinations would be in number, as follows, A and B representing the glands:—

1. A hyper
   B normal
2. A hyper
   B hyper
3. A hyper
   B hypo
4. A hypo
   B normal
5. A hypo
   B hyper
6. A hypo
   B hypo
7. A normal
   B hyper
8. A normal
   B hypo

Every one of these combinations would necessarily produce different symptoms. Nor is this all by any means. The degrees of hypo or hyper secretion in each combination may vary without limit. So our puzzling symptoms may remain puzzling but at least solution is seen to be a possibility.

The theory that these internal secretions have direct normal physiological relations with each other in the sense of aids or antagonists does not appeal to the writer. On the contrary, the theory that each secretion is independent of all the others, except in the sense that each is essential to the whole organism and therefore to the working of the others, does seem reasonable. The external secretions work that way. The gastric juice as such is self-sufficient. It neither has nor needs the aid or the inhibition of any other secretion to do its designed work. But if the pancreas is not working correctly, then certainly in time neither will the stomach, not because pancreatic juice is essential as such for the proper working of gastric juice, but because the stomach as well as any other muscle in the body must have its supply of properly prepared carbohydrate food which a normal pancreas can furnish. If the stomach cannot get this particular food it in turn cannot produce a proper gastric juice. It is an indirect relation, not a direct one. Why then assume otherwise in the case of the internal secretions?

Another consideration leads to the same conclusion. The thyroid and the suprarenals are considered in certain directions to be antagonists because they seem to produce opposite effects. But they are derivatives of different germ layers, the suprarenals from the ectoderm and the mesoderm and the thyroid from the endoderm. Also all the successful efforts at therapeutic use of the internal secretions have been either supplying the particular failing secretion or removing the organ doing the hypersecretion; never by administering a so-called antagonist in the case of oversecretion or an "aiding" secretion to help out the failure of an undersecreting organ. For myxedema we give thyroid and for Graves' disease we remove some of the hypersecreting thyroid. To be sure, we do not always succeed. In Addison's disease adrenalin by no means always cures, but for very good reasons unnecessary to discuss here. Suffice it to say that there are practical and mechanical difficulties in a theoretically perfect administration of adrenalin in Addison's disease.

On all accounts it seems more reasonable and certainly more hopeful to consider each internal secretion as essentially self-sufficient and as furnished for some definite work in the economy. Also it is reasonable and highly probable that this purpose is in connection with those tissues in the body derived from the same germ layer as the gland in question. In other words, the thyroid can have no direct function on any but tissues derived from the endoderm, the pituitary body on any but tissues derived from the ectoderm and so on. Table 1 gives all the tissues in the body derived from each of the germ layers. At once an apparently obvious objection arises to this idea. The absolute failure of the thyroid, for example in an infant, may result in a cretin. One of the characteristic symptoms of cretinism is failure of bones to develop properly, and in this case nearly all writers ascribe the bone failure to lack of thyroid and therefore ascribe proper development of bones to proper thyroid secretion. But bones are mesodermic structures and thyroid is endodermic and the theory seems knocked in the head. Nevertheless, another explanation is possible. Certainly bones do not develop properly in a young thyroidless animal, but this may just as well be an indirect result of hypothyroidism. If the thyroid's work is entirely with endodermic tissues it still has a very wide field, all the digestive tract for example. Now it may easily be, in fact must be, that if the digestive tract fails for lack of thyroid, so will all other tissues in the body, bones included. A similar explanation would suffice for all the

other known cases where an internal secretion derived from one blastodermic layer seems to affect tissues of a different blastodermic layer. In fact, as one might expect, all those internal secretions of which we have accurate knowledge actually do affect tissues of widely different origins, but it is just as easy to understand how that is possible indirectly as directly and far more rational.

With this idea as a basis many nutritional diseases at once assume a different aspect and a hopeful aspect instead of a hopeless. Just as an astronomer may be absolutely certain from the behavior of known planets that there must be another unknown planet of a certain size and position, so if we had only known all the facts about, say the thyroid, we could have predicted absolutely that there must be somewhere in the body, without actually having found it, a body like the parathyroid. Likewise we could write out an accurate description of myxedema without ever having heard of it or seen it. We do not, however, know all the facts about the thyroid or any of the other internal secretory organs. We do know a good deal about many puzzling diseases of a plainly metabolic nature, and even with our imperfect knowledge it is decidedly worth while to try to fit these facts together. Often there are too many facts missing to get a satisfactory result but occasionally, just as in a picture puzzle, one piece that has been before our eyes all the time fairly leaps into place and the whole thing is clear, so one long known fact may suddenly be set in its right relation, with the result that the disease and its logical cure are at once plain. An illuminating example of this is malaria. All the essential facts were known for years, but not until the mosquito, an apparently unrelated fact, was put with the other plainly relevant facts were the disease and its prevention at a stroke comprehended.

In studying various diseases of faulty metabolism it suddenly occurred to the writer that cancer is absolutely and essentially such a disease, and at once many things became clear. Let us first set down certain known facts concerning cancer.

1. It occurs originally only in highly specialized cells of epithelial type.

2. Overwhelmingly a disease of the downhill time of life when physiological death has begun its slow course.

3. Generally, perhaps always, a disease first attacking injured cells *i.e* trauma is a predisposing cause.

4. A disease increasing as the complexity of civilization increasingly puts extra strains on the organism.

5. A disease habitually progressing in its course at an ever accelerating pace to death of the organism.

6. A disease especially liable to recur even after most thorough removal of the original focus.

7. A disease generally more rapid the younger the patient; that is, the more vigorous the metabolism, the sooner is havoc wrought by any interference. Exactly as the wreck is more disastrous and speedy from interference with rapidly moving than with slowly moving machinery.

8. Most astonishing of all and perhaps least emphasized of all is the fact that this disease is almost unique in one thing—it is tissue reproduction at a time of life when normally every part of the body is physiologically dying and tissue reproduction failing. Why certain cells at this time should begin to reproduce themselves (atypically to be sure but still reproducing) has always been a puzzle. Not so puzzling, however, if we consider cancer a disease of faulty metabolism as will be discussed later. The growth of fat at about middle life seems to be the only normal growth at such time—and fat is not a high type of tissue.

If we now piece together all the known facts of cancer and all the known facts as to the internal secretory organs we shall evolve a theory of cancer satisfying all the known conditions, hopeful, and very much more convincing than any previous theory.

Let us start then with the idea that this unique reproduction of cells at a time of life when such reproduction has normally ceased, is due to a relative oversecretion of glands known normally at an early age to influence tissue growth. A serious objection at once arises. All cells and all secretions should fail as age advances and fail faster the more work they do. If cancer then is due to an overactive thyroid for example we should expect very many spontaneous cures, because here is a thyroid which has apparently done its full duty for fifty years suddenly doing a lot more work making old cells reproduce. This extra work should make the thyroid fail faster than the other body cells with the result that the longer the cancer grows the more hopeful the expectation would be that it would cease growing for lack of thyroid. But the opposite is the case. The longer the cancer grows the more hopeless it becomes. Therefore, the fault must be a relative failure if we are on the right track at all. Because this failure naturally would be accentuated the longer the individual lived. And failure in metabolism is also always more disastrous in the young than in the aging for manifest reasons. Thus the known fact that cancer is more rapidly fatal in the young than in the old is explainable. Also the fact that cancer is rare in the young and very common at the time of life when general failure begins. Further, relative failure would remain usually relative failure as age advances. Again relative failure is less disastrous the older the patient and we know that in the aged cancer is generally a slow process and may even last for years without appreciable change. Finally the rare but certain cases of spontaneous cure can be explained by a disappearance for some

reason of the relative failure which however must be a rare thing because it is difficult to see how naturally the relation can change much after middle life. Before discussing which gland or glands are probably at fault in a given case it is interesting to consider how the relative failure might have come about.

We know that overexercise always results in premature decay. A brain, a muscle, a blood vessel, a kidney cannot do too much work without resulting premature failure. Suppose then that a pituitary gland, for example, has for a long time been given more work than its fellow ductless glands. It will surely fail sooner than the others. Let us consider what this overwork might be. We know that the pituitary gland has a great deal to do with the proper growth and development of the skin. Now suppose the skin of the lip at a certain spot is for a long time and persistently injured by a hot pipe stem. The pituitary gland is presumably working overtime to repair this injury. Finally it can no longer do this and attend to its other duties because it is getting old and failing naturally. But it is failing faster relatively than the other ductless glands because it has had extra work for a long time. Though apparently a fanciful speculation, this is, I believe, really a factor, perhaps an important one, in the production of cancer of the lip. As to why in this case the cancer starts in the lip, it is not enough to say that it is because there has been trauma. It is common knowledge that cancer very often starts at the site of an injury, especially an injury long continued, repeated and generally mild as regards each individual act of injury. It is the repeated-drop-of-water-wearing-away-a-stone idea. This is not enough, for cancer does not always, nor indeed often, relatively, occur even at such a site. Put the two factors together, however, and the explanation seems more complete: the repeated injury and the failure of the particular ductless gland that controls the normal nutrition of the injured part. Nor is this yet enough. Why should any cell reproduce its kind at a time of life when all body cells are on the down track and physiologically dying? It seems an anomaly. Furthermore, except only the skin and squamous epithelium and possibly some columnar epithelium, which are not very common seats of cancer, none of the body cells subject to cancer can normally reproduce themselves after the period of beginning physiological death has arrived. No glandular cell once destroyed can be replaced by its neighboring gland cells at such a period. These are all highly specialized cells and have lost their original reproductive power, or rather delegated it to other special cells in the generative glands which are the real hereditary individuals. In the cells producing the spermatozoa and the ova reside the only real continuous life. All the somatic cells live as long as the individual only. They are creatures of a day, serve their purpose and die. The life is continued, reproducing, with all its inherited traits, only through these comparatively few highly specialized generative cells. And here is the anomaly: in cancer we have body cells abandoning their specialized functions and returning to the essential primitive function of all living things, reproduction; and that too when theoretically they should be physiologically dying. Therefore, there must be some factor other than failure of some ductless gland or glands, and trauma. I believe the explanation to be either one or both of two events. In the first place it seems highly probable that cancer *always* occurs at the site of cell injury for the following reasons:

1. Cancer certainly does occur often at the site of a known injury.

2. Organs which are most protected from injury are the rarest seats of cancer.

3. Organs which are most exposed to injury are the commonest seat of cancer, with one enlightening exception,—the skin.

4. The skin. But even here, remember that skin cancer is commoner by far in men than in women; men are far more exposed to skin injury than women. The reason why cancer of the skin is rare in spite of frequent injury will appear later.

5. Even those organs, apparently well protected, which occasionally are the seat of cancer may conceivably be injured, *e.g.* the kidney by stone, and the liver ducts similarly. Also it is confirmatory of this idea, that cancer of the gall bladder and the ducts is far commoner than of the liver itself.

(To be continued.)

MEASURED FEEDING FOR OLDER CHILDREN.*

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THE feeding of infants has become an art made possible by percentage feeding of milk and other foods, the constituents of which have been determined with almost absolute precision. Indeed exactness has been carried to such a degree that sometimes the physician's judgment is led astray by laboratory analyses. In the case of older children this condition does not obtain. In fact food is prescribed by the physician in most indefinite terms or else not prescribed at all. Such expressions as "Give the child good, nourishing food and plenty of it" or else "Be sure the child does not take anything indigestible" disposes of the whole question. Sometimes the physician may ease his conscience by adding

* Paper read and food exhibit shown at the meeting of the Suffolk District Medical Society, Jan. 22, 1913.

"Not too many sweets and no tea or coffee." It seems superfluous to state that this method of dealing with the diet of the growing child is a poor one, but it is met with so often that it demands most serious attention. Someone has well said "Why do physicians exercise so much care in prescribing drugs that are administered only occasionally and so little care in prescribing food which is taken daily." This neglect of the proper supervision of the feeding of older children is responsible for many serious diseases of early life and especially for many disturbances of the nervous system that are most difficult to remedy.

For the proper feeding of the child both physician and parent should have an adequate knowledge of food and food values. Three principal methods are in use for measuring food. In one all food is divided in portions of 100 grams and tables made out for the calorie values of each portion. This method is not readily adopted by either physician or parent, as it requires a mental readjustment of values which is a serious obstacle to its success. We buy food by the ounce or pound. All infant feeding in this country is by ounces. The change into other standards of measurements renders the method impractical except for laboratory work. A second method consists in adopting the ordinary serving as a unit of measure. This method is incorrect because what is an ordinary serving for one person is not so for another. This method also lacks an important factor present in the other two methods—namely, that of comparison, which is a great aid to memory. The third method, proposed by Irving Fisher in 1906, is called the callorie per cent. method. Prof. Fisher prepared tables indicating the amount of food necessary to furnish 100 calories of food value, such amounts being used as standard portions. For example, one slice of bread has a value of 100 calories; also one pat of butter or the lean meat in a lamb chop, or five ounces of milk or one slice of bacon. These units or multiples of units represent very closely the amount ordinarily taken at one serving, so that food can readily be served according to this plan. It gives at first hand, comparisons that help fix food values in the memory, the knowledge of a comparatively small number of which is sufficient to cover all our needs in any particular case. Sufficient information can be given in a short conversation to enable a person to raise or lower his diet 500 or 600 calories daily, which is an amount sufficient to cause a gain or loss in weight as desired.

For a child who is six to fourteen years of age, ten to twenty pounds under weight, and who continues his usual occupations, between two and three thousand calories of food per day are necessary for proper gain.

Having then a practical measure of food values, in order to make a child gain or lose body weight, the following steps are necessary: In the first place we must secure the co-öperation of the child. This can be obtained by what Dr. Morton Prince calls painting pictures. All girls want to be attractive and beautiful. They also want to do as other girls do, dance, swim and play tennis. Every boy wants to be athletic. The desire to play baseball and football can always be aroused in him sufficiently to cause him to do almost anything to gain a good physical condition for that purpose. Next there must be a sufficient control of the patient by parent or other person acting "in loco parentis" to secure a record of food taken and a regular report at stated intervals. The method I have found to work to greatest advantage with these older children can perhaps be best shown by the following case.

Thomas R., aged fifteen years, was a boy active in mind and body. He was ten to fifteen pounds under weight. Examination showed good physical development, all organs entirely normal. He was told that in order to make a good showing in athletics he ought to gain fifteen pounds. He at once said he was willing to follow any directions if he could gain, especially as he was going into a summer camp and wanted to stand well with the other boys. He was directed to keep a 48-hour list of all the food he ate and report at the end of that time. The 48-hour list showed the following points. The boy took no cereal, practically no milk, cream or butter. His average 24-hour amount was 1400 calories. He was told it was impossible for him to gain on that amount of food, that he must take at least 2000 calories. Asked why he took no butter he replied, "Why, does butter make any difference." He was surprised to know that a pat of butter was of equal value to a slice of bread. He did not like ordinary cereals, but he liked Pettijohn's breakfast food. He did not like milk but could take graham crackers and milk. Accordingly he was told to take butter and Pettijohn's daily, to take crackers and milk at 3.30 P.M. and before going to bed at night, to keep an accurate record of each day's food, and to report in a week.

At the end of the week his report showed he had followed the suggestions given and had averaged 1800 calories daily. His gain was two pounds. Encouraged by this gain, the following week he averaged 2100 calories, and gained two pounds more. The next week his average was 2180 calories and he gained three pounds, seven pounds in three weeks. At this visit he remarked "It does not matter what I take, does it, if I take enough." He said the day previous he found at night he had taken only 1500 calories, so he sat down and ate seven large figs, which raised his total to 2200. No indigestion resulted. The following week he kept no record, saying he just ate all he could and let it go at that. There was no gain in weight. The next week he did the same with no gain resulting. He then resumed keeping his record, which showed nearly 2200 calories. His gain was one and one-half pounds, making a total of eight and one-half pounds in the four weeks in which he kept his record of measured food, or an average of over a quarter of a pound per day. This boy took very little milk and no cream during this time, but was fond of nuts and figs. His average gain is what should be expected in a healthy boy. No change was made during this time in his occupation or habits. If he had not gained on 2200 calories it would have been strong evidence that he

had some organic disease, possibly some mechanical obstruction to respiration, or that he was suffering from toxic absorption, possibly from tubercular glands, or from diseased tonsils That is, the failure of a child to gain on a measured diet of 2000 or more calories per day is a valuable point in diagnosis.

The preliminary record is of importance in this method of feeding. First, it shows how much food is habitually taken; second, it shows the kind taken; third, and more important still, it shows what the child likes and dislikes making it possible to retain such foods in the diet as are agreeable to the child, simply substituting others for those that should not be taken, thus working along lines of least resistance, a most important factor in successful feeding. In the case of delicate girls, likes and dislikes, aversion to form, taste or smell, or associations of certain foods with unpleasant events, may be almost insurmountable obstacles in securing proper nutrition. Their appetites are fickle, leading them to live almost wholly on carbo-hydrate food, the proteid being far too low for proper growth. Cause and effect form a vicious cycle often made evident by this simple preliminary list.

The 48-hour record may also show mistaken ideas of parents as regards feeding. They frequently exhibit a certain pride in thinking that what does not agree with them will not agree with their children. Mistaken ideas of food values may lead to the total exclusion from the diet of many important articles of food.

During the past year a girl of fifteen came under my care because she was undersized and delicate. For ten years she had taken almost daily a large order of clear soup, the stock of which was made from the most expensive cuts of meat, the father thinking it especially nutritious. After taking a serving of such soup she ate very little else, so that her 24-hour ration was lessened by an appreciable amount. Neither parent nor physician seemed to realize that it requires nearly a quart of such soup to yield 100 calories.

Having from this 48-hour record a knowledge of the kind of food taken and its amount, it is an easy matter to increase or decrease the 24-hour intake by simple changes. For example, a girl of nine was twenty-pounds under weight. Her 24-hour amount before any suggestions were made to her about her diet was 1400 calories. Her breakfast consisted of four tablespoonfuls of cream of wheat, two teaspoonfuls of sugar, two soft boiled eggs, one roll, one-half pat of butter, and one cup of tea, making a total of 550 calories. (See table I.)

TABLE I.

		Cal.
Cream of wheat	4 tbsp.	100
Sugar	2 teasp.	50
Eggs (soft boiled)	2	200
Roll	1	100
Butter	½ pat.	50
Tea (milk and sugar)	1 cup	50—550

By adding cream to the cereal and by having the eggs scrambled, which allowed more cream and also butter, 250 calories were added to the breakfast. By substituting a cup of cocoa instead of the tea 200 calories more were added, together practically doubling the food value of the meal. (See table II.)

TABLE II.

		Cal.
Cream of wheat	4 tbsp.	100
Cream (16%)	2 oz.	100
Sugar	2 teasp.	50
Eggs (scrambled)	2	
cream 1 oz., butter	1 pat	350
Toast	1 slice	100
Butter	½ pat.	50
Cocoa	6% oz.	250—1000

Similar changes were readily made in the other meals, thus raising the 24-hour amount to above 2500 calories, an amount necessary to cause the child to gain from one to two pounds a week.

Such changes do not force the child to take too much food at any one meal, and, therefore, there is little danger of causing indigestion. In fact, in following delicate children with measured feeding I have seen no case of indigestion result. Children under weight seem to have a remarkable ability to digest food, taking as high as 3500 calories without digestive disturbances. While on the other hand, in the case of children who are overweight, symptoms of indigestion disappear in a remarkable manner with a diminution of the day's ration.

Measured feeding shows almost invariably that a child without organic disease is underweight because he does not eat enough and overweight because he eats too much. It is a far too common occurrence to find children taking tonics, transported to different climates, given all kinds of treatment, to make them gain in weight, when a measurement of their food shows they are taking from 1000 to 1400 calories daily, an amount too small for them to possibly gain unless actually confined to bed.

In health the question of a proper proportion of protein, fat and carbo-hydrates, namely that of a balanced diet, needs attention only in a general way, as taste regulates this in most instances. For example, bread which represents protein and carbo-hydrate, requires butter (fat) to make it palatable. Meat, composed of fat and protein, requires potato (carbo-hydrate) to please the taste. So the combination of bread and butter, meat and potato, bread and milk, represent physiological needs that taste recognizes and controls.

TABLE III.

		P.	F.	C.H.	Cal.
Cream of wheat	4 tbsp.	12	3	85	100
Cream	2 oz.	7	84	9	100
Sugar	2 teasp.	0	0	50	50
Eggs (scrambled)	2 tbsp.	68	278	4	350
Dry toast	1 slice	13	6	81	100
Butter	½ pat.	0	50	0	50
Cocoa	1 cup	34	128	88	250
Total calories		134	549	317	1000
Total grams		33	59	78	

In cases of nephritis, diabetes and duodenitis with jaundice, measured feeding applies to the different elements of food equally well as to the total quantity taken.

CONCLUSIONS.

The diet of all improperly nourished children and occasionally of well nourished children should be checked up and controlled by measured feeding.

A preliminary 48-hour list, kept without any suggestions from the physician, shows the quantity and kind of food habitually taken as well as the likes and dislikes of the child.

Changes in diet should be made gradually along lines of least resistance.

Cooperation of both child and parent is necessary for successful feeding. Both should be disabused of ideas and prejudices which interfere with proper nourishment.

The average gain on diet alone of children who are under weight should be from one-half to two pounds per week. If no gain is made, organic disturbances or toxic absorption should be suspected.

Serious errors in diet cannot be detected by asking the child about his appetite or the mother about the diet given. Food must be recorded and measured in order to show how much is taken.

Almost invariably the overweight child is overweight because he eats too much, and the underweight child is underweight because he eats too little.

Measured feeding is an important therapeutic test.

This exhibit shows about sixty common foods of the same nutritive value (100 calories). The labels have 100 small squares marked on them and the proportion of proteid, fat and carbohydrate is shown in colors, protein red, fat yellow and carbo-hydrate blue.

Liquid foods, as beef juice, orange juice, consommé, milk modifications, cream, etc., are put in bottles and preservatives added. Soap is used to represent butter and cheese. Meat and fish are represented by clay models. Artificial fruits were obtained in many instances of the proper size at shops where they are sold as favors. Dry foods, as shredded wheat and crackers, require no substitutes.

By studying the exhibit it is readily possible to visualize the amount of each food necessary to make 100 calories. For example, it requires nearly one quart of consommé or one whole bunch of celery or five ounces of milk to equal in value one pat of butter or one egg or the meat in an ordinary lamb chop.

On the right side of the upper table are three sets of graduates. The left set shows the amount of protein (60 grams) fat (40 grams) carbo-



FOOD EXHIBIT.

hydrate (250 grams) required in 24 hours by the average child six to ten years old (Koenig). The middle set shows the amounts required by an adult woman (Koenig). The right hand set shows the amount of protein (160 grams) fat (125 grams) carbo-hydrate (550 grams) taken by a child of nine years, a member of my feeding class, who was under weight twenty pounds but gaining rapidly, the total being more than double the amount taken by the adult woman.

Table I shows the breakfast of a girl aged nine before any suggestions were made as regards her diet. Table II shows breakfast modified by suggestions made to increase its caloric value. Table III shows the number of grams of proteid, fat and carbo-hydrate taken with each article of food. Table IV shows first part of a simple list of food (in preparation) to be used for practical reference in computing 24-hour amounts.

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List of foods shown in exhibit giving weight of 100 calories of each in grams and ounces; also showing the calories in each represented by proteid, fat and carbohydrate.

	Weight.		Calories.			Total.
	Grms.	Oz.	P.	F.	C. H.	Cal.
FRUIT.						
Orange, one very large	270	9.4	6	3	91	100
Apple, one large	206	7	2	6	92	100
Pear, one large	173	5.4	4	7	89	100
Banana, one large	100	3.5	5	5	90	100
CEREALS.						
Bread, white or brown, full slice	38	1.3	12	16	72	100
Rolls, French or Vienna, one	35	1.2	12	7	81	100
Zwieback, 3 slices	23	.9	9	21	70	100
Crackers, Uneeda Biscuit, four	24	.9	9	20	71	100
Crackers, Graham, three	23	.8	9	20	71	100
Force, 6 tablespoonfuls	30	1.1	10	3	87	100
Shredded wheat, one	27	.9	13	5	82	100
Grape nuts, 3 tablespoonfuls	27	9.6	13	2	85	100
Cream of wheat, 4 tablespoonfuls	156	6	12	3	85	100
Macaroni, 4 tablespoonfuls	110	3.8	14	15	71	100
Wheat or barley flour	27	1	12	3	85	100
MEAT.						
Lamb chop, edible part	50	.96	24	76	0	100
Steak, tenderloin, size chop	35	1.3	34	66	0	100
Roast lamb, size 2 chops	27	1.8	40	60	0	100
Bacon, one slice	15	.5	6	94	0	100
FISH (UNCOOKED).						
Cod, 2 x 2 x 3¼ in.	105	3.5	90	3	7	100
Blue fish, 2 x 2 x ½ in.	68	2.3	71	29	0	100
Halibut, 3 x 1½ x 3¼ in.	83	3	70	30	0	100
EGGS.						
Yolk, 1½ yolks	27	.75	17	83	0	100
White, 7 eggs	181	6.25	100	0	0	100
Egg, whole, one	59	2.1	32	68	0	100
VEGETABLES.						
Potato, one large	86	3	11	1	88	100
Corn, one ear	100	3.5	13	10	77	100
Peas, canned	178	6.3	24	4	72	100
Cabbage, uncooked	310	11	20	18	72	100
Celery, 1 bunch	540	19	24	5	71	100
Tomatoes, 4 medium	430	15	15	16	69	100
Succotash, 4 tablespoonfuls	100	3.5	15	9	76	100
Lima beans, 4 tablespoonfuls	126	4.4	21	4	75	100
String beans, 8 tablespoonfuls	480	16.5	15	48	37	100
DAIRY PRODUCTS.						
Butter, 1 pat	13	.44	1	99	0	100
Cheese, American, 1½ cu. in.	22	.7	25	73	2	100
Milk, cows,' average (3.50 : 4 : 4.50)	140	5.	20	52	28	100
Skim milk, (3.60 : 1.80 : 4.50)	200	7.	30	33	37	100
Butter-milk, (3.60 : 0.50 : 4.06)	278	9.	41	13	46	100
Top milk, 7%, (3.50 : 7 : 4.50)	102	3.75	15	66	19	100
Milk modified, (1.25 : 2.50 : 6.50)	181	6.33	10	42	48	100
Cream, 16% (3.25 : 16 : 4.05)	56	2.	7	84	9	100

LIQUIDS						
Consomme	830	29	84	0	16	100
Whey	285	10	11	25	64	100
Orange juice	188	7	0	0	100	100
Beef juice (warm process)	150	5.3	78	22	0	100
Cocoa	81	2.9	13	52	35	100
MISCELLANEOUS						
Olive oil	11	.5	0	100	0	100
Olives, seven	32	1.1	1	84	15	100
Prunes, three	32	1.14	3	0	97	100
Dates, three	28	1.1	2	7	91	100
Fig, one medium	31	1.1	5	0	95	100
Almonds, eight	15	.5	13	77	10	100
Peanuts, 13 double	18	.6	20	63	17	100
Marmalade, 1 tablespoonful	28	1	1	2	97	100
Sugar, milk	25	.9	0	0	100	100
Sugar, granulated	24	.86	0	0	100	100
Macaroons two	23	.8	6	32	62	100
Lady fingers, 1½	27	.95	10	12	78	100
Strawberry shortcake, av portion	100	3.5	20	110	220	350
Chocolate eclair	60	2	12	100	188	250
Charlotte russe, one	60	2	10	80	160	250
Cranberry pie, small	252	8	32	228	440	700

LEPROSY. SOME NOTES ON SYMPTOMS.

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THE study of leprosy has been so largely devoted to the bacteriology and pathology of the disease that the many clinical aspects presented have not been emphasized. The disease has many interesting manifestations that should be studied and recorded, until such time as definite conclusions may be reached.

From practically no early symptoms, or symptoms that are indefinite and vague, the gradual progress of the disease carries with it a variety of symptoms, subjective and objective, to the final stages of the disease which are indeed complex. After the disease is definite, in both the tubercular and anesthetic types of leprosy, almost every new lesion is accompanied with some systemic disturbance. The more frequent the lesion the greater the upset to the patient, and the severer the lesion the more distressing and serious are the accompanying symptoms.

Observations made here on fifteen patients hardly warrant authoritative statements at this time, but these notes are presented for whatever value or interest they may have.

Stages of the disease can hardly be spoken of, unless it means the merging of one type into another. The disease is in the beginning insidious, and later so progressive that any attempt to define stages must necessarily be purely fictitious. So-called physiological disturbances such as headache, constipation and minor ailments, may often be viewed as part of the disease, but are not, necessarily, unless they are regular in onset or similar in most of the cases. The isolation and depressing surroundings may be responsible for the many temperamental attacks, so common among the patients here. Lack of exercise, mental torpor, national idosyncrasies and other real, or imaginary, conditions may all affect the patient. Consequently it is necessary to be careful not to assume that certain symptoms or mental states are part of the disease.

Lesions. The theory has been advanced and somewhat substantiated, that the original lesion is on the nasal mucous membrane in the form of an ulcer. The examination of every patient, with the exception of one anesthetic type case, showed ulceration or thickening of the nasal mucous membrane, some but slightly, but the majority extensively affected. The symptoms present and complained of were, difficulty in breathing through the nose, some irritation and occasional pains, discomfort during the sleeping hours and the resulting dryness of the throat.

Ulcers with a pus or watery serous discharge are, of course, the common lot of all lepers, with the exception usually of the anesthetic cases. These ulcers vary in size, are painful only in the beginning, but later may be almost entirely anesthetic, with a surrounding ring of one-half inch or more, also anesthetic and sometimes pigmented. Often and usually before the appearance of an ulcer or ulceration on the feet or hands, there is a preceding swelling accompanied with severe pain, elevation of temperature even up to 104°, rapid pulse, headache, nausea, vomiting and true chills. As soon as the swelling has become strictly localized, and an ulcer results with free discharge, the symptoms disappear, leaving the patient for several days in a depressed, weakened condition. Areas of ulceration may be in a finger, a hand, or extend from the knee to the foot and include both feet. When healing in such cases takes place, the skin is enormously indurated and largely anesthetic. The symptoms are severer in these cases than in the case of the occurrence of a

single ulcer. Alternate swelling and ulceration produce disfigurement and deformities; when the fingers are affected the finger nails become thickened, later on undergo softening, and ultimately result in the loss of the finger tips. Tremendous enlargement of the hands, forearms, ankles, feet and parts of the face are common features in the typical cases of tubercular leprosy. Constant inflammation of the skin results in its becoming thickened, forming ridges, folds and nodules, so that the features of the face become entirely changed. Such changes are gradual and slow and are accompanied by practically no pain or other symptoms.

The softening and breaking down of nodules or small swellings is fairly common. These are often slightly painful due probably to pressure and to some extent, to the involvement of the nerves. In the pus and discharges the acid fast bacillus of leprosy and a micrococcus are always found. Without being visible to the eye there may be numerous small nodules or infiltrations underlying the skin, which are only discovered when the hand is firmly stroked along the parts.

Bullae or blebs may occur naturally in the course of the disease or may be induced by friction or injury to the skin, as by scrubbing or washing. These have occurred only on the hands and feet. The bullae vary in size from a dime to areas covering the whole surface of a finger, are considerably elevated and filled with a clear amber colored fluid, which contains both the leprosy bacillus and a micrococcus. These bullae have occurred only in the tubercular type of cases; they occur rapidly and may last several days, leaving an inflamed, watery surface, which is usually easily amenable to treatment. An eruption occurs at irregular intervals over the back, shoulders and chest, similar to the rash that accompanies digestive disturbances, and not unlike that of ivy poisoning. It usually lasts the better part of a week, and is accompanied by true chills in most cases, elevation of temperature and pulse, malaise, vague pains, headache and depression. This phenomena has been alluded to as a malarial condition, but in truth does not in any way resemble typical malarial fever attacks. An examination of the blood does not reveal the malarial parasite or bodies analogous to them.

In the nature of an eruption are the occurrences of pustules containing both the leprosy bacillus and a micrococcus. These pustules may occur singly and later form an ulcer, may coalesce, or may occur in crops, develop, break down and heal, leaving slightly pigmented spots as a result. In two cases this occurred all over the limbs, upper and lower, and continued for nearly two months. The attack was accompanied by fever and some pain, and resulted in numerous pigmented areas. In both the tubercular and anesthetic cases, small pigmented spots occur without apparently preceding open, active inflammation or ulceration. At or near the lesions, the skin may be excessively dry and scaly, or it may be moist and secretive, and is most typical on the hands, legs and feet.

In the nasal secretions, discharges from ulcers, fluid from bullae and in the pus from pustules, the acid fast bacilli of leprosy has been found.

Pain. This symptom varies so considerably in all patients that it is probably of little value. It differs in degree during certain phases of the disease and the patient's general health has much to do with it. The difficulty in ascertaining the degree of pain is increased by anesthetic and hyperesthetic areas. Neuralgia or so-called rheumatic pains of a very indefinite origin are common, excepting with the anesthetic cases. These pains are most frequently complained of at night time, severer in cold weather, of varied duration, and apparently not associated with other symptoms. Often during a febrile attack such neuralgia-like pains are present but are not to be confused with the same pains as stated above.

Localized pain with swelling and inflammation usually precedes an ulcerative process. It may be totally relieved when there is a free discharge and subsidence of the swelling, or it may lessen and be of longer duration. The pain is often so severe that sedatives and opiates have to be prescribed. The accompanying symptoms have already been mentioned.

Pain as a result of nerve involvement in leprosy, such as occurs with the optic nerve, will not be dealt with here. Pain, associated with all the signs of inflammation of the eyes and eye lids, is usually severe, the itching, burning and lacrymation being especially troublesome, and does not respond easily to treatment. The eyesight is affected only after a long time, when the inflammation and its after results, affect the deeper tissues of the eye. Headache, unless occurring with or during febrile attacks, are of so obscure an origin, that its analysis is useless.

Burning and itching are common complaints. Burning or warm sensations are usually so vaguely described and so indefinitely localized, that they may simply be mentioned here as a symptom commonly spoken of in leprosy. Itching and biting sensations are not rare and are usually referred to the back and abdomen; they are generally associated with a dry condition of the skin. The itching is readily relieved with salves or ointments, and consequently is probably not indicative of actual peripheral nerve involvement.

Sweating. It has been stated that sweating is a symptom common to leprosy, but from the cases studied here it has been impossible to determine it as such. The systemic disturbances are so marked in the advanced stages of the disease, when nervous symptoms, exhaustion, weakness and the anxiety of the patient are all present, that it is questionable indeed whether we should view sweating as a symptom of the disease. Sweating, as is well known, is concomi-

tant with chronic exhausting diseases, such as tuberculosis, and it is in all probability the same with leprosy. In leprosy sweating often follows the severe chills during the febrile attacks when the patient is certainly in a low physical condition.

Chills. The patient may at irregular intervals suffer from true chills, as has already been mentioned, and at such times as active inflammatory changes take place, and tissues break down, and ulcers occur. It is possible to consider such chills as the result of the softening and breaking down of nodules and other areas of infiltration and that the bacilli, or their toxic properties, are then set free and taken into the blood stream with the resulting disturbance. Chills with septic infection, typhoid and malaria, are of course well known, and the analogy here is not at all far drawn. These chills are often severe, with great systemic disturbance, the patient is prostrated, the temperature may rise three or four degrees or suddenly drop to subnormal, with the pulse essentially agreeing with the temperature. The chills last from a few minutes to the greater part of an hour, and may occur as often as four or five times in twenty-four hours; or again there may be a single chill, without recurrence for months.

Apart from the occurrence of true chills, chilliness is often a complaint, and more marked with the patients who are anemic. Chilliness may be complained of on the brightest and sunniest days and when the patient is free from all other symptoms and is not associated with digestive or intestinal troubles. The question of the blood picture during true chills will be dealt with in another note. In the anesthetic cases here, no chills or feeling of chilliness has been noticed, it being most noticeable in the far advanced tubercular leprosy patients.

NOTES AND CONCLUSIONS.

A. When the disease is advanced the patient's health varies daily; he feels exceptionally well one day and the next presents every symptom and appearance of a seriously sick person.

B. In comparison to the severe symptoms and general appearance of the patient, physical examination will reveal nothing. Lungs and abdomen are normal, and with the exception of a soft systolic murmur over the precordia, the heart is normal.

C. During eruption the skin is usually hot and dry.

D. Extreme mental depression at irregular intervals and nervousness are characteristic of every case.

E. Ulcers may heal rapidly and continually, or, as is seen in one or two cases, they become chronic and refuse to respond to treatment. Medicinal treatment varies in each case; in leprosy this fact is particulary accentuated.

F. The clinical symptoms of leprosy, although somewhat confused and often indefinite, are, nevertheless, correct symptoms of the disease and in the care and treatment of leprosy patients, are to be carefully observed and seriously considered. The consideration of the pulse, temperature and blood are so important and instructive, that a more careful study is being made and will, in all probability be reported in the future.

In conclusion I wish to thank Dr. Frank H. Parker, superintendent Penikese Island Hospital, for his kindly advice and criticism in the preparation of this paper.

INSTITUTIONAL DENTISTRY: METHODS: RESULTS. REPORT NO. 2.

BY FREDERICK A. KEYES, D.M.D., BOSTON.

In the issue of the Boston Medical and Surgical Journal of July 25, 1912, there was printed an article entitled "Institution Dentistry: Methods; Results," in which I submitted to the medical profession a report of dental work done at St. Vincent's Orphan Asylum, Boston, and its relation to the infectious diseases of childhood. This statistical report, showing the great decrease of infectious diseases at the orphanage after the establishment of a dental infirmary, amazed even the most enthusiastic propagators of oral hygiene.

Owing to the frequent inquiries regarding the progress of the work since the publication of this article and the many urgent requests for further information, I have deemed it expedient to submit the following report of the last 18 months' work.

The number of children at the Asylum January 1 1912.....	227
Children received during the year	76
Children cared for by the Home during the year.....	303
Children taken out by relatives...	121
Children in Asylum Jan. 1, 1913..	182

The system of dental work remains the same. The inspection of the children monthly to see that they are keeping their mouths clean and the admonition of the few that are negligent in this respect has been rigidly observed. The tooth brush brigades, led by the older girls, are accomplishing the desired results, *i.e.* teaching the younger children how and when to brush their teeth, so that the habit thus formed in childhood may continue throughout life. A nitrous oxide oxygen apparatus has been installed and found to be a most valuable, though expensive, adjunct in the elimination of pain.

The following statistics contain the record of work done for the past 18 months. For those who have not read the first article, statistics for the first 18 months are included,—with a partial account of the money expended for materials necessary during that period:

	Nov., '10 to May, '12	May, '12 to Nov. '13
Total number of different patients examined	349	303
Total number of cleanings	272	350
Total number of cement fillings	25	45
Total number of amalgam fillings	72	76
Total number of cement amalgam fillings	69	60
Total number of temporary fillings	130	180
Total number of oxphas cu. fillings	9	57
Total number of teeth extracted (temporary)	290	102
Total number of teeth extracted (permanent)	131	51
Total number of abscesses opened	42	21
Total number of gums cut for permanent teeth	19	9
Total number of plastic operations	3	0
Total number examined and treated	1421	1254
Total number of fillings (including temporary)	315	418
Total number of teeth extracted (including temporary)	421	153
Total time spent (hours)	210	190

Account of Expenses.

Initial cost (chair, engine sterilizers, brushes, etc.)	$125.00	
Supplies for 18 months	66.63	
Nitrous oxide oxygen apparatus (initial cost)		$86.15
Supplies for 18 months, including gas and oxygen		75.00
Totals	$191.63	$161.15

A study of the above tables will show the great number of teeth filled and the few extractions necessary in the last 18 months in comparison with the preceding 18 months. It is hoped that, after all cavities in the mouths of the permanent inmates of the Asylum are filled, the future work will be solely prophylactic treatment (cleaning). But every year there is an influx and exit of from 75 to 100 new children. Therefore, extraction and filling will necessarily be the first important factor. After filling and extraction are completed, the cleaning of the teeth every three months by the dentist and daily by the patient is expected to prevent future caries in the children's mouths. Contrary to the usual routine, dental repair work is done on the older girls in preference to the younger ones, since the older girls are liable to leave the Asylum first and it is our desire to send them out into the world with mouths free from all carious cavities. Odontalgia has been practically eliminated.

Below is printed a table containing the number of infectious diseases occurring at the Home in the last 36 months, together with statistics of previous years.

RECORD IN REGARD TO INFECTIOUS DISEASES.

	1907 1908	1908 1909	1909 1910	Nov., 1910 Apr., 1911	Apr., 1911 May, 1912	May, 1912 May, 1913	May, 1913 Nov., 1913
Diphtheria	6	2	1	0	0	0	1
Mumps	8	3	10	4	0	0	0
Scarlet fever	17	8	12	8	0	0	0
Pneumonia	3	5	4	6	0	0	0
Measles	24	50	40	25	0	0	6
Tonsillitis	19	16	8	3	0	0	0
Whooping cough	7	2	2	0	0	0	0
Chicken pox	15	17	10	6	0	0	0
Typhoid	0	0	0	0	0	0	0
Croup	4	0	0	0	0	0	0
Spinal meningitis	0	0	0	0	0	0	0
Scarlatina					0	0	0
Bright's (acute)						0	0
Hemorrhage							0
Tuberculosis of eye					1		
Tuberculosis of lungs					1		
	103	103	87	52	2	0	7

From the above data it may be seen that in the last 36 months only 7 cases of infectious diseases have occurred at the Asylum. Of these 6 were measles, one of which was contracted before or immediately after admittance to the Home. The disease spread to 5 children, permanent inmates of the Asylum. The mouths of all six patients were carefully examined and found to be in need of dental treatment. Whereas in previous years 40-50 children were stricken down with measles this year only 5 children contracted the disease. The one case of diphtheria also occurred in a new girl. Examination of her mouth showed great need of dental work.

What is the cause of this elimination of disease from St. Vincent's Orphanage immediately after the beginning of dental work and the continuing of this immunity for a period of three years? Dentists need no longer claim to be great prophylactic agents in the field of medicine; for the above statistics demonstrate convincingly the immunity acquired from infectious diseases of childhood after the proper treatment of the child's oral cavity.

For many years dentists have spent much time and effort in compiling and presenting statistics showing the relation existing between carious teeth and infectious diseases of childhood. In many large cities these efforts are bearing fruit. It is, however, hard to understand why there should be so much delay in some parts of this country, especially in Boston, in meeting this problem. At present there exist in other municipalities many methods of handling the public school question, most of which are still in the experimental stage but are nevertheless accomplishing a great deal of good. In Boston, however, the dental question is most unsettled. Spasmodic attempts, most of them theoretical, to remedy this defect in the past have been unsuccessful. At present, even with the new Forsyth Dental Infirmary, the results predicted will be merely scraping the surface. The

Forsyth Dental Infirmary in full working order will be able to handle only a part of the carious cavities now existing in the mouths of the Boston public school children. The good that is to be obtained from this great philanthropy cannot be over-estimated; but without the co-operation of the City of Boston and the medical profession the desired results will fall short.

Establishment of school dental clinics working harmoniously with the Forsyth Dental Infirmary, to my mind, is essential in handling the 100,000 children in the Boston public schools. The 64 chairs at the Forsyth Institute are inadequate to meet the needs of the public school children.

Paid dental inspectors should be appointed by the City after competitive examinations similar to those now in vogue for the school physicians. To permit school nurses to act in the capacity of dental inspectors is indeed a sad commentary upon the importance of this great field of medical science. Nurses are no more competent to judge between dental conditions needing immediate care than they would be in diagnosing adenoid or tonsillar diseases.

Paid dental inspectors are necessary to handle the public school question. Even though the time has not yet come when school dental infirmaries are to be established necessitating dental inspectors in the public schools, even now under the present conditions the Forsyth Institute is in dire need of inspectors in the schools to send them cases needing immediate treatment.

Dentists are very apt in their over enthusiasm upon this subject to momentarily offer their services free to the municipalities. But no work of any great value requiring all a man's working hours was ever well and properly done without monetary compensation.

Progress in school dentistry must come. Further agitation should not be necessary. Physicians should co-operate with dentists and school authorities to demand that steps be taken to eliminate the present conditions existing in the mouths of the public school children.

A FURTHER REPORT ON THE MAYO-GILLIAM OPERATION FOR RETROVERSION OF THE UTERUS.

BY HAROLD W. BAKER, M.D., BOSTON,

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As pointed out in a previous paper,[1] the best method for the treatment of retroversion of the uterus, is the operative treatment, wherein the Mayo modification of the Gilliam technique is used. The steps of this operation have been gone over in the previous paper, and we do not need to refer to them again.

The three classes of operations performed by the best authorities for retroversion, may well be described here with their results. They are:—

1. Hysterorrhaphy, which may be divided into two classes, namely
   a. Suspension.
   b. Fixation.
2. Intraperitoneal shortening of the round ligaments.
3. Extraperitoneal shortening of the round ligaments.

By suspension, we mean the mere suturing of the uterus to the peritoneum. This method has proved by long and extensive use to have too many recurrences to justify the continuance of this attempt to cure. This fact was shown in the first paper[1].

By fixation, we mean the suturing of the uterus to the abdominal fascia. This procedure, on the other hand, has demonstrated that it actually does accomplish the purpose for which it is done. The objection to fixation is not failure to do what it purports to do, but that complications from it[6] are too serious and numerous to warrant doing it during the child-bearing period. There is a fault common to both suspension and fixation, in that they are not anatomically justified, for the uterus is normally a movable organ, and they both attempt to immobilize the uterus.

We believe that the intraperitoneal shortening of the round ligaments, as done by Baldy[4], Webster,[7] Coffey[3], and others, is giving much better results than it did five to ten years ago, when we saw a recurrence in thirty-one out of thirty-five cases[1]. We object to this procedure, however, as it utilizes the weakest part of the ligaments to do the heaviest part of the work. The chance for recurrence is still very great.

The extraperitoneal shortening of the round ligaments, the Alexander type of shortening[2], is good, but it has a moderately high percentage of failure. The reason for this percentage[1], is due in all probability to the fact that adhesions of the uterus are not easily recognized even when the patient is fully anaesthetized. The operation utilizes the strongest part of the ligaments, and it does not interfere with the normal motility of the organ. There is one distinct disadvantage to this operation, and that is that the surgeon is unable to examine the other abdominal organs.

We have begun to emigrate from the old idea that the best surgeon is the one who makes the smallest incision, and who does the least exploring. The patient is apt to embarrass her surgeon, a year or two later, if she comes back to him (or to another), with other abdominal trouble which might have been found and relieved by abdominal exploration at the time of the former operation. We prefer to know that the abdomen is completely negative, rather than to go on any assumption. The knowing adds nothing to the risk of the operation, and it adds much to the mental comfort of the patient, and

incidentally of her surgeon. We discard the idea that because a patient has one apparent trouble, she may not have another less apparent one.

The Mayo- modification of the Gilliam operation[5] for retroversion, comes nearest of all methods, to restoring the uterus and its supports to their anatomically normal position. It does this, moreover, by utilizing the strongest part of the round ligaments. It also permits the free exploration of the abdomen. At the present time, from personal knowledge of the conditions of the pelvis of all the cases cited both in this paper and in the previous one,[1] we believe that the after results of this technique are as good if not better than those of other operative procedures. These cases are taken from the clinic of The Free Hospital for Women, Brookline, Massachusetts, and from private practice. In support of our beliefs, we desire to submit the following table of cases, dividing the cases into groups of six months each, as regards the elapsed time since operation.

TABLE OF RESULTS FOLLOWING THE MAYO-GILLIAM OPERATION FOR RETROVERSION.

No. Mos.	No. Ops.	Children.	Pregnancies.	Recurrences.
0-6	25	0	0	1
7-12	24	0	0	0
13-18	28	0	0	0
19-24	11	1	1	0
25-30	16	3	3	0
31-36	21	1	1	0
37-42	6	0	0	0
43-48	13	3	3	0
49-54	3	0	0	0
55-60	21	2	2	0
61-66	2	2	2	0
67-72	1	0	0	0
Totals	171	12	12	1

A study of the table shows clearly that the uterus suffers no inconvenience on account of the Mayo-Gilliam operation. None of the women have had any further trouble referable to the uterus, and the ten who have had one or more pregnancies, have had perfectly normal labors in every way. Two of the women have each passed through two uneventful pregnancies, their labors presenting no abnormal features. Putting it in percentages, we find 7% of our cases have gone through pregnancy without any trouble, and as they all were free from complication of any kind, 100% of the pregnant cases had no trouble from the operation. We have had only one half of one percent of recurrence. This one recurrence is easily understood, as the patient developed the retroversion about three months after operation, and we believe that it was due to a cutting out of the suture material used. Later, she was again subjected to a laparotomy for another trouble, and a second Mayo-Gilliam performed, and this time no recurrence took place.

In conclusion, we must, with these results before us, reaffirm our statement that the Mayo-Gilliam operation for retroversion has proved to be the best of any from anatomical, functional, and curative viewpoints.

We wish to thank Dr. Donald V. Baker for his kind assistance in the compiling of this paper.

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Clinical Department.

APPENDECTOMY IN A BLEEDER. BLOOD IN VOMITUS AND STOOLS. MASSIVE HEMATOMA AND ECCHYMOSIS. RECOVERY.*

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In the early evening of August 11, 1913, I saw Mr. H——, a travelling salesman of 25.

Three days before he felt "logy" and after a hurried luncheon of crackers and cheese he experienced a sense of fulness and distention of the upper abdomen which persisted throughout the afternoon and evening but did not prevent sleep. The following morning he had pain in the epigastrium but no nausea or vomiting. In the afternoon the pain shifted to the lower abdomen and his head began to ache. Yesterday he felt feverish, and pain in head and lower abdomen persisted. In the evening a dose of salts was taken. This morning he felt better, headache had gone, only tenderness in right lower quadrant remained. This afternoon fever and pain in lower abdomen returned. There has been some nausea but no vomiting. The pain has become acute. Bowels had moved daily till today, movements painless and without blood. No difficulty with urine. No cough or pain in chest. He had never previously had any "indigestion." A year ago he was under my care for subdeltoid bursitis. One brother had been operated for appendicitis in the presence of peritonitis and had died.

A tall, spare youth with flushed cheeks, hot skin, dry lips, and tongue with slight white coat. Pupils equal and reacted equally to light. Heart and lungs showed nothing abnormal. Abdomen was flat, not distended, tympanitic throughout with much tenderness and spasm in right lower quadrant but no palpable mass. Liver, spleen, and kidneys not felt. No costovertebral tenderness. Lateral compression of lower costal cage not painful. No inguinal hernia. Genitals negative. Knee jerks equally active. No ankle clonus. No edema or jaundice. Questionable tenderness by rectum high on right. Temperature 101. Pulse 100. White count 16,000. Urine, high

* Reported before Surgical Fortnightly Club, Nov. 25, 1913.

color, clear, acid, sp. gr. 1022, slightest possible trace of albumin, no sugar. Abdominal pain was relieved by lying down with right leg drawn up.

A diagnosis of acute appendicitis was made and two hours later he was on an operating table under ether (preceded by nitrous oxide) with pin-point hemorrhages over the freshly shaved pubes. My assistant's apology was dismissed with pleasantry about hospital razors. A 3½-inch incision was made over the right rectus muscle midway between umbilicus and pubes. The anterior sheath of the rectus cut, the muscle bluntly divided longitudinally, and the deep epigastric picked up either side of the wound, cut, and double tied. The wound was a pool of blood. A number of vessels were picked up but as the ooze seemed general a sponge was laid against either side of the wound and held by retractors. The peritoneum was opened without incident. The appendix was felt behind the cecum. The cecum was raised. Although the manoeuvre was gentle, a patch of hemorrhage immediately developed in the wall of the cecum and tongues of blood spread peripherally apparently just beneath the serosa. A short, swollen, injected, unruptured appendix was delivered rather readily, after breaking a few fine, fresh adhesions and snapping and cutting an old band. The meso-appendix was clamped and cut in sections from tip to base. The right quadrant was then filled with blood. This was sopped out, the appendix tied off, cut, and the stump touched with carbolic acid and alcohol. The clamped portions of meso-appendix were tied off. Still the mesentery-line oozed smartly. Several extra ties and a couple of interrupted sutures checked but did not stop the ooze. The abdomen was closed tightly in layers, the peritoneum continuously, the fascia and skin interruptedly. A few through-and-through sutures down to the peritoneum had been placed. It was necessary to sponge continually while closing the belly wall. Everything bled. Every stitch hole was a new bleeding point. Anticipating a hematoma in the wound, several folded-pieces of gauze were placed over it and held snugly against it with tightly-placed adhesive straps. A large pad and firm binder completed the dressing. Although considerable blood was lost, the character of the pulse was always fair, never alarming.

To keep blood pressure down he was given no fluids during the night and two small doses of morphine to combat restlessness. The improvement was remarkable. The next morning (8 A.M.) the pulse was 68 and of good quality. Liquids without milk were started; 33 ounces were given up to midnight, he had two stools after an enema, and voided 18 ounces. At 2 P.M. he vomited 2 ounces of very dark brown liquid, very similar to the vomitus of peritonitis. Vomiting of similar character occurred at 4.30 P.M. 12 ounces, and the next day 4.45 A.M., 7 ounces, 12.30 P.M. 16 ounces, 5.30 P.M. not measured. The stools were all of old blood and occurred as follows: August 12, 4.30 and 5.00 A.M. after enema, 12.15 P.M. voluntary, 4.45 P.M. after enema, 6.45 P.M. voluntary, 9 P.M. voluntary; August 13, 3.30 A.M. after rectal tube. The temperature rose to 102 and pulse to 90 August 12, 4 P.M. Removal of the dressing revealed the incision elevated on a rounded prominence about 5 inches long and 2½ inches wide of purplish blue color and of firm consistency, evidently a massive hematoma. Extending from this to edges of the pad was a paler ecchymotic field. At the edges and just beyond the edges of the pad the ecchymosis was more intense. Extending from this field were strips of ecchymosis marking the edges of the adhesive straps. These extended well into the flanks. Beneath the straps there was no discoloration. The abdomen was soft, tympanitic, and peristalsis was evident by auscultation. Another examination of the urine was negative (slightly high color, clear, acid, no albumin, no sugar). The vomiting was always of the expulsive rather than the overflow type. For 24 hours he was denied anything by mouth, given 8 ounces of salt solution by rectum every 4 hours and morphine subcutaneously to keep quiet. Vomiting promptly ceased. For eighteen hours longer the rectal salt was continued with the addition of 3ii soda bicarbonate and 3 ounces of water with 3i of soda bicarbonate was given by mouth every 2 hours to combat the acidosis which might well occur after practically 3½ days of starvation. The soda and enemata were then omitted and soft solid diet immediately instituted. Convalescence was henceforth uneventful. The ecchymosis gradually worked down onto the penis, and became general over the abdomen, and then began to fade. From the discovery of the hematoma the wound was covered daily with alcohol dressings. The stitches were removed on the seventh day and the hematoma, then much reduced in size, evacuated through a director thrust. The wound stayed clean, oozed serum for several days, and closed. He was up and about the room on the twelfth day and discharged to his home on the fourteenth day. I saw him one month later (Sept. 20). He was looking and feeling well. The wound was strong and solid and the ecchymosis only very faintly evident. Seen again on October 12 in perfect health. Reported by telephone November 30 that he was in excellent condition.

Just before his discharge from the hospital I obtained the following history which I had failed to obtain before operating.

About three or four years ago had two or three teeth extracted. Bleeding continued for three days although he made several trips a day to the dentist who used various astringents and packings.

Two years ago he fell on the ice, striking his hand and splitting open the tip of one of his fingers about one-quarter inch. This bled for two days despite bandaging and stopped only after suturing.

Whenever he cuts himself shaving, he bleeds much more than most people, he thinks, and it may even keep him from attending his business.

In his family history I find no bleeders. Father, mother, two brothers, and one sister are living and well. One brother died at 22 of peritonitis following appendicitis. One brother died at 11 months of some spinal trouble.

Reviewing the events of the convalescence we do not find the picture of peritonitis or intestinal obstruction, certainly not of acute dilatation. Although the appearance of the vomitus was that of peritonitis it was always of expulsive character. Again the bowels moved spontaneously several times, gas was voluntarily passed and peristalsis was always evident by auscultation. Again the belly was comparatively soft. It was certainly not spastic, even about the wound. True, the temperature and pulse rose (temperature 102, pulse 90) but came down to 99 and 80 within 24 hours with general improvement. The expulsive character of the vomitus, the evidence of peristalsis by

auscultation and a few movements would not be inconsistent with obstruction. The number and bulk of the movements and lack of distention or tenseness of abdomen argue against this diagnosis. The evident explanation is as follows. Haemorrhage into bowels (appearance of stools and vomitus) and absorption of extravasated blood (rise of temperature and slight rise of pulse). At operation gentle traction of caecum to expose appendix caused haemorrhage into wall of caecum and probably from mucosa. Just before closing abdomen it was seen that there was no Lane's kink or Jackson's membrane. The pyloric end of the stomach, the duodenum and the gall bladder were felt and were apparently normal. This added manipulation, although usually not appreciably harmful, may have amounted to trauma in this case. Although there may have formed a hematoma in the region of the caecum, it seems unlikely that the rise of temperature was due to its infection, although readily possible in the bed of an appendix subject to only catarrhal inflammation; for the temperature dropped within 12 hours to 99 and rose only once again to 100.

I am led to place this case on record for two reasons.

First: As a reminder of this as a serious surgical complication and as a reminder of what I believe very common negligence, failure to make inquiry about bleeding in obtaining the history, especially in acute conditions.

Second: On account of the unusual symptom complex: rise of temperature and pulse, vomitus of the appearance of that of peritonitis but expulsive in character, belly without spasm and comparatively soft, stools of old blood and some copious and voluntary, and massive hematoma and ecchymosis of abdominal wall.

Medical Progress.

PROGRESS IN OPHTHALMOLOGY.

BY EDMUND W. CLAP, M.D., BOSTON.

TUBERCLE OF THE CHORIOID.

Marple[1] has reported on tubercle of the chorioid in tuberculous meningitis. From 1908 to 1911 there were 128 cases seen by him, the percentage showing tubercle of the chorioid not exceeding 5%. Carpenter and Stephenson had found it in 50% of their cases. For the first six months of 1912 thirteen cases of tuberculous meningitis in children entered the hospital and were examined under atropine and with an electric ophthalmoscope several times a day, and in every case tubercles of the chorioid were found sooner or later. Cases negative one day would show them the next day, and even a case without them at one examination would show one or more four hours later. He found small miliary tubercles, round or oval in shape, rarely irregular, of a greyish or grey-white color, usually without any pigment, with a moth-eaten edge, and varying in size from the breadth of a primary retinal vessel to a mass the size of the optic papilla or larger. In the greater number of cases they are limited to one eye and usually not far from the optic disc. Papillitis was found in four out of nine cases, and in three of these it was double. The author has never seen any exudation on Descemet's membrane in cases of tubercle of the chorioid.

VAN LINT'S OPERATION.

Van Lint[2] has proposed a method of avoiding prolapse of the iris after cataract extraction, which has been more or less tried by other operators this year. Before making the incision the conjunctiva is detached corresponding to the upper half of the corneal limbus and dissected from the sclerotic upwards 8 or 10 mm. A silk suture is inserted into this loosened conjunctiva on each side and the lower end of each suture passed through the conjunctiva below the horizontal meridian of the cornea, so that when they are tied after the extraction, the detached conjunctival flap glides in front of the corneal wound and covers about the upper fourth of the cornea. After the regular extraction the sutures are tied and the threads cut off close to the knots. The conjunctiva gradually retracts and from the second to the fifth day it has receded from the cornea. This procedure does not lead to any nutritive change in the cornea nor to astigmatism.

SENILE CHANGES IN THE EYE.

Attias[3] has investigated senile changes found in the human eye. Most authors, including Parsons, attest the presence of fat in the arcus senilis, but Fuchs called it a hyaline degeneration, and Leber traced calcium salts in the arcus. Attias with modern methods has shown that neither hyaline substance nor lime salts are a possible cause of the opacity, and he also proves that the substance reacts in all respects like fat. The author found fat granules even in the corneal epithelium and in Bowman's membrane. The middle strata of the cornea are as a rule the last to be affected by the deposition of fat. In some cases even the endothelium of Descemet's membrane had fat droplets in the protoplasm. Vollaro has found fat in the anterior part of the sclera in old eyes. Takaysu has confirmed this. The iris of aged persons may show partial or complete disappearance of the pigment layer at the pupillary margin and the tissue here and behind the sphincter may change into a hyaline mass. The fibres of the ciliary muscle are much thinner than in young subjects. The interfibrillar tissue is increased in amount and may

show a little fat. The ciliary processes show much increase in connective tissue and this may assume a hyaline aspect. In true gerontoxon lentis the capsule of the lens is normal, but the peripheral fibres have vacuoles in and around their nuclei and finally large spaces form and numerous fat drops. The eye muscles show a greater variation in size of fibres than in youth and the nuclei are often rounded and irregular. Fat is found here, too. In the nerves of the anterior segment of the eye degenerated fibres are more abundant in age than in youth.

MICRO-ORGANISM OF PARINAUD'S CONJUNCTIVITIS.

Verhoeff[4] has described a filamentous organism which he believes is the cause of Parinaud's conjunctivitis. The disease has been thought to be of animal origin and infectious, though no specific micro-organism has been hitherto found. Verhoeff and Derby have shown that the lesions in Parinaud's disease are histologically characteristic. While some recent observers have contended for the tubercular origin of this disease, their cases did not show the typical histology and were probably cases of conjunctival tuberculosis. The author has examined twelve cases histologically. Each was monocular and showed conjunctival granulations with areas of cell necrosis and enlargement of the preauricular lymphatic gland. The characteristic feature is the occurrence of focal areas infiltrated with endothelial phagocytes in various stages of necrosis. These cells are not close packed but discreet. There is a relatively small proportion of lymphoid and plasma cells in the areas but almost no pus cells. These areas, .3 to .5 mm. in diameter, are usually just beneath the epithelium. Surrounding the areas of cell necrosis the tissue is densely infiltrated with plasma cells. These twelve cases clinically as well, were cases of Parinaud's disease. By the method of fixation and staining detailed by him the author has demonstrated in the areas of cell necrosis in sections and also in tissue scrapings a filamentous organism occurring in masses. A high power shows these masses composed of intertwined delicate, faintly staining, singly contoured filaments. At almost regular intervals along the filament round dots occur which stain intensely by the modified Gram method. These are never exactly centered in the axis of the filament but project beyond its surface. The dots are seldom all of one size on one filament. In tissue scrapings filaments 30 micra in length may be seen. In eleven out of twelve consecutive cases these were found and in the one case the material was insufficient. The absence of any other demonstrable micro-organisms, their unusual character, their great abundance and the fact that they were so situated as to explain the lesions make it reasonable to regard them as the cause of the disease. Since no branching of the filaments could be made out they may be classed for the present as a leptothrix.

VISUAL SYMPTOMS OF SINUS DISEASE.

Fridenberg[5] calls attention to the visual symptoms of accessory sinus disease. Many symptoms of progressive sinusitis are ocular or orbital. We have nerve irritation in the form of reflexes or from direct action of toxic substances, mechanical pressure of hyperemia. So we get lachrymation, clonic or tonic spasm of the lids, fleeting edema, transient conjunctival or scleral injection, miosis, and occasionally spasm of accommodation. We may have transient rise of intraocular tension, with prodromata, or an actual attack, of acute glaucoma disappearing promptly under treatment of the sinus. Fleeting pain of eyeball, brow or temple, or even severe pain of a hemicranic type may belong here. Accommodative, conjunctival, muscular or retinal asthenopia is not infrequently found in cases of long standing accessory sinus disease. In scintillating scotoma the sinus should be examined. Of course mechanical involvement of nerve, muscle or eyeball is well known. The sinuses should always be considered in retrobulbar neuritis, especially posterior ethmoid or sphenoid disease and the optic nerve involvement may be not only mechanical but a toxic one analogous to tobacco or lead. In a large series of cases of disease of the posterior sinuses Van der Hoeve[6] noted an invariable enlargement of the blind spot.

ANAPHYLAXIS IN OPHTHALMOLOGY.

Szily[7] treats of anaphylaxis in ophthalmology and says that experiments have been made in two directions. One group busies itself with the question of the antigen working of various tissues of the eyeball in general anaphylaxis. Another question of greater practical importance is whether it is possible to bring the entire organism into a state of anaphylaxis from the eye. It is possible with heterologous proteid, but doubtful if it can be done from an animal's own tissues. So far, anaphylaxis has been suggested as playing a part in two eye diseases, sympathetic ophthalmia and interstitial keratitis. Elschnig[8] in a series of studies explains the nature of sympathetic ophthalmia by assuming that in severe lesions of the eyeball or in severe spontaneous inflammations of the uveal tract, uveal pigment in antigen form is absorbed and brings about a sensitization of the entire organism to this antigen. Then there needs only a pathological process with even slight pigment changes in the other eye, and a local anaphylactic reaction ensues. The sensitization from absorption of antigen in the first eye acts not only on the uvea of the second eye but also on the retained uvea of the first eye and keeps up a continuation of the disease, which spreads through the uvea under the same pathological picture as in the second eye. Von Hippel has offered several grave objections to this view, however, but it affords grounds for interesting speculations.

Peters[9] refers to the occasional disturbance of hearing in sympathetic ophthalmia and the possibility that the normally present pigment in the labyrinth plays a rôle therein. He shows that the deafness, in some of these cases at least, is not due to meningitis. Szily quotes Wessely's experiments on rabbits, of injecting one or two drops of sterilized inactivated horse or steer serum into the parenchyma of the cornea near the upper limbus. Two different effects followed: usually there was no reaction and the eye remained free from irritation, or after twelve to fourteen days there was a clouding of the deeper layers of the cornea above and deep vascularization. This reached its height in fourteen days and disappeared completely. If one injected foreign serum into the other eye at the time of this attack the characteristic inflammation appeared in this second eye, too. Arisawa and Szily found that if after fourteen days the first cornea be injected again whether the reaction had occurred or not, within twenty-four hours a marked infiltration of the deep layers over the whole cornea followed with signs of iritis. A third series of experiments began with the injection into one cornea and fourteen days later 4 c.c. of the same serum was given intravenously, at once the pupil of the injected eye contracted and remained so for some minutes, and then within twenty-four hours a typical picture of interstitial keratitis developed. Fourthly, an intravenous or subcutaneous injection of the serum followed in two weeks by an injection into one cornea gave in twenty-four hours the characteristic reaction. After a theoretical discussion of these results the author concludes that anaphylactic processes are concerned in parenchymatous keratitis and that this may throw some light on its occurrence after trauma. Analogous types of reaction have been observed in injection of serum, lens albumen or uveal tissue into the vitreous. The author thinks that the adjustment to or increased sensitiveness to chemical poisons differs so entirely in its nature that it should not be considered an example of anaphylaxis. Anaphylaxis or immunity is due only to antigen bodies and has a symptom complex independent of the sort of injected antigen and too hypersensitiveness to toxin or poison cannot be transferred to a normal animal through the blood serum as can anaphylaxis.

CHRONIC UVEITIS.

Fuchs[10] has made a very important study of chronic uveitis, the pathology of which he has been working on for a number of years. This covers the cases not due to syphilis, tuberculosis or sympathetic inflammation. Chronic uveitis includes iritis, iridocyclitis and iridochorioiditis and not cases of acute attacks with many recurrences, but only the cases that begin without or almost without evidence of external inflammation and so run on for years and only perhaps in the late stages, if at all, are associated with marked external inflammation. The patient notices his disease first by disturbance of vision. Objectively these cases are marked by deposits on the cornea, posterior synechiae, opacities of the vitreous and often by changes in the chorioid. It is conceivable that agencies noxious to the uveal tract may attack now one part and now another and an inflammation of the chorioid may slowly involve the iris and vice versa. If we wish to use a more definite name than uveitis we must decide on what clinical grounds we may make such a distinction. With visible changes in the iris tissue or posterior synechiae we are justified in speaking of iritis; with foci in the chorioid, of chorioiditis. In the numerous cases with no visible change in the iris, but with precipitates on the cornea and perhaps opacities in the vitreous, called serous iritis, the name iritis does not seem clinically justified. Despite the close connection of iris and ciliary body, involvement of one without the other may occur. The author has four cases, anatomically investigated, in which the ciliary body remained free during long continued inflammation of the iris and these were by no means light cases of iritis, one having seclusio pupillae. The question whether cyclitis occurs without iritis is not to be answered exactly, though with dense precipitates on the cornea the iris may show a very slight infiltration anatomically and none clinically. In the author's opinion chronic cases of unmixed cyclitis occur in the cases of heterochromia of the iris with precipitates in the lighter colored eye. These cases do show a peculiar atrophy of the iris tissue. The signs in the iris may be almost negligible with a very marked cyclitis, so Fuchs speaks clinically of chronic cyclitis in these cases with precipitates on the cornea and without perceptible changes in the iris. Precipitates are a frequent but not indispensable sign of chronic uveitis; they may be present at times and then absent in the course of a disease extending over years. They merely show the lymphocytic nature of the exudate and therefore the chronic course of the inflammation. The fresh inflammatory changes consist in cellular infiltration of the uvea with immigration of cells into the aqueous and into the anterior part of the vitreous. The older changes are proliferation of tissue, especially of the ciliary epithelium, adhesion of structures to each other and organization of membraneous exudates. The cells found in the aqueous and in the tissue of the uvea are mostly lymphocytes, as is the rule in chronic inflammatory processes. The kind of cells found in the exudate depends on the intensity of the inflammation and not on the nature of the exciting cause. Many of these lymphocytes later undergo a change, their nuclei become larger, longer and lose some chromatin, and the protoplasmic body larger. These large lymphocytes are relatively scarce in the tissues but form the majority in the anterior chamber exudate. In the tissue we meet also scattered polynuclear leucocytes, mast cells, eosinophiles

and plasma cells; the mast cells frequent, the eosinophiles rare. Occasionally plasma cells are found almost exclusively. The characteristic exudate is the precipitate on the cornea; anatomically this occurs in two forms which may be called pseudo-precipitates and true precipitates. In cases of the pseudo precipitate a continuous cell layer which is of unequal thickness covers the posterior surface of the cornea. In places there are gaps, in other places it is heaped up. The endothelium is frequently altered under the deposit. The pseudo-precipitate occurs most often in mild traumatic iritis. True precipitates occur in endogenous iritis. Of course exceptions are found. The true precipitates are fairly compact, well defined clusters of cells sometimes almost spherical, like little hills with steep sides, or flat on top and with a surface irregular from projection of cells. Between the separate precipitates Descemet's membrane is either entirely clear or here and there spotted with single cells or with a few grouped together. Under the true precipitates the endothelium is normal, perhaps under large and old precipitates there may be a gap. In the case of pseudo-precipitates the leucocytes in the aqueous singly become attached to the cornea; in true precipitates leucocytes free in the aqueous unite into balls and then, as a mass, become attached to the cornea. A further growth of these is not excluded or neighboring ones may coalesce. True precipitates mark spontaneous chronic iritis, pseudo-precipitates mark the more acute cases, especially those of traumatic origin. Clinically, strong magnification may show the pseudo-precipitates as small dots, not regularly round and not sharply outlined, and white or gray. True precipitates are small, but sometimes larger, fairly round, sharply outlined, often yellowish or brownish. They may remain months while the pseudo-precipitates are of short duration. Both kinds of precipitates are composed chiefly of lymphocytes which are larger than those forming the exudate in the iris. In precipitates of short duration the cells are clear, well stained, and granular, while in older ones the cells run together, stain poorly and are little, or not at all, granular. Occasionally isolated polynuclear cells are found and often fibrin. Pigment granules are common like the chromatophores of the uvea, sometimes in large spheres giving a black or brown color to the precipitates. The precipitates are distributed by centrifugal force over a triangular area, or chance may govern their arrangement or their situation may correspond to an inflammatory focus in the cornea. Resolution of the precipitates begins at the base and they disappear in most cases without leaving a trace or they may become darker with time and remain permanently. Rarely the precipitate organizes to connective tissue. The question of the origin of the leucocytes which form the precipitates is yet undecided, some authors favor origin from the iris, others from the iris and anterior part of the ciliary body together. Both these regions and the posterior part of the ciliary body as well can give rise to precipitates. Deposits occur on the iris and on the lens capsule in the pupillary space and may be seen on the tissue of the iris, when they are large enough. Fuchs thinks the old view right that precipitates on the iris and in the pupil occur when the patient lies on his back, as during sleep. True precipitates do occur on the retina.

From a clinical standpoint we may distinguish three groups of endogenous chronic uveitis: (1) Light cases with precipitates without posterior synechiae; a chronic cyclitis lasting years without much change. The first serious complication aside from opacities in the vitreous may be increase of tension. In this group may be placed the cases occurring in heterochromia iridis. (2) Cases of medium intensity with posterior synechiae as well as precipitates. In time seclusio pupillae may result. (3) Severe cases ending in atrophy of the eyeball. Of course these groups grade into each other. Now anatomically we may make five groups: (1) Cases with changes in the iris (and often in the chorioid) without involvement of the ciliary body. In the iris, light infiltration and later atrophy of the tissue, adhesions of the pupillary edge to the capsule and a membrane in the pupil only or also on the anterior surface of the iris. (2) Cases with changes in the iris and also in the ciliary body. (3) Cases with membranes in the interior of the eye on the ciliary body and often also on the chorioid. Total separation of the retina and atrophy of the eyeball often follows. (4) Cases with changes resembling those of sympathetic ophthalmia. (5) Cases with great infiltration of the uvea and also of the retina with necrosis of this organ. As to etiology, groups 1 and 2 may be attributed to a slight but continuous irritation working on the surface, probably from the presence of an irritating agent in the aqueous. Group 3 has organized membranes which are like those in exogenous uveitis after perforation. Some of our cases may have such an origin, though hardly the bilateral ones. Some may be of metastatic origin. Group 4 and 5 suggest a parasite in the tissues perhaps coming from the blood. The iridocyclitis after separation of the retina is of endogenous type and not caused by microorganisms but may be ascribed to the irritative agency of the subretinal fluid. Fuchs had 15 such eyes to study. An early case showed very slight infiltration of iris and ciliary body with lymphocytes and an adhesion of pupillary edge to anterior capsule. The older cases showed in one half of them, seclusio pupillae and pushing forward of the iris, and the half without iris bombé showed either (1) incomplete adhesion of pupillary edge to capsule or (2) a complete fusion of surface of iris to the capsule or (3) subluxation of lens or 4) increased tension. If the separation of the retina is not primary but secondary to an endophthalmitis there are characteristic membranes at the ciliary body and surface adhesion

of iris to lens and so no iris bombé. The inflammation often limits itself to the pupillary edge forming an annular synechia while on the posterior surface of the iris and the ciliary body there is no exudate. A membrane forms in the pupil and may extend on the anterior surface and also a little posteriorly on the capsule so as to take the pupillary edge between its two layers. New vessels may form in the anterior layer and if the pupillary edge is not entirely bound down, contraction may cause an ectropion of the pigment layer and sphincter. The stroma of the iris may be free from infiltration and show an atrophy of various grades or slight infiltration may occur like that in chronic uveitis. Two thirds of the cases show changes in the ciliary body either a light diffuse infiltration throughout or the pars plana alone may show the severer types. The chorioid even back to the papilla may be involved and very large "Drusen" of the lamina vitrea are found.

HYPOPHYSIS DISEASE.

Emory Hill's[11] paper should be read in full. His third section on the eye symptoms of hypophysis disease is abstracted as follows. Enlargement of the hypophysis, from its position, may produce a great variety of eye symptoms. Exophthalmos and other pressure effects are frequently absent and their presence does not aid in distinguishing between the acromegalic cases and those representing a hypofunctioning gland. Palsies of ocular muscles in fact are more frequent in the latter type. Authors give temporal hemianopsia in from 38% to 46% indicating that temporal hemianopsia is not essential to the diagnosis and we may recognize the disease long before this symptom is present. Cushing says: "The primary defect usually involves the color boundaries alone in one upper temporal quadrant and the temporal field is gradually involved. The color fields are involved first and the form fields later. The macula region, spared for a long time, is implicated first in its temporal half and then wholly. Rarely are the two eyes affected in an equal degree. Homonymous hemianopsia occurs in a number of cases. A great variety of contractions of the visual fields may be found. Color interlacing and daily variations in the fields are found frequently." Amblyopia and amaurosis are late findings. Primary optic atrophy is more frequent than neuritis and secondary atrophy. When intracranial pressure is a late and rapid development choked disc may be imposed upon a primary atrophy. Scotomata, contrary to the older view, are frequent and important and may represent the beginning of larger defects which will become hemianopsias.

BLUE SCLEROTICS AND FRAGILITAS OSSIUM.

Within the last three years the inherited nature of this congenital peculiarity has been proved. The patients have the sclera of a bluish tinge described by Stephenson as leaden and by others as pale azure blue usually uniform in color from cornea back to equator, though the ciliary region may be deeper in tint. Von Ammon first described it in 1841 and in 1903 Buchanan examined a case anatomically finding the sclerotic one third of its normal thickness. Peters[12] in 1908 first mentioned its hereditary transmission. The patient, his father, his uncle, one cousin, an aunt and a grand parent were said or known to have had blue eyes of this sort. Four generations were affected. Four of these cases had a typical embryontoxon, which may accompany many congenital misformations. Abnormal transparency or abnormal thinness of the sclera may account for these cases and Peters inclines to the latter view. There was no sign of stretching, either buphthalmos or even myopia in his cases. Stephenson[13] in 1910 reported a case with a small embryontoxon towards the upper margin of each cornea and a congenital crescent at the lower margin of each optic disc. He found 32 individuals in four generations and 21 had eyes similar in appearance to the patient, 7 were males and 14 females. Harmon[14] further investigated this family, covering 55 individuals and 5 generations, of whom 30 had this congenital peculiarity. The hair varied from dark to yellow and the irides varied equally. Most of them had astigmatism of considerable amount and Fuchs coloboma of the lower edge of the disc. Harmon ascribed the defect to unusual thinness of the sclera. There were 12 males and 18 females. Inheritance was through females always. Eddowes was apparently the first to note that persons with blue sclerotics had frequent fractures of the bones. He thought the condition of the sclera indicated a want of quantity or quality in the fibrous tissue of the body. Burrows in 13 cases of blue sclerotics found 9 who suffered from fractures from trivial violence, and of 16 persons in the same family with normal sclera none had had fractures. Adair Dighton[15] in 1912 reported 9 cases in four generations and five of them were victims of fractures often repeated from trivial causes. Peters[16] again in 1913 reinvestigating his family found the father and two sons had had seven fractures of the long bones. Conlon[17] reports a family where the blue sclerotics appeared in five generations. He saw personally a father and five children all affected and all with embryontoxon, and three children had a liability to fracture from slight violence, while the history showed fractures common in the family. No one of the six seen had Fuchs coloboma. Conlon believes the explanation of the color is abnormal transparency and not abnormal thinness of the sclera and that the case examined histologically by Buchanan was not a typical one. Conlon had x-rays of fibula and tibula taken showing both bones with a much enlarged medullary canal and a thin cortex. The shaft of the fibula was enlarged irregularly

and the cortex was almost entirely wanting at the enlarged places. The wrist bones showed a similar condition. All the bones showed atrophy and a lack of density.

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Reports of Societies.

THE AMERICAN NEUROLOGICAL ASSOCIATION.

Thirty-ninth Annual Meeting, Held at Washington, D.C.

May 5—7, 1913.

The President, Dr. Pearce Bailey, New York, in the Chair.

(*Concluded from page 62.*)

THE RÔLE WHICH HEREDITY PLAYS IN INDUCING EPILEPSY IN CHILDREN SUFFERING FROM INFANTILE PALSY.

Dr. L. Pierce Clark, New York, and Dr. Edward A. Sharp, Buffalo, N. Y.: In a comparative analysis of some 886 cases of epilepsy, divided equally between those suffering from the idiopathic disease and hemiplegic epilepsy, we found that the heredity charts of the two classes were practically identical quantitatively and qualitatively. We, therefore, deduced the conclusions that the prognosis in any cerebral hemiplegic child predisposed to epilepsy because of his palsy was enormously increased by the presence of a hereditary neuropathic constitution in a given case, and that the palsy *per se* played a secondary rôle and a much less important one than heretofore supposed.

Dr. E. E. Southard, Boston: At the Psychopathic Hospital, the chief of the out-patient department, Dr. Lucas, has been working upon heredity in epilepsy, and an interesting confirmation of Dr. Clark's conclusions are in process of being obtained. Our investigator has spent some eight months upon the heredity in these cases, and had unfortunately been unable to establish what the speaker and his associates thought she might establish, namely, the difference in the heredity features in the organic and inorganic cases. I would judge that an intensive work upon this small number of cases would entirely confirm Dr. Clark's results.

THE FEEBLE-MINDED IN MASSACHUSETTS OUTSIDE OF INSTITUTIONS.

Dr. William Noyes, Boston: This inquiry was undertaken under the direction of the State Board of Insanity, which has the duty of recommending to the Legislature the provision that should be made each year for the institutional care of the feeble-minded. Heretofore no data have existed that would give an adequate idea of the extent of the provision needed because of the varying estimates of the number requiring institutional care. All the available sources of information were utilized, and the data received were entered on cards, one for each individual. The cards, finally brought together in alphabetical order to prevent duplication, showed a listing of 5,007 individuals, 2,640 males and 2,367 females, who were considered by one or more persons as being feeble-minded. These totals do not include returns from the schools of the five large cities of Boston, Cambridge, Lowell, Fall River and Salem. It is estimated that there are ot least 628 institution cases in the schools of Boston. It is easily seen, therefore, that the institution cases in the schools of the four other cities would increase the totals in a very marked degree. On the other hand, it must not be assumed that the 5,007 individuals listed in the census are by any means all institution cases. Defective delinquents have been rejected when known to be such. For the purpose of comparison with the state census of 1905 a more intensive study of a given section, including twenty-one towns, was made. One hundred and five feeble-minded individuals were found, while the state census gave but 37, a very marked difference. If the same proportion held throughout the state, the total number in the community would be 7,861. A committee has prepared tables estimating the cost to the state of three feeble-minded families,—the W family and two branches of the B family. The tables are made on the estimated cost of caring for a feeble-minded child by the State Board of Charity at $180 a year until the average age of thirty-three. The totals of these feeble-minded children are as follows: 9 members of the W family will cost the state $30,705; 7 members of the B-I family will cost the state $21,470; 3 members of the B-II family will cost the state $12,600.

DISCUSSION.

Dr. L. Pierce Clark, New York: I consider the census which Dr. Noyes has made highly important from many points of view. I am rather surprised to find from Dr. Noyes that the number of feeble-minded in Massachusetts is relatively small. In New York City alone there are over 7,000 uncared-for in the schools, even at a conservative estimate, without a definite census being made. In New York, the profession had doubts as to whether the special classes for instruction could serve other than as a makeshift until segregation in colonies could be undertaken. It was the best thing that offered itself.

Dr. Noyes: Segregation with us means merely committing the subjects to the schools at Waverly and Wrentham, state institutions. Of 87 women under the charge of the state board of public charities were known to have had children, 70 illegitimate and 17 legitimate; making a total of 109 children born by 68 feeble-minded and borderline mothers. The statistics did not, as a rule, include the borderline cases because the various reports of charities would not report a case unless pretty well marked. I believe that all states intend to deal with this problem and have to come to this, that there shall be a definite census made of them

and of those the profession would look on as more dangerous, and that the state shall assume charge of all these and say they cannot have their liberty.

DR. DANA, New York: The latest estimate of New York state has something about 5,000 of this class; and so it seems to me the estimates mentioned by Dr. Noyes rather confirms the estimates made in New York.

DR. NOYES. I was surprised and gratified when the inquiry into these special towns came out that it practically agreed with what is generally put out, about 1 in 500. I obtained the information myself in the summer time, interviewing by telephone and verbally all the physicians and the superintendents and supervisors of the poor.

LESIONS OF THE HYPOPHYSIS FROM THE VIEWPOINT OF THE SURGEON.

DR. CHARLES H. FRAZIER, Philadelphia: I present the results of four cases of hypophyseal disease in which the hypophysis had been approached by his transfrontal intracranial method. There were no operative fatalities. I would call attention to the advantages of this over the transphenoidal method, as indicated by my own experience and from a review of 65 operations by various surgeons who have used the extracranial approach, and to the difficulty in determining before the operation what the nature or size of the lesion is. The same clinical picture is present in all sorts of hypophyseal lesions, including hyperplasia, benign and malignant growths. Any one of these lesions may lead to evidences of hypo- or hyperpituitarism or to neither. The only evidence of pituitary disorder in many cases is revealed in the visual disturbances and the signs of intracranial tension without the least suggestion of the perversion of the metabolic processes. Much confusion that has arisen in the minds of the experimentalist as to how vital the hypophysis is for the maintenance of life, and I am inclined to accept the opinion of those who have found in animals that complete removal is not incompatible with life. I would refer to the further confusion in the minds of the pathologists as to the classification of pituitary tumors, and show how comparatively benignant is the life history of certain malignant lesions, so that in the presence of malignancy the beneficial effects of operation would extend over a number of years. I review the indications for surgical therapy, the beneficial results of which are seen in the majority of instances in the relief of the visual disturbances, headache, psychic disorders, and to a less extent of the symptoms of acromegaly and dystrophy. I find it of advantage on my own cases to combine glandular feeding with surgical intervention, and I do not believe that operation should be resorted to, except in the presence of impending blindness, until glandular feeding has been given a trial. I am fully convinced that in the future the transfrontal method of approach would be adopted by the general surgeon, and, if the transphenoidal method is used at all, it should be practised only by the specialist trained in the technic of intranasal procedures. Palliative procedures, such as temporal or sella decompression are only of questionable value and only transitory in their influence upon the symptoms.

DISCUSSION.

DR. CRAMER: In 1911 there was brought to me a patient who, in 1873, had become completely blind. This, of course, was before the days of pituitary agitation or much pituitary knowledge. In 1911 she appeared with the pituitary syndrome and died with inanition in the latter part of that year. Here was a patient who lived with pituitary tumor, blind, from 1873 until 1911. If operation cannot influence or retard the development of compression symptoms, it makes no difference how safe the operation may be, whereas, if the intracranial route will do this to a greater extent because, as I have pointed out, the tumor most frequently grows upward, that operation is the one that should be developed.

DR. ALFRED REGINALD ALLEN, Philadelphia: In the past year Dr. Frazier has sent me four specimens of scrapings or excisions from a part of the pituitary. The point of interest is the discrepancy of opinion of various men as to what these growths are. I have been greatly interested in the peculiarity of the process simply from a morphological standpoint, and whereas, the profession has a very complete idea, from the histological and histopathological aspect, of chronic interstitial nephritis and many other things of that kind, yet when we come to the pituitary our knowledge is very slight. I believe that one reason for knowing so little is that the surgeon digs out a piece in the operating room and sets it aside, and the piece remains until after the operation, and in the meantime dries out and reaches the pathologist's hands in bad condition for study. If surgeons would care better for these tissues we would soon know a great deal more about the histo-pathology of neoplasms of the pituitary body

DR. HERMAN HOPPE, Cincinnati: I have in my possession a brain tumor that was obtained before the days of the x-ray, and also before the days of much knowledge of hypophyses. It is a hard fibroma that is probably two inches in diameter. It never could have been removed by the transnasal route. Today this case would be diagnosed at once, and that tumor could have been removed very easily by the transfrontal route. This man's life would have been saved, absolutely, providing the surgical technic had been successful.

DR. CHARLES H. FRAZIER, Philadelphia: In my paper I tried merely to state the problem from the standpoint of the pathological features with which surgeons had to deal in order to open the way to some conclusion as to the best method of dealing with this problem. I tried to be conservative, at least in my estimate of the usefulness and the limitations of surgery. The point I wished to emphasize, however, was that these so-called malignant lesions do run a very benign course, and when these tumors are large in proportion, they grow up towards the hemispheres, not down, so that they were more readily approached from above, also that in most of the operations done through the endonasal methods, there had been a very incomplete removal of what in many instances was a very large tumor, and, lastly, that, in the hands of most surgeons discussing general surgical procedure, the intracranial method would prove to be the safer of the two. When one recalls to mind the anatomical feature of these two operations, it will be observed that one can draw a line from the tip of the nose, or one appproximately from the upper lip back through the spenoid process to the sella turcica, which line would be longer than a similar line through the supraorbital ridge to the sella turcica. If, in the early stages of the operation, one punctures the dura over the frontal lobe, so that during

the subsequent stages the cerebrospinal fluid is allowed to escape as freely as it may in order to afford an opportunity for the displacement of the hemispheres from that portion; if one displaces the frontal lobe upwards, with the patient's head in the so-called Rose position; if then, one has a suitable headlight, which in some instances is necessary and in some not, according to the character of the day, a very correct view can be had down to the optic foramen, or down to the point where the optic nerve passed through the optic foramen. It is not necessary to remove the rim of the foramen. When you are at the apex of the orbit you are really within a trifling distance of the pituitary body; and it remains then only to make a transverse or horizontal incision in the dura about a quarter of an inch above the floor of the base of the skull in order to avoid the sinus, it remains only to make this horizontal incision in the dura to expose the contents of the sella turcica. As thus described, this sounds like a very simple procedure, which it is. In most instances it is simpler than the exposure and removal of the Gasserian ganglion; this is not because I am partial to the operation, but I think there are other surgeons who have tried the method who will confirm what I have said. I had a conversation last night with Dr. Elsberg of New York, who has done the operation only once, and he had been really surprised at the comparative simplicity of it and at the facility with which he reached the sella turcica and exposed a large round growth, and subsequently removed it with most striking results. The matter is still subject to question and we cannot come to any definite conclusion on one side or the other, but I still feel that eventually we will find that, if the pituitary body be approached, and, if the lesions of the pituitary prove to be amenable to surgical therapy, the transfrontal approach will be the more desirable of the two.

OFFICERS FOR 1913-1914.

Dr. Henry Hun, Albany, President.
Dr. Alfred Reginald Allen, Philadelphia, Secretary-Treasurer.

NEW ENGLAND PEDIATRIC SOCIETY.

A combined meeting of the Pediatric Section of the New York Academy of Medicine, the New York State Society, the New Jersey Pediatric Society, the Philadelphia Pediatric Society and the New England Pediatric Society was held in Boston, November 8, 1913. The morning was spent in visiting the various hospitals. Dinner was served at the University Club at 6.30 P.M. At 8.15 P.M. the combined societies met in John Ware Hall, Boston Medical Library. The following papers were read, and discussed:

1. On the Bacteriological Diagnosis and Treatment of Alimentary Disease in the Infant and Child, by Dr. Ralph Vincent, London.
2. Investigations in Vulvovaginitis by means of the Female Urethroscope, by Dr. John F. Sinclair, Philadelphia.
3. Active Immunisation in Diphtheria by Toxin-antitoxin, by Dr. William H. Park, New York.
4. The Position of the Stomach in Children, by Dr. James Warren Sever, Boston.

JAMES S. STONE, M.D., CHAIRMAN.
FRITZ B. TALBOT, M.D., SECRETARY.

DR. RALPH VINCENT of London, England read a paper

ON THE BACTERIOLOGICAL DIAGNOSIS AND TREATMENT OF ALIMENTARY DISEASE IN THE INFANT AND CHILD,

and demonstrated it by lantern slides.

Abstract: The organs are grouped according to the conditions determining their growth in their action upon milk. (1) Bacteria producing lactic acid but not producing gas. (2) Bacteria producing lactic acid, carbon dioxide and alcohol. (3) Bacteria growing in "pasteurized" milk. (4) Bacteria growing in milk after it has been raised to 100° C. The colon organisms were capable of acting proteolytically in certain conditions and when these conditions were present alimentary toxaemia was established. He had recently devised a method of differential staining by means of which the colon organisms could be recognized by direct microscopical examination of the stained film, and this had proved to be of great value in regard to clinical diagnosis.

DISCUSSION.

DR. C. H. DUNN: I have always been particularly interested in the bacteriological side of these diarrheal conditions. I think that Dr. Vincent's paper touches the main point at issue in the present stage of advance in our knowledge of the gastroenteric disorders. There have been two groups of men working upon this condition, one group entirely along chemical lines, and they come out with the results of fat intolerance, carbohydrate intolerance, proteid intolerance and so forth, and I think that this group has been rather too much inclined to neglect the role of these bacteria. On the other hand, the other group of men have been working along bacteriologic lines and they have been very much inclined to neglect the chemical aspects. I think what we need now is to bring the two separate lines on which the investigations have been carried out into closer harmony. I have always been convinced that an important part was played by the conditions of over acid fermentation on the one hand and putrefaction of the proteids on the other in a great many of these cases. It seems as if as the result of the work of Kendall and others we had gotten to the point where we were all ready for our treatment and had an idea of what bacteriologic processes were going on in the intestine if only we could recognize them clinically. We were ready to treat them with the proper diet or by introducing the proper organism, and we have known that in some conditions a great many cases can be very effectively treated by introducing acid-producing organisms, but what we have lacked most is some laboratory method for distinguishing one type from the other. Heretofore we have not been able to tell which organism was present and therefore we have not been able to tell which treatment was best to apply. If this work of Dr. Vincent is going to give us a rapid and [illegible] laboratory method of telling us whether we have to do with colon infection, conditions of putrefaction or overgrowth of the acid organisms, I think it will be exactly what we have been waiting for and what we need.

DR. JOHN F. SINCLAIR, Philadelphia, read a paper on

INVESTIGATIONS IN VULVOVAGINITIS BY MEANS OF THE FEMALE URETHROSCOPE.

Abstract: The purpose of the paper was to suggest improved methods of prophylaxis.—The study was based on 83 cases admitted to the Babies' Hospital of Philadelphia, which has been endoscopically examined. All were under three years of age. Both vulvar and vaginal smears were taken and examined bacteriologically. Careful notes were made of the conditions of the cervix and vaginal mucosa upon endoscopic examination.—The complement fixation test was employed in ten cases and was positive in fifty per cent. Of the 83 cases examined 16, or 19%, were found to be infected with the gonococcus, at the time of admission to the hospital, or to present highly suspicious evidences of such infection. Seven cases, negative upon admission subsequently developed vaginitis of specific origin. The early recognition of the infectious agent in latent cases is of immense importance in instituting proper prophylactic measures. Over twenty-one per cent. of the total number of cases examined would have escaped detection without the use of the endoscope. Only 30% of the babies in the "positive" and "suspicious" groups showed any visible signs of a discharge upon admission.

He concludes that to be effective prophylaxis must begin with a campaign of education in the homes where infants are born and raised, as well as in all manner of institutions which have to do with the various phases of child welfare. Day nurseries, infant and orphan asylums, hospitals, shelters, public bath houses, recreation centers and even our school houses are prolific sources of infection, and will continue to be, until adequate medical supervision is exercised and individual cases are isolated until free from the specific organism.

In day nurseries, shelters, foster homes of every description, and in hospitals, every child should be carefully examined upon admission for clinical and bacteriological evidences of gonococcal infection and promptly removed or isolated if the findings are positive. Proper isolation in institutions demands employment of special nurses, who shall have no other duties, or in any way come in contact with babies or children in other departments of the institution. The lay helpers should be free from gonorrheal infection and this should be determined by bacteriological examinations and by the complement fixation test. Systematic examinations of all inmates of such institutions should be made with thoroughness at convenient intervals that latent cases may be early detected and isolated before becoming new centers of infection.

In the case of public bath houses, recreation centers, and schools, efficient supervision should be exercised by properly qualified trained nurses so that every suspicious case may be promptly excluded and referred to a physician for treatment.

Boards of health should be empowered by law to make gonorrheal infections reportable and to exercise their authority along lines similar to those which they now employ in dealing with tuberculosis.

Medical attendants, especially gynecologists, and genito-urinary surgeons, should inform their patients clearly as to the nature of the disease and the danger of communicating it to innocent babes and children, at the same time giving minute instructions how they may safe-guard those about them.

Special clinics for the treatment of gonorrheal vulvovaginitis should be established in all the large cities as has already been done in Boston and New York.

DISCUSSION.

DR. RICHARD M. SMITH: Regarding the cases of which Dr. Sinclair speaks, it seems to me that one point of very great importance is the value of the complement fixation test. We have been in the habit of not considering a case, one of gonorrheal vaginitis, until we have had a positive smear, positive culture and positive fixation test. Some children have been kept from institutions or from school because of a vaginal discharge which on investigation proved to be not gonorrheal. It is very much worth while to be sure of the diagnosis. It also seems to me that a fixation test ought to be made in every case before it is called cured.

DR. WILLIAM H. BECK, New York, read a paper on

ACTIVE IMMUNIZATION IN DIPHTHERIA BY TOXIN-ANTITOXIN.

Abstract: Active immunization in 50 children has been carried out. Two mixtures were employed of toxin and antitoxin. In one, 66% of the amount of toxin required to neutralize 1 unit of antitoxin was used, in the other 50%. The children receiving the 50% addition of toxin produced very little antitoxin. Those receiving 66% produced in four fifths of the cases antitoxin varying from 1 to 6 units per cubic centimeter. The greatest amount was present at about the 10th or 12th day after the injection. The injections were given either as a single dose or divided in two doses at a week's interval. Absolutely no symptoms except in a few a slight local tenderness and a possible rise of temperature occurred. One fifth of the children developed no antitoxin and two of these developed diphtheria. This is a matter of great importance because not only does active immunization require several days to be established, but it fails in a certain percentage of the individuals. Immunization in hospitals or in institutions in which an epidemic of disease has occurred will probably be better treated by passive immunization with antitoxin. In the places in which on account of carriers the population is constantly apt to be infected, active immunization may be of value, much the same way as typhoid immunization is now practiced, except that in the cases of diphtheria it is to be applied to infants and young children rather than adults. Horses injected with these mixtures showed immunization on the third day and the greatest amount on about the seventh day.

DISCUSSION.

DR. EDWIN H. PLACE: It has been with great interest that I have heard Dr. Park's excellent paper, especially as the use of toxin-antitoxin mixtures were first suggested by Professor Theobald Smith. There has been, however, so much fear of unfavorable effects that no one has used them here—unquestionably an unfounded fear. It has been apparent to all working with diphtheria that great as has been the reduction of mortality, the morbidity has shown no clear or continued diminution since antitoxin came into use. The Boston curve as well as the New York figures fail to show that any real control over the prevalence of the disease has been secured and we are still dependent largely on

isolation. With the difficulty of recognition of the carriers at large and with the absence of any curative treatment for carriers, isolation has not gone to the desired extent as a preventative. These efforts to secure active immunization are therefore of much interest and importance. Dr. Meader last summer has studied at the South Department the effect of bacterial vaccines. But although there was a definite and usually marked increase in the bactericidal substance in the blood following vaccine administration, the disappearance of the diphtheria bacilli had no definite relation to this increase. It is unfortunate that more successful results were not obtained with the toxin-antitoxin mixture but there is hope that the future may know through these studies some great improvement in the control of diphtheria.

Dr. William H. Park: I think as Dr. Place has mentioned, that possibly with the use of the bacterial protoplasm in addition to the toxin we may obtain not only antitoxin immunity but also bactericidal. Although it is somewhat discouraging to find that one-quarter of those injected are not immunized, yet three-quarters is really a pretty large proportion, and that possibly this will be increased with the use and development of the bactericidal immunization. It is at least sufficiently encouraging to attempt a further investigation. It seems absolutely safe I hope in connection with a number of colleagues to test the value of active immunization in a great many cases.

Dr. James Warren Sever read a paper on

THE POSITION OF THE STOMACH IN CHILDREN.

Abstract: The data from which the conclusions have been drawn in this paper have been gathered from a careful study of over eighty children. X-ray pictures were made of the children's stomachs in the erect position. In practically all instances the lower border of the stomach was found at or below the iliac crests. The shape of the stomach was usually of the sink drain type. The so-called ideal "cow's horn" stomach was rare. The organs were as a rule rather large. All were lower than what heretofore has been supposed to be the normal position, namely, the second lumbar vertebra. It was the inevitable conclusion from a study of these cases that a low stomach is not abnormal, but is probably where it belongs, and that there is rarely a pathological ptosis.

DISCUSSION.

Dr. Maynard Ladd: Almost all of my own investigations have been in infants under nine months of age, and have been done more with reference to determining the gastric motility than the position of the stomach, but I am certain that in the infants, at least up to that age, the stomach is a great deal higher than in the older children that Dr. Sever speaks of. The stomach is high in the young child. I do not recall now in my particular series any stomach the lower border of which reached down to the crests of the ilia, or anywhere near to that level.

Dr. Jacobi: The position and shape of the stomach of the baby under nine months changes very rapidly from the vertical; at the end of one month it begins to be oblique, and at that time we frequently find it in front of the tenth dorsal. A careful observer has to take this into consideration also. In the very young baby the position of the stomach changes very often according to the food which it takes. Babies who are breast-fed have a different stomach from those who are artificially fed, and in artificially-fed babies the stomach will sink down even before this time. I think the lecturer will add to his data if he will take up the stomach of very small babies for the next year or two. The first demonstrations of the localization of the stomach are quite old, I have had to refer to it some time ago, and looked up some literature. The first paper I found on it was in *Unfeland's Journal* of 1825. There is a picture which shows the vertical position of the stomach at birth and very soon after. At the age of one month it begins to be oblique, and in a very few months more it changes considerably. I shall come again in a year or two and will listen to the reader's additional data.

Dr. Arthur H. Kimpton: I have had occasion recently to do autopsies on two very young children, one of three weeks, and one of four days old. The first one was a child normally born and gained weight at the rate of eight ounces a week for the first two weeks, but the first day of the third week it began to vomit and then vomited either five minutes or half an hour after taking food, not always immediately after. It was an undoubted case of pyloric stenosis. I saw the baby late in the evening and made arrangements to operate the next day as there was a palpable tumor, and the case was definitely one of pyloric stenosis, apparently not spasmodic. That child suddenly died before operation and at autopsy the stomach was in an oblique position high in the abdomen, higher than the text books tell us, and the photograph which I have to show you is practically the size of that baby's stomach as it came out. You will see the pyloric tumor, which is colored, and it is rather interesting to me because I had never seen a picture of a true pyloric stenosis. Dr. Whitney has the stomach as a specimen. Dr. Whitney said that the tumor looked to him like new growth than hyperplasia.

The other case was that of an infant four days old that began to vomit on second day, and was supposed to have had an artificial anus. You could pass your finger high into the rectum and palpate it with the other finger bi-manually. There was no pyloric stenosis. I saw the child after it had been vomiting for some time, and there was nothing to do but make an artificial anus. There was no large intestine to be found to make an artificial anus with, so I made one from the lowest loop I could get and made no attempt to find out where the obstruction was. The child died and an autopsy was done and the intestine examined from beginning to end, and that stomach, too, was extremely high, in an oblique position. That baby had to all intents and purposes no large intestine. It was about as large as a very small pencil and nothing in it, except putty-like material. The cause of the obstruction was about one inch from the ileo-cecal valve, due to bands coming up from the side of the pelvis catching it in a half-hitch and twisting it so that you had a mechanical obstruction. No meconium had ever gone into that large intestine. The baby passed marked quantities of this inspissated material, and it was white putty-like material, which came out in strings. We do not see enough of these cases to learn much from them. If I should see another case, I should look for an obstruction somewhere close to the cecum rather than high in the large intestine.

Book Reviews.

The Administrative Control of Smallpox. How to Prevent or Stop an Outbreak. By W. McC. WANKLYN, B.A. (Cantab.), M.R.C.S., L.R.C.P., D.P.H., Fellow of the society of Medical Officers of Health, and formerly referee in the diagnosis of smallpox and medical superintendent of the river ambulance service (smallpox) of the Metropolitan Asylums Board, London. 8vo., pp. 83. New York, Bombay and Calcutta: Longmans, Green and Company, 39 Paternoster Row, London. 1913.

Into this astonishingly brief book (hardly an hour's reading) Dr. Wanklyn compresses twenty-one years' experience in the handling and prevention of smallpox epidemics. The suggestions are concise, sound and practical, the illustrations interesting and illuminating. The book is aimed primarily at those who are or aspire to be public health officers, and the references are to British conditions, especially with regard to vaccination and to public health organization. The book will, however, find valuable application in any community which is only partly protected by vaccination and yet is constantly exposed to a dropping fire of infection from all parts of the world. Such communities are the rule in America as well as in England, a fact we are apt to forget, for where smallpox is not prevalent, nothing seems so remote. To our mind, the author places somewhat too much importance on the danger of importing smallpox "in clothes, rags and other raw material for manufacture," and draws an unwarranted distinction between the infectivity and the virulence of smallpox strains. The book affords valuable sidelights on the importance of vaccination, and is eminently sane and usable by anybody anywhere.

Taschenbuch der Magen and Darmkrankheiten. By DR. WALTER WOLFF. Berlin and Vienna: Urban and Schwarzenberg. 1912.

Dr. Wolff has put into a little book of 160 pages the more common and useful diagnostic and therapeutic procedures that are carried out in the Augusta Hospital in Berlin. The book bears the official approval of Ewald in the form of an introduction. It is a simple, clear, well written book, especially designed for students and practitioners. The book is sound and sane throughout. The discussion of the section on gastric diseases is complete. The discussion of intestinal diseases occupies less than twenty pages and is superficial and cursory. As a small handbook on diseases of the stomach the book can be heartily recommended.

A Text-Book on Gonorrhea and Its Complications. By DR. GEORGES LUYS, late assistant to the Urological Clinique, Hospital Lariboisière, Paris; prizeman of the Faculté de Médecine, Paris. Translated and edited by ARTHUR FOERSTER, M.R.C.S., L.R.C.P. (Lond.), late resident medical officer, London Lock Hospital. With 200 illustrations and three colored plates. New York: William Wood and Company. 1913.

This book is what its name indicates. It is a real text-book, and it is the most satisfactory and up-to-date record of this disease, as it exists in man, woman and child, which we have seen. The book is complete without being ponderous, is well written, well printed on good paper, and is exceedingly well illustrated. When compared with the many trivial and inefficient books, so frequently met with in this country and presumably elsewhere it is most convincingly adequate and efficient, both in its scientific and in its more practical and clinical aspects. That it has been so ably translated into the English language is cause for congratulation.

Taschenbuch der Diagnostik und Therapie der Lungentuberculose. By H. GERHARTZ. Berlin, Wien.: Urban and Schwarzenberg.

This is a small light volume of some two hundred pages of a size that would easily slip into a pocket or handbag. It contains much information in condensed and tabular form which must be of great value to German and Continental practitioners; it is of little or no value to the English and American profession. There are 48 illustrations, many of which illustrate methods of percussion of so elementary a nature as to be unnecessary; there are some useful diagrams showing the localization of tuberculous processes in various lobes, etc., and some excellent colored plates showing tuberculin reactions and pathological specimens. There are a few x-ray plates of mediocre quality.

The book is divided into four large sections: (*a*) the proof of tuberculous infections, which considers diagnostic tuberculin reactions, etc.; (*b*) the recognition of tuberculosis, a long section on diagnosis of all stages in which far too much attention is paid to sputum examination, the x-ray, and the diagnosis of cavities, etc., and not enough to early diagnosis; (*c*) the treatment of tuberculosis, in which many pages are devoted to the formulae of various drugs and tables of prescriptions, and only a few pages to hygienic sanatorium treatment; (*d*) the prognosis of pulmonary tuberculosis.

As is not uncommon with many such pocket editions the author tries to cover far too large a field and loses sight of many important points in a mass of unessential details. The book has many good points, however, and should be of value to German physicians.

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101 TREMONT STREET, BOSTON, MASS.

TROPICAL MEDICINE IN ELIZABETHAN DAYS.

IN the *Annals of Tropical Medicine and Parasitology* for May, 1912, Dr. Charles Singer, recorded some of his observations on "Early references to tropical diseases." Notably he referred to a remarkable book,* published at London in 1598 by one "G. W.," entitled "The Cures of the Diseased, in Remote Regions, Preventing Mortalitie, Incident in Forraine Attempts, of the English Nation."

In his dedication of this book to Queen Elizabeth, the author says:

"In my unjust imprisonment in Spayne, it pleased God to afflict me with a *Tabardilla* Pestilence; whereof being in cure by an especiall Phisition of the King, I observed his Methode for the same, and such other diseases as have perished Your Majesties people in the Southerne part. Which Remedies have since by my direction taken the like good effects."

"Tabardilla," Dr. Singer believes, may refer to yellow fever, dengue, or typhus. Other diseases described by "G. W." are "ealenture," heatstroke or malaria, and "espinlas," of which he says:

"The partie having the Espinlas will be giddie in the head and have pain and pricking at his breast as with many thorns: wherefore I thinke it is so called of Spina and Espina, the Latine and Spanish words for a Thorne.

There will be upon the Huesso radio (*Anglice*, radial bone) or Focell, being the upper part of his armee, a hand breadth about the wrist, a little Kernell by which it is certainly knowne. And he that hath this Disease will not have appetite to meate and drinke."

This malady does not seem identifiable with any modern tropical disease.

Scorbutus is described under its Spanish name of "tiñoso":—

"It is an infecting Disease, Sufficientlie known unto Seafaring men; who by putrified meates and corrupted drinkes, eating Bisket flowrie, or foule crusted, wearing wet apparell . . .and slothful demeanour. . . obtained the same. The disease is so ordinary at Sea, as it hath seldome seen any Ship or Pinnice, to be foure moneths upon the Voyage. . . but some of the Companie have had this Disease. It is a certaine and assured medicine against this Disease to have such quantitie of Beere, brewed with Graynes and Long pepper, as in the morning twice everie weeke there may be given a good draught to a man. . . But White Wine or Syder, boyled and brewed with Graynes and Long peper, in like quantitie is very singular good. And it is not fit to suffer the gums to abound with flesh; and therefore sometimes let them bleede and cleere them withe strong Vinegar."

Apparently "G. W." was a navigator, perhaps a gentleman explorer, and not a physician, for in his preface he says:—

"The cause that induceth mee publiquelie to express the Cure of Diseases of such consequence (which) every judiciall conceite may perceive to have been the only prejudice to our Nation in the expeditions of our time to the Southerne parts; from whence they. . . have returned with renouned victorie, yet exceedinglie opprest withe extreame and penurious sicknesse, that hathe much more prevented the proceeding and performing of their pretensions than the power of Enemies, is not that a purpose, practitioner-like in Phisicke or Chirurgerie, to assume unto me anie knowledge in those Sciences and Faculties: But to possesse all men of remedies for such infirmities, as in my owne experience, have infinitelie impaired English Forces in intemperate Clymates, which I publish for the good of those whom cause may compell to have use thereof, and would be so censured of all."

With the recrudescence, in our own day and community, of the study of tropical disease, it seems particularly pertinent thus to turn back to this early treatise on tropical medicine from the Elizabethan days of Drake and Hakluyt and Frobisher and Raleigh.

* Reviewed in the *British Medical Journal*, November 23, 1912.

GERMAN MEDICAL INSURANCE.

IN the issue of the JOURNAL for Jan. 1 we commented on the conflict between the physicians and the insurance companies in Germany rela-

tive to the administration of the national medical insurance act. In view of this conflict, the Prussian government has now issued a new imperial insurance order, of which paragraphs 368 and 370 deal with the methods available to the insurance societies, should the latter fail to secure the services of a sufficient number of physicians to administer the act.

"Paragraph 370 authorizes the insurance societies to pay over a lump sum of money to the insured persons in lieu of medical attendance, medicines, and certain appliances, provided that the insurance societies can show that through no fault of their own they have been unable to secure the services of a sufficient number of medical men under contract. The offer of a contract on the part of the medical practitioners must contain 'suitable or appropriate' provisions (*angemessene*), and it is on the interpretation of this particular word that the action of the Prussian ministers is based.

"Paragraph 368 provides for the giving of medical treatment in the absence of any contracts at all. In this instance the doctors employed would be the so-called 'advisory staffs,' or medical men who, in defiance of the medical organizations are prepared to do work for the insurance societies, but will not put their names to paper."

The Prussian government has further determined that the word *angemessene* shall be so interpreted that if "the doctors offer service with free choice of doctor, the institution of arbitration courts, and the right of control by medical organizations, the society will be justified in regarding the provisions as unsuitable. This decision indicates that the government attitude is adverse to the physicians.

In the issue of the *Berliner Aerzte-Correspondenz* for Dec. 13, 1913, the executive of the federation of German medical societies, in conjunction with the Leipzig League, published a statement pointing out that the struggle is not directed against the beneficiaries, but only against the executives and managers of the insurance societies. This statement further contains a number of general and special instructions to local medical societies in dealing with conditions which may arise under the provision of the above paragraphs. It appears that the German physicians are determined to oppose the government and the insurance societies fearlessly in the maintenance of their rights, and it is to be hoped that their opposition may prove more efficacious than was the case with the medical profession of England.

TYPHOID IN THE ARMY AND NAVY.

REPORT from Washington, D. C., on Dec. 31 states that during the year 1913 the United States Army, with an enlisted strength of over 80,000, had only two cases of typhoid fever, neither fatal, one of them being in a man not immunized by antityphoid inoculation. Prior to 1910 there used to be about 250 cases, with 25 deaths annually. In 1910, the year voluntary inoculation was begun, the incidence rate was 2.32 per 1000. In 1911 it was 0.8; in 1912, 0.26. It is interesting to note that coincidently the incidence rate of tuberculosis has fallen from 4.7 per 1000 in 1909 to 3.49 in 1912.

Among the 40,000 sailors of the United States Navy there were only 7 cases of typhoid fever, with no fatalities, during the year ended June 30, 1913. The incidence rate of typhoid in the navy in 1911 was 3.61 per 1000; in 1912, 0.92; in the nine months ended Oct. 1, 1913, only 0.3. Antityphoid inoculation in the navy was begun later and has proved harder to enforce than in the army. Its benefit as a prophylactic procedure in both branches of the service seems established beyond question.

MARRIAGE AND EUGENICS IN WISCONSIN.

REPORT from Milwaukee, Wis., on Jan. 7 states that, in view of the difficulty of securing medical certificates under the new eugenic marriage law, persons intending matrimony are taking advantage of the common law marriage, which is legal upon filing a contract for a fee of ten cents. The Ashland Medical Society has voted to furnish examination certificates, including the Wassermann test, for a fee of eight dollars. One man who wished to marry a girl in order to legitimize his expected child by her, was refused license to do so because he had no certificate. Apart from its bearing on eugenics, this action seems at least somewhat unjust to the girl and the child.

MEDICAL NOTES.

DISCONTINUANCE OF SEX HYGIENE LECTURES.—Report from Chicago states that on Jan. 7 the local board of education voted to discontinue the

giving of so-called sex hygiene lectures in the public schools, after a trial of one year.

The Antiquity of the Truss.*—At the site of an old Franco-Roman village, just south of Clermont-en-Argonne, were found two trusses of iron, dating from the eighth century; one a left inguinal, so damaged and soiled that it was almost disintegrated; the other heavier and better preserved, a right scrotal, with a scrotal pad of about 5 cm. dimensions. Most of the relics found in the excavation of this town have been sent to the Museum Saint-Germain-en-Saye, where they are kept in a special cabinet, the gift of Dr. Mennier of Laroye.

Operation on King Alfonso.—Report from London on Jan. 1 states that King Alfonso, of Spain, has recently come to London for the purpose of having a growth surgically removed from his throat.

A Long Retained Lithopedion.—In the issue of the *Lancet* for Dec. 27, 1913, is reported from Toronto a case of a lithopedion retained in the abdomen for 42 years, and during four succeeding normal pregnancies, and finally removed by laparotomy. This is believed by the author to represent the world's record in this regard.

Smallpox at Guantanamo.—Report from Washington, D. C., on Jan. 6 states that 34 new cases of smallpox, nine of virulent character, have developed at the Guantanamo naval station among sailors exposed during the recent outbreak aboard the United States battleship *Ohio*. The station has been quarantined and the *Ohio* is being fumigated.

BOSTON AND NEW ENGLAND.

Boylston Medical Society.—On Friday evening of last week, Jan. 9, an open meeting of the Boylston Medical Society was held at the Harvard Medical School, to which all undergraduates and members of the medical profession were cordially invited. An address was given by Dr. J. M. T. Finney, associate professor of surgery at Johns Hopkins University and president of the American College of Surgeons

Aesculapian Club Midwinter Meeting.—Invitations have been issued to the twelfth annual mid-winter meeting of the Aesculapian Club of Boston, to be held at the Harvard Club on Saturday evening of this week, Jan. 17. The speakers will be Mr. Abraham Flexner, of the general education board of the John D. Rockefeller Fund, on "Some Aspects of the European Regulation of Vice"; and Dr. Richard P. Strong, professor of tropical medicine in the Harvard Medical School, on "Tropical Medicine as it Interests Us in Our Larger Seaports."

Two Living Centenarians.—Mrs. Clarissa Collins, of New Haven, Conn., who is said to have been born on Jan. 1, 1814, celebrated recently her supposed centennial anniversary. Her health is excellent.

Joseph Byxbee, a retired sea-captain of Norwalk, Conn., is said to have been born in 1810.

A Centenarian.—John Weeks, who died on Jan. 5 at Norwalk, Conn., is said to have been born in June, 1808, at Fordham, N. Y., He had been blind for a year preceding his death, but otherwise his health remained vigorous until early last December.

Work of Boston Dispensary.—The recently published 117th annual report of the Boston Dispensary records the work of that institution for the year ended Sept. 30, 1913. During this period, 113,000 patients, of whom 11,000 were babies and children, visited the various clinics; and over 8000 patients were treated at their own homes. In the hospital for children 323 patients were received. To maintain and continue the present service of the Dispensary to the community, the sum of $30,000 is required annually, and liberal subscriptions towards this amount are urgently requested.

Children's Hospital Convalescent Home.—At the annual meeting of the corporation of the Convalescent Home of the Children's Hospital of Boston, held in this city last week, the secretary's report showed that during the past year 826 patients were treated at the Home.

Boston Vital Statistics in 1913.—During the year 1913, 9378 marriages and 19,299 births were recorded in the city of Boston, both numbers being larger than in any previous year. The total number of resident deaths was about 10,300, corresponding to a corrected rate of 14.1 per 1000, as compared with 14.2 per 1000 in

* From *La Chronique Médicale*, August, 1913.

1912. The gross death-rate (11,890 persons) remains the same as last year, 16.17.

"The rate for typhoid fever will be about .82 per 10,000 population, against the low record of .79 in 1912. If deaths of non-residents be deducted, the corrected rate becomes .69, against .68 in 1912.

The rates for scarlet fever and diphtheria are both higher than in 1912.

Per 10,000 population, the death-rate from scarlet fever will be about 1.06, against 1.04 for the preceding five years, and the death-rate from diphtheria will be about 2.12, against 2.60 for the preceding five years.

The particularly bright spots in the year's record are the low rate from pulmonary tuberculosis—about 14.4, against the previous low record, 15.2, made in 1912—and the estimated infant mortality rate, 107 per 1000 births registered."

NEW YEAR'S GIFTS AND BEQUESTS.—Mr. David D. Stewart, of St. Albans, Me., has recently made New Year's gifts aggregating $230,000 to 12 colleges, hospitals and charitable institutions of Minnesota, 9 of them being in Minneapolis.

The will of the late Dr. J. F. Frisbie, who died on Dec. 17, 1913, in Newton, Mass., contained a bequest of $25,000 for the foundation of a Frisbie Memorial Hospital in Rochester, N.H., the testator's native home.

The will of the late Horace W. Wadleigh, of Cohasset, who died at Boston on Dec. 26, 1913, contains public legacies of over $120,000. Among these are bequests of $5000 each to the New England Peabody Home for Crippled Children, the Boston Home for Incurables, the Industrial School for Crippled and Deformed Children, and the Boston Floating Hospital, and $2000 each to the Children's Hospital, Boston, the Massachusetts Charitable Eye and Ear Infirmary, the Vincent Memorial Hospital, the New England Hospital for Women and Children, St. Luke's Home for Convalescents, St. Monica's Home for Colored Women and Children, Roxbury, and the International Hospital, Naples, Italy.

NEW YORK.

OYSTERS AND THE PUBLIC HEALTH.—In the latest issue of the *Monthly Bulletin* of the City Health Department the subject of "Oysters and the Public Health" is treated *in extenso*. In the precautions taken by the department to insure that oysters sold in the city shall be free from contamination careful investigation of the physical conditions prevailing at the points furnishing the oyster supply has for some time past been systematically conducted, and particular attention has been paid to the location of the so-called "floats" and "drinks" situated not only within the city limits, but also in the surrounding country. While an outbreak of typhoid fever at Northport, Long Island, in 1912, which was at first supposed to be due to contaminated oysters, was subsequently demonstrated to be due to infected milk, a typhoid outbreak the same year at Goshen, Orange County, was traced by Stiles to oysters infected by "drinking" at the mouth of a sewage-polluted creek emptying into Jamaica Bay. In New York City, however, it is believed that oysters probably play but a small part, if any, in the annual autumnal rise of typhoid, for the infections constituting this rise regularly occur in July and August, a time of the year when there is only a very small consumption of oysters. Still, the sale of oysters at retail is regulated by permits specifying certain strict requirements, and somewhat more than a year ago the board of health passed a resolution declaring that it shall be unlawful to float oysters and other shellfish in polluted waters in the city, and that none which have been floated or treated with polluted water, or which are shown by examination to be polluted, shall be brought into the city or held, kept, sold, or offered for sale at any place in it.

COLUMBIA UNIVERSITY.—At a meeting of the trustees of Columbia University, held Jan. 5, the resignation was accepted of Dr. Livingston Farrand, junior professor of anthropology, who has been elected president of the University of Colorado. Dr. Francis Carter Wood, director of cancer research, at the request of that department, was assigned to a seat in the faculty of pure science. At the meeting a gift of $2500 for surgical research, from an anonymous donor, was announced, and among the other donations during the month was one of $100 from Dr. Willy Meyer, for the "Deutsches Haus."

TYPHUS FEVER AMONG IMMIGRANTS.—During the recent voyage of the Italian steamship *Roma* from Marseilles to New York, a case of typhus fever occurred on board. The vessel touched first at Providence, R. I., and was detained there in quarantine for a short time. On

her arrival at New York on Jan. 7. 250 of the immigrants aboard, 30 of them with suspiciously high temperatures, were removed and placed under observation at Hoffman Island for 14 days. Four of these persons have since developed typhus. The vessel has been disinfected. Meantime, report from Providence states that four cases and one death of typhus fever have occurred in that city since the coming of the *Roma*.

A Lonely Centenarian.—Joseph Wormuth, who died recently at Shinopple, Delaware County, was said to have been born in 1809. He was an early pioneer settler along the Delaware River, and fought in the ranks throughout the Civil War. He subsequently engaged in farming and lumbering, and remained in active and vigorous health until three months ago. He was a widower and leaves no surviving children.

Infant Mortality in 1913.—Report from New York on Jan. 5 indicates that the infant mortality rate in that city in 1913 was the lowest on record.

"The infant death-rate for the year is 102 per thousand births, the lowest infant rate in the history of the city. Last year the rate was 105.3 per thousand births. This means a decrease in the death-rate of 3.3 per thousand births, or the saving of over three out of every thousand babies born as compared with last year. The total number of deaths under one year of age from all causes in the greater city last year was 13,779. In 1912 there were 14,289 such deaths, that is 510 fewer babies died in 1913 than in 1912. Estimating on the increased population for the year, the report says this means a saving of 1,069 infant lives. The general health report of the city for 1913 shows a reduction in the death-rate per thousand population for all ages from 14.11 to 13.76."

Harvey Lecture.—The sixth lecture in the current series before the Harvey Society will be given at the New York Academy of Medicine on Jan. 17, by Prof. Victor C. Vaughn of the University of Michigan, on "The Phenomena of Infection."

Current Literature

Medical Record.

December 27, 1913.

1. *Muhlberg, W. *A Few Practical Observations—the Result of Eight Thousand Examinations of Urine.*
2. Aulde, J. *Solving the Mystery of Bright's Disease—A Preliminary Paper.*
3. Craig, H. A. *The Treatment of Pneumonia by Bacterial Vaccines.*
4. Boehme, G. F., Jr. *The Determination of Changes in the Pain Sensations.*
5. Maher, S. J. *The Presence of the Tubercle Bacillus.*
6. Foster, G. S. *Appendiceal Infection, with Abscess Formation. Should the Appendix be Removed at the Primary Operation?*
7. Sorgatz, F., and Bolend, R. *The Action of Acetic Acid on Syphilitic Blood Stains.*
8. Mullan, E. H. *The Medical Inspection of Immigrants at Ellis Island.*
9. Barnes, L. E. *Eyestrain.*

1. Muhlberg records a few observations in a series of eight thousand specimens of urine from applicants for life insurance. Cylindroids (mucin threads) in excess were found in about 5% of the samples, and subsequent specimens from the same individuals often showed numerous casts and traces of albumin. In one case of nephritis now under his observation casts are usually very numerous, but at times are almost entirely replaced by typical cylindroids. [L. D. C.]

New York Medical Journal.

December 27, 1913.

1. Ewing, J. *The Cancer Research Hospital.*
2. Goldman, A. L. *Ileocolitis with Meningeal Symptoms.*
3. Ball, C. F. *Serodiagnosis (Abderhalden) of Cancer and Pregnancy.*
4. Auebbach, J. *Chronic Suppuration of the Middle Ear.*
5. Collings, H. P. *The Resorts We Visited.*
6. *Magida, N. *Acromial Breathing as an Aid in the Diagnosis of Apical Pulmonary Tuberculosis.*
7. Bartholow, P. *The Etiology of Pellagra.*
8. Goltman, A. *The Treatment of Bronchopneumonia in Children.*

6. Magida has been testing the value of acromial breathing as a diagnostic sign in apical phthisis at the Post-Graduate Hospital, New York. In this disease auscultation at the acromion process increases and amplifies all the auscultatory signs which are ordinarily obtained over the apices, so that a slight lesion should be detected more easily by listening at this place. The writer found "acromial breathing" present in all of 28 cases in the first stage, in 8 out of 14 second stage cases, and in 2 out of 10 third stage cases. He is convinced that this method deserves a place in physical diagnosis. [L. D. C.]

The Journal of the American Medical Association.

December 27, 1913.

1. *Bloodgood, J. C. *Control of Cancer.*
2. Jordan, E. O. *The Municipal Regulation of Milk-Supply.*
3. Woods, M. *Seven Cases of Epilepsy in Children Traced to Single Alcoholic Intoxication on the Part of One or Both Parents Otherwise Teetotalers.*
4. *Womer, W. A. *Results of Staphylococcus Spray Treatment in Forty-Two Cases of Diphtheria Carriers.*
5. Rogers, A. C. *The Desirability of Early Diagnosis of Mental Defect in Children, and Mental Tests as an Aid.*
6. Goodhardt, S. P. *Amnesias of Tobacco and of Malarial Origin, with Report of Two Cases.*
7. Stiles, P. G. *A Case of Apparent Food-Poisoning of the Type Known as Botulism or Allantiasis.*

8. LOWELL, H. *Burn of Eyes from Contents of Golf-Ball Core.*
9. *CABLES, H. A. *Quinin and Urea Hydrochlorid in the Treatment of Sciatica.*

1. Bloodgood believes that the future success in the control of cancer lies in education of both layman and physician. He strongly urges early operation or exploration in the precancerous stage.

4. Womer states that the staphylococcus spray in diphtheria causes no unpleasant symptoms, but does not appreciably lessen the period of quarantine. The preparation and distribution of the spray is a laborious procedure, especially if there are many cases. Apparently most carriers do not spread the disease after sixty days from the day the disease begins. Public health officials could work more effectively if they had some practical method of determining the virulence of diphtheria bacilli form in the throats of carriers.

9. Cables has treated eight cases of sciatica with deep, but not intraneural, injections of a 4% solution of quinin and urea hydrochlorid in normal salt solution given on successive days until relief has come. The largest number of injections was eight. He thinks this method worth further trial. [E. H. R.]

JOURNAL OF INFECTIOUS DISEASES.

NOVEMBER, 1913.

1. *MEYER AND HARDENBERGH. *On the Value of the "Abortin" as a Diagnostic Agent for Infectious Abortion in Cattle.*
2. HEKTOEN. *The Production in Monkeys of Antibodies for Humane Corpuscles.*
3. *DE WITT. *Report of Some Experimental Work on the Use of Methylene Blue and Allied Dyes in the Treatment of Tuberculosis.*
4. BROADHURST. *The Effect of Meat and of Meat Extract Media upon the Fermentative Activity of Streptococci.*
5. *ARLSIN. *The Influence of Strychnin, Caffein, Chloral, Antipyrin, Cholesterol and Lactic Acid on Phagocytosis.*
6. KENDALL, DAY and WALKER. *Observations on the Relative Consistency of Ammonia Production by Certain Bacteria.*
7. LARSON AND BARRON. *Report of a Case in Which the Fusiform Bacillus was Isolated from the Blood Stream.*
8. KRUMWIEDE AND PRATT. *Fusiform Bacilli: Cultural Characteristics.*
9. *FULLER AND ARMSTRONG. *The Differentiation of Fecal Streptococci by Their Fermentation Reactions in Carbohydrate Media.*
10. KING AND HOFFMANN. *Spirochaeta Suis, Its Significance as a Pathogenic Organism. Studies on Hog Cholera.*
11. HARTMAN. *The Antigenic Properties of the Constituents of Pneumonic Exudate.*
12. LARSON AND BELL. *A Study of the Lesions Produced by Bacillus Proteus.*

1. Meyer and Hardenbergh conclude that the "Abortin test," as recommended by the English Commission, is thoroughly unreliable. They have prepared a purified material for intravenous injection, which has yielded encouraging results. But even with this modified material a high percentage of healthy animals show a positive febrile reaction. A positive reaction, even in an infected animal, does not show the stage or acuteness of the disease process.

3. Methylene blue was found to penetrate the tubercle, stain the living tubercle bacillus, and in some cases kill the bacillus in vitro, and in others lessen its virulence. When added to the culture media, a relatively small percentage of the substance inhibited the growth of the human tubercle bacillus. The author was unable to influence the disease in guinea-pigs through the therapeutic use of methylene blue.

5. Arlsin has made a thorough study of the influence of certain drugs upon phagocytosis. He found that the following general rules were true, *i.e.* substances favoring oxidation promoted phagocytosis and increased the immune bodies. The reverse of this general rule was found true in most instances. Alcohol, chloroform, ether, chloral, morphin and potassium cyanid depress phagocytosis in vitro. Conversely, sodium iodoxybenzoate, strychnin and certain colloid metals stimulate phagocytosis. The middle zone is occupied by such drugs as caffein and the antipyretics, which influence neither oxidation nor phagocytosis. It was found also that those drugs which depressed phagocytosis in vitro had a similar action when studied in vivo. He considers it important to consider with care the effects of agents on the processes of immunity when they seem indicated in infectious diseases.

9. The bacterial flora of human feces is characterized in general by the presence of streptococci producing large amounts of acid in dextrose (3.5-4%). The most frequent in occurrence is Str. fecalis (65%). Str. mitis is very often demonstrable. Str. equinus prevails in horse dung (55%), and Str. salivarius in cow dung (64%). [L. H. S.]

ANNALS OF SURGERY.

OCTOBER, 1913.

1. *MÜLLER, G. P. *The Treatment of Tuberculous Cervical Lymphadenitis.*
2. DAVIS, J. S. *Excessive Thickening of Thiersch Grafts Caused by a Component of Scarlet Red (Amidoazotoluol).*
3. NOLAND, L., AND WATSON, F. C. *Embolism and Thrombosis of the Superior Mesenteric Artery.*
4. HERTZ, A. F. *The Cause and Treatment of Certain Unfavorable After-Effects of Gastro-Enterostomy.*
5. SCHLEY, W. S. *Rectus Transplantation for Deficiency of Internal Oblique Muscle, in Certain Cases of Inguinal Hernia.*
6. *HULL, A. J. *Recurrence of Inguinal Hernia.*
7. *WHITE, G. R. *Contracture of the Psoas Parvus Muscle Simulating Appendicitis.*
8. COLT, G. H. *The Reduction of the Fragments Preliminary to Internal Splintage in Cases of Fracture of the Long Bones.*
9. ASHHURST, A. P. C. *Fractures through the Trochanters of the Femur.*
10. *STEINKE, C. R. *Simultaneous Fracture of Both Patellae.*
11. HORWITZ, A. E. *Uncomplicated Fractures of the Tarsal Scaphoid.*
12. MCDILL, J. R. *Cyst of the Fifth Metacarpal Bone.*
13. SHERRILL, J. G. *Direct Suture of the Brachial Artery Following Rupture, Result of Traumatism.*
14. POOL, E. H. *Suction Tip for Aspiration in Abdominal Operations.*

1. Müller's article is a study of 103 cases of cervical, inguinal and axillary tuberculous lymphadenitis in the service of Dr. Frazier at the University Hospital, Philadelphia, during the past twelve years. Sixty-nine of these cases have been traced, of which 53 were cured, 9 recurred, and 7 were dead. The operative mortality was nil. He considers sources of infection and portals of entry and surgical, x-ray, and tuberculin treatment, with especial reference to scar, nerve injury and recurrence. He advocates surgery in the majority of cases, employing the x-ray only in old indurated cases preliminary to operation and after curettage of sinuses and caseous abscesses. The use of tuberculin in such cases he regards as rational.

6. Hull's communication is based upon 57 cases which he has operated upon for recurrent inguinal hernia; 45 of these occurred after an operation of this type: opening of canal, ligation of neck of sac, and suture of the conjoined tendon over the cord to Poupart's ligament. The hernia was always to the inner side of the internal ring, pushing forward the peritoneum and transversalis fascia. Seven of the 57 occurred after an operation of this type: same as former with suture of conjoined tendon beneath cord to Poupart's ligament. The hernia was always to the outer side of the internal ring. He has rarely operated for a recurrence after a typical Bassini operation. After high ligation of the neck of the sac, and amputation, he carries the stump through the internal ring and fixes it one and one-half inches above the ring. Hull regards this procedure as "probably one of the most valuable steps in the operation for radical cure of hernia."

7. White reports six cases of pain and tenderness in right iliac fossa with apparent tumor, but without fever or digestive disturbance, operated upon during the past four years, in which the psoas parvus was found in a state of contracture and projected forward into the abdominal cavity. Tension was relieved by incising the main tendon and accessory bands. No other pathology was evident and this procedure has apparently cured.

10. Steinke reports two cases of simultaneous fracture of both patellae operated upon by Dr. C. H. Frazier of Philadelphia. He has made a careful search through the literature, giving epitomies of 43 cases and tabulating 44 cases, including the two he reports, with reference to sex, age, manner and type of fracture, mode of treatment and result.

[T. W. H.]

Surgery, Gynecology and Obstetrics.

December, 1913.

1. *Allison, N., and Brooks, B. *The Mobilization of Ankylosed Joints; an Experimental Study.*
2. Osgood, R. B. *The End Results of Attempts to Mobilize Stiffened Joints.*
3. Deaver, J. B. *Cholecystectomy.*
4. *McKenna, C. H. *Drainage of the Upper Intestinal Loop for the Relief of Ileus: Based upon Eight Clinical Cases Successfully Operated, and Animal Experimentation.*
5. *Brown, W. L., and Brown, C. P. *Preliminary Report on Experimental Bone and Periosteal Transplantation.*
6. *Cabot, H. *Factors Influencing the Mortality of Suprapubic Prostatectomy.*
7. Meyer, W. *The Early Diagnosis of Cancer of the Esophagus.*
8. Barringer, B. S. *Renal Function.*
9. Mall, F. P., and Cullen, E. K. *An Ovarian Pregnancy Located in the Graafian Follicle.*
10. *Bulkley, K. *Malignant Disease of the Testicle Retained Within the Abdominal Cavity.*
11. Taylor, H. C. *Educational Work in Carcinoma of Uterus.*
12. Frazier, C. H. *Lesions of the Hypophysis from the Viewpoint of the Surgeon.*
13. Rockey, A. E. *The Problem of Intestinal Stasis.*
14. *Cunningham, J. H., Jr. *The Operative Treatment of Acute Gonorrheal Epididymitis.*
15. Bryant, W. S. *The Protective Mastoid Operation; an Operation of Election.*
16. Reichelderfer, L. H. *Postural Treatment of Post-Operative Abdominal Adhesions.*
17. Miller, R. T., Jr. *The Falciform Ligament of the Liver as Plastic Material Available for Use in the Upper Abdomen.*
18. Coburn, R. C. *The Selection of the Anesthetic Upon the Basis of Its Ultimate Physiology.*
19. Rhodes, G. B. *A Modification of the Rectus Fascial Flap in Inguinal Hernioplasty.*

1. Allison and Brooks in a very interesting series of experiments on dogs' joints found the following conditions to develop: The denuded joint surfaces were at the end of five days covered with granulation tissue which grew from the marrow spaces. This granulation tissue developed into fibrous tissue, which later leads to fibrous ankylosis and is, according to Hoffa, the primary stage of osseous union. With the interposition of fascia lata, either in free pieces or in pedunculated flaps, the direct union of the denuded joint surfaces was prevented only in case the fascia transplant underwent necrosis and absorption. In those instances in which the flap persisted, in part, the islands thus formed acted as adhesions between the joint surfaces. There was no advantage in the use of a pedunculated flap. On the contrary, the pedicle persisted as an intra-articular band which checked joint motion. With the fascia impregnated with silver, the union of the denuded joint surface was prevented. Cargyle's membrane was absorbed within five days.

4. McKenna, as a result of dog experimentation with high bowel obstruction, makes the following deductions: Disturbance of innervation to the upper intestinal tract in the human sufficient to stop peristalsis, produces the same symptoms as mechanically blocking the same amount of intestine in the dog. High intestinal stasis, whether paralytic or mechanical, is much more serious than low obstruction. The fatal factor in acute obstruction may be found in the secretions from the duodenal mucosa. The fatal factor in general peritonitis may be due to a duodenal secretion and not to the effect of infection *per se*. When the condition of acute ileus is established early drainage of the duodenum is indicated, and this is best performed by jejunostomy.

5. Brown and Brown were unable in any experiment to reproduce bone from free periosteal transplants into the subcutaneous tissue and muscle, or to reproduce bone in the periosteal flap raised, left in contact with the bone, passed through muscle, and again contacted with periosteum. They were unable to reproduce bone in any experiment from free bone transplants, without periosteum, with the subcutaneous tissue and muscle, regardless of the size of the transplant. Absorption was the rule in every case. They were also unable to reproduce bone in a single experiment where bone was transplanted with free periosteum left intact, into muscle or subcutaneous tissue. These were also all absorbed. They were, however, uniformly able to reproduce bone when transplanted and contacted with living bone, or if it were in a position where it had a function to perform. Other necessary conditions being present for its reproduction, bone reproduces bone without the aid of periosteum. Transplants contacted with living bone and with no function to perform were inclined to absorption. Periosteum is not at all essential to the life and growth of bone as far as their work showed.

6. Cabot believes that because of greatly lessened shock and danger of post-operative lung and heart complications in suprapubic prostatectomy, spinal anesthesia is far more safe and indicated than any other form. He believes also that the usual methods of control of hemorrhage are careless and illogical, and advocates suture of the neck of the bladder as the most efficient means. With spinal anesthesia, and lessened shock, with efficient control of bleeding, the mortality from suprapubic prostatectomy will be greatly lessened, so that this method may be considered the route of election.

10. Bulkley believes that malignant disease of the abdominal testes occurs about once in 60,000 cases. About one in every four cases of malignant abnormally situated testicle is found within the abdominal cavity. About one malignant abdominal testicle occurs to each 15 malignant scrotal testicle. About one of each 75 abdominal retained testes will become malignant.

14. Cunningham believes that epididymotomy offers the best means of ending an acute epididymitis.

[E. H. R.]

THE INDIAN MEDICAL GAZETTE.

OCTOBER, 1913.

1. HOOTON, A. *A Note on Some Uses of a Modified Purin-Free Diet.*
2. SMITH, C. H., AND GRAHAM, G. F. *Relapsing Fever in Chitral, with an Account of Successful Animal Inoculations.*
3. MUNRO, D., AND WHITE, A. D. *Delayed Chloroform Poisoning.*
4. DUNN, J. J. F. *On the Use of Scopolamine, Morphine, and Atropine in Preventing Shock During Chloroform Anesthesia.*
5. SHEPPARD, A. L. *Intestinal Obstruction and Scurvy.*
6. NAPIER, A. H. *Is Syphilis a Factor in Blackwater Fever?*
7. GUPTA, S. C. D. *Notes on Some Excisions of the Thyroid Performed at the Sree Sree Sree Bir Hospital, Nepal (Khatmundu).*
8. DAS, B. *A Case of Myeloeythaemia.*
9. ROUX, F. *Note on the Use of Chionanthus Virginiana in Diseases of the Liver.*
10. ROW, T. G. S. *Round Worms and Pregnancy.*
11. SCOTT, L. B. *A Surgical Curiosity.*

NOVEMBER, 1913.

1. LANE, C. *Ankylostomes and Ankylostomiasis in Bengal.*
2. *RODGERS, R. T. *Dysentery in the Raipur Central Jail.*
3. WALL, F. *Treatment of Snake Poisoning.*
4. WHITE, P. C. *A Case of Cobra Poisoning.*
5. SUDHONARAIN. *Epidemic Cerebro-Spinal Meningitis.*
6. NEWMAN, E. A. R. *Steam Sterilization and Hints on the Choice of a Sterilizer.*
7. ROGERS, L. *Retractile Pointed Stop-Cock Cannula for Giving Intravenous and Intraperitoneal Saline Injections Without Incision.*

2. From a careful statistic and clinical study of dysentery cases occurring in the Raipur jail from 1896 to 1912, inclusive, Rodgers finds them of mixed causation. In the amebic cases, emetine hydrochloride proved to be the best treatment. In the Shiga cases, treatment with Shiga vaccine gave good results, but prophylactic inoculation appeared to be of even greater value. The author believes this procedure harmless, and capable of being employed also in cases where terminal dysentery is feared.

[R. M. G.]

THE PRACTITIONER.

NOVEMBER, 1913.

1. *SCOTT, H. H. *Widal's Agglutination Reaction as an Aid in Prognosis in Enteric Fever, Based on a Study of Over Fifteen Hundred Consecutive Examinations.*
2. *KIDD, F. *The Diagnosis and Treatment of Haemic Infection of the Urinary Tract.*
3. BLUMFELD, J. *A Critical Summary of Some Recent Work on Anesthesia.*
4. BREND, W. A. *Law and Medicine, 1912-1913.*
5. JEX-BLAKE, A. J. *Recent Work on Diseases of the Lungs.*
6. *PATRICK, J. K. *Tuberculin in the Diagnosis and Treatment of Pulmonary Tuberculosis.*
7. *COOKE, A. D. S. *Tuberculin in the Diagnosis and Treatment of Tuberculosis.*
8. *DE KEATING-HART. *The Rational Treatment of Cancer.*
9. *MONOD, G. *On the So-called Movable Kidney Disease.*
10. ZUNDEL, C. E. *Infantilism.*
11. THORNE, L. T. *The Effect of Nauheim Baths upon Cardiac Conductivity.*
12. KENNEDY, C. M. *The Symptomatology of Cholelithiasis.*
13. *MILLER, A. G. *Is Enlarged Prostate the Cause of Residual Urine?*
14. TIRUMURTI, T. S. *The Relation between the Pancreas and Diabetes. With Notes of a Case of Pancreatic Calculi.*
15. CUSTANCE, G. W. M. *Case with Comments. Acute Pemphigus Due to an Infection of a Diplococcus.*
16. WALSHE, S. J. A. H. *Case with Comments. Effects on the Mental State of Minor and Major Attacks in Epileptic Insanity.*
17. ADAMS, J. B. *The Doctors in the Decameron.*

1. Scott, who has made a detailed study of typhoid and paratyphoid fever in Jamaica, bases this paper on an examination of 1500 specimens of blood on which he has done the Widal reaction. As a standard he decided that a serum of dilution 1:30 should agglutinate at 18° broth culture of the organism in 15 minutes, a dilution of 1:50 in 30 minutes and a 1:100 in one hour. He is of the opinion that a careful study of the patient's history, the degree and promptness of agglutination with both the typhoid and the paratyphoid organism give important points as to the prognosis and course of the disease. These points he discusses in detail with many illustrative cases. In localities where the disease is so common as it apparently is in Jamaica such studies as these are of great value.

2. Kidd believes that there is much to be done on the subject of pus in the urine and bacterial infections of the urinary tract. In this paper he discusses methods of examination, vaccine treatment, treatment by nephrectomy, and the diagnosis and treatment of pyelitis. He deplores the air of hopelessness which has grown up around chronic cases simply because they have not been examined.

6. In this paper Patrick discusses the preparation of tuberculin, technic of administration, the various kinds of tuberculin, dilution, use in diagnosis and treatment, the various reactions, and the selection of cases and principles of dosage. The paper, while presenting nothing new, is an interesting review of the subject.

7. This paper, shorter than the preceding, covers in a very general way the same subject, *i.e.* tuberculin in diagnosis and treatment.

8. In a short article on the rational treatment of cancer, the writer concludes that surgery may cure before the period of general infection; failure in operation will be very rare if associated with fulguration, even after a limited excision; thermo-radiotherapy will intensify the deep therapeutic value of x-rays and of radium in the treatment of many inoperable tumors.

9. Monod summarizes the treatment of nephroptosis (movable kidney) as follows: (1) The use of belts which he describes, (2) free action of the bowels, (3) a diet consisting chiefly of meat, and (4) sodium bicarbonate.

13. Miller in a short paper urges practitioners to remember that not all cases of residual urine are caused by an enlarged prostate, and that many patients by proper training and persistent effort can be taught to empty their bladder and avoid a prostatectomy.

[J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

NO. 49. DECEMBER 9, 1913.

1. *EICKE, H. *The Gold Reaction in Cerebro-spinal Fluid.*
2. VEIL, W. H. *Benign Albuminuria.*
3. LUST, F. *The Misuse of Albumin Water in the Treatment of Acute Indigestion in Infants.*
4. HENER, C. A. *The Experimental Transmission of Tumors to the Eye.*

5. Rübsamen, W. *Clinical-Experimental Studies on the Action of Synthetic Drugs for the Induction of Labor.*
6. *Siegrist, R. *Nervous Fever in Tabes Dorsalis.*
7. Holzknecht, G. *A Modified Bucky Illuminator.*
8. Habtmänn, J. *The Sensitiveness of Peritoneal and Abdominal Fascia.*
9. Hartung, E. *The Avoidance of Danger from Emboli Following Injections of Paraffin.*
10. Steen, K. *The Removal of Tattoo Marks.*
11. Post, K. *The Nerve Points of Cornelius in Relation to Swedish Massage.*
12. Jessen, F. *A New Rib Forcep and a New Blunt Muscle Retractor.*
13. Zinsser. *A Simple Artificial Nose.*
14. Kreuter. *Edwin E. Goldmann.*
15. Fischer, A. *Suggestive Notes from the Annual Vital Statistics of the City of Berlin.*
16. Nassauer, M. *The High School for Physicians and Patients.*

1. Eicke describes his technic for the precipitation of globulins in syphilitic cerebro-spinal fluids by colloidal gold, and gives his findings on 323 cases. The reaction is based on the fact that globulins, nucleoproteins and other albuminous cleavage products, important in causing the Wassermann reaction, are precipitated with colloidal gold at a fixed dilution above or below which precipitation does not occur. In other words, the proteins of syphilitic cerebro-spinal fluids are precipitated by gold in dilutions at which non-syphilitic fluids are not, and can be differentiated accordingly.

Eicke tabulates his results with the test as performed in the manner described. The findings paralleled the Wassermann reaction in general, but in a few cases were positive where the Wassermann was negative, although such patients developed later symptoms of syphilis of the nervous system. Eicke concludes that the gold reaction is extremely delicate and specific and affords an additional means for the early diagnosis of cerebro-spinal lues.

6. A few cases of tabes have been reported in which crises of fever occurred with or without accompanying crises of pain. No explanation has been offered for such symptoms. Siegrist adds a similar case to the literature. The patient was a tabetic who had periodic attacks of fever lasting from one to four days, with temperature reaching as high as 39°. These were accompanied by severe gastric crises or lancinating pains and passed off without treatment. Whether this symptom complex was produced by a stimulation of the heat regulating centres or by increased heat production of a nervous nature, or was due to resorption of toxines is purely speculative.

[R. F.]

Berliner Klinische Wochenschrift.

No. 44. November 3, 1913.

1. Oppenheim, H., and Borchardt, M. *Experiences in Operation for Tumors of the Cerebellum.*
2. Axhausen. *Some Unusual Lesions of the Upper Third of the Femur.*
3. Uhlenhuth, P., and Mulzer, P. *Further Communication on the Results of Experimental Investigations in Syphilis.*
4. Hegler, C., and St. von Prowazek. *Researches in Typhus Fever.*
5. Posner, C. *Casts and Cylindroids.*
6. Lesser, F. *The Detection of Iodine in the Urine.*
7. Lindemann, W. *A New Ecbolic, and the Synthesis of Ecbolics.*
8. Langaard, A. *The Action of Aleudrin.*
9. Hasebrock, K. *The Phylogenetic Conception of Spastic Contractures.*
10. Obermiller. *The Effect of Arsenic and Salvarsan; an Addition to My Work on the Action of Salvarsan.*
11. *Berger, H. *Magnesium Sulphate in the Treatment of Tetanus.*

11. Meltzer and Auer in 1905 first studied carefully the physiological effects of magnesium sulphate; and its anesthetic action, following subcutaneous, intradural and intravenous administration has led to its use in tetanus. It has no specific effect on the toxin, but prevents the convulsions to a great extent. All three of the above methods of injection have been used, with gratifying results. Kocher reports six cures in seven cases. Meltzer and Auer have used a 25% solution. Kocher says that this is too strong, and that 15% is better—or even 10%. The difficult point to decide is the dose—the author says the maximum dose of the 15% solution should be 2 c.c. to 10 kilograms of body weight. Intradural injection is very effective, but must be used with great care and the patient watched constantly, so that artificial respiration and stimulation may be begun at once in the event of paralysis of the respiratory centres. This method of treatment should not supplant the tetanus antitoxin, but the two may with care be used together. The question of repeated doses depends on the extent and severity of each individual case. Auer says that "cases of tetanus in the hospital should always have this magnesium treatment." [R. H. M.]

Deutsche Medizinische Wochenschrift.

No. 39. September 25, 1913.

1. Stick, R. *The Present Status of Organ Transplantation.*
2. Arneth. *Hot Baths in the Treatment of Bronchitis and Pneumonia in Infants and Children.*
3. Kafka, V. *Value of Investigation of the Blood and Spinal Fluid in Nervous Disease.*
4. Traube, J. *Narcosis and Similar Phenomena.*
5. Hanswirth, A. *Formaldehyde Fumigation without Apparatus.*
6. Jankowski, J. *Resection of the Diaphragm.*
7. Herhold. *Lessons in Field Surgery from the Balkan War.*
8. Dreyer, A. *Treatment of Induratio Penis Plastica.*
9. Engel, E. *The Treatment of the Toxemia of Pregnancy.*
10. Kallos, J. *The Herrman-Perutz Syphilis Reaction.*

No. 40. October 2, 1913.

1. Kraus, F. *Pathology of the Thyroid, Parathyroid and Pituitary, and Their Interaction.*
2. v. Bokay. *Local Treatment of Ulcers Following Intubation.*
3. *Frank, E. *Diabetes.*
4. Cohn, S. *Sodium and Calcium Metabolism in Diabetes.*
5. Kochmann, M. *Chloroform and Ether Narcosis.*
6. Lonhard. *The Treatment of Cardiac Failure in Pneumonia by Venesection and Epinephrin Injections.*
7. Guichard. *Differential Diagnosis of Echinococcus Cyst of the Lung.*
8. Schönfeld, W. *Psoriasis a Constitutional Disease.*
9. Gans, O. *The Chemistry of the Cell and Nucleus.*

3. This article, from Minkowski's clinic, presents for consideration a new theory of the nature of diabetes. The present ideas on the subject, says the author, are like many others in medicine, worked out backwards from the results of therapy. In a brief consideration of the present theories, he points out the objections to each.

The organs which regulate carbohydrate metabolism are the nervous system and the pancreas. The latter

is the only organ partial or total extirpation of which will always cause glycosuria of varying degrees. Experimentally, Claude Bernard has shown that trauma to the nervous system may cause glycosuria, and clinically, diabetes often follows nervous strain. The glycosurias produced by adrenalin are regarded by the author as a special instance of the Langlay-Elliot law, which states that all organs supplied by the sympathetic react to adrenalin as to irritation of the sympathetic system. The thyroid and hypophysis he regards as of secondary importance in diabetes, producing their effect probably through their action on the sympathetic.

Frank believes that diabetes is to be regarded as a disturbance of glycogen metabolism, due to the effect on the liver of derangement of pancreatic function. In support of this theory he cites the fact that anastomosis of the pancreatic vein of a normal dog to the portal system of a depancreatised dog will cause a marked diminution in the glycosuria in the latter. It is probable, he believes, that in diabetes the lack of pancreatic hormone so disturbs the glycogen metabolism that the normal chemical phenomena can no longer occur, with resultant glycosuria and acidosis. [C. H. L.]

Correspondence.

THORIUM-X.

BOSTON, MASS., Jan. 5, 1914.

Mr. Editor: The statement that has appeared regularly in the daily papers indicating a monopoly of the Thorium-X supply in this country is not true.

The Auergesellschaft, Deutsche Gasglühlicht Aktiengesellschaft, 17 Rotherstr., Berlin, Germany, will supply it so that it can reach here 1,000,000 M.E. units strength.

For my own use in the treatment of cancer, I have an apparatus making 2,500,000 units a day and from my surplus I have been able to supply a sufficient amount for the treatment of a number of cases of rheumatism and anemias, including the pernicious type. Yours truly,

FRANCIS D. DONOGHUE, M.D.

HERTER LECTURES.

The Herter Lectures of the University and Bellevue Hospital Medical College will be given during the week beginning January 12, 1914, at Carnegie Laboratory, 338 East 26th Street, New York City. Professor Sven Hedin will lecture on "Colloids and Their Relation to Biological Chemistry."

SOCIETY NOTICES.

THE NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—The New England Hospital Medical Society will hold its annual meeting Thursday, January 15, at the Hotel Lenox. Dr. S. Josephine Baker, Director of Child Hygiene Department of Health, New York City, will be the guest of honor, and will address the meeting after a buffet supper.

The business meeting will be at six o'clock, followed by a short reception to Dr. Baker, preceding the supper. MARGARET L. NOYES, M.D., *Secretary.*

BOSTON MEDICAL LIBRARY in conjunction with the SUFFOLK DISTRICT MEDICAL SOCIETY.—Medical section meeting, John Ware Hall, Wednesday, January 21, 1914, at 8.15 P.M.. "Some Problems in Nephritis," Dr. Horace D. Arnold. Discussion by Dr. Henry A. Christian, Prof. Otto Folin and Dr. R. Fitz.

Light refreshments after the meeting.

EDWARD W. TAYLOR, M.D., *Chairman.*
LESLEY, H. SPOONER, M.D., *Secretary.*

NEW ENGLAND PEDIATRIC SOCIETY.—The twenty-ninth meeting of the New England Pediatric Society will be held in the Boston Medical Library, Friday, January 23, 1914, at 8.15 P.M.

The following papers will be read:

1. "A Case of Lymph Cyst of the Mesentery," Dr. Charles G. Mixter.
2. "The Influence of Alkalies on the Gastric Motility in Infants." Dr. Maynard Ladd.
3. "Infantile Scurvy," Dr. John Lovett Morse.
4. "The Etiology of Epilepsy," Dr. Arthur W. Fairbanks.

C. A. PRATT, M.D., *President*
FRITZ B. TALBOT, M.D., *Secretary.*

THE BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on Tuesday evening, January 20, 1914, in the Amphitheatre of the Administration Building of the Harvard Medical School, at 8.15 o'clock.

Papers will be presented as follows:

Dr. F. H. Verhoeff: "Experimental Investigation of the Possible Therapeutic Value of Ultra Violet Light As a Germicidal Agent." (20 minutes.)

Dr. W. C. Quinby: "A Method for Crossed-circulation Experiments." (10 minutes.)

Mr. E. P. Lehman: "On the Rate of Absorption of Cholesterol." (10 minutes.)

Dr. E. G. Martin: "The Human Sensory Threshold During the Night." (10 minutes.)

THOMAS ORDWAY, *Secretary and Treasurer,*
Harvard Medical School.

RECENT DEATHS.

DR. FREDERICK C. BUSCH, who died on Jan. 3 of vesical carcinoma and terminal pneumonia at Buffalo, N. Y., was born in 1873. He was assistant superintendent of the Gratwick Cancer Laboratory, and professor of physiology at the University of Buffalo.

DR. BENNO A. HOLLENBERG, of New York, died on January 1. He came to America from Germany in 1860, and, having taken up his residence in Huntsville, Ala., he served for most of the Civil War in the Confederate Army. He was graduated from the College of Physicians and Surgeons, Memphis, in 1885, and had practised in New York since 1893.

DR. JAMES A. H. CUETIS, who died last week in Paterson, N. J., was born at Brampton, Canada, in 1877. He was a graduate of Albert College, Ontario, and of Trinity University, Toronto. He served for two years as house surgeon at the Paterson General Hospital, and subsequently settled in the practise of his profession at that city. He was a member of the New Jersey State and Passaic County Medical Societies. He is survived by his widow and by one daughter.

DR. FRANZ REDER, who died on Dec. 28, at St. Louis, was born in Mellrichstadt, near Munich, Bavaria, on March 14, 1829. After studying at the Universities of Munich, Würzburg, and Heidelberg, he migrated to the United States in 1860. He is survived by two daughters and three sons, two of the latter being also physicians.

DR. ANDREW FLINT SHELDON, who died on Jan. 4 at Lyons, N. Y., was born in 1829. He served throughout the Civil War successively as assistant surgeon of the Seventh New York Cavalry and of the Seventy-eighth New York Infantry, and as executive staff-officer in the medical director's office at Washington, D. C. After the war he was brevetted lieutenant-colonel. He was an originator of the field hospital tent.

DR. GEORGE EPHRAIM FULLER, a retired Fellow of The Massachusetts Medical Society, died at his home in Monson, Mass., Dec. 23, 1913, aged 74 years. He was a native of Wilbraham. He left Amherst College in 1861 to enter the Army and served altogether four years and seven months in the cause of the Union. He had practised in Monson since 1868 and at the time of his death was president of the Monson National Bank. He died suddenly of heart disease.

Original Articles.

MORTALITY OF HEREDITARY SYPHILIS.

BY ABNER POST, M.D., BOSTON.

Syphilis is declared by writers on the subject to be simply murderous in its hereditary manifestations.

The distinguished syphilographer, Fournier, gives the statistics of 500 syphilitic families with whose history he is acquainted, as follows: In 223 families no transmission of the disease to offspring has taken place, in 277 families such transmission has taken place.

In these 500 families, 1127 pregnancies have occurred, 600 children are reported living and well; 527, or 46%, of the pregnancies have resulted unfortunately, as follows:

Abortions and still births	230
Early deaths	245
Living and syphilitic	38
Mentally deficient	14
	527

There is a tendency to disregard syphilis in this country. It is supposed to be a disease of older countries and rare in this; it is thought to be confined to those who go to seek it and to have no interest for those whose lives are blameless. If one accepts the death returns of the country as final, one may well say that the fatalities from syphilis are negligible.

It is the good fortune of the Boston Dispensary to have in the Dermatological Clinic a large number of syphilitic children, who furnish the material for this paper,—which concerns itself chiefly with those victims of hereditary syphilis who have survived the perils of infancy. Most of those who are considered have passed the earlier period of second dentition. They range from five or six to eighteen or twenty years of age.

If one looks at the vital statistics of Massachusetts, where these children have been seen, syphilis will be found notoriously absent, hardly more important in numbers than leprosy or typhus.

But it must be remembered that no one dares to assign syphilis as a cause of death. It would probably cost a doctor his popularity and ruin his practice if he dared to append that cause of death with the same simplicity that he would write typhoid or pneumonia. One must look elsewhere than at the official death returns to know anything about the fatality of syphilis.

From the children with hereditary syphilis who appear at the Boston Dispensary Clinic, it is our custom to learn all that we can in regard not merely to the patient, but also in regard to the family. This information is obtained usually from the mother or relative who brings the child. We have tried to learn the number of deaths in the family, with the alleged causes of death, and the condition of the survivors, and in regard to the patient, enough of the life history to know how far he or she falls short of the perfect child by reason of the syphilis.

It has not been possible to analyze all our material. It is only within a short time that our records have preserved material of this sort, and in regard to many families the records are of necessity quite vague. The mortality in 30 syphilitic families has been tabulated with the following results:

In these 30 families there have been 168 pregnancies; of these pregnancies there have been 53 still births and miscarriages, and 44 early deaths—a total of 97 lost, or 57%—71 remain alive.

57% of the pregnancies are dead.

38% of the children born alive are dead.

Out of the 168 pregnancies, of the 115 children brought living to the world, there remain alive 71; of these 71, 32 have been our patients, leaving only 39 presumably healthy. In the accompanying chart our patients are represented by a cross with a straight line beneath.

It is of interest and also of value to know what is the reason for this great mortality, or of what these children die.

Probably no other disease presents the same sad history as syphilis. No attempt is anywhere made, so far as I know, to classify the causes of stillbirth.

It has already been mentioned that syphilis appears infrequently in death returns as a cause of death. It becomes, then, a question of some importance to know how these deaths are reported, for certainly they must appear on the returns in some form. No one can for a moment believe that syphilis is the only cause of death in syphilitic families. Syphilitic children readily fall victims to intercurrent disease.

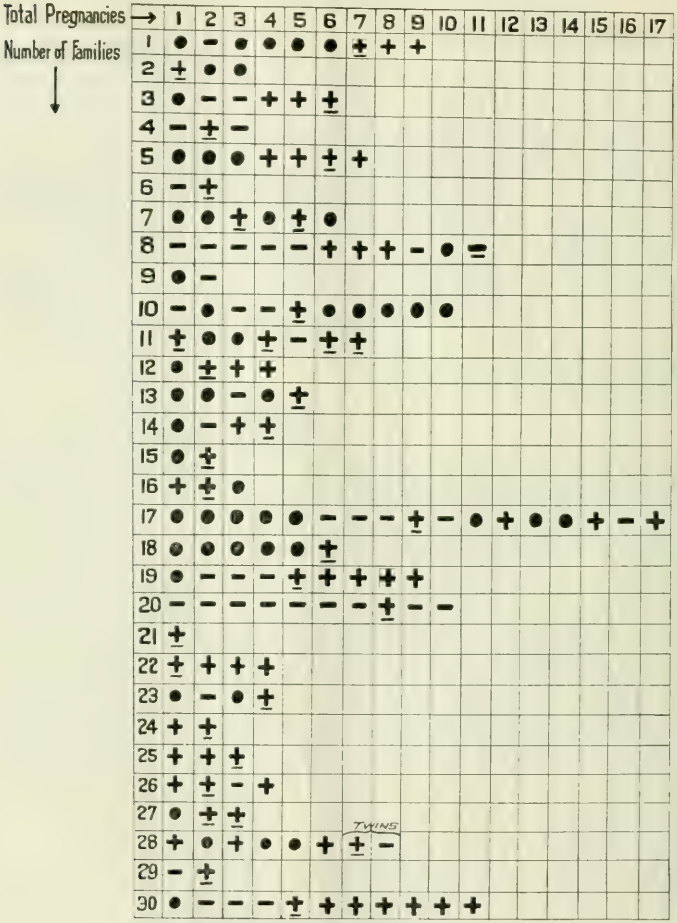
The attributed causes in 86 fatal cases in our syphilitic families, according to the mothers' accounts are as follows:

Congenital syphilis	2
Uncertain	4
Cholera infantum	25
Marasmus	27
Pneumonia	5
Hydrocephalus	5
Spinal meningitis	5
Scarlet fever	4
Chickenpox	2
Measles	2
Furunculosis	1
Diphtheria	1
Gastritis	1
Bronchitis	1
Accidental death	1

Of these causes, 25 cases of cholera infantum may, perhaps, be regarded as cases in which another disease is superimposed on a syphilitic basis, though it may be that the death could just as well have been attributed to syphilis as to cholera infantum.

Twenty-seven cases of marasmus is a striking number. Wasting is a symptom not at all un-

MORTALITY OF HEREDITARY SYPHILIS



Total Pregnancies in 30 Families ___ 168
Miscarriages and Still Births ___ 53
Early Deaths _____ 44
97
Living Children ___ 71 168

Patients ___ 38
Supposedly well _ 38 71

KEY + Living Children
● Miscarriages and Still Births
− Early Deaths
± The Patient

common in inherited syphilis and it cannot be far wrong to say that the symptom of marasmus is utilized to cloak the underlying disease.[1]

In regard to the five cases of pneumonia, it must be said that a form of pneumonia is found in syphilitic children. It is syphilitic in character but it may very well be used as cause of death either from failure to recognize the underlying syphilis or purposely to hide it.

Hydrocephalus is caused by syphilis as well as by other diseases, and we are justified in believing that hydrocephalus occurring in syphilitic families is of syphilitic origin.

The diagnosis of spinal meningitis may be regarded with suspicion in this connection.

It is pretty certain that the returns for marasmus, pneumonia, hydrocephalus are falsified by reporting as such some deaths which might more properly be returned as syphilitic. How far the returns of cholera infantum are vitiated, if at all, nobody can tell. No one can for a moment believe that syphilis is the only cause of death in syphilitic families. It must be recognized that the vital resistance of these children is greatly reduced by their heredity and they readily fall victims to intercurrent disease.

Among the families introduced to our notice, but not registered in this table, are several where the disease has entered the family after the birth of one or more healthy, that is, non-syphilitic children. The contrast in mortality in these families between the earlier healthy and the later syphilitic children is very striking and seems to emphasize the fatalities due to syphilis. The earlier children show only normal death-rate, while the later show the abnormal death-rate of syphilis.

Occasionally it happens that the first child survives with signs of hereditary syphilis, while the following pregnancies end fatally. These are families in which the husband is syphilitic at the time of marriage, but not in a condition to inoculate his wife. The first child is the product of a syphilitic father and a healthy mother, and its chances of surviving are better than that of the children who immediately follow after the mother has passed through the first pregnancy and become herself syphilitic.

These 30 families were introduced to us by children who came as patients for their own bodily ills. So far we have considered the families from which they have sprung. The patients deserve our study for their own sake. They are the survivors of the numerous fatalities. Each one suffers from the inherited disease in such a way as to make him seek for medical aid, and no two are alike. Heredo-syphilitic children present an almost endless variety of symptoms, in an endless variety of groups.

[1] This note is taken from the Physicians' Pocket Reference to the International List of Causes of Death issued by the Census Bureau. "Marasmus." This term covers a multitude of worthless returns, many of which could be made definite and useful by giving the name of the diseases causing the marasmus or wasting. It has been dropped from the English Nomenclature since 1885. ("Marasmus, term no longer used.") The Bellevue Hospital Nomenclature also omits the term.

In the first place, the heredo-syphilitic child is unfinished. It is less in size and weight than normal. It is three or four years behind the normal children of its age. This incomplete, unfinished condition may be evident in the child as a whole or in any part of it. To the condition as a whole is applied the term infantilism.

The internal organs are abnormal in the same way. As these children come to us, they show their hereditary deficiencies in various degrees and also the stigmata of infantile disease. At the same time with this deficient development, there occur in some an increase in bony structure, the deposit of new bone in some circumscribed spot. Its forehead may be increased in size in various parts so that it has a projecting and abnormally large forehead. Some of the long bones have bosses or circumscribed swellings.

Of the children seen during the last year, by far the greater number were suffering from partial blindness, temporary in most of them. The number of cases of eye disease in this particular group was abnormally large because they had come primarily from an eye clinic. One of them was at the Blind Asylum, one at the Kindergarten for the Blind. All of them were unable to attend school for months at a time. One of them came from the Horace Mann School for the Deaf and Dumb.

Several are deaf, one or two completely or nearly so to ordinary conversation. Many have had operations for the removal of tonsils and adenoids. There is room for the suspicion that some of the operations, and especially the repeated operations for adenoids, done on syphilitic children, are unnecessary. The narrow nasal passages and the swollen mucous membranes of the syphilitic child occasion the same symptoms as adenoids, and the first treatment should be for the syphilis, and only when that is found unsatisfactory, the operations for adenoids.

Many children in this number are mentally deficient to a much less marked degree. Most of them are backward in school because of their various physical defects. It is by no means an easy task for a clinician to know exactly how to classify the mental condition of these children. We hope to have them studied at some future time by expert teachers.

Active processes of the disease may be still going on in various parts of the body, nose, throat, legs, eyes, ears, lymphatic glands, bones as well as internal organs,—heart, lungs, nerves and other organs. For each one of these troubles the child has ordinarily sought relief in the clinic devoted to the special organ affected. Without knowledge of the other affections or the child's history, it is often extremely difficult in these various clinics to recognize the underlying taint which is the real cause of the trouble. At these various clinics these children are treated for their various ailments, but when all has been done for their eyes or ears or throats

that can be done in the special clinics, they are discharged, very properly, but the child still needs treatment for its constitutional condition, which it does not always receive. The children, as we see them, have usually a history of visits to many clinics, where, for a time, they have been the object of care, but with the advent of new symptoms they betake themselves to some new clinic and to new physicians.

A few detailed histories will be worth any amount of description. (See accompanying chart.)

J. C. No. 1, is the result of the seventh pregnancy. The first was born dead; the second lived eight months; 3, 4, 5, and 6 were born dead. John, the seventh, is 12 years old. The eighth and ninth are also living. John, our patient, has been put back in school a good deal because of sickness; has had two operations for adenoids; has glands on the neck said to be tuberculous, but probably due to decayed teeth. He applied at the Eye and Ear Infirmary for interstitial keratitis believed to be syphilitic. He has characteristic syphilitic teeth and slight deafness. He is said to be without ambition and would like to sleep most of the time.

M. S. No. 12 on the chart, was referred to us from the Eye and Ear Infirmary for our co-operation. She is the oldest child of four, only one has been lost. Mary was a seven-months' baby. For a long time had no finger or toe nails. At one year, had pneumonia; at two, nasal obstruction. No teeth until four years old. Did not walk until 3½. Six months ago had severe pain in right leg. Is behind in school. Mother volunteers that Mary is not very bright.

In addition to interstitial keratitis, Mary has scars about mouth and nose believed to be due to syphilitic lesions in infancy. Characteristic syphilitic teeth. The pain in her leg was due to syphilitic periostitis, which is easily recognizable and which kept her awake the night before her visit to the Dispensary.

These surviving children are well worthy of recognition by those interested in diminishing infant mortality, for they furnish the explanation of the death-rate in their families which otherwise might not be recognized. Some of the survivors live to become fathers and mothers themselves. How far they are able to transmit the disease to their own offspring is uncertain, but certainly many of them are unfit to become parents whether they actually transmit syphilis or not. From their undeveloped brains and bodies one cannot expect a very high class of citizens.

They are but examples from a large attendance at the clinic. The seriousness of the group, as it concerns the general welfare, depends largely upon the total amount of syphilis in the community. There is no census of syphilitics nor is one possible at present, but there have been attempts made to approximately learn the amount of the disease in the country. The figures fall between 15 and 20%. It is, then, from its numbers, of no inconsiderable importance, but the failure to rightly report syphilis means an addition in the report of something else. It falsifies the returns.

It would not be just to leave this subject without drawing attention to the fact that the transmission of syphilis to children is not universal. Many children of syphilitic parents are born without any taint of the disease. In the table quoted from Fournier at the beginning of this paper, it was stated that of 1127 pregnancies in 500 syphilitic families, 600 children were reported as living and well. In addition, it must be noted that time and treatment have great effect in mitigating the evil. One patient at the Boston Dispensary, a man of perhaps fifty, himself the victim of late lesions of syphilis, gave a history of his family as follows: the first child was stillborn, the second died in infancy, the third is living and the fourth is a young man in the United States Navy—a position which presupposes good health, both in mind and body.

And, now, this paper would be incomplete without a word as to the study of the disease as a whole. It is usually spoken of as a venereal disease and syphilis and gonorrhea are classed together. These two diseases are entirely separate and distinct. They owe their existence to two entirely different microscopic organisms which have no relation to each other. They need to be studied as distinct diseases and not as evidences of immorality. The physician must do his share in their prevention and control quite as much as the moralist. Syphilis is an infectious disease—conveyed by the most innocent kiss or even careless handling. No one can for an instant think of calling the children referred to in this paper sinners. Probably at least half of the syphilis in the world is innocently acquired and even the sinners are our brethren.

The desire to attach disgrace to all victims of the disease leads to concealment and difficulty in study. If we are in any way to control the disease, it is necessary to have a moderately accurate knowledge of it. The more we know of syphilis, the more formidable do its possibilities appear. The many fatalities and the possible diseases which may affect the survivors, as well as the good that may be done by supervision and medical care, not only in the way of prevention but in the amelioration and possible cure of the afflicted, it is the object of this paper to point out.

MASSACHUSETTS ANTI-TUBERCULOSIS LEAGUE.—Under the auspices of the Boston Association for the Relief and Control of Tuberculosis a meeting was recently held to organize the various tuberculosis societies of this State, now thirty-five in number, into a single central body, to be known as the Massachusetts Anti-Tuberculosis League.

A CASE OF MYATONIA CONGENITA (OPPENHEIM).

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AND

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ALTHOUGH thirteen years have elapsed since the clinical manifestations of this extraordinary disease were first described, the total number of cases on record to date is not large; consequently, we feel that this contribution may be offered without apology.

The patient is a boy of five and a half years, of healthy parents, both of whom sprang from sturdy New England stock. During the pregnancy, which terminated in an instrumental delivery at the seventh month, the child's mother felt what she assumed to be normal fetal movements. Her health was good all the while except for rather persistent and troublesome pains which she attributed to rheumatism. The birth of the patient ended the first pregnancy, and he is the only child. There have been no miscarriages.

The weight at birth was less than three pounds, and the child's head, although well-shaped, was markedly large in proportion to the body. Also, it was noticed that from the moment of birth the head tended to fall backward on the shoulders and that the neck muscles were "like jelly."

The child nursed after the first three or four days, but lay for months in a stereotyped position which strongly suggests the fetal, *i.e.* with arms folded and the feet so intertwined that the plantar surface of each was in apposition with the opposite tibia. At the outset the muscles generally are said to have been flabby in the extreme, but the disability of the lower extremities was greater than that of the upper and the proximal portion of the limbs was more affected than the distal. If an arm got extended and abducted the child could not voluntarity flex and adduct it, and vice versa. There was no apparent disturbance of intellect or special senses, the breathing was never hampered in any way and the bowel and bladder emptied themselves in normal fashion. Teething did not begin until the eighteenth month, but then progressed rapidly. Prior to this time the child could say "papa, mama," and a few other words.

The case was first seen by one of us in July, 1911. At that time the child's habit was to lie upon the belly. It could neither sit nor hold the head erect. When it was placed in the sitting position and supported under the arms, the spine showed a very marked kyphoscoliosis and the head fell backward and to the right. There was more or less constant drooling; nevertheless, the intellect was in nowise below par and the patient showed the usual quota of cunning traits peculiar to children at that age. The speech was somewhat difficult of comprehension, but the vocabulary was normal. The head was noticeably large but well proportioned, the fontanelles were closed, the eyes clear and alert, the facial expression mobile. The pupils were equal, regular in outline and prompt in their response to light and distance. The facial and ocular muscles, tongue and soft palate were normal, likewise deglutition. The tracery of the temporal veins in the somewhat pallid skin was rather striking. The respiratory movement was not restricted; the heart area and sounds were normal, the pulse in no way remarkable. All the tendon reflexes were absolutely unobtainable. The epigastric, belly, cremasteric and plantar reflexes were present but sluggish, in fact, cutaneous sensibility in general seemed rather below normal. There was no rosary and no epiphyseal enlargements.

The most striking feature of the case was the motor impotency of the child and the muscular conditions which underlay it. Everywhere the muscle-bellies seemed thin and flat, but, nevertheless, did not for a moment give the impression of a true atrophy of spinal or neuritic origin. The thinness was most marked throughout the right half of the neck posteriorly and the right side of the back. This accounted for the falling of the head backward and to the right and for the kyphoscoliosis respectively.

Very striking was the poverty of muscle-fibre—and we may add subcutaneous fat—in the arms. The chest and belly muscles seemed fairly adequate. Those of the thigh and leg were even more normal in contour and consistency than the last named, but utterly incapable of contracting voluntarily with any degree of vigor. It is to be regretted that no neuro-muscular electrical tests were made at this time.

The patient was ordered five grains of calcium lactate suspended in milk three times daily, and directly following the visit was taken to the seashore where it had the advantage of out-door life and seabathing. The progress made was most satisfactory. At the end of six weeks the child could sit up alone, although the head still fell backward and to the right and the kyphoscoliosis was extreme. At this time, also, the knee- and ankle-jerks were present and the cutaneous reflexes fairly prompt.

During the winter of 1912 codliver oil was steadily given and the dietary and hygienic conditions carefuly attended to. The acquisition of muscular strength was constant. Before the end of the winter the child could sit in a chair and cross his legs and, by holding on to his mother's hand, could take a few steps. He gained noticeably in weight and drooled only when very tired.

In March, 1913, the patient developed chicken-pox which was followed by diphtheria. He was ill five weeks and lost ground considerably in consequence, but fortunately escaped a post-diphtheritic paralysis. After this illness he was taken to the sea-shore where he gained to such an extent that in September he could use his hands fairly well, walk about the room unassisted and make his way over the stairs.

At the present time, last of October, 1913, the boy is well-nourished and has good color. He is bright and alert mentally and his articulation is fairly clear. He drools only when very tired. Height 42¾ in., weight 38½ pounds. The head, which still tends to fall backward and to the right, shows the following measurements: circumference 53 cm., ear to ear over sinciput 34 cm., glabella to inion 33 cm. The gait is extraordinary and difficult to describe. Before starting to cross a room the boy stands in an attitude which suggests that of a sprinter on his mark. One arm is thrust directly in front of him, the other behind. The gait is a mixture of ataxia and steppage and, withal, there is in it a suggestion of the peculiar vibratile quality observed in that of multiple sclerosis. The head waggles concomitantly. Once started the patient seems unable to stop until

some obstacle is encountered. Station in the Romberg position is impossible; with the eyes open and the feet apart there is no special swaying, but the knees are markedly hyperextended and the right foot pronated. The pupils are middle-wide, equal, regular in outline and normal to tests of light and distance. The facial and ocular muscles, tongue and soft palate are normal. Fundi healthy. The heart and lungs are normal. Chest circumference 52 cm. The spine shows a lesser degree of kyphoscoliosis. It is the child's wont to keep the fingers flexed in the palm with the thumb underneath, but there is absolutely no spasm or contracture. The finer coördinative movements of fingers and hands are quite impossible. For example, the boy cannot deftly pick up even the plug of a small Faradic battery and insert it in its orifice. In the attempt to perform the latter part of this feat the hand gyrates about the orifice in circles of varying circumference, but the goal is never attained. Meantime the head waggles concomitantly, precisely as it does when walking is attempted. Nevertheless, with solid foods the patient feeds himself fairly well. The musculature of body and limbs has developed fairly satisfactorily both in volume and strength, but the local disproportions noted above are still in evidence. Curiously enough, neuro-muscular response to even mild Faradic stimulation is everywhere equally prompt. The deep and superficial reflexes are all normal.

It requires no special diagnostic acumen to differentiate a typical case of myatonia congenita, like the above, from other conditions which, in a limited number of features, resemble it. The peculiar character of the muscle defect, the fact that this defect is present in its maximum intensity at or shortly after birth, and the further fact that the morbid process is regressive all combine to distinguish this process from whatever underlies all other myopathies and spinal atrophies, and to place upon its symptom-complex the cachet of a genuine clinical entity.

It will be remembered that Oppenheim[1], entirely without the support of pathologic data, believed, at the time he first described the disease in question, that an incomplete genesis of the muscular system was the essential underlying morbid factor, although he did not absolve the anterior horn cells from all connection with this retardation of muscular development. As a matter of fact, actual pathologic investigations, although few in number, seem, in the main, to bear out the Oppenheim theory. We shall refer, however, without prejudice, only to the article of Archangelsky[2] and Abrikosoff, because their case seems to us clinically typical and, at the same time, we are strongly impressed by the completeness and apparent exactitude of their pathologic findings.

These observers report the case of a female infant who came under the observation of one of them (Archangelsky) at the age of three and one-half months. The child's parents were disturbed by its slow gain in weight (only one pound in three months) and its inability to move the limbs. The child looked anemic; the nutritional state was satisfactory (!); the vertebral column of normal configuration. The thorax was deformed to a marked degree—the sternum protruded sharply, and the chest walls were so sunken that on inspiration the middle portions of the ribs of one side appeared to rub against those of the other. The borders of the lowest ribs were prominent. There was no rosary. The belly was big and flabby, and in contrast to the narrow thorax appeared really enormous. The respiration was clearly diaphragmatic. On inspiration the belly increased in size to a marked degree. The respirations were seventy to the minute and were associated with strong retractions in the region of the insertion-points of the diaphragm.

The most striking feature of the case was the almost absolute immobility of the child. When taken from its bed and placed upon a pillow it assumed a whining expression, while the entire body, extremities and head remained entirely motionless.

The characteristic position of the child was that of a person crucified. The legs were extended, the arms abducted and somewhat flexed at the elbows, the hands resting upon their ulnar borders, with the little fingers bent in such a way that they almost came in contact with the outer side of the corresponding fifth metacarpal bones.

With the child raised in the vertical position the head fell limply and indifferently either forward or backward. Passive motion of the limbs could be carried to almost any extent without apparent pain. Voluntary contraction was limited to one or two muscles and was feeble and restricted in extent. For example, sharp pricking of hands and feet caused but slight movement of the distal portion of these extremities. The child seemed alert to what was going on about it and the excursion of the eyeballs was not limited. The pupils were equal and prompt to light. There was no nystagmus, and the muscles of the face, tongue, soft palate and pharynx were normal. The hearing seemed undisturbed, and the voice was clear but weak. Internal organs healthy. The tendon reflexes were entirely absent, likewise the plantar. The exact status of general sensibility was difficult to determine. While the other muscles were scarcely palpable; both biceps felt like thin, somewhat tense, strings.

The family history was negative, and the child's mother stated that the pregnancy was normal, although throughout the entire second half of it fetal movements were but feebly felt. The birth itself took place at the regular time and was normal in every way. No instruments were used. The weight of the apparently normally-developed newborn was 8½ pounds (3½ kg.). Its exact condition during the first month of life was difficult to determine, although the concensus of opinion of those concerned with its care was to the effect that during this period not even the slight movements of the fingers observed in the second month were present. At the beginning of the second month an electrical examination disclosed a complete lack of response of the muscles everywhere on neck, trunk, and extremities to even a very strong Faradic current.

Toward the end of the third month of life the child began to lose rapidly in weight and the loss continued up to the time of its death, which came suddenly, about the middle of the fourth month, from acute pneumonia. Archangelsky was astonished to observe that in spite of the marked and progressive loss of weight, voluntary motion steadily increased. Only the week before its death the child, lying supine, could move its head sidewards to some extent, and could, when supported in a vertical posi-

tion, maintain the head erect for several moments. It was also able to raise the hands to the mouth and, with the knees bent, to abduct and adduct the thighs.

The necropsy, made sixteen hours after death, may well serve as a model for all future investigators. Not an organ, not a shred of tissue that might throw a ray of light on the pathology of myatonia congenita was neglected. Macroscopically this searching investigation revealed only the following abnormalities: (1) Varying degrees of hindered development, pallor and flabbiness of all the voluntary muscles; (2) Pial edema throughout brain and cord (3) Moderate venous engorgement and edema throughout the tissues of cerebrum, cerebellum and cord; (4) Unusual thinness of ventral roots throughout the cord, but most marked in the lumbar region; (5) Catarrhal broncho-pneumonia and (6) Ovarian cysts of varying sizes. The anterior fontanelle was wide open, and all signs of rachitis were lacking.

The detailed description of the microscopical examination is too long to reproduce in its entirety. From the side of the nervous system the findings were, briefly, as follows: (1) A persistance of the remains of the peripheral granular layer of the cerebellum. Incidentally, this may be regarded, in part, as an individual peculiarity not infrequently encountered at the age in question; (2) An incomplete myelinization of the pyramidal tracts and Gower's bundle—both structures in which the fibres are not ordinarily fully myelinized until after birth; (3) Absence of the normal nerve-cell grouping in the posterior horns (absence of Clarke's column), with presence in these parts of numerous small multipolar cells; (4) In the lateral horns substitution of many small multipolar cells for the usual large cells; (5) In the anterior horns marked reduction in the number of nerve-cells, with entire absence of large ganglion cells and presence of a few scattered small multipolar cells. Here all nerve-cells appear small, as shown by diminished size of cell-bodies, nuclei and nucleoli. No signs of degenerative changes. The number of nerve-fibres in the gray matter is reduced and the majority of them lack myelin sheaths: (6) In the lateral anterior roots numerous amyelinized axis-cylinders and empty neurilemmata, together with cylinders which are myelinized but thinner than normal; (7) In the median anterior roots nearly complete absence of myelinized fibres, with a peculiar swelling of the amyelinized; (8) In the peripheral nerves a combination of myelinized and amyelinized fibres, with empty neurilemmata. No actual degenerative changes.

In the muscular system the following findings are recorded: "All the voluntary muscles, with the exception of the diaphragmatic, facial, pharyngeal and laryngeal, are very slender in consequence of the extremely marked thinness of the majority of the within-retained muscle-fibres; there are no signs of gradual muscle atrophy, no proliferation of nuclei, interstitial connective or fat tissues."

As Archangelsky and Abrikosoff view the problem, the question to be resolved, as far as the nervous system is concerned, is whether we are dealing with absent or impaired development of the gray substance of the cord, anterior roots and peripheral nerves or with an actual degenerative process in the same. For these authors the absence of the normal nerve-cell grouping of the gray substance, the complete absence of Clarke's columns, the great number of cells in the substantia Rolandii (suggesting embryonal conditions), further, the presence of very numerous multipolar nerve-cells irregularly distributed in the gray substance of the lateral and posterior horns—all may indicate an interference with the normal distribution and growth of the nerve-cells. On the other hand they point out the fact that the primary development of the ganglion cells of the anterior horns begins very early (before the fourth embryonal week) and hesitate to explain the absence of these cells on the ground of hindered development, because it seems to them highly probable that the hindering process would also exert a deleterious influence upon the development of the horns themselves. They recognize, moreover, the existence of atrophic processes in nerve-cells characterized by diminution in size or even by complete disappearance, without grave change in their structure. This fact complicates the solution of the problem, even though not all the changes found can be attributed to such an atrophic process.

The character of the changes in the nerve-fibres in the gray substance is regarded as of no importance in the solution of the pathologic problem, since these changes could equally well come either from hindered development or from atrophy of the nerve-cells.

Of far greater importance to the above-mentioned authors is the character of the changes in the anterior roots and the peripheral nerves. They note that in spite of the small content of myelinated fibres and of axis-cylinders deprived of their sheaths (lateral groups) and, further, in spite of the almost complete absence of the same (median groups), the mass of roots in its entirety does not seem to be correspondingly diminished but, to a certain degree, retains its normal area. They note, furthermore, that on cross sections of the roots a mesh-like structure is apparent, whose lumina and the arrangement thereof point absolutely to absent nerve fibres. And from this circumstance they conclude that, beyond all doubt, at least a part of the nerve-fibres of the anterior roots have undergone some sort of degenerative process and disappeared, leaving behind only empty nerve-sheaths.

From the above pathologic data Archangelsky and Abrikosoff conclude, finally, that two kinds of changes are present in the spinal cord; 1. A hindered development of its gray substance—as shown by the lessened dimensions of the cells of the lateral and posterior horns, the interference with the customary grouping-process of these cells, the thinness of the myelinized fibres and the axis-cylinders of the anterior roots, the absence of myelinization of the majority of the nerve-fibres of the gray substance, anterior roots and peripheral nerves and the embryonal appearance of the substantia Rolandii. 2. Degenerative changes of the cells (simple atrophy)—as shown by the failure, for the most part, of the cells of the anterior horns and

the disappearance of a portion of the nerve-fibres in the anterior roots and peripheral nerves (empty neurilemmata).

The changes in the muscular system are unhesitatingly ascribed by Archangelsky and Abrikosoff to hindered development (hypoplasia) of the muscle-tissue, as evidenced by the uniform thinness of the muscle-fibres—with complete preservation of their structure—and the absence of nuclear proliferation and increase of interstitial tissue.

A point much more difficult for these authors to make clear to their entire satisfaction is the connection between the hindered muscle development and the changes in the spinal cord. They finally conclude, however, that the paralysis and atony of the musculature spring from hindered development of all peripheral motor neurons, but chiefly from a hindered development of the muscle-tissue, which is contemporaneous with that of the cord. The disappearance of the feebly developed anterior horn ganglion cells they regard as secondary and as a result of the consecutive atrophy of these cells.

To the present writers the term—myatonia congenita—seems satisfactory from a clinical standpoint, for the reason that the muscular atony which characterizes it does certainly dominate the picture. On the other hand, the pathology ascribed to it by Oppenheim and subsequent observers impresses us as too narrow in conception.

Its exact pathogenesis must, for the present at least, remain shrouded in obscurity. We venture to suggest, however, a probable correspondence between its pathogenetic factors and those which act upon the primary embryonal tissues in such a way as to bring about spina bifida or hare-lip. Just how early in fetal life the developmental activities are arrested we do not pretend to say. Archangelsky and Abrikosoff, in their case, found muscle-fibres morphologically and structurally identical with those ordinarily observed in the third or fourth fetal month, while our own case has, so far as we know, the distinction of being the first to exhibit the typical picture of the disease at the end of the seventh.

Our reasons for considering the reigning pathologic conception of the disease too narrow are, in part, derived from the microscopic studies of others and, for the rest, from personal clinical observation. In our case, for example, the impaired articulation and the drooling show that the brain-stem, as well as the cord and peripheral nerves, is involved. Furthermore, the marked disturbance of equilibrium observed by us makes it clear that inhibition of sensory neuronal development is also to be reckoned with. This fact alone proves that the theory of hindered development of peripheral motor neurones and muscle-tissue does not cover the whole pathology of the disease. We feel that it may be that the impaired equilibration is due to the absence of Clarke's columns, and we would urge future investigators to keep this interesting point prominently in mind.

As to prognosis, the reported cases show that the mortality is rather high—about 30%—and that pneumonia is the commonest cause of death. Our case may be classed among the most favorable, but even here complete restitutio ad integram seems to us out of the question, when we consider that the pathology embraces atrophy and disappearance of anterior horn cells and peripheral nerves.

Treatment consists, in the main, in the administration of tonics—we found codliver oil and calcium lactate most serviceable—massage and electricity. Among other important therapeutic measures, warm sea-bathing, generous diet, open-air life and simple coordinative exercises should be mentioned. On general principles, artificial support of the atonic muscles by apparatus should be avoided.

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THE SUSPICION OF MALIGNANCY.*

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NEXT to hemorrhage there is probably no abnormal phenomenon which is to the patient himself more disquieting than the appearance of a tumor. Even with a brave though foolish attempt to disregard the unwelcome presence, and by ignoring to drive it away, there is still the almost subconscious dread that after all we may be facing that ominous, that malignant thing which we know and fear as cancer.

What comes next will depend upon the temperament of the patient; and the human soul is ever individual and never duplicate.

In general, people may be classified as timid or courageous. Yet when confronted with this dreadful spectre of malignancy it is not always the coward who shrinks from the scalpel nor the brave man who seeks the prompt aid of the surgeon. Indeed, the timid are often the first in very panic to seek operative relief, while I have known at least one noble-spirited man, who, with the full understanding of what delay would mean, put off for a year the operation which might have saved him, so that his wife, herself the victim of fatal cancer, should be spared the knowledge of her husband's peril.

The average individual, alarmed at discovering a tumor, will lose little time in consulting his doctor; and often enough his future will hang upon the tactful and conscientious quali-

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ties of this first adviser. And the task of the physician here is no easy one. Should the case prove at a glance to be free from suspicion, his words will bring comfort and gratitude, the good news in some way reflecting upon the physician just as if he were in a manner responsible. But when warning of possible evil must be given then indeed is demanded the utmost delicacy in the management and direction of that complex and contrary force, the mind of man. Too often it is proved that "The bearer of ill news hath but a losing office," and the well-meant efforts of the honest practitioner are repaid with charges of brutality or, even worse, commercialism. Possibly ths patient will seek another and more favorable opinion at the establishment of some one whose code of ethics will not forbid his keeping the sufferer in a fool's paradise until the opportunity for cure is past. The temptation to temporize is therefore great, and when there is nothing more than the mere suspicion of malignancy it is easy to give a placebo and to request the patient to return in a week or in a month, so as to lessen the psychic shock. But that patient may gradually become, as it were, accustomed to his disease, strange as it may seem, and his suspicion having been partly lulled, his second visit may be put off until certainty has taken its place—and with that certainty of diagnosis comes the greater doubt of cure.

But suppose a case is one of those obscure ones in which the diagnosis can be hoped for only after repeated careful examinations. Here, instead of making a tentative diagnosis, the patient should be told frankly that further observation will be required and that he must have patience.

There is perhaps no greater mark of the scientific clinician than the method and completeness of the physical examination. And nothing so educates the physician as the oft repeated and careful inspection, palpation, auscultation, percussion, with the noting of change in the progress or retrogression of the disease.

You have all heard this over and over again — yet how often are the more troublesome examinations put off until the appearance of some danger signal which cannot be disregarded.

Take, for example, that most frequently neglected procedure, the digital examination of the rectum. There is hardly a surgeon who has not had thrust upon him the sad duty of announcing the presence of inoperable rectal cancer, and all because in a case of obscure diarrhea no one made this simple exploration until it was too late. And yet, in any irregularity of the bowels, rectal palpation should be one of the first diagnostic steps instead of the last, the proctoscope supplementing the negative finding of the finger. And the youth of the patient is by no means a scientific reason for ruling out malignancy in this region.

Within the past year I have seen in my practice two fatal cases of inoperable rectal carcinoma in young women under twenty years of age! And these patients could almost certainly have been saved had the disease been earlier recognized, for the cancers of the rectum are of comparatively low malignancy.

The discovery of one morbid condition which ever so completely explains the symptoms of a disease does not mean that we are to neglect further inquiry. This appears to be self-evident, yet the following case will demonstrate how easily one may err.

Case. A young man about 35 years old came to me with a painful nodular and movable mass the size of a small adult fist, in the right mid-abdomen. There had been deterioration in health for some months, but there were no symptoms referable to disorder of the digestive tract. The growth seemed one which could be easily removed and I referred him to my service in Mt. Sinai Hospital. Simply as a matter of routine, the gloved finger was inserted into the rectum, when at once a non-obstructing though obviously malignant tumor of great size and totally inoperable was discovered, the abdominal mass being evidently secondary.

The presence of hemorrhoids does not signify that the rectum higher up is healthy, yet I have seen—we all have seen—patients who have been actually operated upon for the cure of hemorrhoids when the cause of their distress was a rectal carcinoma, perhaps not at the time of operation within finger reach.

A woman with rectal hemorrhages from a papillomatous colitis, which later necessitated a complete colectomy, had been operated upon for hemorrhoids, which in truth may have been present, and the actual source of the bleeding was not discovered until it became evident that no relief had followed the clamp and cautery.

In disease of the urinary system the matter of thorough and what may be termed "special" examination is of great moment. In a case of sudden hematuria in an individual of middle age the suspicion of malignancy is to be confirmed or eliminated, not as a last but as a first step.

I will assume that most practitioners are able to do their own ordinary microscopy. Also, that they know how to employ the two-glass test, and by catheterization and lavage to decide whether the probable bleeding is from the kidney, the bladder or the urethra—in the male or the female.

A more accurate diagnosis may not be possible, however, without what are called "special" examinations—with the aid of the cystoscope, the x-ray, the ureter catheter. And here permit me to mention a point which I have emphasized on other occasions. The x-ray should take precedence of what may be called the operative procedures of cystoscopy and ureteral catheterization because it is less liable to do harm. In the male, and the aged male in particular, the mere passing of an instrument for the first time may have consequences of a serious

nature due to traumatism and infection—possibilities which can never be absolutely ignored. I have seen dangerous hemorrhage follow cystoscopy in a man with prostatic disease and so-called "hemorrhoids of the bladder," while fatal "catheter chill" is not unknown even in these days of improved urinary antisepsis. If unfortunately the x-ray examination must be repeated, at any rate we shall have avoided one unnecessary cystoscopy. But in any case, these examinations should be made as soon as possible after the suspicious hemorrhage and there must be no placebo or "expectant treatment." If there is indeed a carcinoma, temporary drug relief from symptoms will be the worst thing that could happen, for it will quiet the patient and meantime permit further development of the tumor.

As every progressive practitioner knows, a patient in whom cancer is even dimly suspected should be seen by a surgeon. There can be little loss of prestige and there will surely be great relief of mind on the part of the physician, if even thus early, he will divide his responsibility. Perhaps too often he shares the feeling of his patient that the surgeon's motto is "When in doubt, operate"; yet this motto is on the whole a very safe one when dealing with cancer—always provided that no legitimate means of diagnosis has been omitted.

But the experienced surgeon appreciates the actual risk probably better than any one else, for upon him falls heaviest the blame for an untoward result. And the punishment for failure is far greater in proportion than any reward of success, for when the surgeon unfortunately loses his patient he too often loses the confidence of what may be called the entire "Circle" about that patient and also the physician who referred the case. And a so-called operative recovery with the disease unrelieved is like the mistake of an architect—always in evidence as a reproach to his poor judgment or lack of skill.

In advanced cancer particularly, the mature surgeon has learned to shun operative pyrotechnics, preferring always to relieve the distress rather than to risk all in a desperate attempt at radical cure.

Take, for example, the operative treatment for cancer which closes up the pyloric end or outlet of the stomach. The work naturally divides itself into two portions. First, the formation of a new opening between stomach and intestines—the gastro-enterostomy—which short circuits the diseased parts, permitting the food to pass unobstructed into the intestines, and second, the extirpation of the cancerous part of the stomach. When we are fortunate enough to deal with an early case and a small tumor, both these operations can safely be performed at one sitting. But when infection and ulceration are added to the cancer and there is a large inflammatory mass around the pylorus, the patient weak from starvation, it is not the cancer poisons which are killing him, but the lack of nutrition. Now, after a short and comparatively safe operation, the patient can eat again, and in two or three weeks he will be a good "safe risk" for further surgery. When the abdomen is opened for the second time the tumor will have diminished wonderfully in size and can be removed with infinitely greater ease and safety than would have been possible at first.

This two-stage method has given me great satisfaction and I am morally sure that I have saved patients who would have died under the more brilliant single stage procedure.

What has just been said of dangerous and unpromising operations upon patients who are in any event doomed, does not mean that half-hearted work should be done when there is a chance for radical cure—even though life is thus put in great jeopardy. Take the latest field to be conquered in thoracic surgery, in which the first battle was won by Franz Torek of New York, on March 14, 1913, when he successfully removed a cancer of the esophagus through the chest wall. This most formidable piece of work would not have been justified had there been secondary deposits in other parts of the body. Relief, not an attempt at cure, would then have been the proper aim of the surgeon. But when he was able to remove the entire growth and rid the patient once and for all of that cancer, the extent of the operation and even its great mutilation were not worth considering.

Before this audience it is hardly necessary to emphasize this aspect of the cancer fight. You surely know, for example, the remarkable improvement which has followed the adoption of the present operation for carcinoma of the breast. How hopeful is the outlook even in most malignant forms of the disease when a complete operation is performed early.

As an instance I may briefly mention the case of Mrs. M., a woman 38 years old, who found a nodule the size of a large bean in the outer upper part of her left mammary gland. The important point was that she was sure that there had been nothing there only a few weeks before. Her physician referred her to me, and in general anesthesia the little tumor was widely excised and at once examined. It proved to be carcinoma. So without interrupting narcosis the entire breast was amputated, with its underlying muscles and the glands in the armpit—an operation which twenty years ago would have seemed out of all proportion to a focus of such apparently insignificant size. But this patient, and many others treated in the same manner, has been permanently relieved of a condition surely fatal if left to itself.

It is generally conceded by the medical profession that cancer begins, through infection or otherwise, in one small part of the body; but there comes a time, sooner or later, when it invades other tissues or organs, either in the immediate neighborhood of the parent tumor, or even at a distance, until finally the condition of

carcinosis or generalized cancer is established. The usual cause of death is the poisoning of the system by the toxins absorbed from the growths. Surgeons are well agreed that if a primary or parent cancer is totally removed by an operation it will not recur, though of course we know of nothing to prevent the appearance of an entirely new tumor. Now all cancers are malignant and progressive, though some grow much faster than others, so it is perfectly plain that the sooner after its appearance a cancer is extirpated the better will be the chance of permanent cure.

In view of the still deplorable procrastination which we note in most of these cases, a delay which more than the disease itself brings reproach upon the surgeon, where it does not belong, instead of on the patient, where it does, it occurred to me to go over the cases in my private practice to learn how much time elapsed after the first suspicion of malignancy before surgical aid was sought.

Realizing that public information—I will not say education—has become much more general in recent years, I examined the last 2000 histories in my case books and learned some interesting things.

1. There were 86 cases of malignancy, or 4.3%. At this point I became interested to learn the percentage of malignancy among the class of individuals who would naturally drift to the public wards of hospitals. So I made investigations with the kind permission of the superintendents of five large hospitals in New York. In each institution the diagnosis on discharge was made the object of inquiry, and I learned that in 2000 consecutive surgical ward patients there had been:—

In Mount Sinai Hospital, 84 cases of malignancy, or 4.2%.

In St. Luke's Hospital, 82 cases of malignancy, or 4.1%.

In Presbyterian Hospital (in 2345 cases in 1912 including 400 private patients), 127 cases of malignancy, or 5.4%.

(And in the last 1084 cases in the new indexing system, there were 121 cases of malignancy, or 11.16%.)

In Roosevelt Hospital (2000 patients), 129 cases of malignancy, or 6.45%.

In New York Hospital (2000 patients), 34 cases of malignancy, or 1.7%.

An astonishingly small percentage, perhaps accounted for by the fact that this hospital has a very large ambulance service—so that many of the 2000 cases were of insignificant injuries.

Now, counting all these groups of approximately 2000 cases together we have in 12,345 patients, 542 instances of cancer, or 4.39%, which means that one in every 22 surgical patients had cancer.

2. Of my own 86 patients, 65 had never been operated upon and may be called new cases. The others came on account of secondary or recurrent disease and need not here be considered.

3. Of the 65, 10 were sarcomata, 55 carcinomata.

4. Of the 65, 35 were in men, 30 in women.

But the most interesting fact from the surgeon's viewpoint was the answer to my original inquiry, concerning the promptness or tardiness of the surgical consultation.

5. I found that after the first discovery of a tumor, or after the first suspicious symptoms, the men had waited on the average 12.2 months before consulting the surgeon, the women 11.9 months, a difference of but nine days. Evidently the sexes are after all pretty evenly divided in regard to wisdom, or rather the lack of it, for no person of good sense could describe as wise the delay of a year in a matter so vitally important.

Now we know that very few persons discover or suspect the presence of cancer until the symptoms are very pronounced, or until there is a tumor of considerable size; also that such a tumor, with or without symptoms, has probably been in existence for say six months before it was discovered. So that we may assume that cancer patients do not come to the operating table until at least a year and a half after the onset of the malignant disease.

Precious time thrown away; great dangerous operations to be undergone instead of minor ones.

Surely with such a handicap the wonder is that science and skill have been able to make the steady headway which has been shown in the last twenty years of surgery.

Whatever may be the discoveries of the future, there is no excuse for failure to grasp at once the hope held out by the present.

CORYNEBACTERIUM HODGKINI IN LYMPHATIC LEUKEMIA AND HODGKIN'S DISEASE.

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From the Pathological Laboratory, Massachusetts General Hospital, Dr. James Homer Wright, Director.

Negri and Mieremet[1] recently announced the cultivation of a bacillus from two cases of "Malignant Granuloma." They cultivated this organism from the lymph nodes and spleen of the first case (post-mortem) and from the cervical lymph nodes of the second case. The bacillus was also found in the sediment of the spleen pulp which had been treated with antiformine as well as in stained sections of the spleen.

They made extensive cultural and animal experiments and think that this bacillus may be the cause of the disease.

Bunting and Yates[2] observed the same bacillus in cultures of the lymph nodes from seven cases of Hodgkin's Disease; they designate it "Corynebacterium Hodgkini" and claim to have produced in a monkey "progressive enlargement of a single group of lymph nodes which at the time of writing show histological changes identical with those seen in the lymph nodes of human beings where the disease is of the same duration."

Billings and Rosenow[3] isolated the bacillus from the lymph nodes of 12 cases of Hodgkin's disease; they have suggested that vaccines may be of value in the treatment of the disease.

Cultures were recently taken from the lymph nodes of two cases at the Massachusetts General Hospital. The first case was one of lymphatic leukemia and the second case, one of Hodgkin's disease. The bacilli isolated from both of these cases were morphologically and culturally identical. They were also apparently identical with the bacilli described by the authors above mentioned.

CASE 1 was a boy of twelve years who entered the east medical service of the Massachusetts General Hospital, in charge of Dr. D. L. Edsall, on Nov. 1, 1913.

When three years of age, he had had measles; but was otherwise well until two years ago. At that time some of the teeth in his left lower jaw were filled; this was followed by toothache and swelling of the lymph nodes. The teeth were then removed, the swelling and pain disappeared and he was well until three weeks before his entrance to the hospital.

He then noticed a painless swelling in both sides of his neck; and, a week later, an enlargement in both axillae; he also had pain in his left upper abdomen.

He attended school but was sent home by the school physician. He was then seen in consultation by Dr. H. F. Vickery, who advised his removal to the Massachusetts General Hospital.

On entrance, his physical examination was negative except for the enlarged lymph nodes, tonsils and spleen. Below both ears was a mass of glands about the size of an egg, with numerous smaller, firm, discreet glands lower in the neck; palpable glands were present in both axillae and groins. None of the glands were tender. Both tonsils were enlarged and their crypts contained pus. The spleen was enlarged to percussion and easily felt 3 cm. below the costal margin.

Blood examination at this time showed 5,286,000 red blood cells and 65,800 white blood cells per cubic millimeter. There was 75% hemoglobin. The white blood cells were 80% lymphocytes and 20% polynuclears. Blood platelets were rare.

On November 3, an x-ray showed a mediastinal mass which was thought to be enlarged glands.

On November 5, the patient's tonsils and adenoids were removed to relieve difficulty in breathing and to remove the pus foci.

On November 6, the white blood count was 220,000; 99% lymphocytes and 1% polynuclears.

On November 7, the white count was only 1,800; 55% polynuclears and 42% lymphocytes. Coincident with this drop in the white blood cell count, there was a marked diminution in the size of the spleen which could not be felt below the costal margin and a diminution in the size of the lymph nodes from the size of an egg to that of a bean. The blood platelets at this time were estimated as being normal in number.

About November 20, the lymph nodes again increased in size, the spleen became palpable and the white blood count was raised to 9,000. The differential count remained practically the same, however, until November 28, when the white cells were 236,000 per cu. mm., 80% of which were lymphocytes and 20% polynuclears. The spleen could now be felt 5 cm. below the costal margin.

On November 28, one of the right inguinal lymph nodes was removed, ground in a sterile mortar and planted on various media.

Eleven tubes were inoculated; seven of these showed a growth of the bacilli described below, after five days' incubation.

A vaccine was prepared as soon as possible; 50 million bacilli were inoculated on December 6 and 50 million on December 10.

The patient's condition did not improve; he became gradually weaker; the spleen, liver and lymph nodes increased in size; the white cell count rose to 298,000—99% lymphocytes and 1% polynuclears—and the platelets were diminished.

He died of weakness and of adenoid hemorrhage on December 12.

CASE 2 was a woman, 30 years of age. She had typhoid fever seven years ago but with this exception has always been well.

The present illness dates from March, 1913, when she noticed a small glandular swelling in the left side of her neck. A few days after she observed this swelling, she noticed other glands in her left axilla and in her right neck.

For three weeks before entrance, she noticed that these glands were growing rapidly larger; that she was short of breath and weak. For these reasons she was admitted to the east surgical service of the Massachusetts General Hospital on Nov. 26, 1913.

The patient was a well-developed, rather emaciated woman. She had a mass of glands, the size of a lemon in her left neck; a mass of the same size in her right neck.

There were numerous discreet glands above the right clavicle. And a glandular mass about the size of an orange in the right axilla. Enlarged glands were also present in her left axilla and in both groins. Her physical examination was otherwise negative. Her blood examinations were as follows:

November 26, white blood cell count 8,400.

December 1, red blood cell count 3,552,000; white blood cell count 7,680.

A stained specimen showed the following: Polymorphonuclears, 86%; lymphocytes, large, 7%; lymphocytes, small, 3%; lymphocytes, transitional, 3%; unidentified, 1%.

Glands were removed from the patient on December 6 for pathological examination and on December 10 for culture.

A diphtheroid bacillus, similar to the one observed in the preceding case, was obtained in pure culture in four tubes; six others were inoculated but showed no growth.

The patient was discharged from the hospital shortly after the cultures were taken and she has not returned as advised. Her subsequent history is not known at present.

BIOLOGY OF THE ORGANISM.

The bacteria cultivated are markedly pleomorphic. Most of the organisms resemble forms of the diphtheria bacillus; but some are short and coccoid. I have not observed any definite branching forms.

Some take the stain uniformly, others show a granular character while still others take the stain more deeply at the ends. They stain by Gram's method, are not acid-fast and are resistant to antiformin.

They grow at first slowly, growth being first visible after five days' incubation. Transplants grow well on most of the ordinary culture media, but best in media rich in body albumen.

On agar and blood serum, the lemon yellow fluorescence observed by Negri and Mieremet, is particularly noticeable. On potato, the growth appears as small isolated lemon-yellow colonies. The growth in bouillon or ascites bouillon, is at first in adherent masses although later the bouillon is somewhat clouded. It grows as isolated yellow colonies in gelatine, without liquefaction. It does not produce gas in glucose or lactose.

SUMMARY.

A diphtheroid bacillus, similar in its morphological and cultural characteristics to the organism described by Negri and Mieremet, Bunting and Yates, and Billings and Rosenow has been cultivated from the lymph nodes of a case of lymphatic leukemia, and one of Hodgkin's disease.

Its relationship to these diseases has not been definitely determined, although further studies on this subject are in progress.

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[2] Bunting and Yates: Jour. A. M. A., Vol. lxi., No. 20, p. 1803, Arch. Int. Med., August, 1913, p. 236.
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THE CONDITION OF THE VASO-MOTOR CENTER IN PNEUMONIA.

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AND

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Since 1889[1], it has been generally believed that the vaso-motor centre is exhausted in "pneumonia." The most important carrier of impulses to this centre is the depressor nerve. The average fall of blood pressure, produced by the stimulation of the depressor nerve in normal animals is a measure of the normal state of the vaso-motor apparatus. The sciatic nerve also contains important fibers afferent to the vaso-motor centre and the rise of blood pressure produced on stimulating the central end of the sciatic nerve is also an index of the condition of the vaso-motor centre.

The present investigation consists in the production of lobar pneumonia (acute pneumonitis) in cats and in the comparison of the changes in blood pressure obtained by stimulating the depressor and the sciatic nerve in animals near death from this disease with the changes obtained by the stimulation of these nerves in normal animals.

We have produced pneumonia in cats* by blowing into the trachea cultures of pneumococcus mixed with carborundum powder.

The details will be found in a paper to be published in the *American Journal of Physiology*.

A few hours before death the stimulation of the depressor fibers in the vagus nerve gave a fall of blood pressure equal to the average normal fall, and stimulation of the pressor fibers in the sciatic nerve gave a normal rise of blood pressure.

Following is a typical protocol for a depressor experiment:—

Experiment Dec. 16, 1913. At 10 a.m. a cat weighing 1750 grams was etherized and ten cubic centimeters of a twenty-four hour culture of pneumococcus, grown in glucose bouillon, was injected through the glottis and the trachea into a bronchus. At 4 p.m. the rectal temperature was 38° C., and the cat was apparently well.

Dec. 17, 10 a.m., temperature was 38° C., and the cat seemed well. Under ether 10 cubic centimeters of a twenty-four hour glucose bouillon culture of the pneumococcus, plus one gram powdered carborundum, was injected into a bronchus. At 4.30 p.m. the temperature was 40° C.; the cat was listless and moderately ill.

Dec. 18, 10 a.m. Temperature, 40°C., condition about the same, breathing labored and rapid. 4.30 p.m., temperature 39° C. Animal seems a little better.

Dec. 19, 9 a.m. Temperature, 39° C. 4.30 p.m., temperature 39° C., animal weak and ill. Five cubic centimeters of a twenty-four hour glucose bouillon culture pneumococcus injected through the trachea.

Dec. 20, 9.15 a.m. Temperature 38° C., condition unchanged. Under ether the left carotid artery was connected to a membrane manometer, both vagi were cut and the central end of the left vagus was stimulated with induction currents perceptible when the electrodes were placed on the operator's tongue. The blood pressure fell from 100 mm. Hg. to 65 mm. The absolute fall was 35 mm., and the percentile fall 35%. At 5 p.m. the cat was killed.

Autopsy: The lower lobes and the lower halves of the middle lobes on both sides were voluminous, firm, leathery, dull red-gray in color. They sank in water. On section the surface was gray-red, granular, dry. The remainder of the lung was pale, soft, crepitant and floated in water.

* So far as we are aware, [illegible] pneumonitis has been produced in cats.

In the experiment of Jan. 2, 1914, in a cat with complete consolidation of the right lower lobe of the lung the temperature was 41 degrees C., the stimulation of the central end of the left sciatic nerve caused the blood pressure to rise from 55 m.m. to 125 m.m. Hg; an absolute rise of 70 m.m.

The vaso-motor reflexes obtained from the depressor and the sciatic nerve were equal to the reflex in normal animals.

The evidence is conclusive that, in animals near death from pneumonia, the vaso-motor apparatus is not measurably impaired.

REFERENCE.

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A STUDY OF CANCER.

BY SEELYE W. LITTLE, M.D., ROCHESTER, N. Y.

(Continued from page 80.)

To revert again to the skin. In considering wounds we must remember several facts in this connection. The epidermis is itself protective; it is composed of one of the few kinds of cells which can reproduce, and most important of all it is of all tissues the one that keeps alive physiologically the longest. Witness the growth of hair and nails after death. Now put this with that other well known fact about cancer, its chief occurrence after the period of growth and development and largely in organs which have served their purpose, such as breast and uterus, and we can see why skin cancer is rarer than we should expect with wounds alone in view. For skin can repair itself and is physiologically active generally until death of the organism and even after.

6. The stomach. The commonest single seat of cancer. Next to the skin it is the worst treated organ in the body and increasingly so as civilization advances. It is quite likely that with alcohol, spices, indigestible food, hot and cold food and the like, we cause minute wounds of the gastric mucous membrane daily, and especially do we injure the narrow alternately dilating and contracting channel, the pylorus, through which all these must pass.

Now for two conceivable ways in which a wound may derange a cell or a group of cells so as to start them towards a riotous and destructive growth. A group of epithelial cells is injured. At once a process of repair begins. If the cells are not too badly injured they can again become perfect and resume their functions. If so badly damaged that complete repair is impossible, they may imperfectly resume function. If more damaged, they may live, but so crippled as to be unable to do their work at all, but still alive and ready for mischief. Or, more probably, in the process of repair and the manufacture of scar tissue some perfectly good uninjured neighboring cells are so shut in and enclosed as to be unable to functionate in the normal way; but they, too, are very much alive. In fact, not functionating but lying dormant, as it were, they are not physiologically dying at all after a lapse of several years when their hard-working fellows are dying. Now comes the relative failure of their patron ductless gland. And by the way, this failure may be only relative to these shut-in cells. That is, the failure may be just in the right proportion for all the other physiologically failing cells, but not for these idlers who have not worked for years. Their accustomed fare is shut off; there is still plenty, but not "what they have been accustomed to." They deteriorate, but they thrive over their fellows because they are physiologically younger. At a certain point in deterioration they are at the stage where the elementary functions return and they can reproduce their kind, which is now a poor imitation of their once highly specialized selves, and they do reproduce.

Again, the same possible degeneration may result purely as an effect of repeated slight injury over a long time, the injured cells then falling far behind their fellows physiologically from overwork. In this case we must assume that these cells are physiologically much older than their fellows, and though the ductless gland is failing *pari passu* with all other body cells, yet for these overworked cells there is actually an over secretion of the patron ductless gland with resultant actual stimulation of the deteriorated cells to their youthful function of reproduction.

Of these two possibilities, the former seems much more probable.

If all this is true, the question at once arises, why is not cancer almost universal after middle life? My explanation of this is at the base of all that follows as to cause and treatment. And incidentally it also answers why is not childhood, the time of bumps and bruises, also the time of cancer?

It is a truism that as soon as a man ceases growing and developing he begins dying. If, within bounds, you injure a growing cell, it goes right on growing again, perhaps even better than before. In fact it is apt to be a hardier cell for having fought against and conquered enemies. The gardener prunes unmercifully to get a hardier and more perfect growth. But after growth has ceased or after the limit of growth has been attained, pruning not only does no good, but it destroys what has already been accomplished. Now injury to a child's cells within reason does no particular harm, for it is the child's main object in life to grow and to perfect what is already there. We all know clinically how quickly children rebound after a severe illness. But after growth has ceased, cell injury of even slight character may easily be a serious matter because irreparable.

Facts learned in recent years have a very important bearing on this matter. We know now that certain organs in the body, formerly of no known use, are really and literally of vital importance, for they have to do with growth, and without them growth is imperfect or indeed impossible. Such organs are the pineal body, the pituitary body, the thymus, the thyroid, the adrenals, the generative organs, etc.

The next important link is the fact that all organs do not die physiologically at the same time. The thymus and the thyroid, for example. Next comes another well known fact, *i.e.* organs that theoretically and naturally ought to die at the same time do not do so. A man may have hard arteries at forty instead of at seventy, with the brain still at the forty-year stage. This in general seems to me to explain very many of the diseases due to civilized life as opposed to natural life. And I believe it explains cancer.

That is, ductless glands and the cells where cancer starts are not in physiological harmony. This might happen in many ways; perhaps as already explained.

This theory of cancer is at variance with no known facts about cancer and certainly explains very satisfactorily most of those facts. Even if, as seems improbable, cancer should be proven of parasitic origin, it is easily possible that the parasite might work not directly to cause cell growth, but indirectly by weakening either the cells or the ductless glands involved, or both. If cancer is proven to be of chemical origin, the same holds true.

This theory explains the general incidence of cancer at and after middle life, its increasing virulence the younger the patient, its attacking only highly specialized cells, its etiological relation, frequent if not invariable, to trauma, its highly probable non-existent contagiousness except auto-contagiousness (what we call recurrence), its rare though possible "spontaneous" cure, the only known positive cure, early exterpation, its cachexia (due to the simpler cells getting the bulk of the food, the absorption of waste products from the same cells, and most important of all, the necessary faulty metabolism of the whole system), the known incidence of the disease proportionately in the various organs, as shown in table 3, the increasing incidence of cancer as the complexity of civilization increases, and many other facts of lesser importance. But the thing can occur only by proper combination of injury, specialized cells shut in for a long time and relative failure of the essential ductless gland for the given case.

Before discussing possible curative measures on the basis of this theory and giving the clinical results of some of these possibilities already tried, another matter of the highest importance should be considered, because it certainly has a bearing on the subject. I refer to lime metabolism and sugar metabolism, their relation to the ductless glands, to various disease processes and to each other. This matter has in recent years received much attention and many important facts have been discovered. Our idea of one disease at least, diabetes, has thereby been revolutionized and the ductless glands have been found to have an unexpectedly large part in this metabolism. Because of the large clinical experience of diabetes sugar metabolism has been the more studied and much more is known of it than of lime metabolism. It is now known positively, for example, that, besides diabetes, such widely differing clinical entities as the following have an important relation to sugar metabolism: cretinism, acromegaly, giantism, Graves' disease, Addison's disease, myxedema, and cancer, to say nothing of eczema, psoriasis, rheumatism gout, and a host of minor ailments. It is astonishing to find that the classical puncture at the base of the brain fails to produce glycosuria if the suprarenals are lacking, that a hypodermic dose of a few milligrams of adrenalin always produces in normals a temporary glycosuria which may not reappear at subsequent injections, that if the thyroid is removed, adrenalin fails to produce glycosuria, but that, on the other hand, if the parathyroids are removed the glycosuria effect of an adrenalin injection is greatly increased; that in some diseases it is almost impossible to produce glycosuria, that in some diseases there is a craving for sugar which, though satisfied, does not produce glycosuria; that in others there is no craving for sweets at all; that in some there is excess of sugar in the blood without glycosuria. It is very suggestive to find, for example, that diabetes and cancer occur in the same individual at the same time with the greatest rarity, that psoriasis is a very common predecessor of cancer, and that in cancer there is often, perhaps always, a hyperglycemia, though very rarely a glycosuria. It is interesting to know that in giantism, for example, where calcium metabolism must be enormous, and in acromegaly, where the same is true, diabetes is common at certain stages, but on the contrary when the active disease has ceased and there is actually a hypo instead of a hyper pituitarism, the sugar tolerance is very high and diabetes is almost an impossibility. Again, in the disorders of pregnancy, it is suggestive that sugar and lime seem to have intimate relations. Teeth often decay at this time, glycosuria is not uncommon, the administration of lime certainly has some influence on the prevention or control of eclampsia, and incidentally remember that in pregnancy both the thyroid and the pituitary are commonly hypertrophied. In this connection recall also the not uncommon myxedematous condition of hands, feet and face without kidney lesions and without true edema, and recall how after labor this enlargement of face and extremities usually subsides.

Such are some of the remarkable facts with reference to calcium and sugar metabolism. They are introduced merely to show how important this subject is and to show that in all probability there is certainly a derangement of sugar

metabolism in cancer, that this is an important element in cancer and that it is an element generally, if not always, associated with disordered function of one or more ductless glands; that calcium metabolism and sugar metabolism are intimately related and doubtless so in cancer where we know positively the sugar metabolism is.

Granted that this general theory of cancer is at least a reasonable one and points in the right direction, the question at once arises, "Are we any nearer a cure for cancer?" I think we are decidedly. In medicine theory is of ultimate use only as it helps restore sick people to health. The man with cancer cares not at all about theories, systems, serums, germs, or anything else unless he can recover. Therefore some of us have been treating cancer on the basis of the theory of cause already outlined. We had first to become more definite. We had to decide in a given case which ductless gland or glands were at fault and whether it was a fault of hyper or hypo secretion or a secretion correct in amount but faulty in composition.

For obvious reasons only inoperable cases were selected, and I will say at the outset of the clinical discussion that very astounding results were apparent in every case in a few weeks, so much so that the three or four medical men who were interested were sure that, whatever the ultimate result, we were on the track of something of the first importance in medicine.

The pituitary gland was first considered because of the known fact of its great importance normally in the matter of growth. We proceeded on the theory that this gland in cancer was hypersecreting at a time of life when it should be failing along with general bodily failure, and that certain cells long idle, because shut in by scar tissue, as already described, were not in the same degree of physiological dying as their fellows and therefore were activated by the hyperpituitarism. But these idle cells could not respond as they should to such stimulation in a normal fashion, being shut in as it were. Therefore we presumed they did only what they could. Now a cell can really do only a few things in the last analysis: it can eat, pass off waste matter, move, grow, secrete something, and finally, most important of all and really most essential for all life, it can reproduce its kind. Specialized cells, certainly in their old age, do not reproduce their kind; that function they have delegated, in humans, to other specialized cells. But if a specialized cell is prevented from doing its special work for a long time, it loses that power. Furthermore, if it is alive and well fed it will certainly do something. We assumed that such cells are the focus for cancer. That is, they are healthy but physiologically deteriorated cells which are comparatively young, and which receive an extra stimulus from the hyperpituitarism. They, therefore, do the only thing left for them to do. They reproduce their kind, atypical to be sure, but characteristic. And being, relatively to the other body cells, young, they are active out of all proportion to other cells. In other words, we have a cancer.

On this assumption, the rational thing would seem to be to remove some of the pituitary body. But for a patient far advanced in cancer, such a procedure was negatived. The risk was too great. It then occurred to me that the pituitary gland is an organ which certainly has two very remarkable and apparently widely separated functions: it regulates growth and it helps regulate sugar metabolism. I decided to make it work overtime at the sugar metabolism, hoping that so much of its energy would thus be occupied that it could not devote much to its growth function. I was encouraged to this opinion by the known fact that cancer and diabetes are extremely rare in the same patient. Therefore I decided to feed the first patient with inoperable cancer I had with large amounts of sugar. The result was so extraordinary that it was with difficulty I could think of anything else, for this patient apparently entirely recovered within two months. Fortunately or unfortunately, the fact that I had no scientific proof that the case really was cancer prevented me from at once rushing into print. Clinically, however, the woman was dying from uterine cancer. Her case is Case 1 described later. But I did enlist the help of some of my fellows and told them my theory and the result. We then tried the thing out with four other patients, one cancer of stomach, one cancer of esophagus, one cancer of skin and one cancer of tongue. There is no scientific doubt at all as to the nature of these cases. The stomach case died in the usual way, the esophagus case died with a metastasis in lung, the tongue case and skin case are under treatment.

All four cases promptly showed three remarkable results. All had a feeling of well-being, three even gained in weight, all were relieved of pain and in all the growth diminished in size. This is surely enough to show that something new was being done and was tremendously encouraging. The results in the esophagus case and in the stomach case only served to start fresh studies which at once opened wide fields. In passing it seems probable that at least one new disease entity has been recognized and many otherwise puzzling cases have been more or less cleared up.

At this point the writer made a careful tabulation of various known facts with reference to the ductless glands. These tabulations appear elsewhere. As a result, the theory was changed. It seemed highly probable that in each case of cancer, depending on its embryological location, a special ductless gland was chiefly involved. For example, the pituitary body is embryologically ectoderm and the stomach is endoderm, and it seemed more likely that if any ductless gland were at fault in cancer of the stomach it would be a gland of endodermic origin, *i.e.* thymus, thyroid, parathyroid, islands of Langerhans or the gastric and intestinal mucosa.

Again, it was enlightening to find that one or more of the ductless glands derived from each of the three germ layers had something to do with sugar metabolism. (See Table 6.) It was still further enlightening to find that always, so far as we could determine, in cancer there is hyperglycemia, but, as already stated, rarely glycosuria. And it seemed almost impossible to produce an alimentary glycosuria.

Another of the tables shows how hyperglycemia may be produced. (Table 7. It will be seen that in the case of some of the ductless glands, as the suprarenals, for example, hyperaction produces an excess of sugar in the blood, while in the cases of others, the pituitary for example, hypo action does the same thing.

Taking all things into consideration it was believed finally that it must be a case of hypo action of one or more of the ductless glands that was the ultimate causative factor in cancer, as explained earlier in this discussion: either this or a disordered action.—what Cushing in speaking of the pituitary body calls dyspituitarism. The explanation on this hypothesis would be again that the disordered action would affect most strongly the physiologically younger cells, the shut-in idle cells before mentioned.

With this idea, I began on the skin case, which under the sugar treatment had improved to a certain point and then the growth began vigorously in a new spot adjoining the old growth. In considering what gland was at fault, we find on consulting Table 1 that skin is of ectodermic origin. Table 2 shows that the following ductless glands are also of ectodermic origin: A part of the suprarenal, the pituitary, the carotid bodies, the pineal body and possibly the coccygeal body. The last three were ruled out because we knew little about them, but that little does not bear on the present subject. The suprarenal we rule out because hypo adrenalism does not result in hyperglycemia and does result in a well known disease entity—Addison's disease. There remains the pituitary. If the pituitary is at fault in such a case we can rule out hyperpituitarism for its results we know—acromegaly, or in the young, giantism. Therefore we are brought to the theory of hypopituitarism.

The suprarenal was strongly considered at first on the ground that if one omits the actual growth, many of the symptoms of cancer and of Addison's disease are alike: weakness, digestive disturbances, wasting, cachexia, etc. In fact we administered adrenalin, but without much effect one way or another. Again, as a side issue, it may be stated that for reasons not necessary to discuss in this place, adrenalin medication is disappointing, but we have under consideration some interesting possibilities in this connection. Also there seems a fairly definite symptom complex, the exact antithesis of Addison's disease, of which the writer has complete records of two cases. There are certainly many such cases.

So finally on Aug. 26 we began the administration of pituitrin, meanwhile keeping up the sugar administration until Oct. 1, when it was discontinued for reasons to be given presently.

On Oct. 1 there was found to be a very remarkable change in the growth. We had not seen the patient since the pituitrin had been started but now we found the growth shrunken to a shadow of its former size, and the whole ulcerated surface healing. (Full details of this case will be given later with the other cases.) But we found the patient had been losing weight and strength while his cancer was disappearing. Several explanations of this were considered. We thought it might be due to too much sugar now that we were furnishing extra pituitrin to the patient, or that it might be due to toxins absorbed from the disappearing growth. At all events we stopped the sugar, urged a generous diet otherwise and gave strychnine. The urine at this time showed the characteristic increase due to the pituitrin. On analysis we found the urine to be of sp. gr. 1.012, acid, possibly a very faint trace of albumin, no sugar.

The tongue case (No. 6), doing badly after the usual initial gain, was next reconsidered.

On consulting Table 1 we find the tongue to be of endodermic origin. Table 2 shows the ductless glands of endodermic origin to be the thymus, the thyroid, the islands of Langerhans, the gastric and intestinal mucosa.

The thymus was ruled out as it is generally negligible after puberty. The thyroid was ruled out (although it was tried for a short time) because we knew the usual effects of hyper- and hypothyroidism in Graves' disease, myxedema and cretinism. The islands of Langerhans were ruled out, at least so far as hyper function is concerned for reasons already given. Hypo-function we know is the usually accepted cause of diabetes. There is very strong ground, however, for seriously considering relative hypofunction of the islands of Langerhans as one of the factors in producing cancer of endodermic tissues. If there is such hypo-function we expect diabetes; but suppose in a given individual there exists a nest of our assumed "idler" cells. When as the first result of hyposecretion of the islands of Langerhans an excess of sugar appears in the blood, that is exactly what suits these physiologically younger and more active cells which from disuse have lost their specialized functions and have deteriorated. They eagerly seize upon this extra food and thrive upon it: if at the proper stage of retrogressive development they multiply and the cancer is started: as the failure in the islands of Langerhans increases and the amount of sugar in the blood thereby increases, the cancer naturally grows, taking all the sugar that can be furnished because the increase is gradual. Therefore a person at or after middle life who has hyposecretion of the islands of Langerhans will have diabetes or cancer, depending upon whether or not he has the other factors of cancer present. It is curious to note that many more children have diabetes than have cancer, but that very many

more people at or after middle life have cancer than have diabetes. The reason is obvious if our theory is correct.

Therefore hypo-secretion of the islands of Langerhans must be seriously considered in the case of endodermic cancer. A reliable preparation from these organs has not yet been obtained to use in any cancer case as yet.

(To be continued.)

Clinical Department.

MEASLES: ITS RELATION TO ORAL CONDITIONS: WITH A CLINICAL REPORT OF SIX CASES.*

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MEASLES is an acute, contagious, febrile disorder, characterized by catarrhal symptoms affecting the upper respiratory tract, and an eruption of dusky-red, slightly elevated macules. It is the most contagious of the various exanthematous affections and it is almost impossible to prevent its spread in an institution or household. Susceptibility to measles is practically universal. It may attack anyone who is not already immunized by a previous attack.

The eruption of measles may be seen on the mucous membrane of the mouth previous to its appearance on the cutaneous surfaces. The eruption occurs usually on the second day. Flindt[1] in 1880 describes the exanthem of measles as follows: "The eruption consists of round or somewhat irregularly shaped, light red spots, rather indistinctly circumscribed, and only just raised above the mucous surface. The spots vary in size from a pinhead to a lentil, are in part isolated and in part collected into groups, quite irregular in shape, and in some places coalescent. At the centre of the small red spots, and giving them a peculiar appearance, are situated numbers of tiny, whitish, shiny, raised points, apparently vesicular in character and irregularly grouped according to the arrangement of the spots on which they lie. Similar spots can also be perceived on the mucous membrane of the cheeks."

One of the most remarkable and instructive epidemics of measles is that which visited the Faroe Islands in 1846. The island had been free from measles since 1781, a term of sixty-five years. The disease was introduced by a Danish cabinet maker, infected in Copenhagen. He communicated it to two friends. This gave rise to an epidemic which in a short time attacked 6000 people out of a population of 7782. Persons of all ages were stricken, the old inhabitants who had passed through an attack as children in 1781 alone escaped. Not one of the older inhabitants, who was exposed to this infection and was unprotected by previous attack, failed to acquire the disease.

The extreme contagiousness of measles, as shown in the preceding paragraph, is proof of its microparasitic origin. In 1892 Canon found in fourteen cases a bacillus, which he considered to be a specific causative agent. It could be grown on bouillon but on no other medium. Czajkowski[2] found a bacillus in the blood and mucous secretions of fifty cases of measles, which was apparently identical with that discovered by Canon. It grew, however, on various albuminous media. Josias[3] failed to find it in twenty-four cases; Barbier in twenty-one cases.

In 1900 Lesage[4] published the results of a study of two hundred cases. He found a delicate micrococcus, which grew best on gelose, took stains slowly, and was decolorized by Gram's method. The cultures bore resemblance to the Fraenkel's pneumococcus. Rabbits were inoculated with blood and nasal secretions in many cases, and measles was apparently reproduced in nearly all. The organism was found constantly in measles, but was absent in twenty-five cases of scarlet fever and in forty five normal children.

More recently Weber[5] has detected bodies in the blood which he regards as protozoa. From the above divergent findings it is evident that further research is necessary before any of the organisms described can be accepted as the specific cause of measles.

It will be found convenient to discuss here the influence of institutional environment upon the mortality rate of measles. It is much more fatal in institutions than in the home and is often called "the scourge of children's institutions." Holt speaks of an epidemic in the Nursery and Child's Hospital in 1892 in New York in which there were 145 cases, with a death-rate of 35%.

In the St. Vincent's Orphan Asylum, Camden Street, Boston, the statistics of the cases of measles for the last six years, compiled by F. A. Keyes,[6], D.M.D., are as follows:—

1907-1908, 24; 1908-1909, 50; 1909-November, 1910, 40; November, 1910-April, 1911, 25; April, 1911-May, 1912, 0; May, 1912-May, 1913, 0; May, 1913-November, 1913, 6.

In April, 1913, a new child, infected with measles, spread the disease to six of the children. Examination of the mouths of these children showed the following conditions:—

CASE 1. Eight years old. Cavity in right inferior six-year molar; right inferior second temporary molar, badly decayed; left inferior first temporary molar, abscessed; right superior second temporary molar, decayed; mouth dirty; fetid breath; throat clear of tonsils; no adenoids present.

* Read at the monthly meeting of the Guild of St. Appolonia, Nov. 13, 1913.

Case 2. Seven years old. Right superior second temporary molar, decayed to gum-line; right superior temporary cuspid, abscessed; cavity in left superior second temporary molar; left inferior second temporary molar, crown three-fourths gone; left inferior first temporary molar, decayed, with gums red and turgid; inferior right temporary molars, badly decayed; breath fetid; dirty mouth; tonsils present.

Case 3. Five years old. Inferior right temporary molars, badly decayed; first temporary has an abscess discharging pus; left inferior first temporary molar, badly decayed; cavity in left inferior second temporary molar; superior right temporary molars, two proximal cavities; superior left first temporary molar, cavity in crown; tonsils enlarged; and adenoids present.

Case 4. Five years old. Proximal cavities in the four anterior superior teeth; inferior left first temporary molar, coronal cavity; teeth covered with green stain; gums red and turgid; tonsils enlarged. This is the child who brought the measles into the institution.

Case 5. Three years old. Frenum enlarged; superior lateral incisors missing; on right superior central incisor gum has receded and is very red and turgid; on left superior temporary molars, roots are denuded; gums on lower, red and turgid; stomatitis present; this child was discharged from the hospital two weeks before this examination was made.

Case 6. Eight years old. Superior right second temporary molar, abscessed; inferior left six-year molar, mesial cavity; inferior right temporary molars, decayed; gums red and turgid; mouth in six-year molar region very unhealthy; no tonsils.

It is an interesting fact that many of the children at the institution, whose mouths were in good condition, and who were exposed to the infection, were not attacked by the disease, although they had not been made immune by a previous attack.

From the investigations, as reported above, of research workers in all parts of the world, it is evident that measles is one of the most important of childhood diseases. Dentists should, by careful observation of the cases of measles occuring in their practise, be able to obtain interesting data in regard to the oral conditions found in these cases.

While we know that we have but few cases to report and that no logical conclusions can be drawn from so few, we trust we have aroused a little interest. In addition, we hope that other men, who have the opportunity, will observe the oral conditions found in cases of measles, occurring in their practise and report them.

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Medical Progress.

FOURTH REPORT OF PROGRESS IN ORTHOPEDIC SURGERY.

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TUBERCULOSIS.

Roentgen Ray Detection of Abscesses in Tuberculosis of the Spine. Roederer and Weil[1] for the last two years have been systematically examining with the Roentgen ray every child suspected of having tuberculosis of the spine. They have been surprised at the large proportion of cases in which shadows of abscesses were found about the vertebral focus. They call attention to the ease with which these abscesses can be detected by radioscopy before they induce any symptoms. These findings also emphasize the necessity for prolonged supervision, after an apparent healing of a vertebral process. They consider that with the present technic it is impossible to distinguish by radioscopy between incipient and florid abscesses or the cicatricial changes left after the healing of an abscess.

In America attention has been called to these facts and the ease with which abscesses in Pott's disease may be detected by radioscopic examination, by Compton Reily[2] of Baltimore.

Multiple Bony Tuberculous Lesions in Children. Calve[3] has made a valuable statistical study of the occurrence and prognosis of multiple tuberculous bony lesions in children. In various groups of cases collected by Dr. Glacys and from the records of the Hôpital Maritime at Berck the percentage of multiple lesions has varied from 9.4%, to 13%. In 1910 at Berck there were 85 cases of multiple foci among a total of 869 cases, making 9.8%. Of these 85 multiple cases, 27 were hip disease, 14 being double coxitis. In 9 hip and spine were involved. Thirty-four cases showing multiple lesions were apparently primary in the spine, and of these only five showed more than one vertebral focus, the more common association in this group being with the hip and knee. Tuberculous meningitis occurred about four times as frequently (5.9% to 1.45%) in the multiple cases as in the single. Among the 85 cases having multiple foci there were 8 deaths, 9.5%, while among the 784 cases having single foci there were 21 deaths, or 2.5%. The prognosis, therefore, would seem to be unquestionably more serious in the multiple than in the single cases.

Tuberculin. Delitala,[4] after a considerable experience with the use of tuberculin as a diagnostic agent, believes most strongly in the value of this focalizing reaction. He considers it of special usefulness in the early stages when diag-

nosis is most difficult, from both clinical and radiographic examination. He reports in detail 38 cases. His initial dose is 2-10 mg., his second 5-10, his third 1 mg., and his fourth 5 mg. He allows two days to elapse between each dose, and does not consider rises of temperature of two or three-tenths of a degree as a positive sign.

Treatment of Surgical Tuberculosis. Iselin[5] has treated 800 cases of surgical tuberculosis with the Roentgen rays. He believes that some of the cases in which even amputation had been considered, have been cured. In certain patients with multiple foci only those foci exposed to the rays were cured. There was frequently noted an increase of weight as well. He considers that the rays often do not have sufficient penetration to overcome the density of the bone and that the danger of interfering with the epiphyseal growth and the sensibility of the skin present real limitations to the method. By careful technic it is possible to avoid immediate skin irritation, but as yet he thinks we cannot always avoid late ulcerations, their onset being delayed occasionally for years. This method of therapy he believes to be of less value than the exposure to direct sunlight in high altitudes, but he considers its value lies in its more general applicability.

Schede,[6] working in Lange's clinic, also writes favorably of Roentgen ray therapy in bone and joint tuberculosis. He believes only small "doses" should be employed, since the tubercular tissue reacts much more than the skin or healthy tissue. Cases with sinuses have shown the best reaction, and he has noted no interference with epiphyseal growth. A healthy epiphysis should, however, always be protected. He believes that the method should be combined with general hygienic treatment and orthopedic methods. A damaged skin, cold abscesses, fungus growths threatening perforation, are contraindications to the use of the Roentgen rays.

Bardenheuer[7] reports 40 cases of peripheral tuberculosis treated by heliotherapy at a high altitude. Of these 40 he considered the severity of the disease to be slight in 10, moderate in 11, and great in 19. Of these 19 serious cases, 10 were over twenty years of age, and 13 had "a splendid result." Seven of them he considers completely cured. He believes there may be an exacerbation of the disease in cooler weather. Altitude seems to be of much importance because of the greater therapeutic value of the sun's rays.

Baetzner[8] writes enthusiastically of the trypsin treatment of surgical tuberculosis. After much trial he has adopted the preparation of Fairchild Brothers and Foster, "Injectio Trypsini," which he finds satisfactory as to sterility, and both active and stable. Using himself as a control, he has experienced no ill effects. When the trypsin has been injected into abscess cavities there has been a marked change in the contents of the sac, the pus becoming at first syrupy and brownish and then like meat juice. In a few cases alarming symptoms have appeared and suggested an acute inflammatory phlegmon with rigor and high temperature. These have disappeared in from 24-28 hours, the swelling going down in from four to six days. The reaction in the great majority of cases has been only a slight smarting pain at the moment of the stab and sometimes a slight rise of temperature. The synovial hygromata, for example, of the flexor and extensor sheaths of the hand with "snow ball crunching" have improved under the injections very rapidly and the function of the tendons has improved also. Bones extensively diseased in children have shown what he considers marked and surprising regenerative changes in the skiagraphs. In abscesses after puncture he injects 1-2 c.c. of the Fairchild preparation diluted with ten parts sterile physiological salt solution. He avoids reddened areas. Two or three injections frequently suffice. In sinuses he injects into the walls of the sinus and into the surrounding parenchyma. In the synovial hygromata he injects into the synovial sheath, starting with 2-10 to 5-10 c.c. and after 3-4 injections using larger doses. In joints he injects directly into the parenchyma 1-2 c.c. of trypsin without the dilution with salt solution, using an ordinary hypodermic syringe. The article is apparently somewhat enthusiastic, although the author seems quite convinced that in trypsin he has a valuable therapeutic agent in surgical tuberculosis.

Sattler[9] has used, not trypsin but concentrated carbolic acid as an injection in "many" cases of surgical tuberculosis. He believes that the cases treated with his carbolic injections improved much more rapidly than those treated by other methods. Multiple foci or cases associated with pulmonary tuberculosis do not show a satisfactory reaction. He injects directly into the lesion at the point of tenderness a few drops, up to 15 minims, of concentrated carbolic acid, and repeats this injection every 2-3 weeks, according to the reaction. Age is no contraindication, although children react more quickly. There is little pain, and healthy tissue does not seem to be damaged. (Just why does not appear.) He says that there are no general symptoms.

(Ed. Note.—We report these forms of treatment without personal knowledge of their efficiency or safety. We have had slight experience with the use of the "injectio trypsini" of Fairchild and Foster in an out-patient clinic in the treatment of persistent sinuses. This slight experience has been favorable and leads us to continue. There seems, moreover, to be a growing tendency among many clinicians to seek again for antiseptics in the treatment of infections, and these reports are the most suggestive which have come to our notice in this connection.)

Robert Jones's[10] conclusions are always of great value from the fullness of his experience

and the keenness of his observation. In a recent article dealing with tuberculous disease of the bones and joints, he mentions the diagnostic aids and the principles of treatment upon which he relies. As to diagnosis, assuming that the vague history and insidious onset are characteristic, the next factor upon which he depends is the temperature. A subnormal morning temperature of 97.5 F. or less, with an evening temperature of 99, he considers to be practically pathognomonic of tuberculosis. A higher temperature, of 100° or more, suggests either a septic infection pure and simple or complicated with a tuberculous lesion. If the evening temperature is not high enough to suggest a septic infection and the morning temperature is not subnormal, then the case is probably the result of trauma and represents simply a contusion of the joint. The principles of treatment upon which he relies are, first, complete physiological rest; second, good nourishing food, especial importance being attached to butter, "drippings," jam, and sugar, with an unlimited allowance of good milk; third, fresh air; fourth, sunshine. Mr. Jones thinks that experience does not indicate the truth of the theory that by a certain amount of use the patient may give himself immunizing doses of his own tuberculin. He does not consider that the use of tuberculin is usually necessary for recovery, at least in children, and if this treatment is undertaken he calls attention to the fact that it is more often bovine than human. In adolescents the systematic use of tuberculin ought to be of great advantage, but the problems of administration and the indications for its use are not simple.

Pirie,[11] writing on the reformation of bone after resection, discusses tuberculous osteomyelitis. He states that it is not common, occurring 50 times in 8800 x-ray cases. The diagnosis can, in his opinion, be almost certainly made from the x-ray alone. The skiagrams of his two cases would be considered by many to be suggestive of a chronic pyogenic osteomyelitis, one of three months' duration with a periostitis, and the other following a sprained ankle a year previously. He resected four to five inches of the shaft in each case, and no microscopical examination or inoculation tests are noted. The more recent case regenerated in five weeks, while the second case required two years to restore the bone shaft. He is apparently in accord with Macewen's views as to regeneration of bone, and advises the careful preservation of the periosteum as "a limiting membrane" in the formation of new bone of normal shape. If the laying down of a new bone of proper size is unduly slow, he advises a fracture of the slender shaft as a stimulus to new bone formation.

(Ed. Note.—We have seen proved tuberculous osteomyelitis of the shafts of the long bones very, very rarely. Of its existence there seems to be little doubt, but the question has been properly raised as to whether these cases do not more commonly represent a mixed infection of pyogenic organisms with tubercle bacilli, this mixed infection favoring the more diffuse nature of the lesions.

Wheeler[12] also advises resection in tuberculous disease of the lower end of the femur between the lower epiphysis and the shaft. He saws across the bone two or three inches above the metaphyseal line, and twisting the lower piece of bone free, wrenches it from the epiphysis. The periosteum previously separated is sewn together. The x-rays show good regeneration.

Brandes[13] reports on the end results of radical operation for tuberculosis of the knee. His material is obtained from the cases operated upon by Helferich in the Surgical University Clinic in Kiel from 1899 to 1907. Twenty-six children were operated upon. In 19 a resection was done, in 4 an arthrectomy, in four an amputation. Three of the resections had later flexion contractures. Fourteen other cases of resection examined had firm osteal ankylosis in a useful position of extension and the patients are able to work and earn their living.

Osgood[14] has reported 28 cases of excision of the knee performed by various orthopedic surgeons at the Massachusetts General Hospital from 1907 to 1912. In 14 of the cases either no sutures, absorbable sutures, or wire sutures were used to maintain apposition of the bone ends. Of these there were 3 subsequent amputations, and in 12 union was delayed three months or more. In 14 either malleable iron bone plates or aluminum wire bone clamps devised by Goddu were used, and in these there was only one subsequent amputation in a very unfavorable case treated afterwards outside the hospital. Firm union occurred in two months or less in 10, and every case except the amputated one finally obtained firm union. The plates or clamps were subsequently removed because of irritation in four cases, without further trouble. The belief is expressed that some method of obtaining accurate and firm apposition of the bone ends immediately following the excision is most desirable, and that if this is accomplished postoperative pain is less, firm union more quickly takes place, and a useful limb is almost always obtained.

Cases of tuberculous rheumatism, so-called, continue to be reported by Poncet,[15] Popper,[16] and Griffith.[17] We could wish for more convincing proof of the tuberculous nature of these arthritides, but there seems to be no doubt as to the frequent association of what seems to be a toxic polyarthritis with lesions of the lungs, glands, and bone, known to be of a tuberculous nature. Moreover, in substantiation of the claim that these arthritides are caused by the toxines elaborated in the tuberculous lesion, is the fact that increase in the joint symptoms follows small injections of tuberculin. Poncet advises operative treatment in the cases of "inflammatory" tuberculosis in which ankylosis

has occurred, declaring that resection with early mobilization gives brilliant results.

(Ed. Note.—To a limited extent this advice of Poncet may be wise in lesions of the elbow and possibly of the shoulder and wrist, but the experience of most men who have devoted attention to arthroplastic operations emphasizes the peculiarly unfavorable nature of old tubercular joints for these mobilizing operations. An exacerbation of the disease frequently takes place and the results by and large have not thus far been satisfactory.)

POLIOMYELITIS, SPASTIC PARAPLEGIA, AND OBSTETRICAL PARALYSIS.

Poliomyelitis. Colliver,[18] after a study of 16 cases in the recent Los Angeles epidemic, calls attention to "a peculiar twitching, tremulous, or convulsive movement" of certain groups of muscles, lasting from a few seconds to nearly a minute. It is greater than a tremor, and not so long as a convulsion. It occurs in the preparalytic stage. The face, the limbs, or the whole body may be affected. It occurs at intervals of about an hour, and being of very short duration is easily overlooked. There may be also a peculiar "hydrocephalic" cry.

(Ed. Note.—This early prodromal sign has frequently been observed in monkeys and has been one of the methods by which the onset of a paralysis could be predicted. It frequently is of longer duration and of more frequent occurrence in monkeys than Colliver has noticed in human beings.)

Müller[19] agrees with the findings of Lucas that in the early stages of an infection with the virus of poliomyelitis there is an increase in the quantity of spinal fluid, with moderate lymphocytosis and increase in the albumen. The fluid is, however, sterile to ordinary culture materials. Unless there is a mixed infection he has found in the blood a leucopenia with a relative increase in the lymphocytes and the eosinophiles.

McIntosh and Turnbull[20] have reported four attempts to transmit the virus of poliomyelitis from human beings to monkeys by intradural and intraperitoneal injections. The first two cases were unsuccessful, but in the third and fourth they obtained a typical picture. Historically, their report is of interest in that they state that this is the first work of the kind done in England.

Neustadter,[21] citing the report of Romer of a form of flaccid paralysis occurring in guinea-pigs, reports that two guinea-pigs living in a cage beneath a monkey which was suffering from poliomyelitis and had a nasal discharge, showed typical paralysis. He was able to transmit the disease through the nasal membrane in at least one case, which showed characteristic lesions of the cord and brain.

(Ed. Note.—As far as we are aware, this is the first time in which experimentors have observed a transmission of the experimentally produced disease without definite inoculation. Attempts have repeatedly been made to transmit the disease by contact, by means of mixing the nasal secretion of acutely sick cases with the food of healthy susceptible monkeys, and in various other ways. These attempts have been failures. It is a significant fact also that experimentors have not contracted the disease.)

Brown,[22] in reporting the Los Angeles epidemic, calls attention to the importance of quarantine and isolation hospitals, oiling of the streets, and general municipal attention at the first sign of an epidemic, but the facts only show coincident cases in families and localities. He believes that urotropin is harmless, but of little efficacy.

By far the most important contribution to our knowledge of the virus of poliomyelitis has been the successful cultivation of the organism by Flexner and Noguchi.[23] The culture material is sterile rabbit kidney in a human ascitic fluid covered with a layer of paraffin oil in order to furnish anaerobic conditions of growth. The usual sized portion of sterile rabbit kidney is first placed in the test tube and a fragment of corresponding size containing the virus removed from the cerebrum or other part of the brain or spinal cord is added. Upon these about 15 c.c. of sterile human ascitic fluid is poured, and finally about 4 c.c. of paraffin oil. The ascitic fluid must be originally sterile. Fractional heating or sterilization renders it unsuitable. The tubes are placed in the thermostat. If gross contaminations have been excluded the tubes show a faint opalescence appearing in about five days around the fragments at the bottom of the tube. The opalescence spreads to other portions of the tube in three to five days more. When the growth is well established in this fluid media it may be transplanted onto media made solid by the addition of a 2% nutrient agar, and on this small colonies become evident to the naked eye. Uncontaminated cultures may be stained best by the Giemsa or Gram method. The microorganism consists of globoid bodies measuring from 0.15 to 0.03 of a micron in diameter arranged in pairs, chains, and masses, according to conditions of growth and multiplication. Typical experimental poliomyelitis has been produced in monkeys by the injection of this artificially grown virus.

Spitzy[24] has abandoned the plastic transplantation of the trapezius in paralysis of the deltoid. He considers the operation both difficult and dangerous, and in one of his cases the flat transplanted trapezius became later rounded and slipped forward or backward in every abduction of the shoulder. He has more lately employed the following operation and reports its success in two cases. A transverse osteotomy of the humerus above the insertion of the pectoralis major allows the outward rotation or the lower fragment. The bone is allowed to heal with the arm in the elevated position in a

moulded (plaster of Paris) splint made before the operation. By this manoeuvre the pectoralis is brought under greater tension, which is diminished by elevation. The clavicular portion of the pectoralis takes the place of the deltoid, and although the child cannot lift heavy weights it can elevate the arm in a vertical direction.

Lange and Vulpius have both performed osteotomy of the humerus and outwardly rotated the lower fragment in cases of obstetrical paralysis.

Gallie[25] reports successful results, which he considers permanent, from the operation which he independently devised of retaining paralyzed feet in good weight-bearing position by fastening the paralyzed tendons as stays to the tibia or fibula. After the periosteum is divided by a linear cut a groove is made in the bone, the tendon drawn up to the proper tension and the periosteum sewn over it. A similar method was reported favorably by Codiville in 1900.

Spastic Paralysis. Werndorff,[26] in considering the indications for section of the posterior nerve roots in spastic paralysis believes that the elimination of the contractures represents the first and chief problem in treatment. This he is sure should always be done before Foerster's operation is considered, and he thinks that in most cases this will be sufficient. His conclusions are in agreement with those of Harris,[27] who has made a study of the end results of cases operated upon at the Children's Hospital in Boston. These were the results of tenotomies and myotomies and have been in the main most satisfactory. Foerster[28] himself now pleads for a very careful consideration of the indications before his operation is attempted. First, the pathological condition should be stationary or nearly so; second, sometimes it is a questionable method of interference after the condition has remained stationary for a long period (how long?); third, one must be very sure that the spasticity is not due to tumors, syphilis, or Pott's disease; fourth, the operation is of little value unless there is excellent mentality, since prolonged after-treatment and muscle training is absolutely essential. Foerster believes the operation less applicable to the arms than to the legs.

Obstetrical Paralysis. Lange[29] reports 17 cases of distortion of the shoulder joint and obstetrical palsy. Five of these he considers as real paralysis, twelve of distortion. The clinical pictures are similar. The x-ray showed in no case a dislocation. The main diagnostic sign is the pathognomonic position of the arm and limited function. He believes that the treatment should be carried out under these headings: 1. prophylaxis against contractures. In adults exercises; in children plaster of Paris bed with the arm outwardly rotated, and passive motions instituted. 2. In inveterate cases redressment under an anaesthetic (this up to one year). 3. In old cases (over one year) osteotomy of the humerus at the mid point and outward rotation of the arm.

(To be continued.)

Reports of Societies.

WORCESTER DISTRICT MEDICAL SOCIETY.

MEETING OF DECEMBER 10, 1913.

President, HOMER GAGE, M.D.; Secretary, ERNEST L. HUNT, M.D.

The secretary's report approved without reading. A communication from the Committee on State and National Legislation of the general society was read, and a local committee, consisting of Drs. Emerson, Duggan, Reed and Bragg, was nominated.

DR. WALTER E. BOWERS, in behalf of a committee of which Drs. Knight and Harrower were the other members, presented a memorial to Dr. Edwin Bayard Harvey. *Voted:* To file the memorial in the Year Book, and cause a copy to be sent to Mrs. Harvey.

DR. W. IRVING CLARK presented the report of the Committee on Public Lectures, outlining their plan for a series of lectures to be given on health subjects under the auspices of the society. He requested the advice of the society as to the program, place of meeting, and especially on the advisability of dealing with the sex question.

DR. HOMER GAGE: This matter is one of great personal interest to me. In the past the society as a body has not done as much work for the community as it might have. The questions presented by the committee are important, and I hope they may be decided rightly, and the committee empowered to carry out the plan. The location of the hall is important, and publicity is necessary in order to secure the first audience. I hope the members will express their opinions freely.

DR. T. E. MCEVOY: I doubt the advisability of presenting the last subject mentioned (Community Responsibility for the Prevalence of Venereal Disease). This is a difficult subject upon which to instruct the public, and would better be done in another way.

DR. A. C. GETCHELL: I move that we accept the report of the committee, with the understanding that the society is in favor of the scheme, and that it be referred back to the committee with power to act. Voted.

The president again called for an expression of opinion in regard to the presentation of the sex subjects. No one responding, the president said he thought that silence on the part of the members should be interpreted by the committee as implying doubt.

The president then introduced the speaker of the afternoon, DR. HOWARD LILIENTHAL, of New York City, author of a work on Imperative Surgery, surgeon to Mt. Sinai Hospital, frequent contributor to current medical literature, and announced his subject as

THE SUSPICION OF MALIGNANCY.

The speaker prefaced his paper* by saying that his treatment of the subject would perhaps be in

* See page 120 for paper in full.

more popular vein than strictly scientific, and expressed his hope for a free discussion of his paper. He also mentioned that a society had been recently organized calling itself The American Society for the Control of Cancer, with the object of educating the public on this subject.

DISCUSSION.

DR. HOMER GAGE: We have listened to an extremely interesting and timely paper, coming at a moment when a more determined and organized effort to instruct the public and the profession as to the need of early diagnosis and excision of cancer is under way. At present, all recognize that there is no cure except the knife. While promising work in various other directions is being done, it is yet too early to use any of them as a basis for general treatment. The new statistics of Dr. Lilienthal as to the frequency of cancer are most interesting to my mind, especially the uniformity shown in the figures obtained from different sources. No matter how the groups are subdivided, the general fact remains the same, which is proof to my mind that his figures do not lie. There is another important thing that I would like to add to what Dr. Lilienthal has said. There is a class of cases in which conditions exist which have been called by Bloodgood pre-cancerous. Such are the small ulcers appearing on the lips of elderly people, or small tumors of the breasts as certain cysts, which are prone to become cancer. Often we find in seemingly simple cysts little papillary projections, doubtless early manifestations of malignancy. This subject is urged upon the attention of all by the new association. I know that Dr. Lilienthal likes argument and hopes for a free discussion of his paper, which I am sure he will enjoy as we will profit by it.

DR. RAY GREENE: I recall how Dr. Lilienthal in undergraduate days disagreed with Dr. Fitz over a piece of liver. I have recently had several cases of sarcoma, which I treated with Coley's fluid, and had some correspondence with Dr. Lilienthal regarding that treatment. I would like to know his present opinion of that treatment.

DR. W. E. BOWERS: There always comes up in the mind of the surgeon the question of the necessity of a mutilating operation in early cases. Do not the fascia planes act as a dam to the progress of malignancy? Is there not a chance to do less severe operations if the cases are seen early? Many of us have seen these early cancers, in which the diagnosis has been proven by microscopic examination, removed by less extensive operation, fail of recurrence. This may be playing with fire. Will Dr. Lilienthal speak about that? We want him to feel that we are alive to this opportunity to learn of so high an authority.

DR. A. C. GETCHELL: The question of the frequency of malignant growths in adult women of apparently good health interests me. My opinion was recently asked by the librarian of our public library on a book by Brooks Adams called The Health Master. In the chapter on cancer the health master talks to a woman's club of sixty from the ages of thirty to sixty-five, telling them that eight of the number had cancer. The book states that some of the number looked queer, and in a few months eight had been operated on for cancer. While the author in his book has presented some true conditions, there are others which I know are not true. Is the proportion which he states correct?

DR. L. C. MILLER: What are we going to do with the patients whom we suspect to have cancer, and cannot prove it by ordinary examination? Special diagnostic procedures take time and tend to fasten the patient's attention upon the disease. What shall be our conversation to the patient? Are we to tell them our suspicions? Is it not better to leave them in the dark until we can confirm our diagnosis absolutely?

DR. M. F. FALLON: When I visited Mount Sinai Hospital Dr. Lilienthal was treating cancer cases by means of the x-ray and serums, and I would like his opinion on the value of that kind of treatment. Surgeons deserve great credit in trying to do away with operations. Perhaps one of the most prominent workers in this field is Fischera of Italy. He uses extracts of the human embryo in the treatment of inoperable cancer. No less an authority than Dr. William Mayo gives credence to the results which he has obtained, having been successful in a few cases. The rationale of this treatment is based on Cohnheim's theory of the origin of cancer,—that is, that it is caused by an irritant or injury. If this is true, embryonic cells are stimulated to invade the near-by tissues and run lawlessly. This constitutes cancer. Experiments show that at times extracts of healthy organs injected into healthy animals of the same species will destroy the same organ in that animal. Dr. Mallory has shown that an extract prepared from the scrapings of the stomach of a rabbit injected into another rabbit produces ulcer of the stomach, also solutions of the bile salts destroy the liver in the injected animal. Certain tumors in rats have been made to disappear by the injection of extracts from rat embryos. Fischera bases his work upon such facts as these. If it is true that the growth is due to lawless embryonic cells, then the injection of an extract of an embryo may cause the cessation of the development of the cancer. It is at least interesting to look into the investigations of such men.

DR. LILIENTHAL: I am glad that Dr. Gage spoke strongly of excision, and moderately in reference to other treatments. We have been deluged with such treatments as mesothorium and various serums with no success in the hands of many good men. It is probable that the x-ray, radium and mesothorium will cure superficial cancer by a destructive influence as efficacious as the knife. If I had an epithelium in the corner of my eyelid, I would go for x-ray treatment. But if I had a removable cancer inside of me, I would risk nothing but an operation. As for a precancerous stage, everyone who is ever going to have cancer is in a pre-cancerous stage. I should rather use the term a suspicious condition where one has a tumor that might develop into cancer. Do not temporize with chronic mastitis. I advise the removal of the entire mammary gland, without the muscles or lymphatics. Tell the patient she will lose the nipple. She will be satisfied when told that it is not cancer and never will be.

In reply to Dr. Bowers' question, when there is real cancer in the substance of the breast or connected with it, the best results are obtained with the more formidable operation; remove everything. This has been my uniform practice, and I have never regretted it. Some surgeons are satisfied to remove the fascia over the pectoralis major, but cancer is more apt to stand under the pectoralis minor. It is probably true that too much skin has

been sacrificed, a deep cancer being less apt to recur in the skin than anywhere else. Save enough to close the wound easily. This does not apply to large ulcerating growths.

To Dr. Greene's question in regard to Coley's fluid, I have some delicacy in mentioning it before the New York Society, and can never arouse a discussion. When I present patients who appear to have been cured, nobody says a word. When I ask why, they respond that a committee has investigated and decided that as many sarcomata get well without Coley's fluid as after its use. I was responsible for the postoperative use of Coley's fluid. I have a case operated on twelve years ago supposed to be a cyst of the chest wall involving the ribs, probably tubercular. At operation found it to be apparently sarcoma, and had a large piece out of the pleura before I knew it. The cut-end of the ribs had some of the growth in them. It is impossible to remove it completely. I gave an extremely guarded prognosis. Pathologist reported pigmented cell sarcoma. I gave Coley's fluid, and the tumor of the cicatrix disappeared. One year after an enlargement appeared. Again gave Coley's with again complete disappearance. I have presented this man three times before the New York Medical Society. In another case I removed part of the superior maxilla. Could not remove it all as the disease was so extensive. Closed it up, yet there was a hump on the left side of the nose remaining. In answer to the patient's inquiry, I said, "Oh, it is nothing. I will later clear it off." Gave Coley's fluid, and in a few weeks the tumor disappeared. Face assumed a natural appearance. This was a year ago. A week ago still appeared well. Pathologist's original report was malignant osteosarcoma. Now, he says, there were giant cells in it, and another pathologist also found them. Most giant celled sarcoma of the epulis type are nonmalignant. Such experience, however, makes me want to use Coley's fluid after every case. If I am doing wrong, my intentions are good.

Dr. Getchell's inquiry,—As to the frequency of cancer in ordinary adult women, I do not understand such a statement as he quoted from the Health Master. It seems as if they must have been cases of carcinophobia. Many people have moles, etc., which it is well enough to remove by operation. I do not believe any such number had cancer.

Dr. Miller,—As to what to tell the patient. I believe a patient suspected of cancer should have the benefit of every kind of examination. If the stomach, tell her that ulcer is very common, and that you want to find out if she has one. Tell another member of the family your real suspicion. One ought not to quiet the patient's mind until his own mind is quieted.

To Dr. Fallon,—I have tried the method of injecting patients with emulsions from the whole cancer, in the hope that it would act as a vaccine. I have had but eight cases. One had a recurrence. The others are not heard from. There is no doubt in my mind that some cases of cancer are cured without cutting. Whether it is a germ disease or not, it is certainly a disease of chemistry. The new born and embryos do not have sarcoma, though they may have other tumors. As the investigators do not know what part of the embryo prevents it, it was therefore rational to use the whole embryo. The thymus has been suggested as the preventive force, because it atrophies in later life. Rhodenberg has had cures with the thymus, both in extract and in feeding the whole gland.

A professional friend of mine brought his mother to me for cancer of the breast. I did a complete operation. Two years after it recurred, forming a tumor of the chest mall, a hard, red, elevated nodule about the size of a filbert. The patient had said nothing about it. Under local anesthesia I removed all I could, and found it bound down to underlying bone. A microscopic examination showed that this was a carcinoma of the same type as the parent tumor. The son then took the case into his own hands. Dr. Rhodenberg furnished the thymus extract. The wound healed, and the patient is well now, but other cases have not recovered. Dr. Carrel agrees that it is a good and tenable theory. The blood of the infant may have some substance that rejuvenates and prevents the cancer getting hold.

FRANKLIN COUNTY DISTRICT MEDICAL SOCIETY.

The bi-monthly meeting of the society was held in Greenfield, January 13th. A letter was read with reference to a bill now before the legislature regarding the revelation of professional secrets in court on the part of physicians and nurses. The suggestion offered was that the words "not be urged" should be changed to "not be compelled." Dr. G. P. Twitchell of Greenfield read a paper on the Treatment of Gastric Ulcer. The paper was discussed by Drs. H. G. Stetson and Charles F. Canedy of Greenfield and by Dr. Philbrick of Northfield. Dr. Paul W. Goldsbury of Warwick read a paper on Observations on the Sense of Smell, and gave a demonstration.

Book Reviews.

The Treatment of Rheumatic Infections. Press of Parke, Davis and Company.

This monograph is a statement of the case for phylacogen treatment of the so-called rheumatic arthritides.

Forty-Fourth Annual Report of the State Board of Health of Massachusetts. Boston: Wright and Potter Printing Company. 1913.

This volume records the official activities of the Massachusetts Board of Health for the fiscal year ended Nov. 30, 1912. The general report particularly discusses progress made in antityphoid inoculation, in the knowledge and control of poliomyelitis, and ophthalmia neonatorum, and the maintenance of isolation hospitals by cities or towns. Among the recommendations for the new year may be mentioned the need of a central authority to supervise tuberculosis in Massachusetts. The remainder of the volume consists of supplementary special reports on water supply, sewerage, food and drug inspection, cold storage, slaughtering, dairies, plumbing and other works in hygiene, with papers by members of the board, and tabulated statistics.

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THE MASSACHUSETTS BOARD OF HEALTH.

THE inaugural message of Governor Walsh devotes some attention to public health. That part of his message is as follows:—

"There is no more important function in the government than to care for and protect the public health. In the earlier development of the country this truth was not so well recognized; but Massachusetts is entitled to the credit of having led the way among the Commonwealths in the establishment of a State board to safeguard the health of its people. Public health questions in this State were first considered by a commission appointed in 1849, and in 1869 the State Board of Health was created. Down through the intervening years the board has not only led the way in the study of health problems, but has secured the enactment of a body of health laws which have been the model for legislative action in other States.

"Changes in conditions and the great increase in the volume of work of the board would now seem to demand such a reorganization of this department as would place it among the paid boards, with an executive officer armed with authority and charged with the responsibility of supervising the administration of the health laws of the State. With this in view, I recommend the establishment of a salaried Board of Health, with a health commissioner appointed by the board and subject to the approval of the governor. Provision should be made for sufficient salary for the health commissioner to insure the services of a man of training and capacity to fill this important position, probably the most important in the public service of the Commonwealth. The salaries of the members of the board, whose duties would be largely advisory, need be little more than nominal, because the experience of the past demonstrates that men of commanding ability in the study of health problems will give of their time and service to the State."

The praise of Governor Walsh for the Massachusetts Board of Health is richly deserved. The bulletins of this board have been accepted as models not only for other States, but for the United States Public Health Service. Some of the many achievements of the State Board of Health have been the production and the free distribution of diphtheria antitoxin and smallpox vaccine at a time when such a step was regarded as socialistic. Practitioners in the State have never failed to secure a sufficiency of diphtheria antitoxin in an epidemic. The advertisements of anti-diphtheritic sera do not allure the physicians of Massachusetts, because reliable antitoxin is prepared and furnished by the State Board of Health. Recently the Board of Health has prepared and distributed free typhoid vaccine for immunization against typhoid fever, and in its campaign against infantile blindness it has furnished silver nitrate to all practitioners. Among the many investigations of the State Board of Health, there come to mind the classical studies on the filtration of water supplies and the more recent studies which led to the discovery of the insect that may play a part in the transmission of poliomyelitis. These are but a few of the accomplishments of a board that Governor Walsh so justly praises.

The Governor believes, and others share his belief, that the prodigious advances in the nature, causes, prevention and control of disease necessitate a new machinery for the State Board of Health. In his recommendations he has suggested a reorganization somewhat similar to that undertaken in New York, and gives a bare outline in his message. He believes in a single highly-paid commissioner of health, with an advisory board, whose members are to be paid a nominal salary. At present the entire authority is vested in a board the members of which are unpaid. The executive officer is the secretary of the board and derives his authority from the board. All matters of importance are decided by the board, of which the active executive officer is not a member. In his subordinate capacity the secretary may act only as the delegate of the board; he cannot speak with the authority of the official state health department. At times it has happened that difficult problems

have had to await the meeting and action of the board before authoritative action could be taken.

We believe that there is much to be said in favor of the recommendation of Governor Walsh. The details of the suggested reorganization need careful consideration and will be discussed in these columns in the near future. We believe that everything concerning the State Board of Health, its policies, its organization, its personnel, is of vital importance to the medical profession of the State. Before any change from the present machinery of the health force of the State, which has served so long and so creditably, is put into effect, all phases of health administration must be carefully surveyed.

The State Board of Health depends for its usefulness upon the support and coöperation of the rank and file of the medical profession throughout the State. It must in the future, as it has in the past, assume a wise leadership over the physician in matters of public health.

The medical profession, which is the actual exponent of all health activities, should manifest no slight interest in any suggested reorganization of our State Board of Health. It is the privilege and duty of the physicians of Massachusetts to make themselves heard in this important matter.

MEDICAL LEGISLATION. THE PRACTICE OF MEDICINE AND DENTISTRY.

The State of Massachusetts, whose position on most public questions has always been an advanced one, has been singularly behind some of her sister states in her attitude toward legislation for the regulation of the practice of medicine and dentistry. It is one of the few states at the present time that will license a dentist or a physician who possesses no evidence of having graduated from an institution chartered to grant a diploma for efficiency in either of these two professions. She is one of the small number of states that permits its governor to appoint the boards of registration for the qualification of candidates who must pass the state board examinations before they may practice, thus making these boards under the influence of politics to just the extent that the incumbent of the governor's office is subservient to political influences.

The opposition to legislation looking to the betterment of the practice in dentistry and medicine and the safeguarding of the health interests of the public has come not only from those whose personal and pecuniary interests have been involved, but to a certain extent from those obsessed by the idea that legislation restricting the practice of these professions to those coming up to the prescribed standards of ethical and educational qualifications would be an infringement upon the rights of personal liberty. The bulk of the opposition is, of course, from those who could not meet increased educational requirements and are possessed of no ethical standards.

It is very desirable that this state should emancipate itself from a position so highly unsuited to its record in other matters. State pride ought to operate to accomplish this, even if there were no better reasons. In the issue of the Journal for Jan. 1 (Vol. clxx, p. 24) we commented at length editorially on pending medical legislation relative to the practice of dentistry in Massachusetts. The bill proposed for enactment this year by the Massachusetts Civic League relative to the practice of dentistry is one, which, if passed, will go a long way toward putting the state in a position in accord with her importance as a progressive leader in legislation for the welfare of her citizens. Its passage, practically as it stands, should be favored by every one having at heart the betterment of conditions surrounding the practice of dentistry. The physicians and dentists of all sections of the state should take the trouble to enlighten their senators and representatives with respect to the importance of the enactment of right legislation in this respect, and there would then be no difficulty in getting a proper statute upon the books. This bill does not go as far as it should, in our opinion, in correcting the danger of political domination of appointment to the Board of Registration. It would be better that the governor should be provided with a list of available competent men, selected by the state dental societies, and that from this list he should make the prescribed appointments and fill any vacancies. This is the way the matter is managed in a good many states.

The second section of the bill deals with the matter of what shall constitute an acceptable dental school so far as time spent in study is concerned, and also with rules governing the licensing of graduates of dental schools by the registration board and the procedure to be fol-

lowed when a dentist desires to change his residence and practice to another state.

The third section deals with the penalties attached to practicing without proper licensure or under false colors. It also deals with the question of dental assistants. Last year an effort was made to secure such legislation as was necessary to establish this order of dental assistants. It was defeated by the attitude of the state board toward the measure, as well as by the opposition of those who thought their interests were being jeopardized, or who imagined they saw in the bill a portal of entry for those who, without any adequate training in dentistry, would attach themselves to "dental parlors," and do a poor grade of work. This year's bill has been improved in this respect by abundant safeguarding of those features that doubts were expressed about in last year's Dental Nurse Bills, so that there would now seem to be no excuse for not enacting this very beneficial piece of legislation. In a bill that promises to furnish a better dental law than we at present have, it is extremely desirable that there should be no provision which cannot be enthusiastically supported by a united dental profession. It should not carry any provisions the import of which is not clear, in the hope that it may go through as a rider.

Such attempts would jeopardize the passage of the bill, the main provisions of which outweigh in importance the possible good resulting from the passage of the rider. In the proposed bill the clause referring to the dental assistant is a very important clause, though not given much prominence in the text of the bill. Dental prophylaxis cannot be carried out unless some provision is made whereby both in private practice and in public clinics the necessary attention can be furnished. The modern expansion of the technic of dental and oral surgery takes all the time and skill of the dentist, and some help must be given him to enable him to meet the demands of the prophylactic side of his work, which must otherwise be neglected, to the detriment of the public. It is more feasible to have the grade of skill required for this department of dental work provided by the dental assistant, who should be licensed and, before being licensed, sufficiently trained so that she (or he) may use such instruments and perform such technic in the mouth as is necessary to accomplish the purposes for which they are licensed. Exactly what the dental assistant may be permitted to do should be even more specifically outlined than it is in the present bill, and any evasion of the provision which makes it imperative that their work should be done under the supervision of a registered dentist should be punishable by an immediate revocation of the license. The penalty for improperly engaging in dental practice by such a nurse or assistant would then be at the door of those entrusted with the proper enforcement of the laws governing the practice of the dental profession.

Dental charlatans with a dental degree, obtained without proper qualification, should not be tolerated. No one else would make any improper use of such assistants, and without improper registration of dentists there would be no danger of the establishment of so-called "dental parlors," where work detrimental to the public and the dental profession might be carried on. Therefore provision should be made that these assistants before being registered should prove by practical tests their mastery of the necessary technic. Through her activities dental prophylaxis may not only actually be carried out by those who will come often enough to their dentist to have their teeth properly cleaned, but an educational campaign on the home care of the teeth might be launched.

Section four deals with the revocation of licenses and the redress that may be had by one who considers himself aggrieved in this respect.

Section five imposes fine or imprisonment or both as the penalty for practising without license or employing an unlicensed dentist (not a dental nurse) as an assistant.

A great deal has been said of late apropos of the importance of a clean mouth. The relation of work of this sort to the health of the community, and particularly in regard to the health of school children is receiving much emphasis. There is, however, a tendency to go to extremes in this matter. Too much should not be claimed. The mouth is simply one of the portals of entry for infections detrimental to the human economy. Infections are only one of the sources of human illness. The support which a reasonable presentation of these claims might attract to this bill should not be sacrificed by the exploitation of unsubstantiated theories on the part of those whose horizon is limited by the walls of the buccal cavity. The possibilities of harboring infections and contagious diseases, the causation of many constitutional infections, such as arthritis, nephritis, Riggs' disease, etc., though not

playing a common rôle in the first two instances at least do, without doubt, cause in some cases a disastrous train of sequelae. Of equal importance with the occasional occurrence of the above-mentioned systemic disturbances traceable to the mouth and teeth are the many indefinite and intangible consequences of dental caries whose effects are manifested in digestive disturbances, poor nutrition, and lack of assimilation of food because of faulty mastication. In these ways the maximum of efficiency of individuals may be kept below par to such an extent that they cannot play their full part in the world's work. It would seem that a measure looking to the raising of the standards of efficiency of her citizens should make a strong appeal to the legislators of the state.

It is to be hoped that this year's general court will carefully consider these features of the Dental Bill when it comes before them, and give Massachusetts an act regulating the practice of this profession of which she need not be ashamed.

THE HELPFUL UNFIT

One of the newest and most propitious experiments for the solution of the problem of industrial waste, is the chance afforded feeble or partly disabled or convalescent people in hospitals and asylum workshops to support themselves by doing useful work. Both in this country and abroad there have been successful attempts to find work for people unable, under the present system of production, to gain all they need for a livelihood. The prospect is promising that knowledge will be gained which will mean changes in charity methods sufficient to encourage self-reliance and efficiency in many disheartened workers.

Thus far such experiments have proved the decided money value of such work, done despite obstacles. Supplies worth many thousand were produced the summer past by patients on the hospital farm at the State colony at Gardner, Mass. A pottery established within two years in connection with a hospital on the Pacific Coast has enabled tuberculous girls to pay their expenses under sanatorium treatment and to learn a self-supporting trade. The men admitted to the Otisville Sanatorium of the New York City Health Department are required to do such work in and about the institution as they are fitted and able to do and as is salutary for them; and they are much better off thus occupied. Five patients in an Eastern hospital last year made and sold $6,000 worth of pottery. At the Bedford Sanatorium for consumptives of the Montefiore Home in New York, vegetable gardening is done by the patients, sufficient at least for the needs of that institution. Feeble-minded patients under Dr. Fernald and Dr. Tuttle at the schools and hospitals at Waverley, Mass., under Dr. Laehr at the Hans Schoenow Hospital in Berlin, Germany, and in other places where craft work has been instituted, have made an excellent showing.

In this connection should also be mentioned the work done by Dr. Herbert J. Hall of Marblehead, Mass., in the treatment of patients through systematized work. The accomplishments of this institution in connection with various forms of handicraft are very definite and indicative of the possibilities of such systematized activities wherever the handicapped may congregate.

Such workers are not expected to be trained in this way for success in the more skilled trades; but certainly they can be taught the more simple arts of hand-weaving, metal-working, pottery-making, and cement working. Men and women thrown out of employment in a particular trade because of some special unfitness are by no means of no service at all. The unfeeling should have no right to speak of them as human derelicts, "fit only for the scrap heap." The problem, states the *New York Evening Post*, is to find and organize the sick and discarded workers, teach them work that they can do, and so by grading work to their ability, restore to them their self-respect and their sense of having a recognized place in society. Those who have been studying the experiments under way are predicting a system of labor supplementary to the present system of regular industries which involves so much waste. The burden of supporting the sick and idle will become too heavy, they assert; and then will be devised some general social policy of training the imperfectly fitted people, now often allowed to throw away their lives in sadness and neglect, to use what productive power they have for themselves and the community in which they live.

It should finally be remembered that the work of the physically and even mentally handicapped may often through previous training be of a far finer quality than that of the average so-called well person and that this is an asset to which the state and the community should give due regard.

MEDICAL NOTES.

SMALLPOX ON THE "OHIO."—Report from Washington, D.C., states that there occurred on Jan. 8 the fourth death from smallpox in the epidemic of that disease aboard the battleship *Ohio*.

THE "NEWARK" AS A QUARANTINE VESSEL.—It is announced that the United States second class cruiser *Newark*, now stationed at Guantanamo, Cuba, is to be transferred from the Navy to the Public Health Service, and will be placed at Providence, R. I., to serve as a quarantine vessel.

AN IMPORTANT MEDICAL AFFILIATION.—It is announced in *Science* that the Cleveland (Ohio) City Hospital is to become affiliated with the medical school of Western Reserve University. The sum of $1,000,000 has recently been raised for the further endowment of the school.

"The agreement which will be entered into by the city and the university will provide that all members of the visiting staff of the City Hospital shall be nominated by the trustees of Western Reserve University upon recommendation by the faculty of the school of medicine. The visiting staff will have absolute authority over the professional treatment of all patients of the hospital. The director of public welfare will be the administrative head of the hospital. The university will have all teaching and research privileges."

BRITISH MEDICAL NEW YEAR HONORS.—Relatively few medical names appear this year on the list of New Year honors in England. Sir Christopher Nixon, M.D., a former president of the Royal College of Physicians of Ireland, is made a member of the Irish Privy Council. The only new medical baronetcy is conferred on Dr. Sir Thomas Joseph Stafford, medical commissioner of the local government board in Ireland. Knighthood is conferred on Surgeon-General A. T. Sloggett, R.A.M.C., director of the British Army Medical Service; on Dr. T. B. Nariman, of Bombay, physician to the Parsi Lying-in Hospital in that city; and on Dr. Harry Brookes Allen, professor of pathology and dean of the medical faculty in the University of Melbourne. Sir Rickman Godlee, president of the Royal College of Surgeons of England, is promoted Knight Commander of the Royal Victorian Order.

FRENCH AND SWISS MORTALITY STATISTICS.—The mortality statistics of France for 1911, published this month in Paris, show a total of 775,088 deaths, as against 704,770 in 1910. Of these, 86,113 were caused by tuberculosis, 31,768 by cancer (as against 27,306 from the same cause in 1906), and 29,470 by the epidemic infections. In Paris in 1911 the tuberculosis death-rate was 380 per 100,000, that of Boston in 1910 being 175. It is noted that in 1861 there were but 50 lepers in Paris. There are now about 300 in that city, and 300 more in the rest of France. A commission has been recently appointed by the ministry of the interior to investigate this alarming increase.

In Switzerland the total death-rate has varied little in the past fifteen years. In 1899 it was 25.9 per 1000 in Berne, 21.9 in Basle, and 20.9 in Zurich. In 1907 the rates were 27.7 in Berne, 21.2 in Basle, and 16.8 in Zurich.

BOSTON AND NEW ENGLAND.

BOSTON DISTRICT HOMEOPATHIC MEDICAL SOCIETY.—At the annual meeting of the Boston District Homeopathic Medical Society, held in this city recently, the principal address was by Dr. Stephen H. Blodgett, the retiring president, on "The Press, the Public and the Medical Profession." The officers elected for the coming year are Dr. Orville R. Chadwell, president; Dr. Conrad Wesselhoeft, secretary; and Dr. Edwin W. Smith, treasurer.

COMPARATIVE NEW ENGLAND DEATH-RATES.—The comparative death-rates of five of the New England states in 1913 were as follows: Rhode Island, 15.4 per 1000; Massachusetts, 14.7; New Hampshire, 13.6; Maine, 12.6; and Vermont, 12.2. It will be observed that these rates are approximately proportional to the density of population in the respective states.

BOSTON MILK AND BABY HYGIENE ASSOCIATION.—At the regular January monthly meeting of the Boston Milk and Baby Hygiene Association, statistics were presented showing that during the year 1913 the Association cared for 3421 babies, as against 3021 in 1912, an increase of 13%.

HOSPITAL BEQUESTS.—The will of the late Alfred Jones, who died at Boston on Jan. 8, was

filed on Jan. 13 in the Suffolk probate court. It contains bequests of $1000 each to the New England Hospital for Women and Children, Boston; the Corning (N. Y.) Hospital; and the Women's Medical College, Philadelphia.

NEW YORK.

American College of Surgeons.—The board of regents of the American College of Surgeons held a meeting on Jan. 9 at the Waldorf-Astoria, the purpose of which, in addition to the transaction of routine business, was, as stated by Dr. John B. Murphy of Chicago, to discuss ways and means of advancing interest and opportunity in higher education in surgery, and to take steps for the provision of a home for the college, so that the stimulation of this uplift plan may be more effective over the entire country. At the meeting the names were ratified of 1,000 surgeons who were proposed as fellows of the college at its first meeting at Chicago in November last.

Money for Orthopedic Dispensary.—At a concert given at the Waldorf-Astoria on Jan. 9 the sum of $5,000 was raised for the New York Orthopedic Dispensary and Hospital.

Mortality Statistics.—The weekly reports of the Health Department show that the mortality in the city during the month of December represented an annual death-rate of 13.33, as against 12.64 in November and 14.21 in December, 1912. Among the diseases in which there was an augmented fatality were the following: The weekly average of deaths from measles increased from 6.25 in November to 9 in December; the weekly average from scarlet fever, from 4 to 5.25; from diphtheria and croup, from 19.75 to 22.75; from influenza, from 4.25 to 7.25; from acute bronchitis, from 13.75 to 15.25; from pneumonia, from 81.75 to 107; from bronchopneumonia, from 82.25 to 85; from cancer, from 81.25 to 83; from apoplexy and softening of the brain, from 19.75 to 23.25; from organic heart diseases, from 192.5 to 208; from hernia and intestinal obstruction, from 10.25 to 15.25; and from Bright's disease and acute nephritis, from 107.5 to 113.25. Among the diseases in which there was a decrease in mortality were the following: The weekly average of deaths from typhoid fever decreased from 13.25 to 6; from whooping-cough, from 4 to 2.5; from epidemic cerebrospinal meningitis, from 4.25 to 2.75; from pulmonary tuberculosis, from 159.5 to 157.25; from diarrheal diseases under five years, from 41.5 to 31.75; from appendicitis and typhilitis, from 10.25 to 9.75; and from puerperal diseases, from 11.75 to 9.25.

Honors for Dr. H. M. Biggs.—The Board of Health recently adopted resolutions complimentary to Dr. H. M. Biggs, on the occasion of his retirement, and appointed him a member of the Medical Advisory Board, honorary general medical officer of the Department of Health, and medical adviser to the Otisville Tuberculosis Sanatorium.

Physical Examination of Children.—The Health Department reports that in the appropriation for the division of child hygiene for 1913 was included an item of $10,000, to be expended by the division in extending to the child-caring institutions of the city the same system of physical examination of children as was provided for in the public and parochial schools. There are 63 of these institutions in the different boroughs of the city, and five medical inspectors, under the direction of a chief inspector, were assigned to this duty. From March 29 to Oct. 18, 14,697 children were examined, and of these, 6,486 were found to be normal, and 8,211 suffering from one or more physical defects. In general, the proportion of defects noted is about the same as that found among the children in the schools, an exception being noted in the case of defective teeth; owing, without doubt, to the greater attention paid by the institutions to defects of nature. The percentage of defective teeth among the institution children was 38, as against 49% among the children in the public and parochial schools. In October these children were all re-examined to determine whether the treatment provided had had the desired result, and it was found that 2,730, or 44%, were entirely cured; 1,868, or 30%, were improved; and 1,593, or 25%, remained unimproved. Considering the brief period elapsing between the original examination and the re-examination, the proportion of children cured is regarded as remarkable, and indicative of what may be accomplished in safeguarding the health of children when it is possible to apply direct and prompt attention to their needs.

BOTANICAL GARDEN.—At the annual meeting of the managers of the New York Botanical Garden, Bronx Park, on Jan. 12, Dr. W. Gilman Thompson was elected president, to succeed the late Judge Addison Brown. Among the new managers elected was Dr. Lewis Rutherford Morris, and Dr. W. L. Britton was re-elected secretary. Dr. Britton reported that during the past year $116,395 had been received, bringing the total permanent fund of the corporation up to more than $520,000, and that the committee in charge of the work of collection had been instructed to continue its efforts until the fund had reached $1,000,000. The object of the fund is to permit further expansion of the educational and scientific work of the institution, the increase of its collections, and the additional ornamentation of its grounds.

MEDICAL SOCIETY OF THE BRONX.—The borough of the Bronx having been made one of the counties of the State, a county medical society has now been organized to take the place of the Medical Society of the Borough of the Bronx. Dr. N. B. Van Etten, who was recently president of the latter and who is chairman for the borough of the Bronx in the Medical Association of the Greater City of New York, was elected president of the new society.

FISH CANCER.—Dr. H. H. Gaylord of Buffalo, director of the State Institute for the Study of Malignant Diseases, has just made to Governor Glynn the report of a special study which reveals the fact that fish in the State hatcheries, in common with those in most of the other cultural stations where species of the salmon family, including trout, are kept for breeding purposes, are more or less infected with cancerous disease. He has reached the conclusion that what is known as gill disease or endemic goitre is really a malignant growth, and his investigations have convinced him that the affection is caused by a specific micro-organism. It has been successfully transmitted to dogs and rats, but it would appear that he has never succeeded in transplanting the tumors from one fish to another; nor, in his experience, has the disease ever been transmitted directly from infected to healthy specimens. Certain specimens have been found to possess an almost complete resistance to the disease, while spontaneous recovery occurs in a considerable proportion of cases.

Current Literature

MEDICAL RECORD.

JANUARY 3, 1914.

1. WAGNER, C. *The New York Laryngological Society.*
2. DELAVAN, D. B. *Laryngology in New York.*
3. THACHER, J. S. *Unresolved Pneumonia.*
4. VINCENT, W. G. *Acute Appendicitis in Infancy and Childhood.*
5. DRUECK, C. J. *Genital Fistulae in the Female.*
6. BURROWS, E. C. *Uses and Abuses of Salvarsan and Mercury in Syphilis.*
7. *PRENDERGAST, F. A. *Effect of Typhoid Vaccine on Sugar Output in Diabetes.*
8. LEGIARDI-LAURA, C. *Subpectoral Abscess. Report of a Case.*
9. ROMEO, P. *Refrigeration with Ice in the Treatment of Intercostal Neuralgia.*

7. Prendergast, impressed by the diminution of glycosuria which he had observed in diabetics during the course of typhoid fever, tested the effect of typhoid vaccine in four cases of diabetes, all of which were on a regular hospital diabetic diet when inoculations were begun. His results in two cases were striking, in the other two inconclusive. The number of cases is, of course, too small to draw inferences from, but they suggest an interesting field for further study.
[L. D. C.]

NEW YORK MEDICAL JOURNAL.

JANUARY 3, 1914.

1. FREUDENTHAL, W. *Why Is Nasal Catarrh so Prevalent in the United States?*
2. DAVIS, G. G. *Treatment of Poliomyelitis by Operative Measures.*
3. CLARK, L. P., AND CALDWELL, E. W. *The Sella Turcica in Some Epileptics.*
4. MAYS, T. J. *Alcoholism in Relation to the Heredity of Epilepsy, Consumption, and Other Nervous Diseases.*
5. CUMSTON, C. G. *The Treatment of Traumatic Rupture of the Urethra.*
6. GEYSER, A. C. *Why Electrotherapy Does Not Cure.*
7. SHALET, L. *The Diagnosis of Early Clinical Pulmonary Tuberculosis.*
8. GOODNER, R. A. *Prevention of Insanity.*
9. STEINER, S. *Mixed Chancre.*
10. WISE, F. *Röntgen Rays in Eczema of the Hands.*
11. COLE, R. *Pneumococcus Infection and Lobar Pneumonia.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JANUARY 3, 1914.

1. *CANNON, W. B. *Early Use of the Röntgen Ray in the Study of the Alimentary Canal.*
2. *ROSANOFF, A. J. *A Statistical Study of Prognosis in Insanity.*
3. *MAYER, E. M. *The Intranasal Treatment of Dysmenorrhea, with a Report of Ninety-Three Cases.*
4. SILER, J. F., GARRISON, P. E., AND MACNEAL, W. J. *Pellagra: A Summary of the First Progress Report of the Thompson-McFadden Pellagra Commission.*
5. FOWLER, H. A. *Closed Tuberculous Pyonephrosis.*

6. PIERSON, R. H. *Gastric Ulcer from Overworking the Stomach.*
7. MACFARLAN, D. *Notes in the Study of Potassium Mercuric-Iodid.*
8. DUBOIS, P. L., NEAL, J. B., AND ZINGHER, A. *Experimental Studies in Poliomyelitis.*
9. HOLM, M. L., AND HIMMELBERGER, L. R. *The Quantitative Determination of Albumin in Sputum With Potassium Ferrocyanide.*
10. NICHOLS, J. B. *The Diet in Gastric Ulcer and Hyperchlorhydria.*
11. *BUBB, C. W. *The Foreign-Born Insane. A Racial Study of the Patients Admitted to the Insane Department of the Philadelphia General Hospital in Ten Years* (1903-1912).
12. COHEN, S. S., AND SOEPP, R. M. *A Case of Multiple Serositis and Report of Necropsy.*
13. LANDIS, H. R. *Signed Consent to a Necropsy a Condition to Admission to Our Hospital. Ten Years' Experience in the Phipps Institute of Philadelphia.*
14. GUTHRIE, J. B. *Cough-Dilatation Time a Measure of Heart Function.*
15. TEN BROECK, L. L. *A Rapid Method of Isolating Pathogenic Streptococci from Contaminated Fields.*
16. CARMICHAEL, F. A. *Chronic Malignant Degeneration of the Thyroid With Report of a Case.*
17. SIMONS, I. *A Case of Patent Ductus Arteriosus (Botalli). With Report of a New Physical Sign.*
18. FLAGG, P. J. *A Previously Unemphasized Feature in the Construction of Nitrous Oxid-Oxygen Ether Apparatus.*
19. JAMIESON, W. R. *Report of a Case of the Maculotubercular Form of Leprosy.*
20. PRATT, J. P. *Apparatus for Intratracheal Insufflation.*
21. LORENZ, W. F. *A Buret for Intraspinous Medication.*
22. FISK, T. L. *Safeguarding the Ether and Chloroform Bottles.*
23. BASS, C. C. *An Improved Diphtheria Culture Tube.*
24. MACE, L. S. *Apparatus for Artificial Pneumothorax.*
25. PLACE, R. W. *An Improved Ear-Speculum.*
26. MCGRATH, B. F. *A Simple Instrument for Transfusion.*

1. Cannon's article is a very interesting historical review of this subject.

2. Rosanoff finds that death is the typical termination for patients with senile psychoses, general paresis and cerebral arteriosclerosis, discharge from institutions for alcoholic psychoses, psychoses related to dementia praecox and manic depressive psychoses, and continued residence in the institution for dementia praecox and paranoiac conditions. Of those recovering, the average duration of treatment is about ten months. About 20 per cent. of the cases discharged to self or relatives are readmitted within five years.

3. Mayer describes the tuberculum septi and the anterior portion of the inferior turbinate in either side of the nose as "genital spots" and claims from 50 to 75 per cent. of relief from dysmenorrhea of patients treated with applications of trichloracetic acid to these spots. Applications four times at intervals between menstruation are usually sufficient to obtain lasting results.

4. This report finds that the supposition that the ingestion of good or spoiled maize is the essential cause of pellagra is not supported by study of the conditions. Pellagra is in all probability a specific infectious disease communicable from person to person by means at present unknown. No evidence was discovered to incriminate flies of the genus simulium, except their universal distribution throughout the area studied. If it is distributed by a blood-sucking insect, stomoxys calcitrans would appear to be the most probable carrier. The inclination is to regard intimate association in the household and contamination of food with the excretions of pellagrins as possible modes of distribution of the disease.

11. A foreign-born population of 24.7 per cent. in American cities supplies 44 per cent. of the indigent insane. [E. H. R.]

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.

JANUARY, 1914.

1. KLEBS, A. C. *The History of Medicine as a Subject of Teaching and Research.*
2. ROHREB, C. W. G. *John Hunter: His Life and Labors.*

THE LANCET.

DECEMBER 13, 1913.

1. WILSON, S. A. K. *Some Common Errors in the Diagnosis of Nervous Disease.*
2. *FREYER, P. J. *Cancer of the Prostate.*
3. *MORLEY, J. *Jackson's Pericolic Membrane: Its Nature, Clinical Significance and Relation to Abnormal Mobility of the Proximal Colon.*
4. HOWARD, R. *A Method of Removal of Carcinoma of the Prostate (Abdomino-Perineal Complete Prostatectomy).*
5. ROSENOW, E. C., AND COOMBS, C. *The Myocardial Lesions of Rabbits Inoculated with Streptococcus Viridans.*
6. *CLARK, H. *Tuberculosis Statistics: Some Difficulties in the Presentation of Facts Bearing on the Tuberculosis Problem in a Suitable Form for Statistical Purposes.*
7. WOODWARD, H. M. M., AND CLARKE, K. B. *Notes on Three Cases of Glanders.*

2. Freyer discusses the symptoms, physical examinations and treatment of cancer of the prostate. He presents eight cases in detail.

3. Morley discusses the etiology and nature of the pericolic membrane first described by J. N. Jackson in 1908 as "a transparent membrane extending from the parietal peritoneum of the right flank across the front of the ascending colon to its inner side and continuous above with the transverse mesocolon." The membrane, according to Jackson, is not an adhesion in any sense. Morley considers that this membrane is congenital in origin and presents six cases which confirm this view. In each of these cases, one as young as five months and another eight years, the nature of the membrane was the same. In addition, in each one of these cases there was a persistence of the ascending mesocolon with resulting abnormal mobility of the cecum and ascending colon. These points Morley discusses as to their embryological origin and as found in monkeys. Unless this membrane causes symptoms it should not be divided.

6. Clark discusses the difficulties in presenting fair and just statistics in tuberculosis work. The paper is short and hardly suited for review but is none the less of distinct importance to all interested in this subject. Among other interesting points the writer suggests that among sanatorium failures should be classified all those who could not be persuaded to go to the sanatorium at an early stage and only applied when a cure was impossible.

[J. B. H.]

DECEMBER 20, 1913.

1. *MAKINS, G. H. *The Bradshaw Lecture on Gunshot Injuries of the Arteries.*

2. *LANGMEAD, F. *On the Diagnosis, Prognosis and Treatment of Sydenham's Chorea.*
3. *GWATHMEY, J. T. *Oil-Ether Anesthesia.*
4. WARNER, F. *Development of the Pharynx by Muscular Exercises after Operation for Adenoids, with Special Reference to Feeble-Minded Children.*
5. RAINSFORD, F. E. *On a Fatal Case of Pellagra in an Insane Patient.*
6. BRUCE, L. C. *The Use of Vaccines Graduated by Their Opacity.*
7. KERR, W. S. *Cancer of the Tongue and Larynx Removed by Operation.*
8. PAGE, C. M. *The Repair of the Flexor Tendons of the Hand.*
9. SURVEYOR, N. F. *A Case of Rat-Bite Fever Treated by Neosalvarsan.*

1. Cf. *British Med. Journal*, Dec. 20, 1913.

2. This is a good practical discussion of the diagnosis, prognosis and treatment of chorea. Under treatment he discusses diet and medicinal treatment and lays special emphasis on the need of careful supervision when the acute symptoms have subsided.

3. Gwathmey claims the following advantages for oil-ether anesthesia. (1) apprehension is relieved by doing away with an ether cone or mask; (2) no expensive apparatus is required; (3) after-effects are reduced to a minimum; (4) more complete relaxation is secured; (5) the limits of safety are widely extended compared with other methods; (6) a more even plane of surgical anesthesia is anatomically maintained than is possible by the inhalation method. He has demonstrated these preparations in about 100 cases, the ages ranging from 4 to 71 years. He reports in detail on five cases. The method is especially indicated in lung surgery and operations on the head and throat. It is contraindicated in those cases, with the exception of lung cases, in which ether is contraindicated and also in operations on the anus, rectum, etc. He discusses the physiology of this method, which is of great importance to understand clearly. Strength of the ether and oil solution varies from 50% in young children to 75% in adults. One ounce of solution is used for every 20 pounds of body weight. Details of solution, pulmonary medication technic and apparatus are described in the article.

[J. B. H.]

DECEMBER 27, 1913.

1. *WEST, S. *The Purvis Oration on Some Points in the Diagnosis and Treatment of Granular Kidney.*
2. DUNN, P. *Concussion Cataract: Its Medico-Legal Aspect; with Notes of an Unusual Case.*
3. FARRANT, R. *The Relation of the Thyroid to Antitoxin.*

1. West discusses in a clinical way, the subject of granular kidney. His classification of "large white kidney," "contracting white kidney," "contracted white" and "contracted red kidney" seems hardly based on scientific grounds and detracts from the value of the article.

[J. B. H.]

BRITISH MEDICAL JOURNAL.

DECEMBER 13, 1913.

1. MURRAY, G. R. *The Clinical Significance of Spontaneous Hemorrhage as an Early Sign of Disease.*
2. *WILSON, H. W. *The Early Diagnosis and Operative Treatment of Carcinoma of the Cervix.*
3. *MACALISTER, C. J. *The Influence of Venereal Diseases.*
4. STRANGEWAY, T. S. P. *The Work of the Cammidge Research Hospital.*
5. HALL-EDWARDS, J. *The Significance of Phleboliths.*
6. ELWORTHY, H. S. *Appendicectomy in General Practice.*
7. VICKERY, D. H. *Intestinal Obstruction Due to a Case of Worms.*

2. Wilson, discussing carcinoma of the cervix of the uterus, first considers the clinical types of disease and their method of spread. Among the difficulties of early diagnosis he discusses those due to the character of the disease—its painlessness and insidious onset and second those due to the patient. The early symptoms he describes—bleeding on coitus, metrorrhagia, etc., Under operative treatment he describes both radical and palliative operations.

3. Macalister gives a strong address on the influences of venereal diseases, their extent, the harm resulting from them, with suggestions for the future.

[J. B. H.]

DECEMBER 20, 1913.

1. *MAKINS, G. H. *The Bradshaw Lecture on Gunshot Injuries of the Arteries.*
2. *CASTELLANI, A. *Tyhoid-Paratyphoid Vaccinations with Mixed Vaccines.*
3. MORISON, A. E. *Typhoid Cholecystitis.*
4. STEWART, P. A *Case of Hysterical Monoplegia Following Electric Shock.*
5. MILLS, W. T. *A Case of Gastric Tetany: Recovery.*
6. DICK, M. I., AND RUTHERFORD, W. T. *A Case of the So-called Rat-bite Disease.*

1. Makins discusses first the changes in the shape of bullets which have taken place in recent years and then takes up the anatomical characters of injuries inflicted upon the blood vessels by the small calibre bullet, contusion of the vessel wall, frequency of various classes of wounds, immediate results of injuries, primary hemorrhage, spontaneous healing of arterial wounds, secondary hemorrhage and the development of aneurysms. Under the subject of treatment he considers proximal ligature, simple direct ligature; the effect on permanent lowering of the nutrition of the liver, thrombosis and other accidents. There is a wealth of interesting material in this article.

2. The gist of Castellani's article is that in countries such as Ceylon where paratyphoid is prevalent, a mixed vaccine of typhoid and paratyphoid should be used in prophylaxis.

[J. B. H.]

DECEMBER 27, 1913.

1. GILFORD, H. *On the Nature of Old Age and of Cancer.*
2. *SHIPWAY, F. E. *The Intratracheal Insufflation of Ether.*
3. MACKINLAY, W. H., AND WEEKS, L. M. *A Case of Ruptured Aneurysm of the Descending Aorta.*
4. BUSHBY, T. *A Case of Spontaneous Hemo-pneumothorax.*
5. FRASER, J. B. *Lithopaedion.*

2. Shipway discussing intratracheal insufflation of ether names as the advantages of this method that (1) a free airway is obtained, (2) anesthesia can be kept lighter than by ordinary method; (3) the etherizer is out of the surgeon's way; (4) respiratory movements are very slight, and (5) shock is diminished. Among its disadvantages he cites the following points: (1) The apparatus is costly. (2) It is also cumbersome. (3) The introduction of the catheter is a difficult procedure. [J. B. H.]

THE INDIAN MEDICAL GAZETTE.

DECEMBER, 1913.

1. *CASTELLANI, A. *Typhoid-Paratyphoid Vaccination with Mixed Vaccines.*
2. BARRY, C. C. *A Review of the Treatment of Depressed Fractures of the Skull at the Rangoon General Hospital During the Past Four Years.*
3. STEPHEN, L. P. *Notes on Some Interesting Cases.*
4. HEHIR, P. *Disease Carriers in Our Army in India.*
5. MUNRO, D. *Notes on a Renal Case, with Remarks on the Relief of Renal Pain by Washing Out the Pelvis of the Kidney Through a Urethral Catheter.*
6. KENRICK, W. H. *Malaria and Color.*
7. NEWMAN, E. A. R. *A Note on Two Unusual Cases of Cysts.*
8. WATTS, H. *Fractured Spine: Paraplegia; Laminectomy.*
9. BULLOCH, O. H. *Partial Suppression of Both Upper Extremities.*
10. SINGH, D. *Prostatectomies Performed.*

1. In view of the prevalence of the paratyphoid fevers in the tropics, Castellani advocates the use of a mixed typhoid, paratyphoid A and paratyphoid B vaccine, which in practise he has found harmless and effective. He gives two doses, the first containing 500 million typhoid, and 250 million of each of the paratyphoid bacilli, the second double these amounts.

[R. M. G.]

THE PRACTITIONER.

.. DECEMBER, 1913.

1. BUZZARD, E. F. *Varieties of Facial Spasm and Their Treatment.*
2. *LOCKYER, C. *Genital Prolapse.*
3. BALL, C. A. *Nephrectomy.*
4. *NABARRO, D. N. *The Principles of Serum and Vaccine Therapy and Their Application to Diseases of Children.*
5. WALKER, C. G. *Fact and Fancy in Cancer Research.*
6. MCDONAGH, J. E. R. *Venereal Diseases as We See Them To-day.*
7. MACLEOD, J. M. H. *Recent Advances in Dermatology.*
8. NORBURY, L. E. C. *Imperforate Conditions of the Rectum and Anal Canal and Their Treatment.*
9. ROLLESTON, J. D. *Local Treatment of Vincent's Angina with Salvarsan.*
10. EMRYS-JONES, F. *The Diagnostic Value of the Bismuth Bolus.*
11. HICKS, P. *On the So-called Movable Kidney Disease.*
12. STEVEN, H. E. S. *Enteritis in a Turkish Cholera Camp.*
13. ROBERTSON, A. N. *Chronic Mucocele.*

2. This is a long and detailed article dealing with causes, symptoms, signs of genital prolapse and an elaborate description of the writer's operative methods.

4. This is a general review of the subject of vaccine therapy with practical advice as to how to get the best results. It presents nothing new.

[J. B. H.]

Obituary.

EDWARD CHARLES SPITZKA, M.D.

DR. EDWARD CHARLES SPITZKA, the well-known New York neurologist and alienist, died suddenly on Jan. 13. The immediate cause of death was cerebral apoplexy, but for some time he had been suffering from necrosis of the jaw, of malignant origin, for which he had been operated upon four times. Dr. Spitzka was born in New York City on Nov. 10, 1852, and was graduated from the medical department of New York University in 1873, after which he studied at Leipsic and Vienna for three years. From 1881 to 1884 he was editor of the *American Journal of Neurology*, and in 1885 was appointed professor of medical jurisprudence and neurology in the New York Post-Graduate Medical School. His "Treatise on Insanity" was published in 1883. He was vice-president of the section on neurology at the Ninth International Medical Congress, and at different times served as president of the New York Neurological Society and the American Neurological Association. Dr. Spitzka was especially interested in criminal psychology, and he was one of the scientists selected to witness the first execution by electricity in the State of New York. He was also one of the medical experts in the trial of Guiteau, the assassinator of President Garfield, and he expressed the opinion that the man was insane. His only son is Professor Edward Anthony Spitzka of the Jefferson Medical College, Philadelphia, widely known as an authority on the anatomy of the brain.

Miscellany.

A QUESTION OF VERACITY.

WE quote in full the following letter from Dr. G. W. Crile of Cleveland, published in the Philadelphia *Public Ledger* for Dec. 30, 1913:—

"In your issue of Dec. 19, 1913, is published a letter of Mrs. Henderson, of Washington, D.C., vice-president of the American Anti-Vivisection Society, in which she says:—

"'We eagerly offer our citations in the hope that the public will take the trouble to verify them.'

"I hope the public will take her at her word, for she did not 'take the trouble to verify' her own alleged quotations from my book on 'Surgical Shock.' On page fourteen of this monograph, the following statement is made:—

"'In all cases the animals were anesthetized, usually by the use of ether, occasionally by chloroform, either alone or with ether. In a few cases curare and morphine were used.'

"'I have again gone through the book carefully to discover what possible foundation the writer of the letter could have for her statement that this book 'repeatedly describes experiments followed by the words 'no anesthesia.' I have failed to discover any such words and, therefore, cannot see how her statement can be considered anything but a falsehood.

"As for the book having been withdrawn from public sale, that also is not true. The edition was long ago exhausted and the book is out of print, but it can be consulted at the Library of the Philadelphia College of Physicians and in various private medical libraries."

CHANGES IN THE MEDICAL CORPS, U. S. NAVY,

FOR TWO WEEKS ENDING JANUARY 10, 1914.

December 26, P. A. Surgeon J. O. Downy, detached: Bureau Steam Engineering, Navy Department, Washington, D. C., to Atlantic Reserve Fleet.

December 27, Surgeon C. N. Fiske, detached: *Utah* to wait orders.

Surgeon J. M. Brister, detached: *South Carolina* to *Utah*.

Surgeon Allan Stuart, detached: *Vermont* to *South Carolina*.

P. A. Surgeon W. L. Mann, detached: Naval Recruiting Station, Dallas, Texas, to Training Station, San Francisco, Cal.

Act. Asst. Surgeon J. B. Bostick, detached: Training Station, San Francisco, Cal., to Recruiting Station, Dallas, Texas.

December 30, Surgeon H. W. Smith, Naval Hospital, Boston, Mass.

January 3, 1914, P. A. Surgeon H. A. Giltner, detached: Naval Dispensary, Norfolk, Va., to Hospital at that place.

P. A. Surgeon W. Chambers, detached: Naval Hospital, Norfolk, Va., to Dispensary at that place.

January 5, Surgeon J. F. Murphy, detached: *Idaho* to *Montana*.

P. A. Surgeon F. H. Brooks, detached: *Birmingham* to wait orders.

P. A. Surgeon D. G. Sutton: *Birmingham* to *Montana*.

January 6, P. A. Surgeon C. F. Cottle, detached: Training Station, Great Lakes, Ill., *Mississippi*.

January 7, P. A. Surgeon A. H. Dodge, detached: *Mississippi* to *Idaho*.

January 8, P. A. Surgeon C. B. Munger, detached: *California* to waiting orders.

Surgeon J. A. Murphy, detached: Naval Training Station, San Francisco, Cal., to Atlantic Reserve Fleet.

Surgeon R. R. Richardson, detached; *New Jersey* to waiting orders.

P. A. Surgeon W. H. Cole, Detached: Naval Hospital, Mare Island, Cal., to *California*.

Asst. Surgeon J. V. Howard, detached: *Quiros* to Canacao Hospital, P. I.

Asst. Surgeon C. L. Beeching, detached: *Rainbow* to *Quiros*.

SOCIETY NOTICES.

THE HARVEY SOCIETY.—The seventh lecture will be delivered on Saturday, Jan. 24, at 8.30 p.m., at the New York Academy of Medicine, 17 West 43d Street, by Prof. Sven G. Hedin, University of Upsala.

Subject, "Colloidal Reactions and Their Relations to Biology.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held at Masonic Temple, 171 Warren Street, Roxbury, Tuesday, Jan. 27, at 8 p.m. sharp.

Business.

Communications.

"Medical Inspection of Immigrants at the Port of Boston," A. J. Nute, M.D., Acting Assistant Surgeon, P.H.S.; H. B. C. Riemer, M.D., Acting Assistant Surgeon, P.H.S.

The February meeting will consist of an illustrated talk on "The Identification of Prisoners," by Mr. Gustaf Gustafson, of the Secret Service.

The March meeting will be held at the Psychopathic Hospital. In addition to the papers a clinic will be held.

Annual meeting May 12, American House. The Censors will meet May 14th for the examination of candidates.

BRADFORD KENT, M.D., *Secretary*,
798 Blue Hill Avenue, Dorchester.

Refreshments after the meeting.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The annual meeting of the Society will be held in Sprague Hall, Medical Library Building, on Monday, January 26, 1914, at 8.15 P.M.

Address: "The Ninth International Otological Congress," Dr. Clarence J. Blake.

The annual business meeting will be held at 9 P.M.

Supper will be served at the close of the meeting.

E. W. TAYLOR, M.D., *President*.
ROBERT M. GREEN, M.D., *Secretary*.

THE BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on Tuesday evening, January 27, 1914, in the amphitheater of the Peter Bent Brigham Hospital, at 8.15 o'clock.

Program:—

Exhibition of cases.

Dr. E. Goetsch, "Remarks on the Cytological Characteristics of Different Functional Conditions."

Dr. A. F. Lugar, "Spastic Conditions of the Stomach."

THOMAS ORDWAY, *Secretary and Treasurer*,
Harvard Medical School.

APPOINTMENTS.

BOSTON DISPENSARY.

DR. PAUL J. D. HALEY, Assistant to the Surgeons in the Eye Department.

DR. BENJAMIN F. MURRAY, Assistant to the Surgeons in the Ear Department.

DR. E. W. FISKE, Assistant to the Surgeons in the Orthopedic Department.

DR. ANDREW R. MACAUSLAND, Assistant to the Surgeons in the Orthopedic Department.

DR. AUGUSTUS RILEY, Assistant to the Surgeons in the Genito-Urinary.

DR. FREDERICK L. KELLOGG, Assistant to the Physicians in the General Medical Department.

DR. JOHN T. WILLIAMS, Assistant to the Surgeons in the Gynecological Department.

RECENT DEATHS.

DR. MAX DANTES of New York died on January 8, at the age of 41. He was graduated from Bellevue Hospital Medical College in 1893.

DR. EDWARD CHARLES SPITZKA died of cerebral hemorrhage on Jan. 13 in New York in his sixty-third year.

Original Articles.

RECURRENCES OF ULCER OF THE DUODENUM FOLLOWING OPERATION.

BY WILLIAM J. MAYO, M.D., ROCHESTER, MINN.

In an investigation of the results following operation on 600 cases of ulcer of the stomach and duodenum in which the history subsequent to the operation was ascertained, Graham[1] found that 81% were so relieved as to be considered cured and 10% were markedly benefited, that is, 91% were cured or improved, and 5% of the remainder were moderately improved. The results in the gastric group were not as good as in the duodenal by 3 or 4%. In a small number of the cases there was a recurrence of the symptoms following relief of some weeks or months; a small number of such have been re-operated on in our clinic. Also a small number in which the primary operation had been done elsewhere were re-operated on here. A study of the findings at the second operation has proved both interesting and suggestive, and it is my purpose to discuss the recurrence of symptoms following operation for duodenal ulcer on the basis of this data.

Gastrojejunostomy was the method of choice in the larger number of cases of duodenal ulcers subjected to operation. If actual obstruction existed to the third and fourth degrees, gastrojejunostomy, when properly performed, gave almost certain relief. Plummer[2] points out that such mathematical estimation is much more definite than the use of the terms "marked," "moderate," "considerable," etc., which have only relative meaning, and in estimating degrees of obstruction he advises the use of mathematical equivalents of descriptive terms. For example, obstructions are divided into four groups (1) represents those slighter degrees which might or might not be found on different occasions, (2) represents particles of food regularly found later than the normal period, (3) a grade of obstruction which retains certain parts of the food but allows the bulk of it to pass, (4) retention from mechanical causes which would result in the necessity for removal of such products by the stomach-tube or by vomiting. In response to mechanical obstruction, the stomach acts much like the heart, having periods of dilatation with feeble muscular action in which food remnants are found, and at other times good compensation when such remnants are not found. Obstruction to the first degree may be temporary, occasionally taking place as the result of pyloric spasm, which in turn might be caused by any one of a large number of diseases. Obstruction to the first and second degrees, if they are due to mechanical causes, will ordinarily be relieved by gastrojejunostomy, but not so surely as those accompanied by more marked obstruction as occurs in groups (3) and (4). The greater the obstruction within limits the better the results of gastrojejunostomy and the converse holds equally true that those cases with slight obstruction or without obstruction furnish the highest number of failures to cure.

Failure to cure and recurrences following operation can be divided into two general groups: First, failure of the operation to relieve the stomach of its acid, irritating secretions and inadequate protection of the ulcer itself during the healing period. This condition occurs more often in those cases without obstruction or with obstruction to the first degree in which gastrojejunostomy has been done, especially in the well-nourished individual without obstruction. The pylorus is open and much of the food passes out of the pyloric orifice in preference to the gastrojejunostomy. In such cases, attempts have been made to close the pylorus, thus forcing the food out of the gastrojejunostomy opening. Such closure of the pylorus may be brought about simply by infolding the pyloric end of the stomach with buried silk sutures. Fowler[3] used silver wire for this purpose. Lambotte[4] passes a piece of twine about the stomach just above the pylorus, ties it tight enough to mechanically obstruct, but without sufficient tension to interfere with the circulation, which would result in casting the ligature into the lumen of the organ. In radiograms following the bismuth meal Lambotte[4] has shown the pylorus blocked years after such closure. The general experience has been, however, that closure by the use of sutures has not produced a permanent blockage, but that these sutures are eventually passed into the lumen of the stomach with restoration of the channel, a result which rather regularly takes place in experiments with the normal stomachs of dogs, cats, etc. To obviate this, Wilms[5] introduced the practice of removing a piece of living tissue, *i.e.* a strip of the sheath of the rectus abdominus muscle one-half inch wide and four or five inches in length, which was drawn twice around the pyloric end of the stomach, pulled sufficiently tight and fastened, acting as a living obstruction. This has also been done using a strip of omentum.[6] For some time the method introduced in our clinic by C. H. Mayo has been practiced in such cases, that is, cutting a strip from the gastro-hepatic or gastro-colic omentum, leaving it attached at one end and drawing it twice about the stomach just above the pylorus, or, if the ulcer of the duodenum is sufficiently far below the pylorus, the omental strip is passed about the duodenum below the pylorus between it and the ulcer. The site of blocking should be diminished in size by the application of several interrupted sutures of fine silk to take the strain during the healing process. Since we have used this procedure the blockage remains permanent so far as we have been able to ascertain. However, sufficient time has not elapsed to show its exact

value, but it is undoubtedly true that living tissue drawn about the pylorus is more permanent than mechanical devices in which foreign bodies, such as threads, are used. Recently I re-operated on a case in which the pylorus had been closed in this manner for something more than a year. The strip of living tissue was still in place and covered with adhesions and the pylorus was securely blocked. Von Eiselsberg[7] divides the pyloric end of the stomach and closes both ends. This method is sure, but with a definite although small mortality. Haberer[8] advocates the unilateral exclusion of the pylorus (von Eiselsberg) in all ulcers of the pylorus and duodenum, not only because of the certainty of preventing food and gastric secretion from passing into the ulcerated area, but also because it prevents pyloric spasm and traction on the adhesions. In some instances, this latter condition is the cause of much pain and distress. While the unilateral exclusion has not been used in our clinic as a primary operation, it has been found very successful as a secondary procedure for the relief of pain, of recurring hemorrhage, or recurrence of the ulcer-syndrome in patients on whom a gastrojejunostomy has been made, which was mechanically successful, but in which some of the above symptoms continued. For several years it has been our practice in duodenal ulcer without obstruction and in which the conditions were favorable, to remove the ulcer from the duodenum by excision if possible. In our early cases the ulcer alone was excised. A considerable percentage of the cases subjected to simple excision relapsed within a year and it then developed that in addition to the excision it was necessary to do some type of drainage operation, either gastrojejunostomy, or a plastic on the pylorus, preferably the gastroduodenostomy of Finney[10]. The Finney operation lends itself admirably to excision of ulcers of the duodenum, the ulcer, being drawn directly into the operative field as the sutures are placed, can be excised with great ease and safety. Following gastrojejunostomy, if obstruction to the first and second degree exists, the ulcer should be infolded, as suggested by Moynihan,[11] and the pylorus blocked by living tissue. Especially should this be done if no obstruction, potential or actual, exists. If obstruction to the third and fourth degree be present, nothing more than gastrojejunostomy is essential, although infolding the ulcer is advisable. When hemorrhages were noted in the histories of the patients, the regional blood vessels were caught by sutures and tied.

In the second group of cases recurrence of the ulcer following gastrojejunostomy was apparent rather than real, and had its origin in improper suturing in the gastrojejunostomy. This happened in some cases which were most favorable for gastrojejunostomy, even when obstruction to the third or fourth degree existed at the time of the primary operation. Secondary operation showed that there was no recurrence of the original ulcer, but that a new ulcer had formed at the site where the gastrojejunostomy was made, due to heavy silk or linen sutures hanging in the suture line. Radiograms following a bismuth meal before re-operation showed that the gastrojejunostomy was not working well and that food was delayed in passing out of the stomach. The acidity of the gastric secretions in these cases was high and the retention of secretions on an empty stomach, as shown by the stomach-tube, indicated a high degree of hypersecretion, in fact, the whole ulcer-syndrome had re-developed to such an extent that recurrence of the original ulcer seemed certain.

In a previous paper[12] I reported cases of gastrojejunal ulcer secondary to gastrojejunostomy due to defects in the operation itself and especially suture ulceration. Further experience has confirmed the views then expressed. The length of time these sutures will hang in the suture line is remarkable; one case as long as 22 months after the original operation. Eight cases of this description, in five of which the original gastrojejunostomy was performed in our clinic, were re-operated on. In two (one of our own) there were intercommunicating fistulas between the stomach, jejunum and transverse colon. Both of these patients had feculent material in the stomach. The finding of colon contents in the stomach following gastrojejunostomy is an indication of perforating gastrojejunal ulcer into the transverse colon. In a third case an abscess was found connecting a perforation of such an ulcer to the abdominal wall. In five of the cases re-operation showed a heavy strand of silk or linen hanging in the wound, and I have reason to believe that this was the original cause of the gastrojejunal ulcers in the others. In two cases, the condition of the tissues were such that after removal of these heavy ulcerating sutures it was thought wise to cut away the gastrojejunostomy, completely restoring the wall of the stomach and jejunum by suture and then doing a plastic operation on the pylorus. This procedure proved so difficult that in later cases the gastrojejunostomy was reopened in the suture line and the suture extracted. The opening was then enlarged by a plastic operation, using interrupted sutures for the purpose. Experiences of this kind teach that very fine silk, not heavier than 0, should be used for gastrojejunostomy, that the bite of the sutures should be as near the margin of the incision as possible and that, if it is necessary to reinforce a weak suture line, interrupted fine silk sutures are advisable or such sutures used for part or the whole of the outer row. It has been our practice for a long time to use catgut for the inner row, but it is not the inner row that gives trouble. It is the outer or musculo-peritoneal suture, and I have no doubt that if the order were reversed, using silk or linen for the inner row and catgut for the outer, better results would follow. How-

ever, catgut is so good a culture medium that one hesitates to use it on the peritoneal surface of a necessarily infected wound.

If the margins of the opening in the transverse mesocolon contain fatty tissue, it should be sutured to the stomach rather than to the gastrojejunal suture line. Otherwise, it may form a collar-like mass constricting the opening.[13]

The gastrojejunal opening, as a rule, should be placed at a point directly under the cardiac orifice and not in the pyloric end. The point to be selected has its origin on the lesser curvature a little to the right of the incisura angularis and passes vertical oblique to the left. Two cases of contracture of a gastrojejunostomy made in the pyloric end close to the pylorus have occurred in our experience; in neither of the cases was the original operation made in our clinic. There were no symptoms of recurrence of the ulcer in these two cases, but only those of interference with drainage from contraction of the opening and in each case the gastrojejunostomy was reduced to small size. In both of the above cases, the gastrojejunostomy was cut off and made at the usual situation with permanent relief. It is evident that an opening made in the muscular pyloric end of the stomach has a greater tendency to contract than when made at the point of election.

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[1] Graham (C.): "Observations on Peptic Ulcers." Boston Med. and Surg. Jour., vol. 170, 1914.
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[4] Lambotte: Journal-Lancet, Nov. 15, 1913, p. 623.
[5] Wilms: Journal-Lancet, Nov. 15, 1913, p. 623.
[6] Kolb: Deut. Chir. Kong., 1913. München. med. Woch., Oct. 28, 1913, p. 2400.
[7] von Eiselsberg: Wiener klin. Woch., No. 2, 1910.
[8] Haberer: Arch. f. klin. Chir., C, 1912 pp. 161-192.
[9] Mayo (W. J.): Annals of Surgery, May, 1913, pp. 691-4.
[10] Finney: Johns Hop. Hosp. Bull., July, 1902, pp. 155-161.
[11] Moynihan: Trans. Am. Surg. Asso., vol. xxi, 1903, pp. 135-207.
[12] Mayo (W. J.): Surg., Gyn. and Obst., March, 1910, pp. 227-229.
[13] Mayo (W. J.): Annals of Surgery, March, 1912, pp. 398-399.

PROGRESS IN THE DIAGNOSIS AND TREATMENT OF SYPHILIS.*

BY JOHN H. CUNNINGHAM, JR., M.D., BOSTON.

If modern thought has any new truths to contribute to the inherited stock of medical wisdom, it is because we are in a position to study more exactly the forces and conditions.

Until within the past few years our knowledge of syphilis has not been of a scientific character; the parasite causing the disease was unknown and the personal equation in the establishment of the diagnosis was too often an important factor in the recognition of this disease, and treatment was conducted in a most arbitrary and unreliable manner. We did possess much inherited knowledge in regard to this disease based upon physical observation; the opportunity for which has been great, syphilis being one of the most universal diseases, and no organ in the body being exempt from its effects.

Syphilis has been recognized by the modern world since about 1494, at which time it appeared among the soldiers in the army of Charles VIII, then King of France. It spread rapidly over Europe and has become one of the common diseases in all civilized countries. The weight of evidence seems to be that the disease was introduced into civilization by Christopher Columbus's men, and that it was acquired by them on the Island of Hayti.

Syphilis, gonorrhea, and chanchroid were considered as the same disease until about 100 years ago, when Phillippe Ricord proved that syphilis and gonorrhea were distinct diseases and established the theory for primary, secondary and tertiary syphilis. The discovery of the gonococcus by Neisser and Bassereau's work, differentiating true chancre from chancroid, established these three diseases as distinct, and from that time they have been clearly separated. Since syphilis has been considered as an entity observations have established the facts that syphilis is an infectious disease, acquired by contagion or heredity, chronic in its cause, intermittent in its character, and may involve any structure of the body. We have inherited the knowledge that the acquired disease begins as in the eroded, indurated papule, at the point of inoculation, within a few weeks (usually three) after contact with the virus, the lesion being known as the chancre, and that accompanying the chancre there are associated changes in the adjacent lymph nodes, characteristic inasmuch as they are small, shotty, hard and discrete, except when the chancre is secondarily infected with pyogenic organism. We have the knowledge that within a few weeks following the appearance of the chancre (usually six) there is a general infection manifested by characteristic exanthemata, upon the skin and mucous membrane, a characteristic general glandular involvement, and perhaps an iritis or a periostitis. We have been aware that after all symptoms and lesions have disappeared, that the disease may again manifest itself in a variety of forms which we have termed tertiary lesions, and that a group of symptoms may appear which are really syphilitic in origin but which may not be clearly correlated with syphilis and are termed the parasyphilides, as, for example, tabes and general paralysis.

We have been well informed that a child born of syphilitic parents may inherit the disease, and that the disease may manifest itself in one way or another at any period of subsequent life, and that the majority of miscarriages are due to infection by this disease. Also that the disease may remain latent in the offspring of syphilitic

* Read before the Worcester District Medical Society, Nov. 12, 1913.

parents and manifest itself in future generations.

All medical men have been aware of these general facts relative to the disease for many years; also that the lesions of this disease may usually be controlled by mercury and by the iodides. Clinical experience has proven it advisable to continue the administration of these drugs for many months after the secession of all symptoms in an attempt to prevent a reappearance of the lesions which experience has likewise taught us to anticipate. We know that the reappearance of lesions and the development of the parasyphilides in those considered well treated has left us without any certainty as to the effectiveness of our treatment. And so we have been aware for years that our inherited knowledge has not given us in this disease all that we have had in many other diseases.

New facts of primary importance have developed, which new truths added to our inherited stock of knowledge furnishes us with an intelligent foundation for the treatment of this disease equalled by few and surpassed by none.

The investigations as to the etiological factors in the causation of syphilis, which have been conducted for years, terminated with the discovery of the Treponema pallidum or Spirochaeta pallida by Schaudinn and Hoffman in 1905. The importance of this discovery and the subsequent work proving the Treponema pallidum to be the etiological factor of syphilis has been great. As a direct result of this discovery we were given within two years the Wassermann test, which no longer leaves the diagnosis of syphilis in doubt, and makes the treatment of this disease no longer a matter of guess work. The establishment of the fact that syphilis was due to a spirillosis led Ehrlich, who was studying the effect of arsenic preparations on animals infected with different spirilla, to apply his new principle of chemotherapy to animals infected with the spirilla of syphilis and later to syphilis in the human. So it has come about since 1905 that we have learned to recognize the parasite of this widespread and important disease; to have been given a sero-diagnostic test which establishes the presence or absence of the disease in doubtful cases; and a new therapeutic measure which controls the disease far better than any measure heretofore known.

This remarkable sequence of scientific events following rapidly upon one another has aroused an unusual interest in the minds of the medical profession of the world, and has engaged the thought of the laity in one of the most important diseases to which the human race is heir. Before this interest was aroused among the medical profession syphilis often escaped detection in its later stages, and in the early stages the diagnosis depended mainly upon the development of the secondary rash, or in other words, waiting until the individual gave evidence of the general infection before treatment was begun. The old teaching that treatment should not be instituted until the diagnosis was established remains true today, but the diagnosis may be made earlier and treatment begun before the system is saturated with the virus of the infecting organisms. This is brought about by finding the spirochaeta in the earliest of all lesions, the chancre. The finding of the organism in the chancre establishes the diagnosis and indicates that treatment should be instituted at once, and with the new form of treatment it is often possible to prevent the general infection from progressing to the point of producing general manifestations, or in other words, checking or aborting the disease without the appearance of the usual secondary signs. The spirochaeta pallida is also found in mucous patches, and its demonstration in such lesions, especially when mucous patches are the only questionable lesions present, makes clear what was previously often confusing; doubt arising whether the disturbances on the mucous membrane were due to the disease, mercurial treatment, or other affections, such, for example, as leucoplacia. The organism can also be demonstrated in the papules of the secondary eruption and in the lymph nodes, which, however, from a diagnostic standpoint, is seldom important; but their demonstration in tertiary lesions, such as ulcerations, and in condylomata furnishes evidence that the disease is communicable through lesions of this nature. It is of scientific interest to know that the parasites may be found in nearly all of the tissues of the syphilitic fetus, even the bones, and also in the placenta and cord.

While the diagnosis of syphilis may be made by demonstrating the organism in any open lesion of syphilis, the chancre, mucous patches, ulcerations and condylomata, the patient is not always observed with these clinical manifestations of the disease, but without demonstrable lesions other than a general glandular enlargement, and even this may escape detection. In the event of a suspicion of syphilis being entertained by a questionable history, or indefinite and not absolutely characteristic symptoms, such as nocturnal headaches, rheumatism, and pain in the long bones, tumor masses which might be gummata, or nerve disturbances of nearly any variety, we must have recourse to the Wassermann reaction as applied to the blood or the spinal fluid to aid us in the diagnosis. As far as the diagnosis is concerned, therefore, we now have little excuse for not recognizing syphilis in the early or late forms. In the primary stage we are not to wait until the secondary eruption appears to begin treatment, but should demonstrate the organism in the chancre, or establish the diagnosis by a Wassermann reaction, which is sometimes, but not always present before the eruption appears. In the later stages the organism may be demonstrated in all open lesions, and a positive Wassermann reaction may be considered evidence of the disease. In the spinal cord affections fluid obtained from the spinal canal by lumbar puncture for a Wassermann

test is indicated in order that the diseased condition of the cord may be decided as syphilitic or otherwise.

The demonstration of the spirochaeta is not difficult and any practitioner who is capable of making an examination of urinary sediment is capable of recognizing the spirillum of syphilis. The technic is simple, the parasite being detectable in the living state by the dark field illuminator, or in dry smears by staining with different reagents. The dark field illuminator is a rapid and effective method of diagnosis, and one may observe the organisms in a living state, noting their movements and manner of reproduction, but its use must be limited as it is a special and expensive equipment.

The detection of the parasite in smears is simple, quite as satisfactory for practical purposes of diagnosis and may be carried out by the practitioner in his office, without special apparatus or devices. The preparation is made as follows: The lesion from which the smear is to be made is cleaned with water or soap and water, if necessary to remove crusts, pus, or any coagulated masses, from the real surface of the ulceration. With gauze or a small curet the lesion should be curetted at a point where the sound and ulcerated tissue approximate one another, that is, at the margin of the ulceration. Bleeding will result, and as only serum is desired for the smear, the blood is wiped away, and the curetted area is compressed firmly with gauze until the hemorrhage is checked. With the removal of the compression, a flow of serum will take place. One or two drops of this is collected by a sterilized platinum loop, and placed on a slide. Many different methods of staining have been tried, the Giemsa stain, essentially an analin stain, was the one originally employed by Schaudinn and Hoffman, but cannot be recommended for practical purposes of diagnosis, as it requires from 18 to 24 hours to complete. To those interested in the various methods of staining the parasite, this method and that of Schereschewsky, the method of Romanowski, Hastings' stain, and Stearns' silver method, will all be found satisfactory, but, as it is my desire to make the method of detecting the parasite one of simplicity and for practical purposes only, I will describe the method of staining with India ink. This method, first brought forth by Burri in 1909, and later proven to be accurate by Hecht and Wilenko and by Fruehwald, Cohen and others, consists of placing a loopful of the serum on an absolutely clean slide (washed with soap and water, placed in alcohol for one minute, and dried by passing through a flame), and mixing with one loopful of commercial India ink. After mixing these two fluids, spread the mixture over the slide by drawing the edge of another clean slide over the first, as in making a blood smear. The film dries in less than a minute without heat, and is then dark brown or black in color. Nothing further is necessary except to apply to the film a drop of oil and to make the examination with an oil immersion lens. The field is observed as a homogeneous black or brown color, with the blood cells, extraneous matter and spirochaetae shining through as colorless refractal bodies. The spirochaetae are readily differentiated from anything else. They appear as an extremely slender refractile thread from 7 to 21 microns long, which is from one to three times the diameter of a red blood corpuscle, closely wound in a corkscrew form, the windings being absolutely regular, and from 5 to 20 in number. There is one spirochaeta which often appears in the smears together with the spirochaeta pallida, the spirochaeta refringens. This spirochaeta, which grows on the surface of ulcerations, has no points in common with the spirochaeta pallida. It is much thicker, has but four or five convolutions, which are more drawn out and wavy. In making smears from questionable ulcerations in the mouth, the spirochaetae buccalis and dentata may appear in the smear; it cannot be confused with the spirochaeta pallida because they are both thick spirilla with relatively few convolutions, and never have the closely wound corkscrew form of the spirochaeta pallida. There is only one other spirillum which requires mention, which is known as Vincent's spirillum. This resembles closely the spirochaeta refringens, and always is associated with a fusiform bacillus.

Just a word about the India ink for use in this method of staining. The best kind is Chinchin, made by Gunther and Wagner. Barach criticized the India ink method on the ground that India ink might contain bodies resembling spirochaetae, but this does not apply to the ink referred to above, and as Cohen and others have pointed out, is referable especially to Higgins' India ink. So much for the establishment of the diagnosis by demonstrating the infecting organism in syphilitic lesions. We will next consider the newer method of diagnosis of the disease after general infection has taken place.

Without describing the technic of performing the Wassermann reaction, which is distinctly a technical procedure, only to be carried out by trained laboratory workers to be reliable, I desire to speak of how the test is of practical value to the practitioner as an aid in diagnosis.

One is only required to know certain things to avail himself of the valuable information furnished by the Wassermann and allied tests. In the first place, the Wassermann reaction may not take place in the individual before the secondary eruption appears. I have repeatedly found it negative three weeks after the appearance of the chancre, but have frequently found it positive five weeks after the appearance of the primary sore, but even at this date it may be negative. At this stage of the disease the demonstration of the spirochaeta pallida is the more reliable evidence in establishing the diagnosis. The Wassermann test should never be expected to be positive in those under mercurial

treatment, and a period of at least four weeks, and better six to eight weeks, absence from mercury should elapse before a negative Wassermann finding may be considered reliable. It is a well established fact that mercury renders the Wassermann reaction temporarily negative. In the parasyphilitic affection tabes and general paralysis, for example, the Wassermann test as applied to the blood may be negative, while the spinal fluid shows a positive reaction.

As regards the diagnostic importance of the Wassermann reaction, there has been much discussion. All information in regard to this matter, except that expressed by those who have all the facilities and the ability to make correct examinations, is worthless. The tests will, in all probability, remain limited to well equipped laboratories, and to those workers who have made the test a special study.

The Wassermann reaction must be considered a test for a systemic infection, and cannot be expected to be positive before systemic infection takes place. When the unmistakable lesions of syphilis are present, the reaction is only confirmatory evidence in the diagnosis, and of no real diagnostic value after the spirochaetae have been found. The great value of the test is in those conditions where the symptoms suggest a specific causation without sufficient clinical evidence, for example, in the inherited forms of the disease, in the female parent of the syphilitic offspring, cerebral and spinal syphilis, syphilis of the bones and internal organs, gland changes and certain tumor masses. In such conditions much weight must be given to the result of the Wassermann test in establishing the causation as syphilitic or otherwise. A negative Wassermann finding may occur in some syphilitics where the spirochaetae are few or encysted in tissue poorly supplied with blood, and repeated examinations at varying intervals are indicated when the lesions continue to excite the suspicion of a specific causation. Repeated examinations are absolutely indicated in all cases treated with salvarsan, for there is a considerable percentage of reactions negative two to three months after such treatment, that will later become positive.

No case of syphilis can be considered intelligently treated except when the Wassermann reaction is employed, as a control to decide whether the case is progressing favorably or unfavorably, and it is the information furnished by this test that enables us to decide when to stop treatment and when we should allow such patients to marry.

The blood for a Wassermann reaction is collected in the following manner. The left arm is bared if the patient is right handed, and vice versa if left handed; an area about the anterior aspect of the elbow joint is made surgically clean by scrubbing with soap and water and alcohol. A rubber tourniquet is lightly applied over the upper part of the biceps, and the fist clinched tightly. The veins thus become prominent unless the tourniquet is so tightly applied as to cut off the arterial circulation. If the arm is particularly fat, the veins may not be visible, and must be located by palpation. A vein being selected, the skin is made tense by the thumb and forefinger of the left hand of the operator, and a 17-gauge needle made sterile by boiling for at least two minutes in an ordinary tablespoon or otherwise, is plunged through the skin by the right hand of the operator, entering the vein in the direction of the course of the vein, with the point of the needle directed upward toward the shoulder. The blood is collected in a test tube, which may be made sterile by boiling, or as I prefer, a sterile 10 c.c. pill vial, which may be more easily closed by a tight fitting cork stopper. At least 8 c.c. must be collected and the vial laid on its side at an angle of 45 degrees, so as to allow the serum to separate more readily. The tourniquet is removed, and the puncture covered with a small bit of sterile gauze held in position by a strip of adhesive plaster. This dressing may be removed in eight to ten hours. To obtain the best results, the blood should not be over 24 hours old before testing.

In regard to the new method of treating syphilis much may be said. To put it briefly, the exact place which salvarsan occupies in the treatment of syphilis is not absolutely settled as yet, but there is little question that the disease is best treated by intravenous injections of this drug, alone or combined with any of the various forms of mercury.

The medical literature upon this subject has been most extensive, but after considering much that has been written, one is impressed with the variation in the ideas in regard to methods and results. It is really a difficult matter, even today, to know just where we stand in the rules to be followed in the treatment of syphilis by salvarsan, and statistics for and against the value of this drug serve chiefly to confuse the casual reader of medical literature.

Some authors record series of cases treated by a large initial dose of this drug, followed by two or more comparatively large doses, repeated at various intervals, some a few days, and some, weeks; with or without combined mercury treatment. Others advise small, often-repeated doses, with or without mercury as an adjuvant, while some feel that the best results are obtained by a course of mercury before salvarsan is administered at all. Beside the variations of opinion regarding the most efficacious method to employ, most reports are incomplete, inasmuch as the cases are from hospital or dispensary practice, and disappear altogether with the secession of symptoms, or are not continually observed by one observer, and in most instances the cases are not checked by repeated Wassermann reactions over a sufficient period of time to give us the hard and fast rules to guide us in outlining the best course of treatment to pursue. In other words, there is today no unanimity of opinion in regard to the best manner of conducting the treatment of syphilis by salvarsan.

Nevertheless, even with this confusion of ideas, based upon the variations in the individual ideas of those who have been particularly interested in this subject, certain fundamental deductions may be fairly made. In the first place, the worth of this new drug has been clearly established upon whatever basis it is administered, and it is unquestionable that the intravenous method gives the best results.

There are two important points of caution: The drug must be prepared according to directions, and asepsis must be absolute in all particulars.

In the past it was felt that patients suffering from circulatory disturbances might not receive the drug without considerable danger. This fear has passed out of my mind, for I have often given the drug to patients suffering from almost all forms of circulatory disturbances, but in all such individuals with high blood pressure, considerable blood has been drawn off before the injection was made. I have given the drug several times to patients with diabetes, and improvement rather than otherwise has taken place in those suffering from diseases of the optic nerve, the disease in these cases usually being syphilitic in character. One patient, a doctor, who was absolutely blind, received five large doses of the drug (three of .9 gms. and two of .6 gms.) with the result that the eyesight is now such that he can read and walk about the city streets without assistance. While it may not be important to bleed patients with high blood pressure at the time of making the injection, there can be no harm in so doing, and the fear of serious effects which might be caused by increasing the intravascular pressure in such individuals is minimized.

I have never in my own experience observed any permanent untoward effects from the use of this drug. In two early cases some of the drug infiltrated the subcutaneous tissue. In both of these patients, and in others that I have observed, occurring in the practice of other men, there was a slow necrosis of subcutaneous tissue and fascia, resulting in a very slow sloughing and repair process. I am familiar with two cases of death following general sepsis depending upon faulty and unclean technic. One of these patients had a septic meningitis. I believe there are unquestionably many serious results depending upon faulty technic, of which we are unfamiliar because no mention is made of them. It may be fairly said, however, that those who have given this form of treatment careful attention may carry out this new treatment with safety. As I have repeatedly said, however, this treatment should not be employed by any one who has not first seen the details of its administration, and who cannot for whatever reason carry out the details absolutely.

Beginning in November, 1910, while the drug was considered by Ehrlich as in the experimental stage, I have continued to employ it in nearly every case of syphilis which has come under my care, both in private and charity clinics. My observations are similar to those made by others who have had much experience with the treatment of this disease by salvarsan, both in regard to the impossibility of curing all syphilitics by a single dose of the drug, and the advisability and necessity of sometimes combining mercury with this new remedy in an attempt to free the individual of the infecting parasite. Indeed, it has occasionally been impossible, after repeated injections of salvarsan and energetic mercury treatment, to prevent the recurrence of a positive Wassermann reaction. I have repeatedly, in fact usually, seen all visible lesions of the disease rapidly disappear with a single dose of the drug, which was responsible more than anything else for the early belief that a single dose of this new drug resulted in a cure. The period of time that this belief could be reasonably entertained was of short duration, for the lesions often recurred, a negative Wassermann reaction was not always found even in the absence of all symptoms, and even repeated negative Wassermann reactions at intervals of months after the administration of the drug sometimes again became positive without recurring symptoms. On the other hand, I have under observation many patients in which a single dose of the drug has apparently destroyed all the parasites and repeated negative Wassermann reactions and absence of clinical signs must lead to the belief that these patients have been cured. I think that it is a fair assumption that patients who have gone two years with repeated negative tests and no clinical symptoms, may be considered cured, and I have had two patients again acquire the disease, which is to my mind the best proof of the truth of these conclusions.

It was to take care of the cases in which lesions recurred and a Wassermann reaction either remained positive or becoming negative, again became positive, that the hope of a cure in all cases by a single dose were lost, and that treatment was energetically pushed beyond the ordinary clinical and laboratory requirements by rapid repetition of injections of salvarsan, with or without mercury, in order to do too much rather than too little. How much relapses have been favorably circumvented by such energetic measures is not certain by any means, for it is well known that even under this "gunshot" method, that a recurrence and a positive Wassermann reaction and recurrence of lesions is not materially changed by such a procedure. It is impossible to accurately determine the percentage of cases benefited by over-treatment as compared with those who are treated in a more conservative manner. It is felt by certain observers that if one or two closely repeated doses of salvarsan failed to effect the desired result, that many closely repeated injections failed also. So it is in this confusion of methods that it is impossible to give to the practitioner any pre-

cise course to pursue with promise of a definite cure for his patient.

Disregarding statistics and the diverse opinions of others and considering the subject from the viewpoint of personal observation based upon a considerable experience, I have come to certain definite conclusions, the most important of which is that syphilitic patients must continue now, as in early days, to remain under observation for years.

It is urged that a conservative policy be pursued until the future offers a solution of this confusion of opinions, and for the reason that it is more prudent at this time to rely upon clinical signs and laboratory control than to impose a haphazard, hit-or-miss and most miscellaneous form of treatment, which is a tremendous inconvenience to the patient while promise of distinct advantages cannot be offered.

THE CASE FOR RADIUM THERAPY.

BY SAMUEL DELANO, M.D., BOSTON.

Of an American status we may scarcely speak. In comparison with the activity in foreign lands our interest deserves but slight mention.* This state of things is, however, by no means creditable. In so far as it is conditioned upon the expenditure involved or the inability to obtain material, it may be condoned, but as an expression of nonchalance it is by no means so easily defended. Radium has already a past and has been recording history at a rapid rate, especially within the last year. Radium therapy is then a plant of too vigorous a growth to be sniffed at. America ought to raise some plants of its own!

It is true that the pathway of medicine is strewn with those overthrown pillars which once were thought to mark milestones on the highway of progress, but which proved only *wegweiser* into a *cul-de-sac;* but that should be only a stimulus to a finer discernment, not to an *insouciance.* Radium has to encounter a good deal of the *nil admirari* attitude—a certain assumed aloofness of the "you can't feaze me" character; but nowhere could this be less justified than in the case of radium.

In the first place this attitude is not true skepticism, which in its real significance implies a broad and elevated outlook (*Skopein,* to overlook from a height). In this sense, skepsis in medicine is really the handmaid of truth. The surgery of today might, for example, with good advantage concern itself as much with skepsis as with sepsis. And so of radium: we may, if you will, look upon it as still in an experimental stage, even to a considerable extent in the "*quod sit demonstrandum*" state, but even in the event of ultimate failure and disappointment, America ought to take part in so huge a therapeutic enterprise, if only for the sake of saying "*quorum pars fui.*"

Few new therapeutic measures of two decades have gone further and under better auspices than radium. The large names and towering reputations enlisted in its cause need not be accepted merely on the basis of personal authority. Therapeutic claims are supported by analogous findings in biology and chemistry. A discovery that has jostled the science of physics to its very foundation need not be looked at askance when it threatens to repeat its thaumaturgy along therapeutic lines, nor suspected of affording a mere *appoggiatura* for chicane.

Consider the relation of surgery to cancer. Operation for cancer of the breast, *e.g.* is one of the earliest of surgery, and yet today who shall say that, so far as cure and the lease of life is concerned, cancer of the breast does not remain one of the opprobria of surgery. In order to estimate fairly the results of surgery here, we ought to possess data resting upon a natural history, *i.e.* upon a large series of cases left to themselves and to purely medical treatment. When the question is considered by and large we certainly should have to reckon with the destruction of vital capital effected by surgery.

Here is a woman looking to her friends as well as ever and able to do her work as a singer. She takes a friend into her confidence and reveals a cancer of the breast; at the urging of this friend she is operated on. The whole complexion of things is changed—no recuperation, even under the most favoring circumstances! But on the contrary, immediate prostration and a steady decline to death four months later. Certainly surgery seems an active "precipitant" in such a case. "But," rejoins Surgery, "we must get the cases early." Said a surgeon dying, himself an earnest advocate of much and early operating, "I am sorry I had it done," referring to an operation in regard to which a foremost surgeon had felicitated him on its very early execution.

As to the part performed by surgery even at its best, we may speak merely of "eradication." We may not speak of a "cure" by the knife, as Abbé properly says, but must look to some process along the lines of chemo-therapy which shall be productive of a cell change; and this we seem to have in radium, as we shall presently call to attention; for with radium we may really speak of a *restitutio ad integrum.*

Through quotations let us see of what sound investigators and good surgeons have been able to convince themselves on the relation of radiation to cancer.

Domenichi, while finding radium most useful in superficial cancer, is yet able to report complete clinical cures of deep-seated malignant growths of the parotid neck and uterus with no recurrence in 3-4 years.

Abbé believes "a new era has dawned for surgery."

* This refers to systematic work and does not disparage one whit the distinguished individual efforts of our sappers and miners, Abbe, Williams and K[illegible].

He reports that he is meeting with "a never-increasing percentage of success" and that "cancer is not always incurable." Abbé can refer to cures of deep seated giant-celled sarcoma of bone with no recurrence in nine years.

Knox (London Cancer Hospital) believes that in early cases the choice should still be given to operation because we are not as yet certain enough of results in radium, but says that radium "promises an unique field of usefulness in therapeutics."

Pinkus says that radiation has displaced operation, but takes pains to point out that he means only locally speaking—not glands and metastases.

Kroenig, speaking of the pelvis, believes that even operable cancer should be radiated, if it is "controllable by sight or touch."

Bumm and Voigts say in August, 1913, "We are in a position to bring to healing any cancer of any kind, even quick growing, round-celled medullary varieties, in proportion as it can be made accessible—and we can cure the cancer if we can reach the metastases."

Finally Gauss says, speaking of the pelvis, "In Freiburg we do not operate on cancer; we radiate."

Radiation: General Considerations. The activity of radium depends, in the first instance on the formation of the emanation, a gas of definite properties, of which more will be said *infra.* An atom of radium splits into Alpha particles and emanation. In turn the emanation splits (so-called decay) into Alpha particles, and the secondary deposit and from the decay of this last come the two other classes of rays, Beta and Gamma. Now if this splitting or decay occurs in radium that is sealed, the emanation is enmeshed within the radium itself, and the constant decay gives rise to the mechanism of general radiation and the liberation of energy. This is tantamount to ageing of radium, freshly prepared radium being comparatively inert (the maximum of Gamma rays not developing for a month—and there are no Gamma rays until the third decay product in the active deposit,—"Radium C,"—has been reached.

If, on the other hand, the radium is open or dissolved or heated, the emanation is liberated and may be made use of in various forms for internal use. Thus radiation in any case depends upon the emanation, only in the one case, as in a tube, for example, there is a uniform activity of rays from the splitting of the emanation and successive products, while in the other, when emanation is introduced internally, it is in the body that the splitting goes on with the liberation of rays and energy. Thus the use of radium divides roughly, and with due reservation, into external and internal.

Radiation for New Growths. Radiation turns (1) on the quantity and quality of the rays used; (2) on the filter, its nature and density; (3) on the density and composition of irradiated tissue.

1. *Rays* are of three varieties, of well defined characteristics and differences; to them the designations, Alpha, Beta and Gamma have been attached. Alpha rays are not rays at all, properly speaking, but electrically charged (pos.) particles identified with Helium atoms, having a weight of four times that of an atom of hydrogen. They are liberated with an explosive force, and travel at the rate of 12,000 miles per second. The energy of their liberation accounts in good part for the heat of radium, and the force of their bombardment for the immediately superficial injuries (burns, etc.).

The Beta rays are also not rays at all, properly speaking, but a stream of electrons, negatively charged, identified with the Cathode rays (which Crookes originally defined as a "stream of radiant energy") of a mass equal to 1-1700 of a hydrogen atom.

The Gamma rays do not polarize, pass straight by the magnet, are not deflected by the prism; thus they represent waves of ether.

2. *Filtration.* By a filter we mean anything which by interposition may absorb the rays, *i.e.* obstruct their passage. The efficacy of a filter is in proportion to the density of its structure.

Alpha rays, being particles all travelling the same distance at the same rate, would be stopped short by a small obstacle; thus a sheet of paper is sufficient or, in actual use, the epidermis.

Beta rays, on the contrary, show all degrees of penetration and are roughly divided into hard and soft rays.

Gamma rays have been given the name of *surpénétrant* to denote their vastly preponderating degree of penetration.

If you make mere distance the filter, then Alpha rays are cut off by 3.3 cm. of air. Beta by about three times that amount, and on the contrary Gamma rays (as from 1 gm. of radium) would reach a distance of 100 meters and affect the electroscope; or travel 3 + m., penetrate a man and cause fluorescence beyond him. The ratio of penetration of Alpha, Beta and Gamma rays may be expressed by 1 : 100 : 10,000.

Simple filters for the Alpha and softer Beta rays are lead paper and rubber tissue or mica. The metals furnish the common filters, however, viz., silver, aluminum, lead, and more recently gold and platinum (half the bulk of lead).

1/20 mm. aluminum screens the soft Beta rays.
1/10 mm. aluminum screens the medium Beta rays.
1 cm. lead screens the hard Beta rays.

Gamma rays need 5 cm. of lead for practically complete absorption though a small fraction will still be left with 10 cm. These figures must be regarded as somewhat flexible.

Thus we see that it is possible to vary the quality of the rays by filtration. But the total rayage may be extraordinarily influenced by filtration. Of the total rayage without filtration

there are 90 Alpha particles to 9 Beta rays and one Gamma ray, but even with thin metallic filtration the figures for Alpha and Beta change places and the Gamma rays may come up to ten. Under strong filtration (5 mm. lead) a total of 600,000 rays is reduced to 5000 (Gamma). One other class of rays there is, viz., "secondary"—created when a metal filter is used. These are called Rayons de Sagnac. They are very irritating, but may be easily screened by a sheet of black paper, 20 sheets of writing paper or 4 mm. of cotton.

3. The third factor in radiation is the density and the composition of the radiated tissue. This is a very important item in the therapeutic use of radiation, because one of the obstacles to greater success has been the comparatively limited localization of its effects. The skin, for example, absorbs two-thirds of the rayage (the negro's skin more). It is thus more difficult to radiate, *e.g.* a gland, through the intact skin (though glands can be absorbed without injury to the skin). Wickham reports, however, a mediastinal tumor improved as to size and alleviation of pressure symptoms.

Wichmann showed that pathological tissue absorbed rays in much greater measure than did normal tissue. Lupus Vulgaris absorbed double in comparison with the neighboring normal skin. It has been calculated that 1 mg. radium will send penetrating rays to a depth of 2 mm. of pathological tissue; with large quantities, 2-2½ cm. of pathological tissue, is the degree of depth usually attained, though influence to a depth of 5 cm. has been observed.

The discharge of Alpha particles has been called the most intense liberation of power in nature. Kinetic energy is their especial characteristic. They account for most of the heat of radium,—their ionization power is such that they have to be screened off in the electroscopic quantitation of radium and their chemical energy evidences itself in catalysis. They must then be irritating and destructive to normal tissue (and to growths perhaps even stimulating); therapeutically they must in the main be rejected.

Soft Beta rays are in much the same category, but the hardest Beta, which are also much more penetrating are analogous in effect on pathological tissue to the Gamma rays. Gauss makes especial use of them and Knox thinks they ought to be more used.

The Gamma rays, however, it is agreed, have the most pronounced therapeutic office. As we have seen, they penetrate a great distance but, their quantity being small, it by no means follows that they will act curatively. The problem is, then, to produce a summation of Gamma rays within a given district. This summation will be a product of intensity (amount of radium), filtration and exposure period. Happy assistance is effected by the use of "cross firing." This refers to the focusing of Gamma radiation from several independent sources and in different diameters, upon a given district.

Gamma rays may easily be shown to have a predilection for cancer cells, especially in proportion to their youth, embryonic character, or developmental state, and under the microscope these may be seen to split nuclei, develop vacuoles and lacunae, and finally to disappear. Furthermore, young connective tissue cells in the neighborhood may be observed developing and multiplying vigorously. Their growth leads to isolation of cancer groups. This is the essence and rationale of the favorable action of radium on morbid tissue. Good tissue elements are stimulated, morbid tissue elements withered and retired.

Resumé of the Results in Radiation. The use of the rays of radium dates from as far back as 1902. At first entirely unmethodical, their employment necessarily could not be productive of substantial results; and it was not until the discovery by Domenichi and the French School that the penetrative Gamma rays far exceeded the others in therapeutic scope and that they could be isolated through means of the thick filter, that the success of today gave promise of achievement.

Much experience by many observers in many thousand cases has set beyond all cavil the marvellous power of radium to demolish growths and conditions of simple and intermediate nature. From warts to non-infiltrating carcinoma, its value has been established as almost infallible. We see exaggerated cell growths blown to smithereens, as it were, by dynamite.

Warts (Abbé) encountered in all situations and of fancy sizes, have been disposed of mostly with one exposure. In ten years he has radiated five hundred cases of epithelioma, superficial cancer and sarcoma "with ever increasing success." He attributes most of his failures to inadequacy of dose or a lame method. Recurrent papilloma of larynx, cousin germane to cancer, he cures with one exposure (100 mgms., 30 min., entirely absorbed in eight weeks), and sarcoma of eyelid (previously x-rayed), disappears with four hours' exposure. Kelly scores a 96% of success in skin growths. Schindler (in a very "meaty" contribution to Radium for October and November (1913) says he has "frequently removed the benign epithelioma of the face (Epithelioma perlée) with an exposure of an hour." And so in angiomata and keloid and rodent ulcer the success has been eclatant.

In skin diseases, especially of the ichthyotic type, psoriasis, lichen, scleroderma, etc.; neuroses with accompanying eruption, eczemas, pruritus, essential or with varying eruptions, radiation has been well tried out and its success is undoubted and substantial. Apart from the question of success, however, radiation has the greatest possible advantage over other means in its notable celerity and simplicity. Its convenience of application alone (it has been called *therapie de poche*) entitles it to decided prefer-

ence, other things being merely equal. One of the most pronounced efforts of the rays may be mentioned as well here as anywhere, viz., its local soothing effect on disturbed nerves. This makes of it almost a specific in the control of an essential or symptomatic pruritus or as an analgesic. Its antipruritic effect of course, makes it extremely satisfactory in relieving an important symptom, while effecting the cure of the underlying lesion. All observers agree as to the extraordinary analgesic effect of radiation. Thus in all neuralgias, especially in sciatica, and in the often terrible pain of new growths, it is capable of rendering remarkable service. An incurable cancer case can be kept comfortable with radiation. The pains of tabes have been relieved in four minutes.

How stands the case between radium and deeper malignant processes? Very much more definitely may we speak than we were in a position to do one year back. The adaptation of those principles which we have spoken of above under the general consideration of rays and radiation, viz., massive doses, heavy filtering and long exposure to the Gamma rays have been productive of results so marvellous that one is not to be blamed for an *a priori* incredulity.

All Europe is aflame. A veritable *radium-fieber* rages. The supply of radio-active material is exhausted and large ready-available funds cannot as yet be expended. All this might be the case with mere hanky-panky on a large scale, but it would be highly improbable. Fortunately the accounts of results leave far less than the usual room for doubt, even from a highly skeptical viewpoint, and it will scarcely do to say in our haste "all men are liars." A highly impressive feature of various reports, as for the pelvic region, *e.g.,* is their striking unanimity. Only here and there is a discordant note. In the face of very enthusiastic accounts by other speakers Nagel rises to say he has gotten no such results. Falk, who denies the specific action of radium, says that after radiating a number of cases of cancer with 50 mgm. radium he never had a complete cure; but in the light of the overwhelming testimony of great surgeons, such as Kramer of Greifswald, Kroenig and Gauss of Freiburg, Doederlein of Munich, and many others, we are justified, at least temporarily, in questioning if methods may not be at the bottom of failures, because so little would make so great a difference in results. Thus Meidner, after being unsuccessful in a number of cases, scores at last a brilliant coup with 30 mgm. radium in a "stinking cancer of cervix." The writer has talked with one man who, voicing disappointment as to his own experience with radium, may be said simply not to have used it.

One of the advances of the past year centres about the coöperation of surgery and radiation. Indeed, there is a good deal of plausibility, not to say cogency, in the view of one operator that radium ought to be in the hands of surgeons and not of radium institutes, towards which the tendency of present fashion veers. Thus we find the London Radium Institute reporting none too favorably on cancer of the rectum, while, on the other hand, Abbé, a seasoned surgeon, with a ten-year experience with radium, is most enthusiastic. The dose should be large, the filter at least 2 mm. lead and the apparatus be left in 8-12 hours at intervals of several days. Kroenig reports a case of large proliferating cancer of rectum cured, with freedom from relapse maintained for six months prior to date of publication.

But consider the importance of method! The radium tube must be placed accurately in the lumen of the stricture within the confines of the tumor—failure to do this is certainly going to result in failure, even perhaps to lead to perforation as a result of injury to sound tissue. So that here again positive evidence carries much further than negative.

The danger of perforation attaches to the radiation of all cancer of the gastro-intestinal tract. Thus Exner of Vienna reports two perforations in twenty cases of esophagus cancer. Schindler has observed one only, and that also in the esophagus, but calls attention to the difficulty of distinguishing from a perforation ascribable to the disease.

Besides the twenty esophagus cases, Exner has radiated forty other deep lying carcinomata in the last ten years. In only two did they remain longer than three years without recurrence, and these two finally showed return in, respectively seven and nine years. This illustrates the necessity of caution in speaking of a cure by radium. (One of the earliest cases radiated—sarcoma of lid—recurred only after ten years). There is a good deal to confirm the hypothesis that the connective tissue, the formation of which is stimulated by the radiation, spreads a net to catch the unabsorbed cancer *reliquiae* and so to prevent metastasis. In sixty deep lying cancers, Exner reports that, with the exception of the two mentioned he could not speak of cure, but of an essential improvement as to local symptoms and duration of life. In cancer of esophagus a preliminary x-raying should be made in order to place the radium within the growth and stricture.

Of cancer of the mouth, esophagus and stomach, Abbé says he is not yet prepared to speak. Of course one obstacle in the way is the inaccessibility of these regions and in consequence, unmanageability of the radiation. Surgery will undoubtedly coöperate in the future as in two recently reported cases of gastric carcinoma, by Julien; a laparotomy was done and the tumors radiated forty-eight hours through the wound by a radium tube enclosed in a catheter -radiation was also continued from the surface. Cures were said to have been obtained.

Cancer of the breast has not been radiated on a large scale, probably on account of the long established prerogative of surgery in the region.

Splendid results, though, have been obtained. Kroenig has in his series a case radiated after laying back a flap of skin—no return at time of writing, nine months after—so a cancer *en cuirasse*, rejected as inoperable, he has cleared up with no return in five months. Abbé reports brilliant results in myeloid tumor of jaw and round celled sarcoma of humerus, with no return in nine years.

But it is more especially in the pelvis that the great advances of the year have been made. By using much larger doses, by heavier filtration, by massing rays, by using a number of packages to serve as a battery, by cross firing, by invoking the aid of surgery to make growths more accessible, by a longer exposure, very remarkable results have been obtained. Kroenig has made the most considerable report with 146 cases (including cancer in eleven regions referred as inoperable from surgeons—in these he is not ready to report except in the eclatant cases cited above).

In 56 cases of inoperable cancer of the uterus 15 were healed so far as good health and histological negation confirmed, the longest absence of recurrence at time of report being 16 months.

If we can do this, why not radiate so-called operable cases—the rate of mortality is large, and, furthermore, classifying them as operable is only to speak surgically, not to guarantee against recurrence. Sixty per cent. recur within the year (when they become inoperable, as a rule, and are considerately passed over to radium). And most of the cases that have been loaned to radium, so to speak, are not only inoperable, but almost untreatable. They stand for the "abomination of desolations." Yet de Courmelles reports out of 100 inoperable cases, 70 improved, with the gain held for from one to four years, and that with only 50 mgms. radium within the uterus twenty-four hours every month. Jacobs of Brussells reports among 120 cases, 24 cases of uterine-wall cancer, all favorably affected. All observers agree as to the great improvement that can be effected in forlorn inoperable cases; their desperate plight can always be relieved by staying the hemorrhage and discharge and by absolutely relieving the pain. Now what might not be the toll of radium if operable cases could be included; many of those of the fundus and parietes are but thin in tissue, a condition that radium might easily influence.

The interrelations of surgery to radiation have been better established in the pelvis than elsewhere. Pre-radiation of a tumor can make a tumor operable by causing the absorption of inflammatory exudate, by creating mobility and accessibility and by removing discrete foci and glands, as in the broad ligament and vagina. Thus Kroenig speaks of making a tumor nonmalignant in two weeks. He believes that many operable cases ought to be first radiated, because there is no loss of time. Radiation has dried up the secretion of cancer in three weeks. In five and one-half weeks Kroenig has seen a large cauliflower of the cervix replaced by an normal cervix and only a delicate mark for scar. This case was at time of writing four months free.

So the modern operators go far. They dissect, they bury tubes in the tumor, they radiate before operating, they radiate in the operative wound. Kroenig radiated 64 against recurrence; at time of writing, 20 were still alive with no return, 13 more than a year.

Kroenig has used the most massive doses, even 800 mgms. of radium and mesothorium, sometimes separately, again in combinations with x-ray. He has left in tubes eight days, and he speaks of "Gamma therapy" because of his reliance on Gamma rays solely.

But Bumm begins with a thin filter and the Beta rays, applying very closely to diseased tissues, but protecting healthy with lead—after ten days he uses larger doses and a lead filter. His large dose averages 150-300 mgms.

Other Radiation. Much other radiation has been undertaken and much will be, since dissection and the burying of the tube in the tumor have come into vogue. Thus Turner reports a case of recurrent lympho sarcoma of axilla cured. The tube was buried in the mass and the glands radiated from without; then the glands, having isolated themselves, were dissected. Of this case Prof. Alexis Thompson says, "This was clinically and histologically a round celled sarcoma. Untreated, the duration of life would have been put at three months." Even a tumor of the hypophysis with gigantism has been radiated and benefited.

Domenichi, one of the oldest operators, reports favorably on exophthalmic goitre, using mild radiation and believing the benefit to lie in nerve influence. Turner reports four cases very decidedly influenced; they were inveterate, from two to seven years' duration. Turner thinks his radiation influences blood supply and connective tissue.

Domenichi has radiated the joints of gonorrheal rheumatism, especially small joints, and made brilliant cures, the pain being at once controlled.

In special work a considerable use has been made of radiation. In the eye, many chronic diseases, involving low grade inflammatory conditions, ulcerations, pus formation, catarrhal processes have been cured. A smallish quantity of radium has been used and the tube applied directly to the eye. Enough use has been made of it to show that there is no danger to the mechanism or power of the eye itself. Koster of Leyden reports a clinic in which radiation was used for practically every disease of the eye and surrounding parts.

In the ear there have been recently reported two series of cases of chronic deafness, with or without active processes, the radiation of which was attended by a decided degree of success. A small quantity of radium is applied to the mas-

toid, the external ear and even to the middle ear, all with short exposures.

In the pelvis other diseases than cancer have been freely treated, such as metrorrhagias, metritis, myomata, and great success has been reported by many observers, particularly with smaller fibroids, and when these conditions cluster around the menopause. A moderate amount of radium is used which may be either inserted into the uterus or placed so as to radiate the ovary. Some speak of securing a catamenia precox.

X-ray and Radium. One of the curious facts in the history of radium is that the Gamma rays, which could penetrate a wall or a man or 15 cm. of iron, were thought at first to be of no account. Since then study of them has shown their practical identity with the x-ray. But there are important differences. The softest Gamma ray will penetrate much farther than the hardest x-ray. Lazarus estimates them as 40 times as penetrating.

While the x-ray is an application of artificial radio-activity the radium tube is a "portable Roentgen bulb," *i.e.* there is obviously no comparison between them as a matter of convenience. Again the x-ray is but a single beam, and it takes "many a little to make a mickle"; its action is necessarily very slow if required for much tissue. Compare the method of burying a radium tube in morbid tissue and taking advantage of its uniform radiation in all directions, with the x-ray necessarily having to overcome the resistance of other tissue. The use of heavy filtering is very destructive to the x-ray apparatus. Bumm finds the x-ray "dear and tedious," but expects much from a combination of radium (quick) and x-ray (slow). Albers-Schönburg advises small doses of x-ray and long radiation in myomata, which means for him an eight months' process. Furthermore, great damage has been charged up to the large doses of x-ray that have been used in the last year. Schmidt calls attention to the danger of late effects and damage to inner organs. He has seen persistent diarrhea three months after cessation of raying; also rapid degenerations and perforations.

Injury from Radium. Alpha and soft Beta rays as well as the secondary rays, will all produce an impression on the skin varying from erythema to necrosis; but so well are the laws of screening now understood that it is entirely unnecessary to produce more than a slight erythema, which must be expected when heavy doses and long exposure are used for deep penetrating effects. The sensitiveness of skin varies according to age, old skin being very tolerant. The mucous membranes are more tolerant than the skin. After considerable rayage the skin develops a super-sensitiveness which must later be taken into account by lessening the rayage toward the end of treatment. This acquired supersensitiveness becomes more or less permanent and may be an obstacle in secondary treatment of recurrent neoplasms.

In the course of treating large surfaces, as lupus or a large tumor with long exposure, a condition of apparent sepsis is often observed. The temperature runs high, the patient falls into a condition of lassitude and depression. Knox has observed this in rectal cases.

There have been some perforations of hollow organs reported, some of blood vessels with hemorrhage; but Schindler, on the contrary, says that, by careful management, he has actually cured an involved blood vessel without disturbance.

The scar after radium ought to be almost nil, neither raised nor depressed, and the cosmetic result equally satisfactory,—neither pigmentation, hairs, or telangiectases. That is all a question of proper management.

Finally, radium may blow hot as well as cold, and occasionally stimulate a growth. The reaction of cancer to the radiation varies much, according to the nature of the tissue. More mature cells are more apt to be stimulated. Schindler believes that with smaller doses the Gamma rays for the most part exert their effect in the periphery, while stray rays striking into deeper regions, exert a stimulating effect. He emphasizes the necessity of securing uniform concentration in the whole area under radiation —a condition that is well secured by burying the tube.

Dose. It is often asked with how little radium can one work? Kroenig, as we have intimated, has been working with very high doses, even up to 800 mgms. radio-active material (radium and mesothorium). But Bumm with 500 mgms. and 2 mm. lead filter, reports a lack of toleration even after ten hours' action—fever with bloody tenesmus, an inflammatory exudate, with in one case a sterile abscess. He, therefore, sees no advantage in large doses, but prefers 150-200 mgms. Lazarus warns against small doses, as being stimulating and irritating, and as increasing metastasis, his minimum being thirty mgms. Wickham warns against too much. The case (for cancer) is well summed up by Schindler, who thinks the required amount is adjustable to the effects. If, he says, you have an amount which with continual radiation can destroy a cancer in three to four weeks, you have enough; it being immaterial to his mind whether the effects are attained by smaller (though considerable!) quantities, used through longer periods or a large amount, *e.g.* several hundred mgms. used for correspondingly shorter periods. According to Schindler, several applicators of each about 15 mgms. of "radium element" are sufficient, if they are used continuously day and night.

It will be observed that Schindler uses the term radium "element." This refers to the international standard prepared by Mme. Curie, by which all parcels of so-called radium ought to be reduced to their equivalent in radium ele-

ment. We ought to know first, the amount of radium element in the salt used (strength and kind) and second the square surface, if a flat applicator, or the volume, if a tube. Therefore in the following table it must be borne in mind that we are left in doubt as to the relative quantities of radium element that correspond to the so-called radium.

Small quantities of radium may be profitably used. Thus even Alpha rays, though irritant, may be used where the exposure is to be short, as in superficial epithelioma. So Beta rays may be, as in chronic eczema, with ten to fifteen minutes' exposure. Varnish applicators give forth a large proportion of Alpha rays and are prone to produce an erythema.

In the distribution to the London Hospitals of the radium purchased with the $50,000 London Express fund, the largest single grant was 250 mgms., but the smallest 15 "with which useful work can be done."

Domenichi radiated his small joints affected with gonorrheal rheumatism with 5-10 mgs. 25% salt.

Results have been secured in:—

Granuloma and trachoma, with 1 mgm.
Scrofulous gland, with 1 mgm. (tube imbedded 23 days).
Ear, with 1-2 mgm.
Uterine hemorrhage, with 4-10 mgm (radiation of ovary).
Lupus and angioma, with 10 mgm.
Goitre, with 10 mgm. (tube imbedded).
Metritris, with 20 mgm.
Fibroids, with 27 mgm. (on uterine sound).
Skin and Cancer, with 20-40 (Wickham).

Mesothorium. Mesothorium (really maesothorium) and its decay products have been favorites in Germany this past year, owing to their relative cheapness. Thorium nitrate is produced from monozite sand for the manufacturing of gas mantles and mesothorium comes from the residue left in preparing the nitrate.

Mesothorium furnishes Beta and Gamma rays, the Alpha rays coming from its radium admixture (often 25%) or from radiothorium, (of the series of decay products). Bulk for bulk, pure mesothorium would be very much more powerful than radium because it disintegrates with 350 times the speed, but by one mgm. mesothorium is meant the amount of mesothorium which shows a Gamma rayage equal to one mgm. of pure radium bromide (standard).

Mesothorium has a half period of but 5.5 years, but its activity varies with age and there is considerable difference in activity of commercial parcels. Its activity increases up to three years, owing to formation of radiothorium. Though in some dispute, the radiation of mesothorium and of radium are generally held to be identical. Czerny prefers mesothorium to radium for superficial lesions; radium to mesothorium for deeper. One observes, however, very much more warning of danger from mesothorium than from radium. Thus Bickel (friendly to it!) recommends caution. Has seen atrophy of normal ovary from 30 mgms., and also late disturbing effects. Bumm says mesothorium is tolerated very well by some, badly by others, and reports injury.

Specific Action of Radium.—Many (as does a user of it in our own city) consider that radium acts as a mere irritant or caustic. But there is an almost conclusive chain of evidence in favor of its action being selective.

1. It can cause the retrogression and modification of cells without inflammatory reaction, or the absorption of an angioma without hemorrhage.

2. It possesses the surpénétrant rays, which can act on deeper tissues without surface reaction.

3. It cures pruritus without irritant action.

4. Its irritant effects show a period of latency—thus the evidence of a burn does not appear for from two to ten days.

5. Parts distant from point of application may be affected.

6. Besides causing the absorption of cells it stimulates fibrous tissue to renew.

7. It leaves no such scar as caustics do—a proper scar after radium is neither raised nor depressed, merely soft, supple tissue in sufficient quantity with no tendency to contract.

8. Radio-activity cannot be checked by any chemical agent. The emanation does not enter into any chemical combination. In this it is entirely different from caustics.

Theory of Radium's Action. Radio-activity is a form of radiation activity which is everywhere present and made use of. Radio-activity has been traced in the body and in gall stones. "Radio-activity in the earth and air furnishes the minimal impulse to the liberation of the normal energy of seed and soil. Small wonder if these ethereal undulations (Gamma rays) are the chosen agents of influence and modification of pathological process" (Butcher). According to Lazarus, Radium therapy is a form of light therapy.

In all nature every increase in life is associated with death. Histological cells like men "rise on the stepping stones of their dead selves to higher things" (Butcher). In radiation, cell death is the basis of therapeusis. *In vitro* a division of leucocytes can be started by adding creolin or exanthin (chemical products of cell destruction). So, after radiation the dead cells attract phagocytes, which gather as to a feast! Thus the cannibalistic theory of Ross.

The vaccine theory fits in very neatly. By irradiation in one part, distant parts are often affected, as in a widespread psoriasis or acne or widespread carcinoma. Now the vaccine theory would say that the patient prepared an autogenous vaccine, the action of which was general. Thus the radium cure is not dependent on destruction or repair, but represents a biological

recoil, the resentment of the cells to insult, as in the case of bacteria and antibodies. And it must be said that the latency of the burn and its subsequent action in respect to stages and scabs (much resembling cowpox vaccination) lends color to the theory.

To take leave of radium radiation: there is nothing in the above account of its powers and prowess that puts a veto on its claims to have preëmpted a distinct field in therapeutics. Making all allowance for the first flush of enthusiasm and for the jeopardy of human observation, there is no escaping the conclusion that it can lay a healing touch upon varied pathological conditions and that its operations well deserve the motto, *Cito, tute, et jucunde.*

(*To be continued.*)

A STUDY OF CANCER.

BY SEELYE W. LITTLE, M.D., ROCHESTER, N. Y.

(*Continued from page* 130.)

Two cases under treatment since this paper was written interestingly confirm this idea. One is a case of cancer of the stomach, bile passages and the pancreas. Two years ago the urine of this patient contained sugar. For a year and a half there has been no glycosuria.

The other is a case of cancer of the rectum. This man had diabetes for several years, with cataract and finally a rectal fistula. A year ago he "recovered" from his diabetes to the elation of his physician. But at about this time his rectal trouble began and he now has an inoperable rectal cancer.

Since observing these cases we have tried without success to obtain a reliable preparation of the islands of Langerhans. As observed elsewhere, there has never been much success derived from the use of a supposedly "aiding" secretion or of a supposedly "antagonistic" secretion in cases of hypo or hyper secretion of another gland. The faulty gland itself must be "aided" by its own kind of secretion or antagonized by partial removal.

Our own experience confirms this. We have had the least success with endodermic cancer where we had to use the "aiding" parathyroid. We certainly desire urgently a reliable active preparation of the islands of Langerhans.

The gastric and intestinal mucosa internal secretion may be eliminated as their function seems to be wholly concerned with the regulation of external secretions, notably the pancreatic juice.

There remain the parathyroids. As to the effects of over-secretion of these organs we know very little, but the condition doubtless sometimes exists. It seems generally agreed that these organs have something to do with calcium metabolism. We do know by painful experience, however, that parathyroids are essential to life, for if removed entirely the individual dies very soon in a condition of tetany. It is interesting to note that experimentally life in parathyroidless animals may be prolonged by the administration of lime salts. For our purpose it is also interesting to recall that if adrenalin be injected into a normal person, sugar promptly appears in the urine. If the parathyroids are absent this sugar effect of adrenalin is enormously increased. And by the way, if the thyroids are absent, glycosuria is almost impossible from the injection of adrenalin. Now in this case we secured the prompt glycosuria of adrenalin injection, so certainly there could not have been a large degree of hypothyroidism, but there might easily have been hypoparathyroidism. Further, such a condition would account satisfactorily for the hyperglycemia of cancer, granting that the suprarenals are normal, for a normal supply of adrenalin would be relatively an oversupply if there existed an undersecretion of parathyroids.

The characteristic results of total failure of parathyroids, namely tetany, suggests another explanation of the hyperglycemia of cancer. We cannot assume, of course, a total failure of the parathyroids, merely a relatively partial failure, so that we should expect an effect on muscle far short of tetany but of the same nature, *i.e.* a too rapid exhaustion of muscle. Exhausted muscle (as in fatigue) calls loudly, perhaps by its waste products, for more adrenalin, which in turn tends to make more sugar appear in the blood. And we know the muscles like to keep a supply of glycogen on hand. We know by experience also that sugar taken by the mouth relieves fatigue. Exhausted muscle calls for sugar. Certainly our experience shows that most cancer patients naturally crave sugar. So the hypoparathyroidism seemed a reasonable theory. It might also partly explain the well-known lassitude existing in the early stages of cancer or even before cancer is suspected.

Therefore the tongue case was started on parathyroid extract gr. 1-20 four times a day. This was Oct. 1. He was told to stop the sugar and the adrenalin. On Oct. 7 pituitrin was added empirically in view of the remarkable effects observed in the skin case. This in spite of the fact that the tongue and the pituitary body are of different embryological derivation. It was deemed best, nevertheless, to make the experiment. This was encouraging in one way, though disappointing to the patient. Sugar promptly appeared in the urine, confirming our theory,—pituitrin was stopped.

Two very suggestive cases should be mentioned here to demonstrate the intimate and vital relation between lime metabolism and sugar metabolism and the relation of each to cancer.

The first case is one of demonstrated uterine cancer operated upon several years ago by Dr. Hastings. This patient some twenty years ago broke her leg. For no known reason union was very slow, over a year being required for even a

fairly good result. In view of our present studies this seems to have been simply a case of very poor calcium metabolism. The patient has always been and is still fond of sweets. That is, this case tends to show that poor lime metabolism and very active sugar metabolism in a person in middle life furnishes a favorable condition for the development of cancer. One will find, as the writer has repeatedly observed, that cancer patients are usually fond of sweets.

The other case is typically one of moderate hyperpituitarism. He is a young man showing every sign of this condition. He has diabetes insipidus, bilateral temporal hemianopsia, a wide sphenoid. Also, an interesting fact, he has five lower incisors; otherwise he would have the characteristic spaced teeth. Finally, he never cared much for sweet things. He never takes sugar in coffee, for example. This man very recently broke his leg, and a very remarkable thing happened. While the very rapid repair was going on, showing extraordinary lime metabolism, the diabetes insipidus disappeared! This is interpreted to mean that while the extraordinary call for lime salts was readily met, the pituitary was so busy with this extra work that it could not also show at the same time the characteristic polyuria of hyperpituitarism. In four weeks the bone repair was perfect (x-ray proof), no pain, patient walking.

As a suggestion in passing, may we not utilize pituitary extract in most fracture cases to hasten recovery and especially in cases of delayed union? May we not do the same in bone grafting? In rickets and other allied conditions of defective bone development? The field is very wide. The more the relation between lime and sugar is studied the more is one impressed with its importance and with the possibility of practical application in very many diseases of faulty metabolism. In the list of such diseases besides cancer and diabetes may very possibly be found such apparently widely different conditions as psoriasis, arterio-sclerosis, rheumatism, decaying teeth, baldness, some cases of nephritis, obesity and a host of other diseases, the management of which is at present largely unscientific, unsatisfactory and empirical.

CASE 1. Mar. 1, 1913. Miss H. Age about 45. For about a year has had a severe menorrhagia. For about 6 months bleeding not only at regular times but irregularly between times. Was examined by Dr. McCauley who said she had a fibroid. Refused operation. For past 3 or 4 months has had also an irregular yellowish red foul smelling discharge. All the time more or less has had pain and swelling (not altogether oedema) of both legs with severe pain in muscles of both legs. Treated for rheumatism.

Then in January, 1913, began to fail rapidly in flesh and strength. Went to Homeopathic Hospital under Dr. McCauley. Grew steadily worse. In February left hospital, discharged doctor and friends sent for me.

I found her semiconscious, very anemic, weak, pulse rapid and weak. A large smooth mass corresponding to enlarged uterus, a thin foul-smelling discharge from vagina, legs swollen and tender.

Diagnosis—Fibroid with superimposed cancer of utterus.

Prognosis—Death very soon.

Treatment. At first stimulants. Then a little food as she regained consciousness. Finally sugar in excess by all possible means, candy, grape-juice, sweets and all she could use on cereal, in coffee, etc.

Result. Steady improvement in every way. In April she walked several miles, came to office and had gained not only strength but 20 lbs. in weight. In May she pronounced herself well. Since then I have only seen her casually on the street.

The fibroid is there but smaller. There is no bleeding or other discharge and very little swelling of legs.

Clinically this is a case of cancer of the uterus which has recovered. Unfortunately, I have no scientific proof of it. No microscopical examination was made because the case seemed hopeless. If it was indeed cancer, and if our present deduction that cancer is due in this case to hypo-secretion of a ductless gland of mesodermic origin (the uterus being mesodermic) then a seeming difficulty arises, for in this case we acted on the hypothesis that we were dealing with hyper-secretion of some sugar regulating ductless gland which also controlled growth. The idea was to give the gland so much work to do attending to the sugar function that it could not also stimulate growth. We had vaguely in mind the suprarenal and the pituitary, but we were working in the dark. Now the only ductless glands of mesodermic origin are the cortical portion of the suprarenal, the coccygeal body probably, Leydig's cells of the testicles and the ovaries. Leydig's cells being ruled out and probably the coccygeal body, there remain only the cortex of the suprarenal, which is not at all understood as yet, and the ovary. We know that suprarenal extract in excess tends to produce hyperglycemia and it is most suggestive that ovariotomy is followed by hypertrophy of the cortical portion (mesoderm) of the suprarenal. Therefore hypo-ovarianism, our present tentative hypothesis as to the ultimate causative agency in producing uterine cancer, might easily produce the characteristic hyperglycemia of cancer by first causing hyperadrenalism. Personally I should be strongly inclined in the next case to give ovarian extract.

How could the administration of sugar then have brought about this possible cure?

Several explanations seem possible. In the first place, remember that all our cases showed remarkable initial improvement with subsequent backsliding (except this first case) on the sugar alone. It is conceivable that in the first case the initial gain was just what was needed to turn the scales between cancer growth and no cancer growth, by enabling the relation between hypo-secretion of the ovary and hyper-secretion of the suprarenal cortex to become normal again. This might have happened by overwhelming the suprarenal with sugar work and

thus soon bringing about its atrophy to a degree parallel to the assumed hypo-secreting ovaries. This, of course, is somewhat speculative.

At any rate, the remarkable initial gain in all the cases on a liberal sugar diet is worth considering briefly. I believe the explanation is somewhat as follows: During the growth period sweets are eagerly sought by almost all children. Violent exertion uses up adrenalin, calls for sugar from stored up glycogen, and the system subsequently craves carbohydrates to replace the used-up glycogen in liver and elsewhere; and calls on the suprarenals for more adrenalin. The muscles call loudest for all this. In this connection recall the well-established endurance and lack of fatigue in recent tests on strict vegetarians.

In cancer we have a riotous growth. Therefore a call for sugar, therefore a hyperglycemia but no diabetes because the extra sugar is pounced upon by the growing cells. Sugar is taken from the other body cells so that they do not get even what they require. Therefore they grow weaker and weaker, our well-known cancer symptom. Now give such an individual enormous amounts of sugar. At first the cancer cells are taken by surprise; they have all they want and more. This excess is greedily used by the sugar-famished body cells and they recuperate to such an extent that they all functionate better; even the hyposecreting ductless gland at fault does better work and the cancer cells actually begin to deteriorate under this influence. But with all this extra food the cancer cells soon begin again to grow and to multiply more than before and the short spurt of improvement is over, unless, as assumed in this first case, the improvement is enough to enable the system to obtain complete mastery over the cancer, a necessarily rare occurrence. But that would explain the rare cases of spontaneous cure.

Therefore at present I would be inclined to give the sugar for a short time in order to take advantage of this first gain, but I would also administer in some way an extract of the hyposecreting ductless gland.

Case 2. Dr. Hastings' patient. Cancer of stomach—inoperable.

Declined treatment after a short trial.

Case 3. Dr. Hastings' patient. Male. Cancer of stomach—inoperable.

In first month gained two pounds, had no pain and growth palpably smaller. Then initial gain was lost and the patient followed the usual course and died except that there was a noticeable absence of pain and the growth certainly seemed smaller.

Case 4. April 12, 1913. Mr. P. Age 73. Cancer of skin over sacrum on site of old bed sore contracted in hospital in Civil War times after severe wounds. Growth has been present over two years, gradually growing. At present the whole ulcerated sore measures about 7½ cm. in greatest diameter. This sore is fringed except at top by cauliflower masses. Size of largest mass 2½ x 3 cm. Microscopical examination by Dr. Casey showed typical epithelioma.

Patient also latterly has had diarrhoea and very imperfect rectal control. The assumption was that he had beginning metastasis in the gut.

I have photographs of this case. Also the slides showing microscopical structure.

Treatment begun as usual with addition of sugar as a dressing locally.

May 16. Largest diameter 7 cm. Largest mass 2 x 3 cm. Whole area looks better and masses in general are certainly smaller. But there appear to be new masses coming in the centre of the ulcerated area and the whole sore seems deeper.

Aug. 20. Largest diameter 7 cm. Largest mass 2 x 2½ cm. But central mass persisting and patient is plainly losing weight and strength. He looks badly. Began with pituitrin internally.

Sept. 29. Entire area of ulcer same size but much healthier looking and healing begun at edges.

All the cancerous tissues have shrunken remarkably and the sore is shallow instead of deep. The masses are discrete instead of crowded together with deep sulci between. The largest mass is ½ x barely 2 cm. and not nearly so thick. The whole appearance is changed. One would say that the cancer is disappearing. And yet the man looks badly as he is thin and weak.

At this time (Oct. 1) he was advised to stop taking sugar internally and to eat fats and proteids largely. He was given also strychnine.

On Oct. 5th strychnine stopped and parathyroid begun with the idea of stopping muscle waste.

Oct. 14th. Stronger, eating better.

Since October 14th this patient with short periods of improvement in general health steadily failed in spite of the remarkable disappearance of the cancer. He ate and slept well and was free from pain. On November 27th he died. His only symptoms during the last two or three months of life were polyuria, loss of weight, and especially progressive asthenia of body and mind. The muscular weakness was most marked in the legs. All of which is suggestive in this case of hypopituitarism. We should perhaps have given very large doses of the gland.

Autopsy by Dr. Casey (friends allowed the head only to be examined). Cavity of Sella very narrow fore and aft (.5cm.). Narrowing caused by great increase in bone forming posterior part of Sella. Pituitary body .5cm. x .75cm. about one half normal size. (Biedl.) Microscopical examination (Dr. Casey). (Zenker's fluid—Eosine and Haematoxylin Stain.)

Pars anterior—Eosinophile cells scanty—nuclei ill defined. Cyanophile cells—none observed. The bulk of the cells seem to be of the chromophobe variety. No colloid.

The posterior portion conforms well enough to the histological descriptions except that connective tissue seems largely to have taken the place of the neuroglia.

Inasmuch as histologists differ as to what is normal and our own experience is very limited in this matter we cannot venture any conclusions from the microscopical examination except that absence of colloid and of all but chromophobe cells together with the small size of the gland seem enough to assure us that there was indeed a hypopituitarism.

Case 5. Dr. Nugent's case. Woman. Aged about 60. Cancer of the oesophagus, with microscopical proof.

Treatment begun about April 16. This patient also was relieved of pain in swallowing and the growth seemed smaller. But she, too, after this initial improvement grew worse and died in the summer of a metastasis in the lung.

Case 6. Dr. Roseboom's case. May, 1913. Male, 64. Cancer of tongue. Two years' duration.

Treatment begun as usual and the same prompt initial effects observed. Patient said masses seemed flattened out and he had no more pain. But in August when I saw him the regular retrogression had begun.

For reasons given in the body of this discussion we gave him first adrenalin which promptly produced its characteristic sugar effects; then adrenalin and thyroid. No improvement at all. In fact the pain was returning and he complained of feeling weak. Then he was given parathyroid and advised to stop the sugar. This was Oct. 1st.

Oct. 15. He has gained in weight 1½ lbs. in 1 week and feels stronger.

Case 7. Dr. Jameson's case. Inoperable cancer of pylorus, gall passages and head of pancreas. Exploratory incision and later gastroenterostomy to relieve the obstruction. Patient's family told there was no hope of saving life. As often after such an operation there was improvement and the patient asked if she might eat candy. Dr. Jameson who knew of my first case, urged her to eat all she liked and other sweets too. Now, some six months later, she seems well and no mass can be felt. Of course the mass may have been largely inflammatory and no microscopical examination was made. But in the opinions of the very competent surgeons who saw the mass at the two different operations, there is no doubt at all.

Case 8. Cancer of the breast. Dr. Mulligan's case.

Small nodule removed November, 1912, as precaution against possible cancer. Examination proved it to be actually already a cancer. In April recurrence with involvement of axillary glands. An extensive operation was then done and the patient subsequently given large amounts of sugar. There has never been an alimentary glycosuria produced, the patient has gained fifteen pounds, and there is as yet no sign of return.

These last two cases would seem to indicate that our experience in the first case cannot be so rare after all. The time is too short, however, to draw any certain conclusions.

(To be continued.)

Hospital Concerts for February.—The concerts of the Boston Hospital Music Fund for February have been announced as follows:—

Feb. 1—Boston City Hospital (second visit).
Feb. 8—Home for Aged Colored Women.
Feb. 13—State Asylum, Bridgewater.
Feb. 15—Collis P. Huntington Hospital.
Feb. 22—Children's Hospital.

Medical Progress.

FOURTH REPORT OF PROGRESS IN ORTHOPEDIC SURGERY.

BY ROBERT B. OSGOOD, M.D., F.A.C.S; ROBERT SOUTTER, M.D., F.A.C.S.; HERMANN BUCHOLZ, M.D., HARRY C. LOW, M.D., BOSTON.

(Concluded from page 135.)

CONGENITAL DISLOCATION OF THE HIP.

Hayashi and Matsucka[30], [31] have studied the relation of heredity to congenital dislocation of the hip, reviewing the literature from the time of Paré. Among the authors' 230 cases, 14 they considered hereditary and 4 familiary. They have also noted the association of other congenital deformities with congenital dislocation of the hip. Twenty-five of their 230 cases showed other deformities and they have collected 140 cases showing other congenital defects from an extensive review of the literature. Contractures of the legs in hyperextension and outward rotation of the hips are the most common deformities, and club foot, genu recurvatum, spina bifida, and wry neck follow in the order given.

Galeazzi[32] believes that antetorsion of the upper end of the femur is the chief factor in the deformity of congenital dislocation. The method of reduction which he follows is based on this belief. He first inwardly rotates in proportion to the amount of antetorsion. He next slightly flexes and abducts, applies slight traction, and exerts pressure on the greater trochanter. The method is useless, (1) in cases with marked relaxation of the capsule and ligaments, (2) in cases with rudimentary development of the acetabulum, or (3) in cases when after the rotation the distance between the femur and the acetabulum remains unchanged. His first plaster is applied in inward rotation with slight flexion and abduction. In from 12-15 days a control x-ray is taken and a second cast applied to remain on 60-70 days. At the end of this time a third cast is applied with less abduction and flexion. He reports 30 cases successfully treated by this method.

Lorenz[33] thinks that many cases showing a moderate amount of antetorsion do not need special consideration because the chances of spontaneous correction of the deformity are fair. He admits, however, that in marked antetorsion something must be done to secure good final function. To overcome the difficulty he reduces the hip and stretches it sufficiently so that it slips in and out easily. He then performs a supracondylar osteoclasis and outwardly rotates the lower fragment as much as is necessary. The hip is now finally reduced and plaster applied. In certain cases in which the reduction has proved too difficult to be safe after the os-

teoclasis he corrects the position and three months later, after the fracture is firm, he makes a final forcible reduction.

Ludloff[34] still maintains that in many cases the bloodless reduction does not avail, and in these cases he makes the reduction by open operation. He uses an anterior incision about five inches long, starting from Poupart's ligament and continued down along the outer border of the adductor longus. He believes that this incision offers the best opportunity for clearing out the interposed capsule and deepening and moulding the anterior wall of the acetabulum. He cautions against "boring out" the acetabulum, which leads to ankylosis.

Bibergeil[35] has studied the late sequelae after the reduction of congenital dislocations of the hip. He finds that frequently quite marked changes resembling arthritis deformans and coxa vara and valga occur. In many of these cases the function of the joint is remarkably good, indeed much better than x-ray appearances would suggest. Bibergeil believes the which takes place at the time of reduction, and urges that trauma be avoided wherever possible on account of these late important changes.

CLUB FOOT.

Eikenbary[36] calls attention to the imperfect nature of the term "equino varus" as descriptive of club foot. His point is well made when he says that adduction of the foot at the midtarsal joint is a most important and least often corrected part of the deformity. He leaves the equinus for last correction, and statistically proves the practical safety of tenotomy as far as danger of non-union is concerned.

(Ed. Note.—We admit that non-union is a practically negligible danger under proper technic, but too free and careless section often results in the formation of much scar tissue and a loss of contour and a clear outline of the tendo Achilles. Possible subsequent tenotomies or tendon lengthening are made much more difficult, and we have lately employed in all marked cases either a careful open tendon lengthening with closure of the sheath, or the subcutaneous zigzag method of Bayer, believing these to be better procedures in cases which have extreme degrees of equinus persisting after the varus and the adduction of the fore part of the foot has been corrected.

Hoke[37] in nearly all cases does an osteotomy of the metatarsals at their bases or midtarsal ends. There is no disturbance of growth, and after thorough manipulation of the tarsus, this procedure often obviates the necessity for the removal of large bone wedges from the tarsus. The removal of these wedges may interfere seriously with the future growth of the foot.

RICKETS, OSTEOMALACIA, COXA VARA, ETC.

Discussion as to the etiology of rickets still continues, and while those who hold it to be some disturbance of metabolism connected with nutrition seem to be in the majority, the infection theory is apparently winning strong partisans. Thus Ribbert[38] maintains that disturbances of lime salt metabolism play no rôle in the etiology, despite the clinical experiences of the association of faulty nutrition and metabolic disturbances. Experimentally he believes rickets may be produced by bacterial infection and by excision of the thymus gland. The findings of necroses of the cartilagenous cells in the region of endochondral ossification suggest an infection also.

Kassowitz[39] considers that the increased formation of blood vessels and medullary spaces is also an evidence of some infection, and mentions the fact of its frequent appearance in children of apparent normal digestion and sometimes even in infants well fed by the breast.

Dibbelt,[40] on the other hand, is unwilling to admit the infectious theory of Ribbert and Kassowitz, maintaining that the changes in the secretion and excretion of lime salts which can be observed in the acute stage, can only be explained on the theory of a disturbance in lime salt metabolism.

Osteomalacia. Stocker[41] reviews his experimental research based on the assumption that osteomalacia is the result of excessive or perverted function of the ovaries and testicles. He has implanted into the preperitoneal tissue of rabbits, calves, and dogs, ovaries and testicles of other animals of the same species, thus inducing an extra supply of the internal secretion. In rabbits the results were negative, but he points out that osteomalacia has never been recorded in rabbits. In calves and dogs signs of softening of the bones were seen within five months. There seemed to be no doubt that the implants continued to secrete and that the excess of hormones from the sexual glands influenced the metabolism. The softening resembled in all respects that seen in rickets and osteomalacia. In these diseases we have no means of checking the hypersecretion of these glands except by their removal, but Stocker suggests that these deleterious oversecretions may be checked by supplying a larger amount of the antagonistic hormones to restore the balance between the internal secretions. This has been realized by Bossi[42] with epinephrin in osteomalacia. Bab[43] has reported great success with hypophysis extract, and Stocker himself has obtained notable improvement with thyroid treatment.

At the German Orthopedic Congress Schulz, in discussing the causes of coxa vara of adolescents expressed the belief that it was due to a hypoplasia of the genital glands and a consequent disturbance of the secretion, an opinion concurred in by Foersth.

Albrecht, in discussing a paper of Fritz Wassermann, outlined the known effect of the internal secretions on the growth of bone as follows: Hyperplasia of the hypophysis causes excessive growth. Partial excision of its ante-

rior lobe causes marked disturbance of growth. Castration in early childhood causes persistence of the epiphyseal lines. Excision of the thyroid and of the suprarenals disturbs the longitudinal growth of the bones.

SCOLIOSIS.

Doerr,[44] making exact measurements of 220 cases of scoliosis in Prof. Lange's clinic in Munich, found that in about 7% of the cases there existed a static defect. His statistics are similar to those of Schultbess, who considered that about 5% could be attributed to some static error. Doerr calls attention to the importance of examination of the whole static unit, *i.e.* leg and pelvis, especially in those cases with a lumbar curve.

Nageotte and Wilbouchewitch,[45] as a result of radiographic study, believe that a scoliosis arising from malformation of the fifth lumbar vertebra can be corrected by raising the sole of the appropriate foot. The early recognition of the abnormality is, of course, important. They say that the young and malleable vertebra yields to the action of the weight of the body when the foot is thus raised and that gradually the symmetry of the fifth vertebra is restored, or a compensating malformation in the fourth is developed.

(Ed. Note.—While we do not wish to belittle the importance of static error as a cause of scoliosis, it is surely interesting to note in how small a percentage of scoliosis there is any static error to be detected by exact measurement, as the statistics of Doerr and Schulthess show. It is conversely true that frequently extreme degrees of faulty statics exist for many years without causing any structural change in the vertebral column. Cases of early hip disease and short legs from various lesions, show as a class surprisingly little tendency to the development of a scoliosis. It would seem as if there must be in many of the types some cause other than faulty statics or numerical variation or vertebral abnormality. Nathan[46] offered the suggestion several years ago that we might well suppose some underlying general osseus change of structure which produced a marked predisposition to change of shape when even slight and under other conditions unimportant static defects existed. We are inclined to believe that only on this somewhat vague supposition can many of the complex phenomena of scoliosis be explained.)

Spitzy[47] considers the utilization of the forces of respiration, advocated in America by Hoke and Andrews[48] in 1907, to be a most important factor in the treatment of scoliosis, and reports 14 cases in which he has used the method of Abbott with great success.

Lovett,[49] in a review of the treatment of lateral curvature of the spine read at the Seventeenth International Medical Congress, said that in his opinion the method of Abbott "offered on the whole distinct anatomical advantages and the greatest ease of correction, but the method must be regarded as being to a certain extent still sub judice."

Forbes[50] in Montreal and Adams[51] in Boston report satisfactory results by the use of Forbes' method of rotation in a flexed position.

MUSCLES AND TENDONS.

Coley,[52] in an article entitled "Myositis Ossificans Traumatica," calls attention to the importance of differentiating between this form of bony growth and sarcoma, especially of the periosteal type. From periostitis and osteomyelitis it may usually be distinguished by the absence of fever, local tenderness, and night pain, but with the x-ray alone the difficulty of differentiating a myositis ossificans traumatica from a sarcoma would be great. In Coley's cases the x-rays were repeatedly diagnosed as the more serious condition. The sharp outline dividing the tumor from the bone is an important characteristic, and this is only seen in the earlier cases of sarcoma, and then somewhat indistinctly. The history of definite trauma is almost always to be obtained in the cases of myositis ossificans. The growth is uniformly hard on palpation, while in sarcoma it is softer or has irregular consistency with softer areas. Moderate pain and loss of function are more often noted in this condition than in sarcoma. Microscopic examination should be made whenever possible and at times is the only sure method of differential diagnosis.

Ryan[53] reports 4 cases of what he considers muscle degeneration and osteoma developing either after trauma or as the result of an infection. Three of his cases may possibly represent injuries to the periosteum and subsequent bony proliferation. The fourth suggests the myositis ossificans traumatica such as Coley has described.

Tendon Regeneration. Henderson's[54] experiments with tendon regeneration on five dogs seem to bear out the conclusions of Sever[55] and others, that the sheath is of great importance to perfect tendon regeneration. The experiment in which one and one-half inches of the tendo Achilles was resected, but the sheath preserved, showed as perfect and as quick regeneration as the last three cases in which the same procedure was followed but the defect bridged by two linen threads. In fact, Henderson thought that the threads seemed to retard rather than hasten union.

BONE TUMORS.

Bone Cysts. Canaguier[56] reviews the literature of bone cysts and concludes from a histological point of view that the great difference in the tissue findings in different cases suggests a different origin in many cases. Along with von Haberer, he considers that all simple bone cysts should not be grouped in one single class, and he believes that they originate from one of

three causes: 1. Cysts forming in the centre of a solid bone tumor (most frequently sarcoma). 2. Cysts due to osteitis fibrosa. 3. Cysts resulting from chronic inflammatory processes. 4. Cysts originating as bony hematoma following trauma.

Lejas[57] has encountered five cases of pathologic bone growth in front of the hip joint. They deceptively simulated sarcomas, but examination showed nothing malignant about the growths. They all had a history of trauma from two to four years previously. After a period of insidious development the tumor suddenly increased in size and caused pain in the use of the limb. In all his cases the growth was removed by chisel and mallet and as completely as possible.

Brackett[58] has cut down upon one such case which had been mistaken for tuberculosis of the hip by able orthopedic surgeons. The removal of the growth, in this case small and only suggested in the radiograph, has resulted in the relief of pain and muscle spasm and the return of function.

Kolb[59] believes that all sarcoma-like tumors of the bones, especially those of the skull, should suggest the possibility of metastases of thyroid tissue. He reports the case of a woman of 75 years who had had a goiter removed seven years previously. A tumor of three months duration was removed from the skull and showed the structure of the thyroid gland. Several smaller tumors were found in the lungs. Of 59 cases collected by Regensburger, 25 were in the skull. The tumor grows very slowly, 13 of the patients living 1-2 years; 7 lived 2-4 years; 7 lived from 5-17 years. The thyroid is not always, but is generally enlarged. The spine, next to the skull, and the long bones, next to the spine, are the favorite seats of these tumors.

Ward[60] reports three cases of bone metastases in cancer in which the blood examination showed an increase of the irregular forms of red blood corpuscles, and in a case of cancer of the stomach reported by Harrington and Kennedy[16] in which there were bone metastases in the sternum, rib, and femur, the blood resembled that of a pernicious anemia. They believe that in any case of grave anaemia in which pains in the bones occur the suspicion of metastases should always be aroused.

FRACTURES.

Grässner[62] calls attention to the frequently unrecognized fractures of the centres of ossification. He believes they are by no means as rare as supposed, and reports cases which he has seen occurring in the metatarsus, phalanges, external and internal malleoli, the lower epiphysis of the femur, humerus and radius, as well as the head of the humerus. The cause has always been direct trauma. The importance of diagnosis by means of the Roentgen ray and the abstinence from weight bearing is evident. The end results when proper precautions are taken are excellent.

Wallace[63], in describing fracture of the wrist due to automobile cranking, points out that besides the typical chauffeur's fracture of a direct transverse break of the lower end of the radius, one meets fractures of the scaphoid generally through the middle or inner half and frequently associated with this a dislocation of the semilunar. He states that these injuries may be brought about in one of three ways: 1, by direct violence; 2. by violence plus abduction; 3. by compression between the crank and the radius. Most of the carpal injuries may be replaced but failing of this, the fragment of the scaphoid of the displaced semilunar should be removed.

Turner Thomas[64] has applied a new method of treatment to old unreduced dislocations of the shoulder. This method is a modification of the method of Allis, and consists of traction on the humerus at right angles to the body, fixation of the scapula, and downward pull on the head of the bone. He places one foot on the scapula and the top of the shoulder and the other on the side of the thorax below the axilla. The surgeon pulls upon the adducted arm flexed at the elbow while an assistant pulls downward on the head, manipulating it into place. The advantages of his method over others are (1) that the danger of injury to the vessels and nerves of the axilla by the heel is avoided; (2) the head is brought back into place by a reversion of the course it has followed in the dislocation; (3) there is less danger of fracture of the humerus than in the reduction by external rotation. By this abduction method the force driving the head into the socket is directly applied and there is no long leverage. The Bigelow and the Kocher methods are not available in cases complicated by fracture, while in these cases this traction abduction method may safely be adopted. Thomas, after a study of the cadaver, is firmly convinced that the head cannot escape from the socket through the linear tear of the capsule that Kocher describes. A further tear at right angles he believes necessary. The torn capsule is closely bound about the neck and the chief obstacle to reduction is the cicatricial tissue formed along the torn edges of the capsule and the contractions of the capsule, especially of the posterior portion. He agrees with Lund[65] that after six weeks, changes have taken place that render manipulative reduction improbable.

Gibson[66], reporting a successful open reduction by a posterior incision of an old dislocated hip in a patient 49 years old, is convinced that here too, the likelihood of safe reduction in adults after eight weeks is little. In his case neither reduction under ether nor traction in bed with weight and pulley were successful, and at operation the acetabulum was found obliterated by the torn capsule.

An unusual dislocation of the left os innominatum has been reported by Fiaschi[67]. A ten year old boy was struck on the crest of the left ilium a glancing blow by a falling iron fence. There was a protrusion over the left

sacro iliac joint. The x-ray showed the whole left side of the pelvis higher than the right, the pubic bone being elevated on that side one inch. There had been apparently a nearly complete dislocation of the left os innominatum by the blow and later an upward displacement owing to the pull of the adbominal and back muscles. Under ether this displacement was at least partially reduced and a fairly good functional recovery was made.

(Ed. Note. We have observed one case and seen Roentgen plates of two others in which a complete or partial dislocation of the ilium at the sacro iliac joint had taken place, the displacement being upward as in this case. In these cases direct violence was the cause and there were complicating pelvic fractures as well.)

Schultze[68] believes that in fractures of the patella it is most important to reconstruct the apparatus of extension. He is extremely careful by means of three double hooks to obtain by suture a most complete coaptation of the edges of the torn capsule. He gets his patients out of bed in 12 days and begins light medico mechanical treatment. Sutures of the bony fragments are usually rendered unnecessary when the capsule is accurately repaired and sutures of the bone fragments alone he considers insufficient for the return of perfect function.

Foraze and Salle[69] have studied fractures of the astragalus and analyzed the commonest forms of break. They advise fixation in plaster for a month and freedom from weight bearing for two months. Where displacement is slight, prognosis is good, but they call attention to the frequency with which obstinate arthritic conditions persist after union is firm. To overcome these common and incapacitating symptoms Stockum[70] has been performing an arthrodesis of the calcaneo astragaloid joint in old painful fractures of the astragalus or os calcis. It is at this joint that most of the painful motion occurs and destroying all this motion has been successful in his hands in relieving symptoms.

MISCELLANEOUS.

Isamoylenko[71] has made a histological investigation of the function of the endosteum in 22 human cases, varying in age from embryonic life to over 80 years. He concludes that the endosteum is a connective tissue, having the same functions as the periosteum, namely bone formation and bone absorption. The endosteum is entirely different from the bone marrow, forming a connective tissue framework for this structure. The marrow does not share in bone regeneration and cannot exist independently from the endosteum. On the other hand, the endosteum can live without any connection with the marrow.

Smith[72] has studied skiagraphs of the hands and forearms of 914 naval students in order to determine whether the degree of development of the fourteen epiphyses which these plates show will give any index in these sub adult cases of normality or precociousness or delayed development of the individuals. He concludes that while in children this method of Rotch[73] may be of value, it is in the cases studied unsatisfactory.

Pieri[74] has had successful results in spina bifida by transplanting grafts of fascia from the thigh to close the opening in the canal. The graft is placed between the subcutaneous cellular tissue and the cavity of the spine, and the skin is brought over this.

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Reports of Societies.

TRANSACTIONS OF THE AMERICAN SOCIETY FOR THE PROMOTION OF CLINICAL RESEARCH, WASHINGTON, D. C.

May 5, 1913.

Morning Session. Called to Order by the President, Dr. W. S. Thayer, at 10.00 A.M.

Dr. Thayer said: The functions of this organization are set forth completely in the title. The idea underlying the formation of the Society was to gather together medical men, and particularly young men, in order to stimulate and encourage by our mutual efforts the undertaking and putting forth of original research work. It is thus a society of clinicians who desire to do more than merely practice medicine.

With these objects of the Society in view, the council has acted in making recommendations for election to membership.

We will proceed with the scientific program; but before calling for the papers, I beg leave to exhibit an unusual polygraphic tracing for your discussion, and to make a clinical observation.

The tracing is from a patient, whose history is as follows: For six months he has had attacks of the Adams-Stokes' syndrome. When seen by me he had been in bed for two weeks recovering from a very severe paroxysm, during which the pulse had been as low as 30. When I saw him the pulse was 36, the heart somewhat enlarged, the sounds clear; but between the beats I thought I could hear an additional slight sound.

Analysis of the tracing shows that between each ventricular beat, there is a characteristic auricular impulse, which explained the sound heard between heart beats.

It will be noticed that the C wave has a notch on the katacrotic limb, which evidently is another auricular wave; it would seem, therefore, that in this case we are dealing with 2: 1 rhythm heart block, with a very unusually long interval between the auricular and the ventricular contractions.

The clinical observation I wish to make is in connection with the case of a man seen about two years ago. This man had had polyarthritis, followed by dyspnea on exertion and cyanosis. He had been ill about two months when I saw him; he was cyanotic and the veins of the neck were much distended. It was evident that there was some obstruction of the superior vena cava. Physical examination showed that there was present a large pericardial effusion.

Upon lying down the whole picture changed; the cyanosis disappeared and the distended veins subsided. In the course of a few months, the pericardial effusion cleared up and the symptoms were all much better. Later the patient died, but no autopsy was obtained.

This man had been on his feet and had been going about with an old pericardial effusion. It seems possible that the heavy pericardial sack, in the erect posture, by tugging at the base of the heart may have caused a certain amount of stenosis of the superior cava. There is no other such case recorded in the literature so far as I have searched.

Is orthopnea a symptom of pericardial effusion? I have been struck by its absence, although the dyspnea may be great. In pleural effusions orthopnea is the rule. May not the explanation just advanced correctly explain this difference?

ETIOLOGY OF ACUTE MUSCULAR AND ARTICULAR RHEUMATISM.

Dr. E. C. Rosenow, Chicago.

By planting the joint fluid and other material in acites-dextrose agar it has been possible to isolate organisms of the type described by Poynton and Payne from twelve out of fourteen cases of typical acute articular rheumatism. The organisms are never numerous in the free joint cavity but are present in larger numbers in the lesions of the para-articular structures. In order to obtain positive results it is quite necessary to make the cultures within forty-eight hours of onset of the pain in a given joint or soon after exacerbation. This is true to even a greater degree in case of blood cultures. In two out of four cases the organism was isolated from the blood at the height of the attack.

Culturally and morphologically the organisms resemble more closely streptococcus viridans than hemolytic streptococcus. Nearly all strains fermented mannite and when first isolated produced a very high degree of acidity in dextrose broth and grew better at low temperature than the other members of the streptococcus group.

Their virulence to warm-blooded animals is greater than streptococcus viridans but less than the common hemolytic streptococcus and of course pneumococcus. The virulence to cold-blooded animals on the other hand (frogs at 22° C.) is greater than hemolytic streptococci and highly virulent pneumococci. But when frogs are placed at 37° C. the relative virulence of these strains is again the same as to warm-blooded animals. These facts may explain why exposure to cold aggravates so strikingly the symptoms in rheumatism. While the cultural and other features of these organisms resemble closely streptococcus viridans and hemolytic streptococcus they behave quite differently when injected intravenously in animals. Multiple non-suppurative arthritis and endocarditis of the rheumatic type, pericarditis and myocarditis have been produced repeatedly in the same animal. The lesions about the joints occur in relatively avascular regions. The number of organisms here just as in the human is greater than in the joint cavity. The endocarditis due to these organisms, just as I have shown to be the case in streptococcus viridans endocarditis, has been proven to be embolic in origin. But the vegetations remain small and often do not break through the endocardium. This is in marked contrast to the type of lesion produced by streptococcus viridans where the vegetations become large and ulcerated. This difference is shown beautifully by the specimens.

By modifications of these organisms and by two strains obtained from cases in which muscular involvement was present it has been possible to produce in rabbits, dogs and in one monkey extensive non-suppurative myositis. The distribution of these lesions is quite like that in human muscular rheumatism. The lesions are most numerous in the flat

muscles about the neck, shoulders and spine, the intercostal and belly muscles; less often the diaphragm and the more tendinous portions of the muscles of the extremities. When the affinity for the skeletal muscles is great the myocardium shows especially marked degeneration and there is now usually also nephritis but the affinity for endocardium and joints is distinctly less than before.

DISCUSSION.

DR. R. I. COLE, New York: Is there any specific biological test for infection with this organism?

DR. R. PEMBERTON, Philadelphia: Has Dr. Rosenow extended his observations so as to study chronic effusions in joints? I have in mind cases of the rheumatoid arthritis group.

DR. W. T. LONGCOPE, New York: What happens when the virulence of this particular strain of cocci is increased? Do you ever then find that the more acute vegetative changes occur in the heart?

DR. E. C. ROSENOW, Chicago: I have found no special biologic test for this organism. The property of producing the typical rheumatic lesions is present for only a short time after cultivation of micrococcus rheumaticus. To test this out, a culture was taken from the tonsil early in an attack of acute rheumatism: the organism was identical with the organism obtained from rheumatic joints, and produced the same lesions on inoculation. Later cultures, taken after the lapse of four days and eight days respectively, no longer produced joint lesions, but did cause endocarditis. After a month in a hypotonic solution (distilled water), the organism grew differently and produced in animals myositis and myocarditis. Whenever the tendency is to invade muscles, the organism also tends to cause myocardial degeneration.

As to the chronic lesions of joints, as in rheumatoid arthritis, I feel sure that this organism is not to be found in such joints; one is more apt to find the streptococcus viridans.

When the virulence of the micrococcus is enhanced, joints are no longer involved, but endocardial change is the rule.

I have been able to convert the micrococcus rheumaticus into streptococcus pyogenes, into pneumococcus, and into other strains.

A CONSIDERATION OF SOME OF THE PROBLEMS RELATING TO THE ORIGIN AND TRANSMISSION OF THE INFECTION IN EPIDEMIC STREPTOCOCCUS SORE THROAT.

DR. J. A. CAPPS, Chicago.

In some epidemics of septic sore throat the infection can be easily traced to one milk supply; in others the clinical data require painstaking study. An epidemic in Batavia was graphically described to illustrate how several dairies can share in the spread of infection by means of interchanging bottles with the primary offender.

Another small epidemic was unearthed in Oak Park by tracing the milk from a herd of diseased cows to the consumers. Small outbreaks due to milk are probably very common in the smaller cities and should be recognized.

The evidence obtained on the farms points strongly to streptococcus mastitis as the principal source of contamination.

EXPERIMENTAL BOVINE MASTITIS PRODUCED BY HUMAN THROAT STREPTOCOCCI.

DR. DAVID J. DAVIS, Chicago.

The source of the Chicago milk epidemic of 1911-12 was traced by Capps and Miller (*Journal American Medical Association*, 1912, v. 58, p. 1848) to certain farms in the region of Batavia, Ill., where the milk supply of the suspicious dairy was obtained. On a number of farms sore throat in the milkers and mastitis in the cows were associated. In some instances the mastitis preceded the sore throats in the milkers and in other instances the sore throat preceded the mastitis in the cows. It was necessary, therefore, to consider the possibility that the mastitis was caused through the infection of the teats and udders of the cows by the milkers. This consideration also involved the question of the susceptibility of the cow to human streptococci. In attempting to throw some light on these problems the following experiments were made.

From the tonsils of a patient suffering with a typical and moderately severe acute tonsillitis an ordinary hemolytic streptococcus was obtained in pure culture. This organism was first smeared on the surface and over the ends of the teats of a healthy cow. Also some of the exudate direct from the throat was applied in a similar manner. The results were negative. Two other strains of human streptococci were applied in the same way without result.

Next a slight abrasion of the skin was made near the meatus at the end of one of the teats and the throat streptococcus was applied as before. Local infection resulted in twenty-four hours. After several days the infection extended into the udder as manifested by the presence of streptococci and other germs and an increase of pus cells in the milk from this quarter. There was no caking of the udder and little or no swelling of the quarter. The streptococci continued to be discharged in the milk for over two weeks.

Into another quarter a culture of the throat streptococcus in milk was injected through a small catheter inserted about 8 cm. into the udder. On the following day the milk was stringy and contained enormous numbers of pus cells and streptococci in pure culture. No caking of the udder resulted but moderate swelling with some tenderness was present for a few days. The inflammation gradually subsided but streptococci continued to be discharged in the milk for about four weeks.

During this time no alteration of the properties or the pathogenicity of the streptococcus was noted.

Feeding young rabbits and a monkey with the infected milk caused no symptoms in the animals.

The following conclusions may be drawn:

1. Hemolytic streptococci from the human throat may cause mastitis in cows.

2. The streptococci and the increase in pus cells may persist in the milk for several weeks, a point which may be brought into relation with the duration of milk epidemics of septic sore throat.

3. An abrasion of the teat may be the atrium of infection. It would appear to be possible, therefore, for mastitis in cows to be produced by an infection from the milker whose hands were contaminated, perhaps, from a sore throat.

4. Caked udder or ropy milk may or may not be present. Hence, an ordinary physical examina-

tion of a cow might not be sufficient to detect a streptococcus mastitis. Bacteriological examination of the milk carefully obtained from each cow or better from each quarter of the udder might be necessary to detect the source of infection.

DISCUSSION.

Dr. Jos. L. Miller, Chicago: Have any of the members seen epidemics of this sore throat during the past winter? I have seen two cases in people who had recently come from Florida.

Dr. Henry A. Christian, Boston: May we infer from these investigations that we are safer if we get our milk in cans along with the other bacteria?

Dr. W. S. Thayer, Baltimore: In Baltimore last winter a brief epidemic occurred during a time when the pasteurizing plant was temporarily out of order. The brevity of the epidemic may be understood when I say that I went out of the city for two weeks' stay; there was then an epidemic, and when I returned the epidemic was over.

Discussion closed.

Dr. J. A. Capps, Chicago: With regard to the multiplication of bacteria, Theobald Smith says that improper pasteurization may act only as incubation, and thus it may be more a menace than a protection. Dr. Christian's question, I would not attempt an answer; the only inference I would draw would be that the consumers served by the dairy with bad milk profited by the fact that they happened to have a bottle service. It is only safe to conclude that the distribution of milk in bottles, pasteurized in the bottles by the holding process, is the best method of protection thus far devised.

Dr. D. J. Davis, Chicago: I do not think the inference embodied in Dr. Christian's question necessarily follows from the results of our investigations. It is a fact, however, that streptococci in milk do not multiply as rapidly as do other bacteria, and that they will in the presence of saprophytic organisms eventually disappear.

ABSTRACT.

THE METABOLISM AFTER MEAT-FEEDING OF DOGS IN WHICH PANCREATIC EXTERNAL SECRETION WAS ABSENT.

Dr. Francis F. Benedict and Dr. Joseph H. Pratt, Boston.

Ingestion of various kinds of foodstuffs produces an increase in the total metabolism of both animal and man. Zuntz assumes that this increase is mainly due to the mechanical work of digestion. Rubner, on the other hand, holds that it results from the specific dynamic action of the absorbed foodstuffs. The present study deals with the metabolic changes following the ingestion of meat upon three dogs without external pancreatic secretion in which the absorption of nitrogen and fat was greatly diminished. In these animals the work of the intestines following the ingestion of food was greater than normal, hence, if Zuntz's theory was correct greater increase in the metabolism than that present in a normal dog would be expected. As the absorption of nitrogenous material from the intestine was greatly decreased, there should be according to Rubner's view, less increase of metabolism than seen in the healthy animal.

The carbon dioxide produced was determined by means of a modified form of the Benedict and Homans' respiration apparatus. Kymographic records of muscular activity were kept and all experiments were rejected except those in which the animal was very quiet. Control experiments were made with a normal dog. All four animals were of nearly the same size and weight.

The increment in the carbon dioxide production was found to be larger in the normal dog than in the three dogs with pancreatic achylia. This was particularly true when 750 grams of meat were fed, but also apparent when only 500 grams of meat were given.

The results of these experiments show that there is no large energy transformation incidental to segmentation, peristalsis, glandular activity, and the movement of the unabsorbed food through the intestinal tract. The attempt to explain the increased metabolism following the ingestion of food by the theory that the increase is a consequence of such movements is, therefore, not justifiable.

DISCUSSION.

Dr. Fritz B. Talbot, Boston: There is one important source of error in such work. Benedict and I in estimating the metabolism of normal babies found that the results depend to a great degree on the amount of muscular activity of the individuals under investigation, and we met with great difficulty in attempting to compare this factor.

Dr. S. J. Meltzer, New York: May not another source of error arise from the fact that when the pancreatic external secretion is eliminated some of the glandular activity is also eliminated? Some of these glands need to be activated by the influence of the pancreatic juice.

Discussion closed.

Dr. J. H. Pratt, Boston: I recognize the importance of Dr. Talbot's remarks. Benedict first called attention to the necessity of controlling muscular activity, and no practical suggestion has been of greater value than this in conducting the experiments at the Carnegie Institute.

I cannot answer the question proposed by Dr. Meltzer, because the same important and unsolved problem is involved as is encountered in all such work. The same criticism has been made before by Dr. Meltzer, especially in the case of one of my experimental dogs with imperfect gastric function; but in the experiments here reported the stomach secretions seemed normal so far as my examinations could determine.

(To be continued.)

Book Reviews.

Annual Registration Report of Michigan. By Frederick C. Martindale. Lansing: State Printers. 1913.

This belated forty-fifth annual report of the secretary of state on the registration of births and deaths, marriages and divorces in Michigan for the year 1911, presents the vital statistics of the state for that year. The greater part of the volume consists of the primary tables in which these data are compiled; the remainder of secondary tables and text, in which they are analyzed. The volume is of value to statisticians and students of public health.

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REPORT OF THE COMMITTEE OF THE SOCIETY OF MEDICAL JURISPRUDENCE ON THE LAW OF INSANITY.

IN January, 1912, a committee composed of prominent physicians and members of the bar was appointed in the New York Society of Medical Jurisprudence to consider the desirability of changing the legal measure of responsibility of those mentally diseased or defective, so as to accord more thoroughly with the views of students of the causes of mental defects; and the New York State Bar Association, at its annual meeting in the same month, enlarged the powers of its committee on the treatment of the criminal insane in order to coöperate with this and other similar committees for the purpose named. The committee conferred with Prof. E. R. Keedy of the Northwestern University, Chicago, chairman of Committee B of the American Institute of Criminology and Criminal Law, and learned that his committee had pursued to a very considerable extent the same inquiry it was commissioned to make, limited, however, to criminal responsibility. This Committee B had made, in November, 1911, a preliminary report which contains a valuable bibliography on criminal responsibility of the insane, expert testimony, and miscellaneous matters connected with mental responsibility. The committee then announced its intention to make a thorough investigation into the subject from the standpoint of criminal law; it also suggested, for discussion, a proposed statute changing the present measure of responsibility for crime of those who are mentally deficient.

At a recent meeting of the society the committee, the medical members of which were the president of the society, Dr. Wilcox and Dr. F. W. Robertson, presented its report. This states that there is apparently a well-defined opposition in the entire medical profession to the present legal definition of that kind and degree of insanity which should be a defense for crime. This definition, which was first formulated in England in the McNaghten case, in 1843, and is now crystallized in the New York penal law, declares that: "An act done by a person who is an idiot, imbecile, lunatic or insane is not a crime. A person cannot be tried, sentenced to any punishment, or punished for a crime while he is in a state of idiocy, imbecility, lunacy or insanity, so as to be incapable of understanding the proceeding or making his defense. A person is not excused from criminal liability as an idiot, imbecile, lunatic, or insane person, except upon proof that, at the time of committing the alleged criminal act, he was laboring under such a defect of reason as (1) not to know the nature and quality of the act he was doing, or (2) not to know that the act was wrong." Not only is this definition disapproved as wholly unsatisfactory by most of those professionally engaged in the study and treatment of the insane, but it has now been disproved and rejected as an inadequate definition in some of the courts of this country, while even in England, where the definition was invented by a body of judges presumably unacquainted with the nature of mental disorders, there is a tendency to disregard it in the trial courts. The committee is of the opinion that this definition should be discarded, and that no legal definition is necessary in the present state of our knowledge of mental disorders. The present legal standard holds persons responsible who, in the opinion of the committee, are not capable of avoiding the act committed by them, although they may appreciate its moral and legal qualities. The acts of an individual are largely the results of his mental reactions, and these may be abnormal to such an extent as to make him morally irresponsible for his conduct, in instances where his irresponsibility in fact would be no defense for his acts under the present law. The guide of responsibility, it believes, should be the judgment of the jury, as instructed by the medical witnesses in the case. It is not likely that a jury would convict a person who could

escape under the present legal definition, while a jury might properly acquit, on the ground of insanity, a person whom they should regard as irresponsible for his acts, though not measuring up to the legal definition. The committee, therefore, recommends that the latter portion of Section 1120 of the New York Penal Law should be repealed. This would leave the provisions of the law in respect to mental incapacity as follows:—

"An act done by a person who is an idiot, imbecile, lunatic or insane is not a crime. A person cannot be tried, sentenced to any punishment, or punished for a crime while he is in a state of idiocy, imbecility, lunacy or insanity, so as to be incapable of understanding the proceeding or making his defense"; leaving the jury, under the instructions of the judge and from the evidence in the particular case, to be the judge of what constitutes an idiot, imbecile, lunatic or insane person.

A dissenting minority report was presented by one of the three legal members of the committee, who objected to the repeal recommended, on the ground that it would result in more uncertainty than ever in the prosecution or defense of such alleged criminals, and contended that if the repeal were to be made, some other legal or medical definition ought to be suggested as a guide for jurors and courts in their decisions; for otherwise jurors would be led to speculate too much, and would allow many to go free who are now held accountable. The sentiment expressed at the meeting was entirely in favor of the majority report, which was adopted. In accordance with one of its recommendations, a new committee was instituted to take such steps as may be considered proper to give publicity to the recommendations of the society and secure the ultimate amendment of the penal law accordingly, and the whole matter is to be made the special order of the March meeting of the society.

THE STATUS OF RADIUM AND RADIO-THERAPY.

The subjects of radium and radiotherapy are at present occupying positions of considerable prominence in both scientific and popular medical literature. The physical properties of radium are so remarkable and almost mysterious as to attract widespread interest and curiosity; and the claims made for the possible therapeutic values of radio-active substances are so striking as to demand careful investigation. Unfortunately, like all new modes of treatment, radiotherapy has already been sensationally over-exploited. It is desirable to assess the claims of its merits and determine, if possible, its actual present status in the field of medicine.

In another column of this issue of the Journal we begin the publication of a continued article by Dr. Delano, of this city, aiming to review the history and literature of radium and to state impartially the case for its value as a therapeutic agent.

From its very nature, the subject of radiotherapy lends itself easily to quackery and charlatanism, and the public needs warning against unreliable users of radium and against undue expectations of its efficacy.

The executive committee of the American Society for the Control of Cancer has recently prepared for general distribution the following circular, aiming thereby wisely to warn the public against exaggerated claims for the value of the radium treatment of malignant disease, and to prevent the consequent disappointment and suffering in the event of its proving even less salutary than may reasonably be hoped.

"The American Society for the Control of Cancer fears that exaggerated ideas of the power of radium in the treatment of cancer may result from the recent publicity given to this agent in the daily press. It appears highly important at the present time that the limitations of radium in the control of cancer should be emphasized as well as its favorable effects in certain cases. Otherwise the familiar story of new hopes, destined only to disappointment, will again be recorded at the expense of many unfortunate sufferers.

"The curative effects of radium are practically limited today to superficial cancers of the skin, to superficial growths of mucous membrane which are not true cancers, and to some deeper lying tumors of bone, etc., which are not very malignant. The problem of the constitutional treatment of advanced, inoperable cancer is still untouched by any method yet devised or likely to be devised for administering radium. Even among the so-called radium cures, it still remains to be determined in many cases whether the favorable result is permanent or is to be followed sooner or later by the usual recurrence. The most competent surgeons do not dare to pronounce a case cured until five years have elapsed after an apparently succesful operation. The same test must be applied before we can finally determine the real value of radium.

"It should be emphasized especially that radium cannot at present exert any permanent benefit on generalized cancer, and since cancer,

in a very large proportion of cases, is widely disseminated in the body early in the course of the disease, this entire group of cases can expect no important relief from radium. Another large group of cancers is comparatively inaccessible to the application of radium, so that the ultimate course of the disease is not affected, although certain portions of the tumor may be reduced in size. Again, many forms of cancer, although localized and accessible to radium, grow very rapidly and resist the curative action of this agent, so that no real benefit can be expected from its use.

"The best results of radium therapy can be secured only when comparatively large amounts are available for use and the present limited world's supply of this metal places it out of reach of the great majority of patients. It is to be feared that much harm may result from undue reliance upon small quantities of low grade radium when other methods of treatment would be more effective.

"Evidence of the possible extent of popular misconception on this subject is found in a pathetic letter recently received at the New York Health Department from a sufferer in California, who had somehow obtained the impression that the United States Government was about to purchase large quantities of radium from abroad. Assuming that the 'New York City physician' would have a plentiful supply, the writer asked that some be sent to him C. O. D. without delaying to advise him as to the cost.

"Under the term 'cancer' are commonly grouped several diseases which differ widely in nature, causation, and courses, and in their response to radium. It requires both skill and experience to determine just what type of cancer one has to deal with as well as the advisability of using radium. Hence, it is extremely difficult to formulate an accurate statement of the true position of radium therapy, but it is quite clear that the exploitation of this remedy as a cure of cancer in general is to be deprecated."

Considerable attention has also been attracted by alleged commercial attempts to control the supply of radium, in order to maintain or even raise its already almost prohibitive price. To prevent such an occurrence in this country, a proposal has been made by Mr. Lane, United States secretary of the interior, to withdraw from entry all lands of the public domain suspected of containing deposits of carnotite or other radium-bearing ore, in order that these may be secured for the common good and not become the object of private speculation. A bill to this effect has been introduced into the national legislation by Mr. Foster, chairman of the House committee on mines and mining. At hearings held in Washington on this subject, numerous physicians have appeared in behalf of the bill. Such a measure of conservation seems certainly wise, at least until such time as the actual therapeutic value of radium shall have been more accurately appraised.

CONSTITUTIONALITY OF EUGENICS.

THE operation of the so-called "eugenic law" in Wisconsin has already involved legal complications. On Jan. 2 an applicant for a marriage license was refused because he did not have a certificate of examination. He immediately carried the matter before the local circuit court as a test case; and, on Jan. 20, Judge Eschweiler handed down a decision declaring the law unconstitutional.

"The law is praised because of its movement toward suppression of venereal diseases, but is condemned because its enforcement is practically an impossibility.

"The court held that, if the state wishes to exercise its right for preventing undesirables from marriage, it should assume the burden of weeding out the unfit, and thereby not cast upon the fit an unfair demand and thus materially impair an inalienable right.

"The prayer of the plaintiff that the law was class legislation by demanding tests from men only, is refused. The judge said that this was a legislative right. He also overruled the objection to the clause in the law which provides that all examining physicians must be 30 years old or older, because that feature of the law does not affect the rights of the petitioner."

The case has been appealed to the supreme court. Meantime the plaintiff has been granted a license without examination.

MEDICAL NOTES.

A PROLIFIC MOTHER.—Report from Briesen, West Prussia, states that Mrs. Schmidt of that city, has recently given birth to her thirtieth child. She has had several multiple pregnancies.

FOUR LIVING SURREY CENTENARIANS.—Report from London states that there are at present four living centenarians in Surrey,—three being one hundred years old, and the fourth, Mr. John Durant, of Weybridge, having been born on Feb. 2, 1810.

Rates of European Population Increase.—Statistics recently published in London show the relative rates of increase in population of the various countries of Europe in 1911. The six nations having the most rapid growth are Bulgaria, Roumania, Russia, Portugal, Servia and Bosnia. Germany stands eleventh, with an increase of 113 per 10,000 of population. In Scotland the rate was 105, in England 98, Austria 95, Belgium 85, Switzerland 84, Spain 81, Ireland 67, and France 9. The rate of increase in Bulgaria was 188.

BOSTON AND NEW ENGLAND.

Typhoid Fever in Boston.—There is at present an epidemic of 55 cases of typhoid fever in Roxbury and Jamaica Plain. The outbreak has been traced to a milk supply infected by a carrier. This supply has now been excluded from the market, and germal antityphoid inoculation is advised for local residents.

Hospital Bequest.—The will of the late Mary C. Eastman, of Concord, N. H., which was filed in that city on Jan. 15, contains a bequest of $10,000 to the local Margaret Pillsbury Hospital.

Sharon Sanatorium Election.—At the annual meeting of the corporation and directors of the Sharon Sanatorium, held recently in Boston, Dr. Vincent Y. Bowditch was reelected medical director, and Dr. Walter A. Griffin superintendent.

Prescriptions by the Boston Dispensary.—During the year 1913 the pharmacy of the Boston Dispensary filled 76,584 prescriptions, of which 70,556 were for patients coming to the clinics, and 6028 for patients treated in their homes.

Some Boston Death-Rates.—During the first ten months of 1913 the total death-rate of Boston was only 16.1 per 1000 inhabitants, and the death-rate of infants under one year was 112 per 1000 births. In the corresponding period, the tuberculosis death-rate was 14.27 per 10,000 inhabitants. In 1876 this rate was 36.65; in 1881, 42.39; in 1890, 33.27; in 1901, 23.67; in 1907, 18.11; and in 1912, 15.18. In 1912 the tuberculosis death-rate of London was 13.5; Chicago, 14.1; Philadelphia, 16.6; New York, 17.0; Baltimore, 23.6; Vienna, 23.7; St. Petersburg, 28.7; Paris, 33.2; and Moscow, 34.4.

Society of Examining Physicians.—At the annual meeting of the Massachusetts Society of Examining Physicians held recently in Boston, papers were read by Dr. William Duane, Dr. Francis H. Williams, Dr. Frederick J. Cotton, of Boston, and Dr. F. W. Anthony, of Haverhill, Mass. Dr. H. H. Hartung was elected president for the ensuing year, Dr. J. H. Stevens secretary, and Dr. John Phelps treasurer.

The Children's Hospital Alumni Club.—The twelfth annual meeting of the Children's Hospital Alumni was held Thursday, Jan. 8, 1914.

After a "good-bye" visit to the old hospital on Huntington Avenue the alumni were shown the new hospital on Longwood Avenue, by Dr. Robert W. Lovett, following which all repaired to the Harvard Club, where the annual dinner was held at 7 p. m., Dr. Arthur R. Crandell, the retiring president, acting as toast master.

The guests of the club were Dr. E. H. Bradford, Dr. Aurel A. Cook of Hartford, Rev. J. H. Metcalf of Cambridge, and Dr. F. H. Shattuck. Dr. T. M. Rotch, who was to have been a guest, was absent on account of sickness. Besides speeches by the guests, a number of the alumni and the alumni chorus were heard from.

The officers elected for the ensuing year were: Dr. Walter C. Home, president; Dr. D. Crosby Greene, vice-president; Dr. Benjamin E. Wood, member of executive committee; Dr. Arthur T. Legg, secretary and treasurer.

Social Service Among Insane Patients.—Among the recommendations in the recent report of the Massachusetts State Board of Insanity is one for the appointment of social service workers to follow up discharged cases.

"Needy families, the man or woman of which has been sent to a state hospital, will by this social worker be connected with the proper local agencies. Recommitments may be avoided by assisting in tiding a patient over a critical period.

"Patients who have left the hospital will be heard from more often and the results of hospital treatment more accurately determined. Patients, when they know that a real interest is taken in them, will return to the hospital more often if in need of advice and realizing the return of their mental illness will return for treatment.

"The study of eugenics, although associated with social service, requires workers of special training, and while in certain institutions social work and eugenics may be combined, this board

is of the opinion that they are better done by separate workers."

PETITION BY MILK AND BABY HYGIENE ASSOCIATION.—The Boston Milk and Baby Hygiene Association, in conjunction with the Massachusetts Commission for the Blind, has petitioned the General Court for an appropriation of $1000 for the printing and distribution of pamphlets in English and eight other languages to poor mothers for the purpose of instructing them in the care of their children.

WORK OF BOSTON DISTRICT NURSES.—During the year 1913 the nurses of the Boston Instructive District Nursing Association made 117,228 visits on 11,154 patients, of whom 3954 were mothers with young babies.

MASSACHUSETTS GENERAL HOSPITAL TRAINING SCHOOL.—The annual graduating exercises of the Massachusetts General Hospital Training School were held on Jan. 15 in the new Home for Nurses, which was officially opened on this occasion. Diplomas were awarded to a class of 56 pupil candidates. The principal address, made by Dr. Henry M. Hurd, secretary of The Johns Hopkins Hospital, will be published in a future issue of the JOURNAL.

NEW ENGLAND BAPTIST HOSPITAL TRAINING SCHOOL.—The annual graduating exercises of the New England Baptist Hospital Training School for Nurses were held in Boston on Jan. 27. Diplomas were awarded to a class of eight pupil candidates. The principal address was by Dr. Hugh Cabot on "The Professional Nurse in Relation to Social Problems."

WORK OF CHICKERING HOUSE.—The recently published annual report of Chickering House, Dedham, Mass., records the work of that institution for the year ended Oct. 1, 1913. During this period, 298 patients were under treatment in the home.

NEW YORK.

TWO CENTENARIANS.—Abigail McLean, who died on Jan. 12, at Battenville, near Troy, N.Y., is said to have been born in 1812.

Mrs. Nora Sullivan, who died on Jan. 17, at Potsdam, N. Y., is said to have been born in 1804 at Cahirciven, County Kerry, Ireland, and migrated to the United States in 1838. For the last eighty years of her life she was a habitual user of tobacco. Her health was always excellent.

TWO MORE CASES OF TYPHUS.—On Jan. 17 a case of typhus fever was discovered in this port aboard the Austro-American steamer *Belvedere;* and on Jan. 19 another case was found on the *Kaiser Franz Joseph,* recently arrived from Adriatic ports. The patients were removed to the Swinburne Island hospital, and the vessels and 149 steerage passengers were detained under observation at quarantine.

APPOINTMENT OF DR. BIGGS.—The appointment of Dr. H. M. Biggs as state health commissioner, recently made by Governor Glynn, has now been unanimously confirmed by the state Senate. He succeeds Dr. Eugene H. Porter, a homeopathic physician, who was appointed commissioner by Governor Higgins in 1905 and reappointed by Governor Hughes in 1909. The position had previously been tendered to Dr. Biggs by Governor Sulzer, but he declined the offer on the ground that the conditions attending it seemed to him unsatisfactory. Under the new health law enacted last year, however, the provisions of which were drawn up by a commission of which Dr. Biggs himself was chairman, the state department of health was reorganized with greatly increased powers.

A GALACTAGOGIC SERUM.—It is reported from Ithaca that in the section of the Cornell University Medical College located there a pituitary serum has been evolved which when injected into the circulation of goats has the effect of doubling the quantity of milk produced, while the cream content of the milk is increased fivefold. It is purposed to test the serum next on the cow.

THE AMERICAN SCHOOLBOY.—At a dinner of the Schoolmasters' Association, on Jan. 16, Dr. Charles L. Dana, the neurologist, discussed the question, "Is the American schoolboy overworked and likely to break down under the tasks at present imposed upon him?", and answered it most emphatically in the negative. So far from being overworked, he said, the schoolboy was not even educated, and in his thirty years' practice he could remember only one who was overworked; while in this instance the boy had weak eyes, and this was the principal cause

of his trouble. He did not know of any class of human beings who found themselves less overtaxed mentally, unless it was the college students. Assuming that boys were not either broken down or educated, but were two years behind in the educational race, and since, in the Binet-Simon scale, children, if three years behind in mental age, while in an American college this mental retard was as a rule increased, rather than lessened, it followed that our American graduate belonged to the class of feebleminded, as measured by the Binet-Simon or any other intellectual test. The European idea was that after the age of ten the child was able to do hard work, and ought to be made to do it; the American idea was that he was able to do some work, and should be persuaded to do it. Dr. Ira S. Wile, of the Board of Education, agreed with Dr. Dana that children were not mentally overworked, but expressed the opinion that the medical profession was largely responsible for the prevalent belief that there was danger of breakdown from intense work.

Children in Municipal Hospitals.—On Jan. 16 the hospital investigating commission presented a report to the Board of Estimate and Apportionment in which it was recommended that some radical changes should be made, as regards children, in the municipal hospital system, especially in view of the fact that under present conditions many children become infected with diseases which they did not have when admitted to the hospital. Among the recommendations was the establishment of a more adequate children's service at Bellevue Hospital, Manhattan, and at the Kings' Hospital, Brooklyn; at both of these institutions, it was argued, advantage could be taken of the highest class of medical and surgical attendance which would be afforded by their visiting staffs.

Medical Association of Greater New York.—At the annual meeting of the Medical Association of the Greater City of New York, held on Jan. 19, Dr. T. S. Southworth was elected president; Dr. Isaac Hartshorne, treasurer; and Dr. F. H. Daniels, a member of the Council. Dr. Thomas Darlington was re-elected chairman for the borough of Manhattan, and Dr. L. H. Moss chairman for the borough of Queens.

Appointment of Dr. Goldwater.—Dr. S. S. Goldwater, superintendent of Mount Sinai Hospital, has been appointed by Mayor Mitchel commissioner of health, to succeed Dr. Lederle. Dr. Goldwater was graduated from the University and Bellevue Hospital Medical College in 1901, and has been connected with Mount Sinai Hospital since 1903. In 1908 he was appointed medical expert in hospital construction to Bellevue and Allied Hospitals, and he is also advisory expert to the New York Hospital, the Presbyterian Hospital and other large institutions. He is now president of the American Hospital Association, one of the vice-presidents of the New York Academy of Medicine, secretary of the Associated Out-Patient Clinics of the City of New York, and an honorary member of the British Hospitals Association.

Tuberculosis Preventorium.—The annual meeting of the Society of the Tuberculosis Preventorium for Children was held on Jan. 20. It was announced that $10,617 had been subscribed for the new open-air school building, and the president, Dr. H. M. Biggs, stated that nearly $2,000 was still needed for the completion of the work. The capacity of the institution has been increased from 44 to 158 beds, and as the average length of stay is three months, it is now possible to care for some 600 children during the year.

Physicians' Economic League.—At a meeting of the Associated Physicians' Economic League held on Jan. 20, a new branch, taking in the upper west side of Manhattan was organized. The special object of the league is the correction of hospital and dispensary abuses, and the president is Dr. Thomas Dixon of Brooklyn.

Infant Welfare Stations.—The December *Monthly Bulletin* of the State Department of Health is largely devoted to infant welfare stations in the state, giving detailed accounts of the work which has thus far been accomplished outside the City of New York, and setting forth the necessity for its further development, especially in the rural districts.

Recent Death-Rates.—It is announced that the annual death-rate in the state for 1913 was 14.9, as against 14.8 in 1912. With the exception of the latter year, however, this rate is the lowest ever recorded, and the average mortality was less in the cities than in the rural districts.

Current Literature

MEDICAL RECORD.

JANUARY 10, 1914.

1. WHITMAN, R. *Further Observations on the Operative Treatment of Paralytic Talipes Calcaneus and Allied Distortions.*
2. *TEN BROECK, C. *Extirpation of Bacillus Diphtheriae by Means of a Thallophytic Fungus, Achyla Muscaris. A Clinical and Experimental Study.*
3. SANTOS-FERNANDEZ, J. *Four Cases of Cornoscleral Dermoid Tumors.*
4. PALEFSKI, I. O. *A Modified Method of Lavage by Means of a Double-Cock Glasspiece in Conjunction with the Modified Stomach Tube. Especially Adapted for the Office and Hospital Ward.*
5. SEXSMITH, G. W., AND MARSHAP, M. I. *Case Illustrating a "Factor of Safety" in Lung Tissue, and Pulse Pressure as a Prognostic Sign.*
6. KOVACS, R. *A European Study Tour.*
7. BAKER, S. J. *The Physical Condition of Retarded School Children.*
8. MEAD, F. H. *Persistent Hiccough.*

2. Ten Broeck makes a preliminary report on a study of *achyla muscaris*, a thallophytic fungus, in the treatment of diphtheria. He finds that this organism has the power of destroying the diphtheria bacillus in culture and in the throat and that it inhibits the growth of a number of throat pathogens. It favorably influences membranous anginas of various origin, and is of prophylactic value when growing in the throat. Inoculations are usually self-limited and the procedure is harmless. Mild antiseptics, however, are advisable as after-treatment.

[L. D. C.]

NEW YORK MEDICAL JOURNAL.

JANUARY 10, 1914.

1. CRILE, G. W. *Amoci Association.*
2. LOWER, W. E. *Important Factors Which Influence the Immediate and the End Results of Surgical Operations.*
3. MORRIS, R. T. *Antiseptics versus Germicides.*
4. GILBRIDE, J. J. *Hunger Pain and Its Significance.*
5. HAYNES, I. S. *Intestinal Kinks; Their Diagnosis and Treatment.*
6. *FINCH, S. E. *The Effect of Intraperitoneal Injections of Ozone in Animals Following Injections with Virulent Bacteria.*
7. RIDDELL, W. R. *Welley's System of Medicine.*
8. BALLAGIS, J. *A Case of Acute Lymphocyte Leukemia.*
9. *CENTRAL COUNCIL OF PUBLIC HEALTH, NEW YORK. *A Report on the Typhoid Fever Epidemic in Manhattan, 1913.*
10. BERTRAND, D. M., AND VALADIER, A. C. *The Treatment of Pyorrhea Alveolaris.*

6. Finch reports results with intraperitoneal injections of ozone in animals following injections with virulent bacteria. He finds that this procedure following general peritoneal infection may be without harm to the animal if the concentration is not greater than 0.001% by weight and in oxygen dilution. The use of stronger concentrations produces symptoms other than those due to the physiological action of oxygen, and is dangerous to life.

9. The Public Health Council's report on the typhoid fever epidemic in New York in the autumn of 1913 is interesting reading. Among other things, it contains a striking comparison of the typhoid death rates in European and American cities. In Berlin the rate is 3.5 per 100,000 population, in Hamburg 2.5, in London 4.0, in Vienna 4.1, in Paris 6.7, while in New York and Boston it is 11.6, in Chicago 13.7, Philadelphia 17.4, and Washington 23.2. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JANUARY 10, 1914.

1. KOPLIK, H. *Infant Mortality in the First Four Weeks of Life.*
2. MILLS, L. *An Epidemic of Small-Pox in Sonora, Mexico.*
3. *WOLBARST, A. L. *Universal Circumcision as a Sanitary Measure.*
4. NEWMARK, L. *Hysteric Blindness of Both Eyes in Elderly Men.*
5. *MEYER, W. *Extrathoracic and Intrathoracic Esophagoplasty in Connection with Resection of the Thoracic Portion of the Esophagus for Carcinoma.*
6. HEINECK, A. P. *A Case of Rhinophyma Successfully Treated by "Decortication."*
7. HEAZLIT, L. *Hair-Balls of the Stomach and Intestines.*
8. RICHARDS, J. H. *Chorea; With Report of Two Cases in Which Streptococcus Viridans was Found in the Blood.*
9. *WILSON, L. B. *Relation of the Pathology and the Clinical Symptoms of Simple and Exophthalmic Goitre.*
10. *SMITH, E. V., AND BRODERS, A. C. *The Iodin Content of the Thyroid Gland with Especial Reference to the Pathologic Types and a Review of Some Experimental Work.*
11. *SANFORD, A. H., AND BLACKFORD, J. M. *A Comparative Study of the Effects on Blood-Pressure of the Extracts and Serums of Exophthalmic Goiter and of Other Substances.*
12. LAPHAM, M. E. *Field-Work in Tuberculosis.*
13. STEENSLAND, H. S., AND WEISKOTTEN, H. G. *The Histopathologic Loan Collection and Relieving the Curriculum.*
14. MCNEALY, R. W. *Longitudinal Fractures of the Tibia by Torsion, with Report of a Case.*
15. WATSON, L. F. *Injection of Quinin and Urea Hydrochlorid in Hyperthyroidism; Preliminary Report.*

3. Wolbarst believes that universal circumcision is a measure of decided benefit and that the objection that it is sometimes followed by tuberculosis or syphilis is not the fault of the operation but of the operator. It is a great aid to cleanliness, is a decided prophylactic against infection with syphilis and chancroid; it prevents in great measure the development of venereal warts, herpes and other growths; it offers a diminished tendency to masturbation; it diminishes local complications in the presence of venereal disease and prevents phimosis and paraphimosis.

5. Meyer makes an artificial esophagus from a portion of the greater curvature of the stomach, which he forms into a hollow tube and leads upward from the cardiac end of the stomach to have its exit at the root of the neck.

9. Wilson states that practically all cases of clinically true exophthalmic goiter show marked primary hypertrophy and hyperplasia of the parenchyma of the thyroid gland. In about 80% of cases the clinical severity can be accurately told by the pathological examination. In simple goitre there are marked degenerative changes present.

10. Smith suggests faulty metabolism of iodin as the reason for the toxic symptoms of goiter.

11. Extracts of exophthalmic goiters cause a very marked fall in the blood-pressure of the dog, with splanchnic dilatation and slowing of the pulse. The first injection produces tolerance toward subsequent

injections. The serum of patients at the height of intoxication from acute exophthalmic goiter causes a marked fall in blood-pressure. Apparently the same depressive substance is present in the blood of individuals suffering acutely from this disease.

[E. H. R.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 41. October 9, 1913.

1. KROMAYER. *Cosmetic Dermatology.*
2. KRAUS, F. *Othology of the Thyroid, Parathyroid, and Hypophysis, and Their Reciprocal Action.*
3. KLEINSCHMIDT AND VIERECK. *Behring's Diphtheria Vaccine.*
4. *STERN, C. *Tubercle Bacilli in the Skin, Especially of the Face.*
5. SCHILLING, V. *Improved Technic of Bloodsmear and Differential Count.*
6. GILDERBLOM, E. *The Albumin Content of Tuberculous Sputum.*
7. HANLEK, J. *Ischias Kyphotica.*
8. KLEIN, A. *Rupture of Aortic Aneurysm Into the Superior Vena Cava.*
9. ROSENFELD, E. *Silver Preparations in the Treatment of Gonorrhea.*

No. 42. October 16, 1913.

1. KOCH, J. *Rabies.*
2. BUNDSCHUH, R., AND ROEMER, H. *Abderhalden's Test in Psychiatry.*
3. *MOEWES, C., AND BRAUTIGAM, F. *Tubercle Bacilli in the Blood.*
4. *STERN, C. *Tubercle Bacilli in the Skin, Especally of the Face.*
5. HEINRICHSDORFF, P. *Zone of Degeneration of the Liver in Pregnancy.*
6. BERGER, F. *Latent Erysipelas and Toxic Eczema.*
7. MOTZFELDT, K. *Three Cases of Patent Ductus Arteriosus.*
8. HAENISCH, G. *Roentgenoscopy in Orthopedic Surgery.*
9. ZADE. *Anaphylotoxins and Pathology.*
10. ENGELIN. *Freud's Psycho-Analysis.*
11. STEIN, A. *Embolism Following Paraffin Injection.*

3. The authors examined the blood of about 50 cases of tuberculosis, including three cases of the miliary type, for tubercle bacilli. In no case were they able to find them. In many cases they found by microscopic examination, acid-fast bodies but these did not resemble tubercle bacilli in either morphology or color. A specimen of every blood examined was injected into animals, none of which developed tuberculosis. The authors conclude that tubercle bacilli seldom enter the blood stream, and that they remain in it as virulent organisms but a short time.

4. Stern found tubercle bacilli, virulent for animals, in 68% of a series of lupus cases. He comments on this source of infection.

[C. H. L.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No 50. December 16, 1913.

1. HELFERICH. *Operative Nearthrosis.*
2. *ABDERHALDEN, E. *The Influence of Blood on Protective Ferments.*
3. *BAETGE, P. *The Treatment of Tertian Malaria with Neosalvarsan.*
4. BECK, O. *Syphilis of the Ear.*
5. LINDEMANN, W., AND ASCHNER, B. *The Relation Between Substances Used to Induce Labor and Vaso Constrictors.*
6. FRIED, C. *The Sero-Diagnosis of Malignant Tumors.*
7. MEIROWSKY. *Methods for Observing the Development of Spirochactae.*
8. LEWINSKI, J. *The Value of Intravenous Injections of Arthigonin.*
9. BOHM, G. *Hegonin in the Treatment of Gonorrhea.*
10. GLÜCKMANN AND GOBBI, R. *Solutrol as a Disinfectant.*
11. BENNECKE, H. *Clinical Observations with Isticin, a New Cathartic.*
12. BRIX. *A Case of Situs Inversus Totalis.*
13. SCHNEIDER, O. *A New Obstetrical Forceps.*
14. EHRENREICH, M. *A New Band for the von Recklinghausen Blood Pressure Instrument.*
15. MERTENS, V. E. *The Treatment of Granulating Wounds by Heloplast.*
16. HÖTZEL, M. *The Therapeutic Use of Camphor, Especially in Pulmonary Inflammations.*
17. DUNBAR, *Dr. Heina Trautmann.*
18. NASSAUER, M. *The High School for Physicians and Patients.*

2. Abderhalden states that over 600 pregnancy tests have been made in his laboratory by the optical and dialysis methods with only one or two errors in diagnosis. To obtain such good results, his technic was followed absolutely. One of the chief sources of error lay in the use of improperly prepared dialysis tubes. The other was due to improperly prepared organ extracts. Abderhalden quotes a series of experiments to prove that traces of blood in an organ will sometimes give non-specific readings, which he believes are due to the presence in the serum of protective ferments against blood constituents. If the blood is removed, non-specific reactions do not occur.

3. Baetge has treated four cases of tertian malaria by neosalvarsan injected intravenously. Each patient was given .9 gms. of the drug, repeated in two cases after a week. In each case the parasites disappeared from the circulating blood at once. In one case a relapse occurred after twenty-seven days. No organisms were found again in the other cases after periods of observation lasting from four weeks to two and a half months.

Baetge concludes that the salvarsan treatment of malaria is of value, not to replace quinine but in affording a means for saturating the parasites instantaneously with a destructive agent.

[R. F.]

No. 51. December 23, 1913.

1. SPENGLER, L., AND SAUERBRUCH, F. *The Surgical Treatment of Tuberculous Pleural Exudates.*
2. MORO, E. *Recurrent Colic in Children.*
3. *HEIMANN, F. *Experimental Studies on the Relation of the Thymus and Ovaries to the Blood Picture.*
4. LAMPÉ, A. E. *The Preparation of Organs for Abderhalden's Dialysis Tests.*
5. OBERMÜLLER, H. *Koch and Fonio's "Coagulen" and Its Use in Rhinology.*
6. UFFENHEIMER, A. *Infantile Paralysis in Bavaria.*
7. BAAR. *Stricture of the Ureter, Resembling Nephrolithiasis.*
8. THILO, O. *The Treatment of Eczema from Formalin Poisoning.*
9. *WEISS, R. *A Simple Apparatus for Quantitating Chlorides in the Urine.*
10. SALGE, B. *The Quieting of Crying Children by Insufflation.*
11. HERRENKNECHT. *A Simple Artificial Nose.*
12. KAUFMANN, E. *Emil Ponfick.*
13. V. MOLO, H. A. *De Nora as Lurieist and Satirist.*
14. NASSAUER, M. *The High School for Physicians and Patients.*

3. To determine the relation of the internal secretion of the thymus and ovaries to the blood constit-

ments. Hermann has removed these glands in a series of young rabbits, making differential and white blood counts before and after operation. To obviate error as far as possible the blood was taken at the same time of day and in the same relation to meals. At later intervals thymus or ovarian extract was injected intraperitoneally and the blood count followed.

In those animals in which the thymus was removed, a fall in the number of lymphocytes occurred, increasing when the gland extract was injected. On the other hand, in the ovariectomized animals the lymphocytes increased, falling when ovarian extract was injected.

Hermann concludes from these observations that the internal secretions of the thymus and ovaries work antagonistically on the blood picture, the thymus setting free substances which stimulate the production of lymphocytes, and the ovarian secretion diminishing these blood elements.

9. The apparatus described by Weiss consists in a graduated cylinder, at one end of which are two bulbs divided by rings into three parts. Diluted urine is poured into the lower bulb to the first mark; a mixture of saturated iron alum and nitric acid to the second mark, and deci-normal ammonium sulphocyanate to the third mark. The mixture is shaken, causing a dark red color. Deci-normal silver nitrate is then added drop by drop, and the tube shaken constantly until the color disappears. The amount of silver nitrate necessary to cause this is read on the graduated cylinder and gives the chloride value in milligrams per cubic centimeter of urine. The results quoted by this method, as compared with Volhard titrations, are sufficiently accurate for clinical purposes. [R. F.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 45. NOVEMBER 10, 1913.

1. *SCHLEICH, MÜLLER, THELHEIM, IMMELMANN, KRAUS, AND FRIEDMAN, F. F. *Dr. Friedrich Franz Friedmann's Therapeutic and Prophylactic Treatment of Tuberculosis and Scrofula.*
2. KLING, CARL A. *Preventive Inoculation Against Varicella.*
3. VON DEN HELDEN, R. *The Action on the Human Kidney of Extract of Hypophysis.*
4. v. OTT. *Operative Treatment of Cancer of the Uterus and Results of the Same.*
5. MOSSE, M. *Contribution to Our Knowledge of Certain Diseases with Increased Hemolysis:* (a) *Cirrhosis with Pigmentation;* (b) *Splenectomy in Pernicious Anemia.*
6. UNGER, ERNST, *Intrathoracic Surgery of the Esophagus.*
7. LAUTENSCHLÄGER, A. *Introduction of the Tracheal Tube in Meltzer's Insufflation-Anesthesia.*
8. GELINSKY. *Artificial Respiration in Intrathoracic Surgical Operations.*
9. LEVY-DORN, M. *The Production of Radio-Activity from Non-radioactive Elements.*

1. This is a long symposium, given at the Charité Clinic in Berlin, on the Friedmann treatment, and is especially interesting here as showing that in his own country Dr. Friedmann is not held in so much disrepute as here. Five of the speakers, including Friedmann himself, are ardent supporters of the Treatment, while the director of the clinic is, as will be seen, neutral.

Prof. C. L. Schleich (Berlin) eulogizes this method most highly, showing favorable results as proved by Roentgen plates, and concludes by saying "we have at hand a new weapon with which to fight tuberculosis." Prof. Erich Müller of Berlin gives reports of eighteen cases of both surgical and pulmonary tuberculosis, each one showing either marked improvement or entire healing as a result of the Friedmann injections. Dr. Hans Thalheim (Berlin) quotes the histories of sixteen more cases, all with equally favorable results. Dr. Immelmann (Berlin) corroborates the statements of the above from observations he has made on x-ray plates taken before and after treatment; and Dr. Friedmann says a few words about his good results.

Dr. Kraus, head of the Charité, said that the hospital staff were entirely neutral and unprejudiced; that their own cases had not been observed long enough to allow them to draw conclusions; that he had, however, seen one case improve markedly following the treatment, though he himself had advised against it; and that in conclusion he thought this method was harmless and should be given every opportunity to prove its worth—or worthlessness.

It seems clear that many of his own countrymen are by no means convinced that Friedmann's treatment is without value.

[R. H. M.]

No. 46. NOVEMBER 17, 1913.

1. HEDINGER, E. *The Extent of Occurrence of Red Bone Marrow in the Femur of Man.*
2. WEGELIN, CARL. *Fatty Degeneration of the Heart Studied in Relation to Diet.*
3. STEIGER, OTTO. *Blood Findings in Lymphogranulomatosis (So-called Pseudoleukemia and Hodgkin's Disease).*
4. ZUNTZ, N. *Concerning Some Investigations on the Physiology of Digestion and Metabolism.*
5. BLUM, L. *On the Symptomatology and Therapy of Diabetic Coma.*
6. UNNA, P. JR. *Concerning the Electric-Heat Treatment of Leprosy.*
7. LOTSCH. *Concerning So-called Intussusception in Infants.*
8. MARCUSE, H. *The Importance of Jodl's Psychology in Psychiatry.*
9. *PHILIPPSTAL, A. *Clinical Experiences with Atropine Sulphuric Acid-Ester.*

9. This is a new preparation of atropine which the author has tried out clinically with pleasing results. It is less soluble and more easily crystallized than atropine sulphate—compared with the latter it shows also less local reaction at the site of subcutaneous injection. It does not cause so much dryness in the mouth and throat, so much acceleration in the pulse or hyperexcitability as atropine sulphate. After citing a number of cases, Philippstal emphasizes its efficacy as an unusual therapeutic agent in asthma, vagus-neuroses, certain tachycardias, night sweats in phthisis and iodism.

[R. H. M.]

Obituary.

SILAS WEIR MITCHELL, M.D., LL.D.

DR. SILAS WEIR MITCHELL, who died of influenza on January 4, at Philadelphia, was born of Scottish ancestry in that city on February 15, 1829, the son and grandson of a physician and one of a family of nine children. His great-grandfather was the "Mr. Mitchell, collector of exise at Dumfries," who was an intimate companion and patron of Robert Burns, and to whom in 1796 the latter addressed his familiar poem, "Friend of the Poet, tried and leal."

Silas Weir Mitchell obtained his education at the University of Pennsylvania, and in 1850 received the degree of M.D. from the Jefferson Medical College. For ten years after graduation, young Dr. Mitchell devoted himself to general practise, and to the pursuit of topics of medical research. He made a special study of

the chemical nature and toxic action of snake venom, and in 1860 published his first monograph on the "Venom of the Rattlesnake." From his father he had inherited a taste and talent for letters, and during this early period devoted much of his leisure to literary as well as scientific study and writing. It was during this decade also that he made the acquaintance of Dr. Oliver Wendell Holmes, who is said to have praised Mitchell's verse as well as his already admirable prose style.

In 1862, Dr. Mitchell was commissioned assistant surgeon in the United States' Army, and was stationed at Turner's Lane military hospital in Philadelphia in charge of soldiers with nervous disorders and wounds involving the nervous system. In this position he served till the close of the Civil War, and from his experience collected material for the publication in 1864 of his second medical monograph on "Gunshot Wounds and Other Injuries of the Nerves." As a result of this experience also he became particularly interested in diseases of the nervous system, and on resuming private practice in 1865 was led to select neurology as his specialty.

Of Dr. Mitchell's eminence as a neurologist, it is needless to speak, or of the many scientific papers and books which he produced during the succeeding years of his busy professional career. Probably he is most noted for his method of the rest treatment of neurasthenia, the theory of which he developed in "Wear and Tear," "Fat and Blood," and other publications. Altogether about 140 titles attest his indefatigable industry in medical research and composition.

Dr. Mitchell's entrance into the field of literature began with the publication in 1863 of his first short story, "The Case of George Dedlow," in the *Atlantic Monthly*. From that time till the last year of his life, Dr. Mitchell was almost constantly engaged upon some literary work as a recreation, entirely apart from his practice and professional publications. His first novel, "Hephzibah Guinness," was published in 1880; his most famous, "Hugh Wynne," in 1897; his last, "Westways," in 1913. Altogether his literary productions amount to some thirty volumes.

Though Dr. Mitchell's reputation as a novelist is foremost in the popular mind, he perhaps really attained a higher degree of literary excellence in poetry than in fiction. His verses* on the fiftieth anniversary of the demonstration of ether anesthesia at the Massachusetts General Hospital are familiar as a noble and fitting commemoration of that momentous event. Probably his "Ode on a Lycian Tomb" is his finest contribution to letters, in its classic perfection of form and deep sincerity of feeling.

For many years Dr. Mitchell was physician to the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases, and was consulting neurologist to nearly all the Philadelphia hospitals. He was professor of neurology at the University of Pennsylvania Medical School, and at one time president of the Philadelphia College of Physicians.

Dr. Mitchell received the honorary degree of LL.D. from Harvard in 1886, from Edinburgh in 1895, Princeton in 1896, Toronto in 1906, and from the Jefferson Medical College in 1910. The University of Bologna gave him an honorary degree of M.D. in 1888. He was a member of the National Academy of Sciences, of the British Medical Association, the American Neurological Association, the American Philosophical Society, the London Medical Society, the New York Academy of Medicine, and the Academy of Science of Sweden, and was a fellow of the College of Physicians in Philadelphia, the American Academy of Arts and Sciences, the Royal Society of Great Britain, the Royal Medical Society, and the Royal Society of Literature. He was a corresponding member of the French Academy of Medicine, the Academy of Sciences of Bologna, the German Neurological Society and the Royal Medical Society of Norway. He also was a trustee of the University of Pennsylvania and of the Carnegie Institution at Washington.

Perhaps the most distinguishing feature of Dr. Mitchell's character was the versatility, which enabled him to win distinction in two great fields of activity. Work was not labor to him; idleness he abhorred; and upon whatever he was engaged he worked easily and with zest. Next to Holmes, Dr. Mitchell has won an enduring place in American medicine and literature. It is likely to be long before another American physician wins equal rank beside them.

* Published in the issue of the JOURNAL for Oct. 15, 1896 (Vol. cxxxv, p. 386).

Miscellany.

UNITED STATES MORTALITY STATISTICS IN 1912.

THE census bureau of the United States Department of Commerce has recently published its thirteenth annual report, containing the mortality statistics of this country for the year 1912.

"Unfortunately, the mortality statistics do not include the entire country, but only those states and cities in which the registration of deaths is approximately complete. This area, known as the "registration area for deaths," embraced nearly two-thirds (63.2%) of the total estimated population of the United States in 1912, as compared with only a little over two-fifths (40.5%) in 1900. The increase is gratifying, and there is widespread interest throughout the country, especially in the South, in regard to vital statistics. Virginia has just been admitted, as the result of the model law adopted in 1912, and laws of like character are now in operation in other Southern states, namely Kentucky (admitted for 1911), Mississippi, Arkansas, North

Carolina, and Tennessee. Active efforts to secure such legislation will be made in Georgia and South Carolina, as well as in the northern states of Illinois and Iowa, at the next session of their legislatures."

The 22 states now included in the registration area are California, Colorado, Connecticut, Indiana, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Utah, Vermont, Washington, and Wisconsin.

"The total number of deaths registered was 838,251, corresponding to a death-rate of 13.9 per 1000 population. The rate is the lowest on record, that for 1911, previously the most favorable year, being 14.2. The year 1912 was also unusually healthful abroad, a new loss mortality figure of 13.3 per 1000 being established for England and Wales.

"By sex, there were 459,112 deaths of males and 379,139 deaths of females. The proportion of deaths of infants under one year to total deaths (17.6%) was slightly lower than that for 1911 (17.8%)."

Though notably decreased, tuberculosis still remains "captain of the hosts of death," having caused 90,360 in 1912, or 10.8% of the total mortality.

"Next came organic diseases of the heart, with 86,179 deaths (adding endocarditis). They slightly exceeded tuberculosis. Acute nephritis and Bright's disease (62,267), pneumonia (51,495), congenital debility and malformations (48,596), cerebral hemorrhage and softening (46,797), cancer (46,531), and diarrhea and enteritis of infants under two years of age (42,482). There were 63,385 deaths from external causes, of which 49,775 were due to accident, 9656 to suicide, and 3954 to homicide. The suicide rate (16 per 100,000 population) was slightly lower than that for 1911 (16.2), and is the same as the average for 1906 to 1910.

"Typhoid fever, with 9987 deaths (16.5 per 1000), showed a notable decrease from the preceding year (12,451) and a most gratifying reduction from the average rate for the five-year period 1901-1905 (32). In other words, it has been cut in half in the last decade, although our rate is still high as compared with some European countries."

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING JANUARY 17, 1913.

January 9, Surgeon U. R. Webb, detached, Naval Hospital, Olongapo, P. I., to Pacific Reserve Fleet.

P. A. Surgeon J. C. Woodward, ordered to command the Naval Hospital, Olongapo, P. I.

P. A. Surgeon E. O. J. Eytinge, to Naval Hospital, Mare Island, Cal.

January 10, P. A. Surgeon D. C. Cather, detached: Philadelphia Hospital, to Great Lakes Training Station, Ill.

January 12, P. A. Surgeon W. H. Short, detached: Key West to Naval Station, Guantanamo, Cuba.

P. A. Surgeon E. W. Phillips, detached: Marine Recruiting Station, Chattanooga, Tenn., ordered to Naval Hospital, Philadelphia, Pa.

SOCIETY NOTICES.

BOSTON MEDICAL LIBRARY IN CONJUNCTION WITH THE SUFFOLK DISTRICT MEDICAL SOCIETY (Surgical Section).—A meeting of the Society will be held Feb. 4, at 8.15 p. m., at the Boston Medical Library.

Dr. C. A. Porter, "Surgery of the Peripheral Nerves."

Discussion by Drs. W. E. Paul, J. J. Thomas, E. H. Nichols, Harvey Cushing and J. S. Stone.

HORACE BINNEY, M.D., *Secretary.*

MASSACHUSETTS MEDICO-LEGAL SOCIETY.—The spring meeting will be held in Sprague Hall, Medical Library, Boston, on Wednesday, Feb. 4, 1914, at 2 o'clock.

The following papers will be read and discussed:

1. "Two Automobile Cases." Harry M. Cutts, M.D., Medical Examiner, of Brookline.
2. "The Delaney Murder." John W. Pratt, M.D., Associate Medical Examiner, of Dedham.

OLIVER H. HOWE, M.D., *Recording Secretary.*

MEDICAL LEGISLATION AND MEDICAL EDUCATION.—The tenth annual conference of the American Medical Association on Medical Legislation and Medical Education, called by the Council on Health and Public Instruction and the Council on Medical Education, will be held at the Congress Hotel, Chicago, Feb. 23 and 24, 1914.

LECTURE ON PELLAGRA.—A lecture will be given under the auspices of the Graduate School of Medicine on "Pellagra" with particular reference to its prevention, by Dr. Philip E. Garrison, M.D., of the United States Navy on Tuesday, Feb. 3, in the amphitheatre of the administration building of the Harvard Medical School at 5 o'clock. Dr. Garrison is acting as one of the instructors in the Harvard School for Tropical Medicine. The medical profession is cordially invited to attend this lecture.

THE BOSTON SOCIETY OF MEDICAL SCIENCES announces a meeting of the Harvard Medical School Historical Club (William J. Kerr, secretary) on Tuesday evening, Feb. 3, 1914, in the amphitheater of the Peter Bent Brigham Hospital, at 8.15 o'clock.

Program: History of Variola and Vaccination. Dr. Cushing, "Pock-marks in the Twentieth Century." Dr. Francis P. Denny, "An Old Diary of Prevaccination Days." Dr. Rosenau, "Demonstration of Vaccination." Dr. Rosenau, "Life of Jenner." Dr. Farlow, "Exhibition of Jenneriana from the Boston Medical Library." Books, letters, documents.

DR. THOMAS ORDWAY, *Secretary and Treasurer,*
Harvard Medical School.

APPOINTMENTS.

DR. HERMAN M. BIGGS, formerly general medical officer of the New York City department of health, has been appointed health commissioner of the State of New York.

COL. WILLIAM C. GORGAS, M.D., chief sanitary officer of the Panama Canal Zone, has been appointed surgeon-general of the United States Army.

DR. EDWIN HEMPHILL PLACE, of Boston, has been appointed assistant professor of pediatrics in the Harvard Medical School from Jan. 1, 1914.

RECENT DEATHS.

DR. LEMUEL W. FOWLER, of Boston, who died on Jan. 20 at West Stoughton, Mass., was born in New Brunswick in 1854. After receiving his preliminary education on the provincial normal school at Fredericton, N. B., and teaching for a time in the local public schools, he entered the Boston Dental College, from which he graduated in 1884, since when he has been actively engaged in the practice of his profession in this city. He is survived by his widow, by one daughter, and by two sons, one of them also a dentist.

Original Articles.

A PROGRAMME OF PRACTICAL MEASURES FOR MENTAL HYGIENE WORK.*

BY HENRY R. STEDMAN, M.D., BROOKLINE, MASS.

The magnitude of the field of public work in mental hygiene, the manifold ways in which a well-directed and energetic society of this nature may initiate, stimulate and further measures for the amelioration of the condition of the insane and mentally defective, as well as the possible prevention of mental disease, makes one wonder why we should have waited so long for it. Not until recently have we been able to gauge the public interest in this direction, and the result of the exhibits and addresses already given testify to a general eagerness for enlightenment on this vital question.

Although this society is chiefly concerned with the instruction of the community in the prevention of mental disease, another of its stated objects and an equally important one is that of helping to raise the standard of care and treatment of the insane and sufferers from nervous disease throughout the country, and this will be the subject of my address. Much of it is an old story to the alienist.

Considering the very inadequate allowance made by the state for salaries and wages of officers and nurses, the Massachusetts hospitals for the insane have done efficient work in the care and treatment of patients and their regular and diversified employment and in the instruction of nurses. In scientific work they are coming to the fore. Our laws relating to the insane must surely be advanced and serviceable else they would not have been adopted, as have many of them, by other states. But in the adaptation of natural conditions of home life to the insane within their walls through trained visitation and help such as is nowadays, through social service channels, accorded to the sick and invalid poor in their homes, much remains to be done.

We have long held that there is a large field of usefulness open to a resident social worker in the state hospital, lying between the duties of the hospital physician and nursing staff. Social work away from the world seems paradoxical Nevertheless, the hospital is the only home and "the ward" the only society of hundreds of semi-sane chronic cases, and the misfortune by which they are deprived of family life should not forever debar them from the individual personal attention, regular friendly visits and frequent advice which form the daily round of duties of the trained social worker in outside cases. Visitation by committees of charitably interested neighbors is often urged, but such efforts only touch the surface of the patient's individual interests and needs, however valuable they may be for purposes of inspection. Intra-hospital social work with the individual patient, might be combined with a number of similar duties on the wards and a systematized department of the hospital's activities be thereby developed. Besides regularly visiting and striving to befriend and interest such suitable patients as the physicians may designate, this worker should undertake the proper circulation of the library books and other publications, with which our state hospitals are well supplied, but which are far too little utilized. She might also be responsible for the entertainments and diversions of all kinds enlisting and interesting both patients and nurses in their preparations and soliciting the aid of outside individuals and societies. By all means let us not allow the insane in our institutions to be left behind by the mill and the department store in such "welfare work."

The eugenic field workers now drafted by our hospitals solely for outside disease-heredity investigations are educated, adaptable and sensible women. Their work offers the great advantage of an insight into the home conditions in which patients live and have been brought up. Should not such knowledge be turned to its most beneficent use in enabling the eugenic worker to be a practical help as a social worker, both in establishing friendly relations with the patient while in the hospital and by her familiarity with the family surroundings, protecting him or her from adverse conditions after leaving the institution? Such an officer would be invaluable and should be well paid. In two of the State hospitals the eugenic field worker has already been turned to similar uses, and it should interest all friends of the insane to see hospital activities taking this trend.

Another direction in which the resident social worker may be of service is in visitation in connection with the family or boarding-out system of caring for selected cases from the chronic, harmlessly insane taken from the institutions, of whom small groups are settled in families in the neighborhood of the state hospitals, under state supervision. This department is not much heard of, but has been in operation in this state more than twenty-five years. The number of patients cared for is not far from three hundred. Those who have had charge of the work make no question of its advantage to the patient, the interest of the family in their charges, and the readiness with which suitable families are found to undertake their care. Those best informed believe that a very much larger number —three or four hundred in about each of the eleven state hospitals—could be so cared for and that the extension and full development of the system is imperative. Besides the elasticity of the system the economy to the state resulting from such a provision, because of the fact that no construction will ever be necessary, is a most important advantage. This measure is surely

* Read before the Massachusetts Society for Medical Hygiene, April 2, 1913.

one to be encouraged by this society because of its possibilities in the way of betterment of the mental health of the state's charges.

Another measure which as many will be interested to know has proved of benefit to the health and happiness of hospital patients, is the establishment of summer quarters at a distance. We all know the advantages which follow change of residence in suitable cases of mental disease; similarly, opportunity for a "vacation" from the hospital ward among country or seaside surroundings is a real boon. Occasionally patients supposed to have become doomed to permanent insanity have taken there the first step toward the restoration of their reason, so great is the effect of this change, many have improved and almost all are in some degree the better for it. The state hospitals in Maine, New Hampshire, and a few private hospitals in other parts of the country have summer quarters for this purpose to which they send relays of patients every year. Most well equipped general hospitals have, we all know, convalescent departments far removed from the main buildings. Why should they not be more generally provided for the insane?

The education of physicians in mental medicine is sadly deficient. We are much behind the times in this direction, although clinics for instruction in mental disease have been for many years an important branch of medical training in Germany. At Ann Arbor, however, in Albany, in Boston and Baltimore, there has been considerable progress following the establishment of psychopathic hospitals and wards for mental cases in general hospitals and the outlook is promising. But why should not each state hospital be oftener utilized for the instruction of the local practitioner in his neighborhood? It will be a very long time before any but the largest cities can maintain and profitably conduct psychopathic hospitals, and even they may be far out of reach for many busy physicians. Moreover, the medical and scientific spirit in our hospitals might be much encouraged by the establishment of closer relations between the medical staff of our hospitals and outside physicians. A practical step in this direction would be the practice of holding every year at least, at each of our state hospitals a meeting of the medical society of the district in which it is situated, as a regular custom. At such meetings clinics could be conducted by members of the staff and the affair made a scientific and social occasion. In this way the bonds of professional fellowship between the isolated hospital physician and the general practitioner would be strengthened, the outside physician would receive, a little, but valuable instruction in psychiatry, which he sorely needs and would welcome, and the attitude of the community toward the hospital would tend, through his influence and personal knowledge of the medical work done in our institutions and the way in which they are conducted generally, to become more friendly and appreciative. This has been done, to be sure, in one or two of our hospitals on rare occasions. Might it not well be made a regular annual custom with all? On one occasion of the kind the members of the district medical society, who attended a meeting at the Taunton State Hospital in large numbers, were so much interested in what they saw and learned that the society published for the benefit of its members the papers that were read and the demonstration of the cases that were given. The Central Indiana Hospital does much more. Its staff gives a course of a dozen or more lectures to all physicians of the neighborhood who may wish to come. This is open to them free of charge. The lectures are accompanied by illustrations and clinical demonstrations.*

The value of popular lectures on insanity, also, in connection with the leading medical schools, has been fully demonstrated both in New York City and in Boston, if the size and interest of audiences is any criterion. They should be generally made use of in all the large cities of the country.

The pressing needs of the mental defectives in this state who, especially of late, have been brought to light in such large numbers in schools, prisons, and other institutions, besides those especially provided for their care, will be told by Dr. Fernald, a far better authority than I. Let me, however, add my voice to the general demand that is so urgent for the speedy erection of another institution for the care and training of this class, and heartily endorse, more especially, the plea that he has made for the continuous segregation of the defective delinquent. The stand which he has also taken on the subject of the sterilization of defectives is a sound and most needed *ex cathedra* protest against hasty and, as many believe, hazardous legislation on a most radical step, involving private rights and public morals.

We do not sufficiently realize that there is a large field for practical work against mental disease and disorder which is as yet undeveloped, indeed, scarcely entered upon. It comprises the outside, non-hospital cases, some of them insane, others defective, breaking down or hopelessly weakened in mind and others on the borderland of vice, crime and mental unsoundness. Taking the insane alone, we find that during the past six years between eight hundred and fifteen hundred unrecovered patients have been discharged from the Massachusetts state institutions. All of them, of course, remain at large for a time, most of them for a year or more at least, and the rest finally are returned to the institutions. Making every allowance, therefore, it is safe to say that with this yearly supply of discharged patients there must be from this source alone a constant residue of at least a thousand unrecovered insane persons at large in the community.

* Since this lecture was delivered a clinic in Mental Diseases, given by the Boston Psychopathic Hospital staff on two days in the week, has been established with the object of making that hospital a centre of advanced training of physicians in psychiatry.

In addition, there is a large contingent of cases, a fair proportion of whom are presumably of the milder and more curable forms of insanity, who never reach the hospital at all. In 1904, six hundred and eighty-five physicians, comprising less than one-seventh part of the medical men of the state, reported to the Board of Insanity, in reply to a circular letter, that of the 2428 cases of mental disease coming under their observation, but 55% had been committed to hospitals for the insane, while 38% had been treated at home and the rest elsewhere outside of institutions. Had all the 5280 physicians in the state been heard from, the figures would have been even more impressive as regards the number of insane outside of institutions, even allowing for the duplication of cases.

Now, although through recent legislation the discharge of unrecovered patients who have shown dangerous tendencies is quite closely safeguarded, many of the perhaps harmless remainder in the community also need supervision, some of them treatment and some a radical regulation of their life and surroundings. Fortunately, it has become a rather general practice, which should be extended to all of this class, to discharge unrecovered insane patients on a "trial visit" through the legal provision which allows a six-months' probation, so to speak, within which time they may be either returned to the hospital, should their condition make it necessary, or be finally discharged at the end of that period. This practice is by no means so general in other states as it is in Massachusetts. It might well be one of the first to be uniformly adopted by superintendents of hospitals for the insane throughout the country, and we hope it will be everywhere urged by our National Society for Mental Hygiene. At the Taunton State Hospital it has been the custom for the last four years to require unrecovered patients so discharged to report in person at the hospital once a month. This practice has been attended with gratifying results and no hardship to the patients. On the contrary, they often spend an hour or two visiting their old friends in the wards. They seem to appreciate the advice given them and have been materially aided in passing the trial period successfully and re-adjusting themselves to home life.

Here comes in still another avenue of social service, through visitation of the homes of these patients who are out on trial visits. The social worker, through her familiarity with family conditions and the patient's requirements, should here be most helpful, either in removing disturbing influences and regulating unhygienic surroundings, thereby making the probation successful, or in preventing in season insane manifestations which require the patient's return to the hospital. By her intimacy with the family she would also be looked upon as an interested friend and thus be enabled to keep in touch to some extent with the after-progress of the case. The Metropolitan District about Boston offers exceptional advantages for social service work for outside cases—of which the Boston Psychopathic Hospital has begun to avail itself—because of the many facilities in the way of charitable organizations to turn to for help in placing and visiting patients. In the case of hospitals farther removed from the large centres, it would probably be of great advantage to have the headquarters of the social workers at these institutions, placing the department in charge of the resident worker.

Now, a few words in regard to the class of cases to which after-care, the main object of social service, chiefly applies. The discharged chronic insane, as I have said, need oversight and regulation of their life, but it is with the just recovered and convalescent insane patient that the greatest good can be done. Social service should not be exclusively devoted, by any means, to those who are still somewhat insane or weakened in mind when leaving the hospital, but, knowing as we do, the liability of relapse in mental disease, it is of the greatest importance that the apparently fully recovered patient should not be again exposed to the disturbing conditions and harmful surroundings among which his attack originated. If such cases can only be started on the right road we shall have taken the most practical and perhaps effective step toward the prevention of mental disease that is available. As we have said elsewhere,* in the matter of prevention of mental disease it is a far cry from theory and advice to practice. The education of the public in matters of mental and bodily hygiene so that it shall be productive of real, perceptible diminution in the amount of insanity in the community is necessarily a very, very slow process. Nor can the physician himself always feel sure of his ground in the vast complexity of conditions, personal and social, general and special, hereditary and acquired, which combine in varying proportion and degree to produce a case of insanity. Moreover, could we be sure of the cause or causes that would invariably bring on an attack of insanity, all know how little the warning would be heeded by people in general.

Therefore, the supervision and protection of those who have recovered or are convalescing from attacks of insanity would seem to offer by far the most promising field for prevention effort. In this way alone can we hope to ward off relapse or prolong the intervals of sanity between attacks that are inevitable, thereby helping to lessen the vast accumulation of insane patients in our institutions, a large proportion of whom have been admitted a second time, or oftener. When a patient has once undergone an attack of insanity we can with some certainty ascertain the unfavorable conditions that have led up to it, and can endeavor to improve them, thereby guarding against a relapse. We then know the individual victims, and how

* The Charities Review, March, 1899.

at least, an actual, tangible, present situation to cope with in the unhealthy surroundings, disease, poverty and stress-conditions of specific cases. Besides, when once an attack has been experienced, both the patient and his relatives for a time at least, are amenable to advice and direction through fear of a return of the trouble. The observation of the progress of convalescence and recovery from insanity becomes itself a lesson in prevention. It is a critical stage, beset with dangers which call for the most careful precautions in order to prevent a relapse. Nowhere is this more frequently observed than in the case of the individual private patient. The countless pitfalls for the reawakening and weakened mind through the indiscretion of the patient, his relatives, or his nurse, and the safeguards necessary, must impress all physicians to the insane.

It is usual on such a patient's recovery from an attack of insanity to advise a trip or a rest in the country as a preliminary to taking up the old life and occupation at home; in fact, the entire year following recovery is a critical time, within which we can never feel sure that mental health has been solidly reestablished. If these are the perils and needs of the patient in good circumstances, whose means and the solicitude of whose family are of the greatest assistance to him in regaining a firm foothold upon health, how desperately unfortunate must be the insane person who is poor, on his discharge from a hospital with scant advice, if any. He has no one to encourage him or to provide the assistance which he may need during the next month or two, just as, with impaired mental and bodily vigor, he is entering the struggle against the forces of want and distress which brought him to the hospital. The patient of small resources who has been insane has generally lost or exhausted all his means, and months, and sometimes years, have passed during which he has produced nothing for himself or his family. The fact, also, that he has been in a hospital tells against him for a considerable time after his return, owing to the ignorant popular prejudice against one who has been insane, and it is much more difficult for him to obtain employment. Instead of the extra consideration he deserves, he now, for a time at least, receives the cold shoulder.

The hospital for general diseases has its separate convalescents' home, miles distant, perhaps, from the main building. Of the very numerous homes and retreats for this purpose at the command of charitable organizations of different kinds, not one is for the insane. Convicts on their discharge from prisons and reformatories have long been aided and encouraged by societies for their relief, while for the insane patient who has suffered through no fault of his own there is no provision of the sort in this state to guard him against the return of a malady, recovery from which is in every sense far more difficult than from any other disease. There are, to be sure, states blessed with charitable laws, where patients are given a new outfit of clothing or perhaps a sum of money on leaving the hospital, but this is the utmost they receive. There are few institutions, moreover, where it is the rule even to give precautionary advice to departing patients and their relatives. They receive at best a few general directions, while it oftener happens that their discharge is unknown to the physician except by report. A renowned French alienist and humanitarian, Dr. Giraud, states that he considers the fundamental principle of "after-care" to be the following:—"Society has not fulfilled its duties to the insane when it has helped them to be provided for and treated in asylums if, on their discharge, it leaves them without support and without resources, and exposes them to causes of relapse." He also adds the obvious argument that we have repeatedly urged, that "this is an omission not only from a humanitarian, but from an economic point of view."

This is not a work of such magnitude as it would appear to be. It calls for a week or so of inspection by an agent of the after-care-association, if one be formed, or a social worker from the hospital who shall make sure that the home surroundings are suitable, provide situations and other material help, if need be, for all needy patients, etc. There should be a systematic supervision of the homes and regulation of the family conditions there existing until the patient is so settled that he starts upon his life and work under good auspices. New York State for several years has had after-care associations in connection with a number of her hospitals and much good is done. It is unfortunate that our own state, whose alienists brought the "after-care" project to the front in this country years before social service for any purpose was advocated should have waited so long to put into practice. The great expectations in this direction that have long been held out in connection with the out-patient department of the Boston Psychopathic Hospital seem now about to be realized, but we should not wait for its development there—the work might be equally well taken up at all our state hospitals. Thus far the social service department of the Massachusetts General Hospital and, notably the Boston Dispensary, have alone made any attempt in this direction although in a very limited field. There has been no coöperation on the part of our state hospitals. It should be one of the principal activities of this society to extend social service to discharged insane from our institutions. If it should be thought wise for the state to take up the work, it should have the hearty coöperation of this society.

Finally, there is a most important line of mental hygiene work which cannot be said to have really seen the light in this country, and I must here renew my plea for the establishment

of charitable sanitaria for the cure or relief of sufferers from nervous diseases who are poor or of moderate means and who are not insane. Years of neurological dispensary work among the poor have convinced physicians so engaged that nervousness, neurasthenia, hysteria, psychasthenia, etc., are quite as prevalent among the indigent as among the well to do. These patients are not insane, but without proper care may easily become so, while under suitable care they may be reclaimed and become useful members of society. The deplorable situation in which sufferers of this class from purely nervous diseases find themselves must surely appeal to us all, but there is no sanitarium in this country, (so far as can be ascertained by a careful inquiry of the leading neurologists living in the larger cities) in which poor or indigent nervous cases in any number can have the exclusive care and prolonged treatment that their malady demands. This great need has long been the subject of complaint among neurologists. In this lack of means for thorough hospital care and treatment of public cases coming in its special line of work, neurology is sadly conspicuous among the departments of medicine generally.

To be sure, there are public dispensaries, polyclinics, and even wards of hospitals which are devoted to the treatment of such patients. But they are very far from being adequate. The chronic nature of nervous malady makes the medical relief obtainable through the short stay, the routine prescription and the advice there provided, of slight and evanescent benefit in many cases. The prime requisite for their improvement is, as we all know, removal of the patient from disturbing influences and environment,—from the emotional conditions bred by anxiety and misery in the struggle for his daily bread. But even this is of little avail unless ample time be given for rest and recuperation. That the few days or weeks that answer for the physical and mental relief of other diseases are of little avail in this class of cases, and that disease which has been long in coming on will be slow to leave, have long been the axioms with which we confront the nervous invalid who is in better circumstances.

A certain number of the poorer unfortunates are sent, after a vain search for better quarters and refusal of admittance on all sides by other institutions, to homes for incurables or convalescents where they may, perhaps, remain a little longer, but where it is impossible for them to obtain what they most need,—the medical advice of physicians, both visiting and resident, who understand such special morbid states and know how to combat and either renew or relieve them. General hospitals are not equipped or adapted for their care, and interest in their special treatment is lacking. There are also wards exclusively for nervous cases in a few general hospitals, but except for the opportunities they afford for clinical teaching they are little better and for the same reasons. Moreover, no cure can be effected in such cases without attention to the details of every day life. This is impossible in a general hospital ward. What such patients need is separate institutions or sanitaria, specially constructed and equipped, where they can have the intelligent technical care that their disease necessitates and treatment for the weeks and months that such cases require before they can really improve. Of course, rest must not be pushed too far as the weakened organ requires strengthening and diversified and interesting occupation graded and suited to the strength and other requirements of the individual must be a prominent feature of the treatment. For want of such provision these unfortunates who are often misjudged by the family and friends "go," as Laehr forcibly puts it, "from doctor to doctor, clinic to clinic, healer to healer, in a vain search for what they need." The growing number of private sanitaria for the more affluent nervous patients shows in itself that this is recognized as the only way in which their proper care can be fully attained. They are a boon to the rich, but are for them alone.

During the last fifteen or twenty years the subject of such special sanitaria has also been agitated in Germany where a number have since sprung up while plans for others are on foot. In Switzerland and Sweden also similar sanitariums have recently been established. Does not our knowledge of this great need make it our duty to help meet it? Should we not inform larger circles of the spread of nervous disorders, of the comparative uselessness of the present modes of treatment in most cases, and the loss to the family and society of the working power of these patients?

The class of cases suitable for sanitarium treatment embraces nearly all the forms of nervous disease except epilepsy, for which special institutions are now being gradually provided in the different states. Besides neurasthenia or psychasthenia—hysteria, hypochondria and mild melancholia, migraine, chorea or St. Vitus' dance, shaking palsy, tic, etc., would be found to profit much by an occasional stay in a sanitarium of this kind. Others are the sequelae of apoplexy, cerebral paralysis in children, early paresis of the mild form, and tabes or locomotor ataxia in the early stages, myelitis, infantile paralysis, muscle atrophies, joint diseases, etc. Such an undertaking should be of the nature of a villa colony with a main building for administration and therapeutic purposes—dwelling houses, work shops, agricultural buildings, farm buildings, dairy, granary, etc.

We should all agree with Jacoby of New York, a warm and able advocate of such a provision that the state can hardly be appealed to for aid until the practical proof of its necessity and benefits has been furnished, and it is even questionable whether it would be wise to seek state support in the beginning. The institution

being essentially a charitable one, it will be found that the impressible neurasthenic will be more willing to place himself under treatment, and will do so with greater freedom of mind, if the colony is a private, rather than a state charity. There are, to be sure, many appeals and plans afoot for charitable purposes, and the process of awakening the attention and interest necessary to lay the foundation of such work would be a long and difficult one, in spite of the general knowledge of the increase of nervous disorders; but we have not yet even made the endeavor, and it might well happen that such a charity would strongly appeal to the very class in which the effects of nervous overstrain are particularly prevalent, the "hustling," never-resting business man whose prosperity has been bought at the expense, perhaps of his nervous health. The history of European colonies of this kind, moreover, should lead us to expect with all confidence that ample financial support would be forthcoming.

This list of measures for bettering the condition of the insane and nervous among the poor is a formidable one, but even so, it does not cover all their needs. If, however, this society should each year take up but a single one of them and devote to its furtherance persistent, energetic and united effort, we may feel sure that valuable beneficent results would soon follow.

PRELIMINARY REPORT ON CONTROL OF PERCUSSION BY MEANS OF THE ROENTGEN RAY.*

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HAVING studied this question for a short time only, I am not prepared to add anything to existing knowledge. My desire is to bring out discussion and to stimulate interest in a branch of work which seems worthy of more attention than it has received in this country.

You are familiar with the variations in the size of the heart shadow which are referable, in individuals, to differences in body weight, stature, age, sex, and occupation. You know the three forms of heart shadow which depend chiefly on the shape of the thorax; you know the difference in position of the heart in the sexes, the shape commonly seen in old age, and the changes of position of the heart in the phases of respiration. Besides these differences, there are minor variations, not easy to define, which are comparable to individual peculiarities manifested in other parts of the body; as, *e.g.*, in the face.

It has been maintained by Moritz, Dietlen, Treupel and others that outlines of the heart having a certain degree of individuality can be obtained by percussion, and that these outlines correspond fairly well with those obtained with the orthodiagraph. Dietlen and Treupel have published large series of diagrams from actual cases. Their diagrams show the outline of the heart shadow as determined by orthodiagraphy, and also the outlines of dullness to percussion. Granted that the diagrams have been reproduced accurately and that subjective errors were suppressed as far as possible in their preparation, the following conclusions may be reached, namely, that the heart can in fact be outlined by percussion with a considerable degree of accuracy, that, not only can the three types of normal heart be recognized in this way, but that the outlines are to some degree characteristic for the individual heart.

Before discussing percussion in detail, let us consider the means and methods by which the results of percussion are to be checked. I refer to teleroentgenography and to orthodiagraphy, of which Dr. Dodd has just spoken. It is not necessary for me to compare them. Each has errors and advantages peculiar to it, and there are other errors common to both. Teleroentgenography, being more mechanical and less subjective, is likely on this account, to give the more reliable pictures. The unavoidable margin of error for either method, when skilfully used, is probably below that for the best methods of percussion. It has been stated by others that the unavoidable margin of error for percussion may be 1 cm. That for orthodiagraphy has been variously estimated at from ½ to 2 cm., but it seems likely that, in the hands of experts, the error will seldom exceed ½ cm.

Therefore, it is right that we should control our percussion by means of the Roentgen ray, but it should be borne in mind that no method of comparative measurement of the heart has yet been devised which is truly accurate, and that the results of any method can be accepted only with reservations.

Passing now to percussion itself, let us consider some of the difficulties met with in its use. In the first place, many kinds of percussion have been recommended, and the style of percussion in practice varies much among individuals. Similarly, the results of percussion, that is to say, degrees of difference of note and type of note vary with the kind of percussion, and with the method of using it of the individual percussing. It follows logically that interpretations of these differences of note will not be the same, and, in fact, disagreement among physicians about percussion outlines is so common as to excite no surprise. But, even when physicians outline the cardiac dullness quite differently, it

* Read by invitation in conjunction with Dr. Dodd's paper at the meeting of the American Roentgen-Ray Society, Boston, Oct. 4, 1913.

does not follow that they will disagree as to the presence or absence of enlargement of the heart. On the contrary, I believe that men of experience generally agree substantially in a given case as to the presence or absence of definite cardiac enlargement. Slight hypertrophy of the heart, unless there is some dilatation also, cannot be demonstrated by any method of percussion, owing to the wide limits of variation between the hearts of normal individuals. For the same reason, slight hypertrophy may not be demonstrable in the heart shadow, however obtained.

Treupel compared the results of three types of percussion with orthodiagraphic outlines, from the same patients. He found the very light or "threshold percussion" to be rather the more accurate. He had good results also with the "touch percussion" of Ebstein and with Moritz's modification of ordinary, moderate finger percussion. The heavy type of percussion is being abandoned, and there is a growing tendency to outline both the absolute and the relative cardiac dullness rather than to be content with either alone. They are complimentary when used together, and tend to correct each other. One can go a step further by marking out curves for very slight dullness, moderate dullness and absolute dullness.

We come now to what seems to me the crux of the matter. Three questions arise. First, What changes of note characterize dullness? Second, What degree of such change shall we recognize as dullness? Third, Is the dullness produced by the heart, by the varying structure of the chest wall, or by various other possible causes? We must not be led astray by differences of note other than those characteristic of dullness. We must take into account the fact that the percussion note at a given part of the chest can be influenced by accidental factors such as muscular contraction, and that such factors may produce slight dullness. We should recognize also the following facts which have impressed me more and more, but which, I think, are not always conceded, namely, that the chest of every individual has a more or less individual tone, and that it is difficult to find two areas on any chest wall where the percussion note will be the same, even though the areas chosen be side by side, or at corresponding points on opposite sides of the chest. If any of you doubt this, I hope you will test the statement yourself in a perfectly quiet room, using a percussion stroke just strong enough to elicit audible lung resonance. The variability of note thus encountered is so confusing at times that I occasionally rely more on the degree of resistance appreciable to the pleximeter-finger than on the note itself, and I think that most practitioners use this feeling of resistance in the same way.

Here again difficulties are encountered because resistance varies with the changing width of the interspace percussed, because the costal cartilages run across the interspaces at an angle near the sternum, and because the relative resistance produced by the dome of the diaphragm or by the corresponding upper part of the liver near the base of the lung may mask the resistance due to the heart.

If all differences of note and of sensation have been correctly interpreted, and if an accurate outline of the heart has been obtained by percussion, we have reason to be pleased with our success.

If there is failure in any respect it may be found that we are trying to compare cardiac dullness too literally with a shadow produced by parallel rays, and that we have not allowed for the curve of the chest wall, which often permits dullness to appear beyond the apex of the heart. This apparent error of percussion, when it occurs, is magnified by the thickness of the chest wall when the point determined on the outside of the chest is compared with the sagittal shadow of the heart itself. The discrepancy so produced was emphasized by Moritz, and has been recognized by others. In cases where dullness reaches thus beyond the apex of the heart the error is not one of percussion, but of interpretation of the findings of percussion.

I believe that those who teach percussion are in duty bound to test their methods carefully by means of x-ray examinations, that orthodiagraphy and teleroentgenography can furnish valuable aid to the clinician, and that the advantage of using them has not received the recognition it deserves in this country.

Before finishing, I wish to express thanks to Dr. Dodd for suggesting the work, and to Dr. George Holmes for help in the work and for taking the plates.

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RELATION OF FOOT AND LEG MUSCLES TO THE STATICS OF THE BODY.

BY C. L. LOWMAN, M.D., LOS ANGELES

In an article entitled "The Relation of Thigh and Leg Muscles to Malpostures of the Foot," published in the BOSTON MEDICAL AND SURGICAL JOURNAL, Jan. 18, 1912, I pointed out one of the chief factors causing deviations from the

normal leg balance. Further study and observation have brought to my notice many interesting facts in the relation of foot and leg positions to the statics of the body. This is especially true of its *middle segment*—the pelvis and lower back regions.

In examining and checking up cases of postural strains, or of bad body alignment, in patients with foot ailments, or backache—or both—I frequently find points of tenderness to pressure or motion, in front of the hip joint at the point of attachment of the Y ligament; also along the posterior margin and the upper angle of the great trochanter where the pyriformis and other muscles of the external rotator group are inserted.

We know that any increased muscle pull requires a greater anchorage for the point of origin or insertion of that muscle. Furthermore, that constant tension on a point of tendinous or ligamentous attachment, may excite periosteal irritation and subsequent thickening of the bone at that point. Examples of this condition are found in the exostoses of the os calcis,—either on the plantar surface or where the tendo Achilles fastens—and in the enlargements of the adductor tubercle and inner femoral condyle.

I first noticed in the radiographs of some chronic backache cases, and in other cases of severe malposture, a marked lipping of the posterior angle of the trochanter major—enough in some instances to form a real spur. Then a couple of cases sent to me for suspected hip disease were promptly relieved by proper foot adjustment. Several more cases presenting sciatic symptoms—pain in the region of the sacro-sciatic notch, hip, sacro-iliac area, and lower back—also yielded to the same procedure. I then began to correlate the findings, arriving at the conclusion that the inward rotation of the thigh—throwing the knees out of line and producing or accentuating valgus ankles—was responsible either directly, or as a contributing factor, in the production of these symptoms

Similarly, I have found in cases of back strain, that a constant tension on the ilio-lumbar ligament had produced, at its points of attachment, a lipping of the vertebral margins and a thickening of the crest of the ilia, accompanied by spur formations. In one case there was almost a complete calcification of this ligament, although the patient presented no symptoms of any osteoarthritic process. She had a loose sacro-iliac joint with a tilting of the pelvis, and a slight rotation of the fifth lumbar vertebra. She was of the relaxed type, and had formerly practiced on the violin four or five hours a day. In other cases in which osteo-arthritic changes were more marked there were findings showing postural defects which had preceded, by many years, a so-called "rheumatic" condition. This is in harmony with the idea expressed by Preiser that mal-alignment has an etiological bearing on later arthritic processes.

It has been my habit in examining and talking with patients to say, "You have two ends to your leg; if one end deviates, something will surely happen to the other end." So with simple pronation cases, valgus ankles, and knock knees, the inward rotation of the leg keeps the external thigh rotators on a tension—particularly the pyriformis. The anterior margin of the great trochanter is, of course, displaced forward. This makes pressure against the structures in front of it. Tension is made, also, on the insertion of the psoas by the rotating of the lesser trochanter inward.

The psoas and pyriformis—two very important muscles connecting the thigh with the vertebral column—are further affected at their upper extremities by the posture usually assumed by patients with weak, flat, or round backs. Measurements made with a pelvimeter will easily demonstrate that the distance from the tips of the spinous processes in the mid-lumbar region to the symphisis, if taken in the relaxed posture, will be much greater than when the patient assumes the correct position with the lumbar curve thrown forward. The increase will vary from one-half to two inches. Thus it will be seen that these muscles are kept pulled sufficiently taut, both at their origin and insertion, to produce irritation at their points of attachment. In a tilted pelvis caused by a short leg, unilateral flat foot, or congenital defect, one would get a similar state of over tension on these muscle groups. In the weak back position, the support of the sacro-sciatic ligaments is slackened by the rotation of the tip of the sacrum forward. This gives the lessened anterior curve which usually accompanies these cases of relaxed posture. Cases of weak or slipping sacro-iliacs, so frequently due to weakened ligaments and loss of tone, are but part of a general mal-posture which includes, also, the foot and leg conditions mentioned before. In such cases, the list of the body is toward the sound side. This gives additional tension to the already tense pyriformis and to the other muscles connecting the thigh with the trunk on the injured side. The condition is further intensified by the loosening of the posterior bony support at the sacro iliac point. This allows the ilium to sag down and to rest, as in a hammock, upon the muscles passing under the notch between the great trochanter and the vertebral column. These conditions, to my mind, account for a great deal of the backache and bodily tire in postural cases, particularly the foot and leg cases. Relief from such symptoms is often brought about by the application of plates and shoes so adjusted as to throw the weight to the outer border of the foot and rotate the os calcis outward.

I think this result is obtained because the knee and thigh are rotated outward, slacking off the muscles above mentioned, giving them a chance to rest and recuperate, thereby reducing the irritation at the points of bony attachment—below

in the region of the hip and above along the lumbar vertebrae. Consequently, I feel that in children and young adults the mere application of arch plates, shoes, and a few corrective exercises applied to muscles *below* the knee are not sufficient to control the actions of the upper end of the leg lever. Such cases should, after necessary rest and the relief from their pain—if any—be given *corrective exercises for the muscles of the thigh and back* if we wish to permanently benefit them, get physiological as well as mechanical results, reduce their leakage of nerve force from the overwork of such large groups of muscles, raise their efficiency for both the present and the future, and insure their latter years against backaches, neurites, disturbances of function in abdominal and pelvic viscera, and probable arthritic changes.

In a short time I hope to add a further report on these observations and shall appreciate criticisms, suggestions, and reports of cases from fellow investigators.

CHRONIC MALARIAL CACHEXIA AND ITS RELATION TO NEURASTHENOID CONDITIONS.*

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THERE are few physicians indeed, who are not called upon with varying degree of frequency, to treat the acute and chronic manifestations that arise from an infection of the Plasmodium Malariae.

North of that imaginary boundary, the Mason and Dixon line, the condition ordinarily termed "Chronic Malarial Cachexia" is rarely found, and this is to a certain extent true of a few states in the South. Those of us who are engaged in sanatorial work and who receive a good many patients from the far South, come in contact, with a fair degree of frequency, with these manifestations of chronic malarial poisoning, probably more than practitioners in cities farther North.

These patients usually give the clinical history of a severe prolonged or frequent and repeated attacks of malarial infection.

SYMPTOMATOLOGY.

The skin presents a peculiar appearance. In the majority of cases this alone is very suggestive of chronic malarial cachexia. The cutaneous surface is usually sallow, of a rather muddy-saffron hue, dull and at times dusky looking. It is, generally speaking, dry and harsh, cool or even cold and flushes poorly. There is considerable pigmentation. This condition is much accentuated on the face and hands where the skin has been exposed to the action of sun and air. The palms rarely sweat and the skin reacts very slowly to hydrotherapeutic measures. These patients give one the impression of a person who is suffering from some derangement of the adrenal system. The peculiar *facies* so difficult to describe, but so well recognized by the experienced eye, under the generic term "cachexia" is generally present.

With the rarest of exceptions, these patients present a general leanness, in fact *emaciation* would probably better describe the condition. There is muscular weakness, considerable stiffness with aches about the joints and following certain muscular movements, especially of the back. Under palpation and manipulation the muscles feel flabby, convey to the touch of the examiner a denutritional state that is thoroughly in accord with their complaint of weakness and easy fatigability.

Careful personal observations have taught me that there is nothing more unreliable, uncertain and irregular than the *temperature* of these patients. My cases have ranged from markedly sub-normal, normal, up to irregular temperatures of 100 to 102° F. These observations have been based not upon occasional, but upon careful and persistent daily use of an accurate thermometer.

The *circulation* is almost constantly affected. The heart action is rapid, especially on exertion and cardiac murmurs may be present. I have found quite a number of endo-cardial ones and with fair degree of frequency anemic murmurs. The pulse is usually poor, small, compressible, rapid, with a flabby feeling to the arteries. Its rapidity is quickly increased on exertion. *Blood pressure* readings show a general lowering of both the systolic and diastolic pressures. My observation has been that the pulse pressure is usually in the neighborhood of 20. A great many of these cases complain of cardiac oppression, and palpitation is an exceedingly frequent symptom. The cardiac oppression and palpitation, however, is different in degree and character from that found in the *anxiety neurosis*, being less sharply defined, rather more diffuse and much less intense. It is much worse upon exertion. Usually there is no *angst* accompanying the cardiac and precordial manifestations. An edema of the ankles in the evening is a frequent symptom.

The *gastro-intestinal tract* is *always* affected and oftentimes presents a very prominent symptomatology in the case, these symptoms vary in degree but are present in nearly all cases. Undoubtedly this condition adds to the suffering, discomfort and general cachexia of the patient.

The *tongue* is usually pale, flat and broad, flabby, indented and coated with a moist, white covering, greatest at the posterior portion and occasionally tapering to a point at the tip. I have rarely seen red edges, in fact, pinkness is

* Read before the Ohio Valley Medical Association at Evansville, Ind., November 5-6, 1913.

hardly ever present, the tongue presenting somewhat the washed out and partially shriveled appearance of the "washerwoman hands."

The *breath* is usually foul and suggestive of putrefactive changes in the gastro-intestinal tract. It is a condition that harmonizes well with the appearance of the tongue.

The *appetite* is very fickle, irregular and at times peculiar, but a distinct loss of the desire for food and a tendency toward complete anorexia is present.

Gastric digestion may be encompassed under the term weak. Those cases that do not present a hyperesthetic nervous system, will be found showing a diminished amount of the normal acidity, while the hyperesthetic cases are apt to show a hyperacid condition. In both, however, much more especially the hypoacid cases, a great deal of gas is present and the clinical appearance is that of an atonic state.

The *intestinal activity* is very much weakened.

The *abdomen* is usually distended, the patient complaining of pressure and general discomfort. Constipation may alternate with diarrhoea, but the former has in my experience occurred practically in all cases; the latter rarely.

Fatal hemorrhage has been spoken of, by some authors, as occurring in these cases, but I have fortunately never seen a case of this character. The whole type of symptomatology which the gastro-intestinal tract presents in this disorder, is that of a low grade chronic inflammation. All the gastro-intestinal symptoms are much more marked than in neurasthenia.

Physical examination of the abdomen will oftentimes throw diagnostic light upon these cases and where chronic malarial cachexia is suspected, it would be a grave omission, from a diagnostic standpoint, to overlook a careful examination of the abdominal contents. In most of the cases I have seen the spleen has been enlarged. The spleen is usually indurated and may be so greatly enlarged as to be almost massive, although this is a rather rare condition in my experience. Careful percussion, with the patient standing, will show the spleen area of dullness to be considerably increased and palpation may, in some instances aid in the diagnosis. I have found the *liver* as frequently enlarged as the spleen, in fact, the area of the liver dullness has oftentimes been found to be increased as much as the width of two or three fingers and is, I believe a valuable confirmatory sign. The enlargement of liver and spleen together with the presence of gas in the intestinal tract, tends to make the abdomen prominent.

There is a high grade of *anemia* which corresponds with the patients appearance, which as above stated is usually pale and thin. Of the laboratory findings in these cases, we will have more to say later on.

The nervous symptoms are most marked and are neurasthenoid in character. The term *"neurasthenoid"* is employed, as the writer does not believe this to be a true neurasthenia in the strict interpretation of the term as it is employed by neurologists and psychiatrists today, but that it closely resembles the condition is undoubted and therefore the terminology employed. All mental and nervous symptoms are less in degree than in true neurasthenia. All cases complain of more or less general constant *lassitude,* usually worse in the afternoon and evening, with marked disinclination for physical and mental effort. There is a general disinclination to mental effort, depression, irritability and peevishness and general nervousness, much more marked in the latter part of the day than in the early morning.

In certain male, and in nearly all female, cases there are minor *hysteroid* symptoms with a tendency to emotionalism and a "filling" of the eyes or often actual tears. Subjective *vertigo* is present in certain cases, usually past the meridian of life and possibly due to vascular and toxic conditions. *Insomnia* is one of the most marked symptoms we have to deal with and more closely resembles the true neurasthenic insomnia than almost any other symptom. The patient has difficulty in getting to sleep and is restless until sleep comes. The loss of sleep aggravates greatly the patients condition.

It is a rarety to find cases free from *headache.* This is usually of a dull, heavy character, more often frontal. It is usually worse during the day but does not seem to prevent sleep. It is aggravated by intercurrent disturbances of the gastro-intestinal tract. We do not find in these cases, in my observation, the *"brow-ache"* that is commonly ascribed to malarial conditions. Where *neuralgia* is present, we are more likely to find an active malarial process than a cachexia.

LABORATORY FINDINGS.

The laboratory findings are often interesting, although they may not show any findings that are pathognomonic. The *urine* is usually diminished in quantity; has a higher grade of acidity (35-50); there is diminished urea elimination, unless the patient is rapidly losing flesh. There is oftentimes a trace of albumen, urobiligen and indican. The microscope frequently shows casts and cylindroids, which with the presence of albumen constitutes what the French have very aptly called *"la petite Bright's."* There are usually many epithelia, some from the kidney, but the majority from the bladder. In men we frequently find evidence of prostatic irritation. The *blood* should always be carefully studied. Sometimes its appearance microscopically corresponds with the evident high grade of anemia that is nearly always present, for these patients look the part. The hemoglobin runs low, oftentimes 50 or below, while the red cells are greatly reduced in some instances to close around one million. The microscopic study of the fresh drop will show very pale red cells, many of them distorted although one could hardly say that we have to

deal here with a true poikilocytosis. Oftentimes granules of pigment are found floating in the blood, but more often in the white blood cells. This observation was first made by Manson, of the British Indian Medical Service, and since the publication of his interesting paper, we have looked constantly and searched persistently the blood of these patients for this pigmentation. Lately Wade Brown has shown that the pigment elaborated from the hemoglobin of the red cells by the malarial parasite is hematin. He injected this pigment into the circulation of rabbits and produced a series of phenomena strikingly like a true malarial paroxysm in man. It would seem from this that hematin was the cause of the paroxysm.

We have not found the malarial parasite in the blood with any degree of frequency. Where it has been discovered there have been, as a rule, some acute manifestations engrafted upon the cachexic state. We have often called in question this failure although the blood has been studied under many conditions in the hopes that they would be found.

The *gastric analysis* usually reveals either a decrease or an increase of the acid content, which, as we have said before, we believe to be due to the question as to whether we are dealing with a hyper- or hypo-esthetic nervous system; in the former we would expect to find a hyper, in the latter a hypo-acid condition. A good many cases have a complicating gastritis of low grade, which may, as we well know, accompany either a hyper or a hypo state.

It may not be amiss to state that since the introduction of serological methods, the cases that form the basis of this clinical study have been subjected to a careful investigation along these lines, employing the methods of Noguchi and Weil (Cobra Venom Test) in order that there might be no question as to a syphilitic taint.

DIFFERENTIAL DIAGNOSIS.

The frequency with which these cases are labelled neurasthenia, has led me to be very careful in their separation. The tendency to tag all cases of whatever nature that seem to be generally run down, that have a number of functional (?) nervous symptoms cannot be too heartily condemned. While these cases have many mental and nervous symptoms due to the toxemia of the malarial poisoning, they are not, in the modern conception of the true neurosis, neurasthenic. Neurasthenia as limited today by recent investigation, is an entity (pressure in the head, spinal irritation, dyspepsia with flatulence and constipation, paresthesiae, diminished potency and emotional depression) that the neurologist recognizes as due to conditions other than toxemia. In fact the very careful separation of the true neurosis of neurasthenia and anxiety-neurosis from the many pseudo-neurasthenias that arise from irregularities of the internal secretions, from the various toxemias and other causes, is one that requires no little diagnostic acumen. To have at hand a capacious waste basket into which we may drop our difficult diagnostic problems is undoubtedly an easy solution of the case in hand, but the patient is in the unfortunate predicament of the cat, who is swung by the tail in a room of small proportions. Comfort, at least, is not with the cat. We believe that close *observation alone* would in many of these cases lead the physician to *suspect* what might be the underlying *causus morbi*. Nor should he forget to eliminate hypertrophic hepatitis, Bantis Disease, etc., and any other general or abdominal disease or disorder, merely because of the deceptive appearance of a group of functional (?) nervous symptoms.

DIFFERENTIAL DIAGNOSIS.

MALARIAL CACHEXIA.	NEURASTHENIA.
Skin: Sallow, muddy, dry, harsh.	*Skin:* May be clear, pale, ruddy, flushed, moist.
Palms: Rarely ever sweat.	*Palms:* Commonly sweat.
Skin reaction: Very sluggish.	*Skin reaction:* Very active.
Emaciation: Muscular flabbiness and genuine weakness.	*Emaciation:* Absent. May be fat, muscles and tissues firm, weakness neural rather than physical.
Temperature: Variable.	*Temperature:* Variable.
Heart: Murmurs frequent.	*Heart:* No murmurs.
Pulse: Rapid, small compressible.	*Pulse:* Variable, may be large.
Blood pressure: Lowered.	*Blood pressure:* Variable.
Gastro-intestinal symptoms: Resemble each other but more marked and definite.	*Gastro-intestinal symptoms:* Less definitely marked.
Abdomen: Protuberant, distended.	*Abdomen:* Negative. Ptosis occasionally.
Spleen: Enlarged.	*Spleen:* Not enlarged.
Liver: Enlarged.	*Liver:* Not enlarged.
Anemia: Always present and of severe grade.	*Anemia:* May be present: relatively moderate.
Mental symptoms: Same in both, but less in degree.	*Mental symptoms:* Same in both.
Nervous symptoms: Same in both, but less in degree.	*Nervous symptoms:* Same in both, but greater in degree.
Blood: Pigment: pigmented white cells.	*Blood:* None.
Urine: Petite Bright's present.	*Urine:* Petite Bright's absent.

Recapitulating we may remark that:

1. The symptoms in true neurasthenia, are as a rule, worse in the morning instead of the afternoon; are more of the fatigue and irritative type and more intense than are present in chronic malarial cachexia.

2. The abdominal symptoms enumerated above: these are rarely found in cases of true neurasthenia.

3. The *cachexial* appearance, color and reaction of the skin; an emaciation that is suggestive.

4. The laboratory findings.

TREATMENT.

The success that we have attained in the treatment of these cases has been one of the incen-

tives to the publication of this clinical study. The cases have nearly all been hospital ones, under absolute control as regards their hygiene, diet, rest and the following out of the treatment laid down for the particular case in hand. We mention this as we believe that *hospital* or *sanatorial* treatment and absolute control of the patient are essential for the complete relief of these patients and their return to normal activity. About ninety per cent. were ambulatory, the remainder bed-ridden when the cases came under our observation and treatment. The first step was to lay down hygienic rules as regarded their lives, clothing, rest, exercise, etc. In general they led regular and restricted lives, securing a great deal of rest and especially resting for an hour or longer following the various treatments employed. Weak cases were given modified "rest cure" methods. In all instances, the patients were fed as we would feed them for intense anemia and a low nutritional state, in other words the diet was as fully nutritious and varied as much as possible in order to induce the full consumption of food that the gastro-intestinal organs could take care of, with the aid of gastro-motor tonics and digestants. The endeavor was to increase the quantity and quality of the blood and put fat upon those who were both "lean and hungry;" those who were bed-ridden were treated in bed until able to get up, at which time graduated exercise and a slow resumption of activity was followed out.

During the treatment we have had *acute* malarial attacks to occur, in fact, we are positive that attacks have been brought on by forcible concussion of the twelfth dorsal and first, second and third lumbar vertebrae, by a *very powerful jet douche*. Clinically speaking, we feel that the concussion of these vertebrae produced a contraction of the spleen with a consequent liberation of the malarial organisms and a resulting attack. In several cases we have noticed a malarial attack follow the concussion (mechanically) of these vertebrae and believe that the mechanism of its production is as above stated. If an acute attack supervenes, it should be treated as such without regard to the treatment of the cachexia.

PHYSIO-THERAPEUTIC METHODS.

Massage, both manual and mechanical, is very valuable in the management of these cases, owing to its general tonic effect and its influence upon the nervous circulatory and eliminative organs. As has been known for many years, massage and vibration are reconstructive, largely through their influence upon nutrition and through metabolic changes in the organism. That it has a beneficial influence in these cases can be very readily shown, where we have utilized it as the *sole* mechanical or physio-therapeutic remedy in conjunction with dietetic and hygienic control.

We use *electrotherapy* in these cases: it is an adjuvant but possesses no specific value; is useful in the treatment of certain local manifestations, especially the digestive disturbances and the constipation. Of course, in improving the functional activity of the gastro-intestinal tract and bettering its evacuation, it becomes a contributing factor in the general up-building of the patient. Those currents best suited for these cases are the *galvanic*, using large enough pads to cover both spleen and liver; the *sinusoidal* for its muscular effects upon the intestine and the *static* wave current, per rectum and over the liver and spleen.

Hydrotherapy, we believe to possess a specific influence in this disorder and the results obtained by its use have been such as to lead us clinically to depend upon it as the main weapon in the combat of these cachectic states.

Two classes of cases demand treatment: the bedridden and the ambulatory.

Where the case is bed-ridden, we commence the treatment with a cold sponge at 60-50° F., using a crash glove and secure reaction by vigorous rubbing with a crash towel. As soon as the patient's reaction is well established, we use the dripping sheet at 60-50° F. rapidly applied with good friction once or twice daily. The details of this and subsequently described methods, I have given fully elsewhere.* As soon as the case is up and about, the ambulatory method is employed.

Should a chill develop, the method usually employed is to order hot drinks of either plain or flavored water, lemonade, etc., with hot water bottles to the feet and surrounding the patient or the hot full bath at 102-104° F. for ten to fifteen minutes, followed by rapid drying and lying between blankets; these will give much comfort and shorten the attack. With the subsidence of the chill, we usually wait one hour and if there is no sweating and the temperature begins to rise, we allow the patient to drink freely of cold water and order the cold sponge at 60-50° F. applied singly to an extremity, then to the back and finally to the chest and abdomen, being careful to dry each part as soon as it is sponged and to use a crash mitten or rag in order to produce sufficient friction to dilate the surface capillaries. If, however, the patient should be sweating the parts must first be thoroughly dried after which they are rapidly sponged with very hot water (110-115° F.) the mitten or rag being squeezed dry before being used for the sponging. Each part must be dried and immediately returned to the cover.

If it is believed that a chill is approaching and it is desired to *abort* the attack, the patient should be given large quantities of hot water internally and the hot full bath at 102-104° F. for ten to fifteen minutes and kept warm until the threatened attack has passed.

As soon as the bed-ridden cases are able to get about and for the ordinary ambulatory cases, we employ the following method:

* Practical Hydrotherapy. Cincinnati Medical Book Co.

1. *A hot procedure to perspiration.* For this purpose we can employ the hot full wet pack, the full dry pack, the vapor, hot air, superheated dry hot air or incandescent electric light bath; the latter is undoubtedly, and by far, the best heat measure in such cases, as it acts not only as a provoker of perspiration, but accomplishes this and at the same time stimulates the patient.

2. *A preliminary warm application.* This may be a sponge, the dripping sheet, the hot half bath, full bath, shower, rain, needle, spray or douche.

3. *A cold application.* This may be likewise a sponge, dripping sheet, cold half bath, affusion, shower, rain, needle, spray or douche.

The best all-round combination for ambulatory cases with this disorder, is as follows:—Incandescent electric light bath to moderate or free perspiration, according to the strength of the individual; the needle, rain or shower bath at 102-104° F. for one or two minutes reduced to 60-50° F. for one-fourth minute under twenty to twenty-five pounds pressure, followed by the Scottish jet douche to the spine, (10th dorsal to 4th lumbar) and over the liver and spleen at 105° F. or more under twenty pound pressure reduced to 60° F.,; the alternation should be hot douche one-half minute alternated with the cold douche for ten seconds, three to four alternations.

Following each application, the patient should be thoroughly rubbed and a reaction secured. By reaction we mean the pleasant glow, pinking of the skin and tonic state of the circulation that directly results from the manifold reflexes, etc., that follow the cold application. It is advantageous for the patient to rest quietly after the treatment and to be instructed to drink eight to ten glasses of cold water daily.

MEDICINAL THERAPY.

Most of these cases that come under our professional care have been dosed to death with medicine; have taken calomel, quinine, arsenic, and many other drugs in varying forms and for long periods of time. From our personal experience we would say that very few drugs are of advantage in these cases and that most of them are best employed by the hypodermic method. The first group consists of iron, arsenic and quinine. We prefer to administer iron and arsenic hypodermically daily and believe that there is a certain advantage in giving it in the morning before the hydrotherapeutic measures, as we believe that these favor its better distribution and action, in fact, we are inclined to believe, from clinical observation, that nearly all drugs can be given in smaller doses with better effect and surer physiologic action where hydrotherapy is employed. We believe that iron and arsenic is better in the cachexia than quinine. Where an acute attack is threatened or where one has taken place the hypodermic administration of quinia bi-sulphate in from two to four grain doses will oftentimes spare the patient the nerve racking influence of large doses by the mouth and at the same time be far more effective when given in this way. It is astonishing sometime the beneficial results that come from its use. The other group are the fats of which cod-liver-oil, Sevetol, Russell's Emulsion, butter, olive oil, mayonnaise and a host of other emulsions may be employed. In this connection, it must not be forgotten that real rich milk and cream can often take the place of emulsions.

METHOD.

The methods here enumerated, are as a rule worked into a "system" for each individual case, that is to say the hygienic rules that are to govern the patient are first laid down and explained. The diet is then arranged, the rest prescribed and such medicinal measures as are deemed wise given. The day is divided up so that certain local or special treatments, to meet certain lesions or conditions, such as headache, insomnia, splenic and hepatic enlargements, gastro-intestinal disturbances, etc., and the hypodermics of the drugs used and suggested, given. In the mid-day the hydrotherapy and in the afternoon or evening the massage. In this way we are able to meet many conditions that are clinically indicated in the particular case in hand.

AIM OF TREATMENT.

It will thus be seen that the aim of treatment, as herein outlined, is to:

1. Increase the general neural and vital resistance.
2. Increase the hemoglobin, corpuscular richness and leucocytal activity of the blood, thus overcoming the anemia.
3. To destroy the parasites, at any time should they be present or become active.
4. To increase the elimination of toxins.
5. To stimulate normal metabolic changes.
6. To overcome the neurasthenoid state.

RESULTS.

We have had to deal with quite a large number of these cases and the remarkable success that has attended the method herein outlined has led to the publication of this paper. These patients must be carefully handled and persistently treated. Their cases require time, care and attention, but where this is persisted in brilliant results follow.

It has seemed to us that there are a certain number of cases that seem to possess a peculiar sensitiveness to the malarial poisoning and who have a tendency to develop the cachexia. To these people we advise removal and residence in a non-malarial district and that if this is not sufficient that they be given iron, quinine and arsenic hypodermically and that they take hydrotherapeutic treatment for a number of months until the tendency is entirely eradicated.

A STUDY OF CANCER.—BY SEELYE W. LITTLE, M.D., ROCHESTER, N. Y.

(*Concluded from page 166.*)

TABLE I.

Tissues derived from different germ layers.

ECTODERM.	MESODERM.	ENDODERM.
Entire nervous system.	Blood vessels (except lining endothelium).	*Epithelium* of entire alimentary tract (except anus and part of mouth) and of all glands opening into alimentary canal.
Epidermis.	Bones.	
Hair.	Muscles	*Epithelium* of eustachian tube and tympanic cavity, of trachea and of entire lung apparatus.
Nails.	Connective tissue.	
Enamel of teeth.	Spleen.	*Epithelium* of bladder and urethra.
Epithelium lining.	Generative and urinary organs (except lining epithelium of bladder and urethra).	*Endothelium* of heart blood vessels and serous cavities.
Glands: Sebaceous. Sweat. Mammary.	(Fat probably transformed connective tissue cells,—first appearing in embryo about fourteenth week).	
Epithelium lining nose and part of mouth and pharynx (all mouth in front of pharynx except tongue which is of *endodermic* origin. That part of pharynx left as remnant of ant. lobe of pituitary is of ectodermic origin).		

TABLE II.

Derivation (embryologically) of "ductless glands."

ECTODERM.	MESODERM.	ENDODERM.
Ad renal portion of suprarenals (*that is, the medullary part*).	*Inter*renal portion of suprarenals (*that is, cortex*).	Thymus.
Pituitary body.		Thyroid.
Carotid body.		Parathyroids.
Coccygeal body. ?	Coccygeal body (*probably from medial sacral artery*).	Pancreas, Islands of Langerhans (epithelial origin).
Pineal body.	Testicles (Leydig's cells).	
	Ovaries.	
	Corpus luteum (*epithelial*).	Gastric and intestinal mucosa.
	Interstitial cells (*connective tissue*).	

TABLE III.

Cancer of *mesodermic* tissue occurs only in:	Generative and urinary organs (except lining membrane of bladder and urethra which are endoderm). 18% of all cancers.
Cancer of *endodermic* tissue occurs only in:	Entire digestive tract with all glands opening into it (except anus and mouth). Entire respiratory tract. Eustachian tube and tympanic cavity Epithelium of bladder and urethra. Endothelium of heart, blood vessels and serous cavities. 64% of all cancers.
Cancer of *ectodermic* tissue occurs only in:	Entire nervous system. Entire epidermis (including hair, nails and enamel of teeth). Epithelium of sebaceous, sweat and mammary glands. Epithelium of nose and mouth (except tongue—endo). 19% of all cancers.

(Above percentage is from *classified* cancer deaths in New York State for first six months of 1913. There were besides 754 unspecified cancers. Over 8000 per year.)

Above percentages are approximate

TABLE IV.

Six Months' Cancer Deaths in New York. Unspecified.	ECTODERM. (Skin, mouth, breast.)	MESODERM. (Fem. Genital Organs.)	ENDODERM. (Stomach and liver, peritoneum, intestines and rectum.)
1913			
	19		252
	26		116
June 117	58—103	111	—368
	20		255
	16		84
May 130	57— 93	94	—339
	21		300
	21		108
April 128	70—112	113	—408
	19		280
	33		84
Mar. 112	70—122	95	—364
	17		253
	17		98
Feb. 119	75—109	108	—351
	21		300
	23		90
Jan. 148	62—106	97	—390
754	645	618	2220

TABLE V.

Ductless glands presumably mainly at fault in cancer of *mesodermic tissues:*

Derived from *mesoderm.*
- Cortex of suprarenals.
- Leydig's cells of testicles.
- Ovaries.

Ductless glands presumably mainly at fault in cancer of *ectodermic tissues:*

Derived from *ectoderm.*
- Medulla of suprarenals.
- Pituitary body.
- Pineal body.

Ductless glands presumably mainly at fault in cancer of *endodermic tissues:*

Derived from *endoderm.*
- Thymus (in young).
- Thyroid.
- Parathyroids.
- Pancreas (Islands of Langerhans).

TABLE VI.

Conditions often producing hyperglycemia and glycosuria.

Hyposecretion.
- Islands of Langerhans (except in cancer?).
- Parathyroid?

Hypersecretion.
- Suprarenals.
- Thyroid.
- Pituitary.

TABLE VII.

Tolerance for sugar without glycosuria.

Hyposecretion.
- Pituitary. — Ectoderm.
- Sprarenals (medulla). — Ectoderm.
- Suprarenals (cortex). — Mesoderm.
- Ovaries and testicles. — Mesoderm.
- Thyroids. — Endoderm.
- Parathyroids. — Endoderm.
- Islands of Langerhans (in cancer?). — Endoderm.

It is interesting to notice, counting the thyroid and the parathyroid as one system, that for each blastodermic layer there are two ductless glands one or both of which may be at fault in producing the characteristic tolerance for sugar in cancer patients.

THE CASE FOR RADIUM THERAPY.

BY SAMUEL DELANO, M.D., BOSTON.

(*Concluded from page* 163.)

II. EMANATION.

Internal Use. As we have seen, a radium salt depends for its rayage upon the formation of the emanation and further splitting of this into its chain of decay products, Radium A., B. and C. Emanation, in its subtlety and tenuity almost deserves the name of aura or atmosphere. It is, however, a noble gas, obeys all the laws of gases, but is inert—not affected by chemical agents. An idea of its want of bulk may be gained from Soddy's comparisons. The quantity given off by 30 mgms. of radium would still have to be multiplied by 30 to amount to a bubble of a pin's head size. One billionth of a mgm. of emanation may be recognized with ease, and measured. Nevertheless, it may be manipulated and captured by a mechanism. It can be drawn through capillary tubes, liquefied by liquid air, released again into a vapor in a vacuum and finally forced into a capillary tube by a mercury pump. By means of this imprisonment it may be used for radiation purposes and, bulk for bulk, has vastly more strength than the radium salt itself.

In the tube, however, it cannot do one thing that it can when free, viz., cause radio-activity in other objects; when free, emanation in the most minute quantity will, by its splitting into decay products, produce what is called induced radio-activity—a condition which is dependent upon the emanation precipitating its secondary deposit (Radium A., B. and C.). While emanation itself is a gas and has no chemistry; the secondary deposit is metallic in nature, and though impalpable, may be removed by acids, heat, or even sandpaper (in which case the sandpaper becomes radio-active!).

Emanation, through its powers to ionize gases, is just as good a measure of the activity of radium, qualitatively and quantitatively, as are the rays through the evidence of, the photographic plate, the burn, the phosphorescent screen and the ionization. The secondary deposit, of course, furnishes rays by passing (at various distances of time (minutes) through the decay series Radium A., B. and C. Thus a frog killed by exposure to the emanation will photograph itself.

Perhaps nothing better expresses the ubiquity of radio-activity (emanation) than the Biblical phrase, "In the heavens above, in the earth beneath and in the waters under the earth." Gushing from the earth we have the radio-active waters of the so-called neutral springs, the *wildbäder,* with their powers renowned for centuries. We have the radio-activity of the soil, the atmosphere and the sea water, and in the heavens we know, at least, of the presence of Helium (identical with Alpha particles) in the sun, while the fresh fallen rain and snow are radio-active.

Emanation is toxic to animals, and destructive to vegetable life, but non-toxic to man, and a healthy individual is not affected by a dose to which disease reacts. Thus emanation kills the germs of plants, shrivels leaves, destroys hair, nails, ovary, testicle, coagulates albumen of egg, discolorizes the yolk (destruction of lecithin), but it wields many other influences that evidently cut a large figure in its therapeutic quantivalence.

By its mere presence emanation proves itself possessed of catalytic powers, *i.e.* capacity to start or intensify reaction between two other agents. Thus:—

Air and emanation in a tube—the product is nitrous oxide. (Cf. the synthetic production of nitre from the atmosphere by electricity.)

Oxygen and emanation—the product is ozone

Iodoform and emanation—iodine.

All the various fermentations are actively goaded along *in vitro* by emanation—gastric and pancreatic, glycolytic and diastatic, lactic and yeast. It also stimulates autolysis. Of two pieces of cancer tissue in water, the one exposed to radium emanation decays seven times quicker than the other.

But the activity of ferments in nature's laboratory must be much greater than in a test tube; *cf.* the rapid synthesis of proteids from the food. Therefore a much smaller amount of chemical energy is necessary in the body. Hence the entire naturalness of the conception of small quantities of emanation as an active agent. In this connection, compare the fact that one microgram of adrenalin will affect blood pressure. Every process concerned in metabolism in the body must have its specific ferment. Emanation may be looked upon as a strong (general) ferment. Entering the blood it may be absorbed by the colloids (as it is by charcoal); the secondary deposit (metallic) forms a metallic colloid solution analogous to the colloid solution of the metals. This activates the blood, and in consequence all processes of the body are activated.

Prof. Hertwig finds that the blood and lymph cells and the hematopoietic organs are especially affected by radio-activity. Horsely finds that in the nervous system changes are mostly vascular.

Emanation—How Taken? Emanation may be introduced into the system either by drinking water containing emanation, by inhaling the emanation, by bathing in water containing emanation, or by injection.

When inhaled, much immediately returns with exhalation; it is desirable, therefore, to reduce the cubic space, that the emanation may be re-breathed. Taken into the stomach, a good portion escapes via the portal system, right side of heart and lungs. In a bath the process is again one of inhalation largely—there being consider-

able dispute as to whether there is even a small absorption by skin. By injection intravenously the whole amount gets placed.

It is figured by Lazarus that only one-tenth of the inhalation dose is effective, nine-tenths being lost. The blood can be proven radio-active in a few minutes, and with the usual dose all emanation has disappeared from the system in from two to four hours.

The half period of emanation is 3.8 days, *i.e.* in that time half of it has decayed—after that the process goes on in geometrical ratio till a finality is reached in thirty days.

In the case of radio-active water, as *e.g.* from springs (or water made radio-active by contact with an insoluble radium salt) a rapid loss in emanation is the rule, if it has to be handled or transported. Thus most bottled spring waters are decidedly weak.

But if there be radium in solution, the storing up of emanation follows according to a specific law. If radium is dissolved, the rapidity of the formation of emanation increases in rate. At first the decay is in excess of the evolution of the gas, but gradually the amount evolved catches up, till in a month the amount formed is in equilibrium with the amount split up (decay); from this point on this balance is maintained.

Physiological Action. Naturally the action of emanation could be most readily and accurately studied in respect to its effect on metabolism and on the blood.

1. It increases the excretion of uric acid. An amount of .1 gm. *pro die* can be increased to 1 gm. It ensures uric acid's keeping its soluble form in the blood and thus prevents its precipitation. It promotes the absorption of that already deposited. It increases the secretion of urea and promotes metabolism, increases the respiratory quotient, increases amount of carbonic acid excreted.

It diminishes the viscosity of the blood through the improvement of metabolism and the diminished saturation of the blood with diverse material.

It produces a dilation of blood vessels through the excitation of vaso motor nerves.

Through the influence of the last two factors it effects a lowering of blood pressure, even as much as 20-30 mm. of mercury.

It improves digestive processes by activating ferments and stimulates the whole digestive tract by acting on the nerves of the intestines.

It produces diuresis.

It is a rapid tonic, showing its effect in a renewed vigor and *bien aise,* and in an increased body weight and appetite.

By it the blood is modified as to its constitution. A small dose (of a few thousand Maché units) will cause a hypoleucocytosis, but the diminution of leucocytes will not be permanent beyond a certain point. Sometimes there is a hyperleucocytosis (v. Noorden).

After an injection of radium the red corpuscles are found to increase at an astonishing rate, thus from 5,400,000 to 7,200.000 in half an hour and up to 13,000,000 in seven days.

Therapeutics. The scientific application of emanation to therapeutics has a very decided historical basis of support in the centuries-old fame of certain springs that have since been shown to depend for their virtues on the presence of radium emanation. Even among the mines it was known that workers did not have rheumatism, pitchblende sewed in a sack was a popular cure for headache, and the water a remedy for constipation. The red men in America worshipped the "spirit of the springs" and erected huts about them.

The reputation of the springs converged more particularly on gout and rheumatism, but left room, perhaps not less, for general effects on the system and for the repair of senility and sexual decline.

Since the responsibility for the cures has been laid at the doors of radium, the manner of using the water and emanation has been systematized to a point of high development, and as an outgrowth, clinics for the use of the emanation have been established in innumerable centres. This extension has enlisted the services of many gifted clinicians, so that in the six or eight years past much data has accumulated and results have been authenticated. The names of Gudzent, His, Falta and v. Noorden, v. Neisser, Klemperer, Lazarus, et al., form a galaxy, the brilliancy of which should leave no doubt in our minds of great results secured with radium emanation.

There need at least no doubt attach to the remarkable control of radium over gout and rheumatism, in its very varied manifestations. And it is to be remembered that here radium has been offered the task of conquering conditions that correspond rather well to the inoperable cancer. Rheumatoid arthritis, *e.g.* is a well nigh hopeless disease so far as other therapy is concerned, but many remarkable successes have crowned the use of radium. And so with other chronic joints and arthritises, with the exception of luetic and tubercular.

The nearer the joint is to the subacute stage, the more promise of success, especially if it is at the stage of effusion and periarticular edema; but very chronic joints will show vast improvement, if they have not passed into the stage of absorbed cartilage and organized fibrous tissue. "Before experience," says Klemperer, "I expressed myself as very skeptical of the reported successes of others, but now I can say that radium scores such success as does no other therapeutic measure, in rheumatism." Prof. Falta uses the emanation in acute cases even, and says it is to be preferred to the salicylates.

In gout and rheumatism a curious feature comes to light, viz., the reaction, *i.e.* what might be called the "touching up" through the radium; pain, swelling, fever appear or are emphasized. This must be looked for if doses of any size are used, and indeed it offers the means of "taking

the measure" of a patient. Appearing, it is distinctly favorable in a prognostic light. On account of it, occasionally the treatment has to be interrupted; it appears at a variable time, two days to three weeks. Another phenomenon, "late or postponed healing," was well known in the old days of the springs, before radium saw the light. It has to do probably with the presence in the body of the later members in the decay series — Radium D.-F. — which take months for splitting and the liberation of energy.

The action of radium on rheumatism may perhaps be referred to its bactericidal action, radium having a destructive effect on staphylococci and especially on gonococci (the emanation is especially effective in gonorrheal rheumatism), but its influence over metabolism, its autolytic and antiphlogistic action are not to be forgotten.

In muscular rheumatism and inflammatory conditions of muscle and fibrous tissue emanation acts favorably. A lumbago is relieved by a few doses.

In many nervous diseases emanation has been found very valuable. In all neuralgias connected with neuritis or with metabolism or having a uric acid, gouty, or diabetic foundation, radium emanation is a specific. In tabes, Wachsmann found only four out of nineteen cases not benefited as to pains, while, too, the crises were relieved.

In catarrh of the antrum and frontal sinuses Pick has reported remarkable improvement. So in chronic inflammatory conditions in general, as in the pelvis or the myocardium.

There is no doubt that radium emanation has a well defined soporific influence. This has been emphasized by many observers. It may, perhaps, be ascribed to its influence in widening the blood channels.

To the latter effect may be attributed its control of blood pressure. This ischaemic reaction makes it useful in vaso motor disturbances and constrictive states. In this line comes arteriosclerosis, for which the springs in earlier years had especial repute.

Because of increasing the red corpuscles and its pronounced tonic effect in general, emanation acts highly favorably in simple anemias. Cases, too, of pernicious anemias have been reported cured (one recently by Gudzent, although he intimates a relapse as quite possible).

In diabetes, where it has been much used, observations differ. No doubt its effect seems to reach the proportions of a cure in early cases in younger patients. If diabetes is caused by a deficiency or insufficiency of glycolytic ferments (and glycolytic ferments are well borne by diabetics) the coefficiency of emanation in glycolysis ought to be a factor of benefit. Sanbermann is enthusiastic over results in diabetes, and believes that failures are due to small doses (mentions as low as 10-100 M.U.). Mayer and Eichhorst have reported good results.

As a rejuvenator in senility and sexual decline, v. Noorden is especially friendly to radium; and before radium the baths were much resorted to for such influences.

Emanation certainly corrects many conditions of digestion, as intestinal fermentation; it is also laxative and a remedy for constipation.

Practical Use of Emanation. 1. By inhalation, emanation may be introduced into the system if the patient remains in a room the air of which is heavily charged with the gas. To this end large and costly emanatoria have been erected in connection with radio-active springs, with a reduced cubic space, appliances that care for the oxygen supply and the removal of carbonic acid and moisture (the patients are even electrically (neg.) charged to increase the amount of active deposit collecting on them); a further advantage of such an establishment is that every object about the buildings increases the total radio-activity, having acquired an induced radio-activity through the precipitation of secondary deposit.

2. Advantage may be taken of the law that dissolving a radium salt increases the liberation of emanation. The solution is aged until the emanation is in equilibrium with the radium, after which time the amount of emanation is constant and may be continuously used for inhalation—a current of (washed) air or oxygen being forced through the container and conducted out to be inhaled by any number of patients. This is the most appropriate form for a home-made emanatorium. The amount of radium should be perhaps 2 or 3 mgms. to each individual.

3. An individual inhaler may be arranged and installed in a small cabinet or booth. Here advantage might be taken of the law that, if heated, radium gives off its emanation more rapidly. Thus the solution of the radium salt may be boiled, the steam conducted into a container where, the steam being condensed, the emanation is left, to be inhaled.

4. Emanation by the bath resolves itself into emanation by inhalation. There is a small amount of absorption by the skin (Lazarus), though this point is vigorously disputed. A bath may be made radio-active by introducing an insoluble radium salt or residues containing radium. But it is far better (though more expensive) to add a solution of a radium salt, in which the maximum quantity of emanation has been developed by aging. The escaping emanation is to be inhaled, and to this end the cubic space of atmosphere should be made as small as possible. The active deposit on the body should not be wiped off.

5. Emanation *per os* may be in the form of water made artificially radio-active by contact with an insoluble radium salt. But this water is unstable, and the amount of emanation weakens rapidly. Hence it is far better and more dependable (but costlier) to age a solution of a

radium salt,—get the maximum quantity of emanation and make the dose certain.

Radium by Injection. A soluble salt of radium has been introduced into the system intravenously, in pretty large doses, even up to 1 mgm. The usual dose, however, has been 50-100 micrograms. It may be looked upon as the method of securing intensive or quick action. It offers, however, the advantages of slow radiation because a part of the radium is stored up as the insoluble sulphate in the bone marrow, where its slow and gradual decay makes possible a large and continued radiation of the system. No injurious effects have been noted from this sudden lodging of considerable amounts of radium within the system. The intravenous method has been recommended in anemias, but especially the pernicious form, in general arthritis, and in high blood pressure (which it will immediately reduce).

v. Noorden uses a weak solution (1 mmgm.) in the neighborhood of all joints affected by rheumatism; Czerny uses radio-active salt solution (contact with insoluble salts). Domenichi has injected 50-60 mmgms. into joint, drawing fluid off if necessary, with immediate relief of pain and marked improvement within five or six days. In eight cases of anemia, Ledoux-Lebarde has injected 20 mmgms. per week, with distinct improvement.

Czerny makes injections of insoluble salts into tumors—in this case the resorption of the radium is years in completing itself. Uranium oxide gr. xx-℈i in oil has been injected into the fistulous openings of secondary carcinoma, with healing of the case. Tuberculous fistulae discharging pus have been treated successfully with injections of radiferous water.

Radium Compresses. Fine linen mesh with an insoluble radium salt incorporated (*toile*) is used by the French for radiation purposes. If the amount of radium is large it will gradually destroy the fabric by making it fragile. For this a recent substitution of insoluble salts in asbestos has been proposed.

A small amount of a radium salt or a radium-bearing earth can be imprisoned in gauze and forms a very useful application after wetting. v. Noorden makes this application to all rheumatic joints—scrofulous glands have been so treated. Lazarus calls attention to the fact that most compresses on the market are weak. Gauze soaked in radiferous water makes a good application and may be used for dressing ulcerated surfaces, especially malignant. In tuberculosis both pulmonary and intestinal compresses have been used with marked effect. Eichholtz utilizes clysters of emanation water (the emanation is absorbed and excreted by lungs).

Radio-active Earth. Pitchblende residues have always been much used—even before their radium wealth was known. Sewed in a bag it was a remedy for headache.

Pitchblende is applied in ointment form to psoriasis. Even at this date Arendt prefers, for radiation of uterine cancer, pitchblende residue in a rubber finger cot and reports cases of cure (he prefers the slow radiation of the pitchblende, but also uses radium itself). Radio-active earth occurs naturally, as the well known Fango, found in Italy. With this, packs and local applications are made. So as a residue in mining, radio-active earth is left and contains a considerable per cent. of radium. This makes a most useful application. Mixed with boiling water to a paste, it is spread between gauze and used as a poultice; thus Christides reports a clinic of fifteen cases of pelvic inflammatory conditions in which the earth produced much improvement. It has also been used freely by the French, stirred up in a sitz bath or as a vaginal injection.

As to the theory of local action, we must look to the autolytic or anti-inflammatory action of the small amount of radium. London has reported an ulcer of the arm from radio-active cotton. And action on the terminal nerve filaments suggests itself.

Radium by Cataphoresis. Both the emanation and the active deposit collect on the negative pole—a person charged with negative electricity will gather a greater quantity of active deposit, when in contact with emanation. Knox has charged agar-agar plates with emanation, placed them on surface of a growth and produced a deeper penetration by ionization. This field seems to offer much chance of development. Knox suggests that later we may find substances which, when taken internally, may be made radio-active from the outside.

Thorium-x. Thorium emanation does not spring directly from mesothorium as radium emanation does from a radium salt, but is reached only after the interposition of the intermediate decay products radiothorium—thorium-x. The thorium emanation is given off by this last, and unlike radium emanation, is rare in nature. Strangely enough, however, it was used in medicine before radium emanation, for inhalation in tuberculosis.

Thorium emanation has a very short life, 54 seconds, about the duration of the blood cyclosis, therefore it is in practice not considered directly available for therapeutic purposes. Both Bickel and Lazarus deny that it can be detected in the blood after inhalation. On the contrary, Georgés has reported a clinic with its use, and favorable results after a year's experience.

Thorium-x, however, is a substance which, in solution, may be taken *per os* or introduced intravenously. It supplies a method of radiating the system, the body acting as an emanator, and the nascent emanation being liberated within the system.

But this brings up certain very important differences from the emanation of radium. Sixty-five per cent. of thorium-x can be recovered in the bone marrow and eighty per cent. of the emanation is retained within the body. It is, besides, excreted especially by the intestine.

There is thus the opportunity furnished, in the use of thorium-x, for a very intense radiation, likewise for a very slow and prolonged one. Radium emanation makes a quick passage of the cells because the active deposit (Radium A., B. and C.) takes only minutes in breaking up, while thorium emanation makes a slow passage because the decay products are days in breaking up.

The meaning of this is that thorium-x is intense and cumulative, where radium emanation is not. It may be said then that the activating therapeutic dose of thorium-x is much nearer the destructive toxic dose and that in working with it one is always along the edge of the precipice.

Very high doses of thorium-x have been used (stated as high as 3,000.000 M.U.) but deaths have been reported with hemorrhages into the bowel and internal organs, and a large number of observers warn against its dangers. Thus Georgés in using the emanation and contending (against the opinion of others) that results were highly satisfactory, bases his support of it on its lack of danger, in contrast with the great danger in use of thorium-x. Ledoux-Lebarde and Meseth, both users of it, advise great caution.

The great intensity of thorium-x makes for temptation in the wish to see immediate results. Thus in leukemias the white corpuscles can be enormously reduced in a few days even to nil, it is said (as also in animals, experimentally); and in the same way the red corpuscles can be extravagantly increased in pernicious anemias, but the same thing can be accomplished by radium in more deliberate fashion, and in a perfectly safe way. In a recent clinic, Gudzent, the foremost authority on emanation, in a comparison of radium emanation and thorium-x in gout and rheumatism, reports more favorably on radium and includes a case of pernicious anemia apparently healed by the radium.

Radium emanation, so entirely unique, seems then to offer an extensive addition to our therapeutic resources, and no better doxology could be made for it than that it fulfils the great requisite of *primum ne nocere*.

Clinical Department.

A FATAL CASE OF ENDOCARDITIS DUE TO A GRAM-STAINING FILAMENTOUS ORGANISM.

BY WILLIAM H. SMITH, M.D., BOSTON,

AND

OSCAR RICHARDSON, M.D., BOSTON.

A chauffeur, born in Holland, 32 years of age, with a negative family history, entered the Massachusetts General Hospital, October 19, 1911.

P. H. In 1906 he had rheumatic fever, lasting three months, while a second attack in 1907 confined him to the hospital for four months. The diagnosis at discharge read: "Acute articular rheumatism, subacute arthritis, mitral insufficiency, acute endocarditis, broncho-pneumonia, pleurisy with effusion, enlarged tonsils."

P. I. After leaving the hospital he was well until the early summer of 1911. He spent two years in a machine shop. Since then had had easy work as a chauffeur in winter, and engineer on his employer's yacht in the summer.

Early in the summer of 1911, he began to have dry cough and was easily fatigued. A week before entrance to the hospital, dyspnea became prominent, and this had steadily increased; the edema of the feet and ankles had also increased. For about four weeks orthopnea had been present. He was under observation until his death—a period of seventeen days. During this time he ran a continuous temperature, ranging from 99 to 100; occasionally in the evening reaching 101; his pulse was constantly rapid; from 110 to 120; his respirations ranging from 30 to 35. The heart was enlarged; evidence of endocarditis was present at the mitral and aortic valves. There was a constant leucocytosis present, the white count ranging from 10,600 to 20,500; a moderate secondary anemia persisted, the red cells varying from 2,690,000 to 3,200,000, and the hemoglobins 55% at entrance, reached 75%.

On two separate occasions atypical streptococci were isolated from the blood in pure culture—October 19 and October 29. His urine just before death showed a few granular casts with cells adherent.

The interest in the case lies in a study of the organism, an atypical streptococcus, isolated from the blood during life, and a study of this organism in sections of the fresh endocardial vegetations, and in sections of the spleen and kidneys, where emboli were found, postmortem.

The anatomical diagnosis is as follows:

Acute vegetative endocarditis, of the aortic and mitral valves.
Chronic fibrous endocarditis of the aortic and mitral valves.
Small aneurysmal dilatation of the aorta.
Chronic adhesive pericarditis.
Hypertrophy and dilatation of the heart.
Chronic passive congestion.
Ascites.
Infarcts of spleen and kidney.
Chronic pleuritis.
Acute glomerulonephritis.
Septicemia (a filamentous microorganism).

Bacteriological Examination. The organism is a Gram-positive one and stains by the ordinary aniline dyes.

Morphology. Cultures 24 hours old or less on hydrocele-agar show chains of micrococci without capsules with a tendency toward diplo-formation. Some of the organisms resemble pneumococci except that they are much smaller. Cultures older than 24 hours show many pleumorphic forms including oval and apparently barred forms, together with chains of streptococci.

Cultural Characters. On hydrocele-agar there are minute round grayish-white colonies, very slightly moist. Cultures on gelatine or blood serum are similar to those on hydrocele-agar. It does not

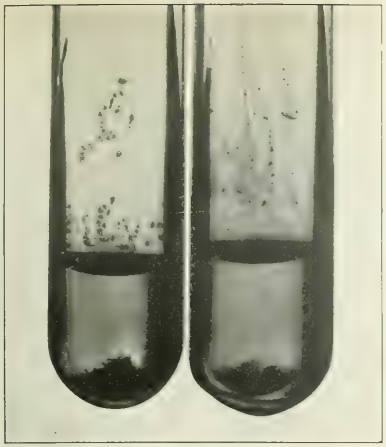


PLATE 1. Twenty-four Hour Growth on Plain Agar.

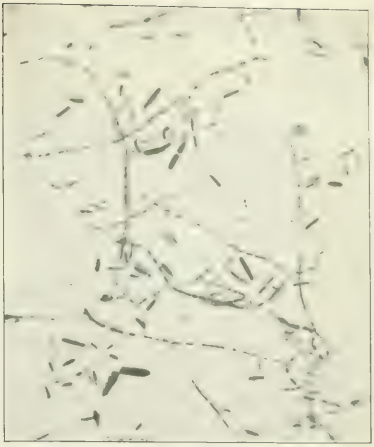


PLATE 2. Forty-eight Hour Growth from Spleen. Hydrocele Agar. ×15



PLATE 3. Valve Vegetations.



PLATE 4. Section of the Kidney. Filamentous Organism in



liquify gelatine. It coagulates milk without gas formation or peptonization.

Carbo-hydrate Reaction. There is no growth on potato. Culture in His's serum water to which lactose, salicin, saccharose, dextrose, mannite, raffinose and inulin are added, show no gas formation in any of these carbo-hydrates but an acid formation in lactose, salicin, saccharose and dextrose.

Hemolysis. Cultures on glucose-agar to which human corpuscles have been added show no hemolysis, even after five-days' incubation, but a gradually increasing dirty greenish zone surrounding the colonies.

Microscopical Examination. Vegetations on heart valve. Masses of fibrinoid material infiltrated by leucocytes and some red blood corpuscles are present; also masses of an irregular Gram-staining filamentous micro-organism presenting spindle-shaped thickenings in some instances.

Spleen. An infarcted area is present. Groups of filamentous irregularly Gram-staining micro-organisms are present. There is hyaline degeneration in and about the follicles.

Kidney. An infarcted area is present. The glomeruli generally show proliferation of their endothelium and some infiltration of polynuclear leucocytes. Small masses of filamentous irregularly Gram-staining micro-organisms are present. In certain of the glomeruli and capillaries they are also found.

In sections of the heart vegetations, spleen, and kidney, this organism apparently is surrounded by a capsule.

We wish to acknowledge the interest in this case of Dr. James H. Wright, and we would express our appreciation to Mr. L. S. Brown for the photographs accompanying the article.

Reports of Societies.

TRANSACTIONS OF THE AMERICAN SOCIETY FOR THE PROMOTION OF CLINICAL RESEARCH, WASHINGTON, D. C.

May 5, 1913.

(*Continued from page 173.*)

RELATION BETWEEN NON-PROTEIN NITROGEN RETENTION AND PHENOLSULPHONEPHTHALEIN EXCRETION IN EXPERIMENTAL URANIUM NEPHRITIS.

Drs. O. Folin, W. Denis, R. Fitz and C. Frothingham, Jr., Boston.

In this work Folin and Denis' method for detecting the amount of non-protein nitrogen and urea in the blood was used. The method is accurate and simple and only requires 2 c.c. of blood. The phenolsulphonephthalein test was done as recommended by Rowntree and Fitz in their experimental work with this and other tests. An acute nephritis was produced in rabbits by uranium nitrate injection subcutaneously and the two tests studied at different stages of the nephritis.

From these experiments it became evident that both these tests for renal function went hand in hand in a general way with the pathological condition in the kidney and with the tests for albumen and casts in the urine.

The phenolsulphonephthalein test is an indication of the renal efficiency at the moment. As the non-protein nitrogen in the blood accumulates gradually the amount of retention is not indicative of the renal function at the moment unless the history of the case is taken into consideration.

DISCUSSION.

Dr. W. T. Longcope, New York: How was the urine from the rabbits obtained?

Dr. Channing Frothingham, Jr., Boston: By milking the bladder.

Dr. S. J. Meltzer, New York: What was the daily amount of urine in these animals? Was it comparable to the normal output? What kind and amount of food was given?

Dr. H. O. Mosenthal, New York: It seems possible to interpret the increase in non-protein nitrogen retention as an expression of increase of protein destruction, as well as of renal insufficiency.

Dr. W. S. Thayer, Baltimore: The introduction of a method by which we may estimate the extent of renal insufficiency is of great importance from a prognostic standpoint. Where, in those cases of impending uremia, we can demonstrate a high percentage of non-coagulable protein in the blood, the prognosis is very grave.

Discussion closed.

Dr. C. Frothingham, Jr., Boston: The experimental rabbits were frequently anuric during periods of high nitrogen retention.

The same food was given all of the rabbits; it consisted of hay and 100 grams of carrots; the rabbits would not always eat all of the carrots.

I do not know the source of non-protein nitrogen, but its increase in the blood seems very definitely to be due to renal insufficiency.

I believe that the estimation of the blood content of retained nitrogen is going to prove of greater value for prognosis than the phenolsulphonephthalein test, inasmuch as the latter test gives reliable information only for the moment.

THE OCCURRENCE OF NUCLEAR PARTICLES IN THE ERYTHROCYTES FOLLOWING SPLENECTOMY.

Dr. Roger S. Morris, Clifton Springs, N. Y.

The blood findings in four patients following splenectomy were reported. It was found that in all four cases examined, nuclear particles were present to a greater or less extent in the erythrocytes. The greatest number found was apparently in a patient thirteen days after removal of the spleen. At this time one hundred and thirty red cells with nuclear particles were found in counting five hundred white blood cells. In a second patient, on the fifth day after operation, there were found twenty red cells with nuclear particles in counting five hundred leukocytes. The two remaining cases were apparently intermediate between these. In one the operation had been done several years previously. In the other, the exact date of operation was not known, but it was said to be a recent case. As the examinations were made on specimens which had been collected for another purpose and as leukocyte counts were not made on the days that the smears were prepared, it has been impossible to calculate

the absolute number of red cells per cubic millimeter which contained nuclear particles. A few normoblasts were found in all four cases.

Roth has reported a remarkable case in which large numbers of nuclear particles were found in the blood three years following splenectomy. Schur in 1908 reported similar findings in a patient who died with pernicious anemia and in whom there was complete atrophy of the spleen.

The nuclear particles are so inconspicuous that they are easily missed in making the usual differential count. To find them when only a few are present, it is necessary to move the slide very slowly, and it is of advantage to use an Ehrlich's diaphragm.

While the number of cases studied is very small it seems possible that the changes described may be a fairly constant feature of the blood of patients who are deprived of their spleen, either through operation or by atrophy of the organ. The findings also suggest an intimate physiological relationship between the spleen and normal hematopoiesis.

The presence of nuclear particles and normoblasts with a normal red count, as in Roth's case, is unusual.

It has been possible to reproduce these findings in splenectomized rabbits. The number of observations is at present too small to determine whether or not the change is a constant one.

DISCUSSION.

DR. W. T. LONGCOPE, New York: With reference to the presence of nucleated reds with a normal count, it is a fact that in cases of lead poisoning there are always to be found nucleated red cells in the absence of anemia.

In the case of two children with cyanosis from cardiac disease, I have found nucleated red cells while the red count was 6,000,000 and the hemoglobin was 90% and 95%.

DR. W. S. THAYER, Baltimore: In this connection it may be of interest to cite a case seen with Dr. Miller, of Baltimore. This was a colored boy with an unaccountable chronic leg ulcer; there was some anemia from time to time; the blood contained nucleated red cells, some of which were marked by chromatic dots. The spleen was not demonstrable by any of the methods of physical examination.

Discussion closed.

DR. ROGER S. MORRIS, Clifton Springs, N. Y.: I am much interested in Dr. Longcope's remarks on lead poisoning; I was not aware of the presence of normoblasts in such cases.

In the cases of cyanosis in which nucleated cells were found, the explanation is probably to be found in the concurrent polycythemia.

Dr. Thayer's case is of great interest in this connection.

ABSTRACT.

SALVARSAN IN PERNICIOUS ANEMIA.

DR. THOMAS R. BOGGS, Baltimore.

The conflicting report on the use of this drug in the treatment of pernicious anemia justifies a brief summary of personal experience and review of the more important previous reports.

Leede's unfavorable results were probably due to beginning too late.

Bramwell's reports have been encouraging.

In our experience with small doses at intervals of four weeks we have seen no unfavorable result attributable to the drug, and some remarkable apparent cures in patients who did not respond to other forms of arsenic.

The experience at the Johns Hopkins Hospital, while the study was less complete does not show any bad results attributable to the use of salvarsan. It is important that this drug be tried promptly in this disease, and especial attention paid:

(a) To the question of syphilis in the patient.
(b) Influence of salvarsan when given alone.
(c) The effect on arsenic-refractory cases.
(d) Permanence of the results.

DISCUSSION.

DR. JOS. L. MILLER, Chicago: I entertain, perhaps, unwarranted pessimism as to any real improvement in pernicious anemia, especially when I have so often seen periods of very marked improvement appear independent of therapy. My experience is that when improvement takes place during the administration of arsenic, thorium, or anything else, a relapse may be expected and when it appears the remedy which was supposed to be responsible for the improvement has no further good effect.

DR. I. ADLER, New York: I must confess to agreeing with Dr. Miller. I have for many years observed a great number of cases of pernicious anemia, and I believe that if such cases are observed long enough it will be found that they are never cured.

I remember one case in which improvement, almost to normal, occurred and was sustained for three years, when the inevitable relapse appeared. No therapy really affects the underlying cause of pernicious anemia, whatever it may be. Those cases that are refractory to arsenic are generally those that can no more be helped by anything.

DR. S. J. MELTZER, New York: May not the effect of salvarsan in pernicious anemia be merely that of stimulation of the formation of red blood cells?

Whatever the mode of action, certainly an increase of red cells from 500,000 to 5,000,000 under exact laboratory observation, indicates a very unusual degree of success in the treatment of these cases, at least. We are all familiar with the type of observations made by Dr. Miller and Dr. Adler, and some of us are old enough to realize the fallacy of depending upon mere therapeutic observations; but Dr. Boggs' studies were controlled by exact laboratory observations and should command thoughtful attention.

DR. H. F. SWIFT, New York: With respect to febrile reactions, much stress was laid upon this feature of salvarsan therapy in the early Hamburg reports, and at that time such reactions were very frequent. But with improved technic of administration, most of these cases can be ruled out now. We have had one syphilitic patient, however, who is persistently fibrile after salvarsan administered with the most careful technic.

DR. J. A. CAPPS, Chicago: The mere fact of the improvement of Dr. Boggs' patients is not so impressive as the fact of the rapidity of the blood regeneration. In most cases the improvement is more gradual; as, for instance, in one of my cases in which the red count rose from 1,000,000 to 4,000,000 after normal salt by rectum, but in which this improvement required two months' time. I can recall

no treatment comparable in rapid results to the method employed by Dr. Boggs.

I would like to ask Dr. Boggs in what proportion of his cases was a syphilitic history obtained?

Dr. J. H. Pratt, Boston: Naegeli has found that since the introduction of arsenic in the treatment of pernicious anemia, relapses are much more common. This may mean that improvement is more often noted after arsenic therapy.

Dr. W. S. Thayer, Baltimore: We should hardly take Dr. Boggs to mean that he regards salvarsan as a cure for pernicious anemia. He seems merely to be presenting some very striking results obtained by giving this drug in this disease. What was the size of the dose given? Possibly the fear of febrile reactions deterred him from giving large enough doses. If there is any underlying protozoal cause for pernicious anemia, the use of a lethal dose of the drug is important.

Dr. T. R. Boggs, Baltimore: It was not at all my intention to announce a cure for pernicious anemia. The work was undertaken and the results were reported because we so easily get into the habit of letting these chronic conditions alone. I was impressed by the rapid blood regeneration possible in this particular chronic disease, and the cases seem to point out that we are not entirely helpless even when confronted by extreme grades of pernicious anemia.

The dose employed was 0.30 gm. of old salvarsan. All of the patients had febrile reactions and they were rather more severe than one encountered in the treatment of syphilitics. In the very sickest patient the temperature rose to 104° F. and his condition was desperate for a time.

In my own four cases there was no evidence of lues; in the eleven cases from the Hopkins, two were luetic, one having a very severe blood depression and dying in 72 hours.

INTESTINAL SAND. REPORT OF A CASE WITH CHEMICAL ANALYSIS OF SAND.

Dr. Fritz B. Talbot, Boston:

The writer reported a case in which true intestinal sand appeared in the feces at frequent intervals always associated with digestive symptoms. Unlike the case of Myer and Cook (*Am. Jour. of Med. Sciences*, 1909, Vol. cxxxvii, p. 383), the sand had no connection with the bananas in the food.

The chemical composition was as follows:

Nitrogen	3%
Total fat	5%
Ash	17.4%
Calcium	7.4%
Magnesium	2.0%
Phosphates	present
Material soluble in alcohol after hydrolysis (resinous?)	14%

No discussion.

SOME EFFECTS OF REPEATED ANAPHYLACTIC SHOCKS IN ANIMALS.

Dr. Warfield T. Longcope, New York.

The experiments were planned to determine if changes in the parenchymatous organs and particularly the kidneys, could be produced in animals by injecting repeatedly in sensitized subjects sublethal doses of foreign protein. Guinea-pigs, rabbits, cats and dogs were used in these experiments. Egg white and horse serum were employed as foreign proteins. Three weeks after sensitization guinea-pigs were inoculated repeatedly intraperitoneally, rabbits intraperitoneally and intravenously and cats and dogs intravenously, at periods of four days to three weeks. In some instances as many as 12 to 14 inoculations were made. After repeated inoculations the kidneys both of dogs and rabbits showed well marked changes consisting in necrosis of the cells of the collecting tubules and loops of Henle with varying degrees of patchy cellular infiltration in the interstitial tissue extending from the mid zone to the cortex. In the animals that survived longest, the cellular infiltration was accompanied by an increase of connective tissue with atrophy of tubules and thickening of the glomerular capsules. In the livers of rabbits and cats there occurred necrosis of liver cells varying in size from the space occupied by a few cells to large portions of the lobule. These were most marked in rabbits. They were usually situated in the periportal zone but occasionally involved the mid zone of the lobule. Together with these areas of necrosis about which the capillaries were open, there was extensive infiltration of small round cells with later new formation of connective tissue in the portal spaces, leading in advanced cases to a picture resembling somewhat a portal cirrhosis in man.

In the guinea-pigs no extensive lesions were found in either liver or kidneys.

These experiments show that repeated anaphylactic shocks give rise in dogs and rabbits to varying degrees of acute and chronic interstitial nephritis, and in rabbits and cats to changes in the liver that result in a moderate degree of portal cirrhosis.

DISCUSSION.

Dr. H. A. Christian, Boston: As to the possibility that the lesions described by Dr. Longcope may have been spontaneous in origin, from the description of the liver lesions, I do not think it very likely that they were spontaneous.

In my own work with rabbit livers, it is rare to meet with lesions, except in coccidial livers, where the changes are more like hemochromatogenous hepatitis.

It is more difficult to answer the question as regards the kidney, but it may be decided for practical purposes by studying the kidneys of control rabbits from the same stock.

Dr. I. Adler, New York: A number of years ago, I fed chickens exclusively with meat and found lesions in the liver identical with those found by Dr. Longcope in the livers of his rabbits.

Dr. C. Frothingham, Jr., Boston: What does Dr. Longcope regard as the primary lesion in the kidney? Is it vascular, parenchymatous, or interstitial?

Dr. E. C. Rosenow, Chicago: Were the rabbits studied by Dr. Longcope old or young? I have found that spontaneous nephritis is very rare in young rabbits.

Discussion closed.

Dr. W. T. Longcope, New York: In reply to Dr. Christian's remarks, I would say that I have studied control rabbits from the same stock, and have not found spontaneous kidney lesions; but I have felt that the evidence was not conclusive.

I am not certain where the primary lesion takes place, but I believe the first changes are to be found

in the walls of the capillaries and in the tubular epithelium.

The rabbits used in the experiments were young animals weighing from 1000 to 1500 grams.

Dr. Adler's remarks were interesting and his work was evidently confirmatory of my own.

STREPTOCOCCUS ANAPHYLATOXIN AND HYPERSENSITIZATION OF RABBITS, AND GUINEA-PIGS TO VARIOUS STRAINS OF STREPTOCOCCI.

DR. GEORGE DRAPER.

The object of the investigation was, first to produce an anaphylatoxin from various strains of streptococci and then to produce hypersensitive states in rabbits and guinea-pigs with streptococci.

By using old broth cultures, anaphylatoxins were produced with regularity. The centrifugates of large quantities of the culture were left in contact with fresh guinea-pig serum at room temperature for 24 hours, and the supernatant serum of this mixture, after centrifugation (about 4 cc.) were injected into the jugular vein of a guinea-pig. Typical anaphylactic shock and death in from two to five minutes with typical autopsy findings occurred in all cases in which the above technic was used.

In the hypersensitization experiments the animals were given two or three sensitizing doses—the guinea-pigs, intraperitoneally; the rabbits intravenously—of streptococci heated to 60 for one-half an hour. The amounts varied from the contrifugate of 10 cc. broth culture to 0.05—0.1 gm. (by volume as shown by graduate centrifuge tubes). The streptococci were thoroughly washed in salt solution before injection. Three weeks or more after the last dose the rabbits were given 0.1 to 0.3 gm. intravenously. There were marked symptoms in several cases and death in two. The symptoms had certain suggestive characteristics of anaphylactic shock in rabbits but were not typical. They were severe, however, and similar in all the experiments.

The guinea-pigs had typical anaphylactic symptoms but death was not produced.

There are now in progress control experiments of the phenomena described in guinea-pigs and experiments with the rabbits that have survived the previous injections of large quantities of killed streptococci to determine whether they have been rendered more susceptible to infection with the living organism.

BESREDKA'S METHOD OF PREVENTING ANAPHYLACTIC SHOCK.

DR. R. WEIL, New York:

It is well known that sensitized animals, which have received a sublethal dose of antigen, become anti-anaphylactic. Besredka, therefore, suggested that human beings in whom there was a possibility of previous sensitization should receive a small dose of antigen, previous to the therapeutic injection. The question arises whether Besredka's generalization is justifiable. His results were based on experiments on guinea-pigs, which had received very minute fractional doses of serum to sensitize. He stated that larger primary doses do not sensitize but immunize. As has been described in another article, however, the vast majority of immunized animals may be shown to be typically anaphylactic, provided the intravenous route is employed for the toxic injection. The problem, therefore, narrows itself down to the question whether guinea-pigs sensitized by large doses are rendered anti-anaphylactic by the administration of an intermediate, relatively small, injection of antigen. It was demonstrated by means of experiments both on actively and on passively sensitized guinea-pigs that this is absolutely not the case. In fact, such animals may be given an intermediate injection of antigen which would suffice to kill control animals sensitized by small doses, and still remain anaphylactic. Under certain conditions, they may be even more highly anaphylactic than before. It follows that the intermediate prophylactic injection cannot in sensitized guinea-pigs be calculated in such a manner as to render the animal anti-anaphylactic, unless the degree of sensitization, and the corresponding minimal lethal dose, be accurately known. In human beings, such information is, of course, impossible, and the Besredka method is consequently always unreliable, and at times even dangerous. A case report from the French literature is cited, in which the B. method was employed in a human being, and the subsequent therapeutic injection produced anaphylaxis and threatening death.

DISCUSSION.

DR. R. I. COLE, New York. Does the time relation affect the results?

DR. W. T. LONGCOPE, New York: I have observed about the same phenomena when giving serum intraperitoneally or subcutaneously; at the same time, intravenous injections of rather large doses would produce symptoms. Has Dr. Weil used repeated intravenous injections? I have observed also that repeated small doses will finally produce symptoms.

Discussion closed.

DR. R. WEIL, New York: The period of desensitization does not exceed eight days. In active anaphylactic sensitization the time period has not been worked out. As far as guinea-pigs are concerned sensitization lasts for life.

In reply to Dr. Longcope's question, a moderate degree of protection can be induced for intravenous injections, but it is not absolute.

If in rabbits serum is given every day, there will be no symptoms; if, however, an interval of three or four days is allowed, accidents will thereafter occur.

STUDIES ON THE INCUBATION PERIOD.

No. 2 Concerning Virulent and Avirulent Cow-pox Vaccine.

DR. DAVID MURRAY COWIE, Ann Arbor: In a preceding study of the Incubation Period (No. 1) the clinical phenomena following the injection of horse serum were considered. (Serum sickness.) The present study has to do with similar or analogous phenomena following the introduction of cow-pox vaccine into the body in various ways.

The usual phenomena following the ordinary cutaneous vaccination in the unvaccinated and revaccinated are well known. Theoretically we might expect an earlier take in a revaccine if any take should occur, and experience teaches us in a great many instances this is so. A point that has not been generally recognized is that within 24 to 36 hours after the introduction of living cow-pox

lymph into the skin of an individual previously successfully vaccinated a certain degree of hyperemia results, but does not so result after a primary vaccination and that during the incubation period of a primary vaccination and preceding the development of the papilla a similar hyperemia may be obtained by introducing fresh vaccine into the skin. This we have every reason to believe is an allergic phenomenon and shows that the entire organism has responded to the initial injection.

Virulent cow-pox lymph may be injected in low dilution into or beneath the skin in appreciable amount without inducing general symptoms. Subcutaneously the deep infiltration felt after injection continues for a few days, then gradually disappears. Within 24 hours the body becomes allergic. Intradermal injections are followed in a few hours by hyperemia and nodular formation which persist for many days. The body likewise becomes allergic within 24 hours. Reinjection in either case is accompanied by an almost immediate response. Children subsequently vaccinated by the cutaneous method in the majority of instances fail to react with papilla or pustular formation.

The phenomena following similar injections of avirulent (dead) lymph react differently. This difference seems to be one of degree up to a certain point. High dilutions of lymph from 1-100 to 1-1000 induce the allergic state (but allergy seems to be attained more gradually.) Intradermal injection leaves no nodular formation in the majority of instances. (This depends to a certain extent upon the physical state of the lymph.) No cutaneous reaction follows these primary injections (excepting with very concentrated solutions, when a reaction occurs within 24 hours); re-injection of high dilutions intradermally is followed on the third and fourth day by a cutaneous reaction analogous to the cutaneous tuberculin reaction. The larger the initial injection the surer the subsequent cutaneous reaction. Following successive inoculations of avirulent lymph, in proportion to the total amount injected, up to a certain point, a greater cutaneous reaction occurs. This is analogous to successive horse serum injections. However, all points do not light up as in successive cutaneous vaccination and horse serum injections. No febrile reaction follows the first injection of avirulent lymph in the unvaccinated. On the other hand, if an individual previously successfully vaccinated is given a subcutaneous injection of dead lymph, of certain concentration, he may react with fever, local hyperemia, and nodular formation within 16 hours.

An individual once successfully vaccinated is apparently permanently allergic. That is, he will always react without question to an intradermal injection of diluted avirulent lymph (21 years). An unvaccinated individual who contracts smallpox reacts quickly to an intradermal injection of diluted avirulent cow-pox lymph. The reaction is usually first seen early, within 5 to 10 hours, and may fade quickly. This shows the phylogenetic relationship of smallpox and cow-pox.

From these observations it will be seen that sensitization to virulent cow-pox vaccine is a quick affair, a matter of hours, not days, as in tuberculosis and serum disease; that a greater reaction seems to obtain after a pronounced cutaneous vaccination. Such cases may react in fractions of an hour after an intradermal of 1-100 avirulent lymph.

The infiltration of the tissues of the arm following cutaneous vaccination, revaccination, and reinjection of living or dead lymph is an allergic phenomenon and is analogous to the specific edema of v. Pirquet in serum disease.

Children who have never been vaccinated may be rendered immune to cutaneous vaccination with virulent cow-pox lymph by subcutaneous and subepidermoidal injection of avirulent lymph. In cases which do react after such immunization the subsequent course of the cutaneous vaccination is attenuated.

The incubation period of cow-pox disease is characterized by a very short preallergic stage as compared with serum disease and as recognized by the intradermal test.

In this brief abstract space does not permit of proper reference to the early workers with cow-pox lymph, or of the more recent and highly meritorious work of Knöpfelmacher, v. Pirquet, Hamburger, and their co-workers.

No discussion.

(To be continued.)

Book Reviews.

Geschichte der Ohrenheilkunde. von Dr. Adam Politzer. Zwei Bände. II Bande. von 1850-1911. Unter Mitwirkung Bewährter Fachkräfte. Mit 29 Bildnissen auf 29 Tafeln. Stuttgart: Verlag von Ferdinad Enke. 1913.

Politzer finishes a monumental career with a most fitting and monumental work,—his "History of Diseases of the Ear." The second volume of this work, a book of 484 pages, has lately appeared. It is divided into two parts, the first dealing with the important advances in the anatomy, physiology and pathology of the ear, from 1850 to 1911, and the second division with the history of the development of otology in the different countries of the world. The text is made up of monographs by various well-known men. The portraits of many of the pioneers in otology are introduced. The history of otology in England is written by Hunt, Birkett writes of Canada, and Blake of the United States.

It cannot fail to be a matter of pride to Americans that the volume is dedicated to Boston and New York, that is, to Professor Clarence J. Blake and Professor Gorham Bacon. The book is practically an encyclopedia of otology, scientific and historical. For years it should hold first place as a reference book. It is hard to see how anyone writing a scientific paper can afford not to consult it in substantiating his data.

The collaborators have been very generous in mentioning their confrères. This is especially true of the United States. In one instance, at least, this good will was carried so far as to give one man a title which fate has not bestowed upon him. The writer hopes that this may be prophetic.

The book is beautifully printed on fine paper. The second part might be called the "Who's Who," or the Blue Book of Otology.

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Medical and Surgical Journal

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A DECENNIUM OF PROGRESS.

THE November *Bulletin* of the National Child Labor Committee reviews a decade of work to free children from labor in factories, mines and shops. The finest optimism is that which persists in being optimistic despite the greatest temptations and justifications to adopt a pessimistic view of civilization. This committee's experiences would have justified the latter viewpoint, yet its report breathes throughout a confident and optimistic spirit. Much practical accomplishment is recorded, both in legislation and in factory reform; and a summary of child labor legislation shows a much longer list of laws secured than of defeats.

"The committee, organized ten years ago for a short and sharp campaign against child labor, has had to face much disillusionment. Idealists who supposed that if the people realized the truth about child labor they would forthwith abolish it, have learned that public knowledge is not sufficient until it is fired with enthusiasm and guided by active leadership. The National Child Labor Committee has grown in membership and efficiency, and it has been able to advance with ever-increasing momentum against the phalanx of tradition, indifference and greed. But the short and sharp campaign is lengthening into a twenty years' war. However, so long as we continue to have the loyal coöperation of our members, we know that there will be an end to the war, a joyful day when the committee will celebrate its anniversary, not by an appeal for doubling the membership, but by permanently disbanding the forces. Meantime, that day is far distant, and we most earnestly call to the attention of our readers the celebration of our tenth anniversary."

The committee's two most notable achievements are: the adoption of a children's code in Ohio, fixing a minimum age limit for employment at fifteen years for boys and sixteen years for girls; and the enactment of a law in Massachusetts limiting the hours of labor for children under sixteen to eight per day. Massachusetts is the first commonwealth in the world with cotton textiles as a leading manufacture to set so high a standard. The law was strongly opposed, and the factory owners have been threatening to repeal it. The results of such a law have shown that none of the bad effects on industry and public welfare always predicted by opponents have followed. On the other hand, in the North Carolina cotton mill communities, the school attendance is always lower than in the rural or even the mountain districts.

In looking forward to the tenth anniversary (April 14, 1914) the committee records that the child labor laws of all states except two have been improved; that exact knowledge of the condition of working children has been established, together with a recognized standard of protection; and that the federal government has in successful operation the Children's Bureau. The committee has increased to 7500 members, thirty-five state and local committees have been organized, the necessary expenses have exceeded $60,000, and the printed matter issued has increased from a few leaflets to over 6,000,000 pages.

This committee considers that its greatest work lies ahead; abolition of fourteen-year age limit exemptions for poor children, closing the street trades to boys under fourteen and girls under eighteen; a sixteen year limit for dangerous occupations, and an eighteen year limit for extra hazardous occupations; to twenty-one year limit for boys called on to face the moral dangers of night messenger service; higher standards for proof of the requirements under child labor laws; regulation of hours of work for all minors and medical inspection for them (services rendered by no state in the union at present); broader public discussion of the need for a general sixteen year age limit; the education of children excluded from school to meet

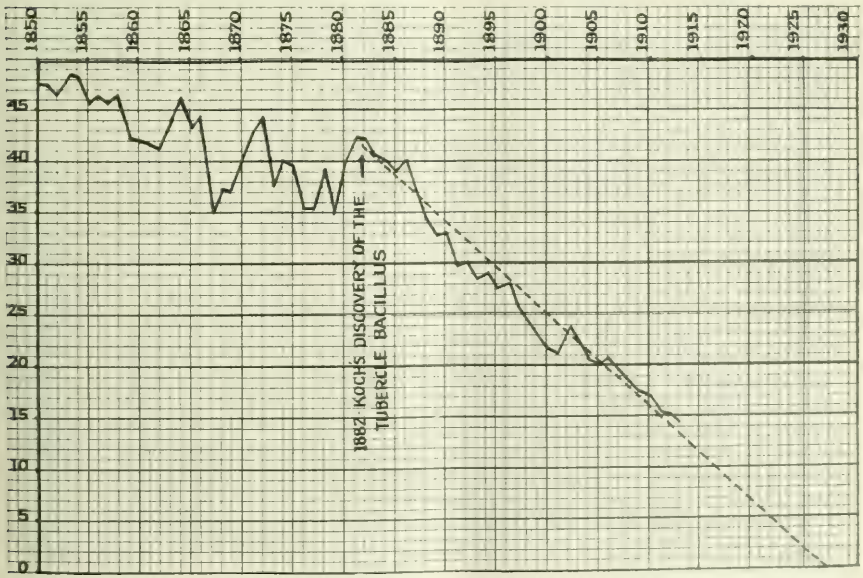
the demands of an industrial age—such are some of the things the committee has set itself to work out.

The report closes with an appeal that by the anniversary day the members shall put the committee on a working basis of 100 guarantors, 1000 sustaining members, and 10,000 associate members.

BOSTON'S TUBERCULOSIS DEATH-RATE DECREASING RAPIDLY.

The death-rate from tuberculosis in Boston has very rapidly decreased since 1882. This is graphically shown by a chart which appears in the tenth annual report of the Boston Association for the Relief and Control of Tuberculosis. This chart discloses the fact that from 1850 to 1882, 32 years, the death-rate from tuberculosis decreased only from 47⅛ to 42, or 5½ points per 10,000 inhabitants. The following 31 years, 1882 to 1913, the death-rate from tuberculosis decreased very rapidly, from 42 to 15, or 27 points. This rapid decrease in the second period is partly accounted for by the fact that in 1882 Dr. Robert Koch, discovered the tuberculosis germ. Before this time the cause of the disease was unknown, but as soon as discovered it was possible to take proper steps to suppress it by the establishment of hospitals and through vigorous educational campaigns. The organization of the Boston Association for the Relief and Control of Tuberculosis in 1903 and the establishment of the Boston Consumptives' Hospital Department in 1906 further assisted in reducing the death-rate.

The report further tells of the effort of the association to induce the city council to favor the appropriation of $125,000 for additional accommodations at the consumptives' hospital, recommended by the mayor and the consumptives' hospital department. This appropriation has since been passed. Other matters the association is interested in are the further extension of open-air schoolrooms throughout the city, the more general use of the night clinic at the consumptives' dispensary on Burroughs Place for those at work through the day who would like to be examined. Several legislative bills affecting tuberculosis and health, as well as the hearings conducted by the recess committee on tuberculosis, received considerable attention from



BOSTON TUBERCULOSIS CURVE.
Broken line indicates the number of deaths per [illegible] population from Pulmonary T[illegible].
Dotted line indicates the rate of decrease since [illegible] running into the future.

the association. Experiments in domestic science and following up patients discharged from sanatoria and hospitals were carried on during the year.

The educational work was conducted by means of an exhibit, a part of a large health exhibit sent to different cities in the state under the auspices of the State Board of Health; the distribution of 171,000 pieces of literature to school children, night schools and at motion picture theatres; and by 352 illustrated lectures, 323 of which were given in 36 motion picture theatres of the city. These lectures were given to a total of about 148,500 persons. At Prendergast Camp a total of 61 patients were cared for during the year.

The expense of the association for the year amounted to $16,661.48. The expenses for the coming year may be greater, as the association has consented to finance, at least for the present, the Massachusetts Anti-Tuberculosis League, a state society the association took an active part in organizing this month. It is hoped that this league of the 35 societies in the state, fighting tuberculosis, will further assist in reducing the death-rate from this preventable disease.

THE DANGERS THAT ATTEND THE USE OF FUNCTIONAL TESTS, ALONE, IN MENTAL EFFICIENCY.

EVEN now that the newer psychology has opened a broad and promising therapeutic field, some physicians and many laymen are still attempting to account for, and perhaps correct, delinquency in offenders by determining their intellectual limitations (and afterward instructing) by cock sure tests, losing sight oftentimes of the fact that when the long hidden, and now subconscious, traumata of earlier life are unearthed and dispelled, the tendency toward crime may disappear, and more than this, the intellectual ability itself frequently improves and grows to a point that no one considered possible. The latter point has been demonstrated recently by Sprague and others of the Public Health Service in their work at Ellis Island. It is not to be wondered at then that women incarcerated for social sins, on whom a Binet test has been done with the result that they have been called "seven years old mentally." do test out this way, and that they return almost immediately to the old life from whence they came, especially when no attempt at analysis has been made.

It must be evident to all then that in any work with defectives some attempt should be made to get acquainted with the individual himself, and to learn the stimuli and complexes that go to make him exactly what he is, and further than this, to know how and why he differs from those who have apparently been exposed to a similar set of circumstances during the developmental period of their own lives. To express this more definitely, find out what experiences he had that the others may not have had, and which one or ones had the strongest effect on him and which relate to the intricacies of the present trouble.

With these suggestions in view it must be apparent that the study of defectives is an infinitely complex problem, and not one to be delegated to workers with mechanical tests, who have no knowledge of modern psychiatry, although performance tests are instruments of immense value when they are in the hands of people who are qualified to use them intelligently.

Many of us, I believe, look upon deficiency in most cases as being due at least to tangible physical conditions with consequent organic or toxic processes, whereas it may be due in a given case to states existing purely and solely in the psyche, and these, being caused by impressional stimuli having a peculiar and intense affective value for that particular individual, may have been at the bottom of the whole trouble, and until the exact percept can be disclosed but little progress will be made toward a successful termination of the case.

Another danger is sometimes encountered in the shape of those more or less transient disorders that arise as a result of recent psychic shock, such as incidents of an unpleasant nature, during which the individual may be able to do but little that requires slightly complex mentation. This shock is to the conscious mind what the repressed one is to the subconscious mind, and the psychogenic excitements and depressions are to the former as the hysterias, psychasthenias, neurasthenias, and minor neuroses are to the latter.

The lesson to be learned, therefore, is that the final disposition of all defectives, delinquent and otherwise, should be made on the advice of psychiatrists as well as psychologists, or, if necessary, a combination of both in one.

MEDICAL NOTES.

Treatment of Tuberculosis by Induced Pneumothorax.—Dr. Martin F. Sloan has been engaged as expert for three months to introduce the treatment of pulmonary tuberculosis by induced pneumothorax at the United States Public Health Service Sanatorium at Fort Stanton, New Mexico. Dr. Sloan is a graduate of Johns Hopkins Medical School, 1908, and since graduation has been on the staff of that institution as assistant in medicine. He is also on the staff of the Phipps Tuberculosis Dispensary, from which clinic he selects most of the patients for Eudowood Sanatorium (Hospital for the Consumptives of Maryland, Towson, Md.), of which institution he has been superintendent for the last four years. Eudowood will be remembered as the first institution in this country to establish a farm colony for convalescents and introduce graduated exercise as a therapeutic measure. Induced pneumothorax was introduced at Eudowood by Dr. Sloan in 1911 with an apparatus of his own, which is a modification of Saughman's. The Public Health Service Sanatorium at Fort Stanton offers an admirable field for the employment of induced pneumothorax because of the large number of far advanced cases and the opportunity which the government affords to retain under treatment beneficiaries who are disabled by their disease for a long period of time. Of the 200 patients under treatment, all adult males, thirty have been selected as suitable cases for treatment by this method. Dr. Sloan's engagement with the Public Health Service terminates March 1, when he will rejoin his sanatorium at Towson, Md.

Smallpox in Texas.—Report from El Paso, Tex., on Jan. 23 states that several cases of smallpox have been recently discovered among Mexican refugees from Ojiuja. The patients have been isolated, and all sightseers excluded.

State Hospital for Pellagra.—It was announced on Jan. 28 that a state hospital for the treatment and study of pellagra is to be established at Columbia, S. C.

Gift to Washington University Medical School.—The General Education Board has recently announced a gift of $750,000 to the medical school of Washington University, St. Louis.

Virginia Central State Hospital.—The recently published forty-third annual report of the Central State Hospital at Petersburg, Va., records the work of that institution for the fiscal year ended Sept. 30, 1913. During this period 990 male and 997 female patients were inmates of the hospital. Twelve of these had pellagra, of whom ten died. All the colored insane of Virginia are maintained in this institution, there being none in any almshouse, jail, or other local establishment.

American Society for the Control of Cancer.—The American Society for the Control of Cancer in coöperation with the Twentieth Century Club and the Pittsburgh Academy of Medicine held a public educational meeting on cancer, in the Soldiers' Memorial Hall, Pittsburgh, on Tuesday evening of this week, Feb. 3.

Invitations were sent to the most representative and influential people in Pittsburgh and vicinity, including members of women's clubs, men's clubs, bankers, manufacturers, attorneys, ministers, teachers, physicians, and others.

Hon. James R. Macfarlane presided, and Mr. Frederick L. Hoffman, the statistician of the Prudential Life Insurance Company, made the opening address. The chairman of the Committee on Organization of the American Society for the Control of Cancer described the purpose and plans of that Association, which has recently been formed as a national agency to disseminate knowledge concerning the symptoms, diagnosis, treatment and prevention of cancer; to investigate the conditions under which cancer is found and to compile statistics in regard thereto.

BOSTON AND NEW ENGLAND.

In Memory of Dr. Fifield.—Resulting from the International Medical Congress which met in London last summer, the gift of a clock for the Commons room at the Royal College of Surgeons has been made in memory of the late Dr. William C. B. Fifield of Dorchester, for many years on the staff of the Boston City Hospital. Dr. Fifield was an honored graduate of the Royal College and served several years in the London hospitals before beginning practice in Dorchester.

A Centenarian.—Mrs. Tahis Langervin, who died on Jan. 27, at Somerville, Mass., is said to have been born in 1808 in Canada.

A MEDICAL NONOGENARIAN.—In the issue of the JOURNAL for June 19, 1913 Vol. clxviii, p. 930 we commented editorially on "a remarkable group of nonogenarians," comprising the four survivors of the Harvard College class of 1838. Since that time, two of these venerable men have died. Dr. James Lloyd Wellington, of Swansea, Mass., therefore now becomes the oldest living graduate of Harvard College, as well as of the Harvard Medical School, the senior Fellow of the Massachusetts Medical Society, and the oldest physician in the United States. Dr. Wellington, who continues in his habitual good health, celebrated on Jan. 27 his ninety-sixth birthday anniversary.

SOCIAL SERVICE AT THE MASSACHUSETTS GENERAL HOSPITAL.—The recently published eighth annual report of the social service department of the Massachusetts General Hospital records the many and varied activities of that body for the calendar year 1913. It is of great interest to those concerned in this form of work.

WILMINGTON WOMEN'S CLUB.—On Monday of last week, Jan. 26, the Wilmington Women's Club held a meeting at the North Reading Tuberculosis Sanatorium. Dr. Carl McCorrison, superintendent of the sanatorium, in an address to the meeting, advocated strongly the establishment of local community hospitals for advanced tuberculosis in all adjoining municipalities having an aggregate population of 10,000 or more. Dr. Edwin N. Kent, president of the Dental Hygiene Council of Massachusetts, spoke on "The Care of the Human Mouth," and Mrs. Eva G. Ripley, of Wakefield, Mass., described the establishment of the District Nursing Association in that town.

WORK OF CHILDREN'S HOSPITAL.—The forty-fifth annual report of the board of managers of the Children's Hospital was submitted at the annual meeting of the corporation, held in Boston on Jan 28. During the past year 1815 patients were treated in the wards, 27,153 in the out-patient department, and 3075 in the social service department. The hospital will soon move to its new buildings on Longwood Avenue.

MASSACHUSETTS HOMEOPATHIC HOSPITAL.—The annual meeting of the corporation of the Massachusetts Homeopathic Hospital was held in Boston on Jan. 27. The report of the trustees emphasized the need of the hospital for a new maternity building and children's ward. During the past year 22,452 patients were treated at the hospital, of whom 6508 were ward cases.

NEW LEPER INFIRMARY.—Plans and specifications have already been drawn by the Massachusetts State Board of Charity for a new leper infirmary to be built on Penikese Island at an estimated cost of $40,000.

"The proposed infirmary will be a one-story structure either of concrete or tile construction, with a wing on either end with accommodations for bed patients afflicted with pneumonia or consumption, which follow closely upon the latent period of leprosy. Two sections of the infirmary will be devoted to a scientific observation of the disease. One will be equipped with an x-ray and other modern apparatus. In the other section of the dispensary will be a consulting room, in which will be preserved the records of every individual case."

INSURANCE LIABILITY FOR OCCUPATION INJURIES.—In a recent case, in which a workman lost the sight of both eyes from optic neuritis, due to inhaling fumes while tending a gas-producing furnace, the Massachusetts Industrial Accident Board awarded the plaintiff $3000 for total disability and $952 additional compensation. The insurance company against which this award was made appealed to the supreme court under the contention that the word "injury" in the statute denotes only an accident caused by some sort of blow. The decision of the court in this test case is of importance as a precedent in determining whether any industrial disease may be construed as a personal injury within the meaning of the law.

HOSPITAL BEQUESTS.—The will of the late Jesse F. Frisbie, of Newton, Mass., who died on Dec. 17, 1913, was recently filed at the Middlesex registry of probate. It creates a trust fund for the establishment and maintenance at Rochester, N. H., of a new hospital, to be known as the Frisbie Memorial Hospital.

The will of the late Mrs. Charles M. Day, of Worcester, Mass., which was filed for probate on Jan. 28, contains a bequest of $10,000 to constitute a trust fund, to be known as the Bancroft-Day Fund, for the benefit of the Milford (Mass.) Hospital.

The will of the late John Ware Willard, of Brookline, Mass., who died on Jan. 19, was filed

recently in the Norfolk county probate registry at Dedham, Mass. It bequeaths to the New England Hospital for Women and Children, the Children's Hospital, and the Boston Floating Hospital each one-seventh of all or any property which may be inherited from the testator's father. To the Children's Hospital, the Boston Floating Hospital, and the Boston Lying-in Hospital, it bequeaths each one-fourth of any and all property which may be inherited under the will of the testator's mother.

The will of the late Benjamin Leeds, of Roxbury, Mass., which was filed for probate on Jan. 27, contains a bequest of $50,000 to the Massachusetts Homeopathic Hospital.

The will of the late Morrill Wyman, of Cambridge, Mass., which was filed on Jan. 29, in the East Cambridge probate court, contains bequests of one-fourth of the residuary estate to the Cambridge Hospital and one-half to Harvard College to establish the Morrill Wyman Medical Research Fund in the Medical School.

NEW YORK.

An Appeal for Radium.—The New York Skin and Cancer Hospital has issued a formal appeal for the use of 500 milligrams of radium (which at present prices would be worth $50,000). In this appeal it is stated that the radium could either be given outright or loaned for a period of five years. Since one-half of the institution is devoted exclusively to the treatment of cancer, its authorities feel that it should have an opportunity to make an exhaustive study of the value of radium in such treatment. No less than 500 milligrams is required, since, in the opinion of experts, less than this amount would not afford a fair test of the usefulness of the agent for this purpose.

Donations to Mt. Sinai Hospital.—At the annual meeting of the managers of the Mount Sinai Hospital, held on January 25, donations of over $325,000 were reported. This amount includes the Benjamin Altman legacy of $100,000, a $100,000 legacy from Mrs. L. W. Neustader, and a gift of $125,000 from Joseph and Sophie Sachs, in memory of their parents, to endow two neurological wards of fifteen beds each. The total expenditures during the year were $469,892, and the income from all sources, $421,384, and the amount of the deficit was borrowed from the permanent fund. A silver service was presented to Dr. A. G. Gerster, senior attending surgeon, who retired from the hospital staff on Jan. 1, after a service of 39 years, and a silver Greek vase to Dr. Julius Rudisch, who retired to become consulting physician, after a service of 34 years on the active staff.

Appointment of Dr. Linsley R. Williams.—Commissioner Biggs has appointed Dr. Linsley R. Williams of New York deputy commissioner of the State Department of Health.

Venereal Diseases.—The city authorities having failed to make any provision for carrying on the work of the Health Department's division of venereal diseases during 1914, the Bureau of Social Hygiene has, as last year, come to the assistance of the department and has pledged a fund sufficient to maintain the positions of a medical adviser, one bacteriologist, six laboratory assistants, one stenographer, and three helpers. During 1913, 18,750 blood specimens were tested for syphilis, and 3,526 for gonorrhea. One orphan asylum now has Wassermann tests made on every child before it is admitted to the institution. In view of the fact that many physicians do not seem as yet to appreciate the attitude of the Health Department towards venereal disease, and that some persist in the belief that cases are being treated in the diagnostic clinics, a portion of a letter recently addressed to all physicians in the city has been reproduced in the *Weekly Bulletin* of the department. In this it is stated: "In order to extend the usefulness of these clinics in combating the spread of venereal diseases, a specially trained physician has been appointed to act as 'medical adviser' to the patients attending. Under no circumstances will he treat cases. His duties consist in advising patients as to the nature of their disease, the necessity of proper medical treatment, the dangers of self-treatment, and the importance of obeying the directions of their physicians."

A Centenarian.—Dennis Redmond of the Borough of the Bronx, New York City, died on January 21, after having just reached the age of 100 years. He was born in Dublin, Ireland, on Jan. 1, 1814, and came to this country in 1847. Until the age of 92 he had been in the employ of a well-known men's clothing firm in New York.

QUARANTINE FOR DIPHTHERIA ON THE "ARKANSAS."—Eight hundred officers and men were quarantined on Jan. 26, aboard the United States battleship *Arkansas*, recently arrived at Brooklyn from a Mediterranean cruise with a case of diphtheria.

LEGALITY OF COMPULSORY VACCINATION.—On Jan. 23, the appellate division of the supreme court handed down a decision affirming the recent conviction of a citizen for violation of the compulsory education law in refusing to have his son vaccinated. This decision is of importance as a precedent in declaring the legality of compulsory vaccination.

SMALLPOX AT NIAGARA FALLS.—Report from Niagara Falls on Jan. 29 states that during the three weeks then ended 133 cases of smallpox were notified in that city.

Current Literature

MEDICAL RECORD.

JANUARY 17, 1914.

1 HENRY, F. P. *The Diagnosis and Treatment of Lumbosacral Pelvic Pain.*
2. STRAUCH, A. *Disorders in Children by Imitation and Induction.*
3. MANS, L. M. *Alcohol and Racial Degeneracy.*
4. MAYS, T. J. *The Therapeutic Value of Crotalin in the Treatment of Epilepsy.*
5 HANSELL, H. F. *Some Further Experiences in the Extraction of Immature Cataract by the Homer C. Smith Method.*
6. SHEEHAN, J. E. *The Case Against the Eugenists.*
7. *MACFARLANE, A. *Venesection in Cerebral Hemorrhage, with Report of Cases.*
8. WIENER, A. *A Preliminary Report upon the Specific Action of Ethyl Hydrocuprein on Pneumococcus Infections of the External Tissues of the Eye.*

7. MacFarlane extols the value of venesection in cases of apoplexy. If the blood pressure is above 200 mm., he says, this procedure is urgently indicated. It lessens the hemorrhagic effusion and allows coagulation. Prompt blood-letting may save such a patient from a permanent hemiplegia, which is worse than death. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

JANUARY 17, 1914.

1. HEMMETER, J. C. *Hypertonicity and Hypotonicity of the Vagus and the Sympathetic Nervous System.*
2. *GORDON, A. *The Cerebrospinal Fluid and a Special Method of Treatment of Essential Epilepsy.*
3. COCKS, G. H. *The Results of Tonsil Operations on Public School Children in New York City.*
4. HOAG, A. E. *Treatment of Wounds and Infections.*
5. ALLAN, W., AND WRIGHT, T. H. *Functional Leucorrhea.*
6. HAYNES, I. S. *Intestinal Kinks; Their Diagnosis and Treatment.*
7. CROHN, B. B. *Periodic Explosive Toxemias.*
8. BREDIN, W. W. *A New Urethrotome.*
9. DOUGLAS, C. J. *The Institutional Treatment of Drug Addiction.*
10. ALEXANDER-BOWERS, R. *Standardization of Brains.*

2. Gordon makes a preliminary report on the treatment of epilepsy with subcutaneous injections of cerebrospinal fluid from another epileptic. In four cases the writer observed striking improvement in the severity and frequency of seizures after this treatment. He also observed that the cerebrospinal fluid of each patient acted specifically (causing hemolysis) on another's blood, but not on his own. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JANUARY 17, 1914.

1. SUTTON, R. L. *The Symptomatology and Treatment of Some Variant Forms of Lichen Planus.*
2. *HOUGH, W. H. *Intraspinous Injection of Salvarsanized Serum in the Treatment of Syphilis of the Nervous System, Including Tabes and Paresis.*
3. *MCCASKEY, G. W. *The Autoserosalvarsan Treatment of Syphilis of the Central Nervous System.*
4. PFAHLER, G. E. *Present-Day Danger of Roentgenray Burns and How to Prevent Them.*
5. *BREM, W. V. *Treatment of Tetanus by the "Rational" Method of Ashhurst and John. The Development of Suppurative Serum (Aseptic) Meningitis Following the Intraspinal Injection of Tetanus Antitoxin; with Report of a Case.*
6. *SPITZIG, B. L. *A New and Logical Treatment for Alcoholism. A Preliminary Report.*
7. GORDON, A. *Administrative and Prophylactic Measures Against Alcoholism.*
8. BUTLER, A. H. *The Dosage of Cocaine and Other Drugs Used for Producing Local Surgical Anesthesia.*
9. *BALLINGER, E. G. *The Elimination of Gastric Disturbance Produced by Sodium Carbonate, Iodids, Oil of Sandalwood and Similar Drugs.*
10. FOWLER, R. S. *Movable Spleen.*
11. MURPHY, J. B. *A Source of Defence to Heteroplastic Tissue Grafting.*
12. ARMSTRONG, D. B. *The House-fly and Diarrheal Disease Among Children.*
13. EBRIGHT, G. E. *The Effects of Nitroglycerin on Those Engaged in Its Manufacture.*
14. STEIN, I. F. *A Case of Oxycephaly.*
15. MOTT, W. W. *Strangulated Femoral Hernia in a Patient Aged Eighty-Three.*
16. WESSON, M. B. *Clinical Report of a Case of Rabies Treated with Neosalvarsan and Quinin, Together with a Case of Lyssophobia.*
17. HAMAKER, W. D. *A Unique Case of Bowel Obstruction.*
18. TRUESDALE, P. E. *The Sponge Count.*
19. FIGUEROA, S. *A Simple Method of Recording Vaginal Discharges.*

2 and 3. Both of these authors believe that the subarachnoid injection of salvarsanized autoserum is a safe and valuable method of treating cases of cerebrospinal syphilis, especially tabes and forms of paresis.

5. Brem quotes two interesting cases of tetanus treated by intraspinal injection of antitetanic serum in which an aseptic serum meningitis developed and from which both recovered.

6. Spitzig substitutes sugar for alcohol in his treatment of alcoholics, gradually increasing the carbohydrate and diminishing the sugar.

9. Ballinger and Elder suggest hardening in formalin the capsules in which such stomach upsetting drugs as sodium carbonate, iodids and sandalwood oil are used. [E. H. R.]

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

NOVEMBER, 1913.

1. *LIBMAN, E. *The Clinical Features of Cases of Subacute Bacterial Endocarditis That Have Spontaneously Become Bacteria-free.*
2. *FOSTER, G. B. *The Noguchi Luetin Reaction in Syphilis.*
3. *DA COSTA, J. C. *Dorsal Percussion in Enlargements of the Tracheo-bronchial Glands.*
4. *SMITH, A. J., LYNCH, K. M., AND RIVAS, D. *The Transmissibility of the Lepra Bacillus by the Bed-bug (Cimex Lectularius L.).*
5. KLOTZ, O. *Syringomyelia: with Autopsy Findings in Two Cases.*
6. *THOMAS, B. A. *Modern Genito-urinary Diagnosis and Treatment, with Reference Especially to Laboratory Methods.*
7. *WARREN, L. F. *An Orthodiagraphic Study of a Case of Bronchial Asthma.*
8. CAMP, C. D. *A Contribution to the Study of Hereditary Degeneration (Pseudohypertrophic Muscular Dystrophy in Combination with Degeneration in the Central Nervous System).*
9. HOPKINS, A. H. *Two Instances of Chronic Family Jaundice.*
10. *STETTEN, DE W., AND ROSENBLOOM, J. *Clinical and Metabolic Studies of a Case of Hypopituitarism Due to Cyst of the Hypophysis with Infantalism of the Lorain Type.*
11. VERBRYCKE, J. R. *The Diagnosis of Gastric Ulcer.*

1. Libman reports an analysis of the clinical features of 21 cases of subacute bacterial endocarditis that spontaneously became bacteria-free. In 17 of the 18 cases that had died at the time of publication autopsies were performed, proving that the condition under discussion was present. The duration of the disease may be as long as two and a half years before death, and a few cases appear in literature that are reported to have survived. In most cases the early symptoms were cardiac in nature, but in some, uremia was rather suggested. Fever was less prominent than in the bacterial cases. Evidence of valvular lesions was present in all, but no new lesions are believed to have developed in the bacteria-free stage. Anemia was present in all, and in many cases was extreme. The spleen was palpable in all but four, and in some cases was enormously enlarged. Sweats and loss of weight were less prominent than in the bacterial cases. Embolism was as common as in the bacterial cases. Progressive brown pigmentation of the face was a striking symptom in nine cases and was seen to a marked degree only in the bacteria-free cases. The cases as a whole are separated into five groups according to their most conspicuous features: Marked progressive anemia, brown pigmentation of the face, marked evidence of renal disease, marked enlargement of the spleen, or embolic symptoms.

2. Foster reports the following results with the Noguchi luetin reaction: Of 13 cases of secondary treated syphilis, 77% were positive. Of 5 cases with tertiary lesions 80% were positive. Of 52 cases of syphilis in the stage of latency or cure, 88% reacted. Of 5 individuals presumably free from syphilis one reacted—a man in whom infection seemed highly improbable, but whose maternal grandmother was believed to have had tabes. It is concluded that the luetin test is of value to supplement the rôle of the Wassermann reaction, the latter being of greatest value in the earlier stages and the former in the tertiary and latent stages. Its prognostic value in determining whether the infection has been eradicated is emphasized.

3. De Costa's article is a reiteration of his belief in the value of light percussion over the thoracic vertebral spines in the diagnosis by the presence of dullness of enlargement of tracheo-bronchial glands or other mediastinal tumors.

4. Smith, Lynch and Rivas publish evidence that bed-bugs may take up the lepra bacilli with blood; that within the bugs for a time the bacilli increase in size and apparently in numbers, but eventually disappear; that the bacilli are found in the glands as well as in the alimentary canal of the bugs; that bed-bugs acquire lepra bacilli from leprous human subjects; and that they may transmit the bacilli to the skin of an animal bitten. The authors conclude, however, that if bed-bugs really do transmit the disease they are only one of a number of possible conveyers.

6. Thomas's article is one too comprehensive for profitable review, being rather an enumeration than a description of the many procedures now applied to the diagnosis and treatment of the male genito-urinary apparatus in all its divisions. Its perusal, however, brings strikingly to mind to what an extent bacteriology, serology, cystoscopy, radiography and chemistry have advanced and complicated the subject.

7. Warren reports that fluoroscopic study of a case of bronchial asthma showed that the pulmonary distention continued for several weeks after the cessation of a prolonged attack, the heart maintaining a vertical position. During the attack the diaphragm moved but slightly, and in movements in reverse of the normal.

10. Stetten and Rosenbloom report upon results of metabolism experiments in a marked case of hypopituitarism. Of chief note was the finding of high and abnormal percentages of the neutral sulphur and of the undetermined nitrogen in the urine. [F. W. P.]

DECEMBER, 1913.

1. *WILSON, L. B. *The Pathology of the Thyroid Gland in Exophthalmic Goiter.*
2. *PLUMMER, H. S. *The Clinical and Pathological Relationship of Simple and Exophthalmic Goiter.*
3. *BLACKFORD, J. M., AND SANFORD, A. H. *A Demonstration of a Depressor Substance in the Serum of the Blood of Patients Affected with Exophthalmic Goitre.*
4. *RUSSELL, F. F. *Antityphoid Vaccination.*
5. CHURCHMAN, J. W. *Cutaneous Manifestations of Septicemia.*
6. TAYLOR, A. S. *Conclusions Derived from Further Experience in the Surgical Treatment of Brachial Birth Palsy (Erb's Type).*
7. *EINHORN, M. *Further Experience with Stretching the Pylorus.*
8. *BRILL, N. E., AND MANDELBAUM, F. S. *Large-cell Splenomegaly (Gaucher's Disease): A Clinical and Pathological Study.*
9. MOLEEN, G. A. *Metallic Poisons and the Nervous System.*
10. PEMBERTON, R. *The Metabolism, Prevention, and Successful Treatment of Rheumatoid Arthritis: Second Contribution.*

1 and 2. The papers of Wilson and of Plummer are the result of studies of the large material of the Mayo Clinic. In a previous report, Wilson showed that among thyroids removed from toxic goiter cases pathologically the glands were divided between two distinct types. Clinical studies carried on with Plummer have now led to the conclusion that toxic goiter cases may be divided into two classes, the exophthalmic and the non-exophthalmic. It is now shown that of 1208 cases of toxic goiter, 79% had glands showing primary hypertrophy and hyperplasia, and practically without exception had the clinical features of true exophthalmic goiter. The remaining 21% of the cases had goitres showing either regenerations or adenomas, and none of these were grouped clinically as true exophthalmic goiter.

3. Blackford and Sanford report evidence that fresh extracts made from exophthalmic thyroids contain a powerful depressor substance, and that a powerful depressor substance likewise exists in the blood

serum of cases of exophthalmic goitre in direct proportion to the clinical acuteness and severity of the diseases. The sera of patients with non-hyperplastic thyroids, on the other hand, do not have a depressor action. After an active depressor dose of serum from a case of exophthalmic goiter the depressor action of the extract of an exophthalmic goitre is weakened or abolished, and the converse of this is also true.

4. Russell's article is a careful summary of the evidence upon which the efficacy of antityphoid vaccination is based. Those interested in the details of this subject will do well to consult this work.

6. Taylor reviews the etiology of brachial birth palsy, and protests that contrary to common teaching the prognosis under expectant treatment is exceedingly bad. It is, moreover, aggravated by the fact that the deformity, at first functional, later becomes fixed by secondary organic pathological changes. From his experience with 43 operated cases he is convinced that the prognosis is much improved in cases treated surgically. The operation consists of incision through the skin and fat at the base of the neck, suture of ruptured nerves, fixation for a period, and then careful passive and later active motion. The time of choice for operative interference is from two weeks to three months after birth.

7. Einhorn describes cases of pylorospasm and of stricture of the pylorus treated by instrumental dilation, according to his method previously published. This method is not supported as a substitute for surgery, but is advocated in functional cases and in cases where surgical interference cannot be applied.

8. Brill and Mandelbaum discuss at length the condition known as Gaucher's disease, of which but 14 proved cases are recorded in the literature. The disease occurs chiefly in childhood and often in more than one member of the same family. Its features are a progressive enlargement of the spleen and later of the liver, to an enormous size, with a brownish yellow discoloration of the skin of the face, neck and hands, and a yellowish thickening of the conjunctivae. It has a prolonged course, which does not materially disturb the health of the patient. The blood shows a definite leukopenia. The pathological feature is the presence in the spleen, liver, lymph-glands and bone marrow of distinctive large cells of unknown origin, to which the enlargement of the liver and spleen is due. [F. W. P.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 52. DECEMBER 30, 1913.

1. *GERHARDT, D. *Pain Referred to the Shoulder in Pleurisy.*
2. MAYER, W. *The Specificity of Abderhalden's Protective Ferments.*
3. TUSZEWSIK. *"Elarson."*
4. *ROEMHELD, L. *Modern Obesity Cures.*
5. RAUENBUSCH. *Filariasis of the Eye.*
6. GRÄF, E. *A Forgotten Obstetrical Manoeuvre.*
7. V. SCHUBERT, E. *Serum as a Vehicle for Neosalvarsan.*
8. V. HERFF. *Improved Serres Fines.*
9. KOCH, R. *The Preservation of Serum from Convalescent Scarlet Fever Patients.*
10. TRAUTMANN, G. *A Plastic Variation in Extracapsular Extirpation of the Tonsils.*
11. RAUTENBERG, E. *The Recording of Auricular Tracings in Man.*

1. It is recognized that the symptom of pain in pleurisy may be referred to the abdomen, neck or to the shoulder joint. The abdominal pain is usually explained as being due to a sympathetic stimulation of those intercostal nerves whose roots originate in the same region as the nerves supplying the injured pleura. Less attention has been paid to pain referred to the shoulder joint. Gerhardt reports four cases of different types of pleurisy with such pain. It was so severe in two cases that the diagnosis of arthritis was made. He explains the symptom as being a reflex stimulation of those peripheral nerves whose fibres originate in the same spinal segments as the sensitive fibres of the phrenic nerve.

4. The methods in use for ridding patients of excessive fat are by dietetics, by physico-mechanical means, or by medicines. Bergioné's electrical instrument has received much attention lately, and Roemheld has conducted experiments to determine its value. His conclusions are that Bergioné has merely offered a passive means of muscular exercise to substitute active exercise during the time of the cure. The use of the machine alone produces no definite loss of weight, and it is only effective when a dietetic cure is undertaken at the same time. [R. F.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 47. NOVEMBER 24, 1913.

1. KRAUSE, F. *An Unusual Tumor of the Cerebellum, Cured by Operation.*
2. *UNGER, E. *An Operation for Aneurysm with Vessel Transplantation.*
3. MANKIEWICZ. *Hemorrhage into the Joints in Hemophilia.*
4. SKALLER. *Our Methods of Studying the Secretion of Gastric Juice and the Plotting of the Same in Curves.*
5. *HUBER. *The Effect of Splenectomy in Pernicious Anemia.*
6. THEOBALD, M. *The Application in Psychiatry of Abderhalden's Methods of Serum Diagnosis.*
7. SCHERER, A. *Practical Experiences with Abderhalden's Pregnancy Test.*
8. MÜLLER, R., AND STEIN, R. O. *Observations on the Skin Reaction in Syphilis and Its Relation to the Wassermann Test.*
9. HAHN, B., AND KOSTENRADER. *A Contribution to the Explanation of the Action of Mercury in Syphilis.*
10. WECKOWSKI. *A Dosage Table for Giving Radium or Mesothorium.*
11. GERBER, O. P. *The Treatment of Bronchial Asthma with Dr. Bayer's Vibro-inhalation Apparatus.*
12. RAUCH, R. *The Introduction of Heyden's "Noviform" in the Treatment of Diseases of the Eye.*
13. WEGELIN, C. *The Relation of Fatty Degeneration of the Heart to Diet. (Concluded.)*
14. LANDSBERGER, R. *A Suction Syringe.*

2. The author presents one case in which he resected the popliteal artery for aneurysm and grafted in a piece of the saphenous vein of the same leg, 15 cm. long, with a perfect result. In a second case he resected an arterio-venous aneurysm between the femoral artery and vein, sutured the cut ends of the vein and grafted in a 10 cm. section of the saphenous vein to connect the ends of the artery. This case also was successful. A third case in which he attempted the same procedure for popliteal aneurysm was unsuccessful. Unger is very enthusiastic over this method of treating aneurysm.

5. The author reports a case of pernicious anemia showing amelioration of symptoms and also improvement in the blood picture following splenectomy. Contrary to the generally accepted teachings he unhesitatingly recommends this treatment where other therapeutic measures fail. [R. H. M.]

No. 48. DECEMBER 1, 1913.

1. HERXHEIMER, K., AND KÖSTER, H. *Some Therapeutic Experiments with Pilocarpine Hydrochloride in Parapsoriasis.*
2. MENZER, A. *Rheumatism and Tuberculosis.*
3. WEIHRAUCH, K. *The Use of Camphor as an Antipuretic in Tuberculosis of the Lungs.*
4. *STRAUSS, H. *Fluorescein as an Indicator of Renal Function.*

5. *Glaser, F. *Erysipelas in Nephritis, and Its Therapeutic Effect.*
6. Pakuchер. *The Treatment of Infectious and Post-gonorrheal Urethritis with Lytinol.*
7. Hart, C. *The Occurrence of Anomalous Cavernous Plexuses in Place of the Portal Vein.*
8. Kirschner, M. *On the Cause of Bleeding in Hemorrhoids.*
9. Kern, H., and Müller, E. *A Simplified Method of Making Eiweissmilch.*
10. Foerster, R. *The Expert Opinion in a "Telephone Accident" in the Imperial Court, Berlin.*

4. The author's method of using fluorescein is to give one gram by mouth in the morning; to estimate roughly the time of appearance by having the patient void every few minutes; and then at the end of thirty hours have the patient void once an hour till the fluorescence no longer appears in the urine. The test is done entirely with the eye, as the only points to be observed are the time of appearance and the end-point of the excretion. The urine should be made alkaline. Normally the drug appears in from ten to twenty minutes and is all excreted in from thirty-five to forty hours. If the total excretion takes between forty and 50 hours the renal capacity is suspicious, over fifty hours the author considers pathological. This is only a rough test, but in a few cases it has run parallel to other functional tests—phthalein, and potassium iodide. About thirty cases were tested in all, and so far as described in this article fluorescein does not seem to be so useful as phenolphthalein.

5. Glaser reports the case of a boy of twelve with severe subacute nephritis, with edema, ascites and hydrothorax, in whom an extensive erysipelas of the trunk and thighs was followed by a complete clinical cure of the nephritis, the urine showing neither albumin or sediment. He has collected four other cases, from the literature, of chronic nephritis being apparently cured in the same way. He advances two theories to explain these cases—first, that the erysipelas gave rise in the body to fresh streptococcus antitoxins which influenced favorably renal lesions caused by streptococcus toxins; and, second, that favorable circulatory changes might have been brought about in the kidney by the intense hyperemia of the skin. [R. H. M.]

Deutsches Archiv für Klinische Medizin.

November 28, 1913.

1. *Schott, E. *Investigations upon a Complete Parenteral Nourishment.*
2. *Eisner, G. *Influence on Renal Function of Man of Calcium Salts.*
3. Meyer-Betz. *Investigations upon the Biological Effect of Hematoporphyrin and Other Derivatives of Blood and Biliary Coloring Matter.*
4. Veil, W. H. *Clinical Importance of the Determination of Blood Concentration.*
5. Kossow, H. *The Liver and Formation of Acetone Bodies.*
6. Ganter, G. *Analysis of Electrocardiograms. (Examinations of Warm-Blooded Hearts in Situ.)*
7. v. Hoesslin, H. *Clinical Roentgenological Investigation of Pulmonary Cavities by Fluid Level.*
8. Koppel, M. *The Fluid Absorption of Organic Tissue with Different Hydrogen Ion Concentration.*

1. In this article Schott takes up the question of preservation of life by means of injection of nourishment directly into the circulation rather than by absorption through the alimentary tract. He has studied the effect of such injections from many points of view and reports his findings here. His work has been in good part experimental. He concludes that rabbits and dogs can be held in nitrogenous equilibrium by injection of egg yolk and salt solution up to the appearance of anaphylactic phenomena. This albumen will only in a small percentage be present in the urine as coagulable albumen. Most of it is burnt in the organism. The fat so introduced disappears from the circulation in about 1½ hours and is apparently used as nourishment. Carbohydrates introduced intravenously as dextrose appear to offer the means for burning albumen in the organism just as when introduced through the digestive tract. The anaphylactic appearances occur about on the fourth or fifth day with rabbits and at the fourteenth day with dogs.

2. Eisner has studied the effect of calcium salts upon the renal function in man. As a test for renal function he has studied iodide excretion. Milk sugar excretion, sodium chloride excretion, nitrogen excretion, phenolsulphonephthalin excretion and water excretion, as well as the excretion of calcium salts. He used calcium lactate as his calcium salt. In only one case in any of the functional tests was there any improvement after calcium. In others no improvement or a diminution of function. He feels that although calcium may not help renal function it may still be of some value in certain renal conditions, just as atophan aids the permeability of the kidney for uric acid. [C. F., Jr.]

Miscellany.

RELATIVE SIZE OF AMERICAN UNIVERSITIES AND MEDICAL SCHOOLS IN 1912 AND 1913.

In a recent issue of *Science* are tabulated the registration returns for Nov. 1, 1913, of thirty of the leading universities of the United States. Of these only three,—Harvard, Western Reserve, and Yale,—show a decrease in numbers from 1912. The order of size of the thirteen largest universities in 1912 was Columbia, California, Chicago, Harvard, Michigan, Cornell, Wisconsin, Minnesota, Pennsylvania, New York, Illinois, Northwestern, and Ohio. In 1913 these thirteen remain in the lead, but their order is changed as follows: Columbia, California, Chicago, Michigan, Pennsylvania, Wisconsin, Harvard, Cornell, New York, Illinois, Ohio, Minnesota, and Northwestern. In number of undergraduates, however, Harvard still stands first, and is followed by California and Michigan. Among the medical schools the order of size in 1913 is Illinois, New York, Tulane, Johns Hopkins, Michigan, Columbia, and Harvard.

FIRST NATIONAL CONFERENCE ON RACE BETTERMENT.

Four hundred men and women of prominence, comprising the first representative group of scientific experts ever gathered in America for that purpose, met in Battle Creek, Mich., Jan. 8-12 to assemble evidence of race deterioration and to consider methods of checking the downward trend of mankind. The meeting was known as the First National Conference on Race Betterment. Through the coöperation of the press, the objects and aims of the Conference

have been very widely disseminated and a resultant influence for better race ideals is anticipated.

Already the effect of the Conference is apparent in Battle Creek, where popular interest in mental and physical efficiency was awakened by a series of public school tests which showed an alarming percentage of defective children in all grades.

The conference had its inception in the efforts of four men, particularly interested in race betterment—Rev. Newell Dwight Hillis, pastor of Plymouth Church, Brooklyn, N. Y.; Dr. J. H. Kellogg, of the Battle Creek Sanitarium; Sir Horace Plunkett, former minister of agriculture for Ireland; and Prof. Irving Fisher of Yale University. At the invitation of a central committee, chosen largely by these men, fifty men and women of national prominence in the fields of science and education, consented to share in the program. Their addresses, together with open discussion of many of the points considered, constituted a very widespread study of all phases of evident race degeneracy and the advocacy of many ideas of reform. Some of the suggested methods of improvement are frequent medical examination of the well, outdoor life, temperance in diet, biologic habits of living, open air schools and playgrounds, the encouragement of rural life, the segregation or sterilization of defectives, the encouragement of eugenic marriages by requiring medical certificates before granting license and the establishing of a eugenics registry for the development of a race of human thoroughbreds.

Correspondence.

INFECTION IN TUBERCULOSIS.

Mr. Editor: My attention has been called from several sources to an article in the *Christian Science Monitor* of Jan. 24, 1914, which purports to present my ideas as to infection in tuberculosis. The article mentioned quotes only a part of a paragraph relating to the subject and which was quoted in an editorial by the *Journal of the American Medical Association* in a recent issue. (Jan. 3, 1914.)

The part which they quoted was so used as to give the impression that I did not believe tuberculosis was infectious. As a matter of fact it was intended to explain the well-known belief at present that childhood is the time of infection, and that more protection ought to be given for children and more hygiene for adults. A reference to this editorial would make this entirely clear.

The original paper related to the fact that a certain degree of immunity is acquired by adults by small infections occurring in early life which gave them more or less immunity against infection later. It was in no way stated that tuberculosis was not infectious nor should I be misrepresented in this way. Not only do I believe tuberculosis to be infectious,—and especially so for persons who have not been protected by mild infections in childhood,—but chiefly from the open case of tuberculosis is the danger very great in the home where small children come in contact with the patient. On no account do I oppose the movement for the segregation of the open tuberculous, but my plea was for more reasonableness in the attitude of adults as to their own danger. I am strongly in favor of all the measures which are aimed to protect the public and to care for all classes of tuberculous patients. It is extremely wrong and I am greatly chagrined that my statements should be used to represent any other idea. I am

Respectfully yours,

EDWARD R. BALDWIN, M.D.

MEDICAL CORPS, U. S. NAVY.

The following changes have been made in the Medical Corps, U. S. Navy, for the week ending January 24, 1913:

January 16, P. A. Surgeon B. H. Dorsey, detached: Camp Elliott, Canal Zone, to *Connecticut*.

SOCIETY NOTICES.

The next meeting will be held on Tuesday evening, February 10, in the amphitheatre of the Peter Bent Brigham Hospital at 8.15 o'clock. Program:

"Exhibition of Cases," Dr. A. Luger. "Spastic Conditions of the Stomach," Thomas Ordway, S. F. Hammett, Wm. J. Kerr. "The Effects of the Surface Applications of Radium over the Spleen in a Case of Chronic Lymphatic Leukemia," Dr. William Duane.

Remarks on the Surgical Properties of Radium and Its Derivatives.

THOMAS ORDWAY, *Secretary and Treasurer*,
Harvard Medical School.

HOSPITAL MEETING: MASSACHUSETTS GENERAL HOSPITAL.

The next hospital meeting will be held at 8.15 p. m. on Feb. 13, 1914, in the lower amphitheatre of the Out-Patient Department. The subjects are to be as follows:

1. "Causes of Scoliosis," by Dr. Z. B. Adams.
2. "Back Pain and Its Diagnosis," by Dr. Harry Platt.
3. "X-ray Diagnosis of Lesions of the Lumbar Spine and Sacro-iliac Joint," by Dr. C. Hermann Bucholz.
4. "Use of Plaster Backs in Post-operative Backache," by Dr. John McCartin.

APPOINTMENTS.

DR. EARL H. MACMICHAEL has recently been elected city physician and DR. WALTER W. KINGSBURY a member of the board of health of Malden, Mass.

DR. HARRY E. SEARS of Beverly, Mass., has been confirmed as Associate Medical Examiner of Essex County.

RECENT DEATHS.

DR. JAMES HARVIE DEW of New York died from cerebral apoplexy on January 26, at the age of 70 years. He was a native of Newtown, Va., and served for a time in the Confederate Army. He was graduated from the medical department of the University of Virginia in 1867, and afterwards was an interne at the Charity (now City) Hospital, New York. Dr. Dew won for himself a very large clientèle, especially among the southern families living in New York. He was one of the most genial of men, and his death will be sincerely mourned by a host of patients and friends.

BOOKS AND PAMPHLETS RECEIVED.

Leitfaden der Säuglingskrankheiten für Studierende und Ärzte von Dr. Walter Birk. Bonn, 1914. A. Marcus & E. Webers Verlag.

Original Articles.

OBSERVATIONS ON PEPTIC ULCERS.*

By Christopher Graham, M.D., Rochester, Minn.

INTRODUCTION.

In this paper are presented notes on all cases of duodenal and gastric ulcers operated on in the Mayo Clinic during the years 1906 to 1911, inclusive; and our observations on diagnosis and statistics are based upon a study of the clinical records and operative findings.

It is often difficult, and it may be quite impossible, to differentiate, clinically, gastric and duodenal ulcers, from other lesions causing gastric symptoms. It is often quite as difficult and it may also be impossible to locate the lesion in the stomach or duodenum if we have only the clinical picture to point the way. The symptoms of duodenal and gastric lesions may give exactly the same clinical picture, and for this reason we cannot at all times be definite when we attempt the localization of the ulcer. The radiogram gives the clinician aid in these cases, and at times not only locates the lesion, but makes positive the diagnosis in some cases with irregular histories. However, the clinical history is still our greatest factor in the differentiation of lesions causing gastric disturbance, and we should consider it carefully in all its phases.

The various types of ulcers as observed in our clinic are almost wholly chronic in character, the acuteness or subacuteness depending more or less on acute exacerbations, *i.e.* inflammation, infiltration, edema or perforation.

In discussing the diagnostic features of duodenal and gastric ulcers we should consider, first, the periodicity of the attacks; second, the chronic course; third, the significant symptoms that appear during the period of attack; and, fourth, the more or less ready control of symptoms, *e.g.* pain.

(1) *Periodicity of attacks* is almost constant in the duodenal and pyloric types of ulcers in which complications are not far advanced. When a patient presents himself with a history of attacks of gastric disturbance occurring day after day for several days or weeks, followed by remissions, or intermissions of weeks or months of perfect health, one strongly suspects an ulcer. The onset of attacks often comes without apparent cause. However, close application to hard work, worry, anemia, exposure and infection may be important contributing factors. During attacks the patient complains of pain, gas, sour regurgitations and vomiting, coming regularly after meals, and more or less controlled by food. This identical picture is presented each day during the period of attack. Intermissions occur of complete relief for days, or, if the ulcer be situated high up, a remission may be experienced, if not a complete period of ease. These attacks and intermissions alternate for years with "spring and fall" influence often noted. They increase in frequency, number and severity until the patient seeks relief in treatment. Such a history of periodicity is often quite enough in itself to warrant a probable diagnosis of ulcer.

(2) *Chronicity.* The patient rarely fails to emphasize the fact that these distressing symptoms have been coming and going for many years until finally he is forced to seek relief. The symptoms have remained the same in character, but have increased in length of period and intensity, until some complication has arisen to disturb the characteristic course. In general, the cases observed in our clinic have covered a course of many years, few less than one, the greater number falling between five and twenty years, the average being from eleven to twelve years. When we consider the average long series of years the symptoms have existed, with the distress always increasing and, as years go by, with invalidism increasing and often becoming quite complete, it seems strange, not that so many patients have been urged to seek relief in surgery, but rather why surgical measures were not urged earlier, at least on the appearance of symptoms indicating that the medical borderline had been passed. In our series, this history of prolonged attack with intermission or remission covering years was clear in 85% of the cases, and is a factor to be taken into serious consideration.

(3) *Pain.* During the period of attack, pain is the most constant symptom (pain or distress, 95%) and it is characteristic in its manifestations. The location of the pain, its type and its area of radiation are of secondary diagnostic significance: (*a*) because most pain is described as epigastric regardless of the location of the lesion causing the gastric syndrome; (*b*) because the pain complained of varies from mild distress, burning, griping or colic to a severe type requiring opiates for relief; and (*c*) because radiation is not common in uncomplicated ulcers and because if a clear-cut radiating pain to the back occurs, as in some posterior perforating ulcers, or if the radiation is to the lower abdomen, cholecystitis or appendicitis may be inferred. Thus our diagnosis may be clouded rather than cleared by the radiation.

(4) *Time and Control of Pain.* It is the time of pain and the control of pain that are characteristic and diagnostic. The time of its appearance, the time and manner of disappearance, and its control by food, alkalies, position and rest (vacation) are quite conclusive evidences for a correct diagnosis. Pain appears after meals, or in clear-cut duodenal types two hours before meals. It usually comes one-half to four hours after eating, depending in a measure on the location of the lesions. The nearer to the gastric outlet the

* Read before the Kalamazoo Acad. of Med., Dec. 9, 1913.

longer the period of food-ease is the rule. A burning, gnawing, painful feeling begins sooner or later after meals, following a definite type in each case, increasing in severity and continuing until the stomach empties, and pain ceases before the time for the next meal or continues up to meal time. The early cessation of pain is noticed most often in the histories of ulcers occurring above the pylorus. The pain, beginning later (two to four hours) as in purely duodenal types, may continue until vomiting, irrigation, alkalies, or the next meal brings relief. Food relieves pain, gas and acidity in a large percentage of cases (76%). This relief lessens as the pathologic lesion extends, and in the late stages little or no ease comes from food. Indeed, when complications, such as perforations, adhesions, and obstruction, are far advanced, food usually gives immediate pain, and only forced vomiting and irrigation afford relief. Alkalies are less efficient at this time than in the earlier stage.

The pain and accompanying symptoms then appear in definite periods of attack. They come daily, often two or three times a day at a definite time after ingestion of food during the entire period of attack. The onset of symptoms varies from one-half to four hours after meals, and they are oftener premeal than after-meal. The pain is epigastric, seldom radiating to other areas, and except in the later stages is relieved in part or fully by food, drink, alkalies, vomiting or irrigation.

What, then, are the typical diagnostic symptoms of peptic ulcer? (1) The period of attacks and perfect intermission or marked remission of attacks; (2) the almost exact similarity of symptoms occurring for days during the period; (3) the marked relation of symptoms to food intake (one-half to four hours); (4) the control of symptoms by food, alkalies, lavage, posture and rest.

The types of cases in which it is particularly difficult to reach a correct diagnosis, or in which it is quite impossible to differentiate from other lesions causing gastric symptoms may be divided into four groups:

Group 1. This group comprises those patients with ulcers who give the classic symptoms of gall-stones, and in whom no other gastric symptom can be elicited. In this group there may be perforations, or, the pain may be due to acidity and accompanying spasm. The lesions are usually chronic and may be located at any point in the stomach or duodenum. At operation, perforation has been found in about one-third of this group (35% duodenal, 29% gastric) and in some of these, at least, the pain has not been more intense than in those not found perforated at operation. Severe pain may be complained of and no perforation be evident. Patients with this symptom-complex constitute about 5% of all the cases. In them the diagnosis of gall stones is the only logical one to be made. Careful clinical research and radiography should lessen our errors.

Group 2. In this group may be found patients in whom the ulcer must have been latent for weeks or months, and whose first manifest symptoms were those of chronic ulcer with complications (hemorrhage, perforation, etc.). The symptom-complex in these cases is irregular and quite excludes the pathognomonic picture of ulcer.

Group 3. In these cases the present chronic symptoms are very severe. The early symptoms were so mild that they may have been quite forgotten or overlooked by the patient. Many such patients will not allude to the early trouble unless carefully questioned, because nothing is of so much importance to them as the present, or recent years of distressing pain.

Group 4. In the fourth group are those patients whose symptoms are of a more or less malignant type—marked loss of flesh and strength, pain or distress quite continuous, gas rather annoying and vomiting of large amounts at irregular periods. The vomitus consists of food, fairly macerated, perhaps dark, coffee-ground color and the liquid quantity quite in excess of fluid ingested. If to these symptoms is added the presence of tumor, we are inclined to err in diagnosis and consider cancer first. Three per cent. of all ulcers in this series were diagnosed cancer. Five per cent. had gross tumors, three per cent. more or less feel of ridge.

The cases in these groups may be variously diagnosed as acute or chronic gall-stone disease, gastric ulcer, chronic appendicitis, tuberculous intestinal involvement or cancer, in accordance with the variation of the symptoms. Here, too, by a more careful attention to clinical histories and more frequent use of the Roentgen ray we should materially lessen our errors.

In diagnosing atypical cases, one should take into consideration the variations in symptoms. The following groups suggest themselves:—(1) Those cases of a clear-cut gall-stone type. (2) Those which were chronic and complicated since the first symptoms appeared, *i.e.*, chronic ulcers long latent. (3) Those in which the ulcer is high on the gastric wall and tends to continuous symptoms without food ease; and (4) Cardiac ulcer usually with but slight symptoms until obstruction appears. However, the general picture is so clear that 80% of all ulcers may be followed closely enough to establish an accurate clinical diagnosis, and a probable diagnosis may be consistently made in the remainder.

Ulcers of the duodenum and pyloric area without complications are usually so clear-cut in their symptomatology that they may be diagnosed with little trouble. Ulcers located higher up may simulate the duodenal type closely and be thus diagnosed, or they may vary in symptomatology just enough to be atypical, yet be clearly gastric.

Other things being equal, the histories of uncomplicated types of duodenal and pyloric ulcers are clean-cut throughout the entire symp-

tomatology. The longer the period between food intake and onset of symptoms, the lower the ulcer as a rule. The more prompt the food ease and cessation of symptoms, the lower the ulcer. In ulcer of the stomach proper, the attacks are not so clear-cut as in duodenal and pyloric types, nor are the day-by-day symptoms so clearly defined. In those well above the pylorus the symptoms are apt to be continuous for longer periods, or remissions rather than free intervals are apt to be noted. These symptoms are not so often eased by food, or small amounts of food may give relief, while increased food may give distress. More care in diet is necessary. Soda relieves when food does not. Pain begins earlier as a rule, oftentimes disappearing before the next meal, and thus the food relief feature is minimized, but pain ½ to 1 hour after food, is quite the rule, and is of great diagnostic significance.

A gnawing sensation coming regularly when the stomach is empty, is almost "hunger pain." In such instances the effect of food may be translated as distress-producing, though it relieves the gnawing. Radiation of pain and the area of complaint are considerably more extensive in gastric than in duodenal types.

Vomiting in gastric ulcer is rather more common than in ulcers of the duodenum and pylorus unless complications, *e.g.*, obstruction, are present. Also vomitus containing food is more apt to come sooner, hence it is not in so advanced a stage of digestion. Blood is more frequent in the vomitus of cases of the gastric type.

In those conditions which oftenest cloud the diagnosis, such as chronic gall stones, chronic appendicitis, etc., we obtain our greatest diagnostic aid from the wide irregularity of symptoms during the period of attack. Yesterday's pain came before meals, today's pain after meals, tomorrow's pain an all-day "miserable feeling." Food-ease yesterday because fasting the previous day, today food pain wholly reflex; vomiting one day and gas another; yesterday well, today in the depths mentally. Nothing follows in sequence day by day, because the stomach behaves properly unless irritated by the distant lesion and this extrinsic lesion is irregular in its influence. The stomach then delivers what symptom it may when the irritation is great enough.

If attacks of "indigestion" occur, which are not quite clear-cut, if during the attack there is lack of regularity of symptom, if the pain be somewhat continuous, if remissions, even, are not marked, if together with the gastric symptoms of distress, gas, bloating, sour regurgitations or vomiting, continuing for a few days, to longer periods; and if each day the symptoms quite nearly repeat those of the day before; if some relation to food be observed; if the symptoms come on ½ to 1 hour or more after meals, if alkali or irrigation gives relief—if these conditions prevail, we may safely exclude from the diagnosis everything but peptic ulcer. Added to this, if we obtain a history of partial and fairly constant food relief, we may be quite sure of our diagnosis. In locating the ulcer, one may be aided by the field of radiation, as when it is high and well to left, or when there is perforation at any point. The patient's interpretation of pain and of the field of radiation is often perplexing. Localization by means of tender abdominal pressure-points is not wholly satisfactory, partly perhaps because of the varying positions of the stomach. The Roentgen-ray helps in many perplexing cases and promises even greater aid in the near future.

However, the greatest benefit to be derived from a diagnosis does not come from exact localization of the ulcer, but rather from the diagnosis of a lesion, and determining the patient's needs as to treatment, in the light of the available symptoms. Whether or not a patient be advised to undergo medical or surgical treatment often depends upon our viewpoint and is a theme for discussion by itself. Cases complicated with obstruction, hour-glass contraction, perforation and hemorrhage are conceded as being surgical. Patients suffering from oft-repeated or continuous attacks and whose usefulness or pleasure in life is greatly diminished thereby, certainly should be given the relief afforded by surgery, even though the above complications are not present.

STATISTICS.

The following statistics are based on the reports received from 600 cases of duodenal and gastric ulcer out of a total of 816. The shortest period since operation in these cases is now nearly two years.

Of all the patients with ulcer operated on during the years 1906-1911 inclusive, 76% were males and 24% were females. Of the males, 70% of all ulcers were duodenal or involved the duodenum. Of the females, 60% of all ulcers were duodenal or involved it.

Out of a total of 567 cases of duodenal ulcer operated on during a period of 6 years (1906 to 1911), information has been received concerning 438. The classified results of these data are as follows: 307 or 70% cured, 79 or 18% much improved, 40 or 9% fair, and 12 or 3% unimproved. A percentage therefore of 88 were cured or much improved. In 440 of the cases, the ulcer was confined to the duodenum. Of these 337 were heard from: 70% were cured, 16% much improved, 11% fair, and 3% not improved. In the remaining 127 cases, the ulcer extended to or involved the pylorus, and of these 72% were cured, 24% much improved, 3% fair, and 1% unimproved. That is, eighty-six per cent. of the former were cured or had made satisfactory improvement, whereas, in the latter group, in which the lesion was more extensive, 96% were cured or much improved. The results are summarized in the folowing table.

TABLE I.

ULCER

	Duodenum.	Duodenum. Involving Pylorus.	Total.
Number operated on	440	127	657
Number reporting	337	101	438
Cured	70%	72%	70%
Much improved	16%	24%	18%
Fair	11%	3%	10%
Not improved	3%	1%	2%
Cured and much improved	86%	96%	88%

There were 249 cases of gastric ulcer and reports were received from 162. These were grouped according to their situation: (1) 52 in or at the pylorus (pyloric ulcer), and (2) 197 in other parts of the stomach (principally the lesser curvature). Taken collectively, 95 or 59% of this series were cured, 35 or 22% were much improved, 21 or 13% fair improvement and 11 or 7% unimproved. Therefore, 80% were either cured or much improved, 93% were benefited and 7% not improved. Tables II. and III. show comparative results in this series.

TABLE II.

ULCER

	Pyloric.	Stomach.	Total.
Number operated on	52	197	249
Number reporting	37	125	162
Cured	51%	61%	58%
Much improved	27%	20%	22%
Not improved	3%	8%	7%
Fair	19%	11%	13%
Cured and much improved	78%	81%	80%
Benefited	97%	92%	93%

TABLE III.

COMBINED RESULTS.

ULCER

	Duodenum.	Gastric.	Total.
Number operated on	567	249	816
Number reporting	438	162	600
Cured	70%	58%	67%
Much improved	18%	22%	19%
Fair	9%	13%	10%
Not improved	3%	7%	4%
Cured and much improved	88%	80%	86%
Benefited	97%	93%	96%

Clinical observation goes to prove that the more advanced the obstruction at the pyloric end, other things being equal, the better is the result following gastrojejunostomy, and conversely, it is equally true that those cases with slight or no obstruction are to some degree less benefited by the operation. In the latter instance this result has been explained on the theory that the pylorus remains open and a portion of the food with its irritating, though perhaps normal acids, continues to pass by way of the natural channel coming in contact with the ulcer as before, thus giving a lessened opportunity for the ulcer to heal. This condition of free passage of gastric content by the natural route has been repeatedly verified by post-operative screen and Roentgen-plate study, yet many patients whose stomachs are thus functionating are, nevertheless, without symptoms. It is, however, because of this failure to relieve all patients that the surgeon has undertaken various procedures to overcome this difficulty, among which are excision or infolding of the ulcer, infolding the pyloric end of the stomach, ligation by means of silver wire or twine, and, more recently, the employment of a ligature of live tissue of fascia or omentum, none of which methods has been signally successful.

Pyloric obstruction to a variable degree occurred in 198 or 34% of the 576 cases of duodenal ulcer. Gastric analyses showed food remnants in varying amounts after 12 hours, in 100 cases or 50%. Reports were received from 163 patients. Nine had died since the operation. Ninety-four per cent. of the remainder were cured or greatly improved.

In 197 of the cases of gastric ulcer, obstruction was present in 78, or 39%. Food remnants were noted in 58, or 71%. Thirteen patients had died since operation. Ninety-two per cent. of the remainder were cured or greatly improved. The results in these two series (Table IV.) are encouraging in view of the fact that some complication, such as chronic or subacute perforation, regional peritonitis and adhesions, multiple ulcers or coincident disease in the gall bladder or appendix, or both, were frequently noted at the operation.

TABLE IV.

PYLORIC OBSTRUCTION.

ULCER

	Duodenum.	Stomach.
Number operated on	198	78
Number reported	163	52
Food remnants	25%	71%
Cured	71%	67%
Much improved	23%	25%
Not improved	3%	2%
Cured and improved	94%	92%
Fair	3%	6%
Complication	40%	43%
Other operations	18%	7%

The number of duodenal ulcers without evidence of obstruction either clinically or at operation was 275. The results were classified as follows:—Cured, 68 %; much improved, 17%; fair, 12%; not improved, 3%; cured and improved, 85%; total number benefited by the operation, 97%.

TABLE V.

DUODENAL ULCERS WITHOUT OBSTRUCTION.

Number reported	275
Cured	68%
Much improved	17%
Fair	12%
Cured and improved	85%
Not improved	3%
Benefited	97%

Of 162 gastric ulcers there were 110 without evidence of pyloric stenosis. The results were classified as: Cured, 51%; much improved, 23%; fair, 14%; not improved, 12%; cured and improved, 74%; total number benefited by the operation, 88%.

TABLE VI.

GASTRIC ULCER WITHOUT OBSTRUCTION.

Number reported	110
Cured	51%
Much improved	23%
Fair	14%
Not improved	12%
Cured and improved	74%
Benefited	88%

TABLE VII.

SUMMARY.

ULCER.

	Number.	Cured.	Much Improved.	Fair.	Cured and Improved.	Benefited.
Total duodenal ..	436	70%	18%	10%	88%	98%
Duod. (obstructed)	163	71%	23%	3%	94%	97%
Duod. (no obstr.).	275	68%	17%	12%	85%	97%
Total gastric	162	58%	22%	13%	80%	93%
Gastric (obstr.) ..	52	67%	25%	6%	92%	98%
Gastric (no obstr.)	110	51%	23%	14%	74%	88%

By a comparison of the results obtained (See Table VII.), it will be noted that the percentage of cured and improved cases of duodenal ulcer with obstruction was 94%, without obstruction, 85%, making a difference of 9%. The number of cured and improved cases of gastric ulcer with obstruction was 92% and without obstruction 74%; a difference of 18%. The comparatively good end results in these cases of duodenal ulcer without obstruction may be explained on the theory that: (1) The ulcer in healing contracts and causes partial or complete pyloric or duodenal stenosis. However, the end results in gastric ulcers without obstruction are so successful that the clinician need not delay his surgical diagnosis until obstruction or other serious complication endangers the patient. (2) In about 50% of the cases classified as obstructed, the degree of obstruction was only moderate, and from a practical standpoint, the end-results between these and the unobstructed cases should be very similar. (3) Undoubtedly the reflux of bile and pancreatic secretion from the duodenum into the stomach with its strong neutralizing action upon the hyperacid gastric contents favors healing of the ulcer and consequent remission of all symptoms. (Paterson.)

It may be that the improved drainage better defends the duodenum and pylorus, on account of their situation, from the irritating gastric content, or as a result of the operation, the acid irritation is lost to the duodenal and pyloric areas. Thus in this location healing is hastened. Ingested matter and acidity may still irritate the ulcer higher up (cardiac end).

TABLE VIII.

DUODENAL ULCER.

POST-OPERATIVE SYMPTOMS: DEGREE OF IMPROVEMENT.

Symptoms.	Before Operation.	After Operation.
Influence of food:		
Pain eased	76%	3%
Distress and pain	16%	17%
No effect or agrees	9%	80%
Vomiting	70%	13%
Gas	80%	18%
Hem.	19%	7%
Loss, weight	70%	10%
Gain, weight		68%
Constipated	58%	8%

In the series of duodenal ulcers, 106, or 19%, of patients gave a history of hemorrhage preceding operation. Thirty-one patients had hemorrhage of variable degree following the operation, but only 18 of these had hemorrhage prior to operation. Therefore there was hemorrhage in 13 cases following operation in which there was no history of pre-operative bleeding. In these the hemorrhage occurred some time after operation and was severe in only a small percentage. Out of a total of 108 patients, 94, or 88%, had a gastrojejunostomy performed, only 4% had excision or infolding of the ulcer in addition to gastrojejunostomy. Excision or pyloroplasty was done in 8 cases, or 8%. Three of the patients had post-operative hemorrhage in which excision or infolding had been done.

TABLE IX.

GASTRIC ULCER.

POST-OPERATIVE SYMPTOMS: DEGREE OF IMPROVEMENTS.

Symptoms.	Before Operation.	After Operation.
Influence of food:		
Pain eased	60%	1%
Distress and pain	30%	23%
No effect or agrees	11%	76%
Vomiting	71%	19%
Gas	81%	20%
Hem.	23%	6%
Loss weight	73%	12%
Gain weight		61%
Constipated	62%	15%

Forty-eight, or 23%, of patients with gastric ulcer had hemorrhage prior to operation. Eight patients, or 13%, had post-operative hemorrhage and of this group only three gave a history of hemorrhage prior to operation. Thus in 5 instances there was bleeding in varying amounts following operation in which there was no pre-operative history of hemorrhage. Gastrojejunostomy alone was done in 44%; gastrojejunostomy and excision or infolding of the ulcer in 80%. Excision alone, pyloroplasty or resection with or without gastrojejunostomy, was the operation of choice in 48%. Gastrojejunostomy alone was effective in preventing recurrence of all cases which gave a history of hemorrhage prior to operation. Hemorrhage may follow

operation in a small percentage of cases, even when an effort has been made to prevent recurring hemorrhage by excision, infolding or ligation of vessels leading into the ulcer. In all cases in which there is a history of repeated hemorrhage, effort should be made to control future bleeding by whatever technic is feasible.

TABLE X.

TOTAL POST-OPERATIVE RESULTS.

Number of letters sent	773
Answers received	600
Food influence on symptoms:	
Ease	2%
Distress	20%
No effect or agrees	78%
Vomiting	15%
Gas	17%
Other symptoms:	
Hem.	6%
Loss weight	11%
Gain weight	65%
Average gain	25 pounds
Constipated	9%
Acid	10%
Ner.	6%
Mo.	1.2%

Post-operative results. Among other things, our inquiries as to the post-operative condition of the patient were directed to the influence of food upon such symptoms as pain, distress, vomiting, and gas. It is noted (Tables VIII., IX., X.) that before operation, control of pain by food was a great factor. It also controlled other symptoms. After operation, there was little necessity for such control. The greatest benefit, according to our statistics, was that, following operation, food could be well borne without producing untoward symptoms and that pain, vomiting and gas were markedly relieved. There was a gain in weight in 65 to 75 per cent. of the cases and constipation was greatly reduced. The most marked post-operative symptoms generally followed in those instances of chronic or subacute perforation of the ulcer in young adults. In these cases the acidity and hypersecretion were especially marked and peristalsis active.

The co-existence of disease in the appendix (16%) or gall bladder (7%) was noted and corrected in 11% of all the cases of duodenal ulcer. In the group of gastric ulcers coincident disease of the appendix (14%) or gall bladder (5% was present in 9%). In a considerable number of cases, operation was necessary on both organs in addition to the ulcer, with favorable end-results.

Actual recurrence of an ulcer following a properly performed gastrojejunostomy is infrequent,* but it has recurred (in a few instances) when there was no obstruction of the pylorus at the time of the primary operation. In another small group, a secondary operation was necessary owing to the formation of a "new ulcer at the site where the gastrojejunostomy was made, due to heavy silk or linen hanging in the suture line of the gastrojejunostomy."

The patient who seeks relief from distressing symptoms cannot always appreciate a "practical" cure. To cure is relative, and depends on various conditions: (1) General nervous stability, (2) the pathologic condition present, (3) the extent of this condition, (4) the proximity of the lesion to vital tissues, (5) extent of operation necessary to remove the diseased tissue, (6) coincident diseases, (7) the patient's power to react. These factors enter into consideration when treatment, especially surgical, is to be instituted. The patient may be, and often is, freed from disease and life prolonged; yet he may not be freed from symptoms quite distressing. This is not always the fault of treatment, but an inevitable result of the pathologic condition occurring before treatment was undertaken.

*W. J. Mayo: Recurrence of Ulcer of the Duodenum following Gastro-Enterostomy. BOSTON MED. AND SURG. JOURN., Jan. 29, 1914, Vol. clxx, p. 149.

CERTAIN PHASES OF THE PSYCHONEUROSES AND THEIR POSSIBLE TREND.*

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I NEED not review, with this audience, the various steps in the classification and re-classification of these disorders. I need not remind you that thirty years ago the diagnosis "functional" frequently appeared upon our hospital records interspersed with hysteria, hypochondria, nervous prostration and debility, the choice of terms and their application depending largely upon the fancy of the examiner. In the early eighties the "American" disease, neurasthenia, as interpreted by Beard, was received with acclamation on the Continent. When finally the mental basis was recognized as predominant in these conditions, the term psychasthenia was introduced, I think, by Dana. Later dementia precox came to embrace many of the cases which would formerly have been classed under hysterical insanity, a term now seldom used, though it may perhaps still be applied to the cases described by Diefendorf as "distractible and lacking in sound judgment, eager for sensations, and addicted to sensuous enjoyments, with good memory and apprehension, but prone to incorrect interpretation, reaching to fabrication, sometimes accompanied by injury self-inflicted, for the purpose of evidence." This picture falls far short of dementia precox, even though furnishing the groundwork for certain befogged states, deliria, somnambulism and lethargy.

Whether neurasthenia, psychasthenia, or psychoneurosis is used for an inclusive term is perhaps not a very important matter though psychoneurosis seems to me far preferable, in the

*Read at the meeting of the Boston Society for Psychiatry and Neurology, November 19, 1913.

first place because, just as neurasthenia hardly suffices to indicate symptoms that are largely mental, so psychasthenia falls short in that these symptoms are not after all exclusively mental; thus, when a person of this make-up is prone to headache from a moderate degree of astigmatism, to disabling pain in the knee from moderate flat-foot, and to lumbago and sciatica from a mild degree of laxity in the sacro-iliac joint, it is hardly fair to assume that his mind alone is faulty, any more than we can lay to mental weakness his tendency to hay fever, cold sores, ivy poisoning, hives, and balanitis, signs reminding us that the term "thin-skinned" is not purely figurative.

Another objection to psychasthenia is the fact that it seems to suggest a more definite picture than psychoneurosis; not a serious matter if the same picture is presented to every observer. But to illustrate the fact that it is not, I have recently been consulted by two physicians, each in search of a sanitarium for a "psychasthenic." In answer to my question, "What is a psychasthenic?" the one answered, "Why, a man who is so exhausted by mental labor that his thinking processes have come to a standstill." The other answered, "Why, a man who cannot make up his mind whether his clothes are buttoned, whether he has turned out the gas, and the like." These two cases totally differ in etiology and genesis, and as for treatment, the proper prescription for the one is "Loll about," for the other, "Peg along." For one of these two cases the descriptive term "brain fag" has never been improved upon, nor for the other has the French term *folie du doute*. Such distinctive types deserve at least distinctive sub-headings. Unless, indeed, in place of *folie du doute* we freely use the term obsessive psychosis, which will include the doubting folly, an outgrowth of the obsession to make assurance doubly sure.

I need cite no cases to illustrate brain fag. The type is that of the business or professional man, not necessarily by nature psychopathic, who has for a term of years applied himself to onerous and exacting work without rest or vacation. He finally finds that his intellectual faculties refuse to honor further drafts, that he can no longer satisfactorily perform even his routine duties or carry the ordinary details of his work. A comparatively brief rest, if complete (and such a rest a man of this makeup is more able to take without exhausting worry than the congenital psychopath) sets this patient on his feet.

In contrast to this condition, and in illustration of the obsessive psychosis as it presents itself to my mind, I will cite a case shown last winter at a staff meeting at the Psychopathic Hospital.

Case 1. A bright, intellectual woman, in good physical condition and not tired, had no loss of memory for remote or recent events, no delusions, no hallucinations, and suffered from no other mental defect than that involved in the following symptom, one which was really rather emotional than intellectual. She had been forced by circumstances to leave the house to which she was greatly attached. Her mind had recurred so frequently to the matter that she had become unable to attend to her ordinary duties and had been sent to the hospital for observation. She described the house without exaggeration, it was not wonderful, but exactly what she wanted. Her insight was good. She knew that her attitude was unreasonable, she said it was a crazy idea but that she could not give it up; if she were in that house she would be perfectly happy. Otherwise the mental examination revealed nothing of note except that she was a very careful housewife, very particular about the cleanliness of the children, about her husband's return when he was expected, etc. No previous attack of seriousness was to be made out and no outbreak of depression or exaltation.

We have here to do with a borderland case differing fundamentally from brain fag in that the disability results from inherent psychic defect, the immediate stress being inadequate and incidental. The distinction between her present mental state and the depression of manic-depressive insanity is again a fundamental one. The depression of manic-depressive insanity settles upon the patient after the manner of a fog, though not always with its rapidity. The depression may be aggravated, it is true, by adverse circumstances, but its fundamental peculiarity is that the cloud settles whether circumstances are adverse or favorable. When this depression attains a certain degree of severity, nothing can make the patient happy, the discontent is inherent, a part of his very being. He is incapable of enjoyment until the period is passed during which his spirits are imprisoned. When the load is lightened there may or may not have been an improvement in outside conditions.

In this patient, on the other hand, happiness and gloom depend entirely upon outside conditions. Her unrest may at any time be caused to disappear by the acquisition of that on which she has set her heart, only to return upon the accession of another insistent desire.

Again, I have recently seen a young law student, exceptionally diligent and successful in his studies. He had, however, a moderate degree of astigmatism, and on continuous study his eyes would smart and sometimes he would have the temporary blur that often precedes migraine. His refraction had been properly corrected by a competent oculist. Still he had given up his studies and had made up his mind, regardless of the opinion of the oculist, that there was danger of his going blind. He was joining a gang of laborers at outdoor occupation requiring no near eye work. He was insistent, nevertheless, on knowing today whether he should ever be able to return to the law. This question he found it impossible to allow to rest in abeyance, or to apply himself to the simplest outside proposition. While the obsessive psy-

chosis is distinct from manic-depressive insanity, it is more nearly allied to it than to dementia precox, in that the insight is apt to be preserved and the disorder is largely one involving the emotions. Fear, is perhaps, the commonest underlying emotion, but it may be an overweening desire without fear, as in the classical case of the man who had to rise in the night and flick from the wall a stone which he had the day before, against his inclination, left unmolested.

It is important from the prognostic point of view to have a definite idea of the trend of the psychoneuroses, particularly the obsessive type. Notwithstanding recent pathological advances, I suppose a considerable neurologic contingent today would allow the psychoneurotic to drift as readily into dementia precox as into manic depressive insanity. But the obsessive psychoneurotic, prone to worry about his health, subject to doubting folly, to phobias, and to compulsions of every variety, is peculiarly prone to drift into not only confirmed hypochondria, but into manic-depressive insanity, even including somatic delusions which represent the tendency of the emotional, finally to encroach upon the intellectual sphere. In other words, manic-depressive insanity requires no structural brain defect and offers no insuperable bar to *restitutio ad integrum*. Dementia precox, on the other hand, is essentially a disease of morphologic deficiency, probably with a structural basis not to be attained by the most unbridled exploitation of the psychoneurotic tendency. On the clinical side the ground was cleared for this distinction (1) by recognizing in so-called melancholia atonita a symptom of catatonia; (2) by differentiating the excitement of manic-depressive insanity from the frenzy (*tobsucht*) of the older writers which was quite as likely to mean catatonic excitement or epileptic furor; and (3) by distinguishing the negativism of the catatonic from the retardation of manic-depressive insanity, the analogue of which may be physiologically produced by simple fright.

The fact that the brain of the precox dement is structurally defective does not, of course, preclude or insure against his being also an obsessive. In this case, however, the obsessive makeup is merely an incident in, not the underlying basis of, the disorder.

That manic-depressive insanity may in fact develop from simple psychoneurosis is illustrated by the case of a man of about fifty, whom I have had opportunity to follow for about twenty years. During the first ten years of that time his symptoms were limited to undue sensitiveness, introspection, phobias, dread of society and the like; about ten years ago appeared the first definite suggestion of the depression which tended to more or less regular recurrence, and finally culminated in an attack sufficiently severe to require protracted sojourn in a hospital for the insane. But may a case of psychoneurosis drift thus, of its own inertia, into dementia precox? I think not.

With regard to the theoretical side of the question whether a structual lesion is essential to this disease, Kraeplin's chronic poison resulting from disordered secretion of the genital organs is purely supposititious, and even if it were true, as De Fursac states, that "we have no actual evidence of any pathology of the disease," when he adds that the assumption of such pathological process is purely gratuitous he might with at least equal pertinence apply the term gratuitious to the claim of Kraeplin.

Meyer apparently regards dementia precox merely as the outcome of faulty mental habits or abnormal "reaction types." This author ingeniously analyzes the inadequate reaction by which the mentally inert avoid grappling the various emergencies of life, and indicates that the habitual resort to such reactions may produce dementia precox. He mentions under this heading "hypochondriacal trends, ideas of reference, fault finding or suspicions or attempts to get over things with empty harping, unaccountable dreamlike, frequently nocturnal, episodes, often with fear and hallucinations, leading to strange conduct, such as the running out into street in nightdress, etc." But his hallucinations and nocturnal excursions of the unclad seriously impair his argument, for it is just here that dementia precox is so widely separated from mental inertia and the psychoneuroses as to place it in a totally different category, and when Meyer says that all these happen on the ground of a neurasthenoid development, many of us find ourselves falling out of step.

Almost equally unsatisfactory, from the pathological point of view are the terms used by Gross, Kolper, Wolff, Zweig, Blueler and Dromard, authors grouped by Southard as standing for the non-organic genesis of dementia precox. Such expressions as "disruptions of judgment," "intrapsychic ataxia" and "psychogenic conflicts" are more satisfactory from the articulatory than from the intellectual point of view. On the organic side, the way, already blazed by Alzheimer, Kippel and Shernitte and Sioli, has been materially cleared by Southard, who singles out the pathogenic lesions of dementia precox from the cytological and stratigraphic changes shared by this disease with other mental disorders. Among the findings of Southard I would particularly call attention to such defects as thinning of the corpus callosum, and to cytologic defects underlying gross defect of cortex substance visible already to the naked eye. The question whether such defects are congenital or the result of acquired changes to which that region was susceptible, is of less importance for the present discussion than the fact that they exist, that they preclude *restitutio ad integrum*, and that the analogue has not been found in manic depressive insanity.

The last word has not been spoken on the prognosis of dementia precox, but the percentage of cases has been narrowed to such a degree

that it seems reasonable to assume, as Mitchell intimates, that the residue of recoverable cases is negligible, and that if cure really ensues our diagnosis of dementia precox is at fault. De-Fursac, after stating that a certain number of cases recover completely, quite properly states that these cases are to be accepted only with extreme circumspection. What he means is that many of the apparent recoveries are only relative and that many are mere remissions. May there not be another reason for this circumspection, namely, that some of these cases are not dementia precox at all, and are we justified in assuming that the patient is bound eventually to become demented, because in a certain attack of insanity he has shown symptoms suggestive of dementia precox. To illustrate:

Case 2. A young man, presented at the staff meeting of the Psychopathic Hospital, has been for a number of years inclined to view his own physical condition with undue apprehension, fearful of heart disease and tuberculosis, and is imbued also with the fear that he has ruined his life by early habits. He was brought to the hospital in a state of agitated and anxious depression, restless, unable to eat or sleep, suspicious that whatever happened in the ward had reference to him, insistent that his chest was caved in, that his heart was not beating, that he had no feeling, that his brain was wanting, and the like. In the course of, I believe, a couple of months, the condition passed away and when his case was presented for consideration he showed no mental peculiarity, no defect of memory, attention or judgment, in other words, no disorder of willing, thinking or acting. He was perfectly oriented and with good insight. He realized that his former fears were groundless and that his ideas, though beyond his control, had been nonsensical.

In this case there was and is a tendency seriously to consider dementia precox, a diagnosis which cannot, of course, be eliminated at this stage. But is not quite as probable a diagnosis psychopathic inferiority with predominant hypochondriacal tendency and with a depressive attack accompanied by somatic delusions of the Cotard type?

This young man's future is, of course, to be regarded seriously, inasmuch as he is liable to further attacks of manic depressive insanity and inasmuch as his hypochondriacal tendency is a more or less permanent handicap. But I shall be surprised if the future discloses the mental deterioration of dementia precox.

In the following case I may be demolishing a man of straw, but the diagnosis dementia precox was at one time here also taken seriously into consideration, by both Dr. Paul and myself.

Case 3. This was a man of 22, a *summa cum laude* graduate. He had given up teaching on account of migraine. He shivered in the morning, was hot all night, had a poor appetite and intestinal irregularity, together with various anomalous sensations, for example, as if the back of his head was asleep. He lost flesh, complained of tendency to walk fast, to run down hill and to open his eyes wide. Suddenly one day he felt as if he could not feel. What he did feel was unnatural, for example, after eating it felt to him as if the food went down outside his ribs, and the like. He felt as if he had no muscles. Was depressed, his energy was going from him and no doctor could help him. The blood did not seem right in his hands. There are no thoughts in his mind. The blood flowing through his ears is too "taut." His voice does not seem right, and he fears it is leaving him. There are bursting explosions all over him and there is no consistency to his flesh and no good in him. There is much blood in his nose and his tongue is in the middle of his sternum. He is about to draw his last breath; his bones are on the surface. He was depressed, complained of a feeling of inadequacy, and was an evident sufferer from mental pain. His condition was so serious as to preclude his occupation. The condition gradually disappeared and today, five years later, he is at work successfully teaching and showing no sign of mental defect.

The following case is really much more suggestive of dementia precox which is still, I think, the prevailing diagnosis among the alienists interested.

Case 4. A woman of about 30, accused her employer of an indecent attack. She made no outcry, she said, but it seemed as if her throat was closed. She continued her work for a week as usual, because it "interested" her. At the end of this time she consulted a physician who referred her to a lawyer. It then appeared that some three years before, she had been an inmate, for nearly a year, of a hospital for the insane, with a provisional diagnosis of dementia precox, and a second choice of catatonia of autotoxic origin. From the hospital records it appears that she was committed on account of talking excessively about a certain work she was to undertake, thinking that the newspapers were talking about her, becoming restless, confused, irritable, then mute and resistive, asking for food and then not taking it, losing weight. During her stay in the hospital she was resistive, would not respond to questions and refused to eat, seemed at times dazed and unwilling to talk, suspicious and confused, apathetic, sometimes excited and struck others; at one time said the food was poisoned; was untidy. After about nine months began to improve. Took more interest and did ward work. Was suspicious of the physicians and sometimes rough with other patients, but less untidy. No hallucinations, well oriented and with no anxiety. Not resistive, but is said to have had the attitude of dementia precox, antagonistic and evasive. Further investigation of her history outside the hospital disclosed the fact that she had made a demand upon another, claiming indecent assault. Later she complained of injuries at the hand of another. She went to a third lawyer with a case, the nature of which is unknown. This lawyer had had two or three more claims of hers against other men for assault. While variously employed, she had recurring trouble with others, who were discharged through her complaints, but afterwards reinstated at her request, only for the trouble to recur.

Examination showed a robust, well-developed, strong and active woman, revealing no mental defect

beyond the suggestion that she lacked continued application, as shown by the fact that while she could subtract 7 from 100 promptly and correctly, also 7 from 93, and 7 from 86, when asked to continue the process she carried it only to 57 (a wrong result) and showed utter lack of further interest. It also seemed that in the past six months she had taken places with five different employers.

Here, then was a third case which might very well be included in the statistics as one of dementia precox with several years' interval without mental deterioration, but to my mind it is very doubtful if the case should be included under dementia precox at all. This young woman possesses highly developed sexual proclivities with a hysterical groundwork, a tendency to find a sexual content in every incident and to fabricate and to exaggerate, if not imagine, her own physical ills. I hesitate to characterize the attack while in the hospital, but in view of the subsequent history I am neither inclined to regard it as dementia precox or acute intoxication. The diagnosis hysterical insanity should perhaps be taken into consideration, with an unusually prolonged period of confusion and befogging of the intellect. At all events, I should rather regard it as an outgrowth of her psychopathic inferiority than as of infectious origin. If I were obliged to designate her present condition, I should feel more inclined to ally it to high-grade imbecility than to dementia precox. This was perhaps an unfortunate case to select for illustration inasmuch as the diagnosis is not clean cut. The acknowledgment of this fact, may, however, tend to absolve me from the accusation of diagnostic absolutism.

Especial care should be exercised in choosing between the diagnosis manic depressive insanity and Kraepelin's "maniacal" or "periodic" form of dementia precox. Thus: I have been recently consulted regarding the testamentary capacity of a man, who, at the age of seventeen, sixteen years before making his will, was treated for six months in a hospital for the insane. This attack was characterized, in brief, by suicidal depression, excitement with violence and profanity, ideas of reference, confusion and non-recognition of friends. The prior history and habits were not of significance. The case was regarded as one of dementia precox. Recovery followed with one attack of depression four years later, lasting two months. Otherwise the mental history has been uneventful, a chosen line of professional work having been meantime learned and successfully practiced.

The diagnosis in such cases is not a purely academic question, but one of practical prognostic importance. Whatever ground we may take as to the future usefulness of the litigious nymphomaniac, are we bound to regard a successful business or professional man as liable to dementia because of a single outbreak, occurring, perhaps, five years ago? I think such patients should rather be given the benefit of the doubt.

CONCLUSIONS.

It would be desirable in the sub-classification of "Neurasthenia," "Psychasthenia," or "Psychoneurosis" (preferably the latter) more freely to use the terms Brain Fag and Obsessive Psychosis, and to recognize the fundamental difference between them.

While the sufferer from obsessive psychosis may drift into chronic hypochondria, or into manic depressive insanity, he will become a case of dementia precox only if he has the inherent brain defect which limits development and predisposes to deterioration.

Prognostic injustice may easily be done by making the diagnosis dementia precox on the basis of a single psycho-pathological outbreak with symptoms suggesting that disease.

SUGGESTIVE TREATMENT IN DISEASES OF CHILDHOOD.*

BY WILLIAM W. HOWELL, M.D., BOSTON.

I WISH to present to you this evening a branch of the healing art which has always been associated with medicine and which even antedates by centuries any scientific or practical knowledge of drugs. Long before man had knowledge of drugs he tried persuasive measures. Hence psychotherapy, mental healing, suggestive treatment, or whatever name one may apply, is the older method of treatment. Plato said: "The office of the physician extends equally to the purification of the mind and body. To neglect the one is to expose the other to evident peril."

Physicians have been loath to use such methods for they constitute the armamentarium of charlatans and quacks, but I hope to show that if we approach the subject fairmindedly and consider actual results, we may be convinced of its scientific value. I have limited myself to suggestive treatment of children, for it is only with children that I have tried to gain any real working knowledge of suggestion. However, I believe the principles to be much the same in old or young.

The older methods of medical instruction dealt with disease and its treatment, not with an individual sick with a disease, not considering the individual's peculiarities, idiosyncrasies, and effects from his nervous system. Czerney gives it as his rule not to treat any kind of children's disease without considering the peculiarities of the child. The nervous system of children is very sensitive, easily unbalanced, and susceptible to outside influences, hence psychic disturbances are extraordinarily frequent, and for the same reason easily influenced and cured. A child of psycho- or neuropathic parentage, even at very

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early age may show increased susceptibility to nervous derangement, not merely as pure psychic disturbances, but as psychic manifestations in the course of definite diseases.

By psychic disturbances are understood all those manifestations which have their foundations in the imagination of the individual and may have to do with any organ or function of the body. Consequently by suggestive or psychic therapy is meant any treatment which works on the imagination of the individual. Through our words and deeds we have a marked influence on the feelings and imagination of the child, which in turn exert a mighty influence over all bodily function.

In order to understand the principles of suggestive treatment it is necessary to understand the mechanism of the mental machinery which produces psychic disturbances. To quote from Hamburger: "Any kind of irritation or stimulus occurring one or more times loosens in an individual an unconditional reflex, that is, that the individual for reasons of a congenital susceptibility of his nervous system answers to this stimulus with a definite reflex. If the reflex has occurred several times, if the remembrance of it is active on account of accompanying conditions, then it is possible through voluntary or involuntary reproduction of the stimulus, which is remembrance, automatically to cause the same reflex." It now appears that to understand the mechanism of these processes it is necessary to explain the workings of unconditional and conditional reflexes. All our bodily actions are dependent upon reflexes, which means that a stimulus applied excites the centripetal path to the central nervous system, is then carried over to the centrifugal path, and the action or reflex takes place. A definite stimulus is always answered by the same action, and hence the reflex is called unconditional, and such are the reflexes of ordinary life. It is known that these unconditional reflexes may be influenced by outside factors or psychic factors, and then become conditional reflexes. The experiments of Pawlow, though primarily performed to explain certain digestive phenomena, help to explain the doctrine of unconditional and conditioned reflexes.

Pawlow showed that when a dog is given food immediately the salivary and gastric glands become active. This is an unconditional or unlimited reflex. However, it is not necessary that the dog actually get food, the sight or smell of it being sufficient for the dog to form the conclusion that he is to have something to eat and the reflex takes place. The food, or the sight or smell of it is the unconditional stimulus, the action of the glands the unconditional reflex. Further experiments show that this reflex can be influenced in various ways. If just before the dog gets food a bell is rung and repeated for several days he gets the idea that when the bell rings food is coming, and soon the mere ringing of the bell suffices to excite the reflex. This is a conditional or by some called limited reflex, for if after repeatedly ringing the bell food fails to appear, the glands do not act and the reflex fails.

An understanding of the conditional or limited reflex is not sufficient to explain the mechanism of psychic manifestations, but there is necessary an explanation of the statement from Hamburger, which is "for the discharge of the limited reflex it is in many cases not necessary that the definite stimulus enter, but that the conscious or unconscious remembrance of it may suffice." An understanding of this doctrine clears up a great many of the socalled functional or psychic diseases. An analysis of ordinary fainting attacks, which are pretty generally attributed to reflex cerebral anemia, explains this doctrine. In an individual with exceedingly flexible blood vessels and susceptible nervous system, a severe fright may cause cerebral anemia, paleness, loss of consciousness and a faint. This is an unlimited reflex for the person so constituted must react with a faint. This is an unlimited reflex unless he has had previous attacks, when the remembrance of these previous attacks gives anemia more easily, and we are then dealing with a limited reflex depending on the remembrance. The slightest fright now is able to cause brain anemia, and even the remembrance alone; therefore, the pure psychic reproduction suffices to cause an attack. Such a remembrance may run entirely consciously or subconsciously and cause a reflex anemia. The greater the practice or the more often repeated, the more the disease picture approaches what is known as simulation or hysteria. The less consciously the action runs the more difficult is it to recognize the psychic character of the disease, and indeed it becomes almost impossible to find the cause of the reflex. In such a case the reflex of course cannot be stopped by removing the original stimulus, but can be influenced through an indirect means by interrupting the discharge of the action. Just so in Pawlow's experiments if the dog's attention while eating is distracted, for example, by the sight of a cat, the chain is broken and the reflex, which is the digestive action, is interfered with.

It must be remembered that in children there is always something real as a foundation for their psychic disturbances, which is a physical or psychic trauma or an attack of sickness leaving a deep mental impression, for example, apparent sickness with malaise, loss of appetite in schoolchildren after unjust treatment by teachers, paroxysmal cough after a true attack of pertussis, the many habit spasms, and so on.

As an example of physical trauma causing a psychic disturbance, I will cite the following case:

Case 1. A healthy boy of thirteen years was attacked by a dog and in some way was struck in the scrotum, resulting in severe pain and involuntary micturition. The boy thought he was severely injured, but told no one as he was ashamed. He suffered from frequent micturition, wet his bed, at times wet his clothes during the day, and could

not go through a session at school without going to the toilet twice. His mother punished him and by comparing him to his younger brother who was clean, increased his shame. The teacher kept him after school for going too often to the toilet. In every way his mental impression was aggravated. This went on for six weeks, when he consented to see me. Careful examination revealed nothing abnormal locally or in the urine. Positive assurance that he could be cured and that he would not wet again if he took some bad medicine resulted in complete cure.

To tell him that there was nothing wrong and that he was silly might have failed. The promise of cure and the medicine to remind him of that promise effected a cure.

That psychic trauma may cause symptoms simulating disease is shown by the following example:

CASE 2. A girl of six years came to the outpatient department of the Infants' Hospital in May, 1913, with a diagnosis of nocturnal epilepsy. Almost every night at 1 a.m. she would become restless, might wet the bed, or waken with a cry, look wild, excited and go off to sleep. Never any day attacks. This dated from a night a year previously when she woke about the same time in the night and went to the toilet. As she opened the toilet room door a large cat sprang out, giving the child a fright. Assurance that she was to be cured and that the cat never could come again, and she must take some bad medicine to be cured, prevented the attacks for a week. The mother could not come to the clinic for two weeks and during this time the attacks returned. Renewing the assurance and a stronger medicine stopped the attacks.

Disease may be affected in two ways psychically, may be aggravated by psychic disturbances, or psychic conditions by lowering the resistance may allow disease to set in. The following case will illustrate both of these points:

CASE 3. A girl of twelve years of nervous parentage and disposition had a slight throat operation which left her extremely nervous. A few days later she went to the seashore for a vacation. On the first day she remained in bathing till she was overtired. The next morning she went for a long tramp, was overheated, hysterical, thought she could not breathe, and fainted. She was in bed several days, and then became well enough to go down to the shore and walk about, but still apprehensive that she was about to faint or lose her breath. A week later twitching of the face and right arm and violent action of the respiratory muscles began. I saw her later with a typical chorea and later an endocarditis developed. The psychic trauma of her fainting and loss of breath helped bring on her chorea and then made it worse.

That disease may cause psychic phenomena, the paroxysmal character of any bronchitis cough after a true pertussis, is an example, the remembrance of the original pertussis causing all subsequent coughs to simulate a whoop, and it is a very difficult matter to decide whether it is a second attack or a simulation. So with chorea—it is one of the hardest medical problems to solve, if a second choriform attack is a relapse, a new infection, or a psychic reproduction.

There is another type of case which is best classed and treated as psychic. I mean disturbance taking place in the sleeping hours, as eneuresis, night terrors and somnambulism. That these processes are due to dreams there can be little doubt, but as they occur in the early hours of the night when sleep is heavy, the dream itself is not remembered. It is very probable that a full bladder causes a dream that the child is on the stool or has a diaper on, and urination takes place and he wakens to find himself wet, but he has no recollections of the dream, or he lives through some fright in his dream and has night terror. That this is true is not possible of proof in all cases; still there are enough cases in which the children remember the dream to enable us to establish the fact. Another proof that these processes are psychic in character is that it is possible to influence them by suggestion in the waking state. It must be remembered that I am speaking of cases in which there is no definite organic lesion to account for the eneuresis or night terrors, for such lesions occurring in highly strung children give nocturnal eneuresis and night terrors which are not open to suggestive treatment. These would be analogous to unconditional reflexes. After lesions have been cured, as phimosis or pyelitis in eneuresis, or fright in night terrors, the conditional reflex due to the remembrance may remain and may then be influenced by suggestion.

There are three methods of treatment, the cathartic method of Freud, otherwise known as the etiological or analytical method, the suggestive or deviation method, and, finally, the method of hypnotism.

The last method, or that by hypnotism, I have never tried and from the cases in which I have seen it tried I am not sure that it is devoid of danger. With the other two methods I have had good results and I can see no need of the more difficult and dangerous hypnotic method.

By the cathartic method is meant the broad meaning of catharsis,—that is, purification. It removes from the child's life the influence or irritant giving rise to his psychic disturbance which has undermined his health. In this sense it is not suggestive treatment, for by simply removing the cause cure results, but it is psychic in that the cause works on the child's mental or psychic side and thus causes sickness.

I can best illustrate by the following case:

CASE 4. A girl of thirteen years, bright and very ambitious. Her father was unreasonably eager that she make good progress in school and in her social affairs, and indeed was quite severe. The child was not overworked and had time for exercise. She craved praise for her work, but instead received no encouragement from her father and nothing but censure for not getting even better marks. When playing the piano at a social event she made a mistake. The father would not speak to her for a week. Under such strain she lost her appetite, became pale, menstruated twice monthly, was very listless and failed to keep up with her classes. A

sharp talk with the father and removal to another school brought return of health and good progress in studies.

The case is psychic in that the child's physical state resulted from her mental unhappiness, and cure resulted by catharsis, that is, by removing the cause.

The suggestive or deviation method is applicable to cases where it is impossible to analyze the case or to remove the cause, or in which the cause has ceased to be active, but merely the remembrance produces the reflex. The mechanism of the method is somewhat as follows: the physical or psychic trauma or the remembrance of it starts the reflex, which runs its usual course up to the point where the child remembers consciously or unconsciously the suggestive cure, when the course is sidetracked and the reflex fails to take place. Exactly as in Pawlow's experiments with the dog when he saw the cat, digestion ceased, the cat being the deviation cure. When giving the suggestion the doctor must be kind but firm, and it is not wise or necessary to create in the child any idea of punishment. The doctor asserts to the mother in the child's presence or directly to the child that absolute cure will take place, and gives some kind of medical or mechanical treatment. It is usually best to give some unpleasant medicine or unpleasant mechanical treatment as the faradic current. It must be something which makes the child remember the words promising cure, and should be repeated often enough to keep up the remembrance. This case will suffice to illustrate:

Case 5. A little girl of three and one-half years, suffering from enuresis both day and night. Examination of the urine showed many pus cells and highly acid reaction. Clearing up the pyelitis did not cure the enuresis. Positive assurance that she could not wet again and Tr. of Nux stopped the enuresis by day but not at night. Two applications of faradism at bedtime stopped the nocturnal enuresis.

Another class of cases, the various ties or more properly called habit spasms, readily yield to suggestive treatment. In very young children faradism over the affected muscle if persisted in will bring cure in almost every case. In older children, sitting in front of a glass till the spasm occurs, and then repeating it voluntarily several times, often cures. I am inclined to think it is not so much the transformation of an involuntary motion into a voluntary one, as it is the subconscious remembrance of sitting in front of the glass, which produces a cure.

I believe that in many infectious and organic diseases we may be able to relieve much suffering by judicious use of psychic treatment. This opens up a dangerous field and one closely allied to quackery but it seems to me it cannot be quackery if by suggestion definite and permanent good results. A brilliant example of the harm that may be done is the real but temporary improvement in tuberculous cases from a recently exploited cure.

There is one infectious disease in which I have seen marvelous results, not in my own experience but at the Policlinic in Vienna. I speak of pertussis. After the infectious period of from four to six weeks the whoop is a habit and can be stopped by suggestive therapy, even though a bronchitis remains. The whoop recurring with subsequent bronchial or pharyngeal trouble can be stopped with ease. Rachford says in his "Diseases of Children," "The psychic treatment of whooping cough is of importance in children that are old enough to be influenced." Perhaps I lay myself open to criticism when I say that the results reported from the use of vaccines in pertussis depend on the psychic effect of the weak, but I must believe it after what I have seen from suggestion by faradism. The same may be said of chorea after the infectious period is over, and certainly so of the recurrent choreiform movements not due to true chorea. In the case of chorea mentioned above, the child was more comfortable when through suggestion she became convinced that she could breathe and was not going to faint.

At what age results may be expected from suggestive treatment is an open question. I believe in very early infancy there is some response to suggestion. A baby of six weeks may be trained to have a daily movement on a bed pan. A young baby taken from the breast may refuse the bottle. After a few tube feedings he will take the bottle perfectly. There may be some doubt about these cases but in both examples they have received an impression of some kind with a perfectly definite result. After three years, suggestive treatment is perfectly possible in most cases.

I believe that all of us underestimate the value of psychic treatment and that we do not consider enough the nervous makeup of our patients. The man who in treating children is kind but firm, has the knowledge of child nature and the tact to apply such knowledge, can do much to relieve suffering, not only mental, but also that bodily suffering which depends on psychic impressions.

LEPROSY: THE PULSE AS A POSSIBLE INDICATOR OF THE PROGRESS OF THE DISEASE. (A PRELIMINARY NOTE.)

By James A. Honeij, M.D., Penikese, Mass.

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In all febrile diseases and especially in tuberculosis, there is an evening rise in temperature, pulse rate and respiration. In leprosy this usual condition is reversed, so far as the pulse rate is concerned. In the morning the pulse rate is higher than at evening; often markedly so. That this condition is not due to the greater morning activity of the patient or to atmospheric changes has already been determined.

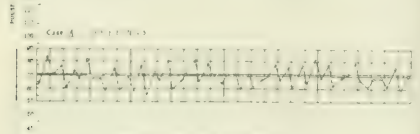
Great care has been taken in the making of these records, and as far as possible, surrounding conditions were alike, (morning and evening): An enforced rest of half an hour previous to taking the pulse and various precautions were observed and controls made to exclude errors. To exclude thermometer faults, all thermometers were compared and adjusted. The patients were at all times under the supervision of a nurse.

This clinical observation was carried out with sixteen patients, during the year 1913, but with greater care after July 1st. This heretofore undescribed phenomenon occurs in the majority of cases, and especially in those patients who are in an advanced, active stage of the disease. The same condition is present during febrile disturbances. One patient shows only anesthetic lesions and whether the disease is actively progressive cannot be determined for some time. From all appearances, this patient has failed during the past year, but as she is one of only two anesthetic cases, it makes the matter rather difficult of solution. All the other patients are of the tubercular type.

Some changes have been observed in temperature and in respiration, and may be an indication of a similar although less marked change than the pulse; but just how important these changes are will not be dealt with in this preliminary report. As the title indicates, I have considered the change in morning pulse rate as an index to the condition of the patient, as a study and comparison of the charts will show.

The charts are for a period of one month showing morning and evening pulse rate in each ruled column. Seventy has been considered the normal pulse rate, consequently there is evident at once the common higher pulse rate in leprosy.

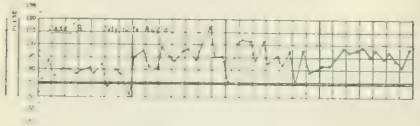
CASE "A". Tubercular type; early case; good physical condition; fairly free of lesions.



CASE "A." Oct. 7 to Nov. 3.

Chart showing fairly normal pulse for comparison with those showing morning rise.

CASE "B". Tubercular type; early case; good physical condition; fairly free of lesions.

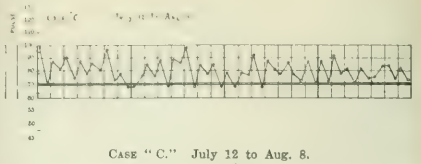


CASE "B." July 12 to Aug. 8.

Chart showing greatly varying pulse, with tendency to change.

NOTE: Patient is a highly nervous individual. Temperature normal. Respiration shows similar tendency as pulse.

CASE "C". Tubercular type; most advanced case; poor physical condition; various and numerous lesions.

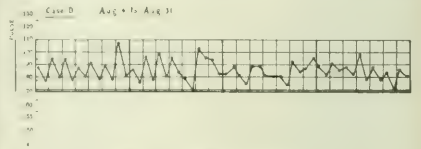


CASE "C." July 12 to Aug. 8.

Chart showing typical change in morning pulse rate.

NOTE: This patient is for the greater part of time in bed in the last stages of the disease. Temperature normal. Respiration shows marked tendency to similar change in morning rise of pulse. This patient shows same condition during whole period observed.

CASE "D". Tubercular type; advanced case; fairly good physical condition; various and numerous lesions.

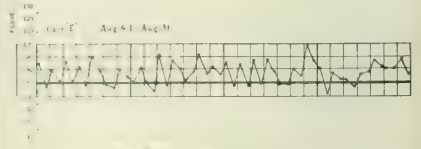


CASE "D." Aug. 4 to Aug. 31.

Chart showing most typical morning change in pulse rate.

NOTE: Patient reacts quickly to any marked physical effort. Normal temperature. Respiration shows slight similar change. During length of period under observation pulse change is regular for all months.

CASE "E". Tubercular type; advanced case; poor physical condition; various and numerous lesions.

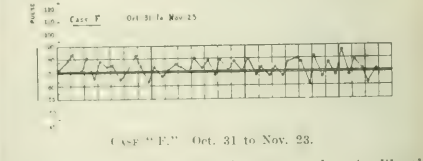


CASE "E." Aug. 4 to Aug. 31.

Chart showing very typical morning change in pulse rate.

NOTE: This patient is a highly nervous individual. Daily health condition varies considerably; temperature slightly above normal as a rule. Respiration shows marked similar change.

CASE "F". Mixed type; advanced case; poor physical condition; fairly numerous lesions.

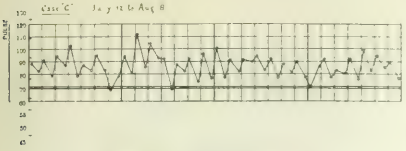


CASE "F." Oct. 31 to Nov. 23.

Chart showing fairly typical change in morning pulse rate although on normal lines.

NOTE: Patient also presents signs of lung tuberculosis. Daily health condition varies considerably. Temperature and respiration show apparently immaterial changes.

Case "G". Anesthetic type; questionable activity; good physical condition; anesthetic lesions.

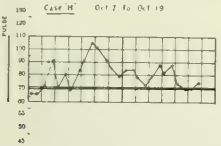


Case "G." July 12 to Aug. 8.

Chart showing morning change in pulse rate out of "highly nervous" type.

Note: Patient easily excitable; chart shows "nervous" pulse; Temperature slightly above normal as a rule. Respiration shows some similar changes. A possible exception to tentative conclusions made regarding value of pulse readings.

Case "H". Anesthetic type; stationary case; good physical condition; anesthetic lesions only.



Case "H." Oct. 7 to Oct. 19.

Chart showing pulse during febrile disturbances with tendency towards change in morning rate.

Note: Patient here showed the usual febrile change with its accompanying symptoms as seen in leprosy; up to this time patient had been practically free from signs of disease excepting the original permanent lesions due to anesthetic leprosy.

In analyzing the result of this work and the frequency of the occurrence of this phenomenon for five months, the following facts have been obtained.

a. In the six patients who present this change in more than three-fourths of the time noted, one has died, four are in the most advanced stages, and one is an exception, being an anesthetic case. The charts of five of these patients of this group are presented with this paper.

b. Three cases demonstrate the change noted in more than one half of this period. In the second of these patients there is a marked increase agreeing with the general condition, during the last three months and in the third during the last two months. In the other case there is a marked decrease in the last two months agreeing most strikingly with the recovery of the patient from a prolonged and serious condition.

c. Three cases show this change during more than one fourth of the time, and in two of these cases there is a still greater increase during October and November. Clinically these patients are in an advanced stage.

d. Four cases, all in the early or less serious stage of the disease gave negative results during July, August, September, and with one exception during October and November. The exception shows the tendency towards the change in higher morning pulse rate during one half of these two months.

This reversal of the usual febrile diurnal pulse may prove by further investigation to be of real prognostic importance. And, in the hope that other workers may verify this observation, this paper is now presented.

ILEAL STASIS.*

By Harold W. Baker, M.D., Boston.

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and

Donald V. Baker, M. D., Boston.

Metchnikoff has rightly called the large intestine, the cesspool of the human body. In his remarkable work, he calls attention to his researches bearing upon the effect of the existence of such a cesspool in the body. He has shown that autointoxication, decline and senility, are due in large measures, to absorption of toxins (pathological to be sure) from the large intestine. Since he called attention to these facts, we have discovered that such pathological absorption can only occur to a harmful degree, when the contents of the large intestine become unduly stagnant. But, however harmful such may be in any individual case, there are much more disastrous effects when stasis occurs in the small intestine. I will confine this paper to a consideration of ileal stasis, therefore, as it appears the more important.

Stasis in the ileum, is usually caused in four ways, by chronic appendicitis, by an ileal kink (as that of Lane[1]), or by a congenital membrane (as that of Jackson[2]), or by an incompetent ileo-caecal valve[3]. More than one of these causes may be present and at times a kink seems to have formed more or less as a result of a chronic appendicitis. As a general rule, the incompetency of the ileo-caecal valve is preceded by one or more of the others. Conversely, the first three usually result in the last. Most of the symptoms of this stasis, are due to this failure on the part of this valve, and so we must review the normal anatomy and physiology of the caecal region, in order to understand the condition.

The intestinal peristalsis, is broken or interrupted in two places—at the pylorus and again at the caecum. The pylorus has a true sphincter, whereas the ileo-caecal valve has more of a valve, due to its pushing into the caecum. It has also a sort of sphincter, in that the habenula[4] or taeniae coli do not invaginate into the caecum with the ileum, but are stretched tightly across the invaginated ileum's base, to preserve the intussusception, as it were. Kellog[5] believes the integrity of the habenula is an important

* Read before the Norfolk South District Medical Society, Boston, Mass.

factor in the normal physiology of the valve. In the dried specimen, the upper segment projects further into the caecum than does the lower. Thus, the aperture lies between the edge of the lower segment and the under surface of the upper. Symington[4] pointed out, that the efficiency of the ileo-caecal valve is due to the obliquity of the invagination and, as in the case of the ureter piercing the bladder wall, such a mode of entrance is probably enough for the potency of the valve.

Normally putrefaction never takes place in the small intestine. According to the best authorities only the carbohydrates are fermented by the bacteria of the small intestine. Digestion of the food intake, is practically complete by the time the terminal ileum is reached, which usually occurs in from two to five hours. At least 85% proteid, 90% fat and 98% of sugar are assimilated by the small intestine. The ileo-caecal valve has three purposes:

1. To hold back undigested food.
2. To pass unused intestinal contents, which are nine tenths water, into the colon for dehydration.
3. To prevent regurgitation of the contents of the colon into the ileum—Cannon[5] has shown that reverse peristalsis occurs normally in the ascending colon and caecum and the patency of the valve is very important, in order to prevent caecal contents being forced back into ileum.

Cannon, Case and others, have shown, by means of the x-ray, that this valve not only prevents the return of material from the colon into the ileum, but that it also regulates the onward movement of the food stream from the terminal ileum into the caecum. In this way, it is very much the same kind of sphincter-valve as the pylorus. Thus, normally, no intestinal stasis may occur, but under pathological conditions, as we have already pointed out, it may occur from four causes.

Perhaps the most common cause of stasis, is a chronic appendicitis (Plate 1). Adhesions readily form about the appendix and caecum, and they may cause stasis in several ways. Directly, through partial obstruction to a greater or less degree stasis may occur. Or, indirectly, they may cause overdistention of colon and terminal ileum, with the resultant rupture of the habenula, the destruction of the normal intussusception of the ileum into the caecum and a worthless ileo-caecal valve. The results of this we will refer to later.

A Jackson membrane (Plate 2) may cause stasis also. It may do so either by constricting the ileum or ileo-caecal valve in such a way that food cannot pass into the caecum, or by causing incompetency of the valve itself.

The presence of a Lane's kink (Plate 3) usually results in ileal stasis, because it shuts off the lumen of the gut, mechanically. It may, however, constrict the ileum in such a way as to cause no real mechanical obstruction, but rather pull the ileum back out of the caecum and thus destroy the competency of the ileo-caecal valve. The ileum is no longer kinked, as the added length prevents such mechanical obstruction, but stasis results just the same.

An incompetent ileo-caecal valve (Plates 4 and 5) is a very important cause of ileal stasis and often results from any one of the other three causes, as we have pointed out. In fact, the majority of the pathology of ileal stasis, is due to the failure of this valve. It may occur independent of the other causes, for overdistention of the caecum or terminal ileum from gas or food, may result in obliteration of the normal intussusception of the ileum into the caecum.

As a result of the failure of the ileo-caecal valve, the food is allowed to reach the colon with digestion incomplete. Diarrhoea may result easily, with malnutrition. On the other hand, the reversed peristalsis in the colon, propels the contents back into the ileum, with their millions of bacteria. Putrefaction and toxic absorption take place, where normally none occurs. Gradually, this involves more and more of ileum and jejunum and the worst effects of the regurgitation are registered on the duodenum, gall bladder and stomach[6]. In the most of such cases, the duodenum is found markedly distended and in very advanced cases, the congested mucosa results in tremendous peristalsis with gnawing pain and distention in the duodenal region. Such duodenal distention may then be accompanied by gastric residue.

The duodenum is the most sensitive point in the alimentary tract. It is not at all strange, that with the congestion and ulceration due to bacterial invasion from the colon, the biliary and pancreatic ducts should likewise suffer. Cholecystitis, pancreatitis, gall stones and even cancer, may then result.

The symptoms of this stasis are many and varied. They may be those of chronic appendicitis, Jackson's membrane[7], Lane's kink[1], gastric or duodenal ulcer or of autointoxication.

With the increasing skill of trained Roentgenologists, the positive diagnosis, depends on x-ray examination to a very large extent. Any of the symptoms as outlined, should always have an x-ray examination. The bismuth meal should all be beyond the ileo-caecal valve, in from 6 to 8 hours after ingestion. Not only can the degree of stasis of the ileum be diagnosed in this way, but in the majority of cases the cause, as chronic appendicitis, Lane's kink, Jackson membrane and incompetency of the ileo-caecal valve. Jordan, Case, Brown, Dodd and others, report cases of incompetency of the ileo-caecal valve, when bismuth enemata were used, in which the bismuth has passed the valve and has proceeded as high as the jejunum and duodenum.

The treatment may be either medical or surgical. In cases where constipation seems to be the cause alone, bulky food should be the only diet and albolene, agar-agar, etc., should be given. Three stools a day should be required,



PLATE 1.

Ileal Stasis Due to Chronic Appendicitis.

Diagnosis made by x-ray examination, Dr. Walter Dodd, and confirmed at [illegible]



PLATE 2.

Ileal Stasis Due to Lane's Kink.

Diagnosis made by x-ray examination, Dr. Percy Brown. Operation: Lane's kink freed, ileo-cecal valve repaired. Four months later no recurrence of symptoms.



PLATE 3.

Ileal Stasis Due to Jackson Membrane.

Diagnosis made by x-ray examination, Dr. Percy Brown. Operation: Membrane severed, raw surfaces covered with omental graft. One month after operation no recurrence of symptoms.

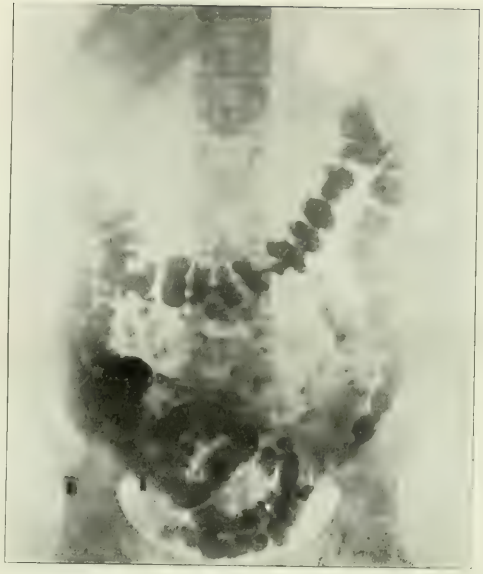


PLATE 4.

Ileal Stasis Due to Incompetent Ileocecal Valve.

Diagnosis made by X-ray examination, Dr. Walter Dodd. Operation: Ileo-sigmoidostomy, nine months after operation, no recurrence of symptoms, with gain of twenty pounds.



PLATE 5.

(Bismuth Enema.)

Ileal Stasis Due to Incompetent Ileocecal Valve.

By courtesy of Dr. Walter Dodd.

preferably after meals. The protein intake should be reduced and the carbohydrates increased, in order to decrease putrefaction. The bacillus bulgaricus may be fed to help decrease autointoxication. Kellog's results[3] are most gratifying after an average treatment of 48 days, for 86% are cured or nearly so.

The surgical treatment is indicated where the medical has failed and always where a true lesion is known to exist. Membranes and adhesive bands must be freed and the raw edges covered with peritoneum, so that they will not reform. If the ileo-caecal valve proves to be incompetent, it should be repaired by invaginating the ileum into the caecum and stitching it there and by stitching the torn edges of the habenula. At time of operation the efficiency of this valve may easily be determined by stripping back the contents of the ascending colon and caecum to see whether it will pass back through the ileo-caecal valve into the ileum. Then after repairing the valve, test the efficiency of your work in the same manner.

In case these procedures cannot be done we must resort to ileo-sigmoidostomy. In doing this operation, the ileum should be obliquely invaginated into the sigmoid, a short way, in order to construct a competent ileo-sigmoidal valve.

Any patient with symptoms of chronic constipation, autointoxication, suspected kinks or membranes, should have a thorough x-ray examination by an expert Roentgenologist. When pathological conditions are found present they should be treated medically or surgically.

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Medical Progress.

REPORT ON PEDIATRICS.

By Thomas Morgan Rotch, M.D., Boston,

and

Charles Hunter Dunn, M.D. Boston.

ACQUIRED CARDIAC DISEASE IN CHILDHOOD, RÉSUMÉ OF RECENT LITERATURE.

Göppert[1] discusses the diagnosis of acquired cardiac disease in early life, with special reference to the frequency of evidence which might lead to an erroneous assumption of a cardiac defect. Among them are the heart-lung murmurs which appear and disappear during the examination and become inaudible if the breath is held in the expiratory position. He declares that systolic murmurs at the pulmonary orifice are so frequent that they are an almost normal occurrence in the development of the child, and only a small proportion of them are associated with anemia and malnutrition. In Göppert's experience, a slight impurity of the first sound has frequently led to the mistaken assumption of an endocarditic murmur, and a reduplicated second sound is liable to cause unwarranted concern. If no other changes can be discovered in the heart, these murmurs may be regarded as accidental. The high pulse rate frequent in normal children is also apt to be misleading. If the pulse is good, Goppert has the child run up two flights of stairs and examines him again as soon as he comes down. With normal conditions the child is only a little out of breath, and the increased pulse rate returns to the normal in about three minutes and keeps strong throughout. Göppert warns against the erroneous diagnosis of myocarditis when the pulse is slow, and occasionally intermittent. This form of irregularity is comparatively frequent in children, possibly from intestinal reflexes or growth anomalies. The stair test, in these cases, is followed by acceleration and normal regularity of the pulse, but the irregularity returns as the effect of the test subsides.

Shlieps[2], takes up the question of the disappearance of one heart sound, which occurs in infants with severe nutritional disturbances. There has been much discussion as to whether the remaining sound is the first or the second. The question is of practical importance from the point of view of treatment, because if it be the first sound which disappears, therapy should be directed toward increasing the contractile power of the heart, whereas if it be the second, treatment should concern itself with the blood pressure. Shlieps believes it is the first, or muscular heart sound which disappears, and gives the following reasons: 1. We know that during severe cases of acute infectious disease in older children, it is the first sound which disappears. 2. The poor nutritional condition of the skeletal musculature would suggest a similar condition in the heart muscle. 3. If the blood pressure is normal, diminution of the clearness of the heart sound would suggest that it is the first sound which grows fainter. 4. The remaining sound is more distinct at the base than at the apex. 5. The administration of cardiac stimulants, such as camphor, makes the sounds clearer, even when the blood pressure is normal.

While Shlieps' conclusions may be correct, we cannot agree with all the reasons given. Recent work has clearly shown that in fatal cases of acute infectious disease in older children, the cause of death is lowering of the blood pressure much more frequently than weakening of the muscular power of the heart. Also the results of blood pressure work in infancy have not yet

been sufficiently satisfactory to permit the drawing of any valuable conclusions on this basis. Shlieps' second reason, the poor nutritional condition of the muscles in general, seems the most suggestive.

Nobecourt and Voisin[3] lay stress on the importance of an accurate study of the relative cardiac dullness in diagnosis, prognosis, and treatment. They compute the surface area of the heart by Potain's formula, taking as the vertical diameter the distance from the upper border of liver dulness to the top of the cardiac dulness, and as the horizontal diameter the line from the cardiac-hepatic angle to the apex. The product of these two diameters, measured in centimeters is multiplied by the constant .83. They studied thirty-six cases of cardiac disease in children. Two cases were congenital cardiac disease, and showed a formula a little above normal. (The type of lesion is not specified.) Two cases of adherent pericardium showed little or no increase. Twelve cases were acute endo- or pericarditis. From the acute cases they conclude (1) that increase in the precordial dulness may appear before the signs of endo-pericarditis; (2) The increase with acute endocarditis is very marked; (3) The increase is still more important with pericarditis. Their remaining twenty cases were chronic. Compensated mitral insufficiency showed only a slightly increased area, but the onset of an acute process is quickly manifested by a marked and notable increase.

Friberger[4] has made an interesting study of cardiac arrhythmia in healthy children. His observation comprise three hundred and twenty-one children from five to fourteen years of age. Complete histories were taken and physical examinations made. He found a perfectly regular pulse in none of the children. He divided the cases into three groups:

(a) Cases with slight arrhythmia..37.4 per cent.
(b) Cases with mild arrhythmia...50.4 per cent.
(c) Cases with severe arrhythmia..12.2 per cent.

Various types of irregularity were encountered. In most of the cases there was an alternation of long and short pulse. There was at times progressive increase for a number of beats, then a decrease. In other cases there was a sudden retardation at regular intervals, followed by a gradual increase in rapidity. Auricular extra-systole was seen, but real ventricular extrasystole, and auriculo-ventricular heart-block were not observed. There was an evident relation of the arrhythmia to the respiratory variations seen in children. Friberger holds that in children otherwise normal, irregularity of the pulse does not mean that there is any heart lesion.

Mackenzie[5] also lays stress on the importance of recognizing as normal irregularity of the pulse. He calls the type of irregularity characterized by the varying length of the pauses between the second and first sounds, the normal youthful type. He has never found this type associated with the true heart failure. Mackenzie further points out that the presence of heart murmurs in the young should not be taken to mean that there is any cardiac lesion. Where there is an organic lesion in the young, the signs of myocardial weakness are invariably present. Subjective symptoms are of prime importance, in recognizing cardiac weakness.

Turnbull[6] points out that the appearance of extrasystoles, if they have not previously been present, are strongly suggestive of myocardial changes in children. Increasing cardiac instability, makes active progessive myocardial change very probable, with correspondingly serious prognosis.

Poynton[7], in a paper on "Some of the Rarer Occurrences in the Rheumatism of Childhood," mentions tachycardia as a comparatively rare occurrence. He believes it to be commoner when the myocardium is affected out of proportion to the valves.

Important studies have been published recently on the pathological histology of the myocardium after diphtheria. Tanaka[8] examined the hearts of fifteen children dying of diphtheria. He found in all cases myocardial regeneration, consisting in fatty degeneration, or waxy-like degeneration with loss of cross striations and partial or complete loss of nuclear staining. He attributes the acute cardiac weakness entirely to these myocardial changes. He found no special involvement of the auriculo-ventricular bundle, and believes that changes in the bundle of His cannot be regarded as the cause of death in these cases.

True heart-block has been recently reported in a number of fatal cases of diphtheria. Magnus-Alsleben[9] has reported a case of complete heart block in a child of 8 years, dying of diphtheria, in which the bundle of His showed a severe parenchymatous degeneration. Fleming and Kennedy's[10] case showed on the sixth day of diphtheria a marked variation in the pulse rate, from 40 to 88 per minute. On the eighth day there was evidence of cardiac dilatation. Death occurred on the ninth day. Tracing showed the auricles and ventricles contracting at different rates. The auriculo-ventricular node and the first part of the bundle showed an acute inflammatory condition. The myocardium of both auricles and ventricles showed degeneration. The vagi showed no changes.

Rohmer[11] has also studied heart block appearing several days before death in diphtheria. The clinical studies were supplemented by observations with the electrocardiograph. He found that even in cases showing heart-block, the His bundle was only very slightly affected. Waxy degeneration with interstitial changes was found in scattered areas, but never involving more than half the diameter of the bundle. On the other hand the myocardium in general gave very marked evidence of fatty degeneration. Injection of large doses of diphtheria toxin into rabbits failed to produce any lesion of the bun-

dle of His. Rohmer believes that diphtheria toxin has no selective action for the tissue of the His bundle, but it may so affect the functioning power of the bundle that heart-block may be produced.

Numerous cases of heart block in early life aside from diphtheria, have been published recently. Galloway and Fenton[12] have reported a case of typical Stokes-Adams disease in a boy of 18. The pulse rate was 32 to 40 per minute, and he had repeated fainting attacks. The auricular-ventricular rhythm was usually 2 to 1, but occasionally 1 to 1.

Armstrong and Mönkeburg's[13] case was in a boy 5 years old. Tracings from the jugular vein and radial artery showed no relation between the auricular and ventricular systoles. The pulse was 40 to 50 per minute. The boy died in an epileptiform attack. Autopsy showed a lymphangio-endothelioma of the auriculo-ventricular node.

Cleveland's[14] case was in a boy of 15, who had attacks of unconsciousness without convulsions and a pulse rate of about 30 per minute. Autopsy showed hypertrophy of the left ventricle but no valvular disease. There was no microscopic examination of the auriculo-ventricular node or bundle.

Fulton, Judson and Norris[15] report three cases of heart block in the same family, the father, aged 41, a daughter, aged 20, and an infant of 22 months. They accept as the most reasonable explanation of this rare occurrence a probable congenital abnormality in the bundle of His, or of its blood supply.

Gill[16] reports a case of congenital heart block. The patient was 3 years old, small for her age, but fairly well nourished. The pulse rate and respiration rate were both 50 per minute, and were usually coincident. Occasionally there would be a deep sighing inspiration followed by a longer pause, but during this pause the heart would continue to beat as before. There were never any epileptiform seizures. The tracings of the jugulars were unsatisfactory. Death occurred suddenly, and no postmortem was allowed.

Hecht[17] reports two cases illustrating the occurrence of both functional and organic heart block in childhood, and the distinction between them. The organic case occurred in a child of three after diphtheria. There was extreme bradycardia. The tracing showed a block, and atropine had no effect. The functional case was also in a child of three, occurring after measles. The tracing also showed a block, but under atropine the bradycardia disappeared, and eight days later it disappeared spontaneously.

Pisek and Coffin[18] have found the polygraph of undoubted diagnostic aid in the cardiac conditions of childhood, used in connection with the ordinary methods of treatment. They have found it useful in indicating the approach of digitalis heart-block, by showing irregularity of the cardiac action under the use of this drug. They coincide with the other writers in finding respiratory arrhythmia very frequent in childhood, but do not regard it as always physiological, believing that it may be an indication of myocardial change.

Hoobler[19] has contributed an interesting addition to our knowledge of blood pressure readings in childhood. He calls attention to the value of his method of indicating both systolic and diastolic blood-pressures in childhood. The details of his instrument can be found in his first publication on the subject[20]. He has found that his instrument compared very closely in efficiency with the Erlanger sphygmomanometer, that it indicates both pressures automatically and visibly, that it eliminates the element due to the personal equation, and that it is of special value in children, since it permits the use of the leg when the arm is too small.

Leitao[21] has measured the blood pressure in two hundred healthy children from one to three years of age, 70 per cent. being in the first year. He found the blood pressure normally low in infancy, averaging about 70 mm. in the first six months of life, going up very slowly to the fifth year. The pulse pressure is relatively higher than in adults, and increases progressively.

Several writers have contributed to our knowledge of the prognosis of valvular disease of the heart in early life. Heinrich[22] comments on the more favorable prognosis which the course of time has brought. He mentions that Benfy has reported five cases in which the patients lived to be 17, 20, 27, 42 and 69 years old, that Cassel has reported three cases of complete recovery from mitral insufficiency in children, and quotes several other cases of recovery.

Gilbert[23] has studied 197 cases of endocarditis admitted to the Massachusetts General Hospital from January 1, 1901 to January 1, 1913, with interesting statistics as to the distribution of the lesions, and of the etiology. The result in the cases discharged with valvular lesions have been better in the later period, when continued treatment including careful supervision of the entire life of the child was carried on after the patients were discharged from the hospital. Of 42 cases discharged and treated in this way, 35 or 83 per cent. were compensated at the time of writing. He believes the continued treatment and careful supervision has much to do with the good results noted thus far. He notes the liability to relapse of acute endocarditis, and believes that endocarditis should be considered as acute over a much larger period than has been the custom. He believes that treatment should be continued until adolescence is passed.

Dunn[24] reports on 283 cases of acquired cardiac disease admitted to the Children's Hospital previous to 1903, of which 180 were followed after their discharge to the date of writing. The mortality in the first cardiac attack was 20 per cent. The mortality in those discharged, followed for at least ten years, was 51 per cent.

The final mortality of all the cases, including those dying in the hospital, and those dying later, was 63 per cent. Of the 180 patients discharged, 88 were alive after at least ten years. 140 cases died before the age of 14, most of them in a recurrent acute attack, and only seven cases have died after passing the age of puberty. The most notable point as bearing on prognosis was the remarkable freedom from disability of the survivors, 77 out of 88 being apparently fully compensated at the time of writing. Dunn believes that the prognosis is more favorable for adult life, the earlier in childhood the lesion is acquired, provided that the patient escapes the great danger of recurrent acute attacks which persists throughout childhood. No especial care or supervision was exercised in this series. We believe that if such a treatment as that described by Gilbert had been carried out during the remaining years of childhood, it is very possible that the very great subsequent mortality during childhood might have been reduced.

Moon[25] points out that the diagnosis of cardiac disease in childhood is made easier by the fact that the lesions are the results of inflammation, and not degeneration, and that it is unnecessary to consider all those degenerative changes comprehended under the term arteriosclerosis. He calls attention to the fact that chronic cardiac disease in children tends to produce a condition of malnutrition and wasting, which should lead us to suspect the heart. In the matter of treatment he lays stress on the importance of guarding the child from a fresh attack of rheumatic fever, and on the importance of allowing exercise in moderation to compensated cases.

Cockayne[26] investigated the possible influence of the salicylates on the occurrence of cardiac lesions in chorea. Of 780 cases, 355 patients were given salicylates, and 425 received other treatment. If the drug had no effect, the cases showing cardiac change should be in the proportion of thirty-nine untreated to thirty-two treated with salicylates. The actual proportion shown in 77 cases which developed signs of cardiac involvement was thirty-nine in the untreated to thirty-eight in the treated. The figures are so close that the disparity can have no significance, and Cockayne concludes that the salicylates appear to have no action influencing cardiac involvement.

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Reports of Societies.

NORFOLK DISTRICT MEDICAL SOCIETY.

MEETING OF OCT. 28, 1913, HELD IN ROXBURY, MASS. BRADFORD KENT, M.D., SECRETARY.

DR. WILLIAM W. HOWELL read a paper entitled,

SUGGESTIVE TREATMENT IN DISEASES OF CHILDREN.*

DISCUSSION.

DR. E. W. TAYLOR: It is gratifying to those of us who are particularly interested in the nervous system that Dr. Howell has taken up the subject of suggestive treatment. The evidence is increasing that this subject is no longer to be regarded as a special field in medicine, but that practitioners of whatsoever sort are coming to see its importance and universal application. As applied to children, the whole matter of psychotherapy is of peculiar significance. The feeling is growing that even young children are peculiarly susceptible to mental influences, and it naturally follows that such influence should be carefully directed and applied with the same scientific precision as is used in other departments of therapeutics. It is clear that one of the most important subjects of the immediate future is a more painstaking study of the child's mind in the light of the accurate knowledge which is rapidly accumulating, and to this Dr. Howell has drawn our attention in his paper. There are many methods of psychotherapeutic procedure, some of which in my judgment are much more useful than others. Hypnotism, one of the cruder and earlier methods, is no longer used to any extent as

* See page 230 for full text of this paper.

a therapeutic measure, owing essentially to the fact that it relieves symptoms but fails to strike at the root of the difficulty, much as morphine may relieve pain but masks rather than reveals underlying causes. Suggestion in the sense in which Dr. Howell has applied it is in a measure open to the same objection; though less crude than hypnotism, it still fails in many cases to reach the source of the difficulty. I am inclined also to think that Dr. Howell's method of giving bad tasting medicine or applying similar methods to influence the mental state of the child is on the whole undesirable, although I can easily see that in certain cases no other might be available. It is probable that if sufficient time were given, it would be possible in many cases, even in comparatively young children, to use less drastic means with equal effect, and to explain the significance of symptoms rather than to attempt their removal without such explanation. This leads to the most significant advance in psychotherapy of the past decade, which goes under the general name of psychoanalysis and is particularly associated with the name of Freud. Leaving out of consideration entirely the question of sex, which in certain quarters seems to have brought the method into disrepute, we should certainly see in the underlying principle one of the most significant steps in practical psychology which has ever been made. I refer to the sincere attempt to analyze in the light of existing symptoms the conditions which have led up to those symptoms. Whether these conditions are sexual or not is a matter of relatively small importance provided the principle be distinctly understood that such an analysis is the first sincere attempt to get at causes, and that thereby psychotherapy has been established as a scientific procedure precisely in the sense that the study of etiology in bodily disorders is a scientific procedure. As is now generally known, such psychoanalysis has been applied to children as well as to adults. Its difficulties are manifest, but that it represents an attempt in the right direction should no longer be questioned. We are certainly indebted to Dr. Howell for having brought this subject to our attention, and in advocating an analytic method, I should not wish to be regarded as deprecating cruder procedures which it must be freely admitted may often accomplish most excellent results, as in fact Dr. Howell's cases have demonstrated.

Dr. C. D. Knowlton: Dr. Howell always writes a good paper. It is with much pleasure that I have followed his excursion into suggestive therapeutics from the standpoint of the specialist in diseases of children. It is also a pleasure to hear Dr. Taylor's clear and forceful presentation of the subject, coming as it does from his ripe experience as a neurologist. What have I, as a general practitioner, to say? One of our chief functions is to continually scrutinize the ground, north, east, south and west to be sure that our specialist friends are not putting one over on us. Tonight I believe we have listened to the real thing and to further support this belief let me quote you a few sentences from recent authors. Chapin and Piesek say that often a good part of a physician's success in handling children is due to his knowledge and interest in their mental processes. He learns to take advantage of their susceptibility to conviction, to suggestion, or of their pride, and control is thus easily acquired. Time spent in studying the mental attributes of a seemingly incorrigible patient is well spent, for almost without exception the maturer mind conquers by persistence, tempered with kind indifference. Pfaundler and Schlossman say that in the care and treatment of a child at any age the psychical effect is of the greatest importance. The inner life of the child is not sufficiently understood by nurses and doctors. To be successful we must carry out all painless procedures without producing resistance on the part of the child. We do this by a friendly manner, diverting attention and encouragement, thereby causing the child to become trustful and docile. Active suggestion requires positive exhortation whereby a child's attention is fixed upon the doctor; impressive manipulation as medicaments, electrical current, massage, passive and active exercise. Psychic influence is in varied methods of treatment—sojourn in the country, baths, sanatoria. Association with other children of the same age acts as above by producing (a) sense of new impressions (b) change in routine (c) improvement in temper (d) new impulses in the will (e) change in the tone of all the functions. The preliminary conditions of an adequate course of psychic treatment are (1) Protect the patient against an unhygienic habit of life—poor food, disturbed sleep, overfatigue, etc. (2) Suitable conditions of mental hygiene—avoid irritating and depressing surroundings and no contact with persons who are themselves of an unhealthy, ill-balanced mental disposition. (3) Requisite relation to the physician himself for the time being—authority absolute in all severe cases superceding, by delegation, that of the most responsible of the patient's family or friends. Hence the position of the psychotherapeutist becomes one of trust, entailing obligations that are as deep and sacred as those involved in any relation in life.

Dr. M. H. A. Evans: Dr. Taylor has spoken of the importance of the early life of the child. I believe this point cannot be too strongly emphasized. It is during the first five or six years of life that we can accomplish most toward the prevention of nervous disorders in later life. Leaving a silent and almost absolute calm the newborn is projected into a confusion of movement, sounds and light. The five senses are alert and during the waking moments the brain is undoubtedly subjected to a very great strain as it attempts to sort and classify the many recorded impressions. As soon as any single impression is recognized in its relation to anything else it represents an association of ideas. Think how early this process begins: Every smallest part of the infant experience is important then for it is upon the experience then acquired that the child depends for its thought in the future. Every new idea must be reconciled to these first ideas. If we furnish unhealthful material or faulty data to be absorbed and incorporated in the experience of a child, that child must at some time in after life either laboriously dissect and then reconstruct the data in accordance with the truth, or go through life forming false conclusions and exhibiting inconsistent and unhealthy mental reactions. We should be exceedingly careful that we do not introduce false ideas into the rapidly filling mind. We should present only accurate and clearly defined data. We should, above everything else, offer wholesome material for its consumption. Do not permit a child to hear statements that are not intended to be received and acted upon. "She is a delicate child; never was very strong," may well be expected to result in an unqualified acceptance

of this condition, and who is to question the right of this child to grow to adult life believing that she is a delicate person and that she is not strong. Let us teach children to think of themselves as strong and well and this attitude may be expected to persist. They will build their thoughts on this groundwork and develop a tendency to be well which may help us out as doctors many times when we despair of our physic.

DR. HAROLD: In closing the discussion I wish to thank Dr. Taylor for emphasizing the importance of the method by analysis. However important it may be in treating adults it is not applicable to young children for they are not able to follow the analyses of a complicated psychic problem and in most cases they have forgotten the original trauma, physical or psychic, and consequently their troubles do not lend themselves to analysis. Dr. Taylor said the suggestive method as used was more or less a punishment. In fracture the children do not regard it as such, if properly used. I have had children take bad tasting medicine or ask for faradic current, believing it was to cure them, at the same time dreading the drug or electricity. I believe the suggestive method is the only practical method with children.

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY.

The regular meeting of the Middlesex East District Medical Society was held at the American House, Boston, Dec. 17, 1913, thirty-one members being present. A. E. Small, M.D., Secretary. The paper of the evening was read by Dr. John L. Morse of Boston, on

INFANT FEEDING AND DIGESTIVE DISTURBANCES.

Abstract: The importance of breast feeding was emphasized, calling to mind that if only one or two breast feedings were possible daily the infant would handle the bottle all the better.

The only substitute for breast feeding is some modification of cow's milk. There is no reason for giving any proprietary food as there is nothing in any of them which cannot be put into the milk at home or in the laboratory. If a proprietary food agrees and modified milk does not, it simply means that the doctor has not thought of the right thing to use; he has not made the food fit the baby. We must have a clean milk to start with. In the fall we see certain cases of disturbed digestion because the cows have had too much green corn or too many apples. In the winter the freezing of milk alters the emulsion of the fat and produces a disturbance the cause of which is not often recognized.

In prescribing modified milk (which simply means changing cow's milk) we think of the food elements we want and the proportions. This leads us to percentage feeding, which is merely calculating accurately what we want to give. There is often difficulty in deciding what we want to start on. Tables, which are formed on the basis of experience for well babies, are given to help us tell what the baby probably can take. After the first mixture the feeding ought to be based on definite indications as shown by the character of the stools, presence of gas, vomiting, etc. Taking in detail some of the indications showing an excess or deficiency of one of the food elements, we will consider first, fat. If there is too little fat there is apt not to be any gain in weight. If too much, there is vomiting, with an odor to the vomitus of fatty acids, infant may lose its appetite, have gas, or abnormal stools, one of three types usually. First, oily type.—if the stool is rubbed on paper and the paper let dry, it has the appearance of oiled paper; second, the presence of small, soft curds; third, the soap stool, dry, light colored and crumbly. The sugars are the sources of energy and not tissue builders. The fat and sugar can be used to a certain extent interchangeably, but the fat holds liquids in the cells better. Milk sugar is the normal sugar and because it is slowly broken up it remains a source of energy for a long time. Maltose is much emphasized at present. Pure maltose is a laboratory product and too expensive to use. What is used is a mixture of dextrine and maltose, no two mixtures being alike. Dextrose is the sugar of the blood and as such is immediately available, no energy being wasted in changing it to another form of sugar nor in storing it as glycogen. A feeble baby with no glycogen in its liver or muscles needs all its energy for digesting its food, so that the maltose dextrine preparations, which are the most easily convertible to dextrose are the best. The ordinary baby has plenty of glycogen or readily available energy and he needs a sugar more slowly broken up and one which will not flood the system. Thus for him lactose is the best sugar. Cane sugar lies in between the two for availability, so has no necessity except for cheapness. A well baby will take any kind of sugar but a sick one is another proposition.

The proteids are the tissue builders and if not high enough in proportion the infant will starve to death. Casein and whey are the two forms of proteid. Proteid indigestion is shown by the presence of gas and stools, either dark brown watery with a foul musty odor, or with large hard curds. If casein is not easily digested we can do various things to prevent large curds from forming. First, we may dilute the mixture; second, may use whey; third, may boil the milk; fourth, may add cereal water; fifth, may add an alkali; or, sixth, may add sodium citrate.

A breast-fed baby gets no starch, but it has a pancreatic starch ferment present at birth. Clinically, it is wiser not to give starch before the third month except for some definite purpose. The main object is for the colloidal action in preventing large casein curds. Three-quarters of one per cent. has as much effect as a larger amount.

With regard to pasteurizing milk, there is no theoretical or clinical evidence to show that it hurts the milk as a food. Nevertheless statistics for the past two years have shown a steady increase in the percentage of cases of scurvy coincident with the increase in the use of pasteurized milk, which is at least suggestive.

Fermentation of milk sugar is shown by acid vomitus, stools which are loose, green, frothy and irritating to the buttocks. In treatment, cut down the quantity of milk sugar and also the fat, as it is secondarily involved. Finkelstein's eiweiss milch fits the case perfectly but is no better than skim milk and barley water boiled. Then begin and work back. Here maltrose dextrine is valuable and fills a place no other sugar will.

Disturbance from starch gives fermentation, hard, dry brown stools, easy to recognize with tr. iodine.

Do not mistake it and mucus, which is always present in stools following the use of castor oil. In infectious diarrheas the bacteria penetrate the walls, get into the circulation and cause toxic substances. In all of them there are small dejections with mucus and blood due to the action of the bacteria in the walls of the intestine. There may be a variety of organisms which necessitate different lines of treatment. The dysentery bacillus when grown on carbohydrate food does not form toxic substances, hence give carbohydrate food in the treatment. The use of frequent doses of castor oil and starvation is the worst possible treatment, as all the intestinal secretions are proteid in nature. The gas bacillus, on the contrary, thrives on sugars and starches; so give a proteid diet. Here buttermilk is also useful, as the lactic acid bacillus is antagonistic to the gas bacillus. The milk test often does not work for the amateur, so that he practically has to try the influence of one or the other diets on the infant, and if it grows worse, switch. Usually one infection or the other prevails during a given season.

After a brief discussion the meeting adjourned.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, Wednesday, November 5, 1913, at 8 p. m.

The President, Dr. James C. Wilson, in the chair.

THE RESULTS OF THE TREATMENT OF POLIOMYELITIS BY OPERATIVE MEASURES. ILLUSTRATED BY CASE.

Dr. G. G. Davis: In recent years operative surgery has opened a new field in the treatment of infantile paralysis or acute poliomyelitis. The patient presented tonight is an illustration of what can be done for this class of cases. I strongly suspect that as we become better informed as to what can be achieved by operative procedures in these cases they will be earlier resorted to than at present is considered advisable. The patient, a boy of thirteen, was paralyzed at the age of one year. The parts involved were the lower part of the trunk and left lower extremity. The back was partly affected, also the region of the hip and almost all of the muscles of the thigh with the exception of the biceps or external hamstring and one or two of the muscles moving the foot. As he grew older a knock-knee developed. He wore braces for seven years. The first operation was an osteotomy of the femur, done in December, 1910. In the following March an arthrodesis was done to fix the flail foot. The biceps femoris tendon was loosened from its attachment on the fibula and inserted into the top of the patella; and while the foot was strongly inverted the fascia lata was slit in a longitudinal direction and sewn fast with silk sutures behind the greater trochanter. He wore a brace for a while until the various operative procedures had well healed, and then discarded it, and his walking has improved ever since. This operation (devised by the writer) was performed with silk buried suture, but chromicized catgut is now used.

The fixation of the ankle eliminated movement at that joint and also to a considerable extent of the joint between the astragalus and os-calcis. The mediotarsal joint, in front of the ankle, not being interfered with, allowed the anterior part of the foot to droop somewhat, but not enough to allow the toes to catch in walking. The lateral movement of the foot was also eliminated to a sufficient extent to remedy the tendency to valgus. The transplanted biceps muscle can be seen to contract perfectly and holds the knee back in walking so that it does not tend to collapse when weight is put upon it. The holding of the thigh in a position of internal rotation by fastening the fascia lata to the posterior edge of the greater trochanter corrected the outward turning of the foot in walking.

DISCUSSION.

Dr. J. Torrance Rugh: I do not believe that a case of greater orthopedic importance could have been presented to us. Dr. Davis has shown some of the advanced work with this most troublesome class of cases and has obtained about as good results as one can possibly hope for. In Italy I saw Professor Putti do an operation which to my mind takes the place of arthrodesis for the ankle joint especially in cases of this type. He separates the anterior tendons from the muscles high up on the leg. Then a hole is drilled through the tibia, and the tendon ends are drawn through this hole and fastened subperitoneally in front of the tibia, some of the tendons being passed through from one side and others from the other side. He thus shortens the tendons and leaves purely tendonous structure between attachment and insertion and the tendon acts as a ligament and will not stretch. It is the badly degenerated muscle tissue which stretches. If there is sufficient contractive power on the part of the posterior tendons the anterior ones can be shortened and the foot maintained in the proper position, or if there are live muscles anteriorly, the posterior tendons are shortened in the same manner and the necessity of an arthrodesis is avoided. The demonstration given in Dr. Davis' case in the transferred power of the hamstring tendons is one of the best examples of what can be done in these cases. Operative measures, of course, should not be undertaken until it is certain that complete, or all possible regeneration, has taken place, and that there is no possibility of return of power in the muscles. Not until about six years after the onset of the paralysis should operative measures be instituted.

Dr. William J. Taylor: I can only congratulate Dr. Davis upon the wonderfully good results obtained in the use of this modern method of treating these otherwise hopeless cripples.

Dr. Charles K. Mills: I do not think that in my rather considerable experience with cases of poliomyelitis treated by older methods, and somewhat different forms of operation, I have ever seen a case in which the results were so very good.

Dr. Davis (closing): My desire in bringing before you this case was to exhibit a case which was practical, a badly crippled patient, one who had been wearing apparatus ad nauseam, and to show that if one is willing to take the time and trouble, a great deal can be done for such patients. Often they can be enabled to walk entirely without apparatus, as in this case. This special boy was selected because he happened to combine in his own

person paralysis of three different parts of the body, the foot, the knee and the hip.

RESEARCH STUDIES IN PSORIASIS.

(Lantern Demonstration.)

By Dr. Jay F. Schamberg and Dr. A. I. Ringer, Dr. G. W. Raiziss and Dr. John A. Kolmer (by invitation).

Dr. Schamberg: A careful study was made of the protein metabolism of eight psoriasis patients and the following observations noted:

1. That on a given protein diet a psoriatic subject eliminates less nitrogen in the urine than does a normal individual on a corresponding diet. The urinary nitrogen in some instances reached a level lower than has ever been recorded.

2. Patients suffering from psoriasis exhibit a remarkable retention of nitrogen. This retention appears to be proportional, in a general way, to the extent and severity of the eruption.

3. The nitrogen is retained to a greater degree than has been observed in connection with any other condition, and is retained with great ease on a diet low in nitrogen and insufficient in caloric value, and one upon which a normal individual would fail to maintain equilibrium.

4. Experiments with urea feedings show conclusively that the nitrogen retention cannot be attributed to any disturbance in the eliminative capacity of the kidneys.

5. Patients with extensive psoriasis may lose very large amounts of nitrogen in the exfoliated scales, which consist of almost pure protein.

6. The retention of nitrogen in most of our cases is greater than can be accounted for by the protein lost in the scales, and it may persist even after scaling has ceased and the eruption has virtually disappeared.

7. A low nitrogen diet has a most favorable influence upon the eruption of psoriasis, particularly when the latter is extensive. Making all reservation suggested by scientific caution, we feel that there can be no doubt that severe cases of psoriasis improve under such a diet almost to the point of disappearance of the eruption.

8. Conversely, a high nitrogen diet exhibits an unfavorable influence on psoriasis, commonly causing an extension of the eruption.

9. Whether a high nitrogen diet can stimulate an outbreak of psoriasis in a psoriatic subject, who is at the time free of the eruption, has not yet been determined.

10. The great proliferation and exfoliation of cells by the skin in psoriasis demand a large supply of protein, which can only be procured from the lymph and blood streams. This protein supply may be derived from the ingested food, and a possibility exists that the great demand of the diseased skin for protein may also be satisfied by the protein reserve in muscle tissue, which thus may become depleted and later require restoration. This would explain the ready and persistent retention of nitrogen in our cases.

11. A protracted low protein diet may diminish the proliferative activity of the skin by diminishing the supply of the principal building material, namely, protein. On the other hand, a high protein diet may stimulate the proliferative activity of the cells by furnishing an abundant supply of the necessary protein.

12. We deem it premature at the present stage of our research studies to commit ourselves to an hypothesis as to the primary cause of psoriasis. Our investigations are being continued and extended in various directions.

TRANSACTIONS OF THE AMERICAN SOCIETY FOR THE PROMOTION OF CLINICAL RESEARCH, WASHINGTON, D. C.

MAY 5, 1913.

(Concluded from page 209.)

EXPERIMENTAL CARDIAC HYPERTROPHY STUDIED BY MEANS OF THE X-RAY.

Dr. Henry A. Christian, Boston:

Owing to marked variations that occur in the weight of rabbits and the size of their hearts, it is not easy to determine whether or not in a given rabbit hypertrophy and dilatation of the heart has been produced. In following cardiac lesions produced by intravenous injections of adrenalin and spartein, it was found that though very frequently myocardial lesions were produced which led to cardiac hypertrophy and dilatation this was not a constant result, and it was of interest to know whether at a given stage of the experiment changes in heart size had been produced. It was found that by means of the x-ray variations in the size of the heart could be easily determined. In a series of animals studied by this means, it was found that very considerable increases in the weight of the animal might occur without there being marked changes in the size of the heart. Following injections of adrenalin and spartein very considerable increases in the size of the heart were produced. It was also found that enlargement of the heart continued for a long period after injections of these drugs had ceased, and that in some of these hearts actually less pathological change other than hypertrophy of muscle fibres, was found in the myocardium than in animals killed at a shorter time after the doses of spartein and adrenalin, though the hearts of the latter did not show so great enlargement.

DISCUSSION.

Dr. S. J. Meltzer, New York: I have no doubt Dr. Christian is familiar with the work of Gruber of our laboratory, who has made very many estimations of the comparative size of the heart and the animal; the relation is rather constant, but he has found that the estimates must be made after the removal of the contents of the abdomen. So it would seem that in making measurements of the heart by x-ray much would depend on the contents of the abdomen and the position of the diaphragm.

Discussion closed.

Dr. H. A. Christian, Boston: We are interested in getting the average heart weight as compared with the body weight. I am aware of Gruber's work, but our efforts were directed toward estimating the heart weight with the heart *in situ*.

KIDNEY FATIGUE WITH DIURETICS IN EXPERIMENTAL NEPHRITIS.

Dr. Herman O. Mosenthal, New York:

Researches conducted by Schlayer[1] on human nephritis showed that diuretics used in too large doses, will in certain cases suppress urinary secretion rather than augment it, that is to say, they will cause kidney fatigue. In other instances sodium chloride effected the same results. It was in order to elucidate some of these phenomena that the following experiments were undertaken.

Rabbits anesthetized by the subcutaneous injection of urethane, were given three successive intravenous injections of 5 ccm. of 5% solution of sodium chloride, followed by three successive intravenous injections of 2 ccm. of 5% caffeine sodium benzoate solution. The diuresis was measured by collecting the urine at ten-minute intervals; the reaction of the intrarenal vessels by an oncometer applied to the left kidney. The experiments were first performed on normal rabbits and subsequently on those in which experimental nephritis had been produced by potassium chromate and uranium acetate. The latter were subjected to the tests from a few hours up to several days after the poisons had been administered so that the progress from one phase to another of the nephritis could be satisfactorily studied. The anatomical difference between the two forms of nephritis is very slight. Both poisons damage the cells of the convoluted tubules very markedly and the glomeruli only slightly.

Normal rabbits showed no signs of diminished renal function after the series of three salt injections but a very marked fatigue after the twice-repeated use of caffeine. This fatigue manifested itself in the inhibition of the diuresis as well as in the diminished dilatation of the kidney vessels. Salt injections following the caffeine series again produced diuresis, thus showing that the mechanism of salt and caffeine diuresis is not by any means identical.

RESULTS WITH CHROMATE NEPHRITIS.

In the earlier stages of chromate nephritis salt produces a diuresis and increases the dilatation of the renal vessels, much as in the normal kidney. Caffeine, however, very rapidly causes kidney fatigue, much more rapidly than in the normal kidney, so that in some cases anuria results and the kidney vessels contract instead of dilating. Furthermore, the after-effects of the caffeine are seen when salt is subsequently administered intravenously and no longer calls forth a diuresis as it did in the normal kidney after the use of caffeine. The demands put upon this form of nephritic kidney by the sodium chloride must be responisble for the fatigue evinced by the kidney after caffeine, for if the caffeine be preceded by only one dose of sodium chloride instead of several, the evidences of fatigue do not appear.

In this connection an interesting point is observed in the final stages of both chromate and uranium nephritis, when anuria or very much diminished kidney secretion has been produced. In these instances it is found that although salt and caffeine no longer cause diuresis, the kidney vessels are still dilated. These and other similar results obtained in the course of these experiments lead to the conclusion that the quantity of urine does not constantly parallel the volume of blood flowing through the kidney, as many physiologists would have us believe, but that diuresis may occur without dilatation of the renal vessels and vice versa.

[1] Verhandl. d. Cong. f. innere Medizin, 1912, 501.

RESULTS WITH URANIUM NEPHRITIS.

In the initial periods of uranium nephritis the effects of sodium chloride are approximately the same as those seen in the normal animals. Caffeine causes no decrease in diuresis; however, the dilatation of the blood vessels is markedly diminished, which may be considered a sign of fatigue. This is another example of the lack of parallelism between dilatation of the renal vessels and diuresis. In the terminal stages of this as well as of the chromate type the blood vessels of the kidneys are still dilated but no urine is secreted. In this form of poisoning a type of functional reaction may be seen intermediate between the initial and terminal periods, *i.e.* taking the degree of poisoning as a guide. Schlayer has designated this as the "Zwischenstadium," intermediate stage. It is characterized in this series of experiments by a reaction which is different from that previously seen. The control period shows a kidney putting out an approximately normal amount of salt and water. The injection of sodium chloride results in a rise of the oncometer lever (blood vessel dilatation) but no diuresis. Caffeine, on the other hand, produces an enormous diuresis and in some cases an enormous dilatation of the kidney vessels.

Thus there are produced two diametrically opposed conditions. In the one case salt results in a good response on the part of the kidney, and caffeine in marked kidney fatigue (chromate poisoning), in the other, salt produces no diuresis and caffeine an enormous one (intermediate stage of uranium poisoning). Yet the pathological conditions of these kidneys are very similar and the final stages in both forms of poisoning the same, namely a total lack of response to both salt and caffeine.

Both of these conditions may be seen in human nephritis: suppression of urine by diuretics (as in the chromate type), lack of diuresis after administration of salt (as in the uranium type), sometimes to be dispelled by the exhibition of small doses of diuretics of the caffeine group.

A careful study of cause and effect along these lines may in the future enable us to obtain diuresis in many cases of nephritis where the blind pushing of drugs has no effect.

DISCUSSION.

Dr. Jos. L. Miller, Chicago: Were the effects of caffeine transitory or permanent?

Dr. S. J. Meltzer, New York. Was urethane used in all of the cases? No notice appears to have been taken of the fact that urethane renders the kidney permeable unless it is used with adrenalin.

Discussion closed.

Dr. H. O. Mosenthal, New York: It is difficult to say whether the effects of caffeine are permanent or not; in some cases caffeine would later produce some effect, but in nephritis caused by uranium or chromate the effects of the caffeine were permanent.

PERCUSSION OF THE PARAVERTEBRAL REGION ON THE AFFECTED SIDE IN THE DIFFERENTIATION OF PNEUMONIA AND PLEURISY WITH EFFUSION.

Dr. Frederick T. Lord, Boston:

It is not generally recognized, although already noted, that in croupous pneumonia affecting the

lower lobes and uncomplicated by an effusion the dullness on the affected side is usually less marked in the paravertebral region than over other parts of the chest.

Among a large number of cases with pulmonary and pleural disease observed during the past year at the Massachusetts General Hospital were eighteen of croupous pneumonia affecting the lower lobes with the usual signs of consolidation and without evidence of pleural effusion. In sixteen of these cases a zone of relative resonance about two fingers' breadth in width could be demonstrated in the paravertebral region on the affected side. In one of the sixteen coincident with the development during convalescence of signs suggestive of pleural effusion but without displacement of the heart or Grocco's triangle the paravertebral resonance gave place to dullness and exploratory puncture showed empyema. In two of the eighteen cases of apparently uncomplicated lobar pneumonia affecting the lower lobes the paravertebral region on the affected side was dull, thus forming an exception to the findings in the other sixteen cases. In one of the two a crisis on the sixth day, rapid resolution and speedy convalescence left us in doubt as to the meaning of the paravertebral dullness. In the other case there were signs at the left base of consolidation over an area about the size of the palm with dullness reaching to the spine but at autopsy croupous pneumonia of the left lower lobe without an effusion was found.

The strip of relative paravertebral resonance on the affected side has seemed obvious only in the presence of extensive croupous pneumonia and absent or doubtful with small areas of consolidation at the bases from other causes. In explanation of its presence in lobar pneumonia it may be suggested that the paravertebral region on the affected side takes its resonance from uninterrupted spinal vibrations reinforced by compensatory emphysema of the unaffected lung. The supposition that compensatory emphysema plays a part in its production finds some support in the presence of an obvious degree of relative resonance only in cases with extensive pulmonary consolidation. Free pleural effusion on the other hand distends the pleural sac and interrupts these spinal vibrations with the production of dullness on one or both sides of the spine in accordance with the size of the effusion.

The presence of a zone of relative resonance in the paravertebral region on the affected side with croupous pneumonia and dullness with pleural effusion thus appears to be of some value in the differentiation of the two conditions.

DISCUSSION.

DR. W. S. THAYER, Baltimore: I suppose Dr. Lord uses the term paravertebral in the strict sense and not only in reference to the triangular area of dullness on the opposite side.

Discussion closed.

DR. F. T. LORD, Boston: Dr. Thayer's supposition is correct, and the area of relative resonance is about two finger-breadths over the extent of the infiltration.

OXYGEN CONTENT OF THE BLOOD IN LOBAR PNEUMONIA.

DR. F. W. PEABODY, Boston:

The oxygen content of the venous blood was studied in 25 cases of lobar pneumonia. Of 17 cases which ran an uncomplicated course 15 showed at all times a normal oxygen content, while two showed a transient decrease in the oxygen. In 8 fatal cases in which the blood was studied within 12 hours of death the oxygen content showed a progressive fall, and specimens of the blood saturated with oxygen showed a progressive decrease in the oxygen capacity of the blood reaching its minimum at the time of death. A similar decrease in the oxygen content of the arterial blood and in the oxygen capacity of the blood was demonstrated in fatal pneumococcus septicemia in rabbits. Butterfield and Peabody have shown that a diminution in the oxygen capacity produced by the action of the pneumococcus on blood and hemoglobin solutions is due to a formation of methemoglobin. It seems probable that the decrease in the oxygen content of the blood in fatal cases of lobar pneumonia in man is also due to the conversion of part of the hemoglobin into methemoglobin.

DISCUSSION.

DR. R. I. COLE, New York: These observations are of great importance in that they show that the blood changes in lobar pneumonia are due to toxic substances. There are those who have regarded the changes as due to acids derived from tissue waste, the acids producing methemoglobin in the blood.

DR. R. WEIL, New York: Is the cyanosis in pneumonia due to methemoglobin or to reduced hemoglobin?

Discussion closed.

DR. F. W. PEABODY, Boston: I cannot answer Dr. Weil's question certainly, but the cyanosis is probably due to reduced hemoglobin.

IRON INFILTRATION OF THE FIXED AND WANDERING CELLS OF THE CENTRAL NERVOUS SYSTEM.

DR. D. J. MCCARTHY, Philadelphia.

The result of a series of experiments on animals were inconclusive in demonstrating a structural change in the ganglion cell as a result of long-standing venous stasis or thrombosis occurring at the time of delivery. The experiments have not yet been completed, but as far as they have been carried, an artificial infiltration of hemosiderin in the ganglion cells was made in the brain from a patient who suffered from an extensive hemorrhagic encephalitis in the cortex. The iron reaction was not demonstrated in the cortical ganglion cells in this case but was obtained in a very striking cell reaction in the plasma-like cells of the pia arachnoid and in the elastic coats of the smaller cortical arteries.

CARRIERS OF ANTERIOR POLIOMYELITIS.

DR. WM. LUCAS, BOSTON, Boston.

Report on experimental work with the virus of anterior poliomyelitis in human carriers. The workers reported a case in a child that had first attack of paralysis two years and four months before the present experiments; and a recurrent attack four months before the experiments. The nasal secretions from the case were secured and passed through a Berkefeld filter and were injected intracerebrally into monkeys with typical paralysis resulting. Two successful series were tried out and carried on to the second generation, so proving the presence of the virus in human carriers.

THE METABOLISM, PREVENTION AND SUCCESSFUL TREATMENT OF RHEUMATOID ARTHRITIS; SECOND CONTRIBUTION.

Dr. Ralph Pemberton, Philadelphia:

Metabolic and clinical observations were made on a series of 18 cases of rheumatoid arthritis.

The metabolism was studied with respect to the nitrogen, ammonia, creatinin, depression of the freezing point, titratable acidity, chlorides and total, preformed and aethereal sulphates of the urine; also the nitrogen of the feces.

Observations were, further, made on the urea and non-coagulable nitrogen of the blood by Folin's new methods. The elimination capacity of the kidneys was studied and anaphylactic experiments were conducted to detect the passage through the bowel of heterologous proteid.

Of the 18 cases studied and treated, two had had the disease more than 18 years. All were treated by dietary measures, and no other medication, with the result that the disease was arrested in all but two, who were distinctly benefited.

In the light of later knowledge, these also could, without reasonable doubt, have been made to respond more. The restoration of function was surprising and information of interest was obtained as to the nature of the atrophic, hypertrophic and infectious varieties, etc.

Rheumatoid arthritis apparently belongs in the general category with gout and diabetes, in that there is a level of metabolic equilibrium at or below which the patient has no symptoms. Above this level, joint disturbances occur. Early cases are easily cured and it seems justifiable to say that, apart from permanent bone destruction or overgrowth, the disease can be arrested and is preventable.

A UNILATERAL TYPE OF INTERMITTENT CLAUDICATION OF THE LUMBAR REGION; WITH REMARKS ON BACKACHES OF VASCULAR ORIGIN.

Dr. J. Ramsay Hunt, New York:

A further contribution to intermittent claudication of the lumbar region. Description of two cases presenting the typical symptoms of this affection, strictly unilateral in localization and confined to the musculature of the lumbar region. In one case there was an aneurysm of the abdominal aorta.

Symptoms consist of pain, cramp-like sensations and weakness in the affected region, which occur regularly during exertion and cease immediately after a brief period of rest. These symptoms never occur in the recumbent posture or while sitting with the back supported, but always appear after muscular exertion, exactly as in intermittent claudication of the extremities, all phenomena promptly subsiding, when the muscles of the back are placed at rest.

A description of a clinical type of backache, occurring in elderly people and of vascular origin: It is characterized by weakness, stiffness and aching pain in the muscles of the lumbar region coming on after exertion and ceasing immediately after a brief period of rest. The movements of the spinal column are normal, there is no tenderness on pressure and the lumbar distress is only present after exertion, never in the recumbent posture or while sitting. In such cases the lumbar distress is even produced by forward bending movements of the spine which causes an increased activity of the muscles concerned.

The pathology of these backaches as in the more pronounced type of the lumbar intermittent claudication is an interference with the blood supply to this region through the lumbar arteries,— either from arteriosclerotic affections of the lumbar arteries themselves, or of the abdominal aorta from which they take their origin. The blood supply is sufficient so long as the muscles are at rest, but the increased demand required during activity is not forthcoming and as a consequence the symptoms of muscle ischema are the result. As the muscular activity ceases the circulation is again sufficient and the symptoms promptly subside.

The author is of the opinion that this group of ischemic backaches in the more advanced period of life is by no means a small one and that many of the stiff and painful backs at this period of life may be of vascular origin.

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY.

The monthly meeting of the Middlesex East District was held as usual at the American House, Jan. 21, 1914, President Keleher presiding. A. E. Small, M.D., Secretary.

Owing to the severe storm only eleven members were present to hear an informal talk by Dr. Herbert B. Howard, Superintendent of the Peter Bent Brigham Hospital. He gave a brief history of Peter Bent Brigham and the accumulation of his fortune which was left to the people of Suffolk County. Plans of the hospital were shown, illustrating how the greatest amount of sunlight and fresh air are obtained, how the beds may be easily rolled out of doors, suspected contagious cases easily isolated and removed if they prove contagious. The unique arrangements for heating the floor of the wards, and many other features of construction and administration. The hospital has an unusually large medical and surgical staff in proportion to the number of patients, in order that the unusual and difficult case, which is the kind desired, may be adequately and thoroughly studied.

Book Reviews.

A Practical Treatise on Medical Diagnosis. By John H. Musser, M.D., LL.D. New (sixth) edition, revised by John M. Musser, Jr., B.S., M.D. Octavo, 793 pages, with 196 engravings and 27 colored plates. Philadelphia and New York: Lea and Febiger. 1913.

The sixth edition of Musser's Practical Diagnosis has been revised by his son. This edition is somewhat more condensed than the earlier editions. For those students and general practitioners who wish a single book covering the important points of medical diagnosis this revised work should be eminently satisfactory.

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CHRONIC INTESTINAL STASIS.

THE subject of chronic intestinal stasis, which has been attracting so much attention of late, has received a new impetus from the recent visit to this country of Sir Arbuthnot Lane of London, whose work in this direction may fairly be described as little short of epoch-making. Lane, as is well known, holds that practically all chronic illness has its real origin in the intestines, and has repeatedly made the assertion that a long series of affections, including such grave conditions as tuberculosis, cancer, rheumatoid arthritis, and Bright's disease, are brought about by the enfeebled resistance which the tissues, poisoned as the result of intestinal putrefaction and intoxication, offer to the invasion of microbes or other sources of infection. As was pointed out by Dr. W. Van Valsah Hayes in a recent paper, it is certainly startling that a man whose life work has been almost exclusively of a surgical character should have advanced such a claim. Dr. Hayes' paper was one of three in a symposium on chronic intestinal stasis at the December meeting of the Medical Association of the Greater City of New York, in which the medical aspect of the subject was considered by him, its radiological aspect by Dr. A. Judson Quimby, and its surgical aspect by Dr. William Seaman Bainbridge. This was a noteworthy and admirable piece of "team work" on the part of these gentlemen, as the patients whose cases were described, a number of whom were present and anxious to show the excellent results which had been achieved, had had the benefit of the coöperative services of the three.

In an address delivered not long since at the North-East London Post-Graduate College, Lane gave the following definition: "By chronic intestinal stasis I mean that the passage of the contents of the intestinal canal is delayed sufficiently long to result in the production, in the small intestine especially, of an excess of toxic material, and in the absorption into the circulation of a greater quantity of poisonous products than the organs which convert and excrete them are able to deal with. In consequence, there exist in the circulation materials which produce degenerative changes in every single tissue of the body and lower its resisting power to invasion by deleterious organisms." The point of practical interest is, he said, that if the drainage scheme be made to work efficiently, or, in other words, if the delay of material in the small bowel be met effectually by mechanical means or by operative interference, the resisting power of the tissues is such that they can destroy the organisms or the poison producing these conditions, if not too advanced, or if cancer has not developed. Lane has so frequently described the mechanical factors which bring about the stasis that it need only be said here that he believes that, owing to unsuitable diet in infancy, and to the habitual assumption of the erect position, delay of fecal material takes place in the large intestine, the cesspool of the alimentary tract, or, as it can best be described, "the general drainage system of the body." In consequence of this, new membranes or resistances to downward displacement are forced by what he terms "the crystallization of lines of force" upon the surface of the peritoneum, along which strain is specially exerted. Dr. Hayes gave a summary of Lane's long list of conditions resulting from the autointoxication of chronic intestinal stasis, and stated that the marked symptoms in his own cases have been debility, loss of weight, headache, nervous irritability and emotional states, lack of concentration, drowsiness, numbness, palpitations, poor circulation, soreness of joints, constipation, and, in cases with gastric complications, bad taste, belching, regurgitation of food and acid fluid, nausea and vomiting, erosion of the teeth, and pain between the shoulder joints. Ulcer near the pylorus was a rather frequent complication. The marked physical signs have been pallor, a sallow color or slight

pigmentation of the skin, cold, moist hands and feet, and the following abdominal signs, which were very constantly present and, taken in connection with the toxic symptoms, made the diagnosis extremely simple: 1. Dilatation of the duodenum, readily mapped out by means of percussion with pressure. 2. Pressure paradox. In cases with dilated duodenum when, with the patient in the semi-recumbent or supine position, pressure is made backward and upward for about thirty seconds by the hand placed just below the umbilicus; this usually results in the undoing of the duodeno-jejunal kink present, permitting the duodenum to empty itself. 3. Inflated ileum, shown by a marked tympanitic note to the left of and below the cecum. 4. Corded colon. Frequently the left iliac colon is felt as a rope-like body directly behind the abdominal wall, a condition apparently due to spasm of the portion of bowel just above the sigmoid flexure. To what degree it should be considered abnormal is debatable. Jordan, who has done much valuable x-ray work in conjunction with Lane's investigations, has made the statement that the occurrence of duodenal distention is so constant in the subjects of intestinal stasis that he has come to regard it as a trustworthy indication, equally significant whether positive or negative. As to treatment, Dr. Hayes regards liquid paraffin or Russian mineral oil, on the use of which Lane lays so much stress, as holding first place in the way of medication. As it cannot be absorbed, it renders the stools soft, and its action as a lubricant is stated to be so efficient that it can overcome many of the troubles arising directly or indirectly from the stasis. It is not always sufficient by itself, however, and in some instances must be assisted by the administration of suitable cathartics. The food, without being coarse or irritating, should be gently laxative, and should not contain an excess of protein or a large proportion of readily fermenting elements. Exercise of various kinds, as well as massage, is of great value, and correct poise or carriage should be insisted upon,—the patient should learn to stand and sit with chest thrown forward, chin and shoulders back, and abdomen drawn upward. In most cases a suitable belt, corset or spring support is indispensable. Surgery, he believes, should not be thought of in the great majority of instances, but is indicated in the marked cases failing to respond to persistent competent medical treatment.

In this opinion Dr. Bainbridge entirely concurred, stating that the prevention of chronic intestinal stasis with its aftermath of disturbed function, disease and death, was the prime object sought in the study of this subject. The vast majority of cases, he said, should have been prevented, while hygienic and medical treatment, if instituted sufficiently early, would cure a large proportion. In many instances, however, there came a time when it became necessary to invoke the aid of the surgeon. Whether, like an expert plumber, he should patch and mend, so to speak, the defective drainage system, and thus ward off trouble, or should employ more radical measures, was a nice point to be decided according to the exigencies of the individual case. One heard of the conservative and the radical treatment, but there was no hard-and-fast distinction between the two; for the physician who waited, fearing to resort to surgery, and by this delay rendered necessary, ultimately, a severe operation, was less conservative than one who, by employing milder surgical measures at first, obviated the necessity for a radical procedure. In some cases the drainage system had been neglected until a part of the human plumbing must be removed—that was colectomy; in others it was possible to side-track the damaged part—that was short-circuiting. In still others the parts could be patched up; the tubes could be straightened, the angles corrected. It was often difficult to determine to just which type an individual case belonged—in fact, it had to be freely admitted that today we were feeling our way along, endeavoring to profit by experience in order to more accurately place the border-line cases. For over seven years Dr. Bainbridge has been in close touch with Sir Arbuthnot Lane, studying with him many of his cases before, during and after operation, and this observation has been supplemented by the experience gained in a large number of cases of his own; so that today he does not hesitate to short-circuit or colectomize where he is convinced that less radical measures will not suffice. The cases he described on the occasion in question were of the middle type between the strictly medical ones and those calling for radical operations, and the results of the various procedures adopted have been eminently satisfactory for, as he said, these patients, formerly suffering from the baneful effects of chronic intestinal stasis, had literally been made over through surgical intervention

based upon the mechanical causes of intestinal obstruction, as described by Lane. This subject certainly presents a wide field for research on the part of both physician and surgeon, and such work has now opened the door of hope for many a one who would otherwise have been doomed to chronic invalidism.

THE ABDERHALDEN REACTION APPLIED TO DIAGNOSIS IN PSYCHIATRY.

IN his little book of 110 pages, entitled "Schutzfermente des Tierchen Organismus," Abderhalden lays down his theory of protective or defensive ferments (Abwehrfermente). These ferments make their appearance in the blood whenever an abnormal or a foreign protoplasm is introduced into the system, and it is believed that the particular kind of protective ferment thrown off into the blood varies with the tissue from which the protoplasm is derived and is specific for that tissue. Abderhalden has also elaborated a simple method of recognizing or identifying these ferments.

As a result of this theory there has been developed a movement which certainly seems likely to bring about considerable advances in medical diagnosis and medical research. Abderhalden himself followed up his book with a paper[1] in which he gave his method of diagnosing pregnancy. Recently this principle has been extended to the diagnosis of cancer (carcinoma and sarcoma), and has been applied to the differential diagnosis of certain nervous and mental disease, particularly dementia precox, epilepsy, manic-depressive insanity and general paresis. Many other possibilities loom up before one's eyes. It is possible that later on the technic will be applicable to the diagnosis of the various infectious diseases as well as of organic diseases in various parts of the body.

The technic, very briefly stated in a general way, is as follows: The colloid albumins are removed from the substance to be used as antigen, conveniently called substrat (which may be placental tissue, thyroid gland, ovary, testis, etc., as the case may be), and a mixture of them is placed in several dialyzing tubes, in one of which the serum to be tested, and which is suspected to contain the protective ferments, which are specific for the particular antigen used, is placed. This is incubated, with the result that the albumin is decomposed, hydrolyzed and peptonized with the production of peptone, which latter passes through the dialyzer into the water in which the dialyzer tube rests, and when the peptone comes in contact with the ninhydrin solution contained in the water, a bright violet color appears. The other dialyzing tubes are used as controls, the serum of normal individuals or of individuals whose blood is not suspected of containing the specific protective ferments being tested for, is added, but no color appears.

This editorial is concerned especially with the application of the Abderhalden test to diagnosis in psychiatry. Fauser of Stuttgart published frequent papers on this subject. He used various antigens or antigen-like substances and determined their relative hydrolytic or proteolytic reaction with the sera of patients with various nervous and mental diseases. This work was followed up by that of other investigators, including Wegener, Bundschuh and Roemer, Mayer, Byer, Lampi and Fuchs, Neue, Theobauld, Steising, Fischer and Bensinger. The results up to date seem to lead one quite definitely to the following conclusions: The serum of a patient with dementia precox gives a positive reaction to—that is, they hydrolize—testicular tissue (if the patient be a male), and ovarian tissue (if the patient be a female) much more markedly than it does any other tissue. In no cases of epilepsy, hysteria or manic-depressive insanity was there a positive reaction to this test when the genital glands were used as antigens (or rather as antigen-like substances). The serum of very bad cases of dementia precox, of epileptics (at least when an attack is approaching), and of the majority of cases of general paresis present a positive reaction when human cortical tissue is used as the so-called substrat. In the final stages of paresis reactions are obtained to almost all sorts of substances or antigen-like substances, since all the organs are degenerating.

Here, then, it seems that we have found an almost certain, if not an absolutely certain, method of diagnosing dementia precox. What is more, this test may prove to be of the greatest aid in differential diagnosis in psychiatry, and may be applicable to the very early cases of dementia precox. May it not very well be that this test is applicable to the very earliest stages of incipient dementia precox or so-called prede-

[1] Diagnose der Schwangerschaft mit Hilfe der Optischen Methode und Dialysierverfahrens. *Munch. Med. Wochenschrift*, 1912, June, 1911, vol. 59, p. 1305.

mentia precox, so that we shall be enabled to pick out, from among the wayward youths in our schools, our army and navy, and our criminal courts, those individuals who are only slightly on the road to dementia precox? We can see, therefore, that this test assumes a sociological and medico-legal significance.

MEDICAL LEGISLATION. REPORT OF THE HOUSE COMMITTEE ON TUBERCULOSIS.

The special committee appointed by the Massachusetts House of Representatives to investigate tuberculosis conditions in this Commonwealth has recently filed its report. The committee held over forty public hearings, and obtained and sifted a large amount of evidence, more or less pertinent to the matter in hand. Its report consists of a careful digestion of this evidence, with conclusions and recommendations derived therefrom.

The committee found that the law concerning the establishment of tuberculosis dispensaries has not been complied with, chiefly on account of the failure of cities and towns to agree as to what constitutes a dispensary. According to the report,

"A dispensary is an indispensable link in the system of the home treatment of the disease, where not only medicine, and other material relief, but teaching as to general hygiene and sanitation may be obtained. The dispensary is an invaluable corollary to the law of 1907, making notification of the presence of the disease compulsory."

The committee therefore recommends that the State Board of Health be empowered to determine a standard of dispensaries, and that communities then be required to conform thereto.

The most important recommendation of the report is for the establishment of a Department of Diseases Dangerous to the Public Health.

"The need of a central authority to supervise the control of tuberculosis is apparent, and has been pointed out by commission after commission. This committee recommends a single head, 'Department of Diseases Dangerous to the Public Health,'' with mandatory powers, under the management of the State Board of Health. It seems advisable to use the phraseology as above, rather than simply, 'Department of Tuberculosis,' for the reason that tuberculosis is so declared by the State Board of Health, and because the construction of hospitals, sanitaria, quarantine and inspection are so similar that they should be considered at the same time if economy is to rule.

"The authority of the State Board of Health should be extended to examine all hospitals, sanitaria, asylums, homes, prisons and hospitals handling 'diseases dangerous to the public health,' which includes tuberculosis; and this committee so recommends.

"This committee has been appalled by the revelations of incompetency and weakness on the part of some local boards of health, and by the confusion of authority between them and the State Board of Health. Responsibility should be clearly placed on the State Board of Health, and it should be given authority to supervise the work of local boards."

"The presence in sanitaria, of refractory and incorrigible tuberculosis patients is the despair of superintendents and so serious a menace to the entire system, and to the health of the whole community, that this committee recommends the building of a State hospital where such cases may be segregated. The dismissal of incorrigibles only spreads the plague."

Other recommendations of the committee in its report are as follows:—

"So many communities complained to this committee of financial inability to build tuberculosis hospitals that it is recommended that the debt limit be extended for this purpose so that the hospital law on the statute books may be complied with.

"The State Board of Health should be given power to define the dispensary law and standardize as well as inspect dispensaries; also to provide a plan for a State-wide system of visiting nurses' service; also to provide supervision of all plans for the adequate ventilation of school buildings.

"In accord with the repeated recommendations of the State Board of Health, Section 39 of Chapter 75 of the Revised Laws prohibiting hospitals with 100 rods of an inhabited dwelling in an adjoining city or town, should be repealed, inasmuch as it has been demonstrated that this statute works to the detriment of the public health. This committee, after exhaustive research, has reached the conclusion that one institution, preferably that at Westfield, should be set apart for women and children in order that a beginning, at least, may be made in the proper separation of the sexes.

"In accord with the recommendation of the attorney general, the statutes authorizing the courts to order the segregation of persons afflicted with contagious diseases should be clarified."

This report is signed by all of the nine members of the committee. One of the members also submits a minority report, in which he recommends the abolition of the present State Board of Health and its replacement by a commission appointed by the Governor, this commission to

be given full power to build and maintain local tuberculosis institutions at the full expense of the State or at the joint expense of the State and each respective community.

Obviously the recommendations of the majority report merit serious attention, which they will doubtless receive at the hands of the present General Court. Whatever legislation may result, should follow only after careful and extended discussion of the situation. That work of high efficiency has already been done in dealing with the tuberculosis problems of our State in the past, does not make it impossible that improved facilities and methods for the continuance and extension of that work may not be desirable in the future.

MEDICAL LEGISLATION. THE REPORTING OF OCCUPATION DISEASES.

On Friday, Jan. 9, a hearing was held at the State House by the joint state board of labor and industries and industrial accidents, on the question whether it should adopt, as authorized by chapter 813 of the Acts of 1913, a regulation relative to the reporting of occupation diseases and injuries by physicians. The text of the proposed regulation is as follows:—

"Under authority of section 6 of chapter 813 of the Acts of 1913 the Joint State Board of Labor and Industries and Industrial Accidents hereby requires that every physician treating a patient whom he believes to be suffering from poisoning from lead, phosphorus, arsenic or mercury or their compounds, or wood alcohol, or from anthrax, or from compressed air illness, to report within 48 hours to the State Board of Labor and Industries, the information relating thereto called for by the reporting blanks issued by the said board. Every such physician is hereby requested to make reports on the said blanks to the State Board of Labor and Industries of any patient whom he treats that is suffering from any other ailment or disease which the physician believes to have been contracted as a result of the nature, circumstances or conditions of the patient's employment."

The reporting blanks referred to are devised for the uniform record of the examination of patients with industrial diseases or injuries. The purpose of this proposed regulation is obvious as a means of securing prompt and thorough report by physicians in attendance on such patients. It is a logical adjunct to the legislative policy of dealing with occupation diseases, and as such should be adopted and enforced.

MEDICAL NOTES.

Public Meeting on Cancer at Pittsburgh.—Cancer and the public efforts to reduce its ravages were discussed from many points of view on Feb. 3 at Pittsburgh, Pa., at a special open meeting in Soldiers' Memorial Hall. This gathering was arranged by the Twentieth Century Club and the Pittsburgh Academy of Medicine, with the coöperation of the American Society for the Control of Cancer as one of a series of public meetings in various parts of the country, at which representatives of the national organization will endeavor to spread the message of hope for the cure of cancer which still is to be sought only in early recognition and competent surgical treatment.

Hon. James R. Macfarlane presided and Mr. Frederick L. Hoffman, statistician of the Prudential Life Insurance Company of America made the opening address.

The Rt. Rev. Regis Canevin, Bishop of the diocese of Pittsburgh, defined the first duty of a layman to the science of medicine to give those who are engaged in it whatever encouragement he can whenever he can.

Four British Centenarians.—Miss Ann Hutchings, who died recently at Wellington, England, is said to have been born in 1811. Mrs. Harriet Light, who died on Jan. 10, at Weston-super-Mare, was born on Sept. 13, 1813. Mrs. Cooper, who died in the same city on Jan. 7, was also born in 1813. Mrs. Clarke, of Rushden, who died recently, is supposed to have been born in 1812.

Lord Strathcona's Medical Bequests.—The will of the late Baron Strathcona and Mount Royal, who died on Jan. 21 in London, contains bequests of $500,000 to the Royal Victoria Hospital, at Montreal, and $90,000 to hospitals in the British Isles.

Smallpox Near Baltimore.—Report from Maryland states that on Jan. 29, 23 cases of smallpox were reported in the vicinity of Baltimore, 21 of them being at Warren, a mill village 15 miles to the north.

Smallpox in Pennsylvania.—Report from Erie, Pa., states that on Feb. 1 there were 90 cases of smallpox in North East, a neighboring town in Erie County, with a population of 2000. All the inhabitants are now being vaccinated.

The Magee Hospital.—It is announced that work has been begun on the erection of the Magee Maternity Hospital at Pittsburgh, Pa., which is expected to cost $800,000, and which will be affiliated with the University of Pittsburgh Medical School.

BOSTON AND NEW ENGLAND.

Infectious Diseases.—Cases of infectious diseases reported to the Boston Board of Health for the week ending Feb. 3, 1914: Diphtheria, 61, of which 1 was non-resident; scarlatina, 95, of which 3 were non-resident; typhoid fever, 20; measles, 52; tuberculosis, 47, of which 2 were non-resident.

The death-rate of the reported deaths for the week was 19.45. The deaths of 19 "Arcadia fire" victims are included in this rate.

Massachusetts Association of Boards of Health.—The annual meeting of the Massachusetts Association of Boards of Health was held in Boston on Jan. 29. The principal address was on "Child Hygiene," by Dr. William J. Gallivan, who pointed out that the infant mortality in this city has declined from 126 per 1000 births in 1911, to 117 in 1912, and only 107 in 1913. The following officers were elected for the ensuing year: President, Dr. James C. Coffey, of Worcester; vice-presidents, Dr. Milton J. Rosenau, of Brookline, Mass., and Dr. Charles V. Chapin, of Providence, R. I.; treasurer, Dr. Francis C. Curtis, of Newton; and secretary, Dr. Francis H. Slack, of Boston.

A New Pregnancy Clinic.—On Thursday of last week, Feb. 5, the Boston Milk and Baby Hygiene Association opened at the Peter Bent Brigham Hospital a pregnancy clinic, under charge of Dr. Arthur B. Emmons, 2nd, of this city. The nursing service will be supplied by the Boston Instructive District Nursing Association.

Two Living Centenarians.—Mrs. E. P. MacGray, of South Scituate, R. I., who is said to have been born on Feb. 2, 1811, in Barnstable, Mass., celebrated last week her supposed 103rd anniversary. Her health is excellent.

Mrs. Margaret E. Jordan, of Malden, Mass., who is said to have been born in February, 1814, celebrated recently her supposed centennial anniversary. She walks outdoors every day, and is in excellent general health.

Smallpox in Portland.—Report from Portland, Me., states that on Feb. 4, there were in that city 15 cases of smallpox. All the local schools have been indefinitely closed, and the public is advised not to frequent places of assembly and amusement.

Army Nurses' Memorial.—On Thursday, Feb. 12, a memorial is to be dedicated in the Massachusetts State House to the army nurses of the Civil War.

"The memorial is a statue representing a wounded soldier reposing in the arms of an army nurse. The inscription is: "To the army nurses from 1861 to 1865. Angels of mercy and life amid scenes of conflict and death. A tribute of honor and gratitude from the Massachusetts Department, Daughters of Veterans, 1914."

Hospital Bequests.—The will of the late Mary A. Towars, of Brookline, Mass., which was filed on Jan. 30 in the Norfolk Registry of Probate, contains bequests of $200 each to the Boston Nursery for Blind Babies and the Boston Floating Hospital.

NEW YORK.

Endowment of Medical Education.—The annual dinner of the faculty and directors of the New York Post-Graduate Medical School and Hospital was held on Jan. 28. The president, Dr. J. F. McKernon, was toastmaster, and among the speakers was Prof. W. H. Welch of Johns Hopkins University. In his remarks the latter expressed his regret at the lack of endowment of medical colleges. "I would be the last," he said, "to say a word against institutions like the Rockefeller Institute and the Carnegie Institute at Washington, which have fully justified their existence by their contributions to knowledge. But there is not a similar acknowledgment of the need of endowing medical education, and it is a narrow course to endow research work and not to endow medical education, in which research work is rooted."

Report of Stony Wold Sanatorium.—The thirteenth annual meeting of the Stony Wold Sanatorium Corporation was held on Jan. 28, when the principal address was made by George McAneny, president of the board of aldermen. The reports of the institution, which is in the Adirondacks and cares for women and children with incipient tuberculosis, showed that during the past year 230 patients had been treated, and

that 146 patients had been discharged as cured. Of all who have ever been discharged from the sanatorium, it was stated, between 60% and 65% are working and apparently in good health.

MEETING OF ASSOCIATED PHYSICIANS OF LONG ISLAND.—The sixteenth annual meeting of the Associated Physicians of Long Island was held at the library building of the Medical Society of Kings, Brooklyn, on Saturday afternoon, Jan. 31, and at the scientific session a paper on "Practical Points in the Interpretation and Management of Low Blood Pressure," was read by Dr. E. E. Cornwall of Brooklyn, and one on "Original Uses of the Bone Graft; with a Report of 325 Cases," by Dr. F. H. Albee of Manhattan. In the evening a dinner was held at the Hamilton Club, the principal address at which was made by Dr. William Francis Campbell, of Brooklyn, president of the New York State Medical Society.

A MEDICAL POSTMASTER.—Dr. William H. Murray has been appointed postmaster of the city of Albany by President Wilson, Dr. Murray was graduated from the Albany Medical College in 1869, and is still in active practice.

NURSING IN MUNICIPAL HOSPITALS.—The hospital investigating committee of the Board of Estimate and Apportionment, of which George McAneny, president of the Board of Aldermen, is chairman, has submitted two more sections of its report, both in regard to the nursing in the municipal hospitals. One of the recommendations is that a schedule should be established calling for the employment of one nurse for each four beds in the smaller hospitals having frequent admissions, and of about one for each five beds in the larger hospitals, which care for the more prolonged cases. The present conditions are described as unsatisfactory, and it is stated that, while nursing associations are endeavoring to improve conditions and to meet the demand for nursing by educating a supply of well-trained, competent nurses, the supply is by no means adequate to the needs, and it is an open question whether or not some form of training should be offered which would attract and equip a larger number of women for the nursing field; a form of training which would not encroach upon the field of the highly trained nurse.

VALUE OF STATISTICAL MATERIAL.—The criticism has been made that the value of much of the statistical material published by the City Health Department in its weekly and monthly bulletins is greatly impaired because its form is such as to render comparison with other years difficult, or even impossible. This criticism does not apply, however, to the tables prepared by the Bureau of Records, which have long been published in their present form and which are, therefore, readily available for purposes of comparative study. Consequently, the department has, in its *Weekly Bulletin*, begun the publication, in the form of fixed tables, of certain statistical material relating to its work, and hopes thereby to render the bulletins more serviceable to students of public health. The first installment of this relates to typhoid fever in the last quarter of 1913, and gives the figures concerning the following points: Cases reported (true cases—no cases); deaths; blood sent to laboratory (positive—negative); treated at home; treated at hospital; contact; probably out-of-town infection; additional cases with out-of-town history; total with out-of-town history; number of persons exposed to a case in family; immunization refused; immunization accepted.

APPOINTMENTS AT COLUMBIA UNIVERSITY.—At a meeting of the trustees of Columbia University, held on Feb. 2, it was announced that Dr. George E. Brewer, professor of clinical surgery, had been appointed professor of surgery, in the place of Dr. Joseph A. Blake, resigned. This professorship carries with it the important position of head of the surgical division of the Presbyterian Hospital. Dr. Walter B. James, professor of clinical medicine, was, at his own request, retired from the faculty of the medical department. He will still, however, retain his professorship, and continue to direct certain lines of research work. Among the gifts announced at the meeting was one of $2,500 from Dr. John A. Fordyce, for special equipment at the Vanderbilt Clinic.

CRIMINAL NEGLIGENCE.—As the result of a coroner's inquest in the Bronx, John C. Wessels, Jr., and a Christian Science healer, Mrs. J. D. McClintock, were, on Feb. 2, held in $1,000 bail each, on a charge of criminal negligence. A child of Wessels,' 20 months old, died from diphtheria on Jan. 17, under the attendance of the healer, and at the inquest Dr. S. D. Hub-

bard of the Department of Health testified that after the child's death the father refused to permit the administration of antitoxin either to himself or to his other children. He also reported that throughout the baby's illenss a sister, twelve years of age, was allowed to attend the public school where she was a pupil.

Another Case of Typhus.—On Jan. 28 a case of typhus fever was discovered by health officers of this port aboard the French steamer *Rochambeau,* which arrived on Jan. 26 from Havre. The patient and 102 of his immigrant companions were placed in quarantine at the Hoffmann Island Hospital. This was the sixth case of typhus fever detected at this port during the month of January.

Harvey Lecture.—The eighth of the current series of lectures before the Harvey Society will be delivered on Saturday evening of this week, Feb. 14, at the New York Academy of Medicine, by Prof. J. J. R. Macleod, of Western Reserve University, on "Recent Work on the Physiological Pathology of Glycosuria.

The Home Hospital Experiment.—The New York Association for Improving the Condition of the Poor has just issued a publication (No. 78) entitled "The Home Hospital Experiment," being a statement of the "methods, results, and comparative cost during the first year (1912-13) in the combined home and hospital treatment of families made dependent by tuberculosis.

Current Literature

The Archives of Internal Medicine.

December, 1913.

1. Gay, F. P., and Claypole, E. J. *Studies in Typhoid Immunization. I. The "Typhoid-Carrier" State in Rabbits as a Method of Determining the Comparative Immunizing Value of Preparations of the Typhoid Bacillus. II. Agglutinability of Blood and Agar Strains of the Typhoid Bacillus.*
2. *Chace, A. F., and Myers, V. C. *The Examination for Diagnostic Purposes of the Enzyme Activity of Duodenal Contents.*
3. *Whipple, G. H. *Hemorrhagic Disease. Antithrombin and Prothrombin Factors.*
4. *Kolmer, J. A., Lanbaugh, E. E., Casselman, A. J., and Williams, W. W. *Practical Studies on the So-Called Syphilis "Antigens," with Special Reference to Cholesterinized Extracts.*
5. Stewart, G. N. *Studies on the Circulation in Man. IX. The Blood-Flow in the Hands (and Feet) in Cases in Which Obvious Anatomical Differences Exist.*
6. *Vogel, K. M. *Blood Transfusion and Regeneration in Pernicious Anemia.*
7. Freiburg, L. A. *The Pathogenesis of the Contracted Kidney.*
8. *McLester, J. S. *Studies on Uric Acid of Blood and Urine, with Special Reference to the Influence of Atophan.*
9. Ross, E. L. *Some Forms of Urinary Nitrogen Affected by the Administration of Desiccated Thyroid to Dementia Præcox Patients.*
10. *Barach, J. H. *Morphology of the Blood in Epidemic Parotitis.*
11. *Janeway, T. C. *A Clinical Study of Hypertensive Cardiovascular Disease.*

2. Chace and Myers report on a study of the enzyme activity of duodenal juice obtained with the Einhorn tube. They find that the activity of the amylolytic, lipolytic and proteolytic enzymes of this juice is subject to considerable variation under normal conditions. It is not influenced by the acidity of the gastric juice. In a case of chronic pancreatitis, the amylolytic and proteolytic activity was entirely negative and the lipolytic activity comparatively weak. The absence of pancreatic enzymes from the duodenal juice would therefore appear to be positive evidence of either pancreatitis or non-potency of the pancreatic ducts.

3. Whipple studied the blood in a series of cases of hemorrhagic disease of various forms. He is more convinced than ever by this further study that antithrombin is a factor of importance in cases of bleeding. He finds that the antithrombin-prothrombin balance in the blood is in delicate equilibrium, but under normal conditions there are strong factors which can preserve this balance. Under disease conditions this balance may be temporarily or permanently upset. The prothrombin factor is rarely involved, but may drop to a low level and cause hemorrhagic symptoms. The antithrombin factor is frequently involved, the amount of excess determining the degree of hemorrhage. Antithrombin may fall below normal and cause a tendency to vascular thrombosis. It is highly probable that under certain conditions liver injury or disease may be associated with an excess of antithrombin in the blood capable of giving hemorrhagic symptoms. True hemorrhagic disease is rarely associated with obstructive icterus. In these rare cases we may presuppose some liver disease and an upset in the antithrombin-prothrombin balance. Certain substances in the blood will cause an overproduction of antithrombin, due probably in great part to the stimulation of the liver. This is the cause of hemorrhagic symptoms in septicemia, endocarditis, pneumonia and miliary tuberculosis. In disease of the blood-forming organs, the blood-forming tissues are probably not directly concerned in the excessive antithrombin production, as this element is much in excess in cases of anemia with complete marrow aplasia. Treatment of hemorrhagic disease should follow a careful analysis of the blood. In cases of low prothrombin serum rich in this element is indicated, intravenously or, even better, by direct transfusion. Treatment of antithrombin cases is very difficult. At present direct transfusion seems to offer the greatest hope of permanent benefit.

4. Kolmer, Lanbaugh, Casselman and Williams report on studies of syphilis antigens. In the order of efficiency in practical serum diagnosis of syphilis, they arrange the various extracts in the following order: (1) cholesterinized alcoholic extracts of human, pig and beef heart; (2) plain alcoholic extracts of known syphilitic liver; (3) acetone insoluble lipoids (Noguchi), (4) plain alcoholic extracts of human, pig and beef heart; (5) acetone extract of syphilitic liver; (6) plain alcoholic extract of normal liver. The best results are obtained by using several

antigens with each serum, including plain and cholesterinized extracts.

6. Vogel and McCurdy discuss the value of blood transfusion in pernicious anemia and report six cases. They believe that transfusion of physiologically unaltered blood is one of the most promising forms of palliative treatment available in this disease. The measure should not be postponed until the patient is in a desperate condition. Large transfusions may be injurious and it is probable that more benefit is to be expected from small doses introduced at intervals to be determined by the progress of the patient. The enumeration of the reticulated cells by the method of vital staining is a reliable means of watching the hemopoietic activity of the bone marrow and the effects of various therapeutic measures upon it.

8. McLester studied the effect of atophan on the uric acid of the blood and the urine. He finds that the amount of endogenous uric acid in the blood of different individuals varies widely, but for a single individual the figure is a constant one. Atophan increases renal activity and exerts a selective stimulating influence on uric acid excretion, while it simultaneously reduces the uric acid of the blood. Its influence on uric acid metabolism seems to be limited to its power of transferring uric acid from the blood to the urine.

10. Barach studied the blood in epidemic parotitis. He finds that in fully developed uncomplicated cases of this disease there is a marked leucopenia with the polynuclears relatively and absolutely decreased and the lymphocytes relatively and absolutely increased. Eosinophiles are very scarce.

11. Janeway gives the results of an 18-months clinical study of cardiovascular disease with hypertension, his object being to throw light on prognosis in these cases. He finds that the most prominent symptoms associated with high blood pressure are circulatory rather than renal. The disease underlying high arterial pressure is predominantly a disease of the circulatory system, whether primary or secondary to preceding inflammatory nephritis. Death in these cases (in private practice) occurs most often by gradual cardiac insufficiency, next often with uremic symptoms, by apoplexy, by complicating acute infection, by angina pectoris, from unrelated causes, with acute pulmonary edema, with cachexia.

The early symptoms have an important prognostic significance. The early occurrence of symptoms of myocardial weakness, especially dyspnea, indicates a more than 50% probability of eventual death by cardiac insufficiency. The early occurrence of anginoid pain on exertion does not indicate a probability of death in an anginal paroxysm for more than one-third of the patients, but does indicate a probable cardiac death of some type. Polyuria, particularly if nocturnal, indicates the probability of a uremic death for more than 50% of the patients. Headache indicates the probability of a uremic death for more than 50% of the patients, and death from apoplexy for a considerable number of the remainder. Progressive loss of weight is a bad prognostic sign. Systolic blood pressure persistently above 200 mm. indicates a greater probability of death by uremia or apoplexy. The average duration of life in the group of patients studied was four years for the men and five for the women. One-fourth of the whole number, however, lived more than ten years from the appearance of the first symptom. [L. D. C.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 49. DECEMBER 8, 1913.

1. SAFTLER. *The Present Status of the Treatment of Glaucoma.*
2. FEJÉR. *The Reciprocal Pathological Conditions of the Antra and Cells Near the Eye and Nose, from the Ophthalmologist's Point of View.*
3. ROSENBERG. *Hemorrhagic Pachymeningitis in Childhood.*
4. HOFBAUER. *The Circulatory Function of the Intrathoracic Negative Pressure.*
5. *OCZESALSKI. *A Case of Fecal Vomiting in Gastric Crisis.*
6. KNOCH. *A Case of Severe Anemia with Localizing Cerebral Symptoms (Aphasia and Hemianopsia.)*
7. FRAENKEL. *A Contribution to the Serum Diagnosis of Pregnancy.*
8. GYENES AND STERNBERG. *A New and Rapid Method for the Detection of the Spirochaeta Pallida in the Tissues.*
9. HEINRICHSDORFF. *Pathological Lesions of the Liver Resulting from Salvarsan—A Further Contribution.*
10. FISCHER. *Occurrence of the Mouse Favus in Mankind.*
11. GRUNDMANN. *Experiences with the Use of Bile as a Culture-Medium for the Diphtheria Bacillus.*
12. CRAMER. *A New Drug for the Treatment of Whooping Cough ("Droserin").*
13. KAYSER. *The Therapeutic Importance of Calcium.*

5. The author has been able to find in the literature reports of fecal vomiting in several conditions besides obstruction,—typhoid, scarlet fever, spasm of the colon, and hysteria; but no record of such occurring in tabes, as in his case. The patient was a man of 53, with a history of luetic infection, and presenting many of the symptoms and most of the signs of tabes. He had, at irregular intervals, extremely severe gastric crises, during several of which he had perfectly typical fecal vomitus. The author could rule out satisfactorily the presence of a possible fistula between the stomach and either large or small intestine, and presents this case merely as an interesting exception to the rule of stercoraceous vomiting being pathognomonic of obstruction—whether mechanical or paralytic. [R. H. M.]

No. 50. DECEMBER 15, 1913.

1. SONNENBERG. *Appendicitis, Formerly and Now.*
2. OPPENHEIM AND KRAUSE. *Operative Results in Tumors in the Region of the Optic Thalamus and Corpora Quadrigemina.*
3. SATTLER. *The Present Status of the Treatment of Glaucoma. (Concluded.)*
4. FORNET. *Concerning the Cause of Small-pox.*
5. ECKERT. *The Rôle of Contact-infection in the Epidemiology of Cholera.*
6. FRIEDBERGER AND SCHIFF. *Further Contributions on Heterogenetic Antibodies.*
7. LANGGARD. *The Relation Between Chemical Constitutions and Physiologic Actions.*
8. *BLUMENTHAL. *The Present Status of the Treatment of Malignant Tumors (Vaccine Therapy).*

8. The author, reviewing the work of himself and others in treating patients and experimental animals with extracts of malignant growths, either the original tumor or a similar one from another body, feels that certain cases have been benefited in this way. He considers that this form of vaccination should be tried out more thoroughly; that although no solution of the problem is yet in sight, the few good results already obtained warrant further exhaustive investigation of the subject. [R. H. M.]

DEUTSCHES ARCHIV FÜR KLINISCHE MEDIZIN.

DECEMBER 16, 1913.

1. *GRAFE, E. *The Effect of a Continued Diet Rich in Carbohydrates and Without Albumen upon the Metabolism of Man and Animals.*

2. Mandelbaum. *Changes in the Cerebrospinal Fluid in Tubercular Meningitis.*
3. *Pfannmüller. *Influence upon Nitrogen Metabolism in Infectious Fevers by Increased Carbohydrate Intake.*
4. Beltz, L. *Leukemia, with Special Regard to the Acute Type.*
5. Burns, O. *Experimental Study of the Phenomena of Cardiac Weakness after Over-exertion.*

1. Grafe calls attention to the fact that in most of the work in regard to additions of excesses of sugar to the diet with subsequent increase in stored glycogen and fat and increase in weight there is also an increase in nitrogen as well as carbohydrate. He mentions the peculiar findings of certain men that carbodrate diet alone without nitrogen does not cause increase in weight, but usually a diminution. This paper is a report on the study of a series of men and animals in regard to their weight, nitrogen metabolism, water balance, and heat production. These subjects have been fed on a diet much above the caloric needs with the increase composed of carbohydrates without albumen. He found that they lost in weight in practically all instances. The loss of weight was due to a loss in water balance at the start and after a week or so to a marked increase in heat production. This increased oxydation was most marked in the swine, less so in the dogs, and least in man. His article is accompanied by a long series of tables in which the results are placed in detail.

3. Pfanmüller has reported the results of some studies on nitrogen excretion which were undertaken to see whether in febrile conditions, as in health, a saving of nitrogen excretion could be produced by the addition of a rich carbohydrate diet. His studies show that in fever caused by the pus-forming bacteria a saving of from 15 to 40% of nitrogen destruction can be produced by this means, as contrasted with the 10% saved by the same method in health.

[C. F., Jr.]

Wiener Klinische Wochenschrift.

No. 44. October 30, 1913.

1. Bastel, T. *The Significance of Constitutional Conditions.*
2. Brinner, A. *The Advisability of Gastroenterostomy and Resection in Ulcus Ventriculi Remote from the Pylorus.*
3. *Novak, T., and Porges, O. *The Acidity of the Blood in Osteomalacia.*
4. Jellinek, S. *The Significance of the Nature and Intensity of Strong Electric Currents in Relation to Their Reaction on the Animal Body.*
5. v. Massabie, and Kronenfels, G. *The Treatment of Frostbites in Time of War.*
6. Paul, E. *The Extraction of Foreign Bodies from the Air-Passages.*
7. Kvokiewicz, A. *The Benzol Therapy of Leukemia.*

8. The authors draw conclusions as follows: There is a relation between acidosis and osteomalacia, but the acidosis seems an accompanying rather than an etiological factor. The carbon dioxide tensions of the alveolar air may be used as an indicator of the acidity of the blood. In normal pregnancy there is occasionally as low a CO_2 tension, *i.e.* relatively high acidity of the blood as in osteomalacia. The remainder of the article takes up the well-known theory of the "perverted ovarian secretion," cause of osteomalacia and its cure by castration. [F. S. K.]

No. 45. November 6, 1913.

1. Hess, L., and Müller, H. *The Ultimate Fate of Destroyed Red Blood Cells.*
2. Guithlen, F. *Changes in Skin Reaction.*
3. Sorgo, J. *The Influence of Serums on the Cutaneous and Intracutaneous Tuberculin Reaction.*
4. *Keitler, H. *Radium Treatment of Carcinoma Uteri.*
5. Werner, P., and Winiwarter, A. *The Abderhalden Pregnancy Reaction.*
6. Schlemmer, F. *Peroral Intubation in Operations in the Region of Upper Air and Food Passages with the Kuhn Apparatus.*
7. Kirsch, O. *The Remission Phenomena of Scarlatina Exanthem.*

4. The treatment of carcinoma uteri with radium must not be considered a substitute for radical operation. It has, however, three important phases of usefulness. (1) in making operable some previously inoperable cases; (2) palliation in inoperable cases; (3) prevention of recurrence in postoperative cases.

[F. S. K.]

No. 46. November 13, 1913.

1. Kahane, H. *Psychic Depressions.*
2. Riedl, H. *Extirpation of the Knee-joint.*
3. Grosz, S., and Volk, R. *Syphilis Therapy and the Wassermann Reaction.*
4. Kerl, W. *Abortive Treatment of Syphilis.*
5. *Sachs, O. *Early Treatment of Syphilis.*
6. Spitzer, T. *Case Histories of Syphilis.*
7. Schwarz, G. *The Therapy of Secondary Rays.*

5. The treatment of syphilis, the author concludes, offers better prospects the earlier it is begun. Such treatment consists in extirpation or cauterization of the primary sore, followed by combined mercury and salvarsan treatment continued under a sufficient period under control of the Wassermann reaction. According to the observations of the author, 101 cases over a period of one to six years, the combined treatment gives by far the best results as compared either with mercury or salvarsan alone. [F. S. K.]

No. 47. November 20, 1913.

1. Oppenheim, M. *The Etiology of Idiopathic Atropy of the Skin, Dermititis Atropicans.*
2. Hecht, A., and Nadel, V. *Experimental Investigation on the Action of Hypophysis Extracts by Means of Electro-cardiography.*
3. Finsterer, H. *The Therapy of Large Hernia of the Sigmoid Flexure.*
4. Neumann, F. *Radium Treatment of Cicatricial Stenosis of the Esophagus.*
5. Tenzer, S. *Tonsillectomy with a Consideration of Results on Tonsilectomized Children.*
6. Rochelt, E. *Permanent Artificial Pneumothorax.*
7. *Neugebauer, O. *Ebaga Preparations and Their Use in Dermatology.*

7. Ebaga preparations are prepared with reference to the incorporated medication as combinations of alkalies of varying concentration with steric and palmetic acid and the addition of especially prepared mineral oils. The advantages are: (1) agreeableness; (2) does away with oily skin; (3) more energetic action on the skin. ([F. S. K.]

No. 48. November 27, 1913.

1. Brenner, A. *The Diaphragmatic Rale; an Early Symptom of Gastric Perforation.*
2. *Giel, W., and Porges, O. *Dermatitis and Anacidity.*
3. Cantein, C. *The Cholesterin Treatment of a Case of Uremia Spiculosa in a Child.*
4. v. Sarbo, A. *The Symptomatology of Intrathoracic Stomach.*
5. Goldberg, J., and Oczesalki, K. *A Case of Lyssa with Meningitic Symptoms.*
6. Weinlander, G. *Apoplexy with Lethal Result after Lumbo-Puncture of Luetics.*
7. Braza, H. *Eleven Cases of Luetic Tabes.*

2. The authors conclude as follows: It is a well-known fact that there exists a relation between dermatosis and improper metabolism. The demonstration of specific toxins has, however, been lacking. The authors cite three cases of hypoacidity—no free HCl in the stomach, and one case of total anacidity with obstinate itching dermatoses, that resisted all other treatment but readily disappeared under treatment with HCl by mouth. [F. S. K.]

ARCHIV FÜR KLINISCHE CHIRURGIE.

VOL. 102. PART 4.

30. STIEDA, A. *In memory of Fritz Gustav von Bramann.*
31. STIEDA, A. *Observations on Brain Surgery.*
32. STIEDA, A. *Esophageal Plastics.*
33. LICHTENSTEIN, R. *Experiences with Rosenbach's Tuberculin in the Treatment of Surgical Tuberculosis.*
34. ZANDER, P. *Critical Review of the Cases of Appendicitis of the Last Three Years in the Surgical University Clinic at Halle, A. S.*
35. NENTWIG, M. *Experiences with Pantopon-Scopolamin Narcosis.*
36. *VEIT, K. E. *Potency of the Omphalo-mesenteric Duct (Meckel's Diverticulum).*
37. VEIT, K. E. *The Etiology of Caput Obstipum (Torticollis Due to Trauma at Birth.)*
38. BECKER, J. *Tuberculosis of the Bursae about the Hip.*
39. BECKER, J. *Intussusception in Children.*
40. BOEHMKE, E. *Traumatic Dislocation of the Hip in Children.*
41. LOEPP, W. H. *Luxatio Femoris Centralis Traumatica.*

36. Veit's article reviews the work which has been done on Meckel's diverticulum, and adds two cases. Persistence of the omphalo-mesenteric duct may cause intestinal obstruction by mechanical means or may be the seat of an acute inflammatory condition. Normally the duct disappears in the second month of intrauterine life, but when it persists may be found at birth as a blind sac ending free within the abdomen, as a sac connected by a band with the interior abdominal wall, as a channel between the intestine and the navel, or even as an open canal extending into the umbilical cord. In some cases in which the canal itself is obliterated, "rests" of mucous membrane occur at the umbilicus, where they form granulomata, or along the tract of the obliterated duct, where they form cysts. Veit's cases were both in young infants. In the first, a fecal fistula appeared at the navel, and through this fistula the mucosa of the diverticulum prolapsed. At operation the diverticulum was removed, but a fecal fistula persisted and the child died a few weeks later. In the second case, there was also a fecal fistula at the umbilicus. Through this the diverticulum was extruded, and was followed by several cm. of true intestinal wall. This became strangulated and the child died without being operated.

Veit advises operation early in patent omphalo-mesenteric duct cases, as later the child becomes weakened and is a poorer risk. There is also the chance that the gut may become strangulated, requiring resection, which is, of course, a much more serious operation. In 22 operations for patent Meckel's diverticulum, Stracter had a mortality of only 10%. [G. G. S.]

DIE THERAPIE DER GEGENWART.

DECEMBER, 1913.

1. STRAUSS, H. *Progress in the Treatment of Albuminuria and Nephritis.*
2. *BORCHARDT, L. *Treatment of Asthma with Pituitary Extracts.*
3. BRÜCKNER, G. *Alendrin.*
4. DETTLEFSEN. *Anaphylactic Manifestations after Fibrolysin.*
5. ABEL, S. *The Iodine Treatment of the Throat for the Removal of Diphtheria Bacilli.*
6. ROEDER, H. *The Treatment of Epilepsy in Childhood.*
7. KATZENSTEIN, M. *Advances in Surgery.*
8. PROSKAUER, A. *Sudden Death after Local Anesthesia with Alypin in a Case of Unilateral Suprarenal Tuberculosis.*
9. KLEMPERER, F. *Dr. Friedrich Franz Friedmann's Remedy in the Treatment of Tuberculosis and Scrofula.*

2. Borchardt reports ten cases of asthma in which he used pituglandol subcutaneously in doses of 1 c.c. He finds this remedy given in this way a reliable means of checking the asthma attack and preventing its recurrence. [L. D. C.]

Miscellany.

A FRENCH FEMALE XIPHOPAGUS.

IN a recent issue of the JOURNAL we noted the case of a new pair of so-called Siamese twins, born in Paris on Nov. 27, 1913. The case was recently presented by Dr. LeFilliâtre before the French Academy of Medicine, and the following description of it was published in a recent isue of the *British Medical Journal*.

"The two girls, who are in good health, are united at the base of the sternum by a fleshy cylinder which appears to enclose above a sort of semi-rigid bridge and below two parallel fibrous tracts. Radioscopic examination, after ingestion of bismuth by one of the children, shows that the digestive canals are independent of one another, although in the fleshy part there is a canal which brings the two abdominal cavities into communication, by which the alimentary tube passes at times, when contractions occur, out of the abdomen of one child, causing a hernia into the other child, and even reaching to its liver. It cannot be said that any union between the two livers, such as has been found previously in such monsters, exists. A special interest attaches to this case, inasmuch as all those hitherto described were anterior to the discovery of radioscopy of the alimentary canal by the use of bismuth. The operation to separate the children has not yet been performed (though it does not seem to present any serious difficulty) because one of the children is affected with umbilical suppuration, no doubt extending to the umbilical vein. This constitutes a condition of infection unfavorable to present surgical intervention. Meanwhile, several examinations have been made, which have led to curious results. Blood examinations show a great difference in the cytologic condition of the two children; the erythrocyte and leucocyte counts, the pulse beats, even the temperature records, differ considerably in the two bodies, showing that the circulations are independent, at least in their

larger passages. The child affected with umbilical suppuration shows a greatly increased leucocytosis over the other, which is easily explainable; but this infection reacts only on herself, and in no way affects the general condition of her fellow. One child may show some slight febrile movement as well as diarrhea, without the other one suffering any indisposition. There is only one symptom which always extends from one child to the other—insomnia."

RELATIONSHIP OF TYPHOID AND TUBERCULOSIS.

Seven years ago Reincke of Hamburg and Mills of the United States first called attention to the fact that wherever the typhoid incidence of a community is reduced by improvement of its water supply, the incidence of other diseases, notably tuberculosis, is also simultaneously reduced. Hazen, Sedgwick and MacNutt made further observations and contributions on this subject, but left undecided the cause of this interesting phenomenon.

In the January issue of *American Medicine*, Woodruff publishes detailed data aiming to prove a relationship between tuberculosis and typhoid; and in the issue of *Science* for Jan. 30, he published a preliminary note summarizing as follows the theory of his explanation.

"It has been found that tuberculosis follows typhoid fever far more frequently than physicians have suspected, and moreover, the tuberculosis mortality curve of a nation is almost always parallel to that of typhoid fever. Cities do not show such a close agreement as the country as a whole, because consumptives quite commonly leave the city to die elsewhere. As far as the very defective statistics permit a conclusion, it is to the effect that conumptives have had much more typhoid fever than the rest of the population. We have long known of the serious after-effects of typhoid fever, but only recently have a few physicians been calling attention to the far-reaching nature of these sequelae. Tuberculosis is only one of these results. That is, by reducing typhoid fever in any way whatever we save far more from death by numerous other conditions due to the lessened resistance caused by the typhoid infection. The purification of a water supply is then only one of the numerous ways of reducing tuberculosis.

"The explanation of the phenomenon is evident. By personal inquiries of physicians in the United States, Germany, Switzerland, France and Great Britain, I find that the following facts seem proved to the minds of those who by special study are competent to form an opinion. Babies are born free of tuberculosis, but begin to acquire it as soon as they can crawl around, pick up the bacilli with dust and dirt, and immediately convey them to the mouth, after the manner of all babies. These germs are weakened or attenuated by sunlight, drying, etc., and are not able to spread actively, though they establish themselves. Those which are taken in by the phagocytes have the same effect as vaccination and cause the production of antibodies, which make us all more or less immune to infection by virulent bacilli. If a baby is infected by fresh virulent bacilli from a nurse, before its immunity is produced, it dies of rapid disseminated tuberculosis, but an adult is not harmed by the virulent bacilli he takes in. Indeed, there is no incontrovertible evidence that any adult ever acquires tuberculosis. If one develops active tuberculosis, it is not a new infection, but an activation of latent lesions he has been carrying since childhood. Something has happened to him which has caused a temporary lessening of his antibodies and allowed the latent tuberculosis to spread—and nothing is more potent in doing this than the infections like measles, whooping cough and typhoid fever. Without these activating causes a man may lose immunity very slowly by improper food, mental and physical exhaustion, living in badly ventilated rooms, lack of outdoor exercise and a thousand other ways of lowering general health, but if one in such a condition does acquire another infection, like pneumonia, typhoid fever or influenza, his chances of becoming actively tubercular later are very large. Post-mortems of children almost always reveal tubercle, no matter what the disease was which caused death. Post-mortems of adults always show healed lesions, proving that at some time in our lives each of us lost resistance sufficiently to allow the lesions to become active, though we were later cured by a re-establishment of the immunity. One-eighth or one-tenth of us are unable to re-establish it and perish from tuberculosis. These facts are bound to modify the anti-tuberculosis crusade most profoundly.

"Savages, living an outdoor isolated life, have no chance to encounter tubercle bacilli and consequently do not become immune. When they do come in contact with a case they run a rapidly fatal course—generally if not always disseminated or miliary. That is, tuberculosis did not become a human affliction until long after we began to cluster together in confined shelters —possibly not until after we began to construct huts, 'dugouts,' and houses."

NOTICE.

Commonwealth of Massachusetts.—A conference in Modern Developments in Mental Nursing will be held in the Assembly Room at the Psychopathic Hospital, Monday 4–6 p. m., February 16, 1914.

1. Introductory remarks, Walter Channing, M.D., Chairman, Board of Trustees, Boston State Hospital.
2. "The Ideal Training of the Mental Nurse." Miss M. Adelaide Nutting, R.N., Director, Department of Health and Nursing, Teachers College, New York.
3. "The Nursing Component in the Recovery of Cases at the Psychopathic Hospital: An Analysis of

the First One Hundred Cases," E. E. Southard, M.D., Director, Psychopathic Hospital.

4. "First Impressions of the General Hospital Nurse on Visiting the Psychopathic Hospital," Miss Mary L. Gerrin, R.N., Acting Superintendent of Nurses, Psychopathic Hospital.

5. "A Comparison of the Drug Lists in General and Mental Hospitals," Donald Gregg, M.D., Assistant Physician, Out-Patient Service, Psychopathic Hospital.

6. "Constructive Mental Nursing," Herman M. Adler, Chief-of-Staff, Psychopathic Hospital.

7. "On the Incidence of Bedsores in Thirteen Hundred Mental Cases," Myrtelle M. Canavan, M.D., Pathologist, Boston State Hospital.

8. "The Question of Diet for the Insane in the Light of the Almost Constant Occurrence of Chronic Bright's Disease in Subjects Dying Insane," M. M. Canavan, M.D., and E. E. Southard, M.D.

9. "The Art of Companionship in Mental Nursing," Henry R. Stedman, M.D., Chairman, Board of Trustees, Taunton State Hospital.

10. "The Factor of Influencibility in Voluntary Admissions at the Psychopathic Hospital," George E. Eversole, M.D., Assistant Physician Psychopathic Hospital.

11. "The Problems of Mental Nursing from the Standpoint of the Medical Social Worker," Miss Ida M. Cannon, R.N., Head Worker, Department of Social Service, Massachusetts General Hospital.

12. "The Male Nurse," George T. Tuttle, M.D., Superintendent, McLean Hospital.

A brief recess will be taken at 5 o'clock for the convenience of early goers and late comers.

MASSACHUSETTS GENERAL HOSPITAL.

A surgical meeting open to the medical profession will be held ot 8.15 p. m., on Friday, Feb. 20, 1914, in the lower amphitheatre of the Out-Patient Department, Massachusetts General Hospital. Entrance on either Blossom or Fruit streets. The following papers will be presented:

" Cancer of the Uterus," by Dr. Farrar Cobb.

"A Study of Blood-Pressure in Hysterectomies and Other Radical Operations," by Dr. Harold Giddings.

An orthopedic meeting, open to the medical profession, will be held at 8.15 p. m., on Friday, Feb. 13, 1914, in the lower amphitheatre of the Out-Patient Department, Massachusetts General Hospital. Entrance on either Blossom or Fruit Streets. The following papers will be presented:

1. "Causes of Scolosis," by Dr. Z. B. Adams.

2. "Back Pain and Its Diagnosis," by Dr. Harry Platt.

3. "X-ray Diagnosis of Lesions of the Lumbar Spine and Sacro-iliac Joint," by Dr. C. Hermann Bucholz.

4. "Use of Plaster Backs in Post-operative Backache," by Dr. John McCartin.

SOCIETY NOTICES.

BOSTON MEDICAL LIBRARY IN CONJUNCTION WITH THE SUFFOLK DISTRICT MEDICAL SOCIETY.—General meeting, John Ware Hall, Wednesday, Feb. 18, 1914, at 8.15 p. m.

"The Interrelationship of and the Lesions Produced by Various Streptococci, with Special Reference to Endocarditis," Dr. Edward C. Rosenow of Chicago. Discussion will be opened by Drs. M. J. Rosenau, S. B. Wolbach and W. H. Smith.

Light refreshments after the meeting.

ROGER I. LEE.
WILLIAM P. GRAVES.
CHANNING FROTHINGHAM, JR.
Committee on Medical and Social Meetings for the Boston Medical Library.

THE NEW ENGLAND BRANCH OF THE AMERICAN UROLOGICAL ASSOCIATION.

There will be a meeting of the Association on Tuesday, Feb. 17, at 8.15 p. m., at the Boston Medical Library.

Program.

1. Demonstration of instruments and specimens, and reports of cases.

2. Symposium. The genito-urinary tract as a factor in the production of chronic toxemias and joint lesions: (a) "Physiology and anatomy of the seminal vesicles in regard to the treatment of their lesions," Dr. William C. Quimby, Boston; (b) "Recent studies in the pathology of the seminal vesicles," Dr. J. D. Barney, Boston; (c) "Arthritis associated with genito-urinary lesions," Dr. E. G. Brackett, Boston; (d) "Indications for operation on the seminal vesicles, with suggestions as to the technic and the results so far obtained," Dr. J. Bentley Squier, New York; (e) "Operative treatment of inflammatory and tuberculous lesions of the seminal vesicles," Dr. Hugh H. Young, Baltimore. Discussions by Dr. C. F. Painter, Dr. Hugh Cabot, and others.

RICHARD F. O'NEIL, *Secretary.*

THE BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on Tuesday evening, Feb. 17, 1914, in the amphitheater of the Administration Building of the Harvard Medical School, at 8.15 o'clock.

Program: Drs. S. B. Wolbach and R. S. Austin: "A New Filterable Spiral Organism from the Human Colon." (20 minutes.)

Dr. Carl TenBroeck: "The Antigenic Properties of Racemized Egg Albumin." (15 minutes.)

Dr. Theobald Smith: "Experimental Hematogenic Simulating Bronchogenic Tuberculosis." (30 minutes.)

THOMAS ORDWAY, *Secretary and Treasurer.*
Harvard Medical School.

THE HARVEY SOCIETY.—The eighth lecture will be delivered on Saturday, Feb. 14, at 8.30 p. m., at the New York Academy of Medicine, 17 West 43d Street, by Prof. J. J. R. MacLeod, Western Reserve University. Subject: "Recent Work on the Physiological Pathology of Glycosuria."

RECENT DEATHS.

DR. VON BEVERHOUT THOMPSON, a highly esteemed practitioner of New York who retired from practice some years ago on account of ill health, died at his country residence near Poughkeepsie on January 19. He was a native of Maryland, and was graduated in the District of Columbia in 1867.

DR. WILLIAM H. HANFORD, who died recently in Brooklyn, was born at Saratoga Springs, N. Y., in 1825, the son of a physician. He graduated in 1846 from New York University Medical School. In 1853 he settled in the practise of his profession at Brooklyn. He was a member of the American Institute of Homeopathy, and of the New York State and Kings County Homeopathic Medical Societies. He is survived by his widow and by one son.

DR. THOMAS PEDDIE of New York died on January 20. He was graduated from Bellevue Hospital Medical College in 1875, and for twenty-three years served as a medical inspector in the City Health Department.

DR. GARFIELD H. ATWOOD, who died on Feb. 1 at Waterbury, Conn., was born in 1831. He received the degree of M.D., in 1844 from Yale. He immediately settled at Woodbury, and continued there in the practise of his profession until 1904. He is survived by his daughter.

Original Articles.

THE SIGNIFICANCE OF INTRA-ABDOMINAL "BANDS," "FOLDS" AND "VEILS."*

By William Seaman Bainbridge, A.M., Sc.D., M.D., New York.

INTRODUCTORY REMARKS.

When I first began, about eight years ago, to study the various bands, folds, membranes, and other adventitious structures found within the abdomen, and to consider the relationship of these to chronic intestinal stasis, little heed was paid by the general body of the medical profession to this field of investigation in which Sir Arbuthnot Lane, of London, is unquestionably the pioneer. It is, therefore, with keen pleasure that I have watched the awakening of interest, of which this symposium is, in a way, the culmination. A few years ago Lane's statements with reference to the existence of these newly formed structures, to which he gave the name, "evolutionary bands," were received with incredulity, and his conclusions with regard to relationship between these tissues and chronic intestinal stasis were met with skepticism. Now, however, as he has told us, so many "bands," "folds," "veils" and "membranes" are being found within the abdominal cavity that some maintain that they cannot possibly be the cause of chronic intestinal stasis.

While doubt concerning their existence has been practically eliminated by repeated verification on the part of many observers, the origin and effect of these structures continue to call forth differences of opinion.

There has become manifest, too, in the development of the entire subject, that unfortunate tendency which so often characterizes scientific work, to label things with the names of those who first specifically described them. And so, we have the "bloodless fold of Treves," the "parieto-colic peritoneal fold of Jonnesco and Juvara," the "genito-mesenteric fold of Reid," the "ileo-pelvic band" and other "bands" of Lane, and the newly-formed veil of peritoneum"—"Jackson's membrane"—the last being the special subject for discussion on this occasion.

It seems to have escaped the attention of many investigators that Sir Arbuthnot Lane, in 1901,[1] first called attention to a "large vascular peritoneal apron" having an attachment to the abdominal wall outside the cecum and colon, and extending inwards over it and being firmly attached to its surface." "Its object," he said, "is clearly to limit the range of movement of the cecum, and to control its distention." This vascular peritoneal apron, according to Lane, is continuous with bands deep in the loin. These bands of peritoneum, which are sometimes spoken of as adhesions, are attached posteriorly deeply in the loin, and are often very strong, giving rise to obstruction of the upper part of the ascending colon, and producing distention and hypertrophy of the cecum. Aside from the inflammatory cases, where the adhesions are the sequel of peritonitic or appendiceal processes, other cases were explained by him as having apparently developed in consequence of an habitual distention of the cecum, as the result of constipation. This state of affairs, he maintained, is very common but not sufficiently recognized.

In 1903[2] Lane again called attention to the subject of this interference with the drainage of the intestinal canal, and again emphasized the vital importance of its recognition. He contended that the free passage of the intestinal contents through the hepatic flexure is interfered with by the development of a mesentery which is attached to the outer surface of the cecum, ascending colon, and the hepatic flexure. He presented a diagram showing the "bridles" formed by the shortening up of the longitudinal fibres on the front of the ascending colon, stating that these "bridles" are so marked in some cases as to require to be partly divided in order to restore the colon and cecum to their normal position and their capacity for the efficient performance of their function.

When I first began to study these conditions with Lane, this peritoneal apron to which your distinguished president subsequently gave the name, "pericolic membrane," as well as the various other folds and bands which are commonly found in chronic intestinal stasis, were demonstrated to me by him numbers of times at Guy's Hospital. They were not given specific names, and were not considered by him as separate entities, each with its own particular sphere of activity in the production of abnormal conditions within the abdomen, and each invested with its own particular set of symptoms; he rather considered them as parts of the great whole,—the causation and symptomatology of chronic intestinal stasis.

Lane's dominant idea in studying the cases which have come to be known under the diagnostic term of chronic intestinal stasis, was to work back from the widely divergent manifestations which we now consider to be the symptom-complex of stasis, to the underlying cause or causes. At the same time, naturally, he was working in the opposite direction, from the abnormal intra-abdominal manifestations which have come, carelessly, and without his approval, to be known as "Lane's bands," and "Lane's kinks," to the possible pathological effects produced by these. Coincidentally, of course, he studied the pathogenesis of these intra-abdominal tissue formations.

Thus Lane, recognizing the existence of these

* Presented by invitation, with lantern slide illustrations, before the twenty-third annual meeting of the Western Surgical Association, December 19, 1913, at St. Louis, Mo.

pathological structures within the abdomen, studying their pathogenesis, tracing their relationship to a wide variety of pathological manifestations, and developing a system of preventive and correctional measures, has played the rôle of the true pioneer, pointing the way to a new field for exploration, a new territory for useful endeavor. Lane, in other words, has stood on the mountain-top, so to speak, and has swept his eye completely around the horizon.

Having worked with him on my various visits to London for several years, having studied his cases before, during, and after operation, having repeatedly seen his hypothesis with reference to the existence of these causative factors in the production of chronic intestinal stasis verified upon the operating table, and having substantiated his findings in a large series of my own cases, I have tried to follow his example, and to sweep my own mental vision around the horizon rather than to fix my gaze upon this, that or the other particular point.

Therefore, with no possible desire to detract in the slightest degree from the brilliant work of your distinguished president, of Jonnesco and Juvara, of Douglas Reid, of Treves, and of the many others who, latterly, have contributed to the investigation of this interesting and important subject, I wish to emphasize what seems to me to be the logical point of view, that of considering all these intra-abdominal abnormal structures, whatever their origin and situation, as parts of the great whole, as possible factors in disturbing the body drainage in the production of chronic intestinal stasis.

For purposes of convenience of comparison I append brief descriptions of the various structures which come into consideration in connection with the bands described by Lane:—

1. *The Bloodless Fold of Treves.*[3] This fold is described by Reid[4] as follows: "Passing from the mesenteric border of the appendicular cecum and from the nonmesenteric border of the last part of the ileum to the posterior and lateral abdominal wall is a sheet of the peritoneum. This forms the anterior wall of a fossa completely closed save below. Its orifice is bounded in front by the free lower edge of the peritoneal sheet, medially by the ileum and the adhesions which bind this down, and posteriorly and laterally by the parietal peritoneum."

The fold of Treves passes over the caput coli and appendix, and, as Eastman[5] has pointed out, may adhere to the abdominal wall and resist for a time the completion of cecal torsion. Eastman suggests that the lower inner border of the bloodless fold of Treves may resist the drawing upward and inward of the last part of the ileum, thus preparing conditions favorable to the formation of Lane's kink, or actually causing it.

The Parieto-colic Peritoneal Fold of Jonnesco and Juvara.[6] In the majority of the cases this fetal fold arises from the peritoneum at the left or inner side of the ascending colon, passing over the anterior aspect of the ascending colon in an upward slanting direction. It is attached to the parietal peritoneum at the right of the ascending colon. It may adhere to the anterior and lateral aspects of the colon.

Practically the same relations as are presented by the parieto-colic fold or Jackson's membrane, when found in the adult, have been attributed by Reid[6] to the above-described fetal fold.

Several succeeding stages of the formation of Jonnesco's fold were found by Eastman,[6] indicating that adhesions may form between the serosa of the cecum and the mural serosa while the cecum is still sub-hepatic. The subsequent descent, with torsion or rolling inward upon the long axis, draws the parietal serosa over in front of the ascending colon in a slanting or spiral direction, like a ribbon wound spirally around a rolling cylinder.

"*Jackson's Membrane.*" Jackson[7] describes this structure as follows "From a point just at the hepatic flexure to three inches above the caput coli there spreads from the parietal margin over the external lateral margin to the internal longitudinal muscle band, a thin vascular veil, in which long straight unbranching blood vessels course, most of which are parallel with each other and take a slightly spiral direction over the colon from the upper peritoneal attachment to the inner lower portion of the gut ending just above the caput. The appendix is not implicated in any way. Coursing with the blood vessels are numbers of shining narrow bands of connective tissue, which gradually broaden as they go and end in a slight fan-shaped attachment at various points on the anterior and inner surfaces of the colon. At these points of attachment the gut is held in rigid plication. At the beginning of the hepatic flexure the drawn membrane particularly angulates the contained colon."

The Genito-mesenteric Fold of Douglas Reid.[8] This fold of peritoneum, which is said to be rather common, passes from the mesentery of the terminal segment of the ileum down into the pelvis, being attached in the fetus to the genital gland below. It has, therefore, a secondary connection with the ileum and, through the peritoneum of the meso-appendix, with the appendix itself, under which it passes. This connection is perhaps responsible for the frequent association of appendicitis and oophoritis. Adhesions of the colon to the peritoneum of its own mesentery were also pointed out by Reid.

This genito-mesenteric fold is found in a surprisingly large percentage of fetuses after the seventh month, or even after birth at term, and Eastman[9] has found it in the adult.

"*Attic Adhesions*" (Morris),[10] "Anatomists have noted that web-like adhesions were found in the bile tract region so frequently that they seemed to be almost a normal characteristic of the region. We used to feel the same way about adhesions in the cecal region. Byron Robinson called attention to the fact that adhesions were

found in the bile tract region more frequently than elsewhere in the peritoneal cavity excepting in the pelvis in women; and that the cecal region stood third in order of abundance of adhesions." Peritoneal adhesions, according to Morris, are found to some degree in almost every adult on post-mortem examination. Those in the upper part of the abdomen he has aptly called "attic adhesions."

Origin of Intra-abdominal "Bands," "Folds," and "Veils." Three chief theories concerning the pathogenesis of the intra-abdominal structures under discussion have engaged the attention of the different investigators: (1) mechanical or evolutionary (Lane), (2) embryonic or congenital, (3) inflammatory and infectious. In addition to these, the combined congenital and acquired factors have been suggested as playing a part in the development of these structures as they are found in the adult.

Embryonic or Congenital Theory. In an early stage of fetal life the entire abdomen is filled with bands, resembling the conditions seen after an attack of peritonitis.[11] Toward the conclusion of fetal life these bands disappear and the adhesions melt away, although some may persist, as certain investigators have maintained. In order to determine how frequently such bands may persist and become factors in the production of chronic intestinal stasis or other abnormal condition involving the abdominal viscera, it will be necessary to examine carefully a large number of young infants as well as fetuses at various stages of development.

Chapple, in a recent personal communication, reports having dissected twenty-eight fetuses without finding any bands of the type associated with "Lane's kinks" and chronic intestinal stasis. Professor Keith, of the Royal College of Surgeons, London, examined in my presence last fall fifteen fetuses, in three of which he thought there was a rudimentary band that might be a factor in producing stasis. I must say that I was not convinced of this, as the bands were not at all similar to those found in the adult static individual. Eastman, and other investigators, have found a larger proportion of these prenatal structures which have been thought to persist, in some cases, in the adult, giving rise to some of the disturbances in which the gastro-intestinal tract is concerned. It is not within the scope of this paper to discuss the weight of evidence concerning the theories proposed to account for the existence, in the fetus, of these abnormal structures. More study is necessary before a conclusion can be reached.

Inflammatory and Infectious Theory. The inflammatory and infectious bands may be classed as, (1) endogenic—resulting from peritoneal reaction from infection within the colon, and (2) exogenic—resulting from infections transmitted from some inflamed organ in the immediate vicinity. Prolonged or repeated mild infections of the peritoneal covering of the cecum and appendix, transmitted through the intestinal wall, are considered by Pilcher[12] as a causative factor in the production of these membranous bands. Gerster[13] assumes a reaction of the peritoneum to infection and chronic inflammation of the colon, in the form of "characteristic vascularized transparent membranes (pseudo-peritoneum), which take their origin along the external lateral aspects of the cecum, ascending colon and hepatic flexure on one side, and the sigmoid flexure, descending colon, and splenic flexure on the other."

Inflammation, undoubtedly, plays a part in the formation of some forms of the membranous structures found within the abdominal cavity, and hence in the production of intestinal obstruction of one kind or another. It seems to me, however, that all these formations are to be distinguished from those which Lane describes as being of mechanical or evolutionary origin. For, as Lane has shown, these acquired bands, which he calls evolutionary, commence at a point most distant from the intestine, gradually approaching and securing the bowel. Inflammatory bands, on the other hand, commence at the point of attachment, progressing away from this.

Mechanical or Evolutionary Theory. Of the various theories proposed to account for the structures under discussion, that of Lane is, to my mind, the most plausible, accounting, as it does, for a much larger proportion of the cases than does either the embryonic or the inflammatory theory.

In a recent communication,[14] in discussing the influence of alimentary toxemia upon the bony structures, Lane laid down the following three laws as governing the changes which take place in consequence of the altered mechanical relationship of the individual to his surroundings:—

(1) "That pressure produces changes in the structure and form of the bones and in the form and function of existing joints, while it determines the formation of new joints."

(2) "That strain produces change in the form of the bones, and in the form and function of existing joints, and also produces new joints."

(3) "That when, apart from the exercise of pressure or strain, it is important, from the altered mechanical relationship of the individual to his surroundings, that a mechanism should be modified or an entirely new one developed, such a change takes place."

These same mechanical principles, according to Lane, govern the soft parts of the body and modify their structure. Following this line of reasoning, he has applied these laws to the abdominal cavity, and in this manner has accounted for the development of the various adventitious structures which he associates with chronic intestinal stasis in the majority of cases.

The membranous adhesions between the outer wall of the colon and the abdominal parietes, as well as in other segments of the intestinal tract, which were noted by Lane in cases of chronic intestinal stasis, were interpreted by him as newly

developed accessory ligaments, serving to counteract the tendency to enteroptosis incident to the disturbed mechanical relations of the bowel consequent upon the assumption by man of the upright position. In other words, the origin of these bands about the ascending colon, hepatic and splenic flexures, sigmoid, and other portions of the gastro-intestinal tract is referred by him to the mechanical factors of chronic constipation and the upright posture. He holds that nature attempts to relieve the strain of the persistent enteroptosis, and that the dragging of the displaced bowel is offset, as it were, through hypertrophy of its membranous supports—"the crystallizations of resistance," "the crystallization of lines of force,"—a physiological response to a mechanical demand, which conforms to the three laws as stated by him.

The mechanical relations of the large bowel are impaired primarily by the overloading of the large gut and of that portion which serves more especially as the cesspool of the gastro-intestinal tract, the cecum and the ascending colon. The excessive distention of this portion of the tract results very largely from the erect or sedentary posture of civilized man. While the cecum and ascending colon have great difficulty in passing on their contents in the erect posture, the evacuation of the cesspool is very much facilitated by the assumption of the supine position. Through the changed mechanical relations of the bowel, intestinal surfaces not normally in contact come into apposition, with the result that more adhesions form and interfere further with the passage of material through the lumen already constricted at the flexures. Obstruction of the appendix due to its acquired abnormal fixation, is a very common concomitant of the alteration in the form and mechanical relations of the cecum, and Lane directs attention to the relationship of so-called "appendicitis" to the overloading of the cesspool or cecum.

Lane has pointed out that obstruction in the drainage scheme may occur, in the first place, at points of normal fixation; that, in the second place, the intestine may become kinked by acquired bands, etc., " which formed in the first instance by nature, with the object of facilitating drainage, may have later come to cause very material obstruction." He has also directed attention to the various sites in the length of the alimentary tract at which this obstruction may occur, the points of predilection being: (1) in the third part of the duodenum, at the commencement of the jejunum; (2) at different points along the terminal coil of the ileum; (3) in the ileo-cecal region, including the appendix; (4) in the region of the hepatic flexure and the first part of the transverse colon; (5) at the splenic flexure; (6) at the sigmoid loop; (7) in the rectum.

These various changes involving the large bowel are admirably shown in Fig. 1 (Fig. 43, *op. cit.*, Lane, p. 84).[15]

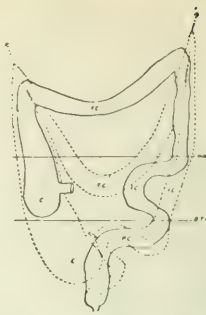


FIG. 1. Represents the several variations from the normal which the large bowel undergoes. The normal condition is shown as a firm outline, and the altered condition as a dotted outline. Note the prolapse of the cecum and transverse colon, the telescoping of the iliac colon and the elongation of the pelvic colon. (BTP) indicates the brim of the true pelvis. The hepatic and splenic flexures are drawn up and kinked by the development of acquired resistances shown by arrows.

I may say, in this connection, that in my own cases I have repeatedly verified many of Lane's findings, as I shall show upon the screen. It is often my practice, when operating upon patients whose condition has been shown, by the various diagnostic methods at our command, to be chronic intestinal stasis, to have an artist and a stenographer in the operating room. The artist, who is skilled in the recognition of anatomical conditions and the portrayal of these upon paper, sketches the conditions found in each case, taking accurate notes for purposes of identification. The stenographer notes the description of the condition and its treatment, as dictated by the operator. The finished drawings are then checked up by those who saw the operation. The pictures which I shall present, as verification upon the operating table of conditions portrayed by Lane in the diagrammatic sketches which I shall throw upon the screen, were made in the manner described. They have been selected from a large number merely as evidence of the existence of these bands, and as seeming to corroborate Lane's view with regard to the evolutionary nature of these structures.

"Jackson's Membrane" and Ileal Kink. Fig. II. (Fig. 32, *op. cit.*, Lane,[16] p. 25.) The tendency to displacement in the dilated cecum in a downward and inward direction is regarded by Lane as acting along the resultant of a parallelogram of forces. In order to oppose this tendency, resistances develop which correspond in position and action to the sides of the parallelogram. These lines of resistance, Lane maintains, "are crystallized first as bands, and later as distinct membranes, which as the outer limb of the parallelogram, connect the peritoneum lining the abdominal wall to the outer surface of the colon in its immediate vicinity. A larger area of abdominal peritoneum and of colon is gradually involved, and later still, as is the case in all

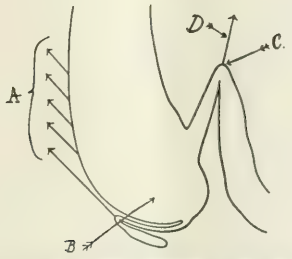


FIG. 2.—(A) Jackson's membrane, the lower part of which meshes the appendix. (B) The distended loaded cæcum. (C) Ileum kinked by band (D).

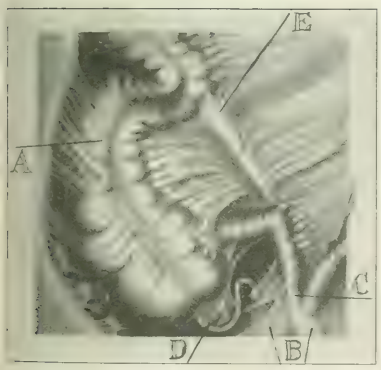


FIG. 2 *a*.—(A) Jackson's membrane. (B) Multiple Lane's bands. (C) Lane's kink. (D) Appendix caught in bands. (E) Thickened part of mesentery forming a strong band.

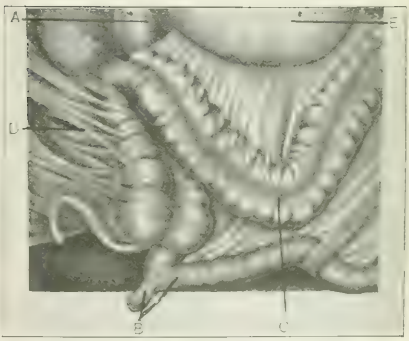
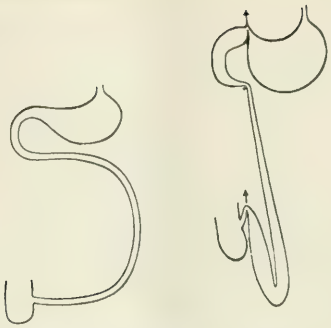


FIG. 2 *b*.—(From *B. M. J.*, Nov. 1, 1913.) (A) Dilated duodenum. Angulated duodeno-jejunal junction. (B) Lane's band and kink. (C) [illegible] (D) Jackson's membrane. E. [illegible]



FIGS. 3 and 4.—(1) Normal condition of stomach, small intestine and cecum. (2) The several changes which result from ileal obstruction.

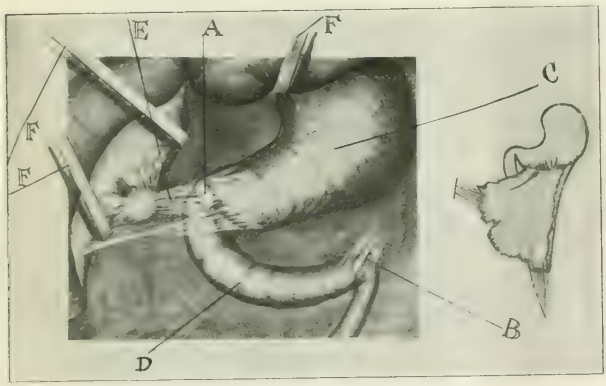


FIG. 4 *a*.—(A) Kinking at pyloric outlet. (B) Duodeno-jejunal kink. (C) Dilated stomach. (E) Bands to gall bladder. (F) Retractors holding up liver.

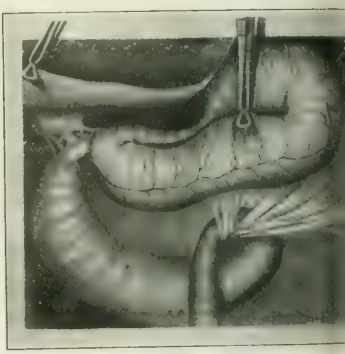


FIG. 4 *b*.—Another illustration of practically the s conditions shown in Fig. 4 *a*. Only more marked loop of jejunum thrown to the right.

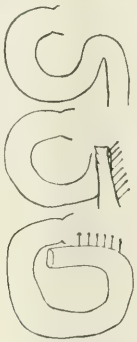


FIG. 5.—Normal curve of duodeno-jejunal junction.

FIG. 6.—Angulation of duodeno-jejunal junction produced by bands.

FIG. 7.—Nature's efforts, by the formation of bands, to prevent angulation.

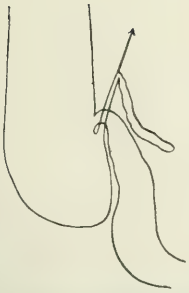


FIG. 8.—"Appendiceal Tie," with ileum kinked above by the appendix, and distended below.

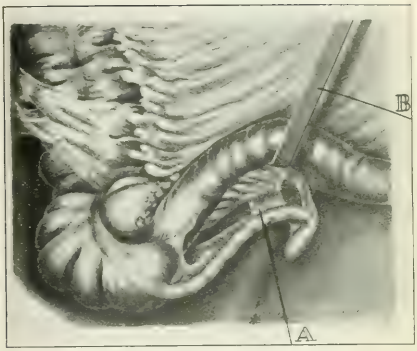


FIG. 8 *a*.—(A) Appendix caught up by band. (B) Retractor holding up ileum. When ileum is allowed to drop over appendix, the condition shown in Fig. 8 results.

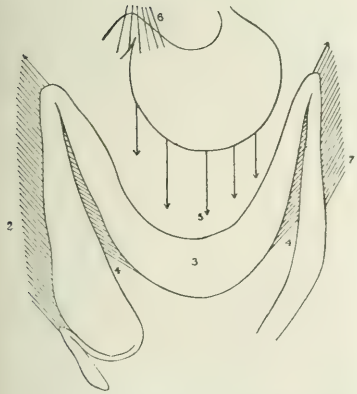


FIG. 9.—(1) Represents the prolapsed cecum; (2 and 7) the crystallized resistances which tend to oppose the downward displacement of the large bowel and sustain some of the weight of the transverse colon transmitted through the crystallized resistances (4); (3) the transverse colon; (5) portion of the weight of the transverse colon transmitted through the great omentum to the convexity of the stomach; and (6) the acquired ligament that secures the duodenum and pylorus to the under-surface of the liver and gall-bladder.

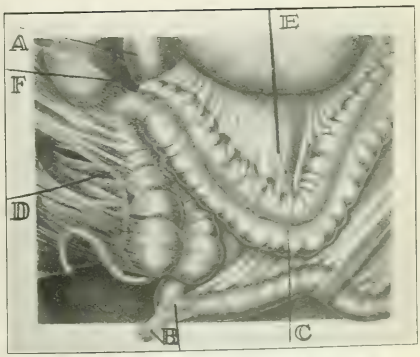


FIG. 9 *a*.—(From *B. M. J.*, Nov. 1, 1913.) Same as Fig. 9 *b*. (A) Dilated duodenum. Angulated duodeno-jejunal junction. (B) Lines band and stick. (C) Prolapsed transverse colon. (D) Jaboulay's membrane. (E) Portion of the weight of the transverse colon transmitted through the great omentum to the convexity of the stomach. (F) Acquired ligament securing duodenum and pylorus to under-surface of liver and gall-bladder.

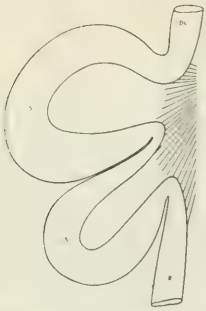


FIG. 10.—Fixation and obstruction of sigmoid.

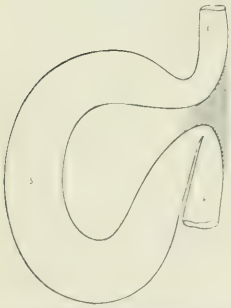


FIG. 11.—Diverticulum of sigmoid produced by constriction of two ends of loop of sigmoid.

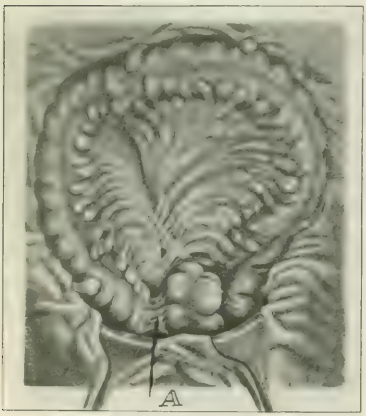


FIG. 11*a*.—(From *Medical Record*, Sept. 27, 1913.) (A) Band holding in approximation two ends of sigmoid loop, causing a diverticulum.

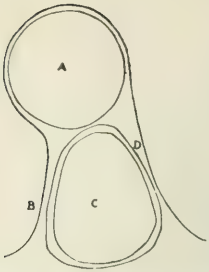


FIG. 12.—(A) represents the colon in transverse section; (B) the original mesentery; (C) the cystic ovary lying free in a cavity; and (D) the remains of the acquired adhesions.

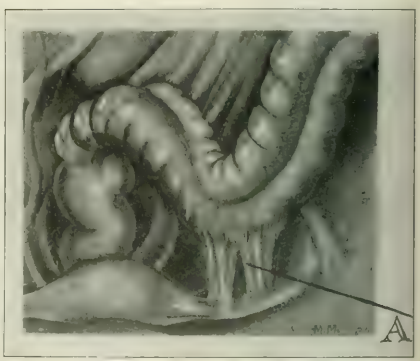


FIG. 12*a*.—(From *Medical Record*, Sept. 27, 1913.) (A) Band in which stump of tube and ovary is caught.

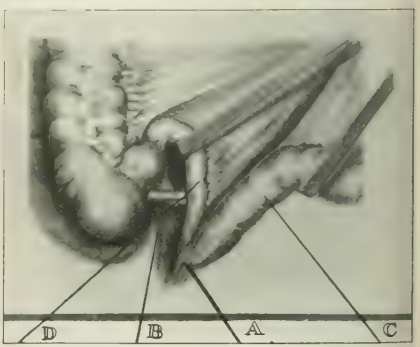


FIG. 13.—(A) Lane's band and kink. (B) Appendix caught behind. (C) Dilated and thickened ileum. (D) Collapsed and thinned ileum.

resistances which are crystallized in peritoneum, the bands are replaced by a layer of peritoneum which clings and tends to support the colon from the outside. As these bands and membranes develop, blood vessels form in them which later may become sufficiently large to require to be ligated if divided. This particular resistance when fully developed into a membrane, has recently been termed 'Jackson's membrane.' ''

The distended loaded bowel is here shown dragging upon the resistances evolved to oppose its downward displacement into the true pelvis. The resistances external to the cecum are indicated by an arrow showing the general direction of the strain exerted by bands, adhesions, and omental structures. The lowest of these secures the appendix, which is kinked. The effects exerted upon the ileum at its point of fixation by the weight of the loaded cecum on the one side of it and by that of the obstructed loop of the ileum on its proximal aspect, are shown.

Fig. II-a, from my own series, represents Jackson's membrane and the ileal kink. Fig. II-b, which will be presented again,[17] shows the appendix caught back in the parieto-colic membrane, in a fashion similar to that portrayed diagrammatically in Fig. II.

The "crystallized resistances of peritoneum" are not limited to the cecum, but may extend up along the outer aspect of the ascending colon, even to the hepatic flexure, as we have already seen.

Ileal Bands. The inner limb of this parallelogram of forces is represented, according to Lane, at an early period by opaque streaks on the under surface of the mesentery, attaching the last few inches of the ileum, and commencing at its base at a point most distant from the bowel. The reason for this development he considers obvious: "Besides retaining the end of the ileum in position, the mesentery assists through the medium of the termination of the small intestine in holding up the cecum and in tending to oppose its downward displacement." "In its earliest development," he says, "as is the case with most conditions which evolve during the lifetime of an individual, because of a variation from the normal in the relationship to his environment, the effect of this acquired ligament or mesentery is useful and physiological, but later, when it kinks and obstructs the lumen of the ileum, it exerts a progressively deleterious effect on the well-being of the individual."

When this state of affairs develops, the inner limb of the parallelogram of forces, according to Lane, is represented by the portion of the ileum distal to the kink, "by the contracting acquired membrane which creeps around the circumference of the bowel, and by the posterior layer of the mesentery to which the membrane is attached. The upper layer of the mesentery presents no change, as abnormal strain is not exerted along it, but through the under layer only. In these circumstances the portion of the ileum between the cecum and the attachment of the acquired ligament is made to perform the function of a ligament very much more than is the case in the normal arrangement."

In Figs. III and IV (Figs. 36 and 37, *op. cit.*, Lane, p. 30), respectively, are diagrammatically indicated: (1) the normal condition of the stomach, small intestine, and cecum; (2) the several changes which result from ileal obstruction. The part of the ileum just beyond the kink in the ileo-cecal region becomes dilated and drags upon the duodeno-jejunal junction, at which point a crystallization of lines of force takes place, with resultant kinking. The duodenum, as a consequence of this obstruction to its drainage, becomes dilated, throwing an abnormal strain upon the lesser curvature in the neighborhood of the acquired suspensory ligament with which nature has endeavored to forestall trouble. This ligament becomes crystallized into a "resistance," and finally a kink takes place at the pyloric outlet. These conditions are indicated in Fig. IV-a and Fig. IV-b, of my series.

Duodeno-jejunal "Resistances" and Kink. Figs. V, VI, and VII (Figs. 39, 40 and 41, *op. cit.*, Lane, p. 80) are further illustrations of possible duodeno-jejunal conditions. Fig. V shows the manner in which the duodenum usually terminates vertically at the root of the transverse meso-colon, where it is continued into the jejunum as a gentle curve. Fig. VI represents the kinking and twisting at the duodeno-jejunal junction as the result of the strain exerted by the jejunum, and the consequent obstruction to the effluent from the duodenum. The resistances which, as peritoneal bands, are developed to oppose this drag upon the jejunum and the obstruction of the duodenal outlet, are represented by the arrows. These bands, it will be seen, run upwards from the commencement of the outer aspect of the jejunum to the peritoneum lining the adjacent abdominal wall. Fig. VII represents nature's efforts to ward off angulation at the duodeno-jejunal juncture by the development of "resistances crystallized in membrane," fixing the jejunal loop so as to avoid kinking. Fig. IV-a of my series, shows the angulation. I happen not to have in my series one to illustrate Fig. VII.

Lane has repeatedly emphasized the far-reaching effects of obstruction at the duodeno-jejunal junction. The distention of the duodenum, the dilatation of its lumen and hypertrophy of its wall, the infection of the contents with alien organisms, the lowering of the vitality of the gut by auto-intoxication, vascular enlargement, varying degrees of inflammation, ulceration, possible perforation, possible cicatrization, and stenosis of this portion of the bowel, are some of the phases of this condition. In consequence of infection of the duodenal contents, the pancreatic and common bile-ducts, which open into the duodenum, are infected, resulting, according to Lane, in more serious affections of the pancreas and the liver.

"*Appendiceal Tie.*" In Fig. VIII Fig. 38, *op. cit.*, Lane, p. 31) is represented diagrammatically the mechanism of the "appendiceal tie," or the "resistance" when it forms part of the inner limb of the parallelogram of forces. The cæcum and ileal loops are both here shown to be distended with fecal contents, and as having fallen into the true pelvis. The end of the ileum is here shown as it hangs over the fixed portion of the appendix, which is secured by its acquired membrane or crystallized resistance (indicated by the arrow). The lumen of the ileum is thus diminished by this fixed portion of the appendix. The greater the drop of the cæcum, as it pivots on the fixed appendix, and the greater the dropping and distention of the ileum, the more complete does the obstruction by the appendiceal tie become. This, I think, is perfectly apparent.

In Fig. VIII-a, from my series, the appendix is caught up in such manner that when the ileum is not held up, as it is shown in the picture, it drops over the appendix, and becomes kinked in the manner shown in Fig. VIII.

"*Resistances*" *Which Involve Pancreas, Liver, Stomach and Large Intestine.* Fig. IX (Fig. 42, *op. cit.*, Lane, p. 35) represents the mechanism whereby the pancreas, liver, stomach and large intestine, as well as the small intestine, are involved in the development and crystallization of lines of resistance. In this diagram 1 represents the prolapsed cæcum; 2 and 7, the crystallized resistances which tend to oppose the downward displacement of the large bowel and sustain some of the weight of the transverse colon transmitted through the crystallized resistances, represented by 4; 3, the transverse colon, prolapsed; 5, portion of the weight of the transverse colon transmitted through the great omentum to the convexity of the stomach; 6, the acquired ligament that secures the duodenum and pylorus to the under surface of the liver and gall-bladder.

Fig. IX-a, of my series, represents these conditions.

Fixation and Obstruction of Sigmoid. Figs X and XI (Figs. 46 and 47, *op. cit.*, Lane, pp. 41 and 43, respectively) represent (1) fixation of the sigmoid loop, and (2) the production of volvulus by the approximation of the ends of the loop, by means of acquired adhesions.

Fig. XI-a, from my series, is an excellent illustration of the condition represented in Fig. XI.

The "Last Kink." The "last kink," which affects the large bowel where it crosses the brim of the true pelvis on the left side, is represented in cross section by Fig. XII (Fig. 48, *op. cit.*, Lane, p. 92). Lane attaches great importance to this obstruction, which develops early in life. The bands which cause this obstruction form on the outer surface of the mesentery of this part of the large bowel, and are, in his opinion, like all other acquired mesenteries and adhesions, the crystallization of lines of resistance to downward displacement. The ovary and Fallopian tube are often involved in these adhesions.

Fig. XII-a, of my series (from *Medical Record*, Sept. 27, 1913), shows adhesions between the stump of the ovary and tube and the sigmoid. The ovary had been caught in the adhesions, and had been removed before I saw the case. The adhesions re-formed about the stump, as shown in the picture.

Fig. XIII represents the findings in a case of marked chronic intestinal stasis, operated upon by Sir Arbuthnot Lane, the writer assisting, at the New York Polyclinic Hospital, Nov. 28, 1913. It shows a small "Lane's band," an ileal kink, the appendix caught up behind, a dilated ileum with much thickened wall, and the collapsed part of the ileum with thinned wall. At operation a non-vascular band was found angulating the terminal ileum and binding it down deeply in the pelvis. General visceroptosis. Duodenum dilated, extending almost into the true pelvis. Marked secondary evidence of static condition in other organs. Note the absence of Jackson's membrane and other bands.

From this categorical summary of Lane's exposition of the changes which take place, within the abdomen, in consequence of the altered relations brought about by the assumption of the upright posture, it seems to me that he makes out a very good case for his mechanical or evolutionary theory of the origin of all the adventitious structures which, in his opinion, play so important a part in the production of chronic intestinal stasis. It may be said, however, that much work needs yet to be done before any theory can be firmly established. We are only beginning to explore the field which he has opened to us. The establishment of the existence of these various structures takes us a long way. We have yet to determine more about their origin, and to follow the leads which he has given us with reference to the far-reaching effects of the conditions brought about by the development of these structures. The field, it seems to me, is one of the most alluring and promising which modern medicine and surgery present. It is certainly rich in promise for the many who, otherwise, would be doomed to more or less complete chronic invalidism.

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[15] *Op. cit.* Lane: Proceedings of the Royal Society of Medicine.
[16] Lane: *Op. cit.*
[17] See Fig. 9-a.

THE PROGNOSIS OF SARCOMA OF THE TESTICLE.

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and

Russell F. Sheldon, M.D. Boston.

It sometimes requires a personal interest to stimulate a real effort to find out the facts about a given surgical problem. Recently we operated on a case of sarcoma of the testicle and it happened that "the case" was an intimate friend of one of the writers. We had seen the tumor when it was quite small and had made a diagnosis of tuberculous epididymitis. This diagnosis was based on the fact that apparently the epididymis was involved and not the testicle proper, and that small nodules were present in the other epididymis and in one of the seminal vesicles. It was further substantiated by the presence of a quiescent tuberculous focus in the apex of one lung. Two prominent genito-urinary specialists confirmed the diagnosis and two tuberculosis specialists accepted the diagnosis without question.

These facts are mentioned because our further investigations showed that similar mistakes occasionally occur and that the reason is that the text-books usually state that sarcoma does not begin in the epididymis. We have found cases which show that this is not a fact.

Eventually the testicle was removed—nine months after the lesion was first noticed and when the tumor was the size of a small lemon. Fortunately we had begun to suspect sarcoma, and removed the entire contents of the scrotum from the internal ring down, without attempting exploration, which might have spread the disease. On section the epididymis and testicle were almost wholly replaced by the growth, a portion only of the testicle being compressed to one side. Nevertheless, the disease had not passed the tunica albuginea anywhere and was perfectly encapsulated.

Therefore on the whole the conditions were more favorable than usual, for it was fairly early, no obvious metastasis or local extension had taken place, and neither tapping nor exploration had been given their opportunity to spread the disease.

What are the chances for this patient?

Here is what prominent text-books say in regard to the matter. Watson and Cunningham say: "The operation to be of any value and to offer any hope of cure must be done early and must include the cord, the inguinal lymph nodes and also the deeper abdominal chain." Bevan in Keen's Surgery says: "The prognosis is bad. I have never seen a permanent cure, even after fairly early and complete castration." Bonney gives the most hopeful statement in regard to our patient. He says: "It is only when the tumor is still confined within the tunica albuginea that there is any hope of cure." Guiteras remarks vaguely but probably truly that the "prognosis depends almost entirely on the presence or absence of metastatic involvement of the abdominal glands." Greene-Brooks offers slightly more hope in saying that "early removal generally warrants a better prognosis than in most cases of sarcoma elsewhere."

In regard to origin, Watson and Cunningham say that the disease rarely begins in the epididymis. From other authors we gather little information that this is even a possibility. In all the books the classical differentiation is between tuberculous epididymitis, syphilis, and tumor.

A search of recent journal literature led us to two articles—real contributions, not advertisements. These were enlightening. Chevassu, after extensive pathologic study, became clinical and really looked up some cases to find out what did happen. In the first place he simplified the classification which had been so mysterious and confusing in the text-books, and practically reduced all tumors of the testicle to two,—the seminoma and the mixed tumor. Using these clinical classifications he gives us the results of his researches as follows:

Number of cases	100
Living four years after castration	19
Dead	81

That is, 19% of his cases were cured by castration. Of the 19 cured, 16 showed pathologically "epithelioma seminal," but only 3 were of the "mixed" type. He cites two cases in which additional dissection was done and the abdominal glands showing metastatic involvement, removed. He, therefore, demonstrated the practicability of the operation, but sufficient time had not elapsed to prove a complete cure. The greater the variation in tissue, the worse the prognosis. This certainly looks more hopeful for our patient, who is distinctly in the seminoma class.

The second article was by Ewing of New York, pathologist to Columbia.

This paper is a pathologic one and in brief reduces the pathologic classification still further, for in the end he shows us that all these testicular tumors, sarcomas, adenocarcinomas, teratomas, and all the wordy changes which have been rung on similar terms amount to this: That one and all are derived from the spermatic cells and like the cells themselves have

all possibilities of development short of a complete fetus.

Almost every tissue known in the body has been found in a testicular tumor—even a nearly perfect uterus. Thyroid glands, perfect teeth, bone, cartilage, etc., have been demonstrated; often several tissues in the same case. Usually, however, the epithelioid elements outgrow all the others and we have a simple large round-celled tumor, which one pathologist classes as sarcoma because it arises from a mesoblastic organ, and another calls alveolar carcinoma because of its cellular arrangement and appearances. Practically all testicular tumors contain some of this tissue, though sometimes it is outgrown by the teratomatous elements. When pure it is the common tumor which we call sarcoma or carcinoma and Chevassu calls seminoma.

We have undertaken to look up the cases operated on at the Massachusetts General Hospital in the last forty years to see whether our facts fit those of Chevassu.

Owing to the varied character of the nomenclature of the pathologic reports of our cases we have considered it best not to endeavor to separate the different forms and we simply accept the view of Ewing that all testicular new growths are essentially the same. During this period we find 80 cases, classified chiefly as sarcoma or carcinoma of the testicle. Sixty-three have reports of pathologic examination of the specimens removed at operation. In the cases of those without reports the clinical diagnosis was sarcoma or carcinoma.

Of the 80 cases we are unable to procure the end results of 16. It is hardly fair to suppose that all of these have died, since in the case of at least four of them registered mail has not been returned to the writers after over a month's interval.

Of the 64 known cases we can present the following figures:

Living and well	13
All operated.	
Dead from other causes	12
10 operated.	
Dead from disease	39
33 operated.	

This gives the mortality from the disease 61.9%. Excluding those not operated, in which the condition of the testicle was manifestly inoperable, or else discovered at autopsy in deaths from entirely different diseases, the mortality is reduced to 58.93%.

This is of course a large figure; but is it not much smaller than we have been taught to believe? Thus out of 56 cases operated, we find that 13 are living (average time after operation 9 yrs.; extremes 2 and 28 yrs.), and that 10 have died from something else (average time after operation, 10 years; extremes, 7 months and 26 years). That is, 23 or 41.07% of those operated survived the disease. If 8 unoperated cases and 12 cases operated on when metastases were evident are excluded, we find that 52.27% were cured. We must conclude, therefore, that the prognosis of sarcoma of the testicle, while bad, is not, when operated, so universally bad as text-books would lead us to infer. We, therefore, believe that the prognosis of our case is better than even.

Among our 64 known cases we find but one with the origin of the disease in the epididymis, but among the 16 the results of which were not traced, there are two of this nature. In these three cases the preliminary diagnosis was tuberculous epididymitis; in two the pathologic report was sarcoma; in the third there is no record of pathologic examination, but macroscopically the specimen was sarcoma. Ewing also has seen cases where the tumor arose in the epididymis.

We find that in 4 of the 64 known cases the testicle had not descended at birth, thereby confirming Odiome and Simmons in the belief that the undescended testicle is more prone to sarcomatous degeneration than the normally placed organ.

Let us show the figures in tabular form:

Living and well, 13.
Age, 24 to 57 years. Average 42 years, 9 months.
Pathology—Simple tumors, 12. No report, 1.
Duration of symptoms before operation, 5 months to 5 years. Average 20 months.
Period elapsed since operation, 2 to 28 years. Average 9 years.
Tapped, 3.

The only operation done was orchidectomy

Died from other causes, 12.
Age, 24 to 68 years. Average 49.
Operated, 10.
Simple tumors, 5.
No report, 7.
Duration of symptoms before operation, 2 weeks to 2 years. Average 7 months.
Period elapsed since operation, 7 months to 26 years. Average 10 years.
Tapped, 2.

NOTE: The two cases not operated; one death from diabetes, the other from chronic nephritis with uremia. Autopsies on both.

In the case surviving but seven months after operation the patient was burned to death. The next case in point of time survived three years, death being due to injuries received in a fall. The remaining cases all survived over five years.

Died from disease, 39.
Operated, 33.
Pathologic report—Simple tumors, 34 (1 autopsy).
Age, 5 to 65 years. Average 37.
Metastases—Evident, operated 2, not operated 10; not evident 21.
Tapped, 6.
Duration of symptoms before operation, 2 months to 6 years. Average 15 months.
Duration of life after operation, 3 days to 3 years, Average 10.3 months.

NOTE: There is one more report than operation since one case had autopsy in the hospital.

The significant points we think are as follows: Of the 33 operated cases which died from the disease, 21 had no sign of metastasis at operation, yet death occurred in all within three years. Only 12 showed metastasis at operation; in spite of the fact that in 2 of these additional dissection was done, all were fatal.

Our figures confirm those of Chevassu, which show that a patient is safe after the three-year limit.

On theoretical grounds we believed that tapping in these cases was contraindicated in that new paths for lymphatic infection might be opened up. From our statistics, however, we do not find this hypothesis to be borne out by the facts, nevertheless we think it is a procedure to be avoided.

Nearly every case gave a history of trauma: but we are not inclined to regard this as important in the etiology.

In two of the cases in the group of "Dead from Other causes" we find skin ulceration at time of operation. We therefore take exception to the statements about the hopelessness of those cases with extension beyond the tunica albuginea. One of these had a pathologic report of sarcoma, but in the other there was no report.

The radical operation, as advised by Watson and Cunningham and Chevassu, has not been done at the Massachusetts General Hospital. Whether had this been attempted, some of the 21 cases who died within three years in spite of no evident metastasis at time of operation, might have lived, is, of course, a question. In our case, in which the growth was still confined within the tunica albuginea, no further operation was done; but had the growth penetrated this structure, we believe further dissection would have been justified.

From 21 cases in which the location of metastases is mentioned, we find the following facts:

In abdomen alone	13
" abdomen and lung	1
" neck and liver	1
" axillae and abdomen	1
" lungs	1
" spinal cord	1

The great majority, therefore, show abdominal metastasis, and might be helped by a removal of the retroperitoneal glands.

Dec. 23, 1913. One patient has no sign of recurrence at present date. Operation Jan. 15, 1913.

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HAVE THE EARLY CLAIMS OF SALVARSAN BEEN REALIZED?*

By C. Morton Smith, M.D., Boston.

The extravagant claims which were made for salvarsan, on its introduction into the small group of specific remedies, are well known. To what extent are these claims being realized?

Organic arsenical compounds had been used at various times in the treatment of syphilis and skin diseases, as well as sleeping sickness. Some of the preparations were found to be dangerous, notably atoxyl, the use of which was frequently followed by total blindness due to a primary optic atrophy. With these results fresh in mind many cautioned against the use of arsenobenzol lest it, too, should prove to be neurotrophic.

In the light of experience with salvarsan, and its later modification, neosalvarsan, is there any real danger to the cranial nerves, and what are the contra-indications? My personal experience covers 37 months, during which time I have had to do with between 3000 and 3500 injections, all of which, with the exception of a very few at the outset, have been given intravenously.

Salvarsan should be administered as soon as a positive diagnosis can be made. In lesions uncomplicated by pus organisms, it is often possible to demonstrate spirochaetes very early with the dark stage microscope or the India ink method; it is more uncertain with stained specimens. Failing to find the organisms, the Wassermann test is usually positive by the end of the fourth or fifth week, sometimes earlier. Salvarsan injected before the appearance of secondary eruptions prevents or retards their occurrence. It is during the primary and early secondary stage that we believe the disease most curable. I have seen a small number of apparent cures follow a single injection of salvarsan, but we no longer expect this, therefore the injection is repeated in five to ten days and again in two or three weeks, and afterward as the case demands; usually from four to eight injections of salvarsan are given. Mercury, preferably by intramuscular injection, should be used to supplement the salvarsan, and the effect of treatment measured by the Wassermann reaction.

There is no doubt as to the value of such intensive treatment, and when given during the primary or early secondary stage, a negative Wassermann should be possible at the end of six to nine months, after which blood tests should be made two or three times a year for the next few years, resuming treatment should the test become positive. Many cases so treated still show negative tests.

When, for any reason, the treatment is delayed beyond the primary stage, it is more diffi-

* Read at a meeting of the New England [illegible] Society, Massachusetts General [illegible], November [illegible], 1913.

cult to bring about a speedy serologic change. This is probably due to the fact that the germs are widely disseminated; have become more or less encapsulated, or walled off, by inflammatory products, and are not reached by the remedy. Iodide of potash is of value in such cases on account of its absorptive action on these inflammatory products, not being an active spirillicide.

It is the opinion of most syphilographers that mercury has not been displaced and that a combination of salvarsan and mercury in the treatment of syphilis is more effective than either alone. Wechselmann, on the contrary, cautions against this and is inclined to attribute some of the accidents that have occurred to this combined method.

In general the early manifestations of syphilis are a menace to the community, while the late lesions are dangerous to the individual from damage to the nervous or circulatory system. Primary and secondary lesions heal promptly under salvarsan, and as these are the common sources of infection much is done in preventing contagion. Chronic papular eruptions of palms and soles are especially resistant to mercurial treatment. These yield promptly to salvarsan. This drug is also more active than mercury in changing the Wassermann reaction from positive to negative. We know that many cases considered cured with mercury and thought to be immune, now give positive blood tests, showing they are still syphilitic. We believe the use of salvarsan materially shortens the course of treatment, thereby making possible an earlier marriage and healthy children.

Desirous of improving his invention, Ehrlich continued his experiments and the 914th combination is sold under the name of neosalvarsan. It is supposed to be less toxic and makes a neutral solution ready for use by simply dissolving in sterile water at room temperature and is said to oxidize quicker than the old preparation. It is much less irritating to the tissues in case of extravasation and has no apparent effect on the lining of the veins. The same vein can be injected over and over, which was not always possible with the old preparation. It requires .9 gm. of neosalvarsan to equal .6 gm. of salvarsan. On account of the greater ease of preparation, neo possesses a distinct advantage. Moreover, patients are less likely to have reaction following the injection, and when it does occur is usually several hours later than with salvarsan.

Is there any material difference in the therapeutic effect of the two preparations? Fordyce thinks neosalvarsan less efficient than an equivalent dose of salvarsan and also that it is more likely to produce skin eruptions. The latter has not been our experience. Ravogli believes one injection of salvarsan equal to two or three injections of neosalvarsan. He has also seen fewer toxic symptoms after its use. This is not in accord with general opinion. Howard Fox considers the symptomatic action of neosalvarsan is slightly less than salvarsan, while its serologic action is considerably less than the older preparation. However, it is not as disturbing to the vein. Trimble, after careful observation of 300 cases, failed to see much difference in the effect of the two remedies, and the simpler technic and less irritating qualities of the neosalvarsan make it superior to the older preparation. I am inclined to coincide with Trimble's conclusion.

Whitehouse found that in all cases of syphilis of the skin or mucous membrane, whether primary, secondary or tertiary, the lesions healed as promptly and surely after neo as after salvarsan. With this I am in perfect accord. Serologically he found both more effective in primary and secondary than in tertiary cases. However, he obtained 20% more permanently negative Wassermanns from the use of salvarsan. None of these cases received combined treatment with mercury. Schamberg has used an intra-gluteal injection of .1 gm. salvarsan or .15 gm. neo weekly to supplement intravenous injections of salvarsan or intramuscular injections of gray oil. The salvarsan is suspended in 1 or 1½ c.c. of sterilized petroleum oil with a half minim of beechwood creosote. This can be put up in ampules and used like gray oil.

Salvarsan is responsible for a relatively small number of deaths. Some of the fatalities occurring after its use should not be charged to it. I refer to cases where the drug was employed as a last resort, the patient being past all reasonable chance of help and dying in spite of the drug—not on account of it. In April, 1913, Finger stated that 142 deaths had been reported. At autopsy many of the fatal cases have shown a hemorrhagic encephalitis, acute nephritis or enteritis causing death within a few days. Finger also cites 34 cases of encephalitis, of which 9 recovered. He states that these cases are due to the toxic action of salvarsan as confirmed by experimental research. When one considers the vast number of injections that have been given during the past three and a half years, many by men who have been syphilographers only during that same period, the wonder is that fatalities have been so few. With ordinary care in selecting cases the administration of salvarsan should carry about the same or less risk than chloroform anesthesia. There have been no deaths from the drug among our patients, nor have I seen a reaction I would not endure were I in the same condition. A very few patients have felt faint or experienced a sense of discomfort about the chest during the injection, symptoms suggesting mild anaphylaxis. These manifestations have lasted from a few seconds to a few minutes. In no case which showed these symptoms was there a possibility of the introduction of air. A neurotic young woman, syphilitic ten years, had received two intravenous injections of salvarsan with no particular reaction; when about half through the third injection she complained of smarting of her right eye and thought the nurse had held smelling salts too near. Soon there

was evident edema, first of the under, then the upper lid and conjunctiva, followed by the same condition in the left eye; and chemosis became so great as to entirely cover the iris. Dr. Quackenboss saw her at the time and found no changes in the fundus. The swelling disappeared under cold compresses and was evidently a neurotic edema.

Reactions are more frequent in nervously sensitive persons, patients in the florid stage and those who have not taken mercury. Occasionally transient erythematous rashes occur upon the skin, probably of arsenical origin. Existing syphilitic eruptions not infrequently become brighter soon after an injection of salvarsan. This is the so-called Herxheimer reaction and occurs most often in florid cases, supposed to be due to the slaughter of large numbers of spirochetes and consequent rapid liberation of endo-toxines. Chills, fever, nausea, vomiting, diarrhea, etc., that sometimes follow the injection have been laid to the use of aged water in preparing the solution. We use only water both freshly distilled and sterilized, but still see an occasional reaction. Last year we kept sterile saline solution at room temperature from March to December, and Dr. Bell of Prof. Folin's laboratory reported neither bacterial nor chemical change.

The early contra-indications were heart and kidney disease, optic atrophy and general weakness. We have given salvarsan in valvular heart disease many times, modifying the dose to suit the patient. There have been a number of cases of syphilitic aortitis and myocarditis treated, with no untoward results and some have shown a decided improvement. A nephritis, unless it be of syphilitic origin, should still be looked upon as a contra-indication. Corlett has recorded a case of acute arsenic poisoning which he ascribes to faulty elimination. The patient showed nothing after the first injection of .6 gm. The following week he received .9 gm, and three days later returned with typical symptoms of arsenical poisoning and subsequently had paralysis of the bladder, rectum and lower extremities lasting four months. The patient's weight is not given. It is our practice to graduate the dose according to weight.

What are the dangers to the cranial nerves?

For a year and a half we have had a routine examination of the eyes of all patients at the Dispensary before the administration of salvarsan and a record kept of refractive errors and fundus changes. From July 1, 1912, to July 1, 1913, 606 injections were given and 4 cases showed the same subsequent changes, *i.e.* vitrious opacities and a neuro-retino-choroiditis. In these cases only one eye was affected, whereas after atoxyl both were involved, and total blindness followed a second injection, while our cases that have received subsequent salvarsan treatment promptly, have improved without exception. Dr. McAdams, who has examined many of the cases for us is convinced the changes were due to the disease and not to arsenic. Furthermore, since the treatment has been more energetic none of these accidents have occurred. Fordyce has lost all fear of salvarsan having any predilection for the optic nerve. Moreover, he has used the drug in several cases of optic neuritis with benefit. We have had the same result. He cites a case of advanced optic atrophy where ten injections of salvarsan had been given with marked improvement in vision and enlargement of the visual field. We, also, have given the drug in a few cases of optic atrophy with no untoward results.

Ruggles reports a girl of 22 with almost complete loss of vision in both eyes following iritis and optic neuritis. Her sight became normal after the fourth injection of salvarsan.

In talking with several ophthalmologists I have yet to learn of a single instance where salvarsan has caused trouble with the optic nerve.

In regard to the auditory nerve, Fordyce states that no cases of auditory neuritis have occurred in his practice, but he has seen several cases of involvement of the auditory apparatus in secondary syphilis where no salvarsan had been given. Ravogli has seen two cases of deafness, both of which he believed due to the disease and not to the treatment. At the dispensary we have had no routine examination of the ears. That sudden deafness due to syphilis occasionally occurs during the secondary stage of the disease was well known before the advent of salvarsan. In 1897 Dr. E. A. Crockett of this society collected and reported between fifteen and twenty cases of this character, one of which came on without treatment and one while under energetic mercurial and iodide treatment, deafness being due to a specific labyrinthitis. Two of the cases he reported occurred in my practice. Both were early secondary cases and both recovered practically normal hearing under pilocarpine and energetic mercurial treatment. The onset was sudden and total deafness followed, rapidly accompanied by tinnitus, virtigo, and temporary facial paralysis.

The symptoms and conditions are almost identical with the cases that have occurred after salvarsan. During the past three years I have seen three cases of deafness, two in my own practice and one a patient of Dr. Post. One of my patients does not properly belong in this group, as his disease was contracted in 1905 or 1906. His last 606 was in November, 1912. Wassermann Test was negative in February and again just before his deafness came on in April of this year. He now tells us of getting an electric shock from a telephone receiver a day or two before the deafness came on. His hearing is gradually improving. The Wassermann test in October, 1913, was still negative. The other two cases occurred within six months of infection. One remained unilateral, the other came first in one ear, then in the other. Both had a labyrinthitis and both a temporary facial paralysis. I believe now that both should have received en-

ergetic salvarsan treatment at once. Dr. Post's patient had one injection of salvarsan, while mine had two injections of neosalvarsan a month apart. There have been other cases in this city of the same sort, undoubtedly due to the disease. It is the general belief that the neuro-recurrences or nervous relapses are due to the syphilitic process in a very large proportion of the cases,—if not all.

However, Finger believes some are due to arsenical polyneuritis. He claims the tardy neuro-recurrences have an incubation period of two or three months and occur almost invariably in patients who have been treated with salvarsan at the end of the primary or early in the secondary period, when the system is flooded with spirochetes. He thinks it plausible to assume that the spirochaetes are then leading a saprophytic existence on the meninges and doing no harm until the toxic action of salvarsan is felt, especially on the capillaries. With normal resistance thus reduced, the spirochaetes can exert their malign influence on the tissues. Insufficient treatment thus favors the neuro-recurrences, but energetic combined treatment may not absolutely prevent them.

It is claimed that arsenic from intravenous injections is not found in the cerebro-spinal fluid, therefore it cannot be relied upon to accomplish as much in syphilis of the brain and cord as intra-spinous injections, according to the experience of Flexner in his work on meningitis. Salvarsan, even in weak solutions, cannot be injected into the canal. The work of Noguchi in demonstrating spirochaetes in the brain tissue of paretics and the successful inoculation of rabbits with the cerebro-spinal fluid from tabetics, shows conclusively that to be effective the spirillicide must reach the spinal canal. Work has been going on along this line for some time, using the salvarsanized serum injected into the canal; usually the patient's own serum is utilized. Improvement, both as regards clinical symptoms and laboratory tests, have generally, or often, followed the employment of this method. Whether it will be possible permanently to arrest the progress of syphilitic disease of the nervous system by this means, time alone will tell.

Conclusions:—

1. The early hope of curing syphilis with a single massive injection of salvarsan has not been realized.

2. It is a potent remedy in healing all manifestations on the skin or mucous membranes.

3. It is more efficacious than mercury in changing a positive to a negative Wassermann reaction.

4. Its prompt action on early moist lesions has a decided effect in limiting the spread of contagion.

5. The early fears of damage to the cranial nerves appear to be groundless.

6. When given in proper amounts at proper intervals it is practically devoid of danger.

Clinical Department.

A CASE OF STRANGULATED RETRO-PERITONEAL HERNIA OF THE SMALL INTESTINE INTO THE PARA-DUODENAL FOSSA.

BY LINCOLN DAVIS, M.D., BOSTON,

Assistant Visiting Surgeon, Massachusetts General Hospital.

ABOUT midnight of July 14, 1913, I saw, in consultation with Dr. M. Sturnick of Dorchester, a man presenting the symptoms of acute intestinal obstruction. The provisional diagnosis of volvulus was made, and he was recommended for immediate admission to the Massachusetts General Hospital. He entered the accident department of the hospital at 2.40 a. m., July 15, 1913, Hospital No. 190151. The following history is taken largely from the hospital records:

B. V. Age 48. Married. Born in Russia. Tinsmith. Entered Massachusetts General Hospital, July 15, 1913, at 2.40 A. M.

P. H. Has always been well except for one attack six years ago of acute abdominal pain with vomiting, lasting six days. Has been troubled with gas in stomach and discomfort two to three hours after eating, since then. Relieved by soda bicarbonate. Bowels regular. Micturition normal.

P. I. At 3 P. M. yesterday began to have pain in region of umbilicus. Had eaten canned salmon two hours before, and thought it indigestible. Pain severe at onset but soon became less severe for a short time. Vomited several times. Bowels moved normally yesterday morning. Small loose movement one and a half hours after onset of attack. For last few hours pain has increased in severity and become continuous. No result from low enemata. Morphia and atropin given by patient's physician. Temperature 97.6. Pulse 88. Respiration 22.

P. E. Well-developed and nourished man in considerable pain. Pupils normal. No adenopathy. Throat negative. Tongue, moist white coat. Heart and lungs nothing abnormal made out.

Abdomen full, markedly distended and tense, loud tympany throughout. No dullness or signs of fluid. Board-like rigidity of whole left side of abdomen. Spasm somewhat less on right. Moderate general tenderness, most marked to left of umbilicus. Pressure on left side of umbilicus causes pain referred to region of umbilicus. No costovertebral tenderness.

Rectal Examination. Rectum balooned. No tenderness. Extremities and reflexes normal. No herniae. Leucocyte count, 20,500.

Patient sent to ward, and given high M. G. W. enema without result. Patient's condition at this time became rapidly worse and operation was decided upon without further delay.

Operation. Four-inch median abdominal incision below umbilicus, discloses bulging retroperitoneal tumor, size of a football lying mostly to the left of the median line, extending into flank and up to epi-



gastrium. Transverse colon passed across upper portion of mass. Incision enlarged above umbilicus. Parietal peritoneum incised with escape of considerable turbid, bloody fluid. Trocar was then inserted, entered a loop of bowel, drawing off a little gas. The incision in the posterior parietal peritoneum was then enlarged and a large mass of distended, plum-colored small intestine delivered. Trocar wound in intestine closed with double layer of linen sutures. After a puzzling search, the point where the ileum emerged from the retroperitoneal pouch was found. This was close to the point where the duodenum emerges from under the mesocolon (fossa duodeno-jejunalis) leading to left. Large vessels passed over this opening, probably inferior mesenteric vein. The bowel was found adherent to the edge of the opening, these adhesions were freed. At this point the bowel wall was thickened, deep red in color, but distinctly viable. This part of the bowel was about one to two feet from the ileocecal valve. This short distal portion was collapsed and empty. All the remainder of the ileum and the entire jejunum lay in the hernia sac. With considerable difficulty, inch by inch, the herniated intestine was pulled through the opening, the last portion being difficult on account of distention. The hernial ring could not be enlarged on account of large mesenteric vessels which ran close to its edge. No attempt made to close hernial opening on account of alarming condition of patient. Intestine pressed back into peritoneal cavity with difficulty and abdominal wall closed with through-and-through sutures of s. w. g. Dry dressing. Skultitis. Patient to Ward D. in poor condition.

Patient failed to respond to stimulation and died at 9.10 A. M. No autopsy.

The above case, on account of its rarity and very serious import, is worthy of record.

Moynihan has published a monograph on the subject of retroperitoneal hernia, giving a very complete history of the subject, with full reference to the literature. He describes nine fossae in relation to the duodenum.

1. Superior Duodenal Fossa.
2. Inferior Duodenal Fossa (Fossa of Treitz).
3. Para-duodenal Fossa (Fossa of Landzert).
4. Mesenterico-parietal Fossa (Fossa of Waldeyer).
5. Mesocolic Fossa.
6. Posterior Duodenal Fossa.
7. Duodeno-jejunal Fossa.
8. Inter-mesocolic Fossa.
9. Infra-duodenal Fossa.

The first five are the commoner fossae, the last four being very unusual.

As to the origin of folds and fossae, Moynihan sustains the view of Treitz, that they are traction folds, the result of dragging of the intestines in the developmental change of position.

In this case the fossa involved seems to correspond to the description of the para-duodenal fossa, or fossa of Landzert. The opening of this fossa is bounded in front by the plica venosa, which consists of the inferior mesenteric vein arching over to join the splenic vein. It is usually accompanied by the left colic artery. The accompanying illustration is a diagrammatic representation of the appearance of the mass upon opening the abdominal cavity.

Moynihan records 65 cases of left duodenal hernia and 17 cases of right duodenal hernia. These herniae are found at all periods of life, the youngest is that of a case recorded by Brösieke, in which the patient was fourteen days

old. Moynihan concludes that the hernia is often congenital.

Under favorable circumstances it is possible to make a probable diagnosis during life. Leichtenstern says: "The circumscribed globular distention of the mesogastrium with retraction of the region corresponding to the colon; the firm, elastic, spherical lump which can be distinctly felt when the abdominal wall is thin, giving the impression of a large, somewhat movable cyst and extending from the mesogastrium to the left; the peculiarity that this well defined tumor always yields a sonorous note on percussion and clear intestinal sounds on auscultation, also the presence of hemorrhoids and the loss of blood from the rectum in consequence of the compression of the inferior mesenteric vein, permit, when taken in connection with the subjective troubles indicating chronic disease of the abdominal organs, a probable diagnosis to be made."

Again to quote Moynihan: "So far as the symptoms of the hernia are concerned there is little to be said. They may be slight or they may be the sudden symptoms of acute intestinal obstruction which swiftly strike the patient down. In a number of carefully recorded cases, the history of chronic slight digestive or intestinal troubles is usually obtained. The treatment is operative. A number of successful cases have been recorded, namely, by Sonnenberg, Tubby, Priestly Leach, Narth, Habern, Lawford Knaggs, McArthur and Sherren in left duodenal hernia, and Neumann in right duodenal hernia.

"In the majority of cases the mass of the intestines was easily withdrawn from the hernial sac. That this is possible is fortunate, as the neck of the sac cannot be enlarged without dividing the inferior mesenteric vein. This, of course, is out of the question."

Moynihan says that "If the strangulated gut can be drawn out of the sac, the sac should be opened through an incision on the outer side of the vein, the intestines withdrawn, incised in one or more places and emptied of its contents. The incision in the gut must be closed with sutures. It would then be a very easy matter to replace the emptied coils of the intestines and withdraw them through the neck of the hernia. It is desirable to close the neck of the sac by sutures after the hernia is reduced. This is sometimes very difficult."

In reviewing this case it is evident that the correct preoperative diagnosis should have been made, as all the signs of intestinal obstruction were present, together with a distinct globular, tympanitic, tender tumor, lying to the left of the median line, high in the abdomen, as described by Leichtenstern.

As to the treatment, the earlier operation is resorted to the better. The manipulation necessary to reduce a considerable length of incarcerated intestine is necessarily productive of shock. Multiple punctures of the distended coils I believe would greatly facilitate the procedure. Personally, I feel that in another case I should know where to look for the orifice of the sac, and thus be able to save considerable time. When the mesenteric vessels pass close to the edge of the neck of the sac, as was the case in this instance, its division is, of course, out of the question. The condition is always a very serious one and when strangulated will necessarily carry a high mortality.

Medical Progress.

REPORT ON MENTAL DISEASES.

BY HENRY R. STEDMAN, M.D., BROOKLINE, MASS.

TREPONEMA PALLIDUM IN THE BRAIN IN CASES OF GENERAL PARALYSIS.

THE fact of this recent discovery is already well known, the particulars are as follows:

Noguchi and Moore[1] examined seventy paretic brains, and succeeded in finding the Spirochaeta pallida in twelve cases. The area chosen for examination was usually specimens of brain tissue from the right frontal sphere, but occasionally from the left hemisphere. The twelve positive cases were clinically undoubted cases of general paresis, but of a rapid course. The longest in duration lived only thirty months. The post-mortem appearance, both macroscopical and histological, were the typical lesions constantly associated with general paralysis. No softening, gummata, or marked endarteritis were found. Ten were men, two were women, and five cases were of the tabetic type. The method used for staining was a modified Levaditi silver method, the technique of which the authors do not give. The spirochaetes were found in all layers of the cortex except the outer layer: occasionally they were found subcortically, they were never demonstrated in the vessel sheath, and did not have any particular relationship to the vessels; in the pia no spirochaetes were found. Noguchi and Moore found no ratio between the numbers of spirochaetes and the severity of the paresis, although in one case in which they were most numerous the paretic changes were very marked. They conceive it is possible that the spirochaetes will be found more readily in cases which run a fairly rapid course.

THE SPIROCHAETA PALLIDA IN THE BLOOD OF GENERAL PARALYTICS.

Levaditi[2] has undertaken the investigation of the question whether syphilitic infection in general paralytics is limited to the brain or if it is diffused through the blood and the various organs with accidental localization in the cere-

bral cortex. On November 10, 1913, he read before the Académie des Sciences the results of his researches in collaboration with Dr. Danulesco. The blood of a general paralytic at the third stage, syphilitic fifteen years, was inoculated into the scrotum of a rabbit; at the end of 127 days there was a bilateral scrotal lesion. Ultramicroscopic examination showed many characteristic mobile spirochaetes. The striking feature is the persistence of the parasite in the blood long after the beginning of syphilis—fifteen years. Levaditi and Donulesco had had only one positive result in six trials (five paralytics and one tabetic). It seems, then, that the germ does not exist constantly in the general circulation. Perhaps it appears there only intermittently during the phases which precede or accompany the cerebral manifestations.

GENERAL PARALYSIS WITHOUT REACTION OF THE CEREBRO-SPINAL FLUID.

Demole[3] reports a pronounced case of general paralysis in a man of 44 in which there was a uniform absence of any alteration in the cerebro-spinal fluid. The prodromal symptoms were of six years duration and the probable date of syphilitic infection very much earlier. Apoplectiform attacks, twitching of the facial muscles, unequal and sluggish pupils, exaggerated knee-jerk, extreme affective indifference and intellectual deterioration marked the beginning of his stay in the hospital early in 1913. The disease rapidly progressed, pronounced and characteristic ideas of self-importance, grandeur and wealth predominated and he became absolutely disoriented for time and place. His speech became slow, stammering, slurring and explosive, his handwriting shaky, slovenly and sometimes illegible. The pupillary changes became more marked, his memory defect evident and the fibrillary tremor of the tongue extreme.

Three lumbar punctures were made at intervals of a month with practically the same result in each instance. The cerebro-spinal fluid was invariably clear and crystalline and the tension high. The globulin on the first two punctures was double and on the last less than one-half the normal limit by the Nonne Apelt method and the Szcesi tube—Lymphocytes: 1.9 to 0.5 c.mm. and only faint traces of opalescence on boiling. At each test the Wassermann of the cerebro-spinal fluid was negative and that of the blood was uniformly and strongly positive. During the period covered by the punctures the disease progressed rapidly. Errors of technique are shown to be plainly excluded and the cerebro-spinal fluids of the other general paralytics examined at the same time by the same method and the same solutions gave unmistakably positive results. He regards these paradoxical findings in general paralysis as on a par with examples of the appearance and disappearance of the Wassermann in the course of syphilis, variations formerly considered by some as vital discrepancies the true significance and value of which we only today know how to properly appreciate.

TREATMENT OF GENERAL PARALYSIS BY INTRASPINAL INJECTIONS.

Flexner[4] writing on the local specific therapy of infections notes the fact long regarded as notable that notwithstanding the origin of tabes and paresis from syphilitic infection those diseases respond so little favorably to antisyphilitic measures of treatment. Partly for this reason and partly because of the characters of the pathologic changes, they have been separated off from the typical varieties of syphilis and placed in a special category of metasyphilitic or parasyphilitic affections, so called. Now that the *Spirochaeta pallida* has been shown by Noguchi to occur in numbers in the brains of paretics and has never been found in the spinal cord of tabetics, this classification calls for complete revision.

In the meantime how is the disparity in therapeutic response of these affections to be explained? First, there is growing evidence that salvarsan, injected into the blood, may exert a beneficial influence in tabes, but not in paresis. The evidence is derived partly from clinical improvement and partly from the reductions in the cellular and protein contents of the cerebrospinal fluid, and the diminution of the Wassermann reaction. These changes are in accord with the inconstant and fleeting presence of arsenic in the fluid following the intravenous, but not the intramuscular, injection of the drug. Hence it would appear probable that better results might be accomplished provided the drug could be brought with certainty and in suitable concentration into this fluid. Such a method of application, worked out by Swift and Ellis, offers considerable promise of high therapeutic value.

The lesions of the spinal cord in tabes and the clinical symptoms are dominated by pathologic states of the meninges. It is known that in most cases of the disease the cerebrospinal liquid contains the products of irritative or inflammatory conditions existing within the membranes; and microscopic study has revealed areas of chronic meningitis about the radicular portions of the spinal and corresponding portions of cranial nerves. To reach the pathologic processes in the membranes, not in tabes only but in paresis as well, is peculiarly difficult because not only do we have to reckon with the ordinary conditions of impenetrability of the meninges, but there often coexists also an obliterative arteritis of syphilitic origin.

It is not safe to introduce salvarsan directly into the subarachnoid space, and while neosalvarsan, because of its ready solubility, is less injurious, yet the direct injection of that drug is attended with certain risks. Swift and Ellis have taken advantage of the circumstance

that the blood of salvarsan-treated tabetic patients is itself curative, and they have employed the corresponding serum, suitably diluted, for intraspinous injection. The results are both promising and striking. The local irritative condition in the meninges becomes quickly diminished, the Wassermann reaction reduced or abolished and the clinical state of the patient improved. These effects follow even when the salvarsanized blood of other persons is employed for intraspinal injection. They are due, therefore, to the local and not to general treatment.

Nothing less than a careful and thorough trial can determine the applicability of this method to the treatment of paresis. Certain theoretical facts, however, stand well in the foreground. It is known for example, that the cerebrospinal liquid provides a means of direct and immediate contact with the structural tissues of the brain. Whatever chemical is introduced into this liquid will inevitably find its way to the supporting elements, the nerve-cells and fibres of the cortex in which the main lesions of paresis are situated. It is in the cortex likewise that the *Spirochaeta pallida* has now been found, from which it follows that this organism can be best brought under the influence of curative agents through the same channel of communication.

Prediction as to whether or not a direct specific treatment will accomplish the eradication of the spirochaetes in paresis is hazardous for the reason that it remains still to be ascertained whether the spirochaetes which have persisted in the brain are normal or resistant strains. Their persistence for so long a period and resistance to the ordinary healing drugs may, conceivably, be due not alone or wholly to their inaccessibility, but also, more or less, to the acquisition of a state of fastness which, if present, may prove difficult to overcome.

The anatomic conditions existing in paresis are comparable to those occurring in sleeping-sickness and poliomyelitis. In all three diseases numbers of lymphoid cells accumulate within the perivascular lymphatic spaces and degenerations occur in the nerve-cells. Just as the spirochaetes occupy in the cortex in paresis and the trypanosomes in sleeping-sickness, so does the virus of poliomyelitis reside in the tissues of the spinal cord and brain. We have already learned that *Trypanosoma gambiense* can be suppressed by drugs in the blood and lymph-vessels without being destroyed in the central nervous organs, and the virus of poliomyelitis prevented from developing through intraspinous injections of an immune serum that is without effect when introduced to the blood. From this it follows that a local mode of specific treatment offers certain advantages either in theory or in fact not held out in the same degree, at least, by the general method. So far as Flexner is aware local specific treatment has not yet been tested in either paresis or sleeping-sickness. To the former it doubtless will soon be applied; in the latter it should also be tried.

Myerson in addition to his statistical report of the results obtained by him in eight cases by the Swift-Ellis treatment in general paresis embodied in the anniversary report of the Psychopathic Hospital[5] adds the following, which summarizes his remarks in the discussion of this method of treatment at the Boston Medical Library, December 17, 1913. The Swift-Ellis method of intradural injections of salvarsanized serum influences the course of general paresis, as manifested in the changed biological reactions. It does not seem permanently to stay the disease process. Probably this is due to the fact that the lesions of paresis lie outside of the range of the spinal fluid. It is a fundamental fallacy of this treatment in that it supposes the spinal fluid to be an afferent route in relation to the nervous system although it really is an efferent route. If we are to cope successfully with general paresis we must learn to distinguish the pre-paretic stage. The work of William W. Graves, as embodied in the paper: "The Syphilitic Syndrome," (New York Medical Record, August, 1912), and careful serological and spinal fluid examinations in chronic syphilitics presenting any neurasthenic symptoms will help us to distinguish this stage.

Robertson[6] (Geo. M.) raises the question whether we are justified in pushing this antisyphilitic treatment to the extreme. Desperate cases call for desperate remedies, and surgeons operate under conditions in which a definite percentage of their cases are certain to die from the immediate results of the operation, feeling their action justified if the lives of the majority are saved. General paralysis is as desperate a disease as any cancer, for 50 per cent. of those suffering from it die in one year, 75 per cent. in two years and 90 per cent. in three years, and the existence of the few who survive this period is a living death. Are the ethics of the surgeon and physician so different that a principle of the former cannot be followed by the latter under circumstances as hopeless and desperate? Are physicians, then, justified in general paralysis in pushing salvarsan and mercury to the most extreme limits compatible with survival, in the hope of curing at least a percentage of their cases? No doubt under these circumstances, owing to the amount of salvarsan probably required, like the surgeon, the physician would require to be prepared for a certain percentage of deaths from the drug itself. The time seems ripe for a determined effort on these lines, but the weak point in the advocacy of such a course is the fact that, however hopeful the prospects may seem, no one can assert with confidence that a single case would recover. Syphilis, therefore, should be treated when it is possible to cure it, and seeing that the cause of it is known, an accurate test of its activity exists, and a powerful remedy found for it, it will be a slur in the future on the profession of medicine if the seeds of general paralysis and tabes

are permitted to remain in the human soil till it is too late.

CEREBRAL SYPHILIS.

Henderson[7] in a systematic clinical analysis of 26 personally observed cases of cerebral syphilis, in seven of which the diagnosis was confirmed by autopsy finds that cerebral syphilis plays an important part in the production of mental disease, and should occupy a more prominent place among the organic psychoses than it heretofore has done. The spirochaeta pallida has for long been surmised to be the causal organism, but it was not until 1910 that Strasmann first demonstrated its presence in the central nervous system of an adult with acquired syphilis. Trauma, alcoholism, and physical and mental strain are important contributory factors. Re-infection with syphilis is quite possible, provided the initial infection has been thoroughly cured. Anatomically, three main types of cerebral syphilis are differentiated; viz. meningitis, endarteritis, and gumma. Clinically, this differentiation is seldom possible, and is without practical value, as the treatment is the same in all irrespective of the type.

The majority of cases of cerebral syphilis develop within the first three years after primary infection, and rarely more than ten years after infection. This is in striking contrast to cases of general paralysis and locomotor ataxia, which almost invariably develop at a period more than ten years after infection.

In regard to the physical signs, the Argyll-Robertson phenomenon is the one on which most weight should be laid in differential diagnosis, as it is rarely present in cases of cerebral syphilis. Other important features are: (a) an acute onset with headache, dizziness, and vomiting; (b) cranial nerve palsies; (c) convulsions without loss of consciousness, but usually followed by permanent focal symptoms; (d) intactness of speech and writing; (e) absence of facial tremor. Cerebral syphilis not infrequently causes pseudo-bulbar paralysis, and six cases of this affection have been here reported. The mental symptoms of cerebral syphilis are of the nature of those seen in acute organic reactions, and consist of confusion, delirium, amnesia, hallucinations, retention defect, and a poor memory for recent events; in addition there is relatively little disintegration of the personality. The Wassermann reaction must be considered in relation with the clinical picture in each individual case; when the Wassermann reaction with the cerebro-spinal fluid is negative, the diagnosis of cerebral syphilis is indicated. It is frankly admitted that there is no pathognomonic sign for cerebral syphilis; but if the nature and character of the onset and the above-mentioned physical and mental symptoms and signs are correlated, a disease entity is formed which has every right to be considered characteristic. Anomalous features, among which may be mentioned euphoria and grandiose ideas, and confabulatory states, are more common in cerebral syphilis than is generally recognized; special attention must be paid to the setting in which these features occur, because when occurring in a setting of confusion they mean practically nothing. Recent statistics confirm one in the opinion that the prognosis of cerebral syphilis, as compared with other organic affections of the nervous system, is relatively good; the most favorable cases are those of a meningitic or gummatous type. Mercury, no matter in what form administered, is an exceedingly valuable drug in the treatment of syphilis, provided that it is given in a systematic way. The best results are, however, probably obtained by combining mercurial and salvarsan treatment. Potassium iodide acts simply as an eliminative agent, and has no specific action on the spirochaete pallida.

Ravout[8] reports three cases of syphilis of the nervous system in which intraspinous injections were employed. The first case was a woman with secondary syphilis suffering from headaches. She received two drops of a solution containing one-tenth of a milligramme of bichloride of mercury directly injected into the cerebro-spinal canal. The immediate result of this showed itself in a few minutes by an exacerbation of all her previous symptoms, but at the end of three days there was a marked amelioration. Unfortunately this woman was lost sight of, but she served to demonstrate the fact that mercury could be injected directly in the cerebro-spinal canal. The second case was again a female, and she was kept under observation for four years. The chief symptoms were headache, unequal pupils with lack of light reaction, and a partial paralysis for accommodation on the same side. The injection of two minims of a 1+ solution of cyanide of mercruy was given, and the patient had, as a result, a gradually ascending contracture of all the muscles of the body until she was in a state of trismus. This condition lasted fifteen minutes. Four months later, though the headache was much improved, the eye conditions were not good, and a single drop of the former solution was injected. There was again some contractures of the muscles, but only slight. A week later the pupils were equal, but the light reaction was still sluggish. The patient was subsequently treated with salvarsan intravenously. The last case was one of well-advanced cerebral trouble with loss of memory, headache, and an affected gait. Salvarsan was first used intravenously and repeatedly. The symptoms, though at first improved, later recurred, and at the end of ten months the patient's condition was as bad as ever. It was then decided to inject neosalvarsan directly into the cerebro-spinal canal, and this was done and subsequently repeated. The patient's condition improved, but there still remained a certain amount of pain in the feet and a general weakness in walking. The Was-

sermann reaction was changed from a positive to a negative reaction.

ATTEMPTED SUICIDE.

East[9] in an exhaustive inquiry based on a study of 1000 consecutive cases of prisoners charged with attempted suicide concludes that it is an advantage to retain attempted suicide as a misdemeanor. Attempted suicide and suicide are both adversely affected by unemployment and drunkenness, the latter possibly causing more attempts than suicides. Both are similarly affected by the seasons, being more frequent in the hot months. Attempted suicide and suicide differ in the time of day in which they most commonly take place, in the age-incidence, and in the methods most frequently adopted; and whereas attempted suicide is only slightly influenced by the civil status, actual suicide is markedly affected. The family history of attempted suicides shows that in 27.10 per cent. there was parental intemperance, insanity in 10.2 per cent., epilepsy in 0.6 per cent. Of the 1000 cases themselves 2.9 per cent. had been previously insane. Probably all these figures are understated. Physical disease is not by itself a common cause of attempted suicide but at least in France, actual suicide appears to be frequently due to physical suffering. The commonest cause of attempts at suicide are alcoholism, unemployment and destitution, insanity, domestic troubles, morbid mental states not amounting to insanity, and attempts made for an ulterior purpose. Frequently more than one cause exists at the same time. When an alcoholic impulse acts alone in causing an attempt it is more often amnesic, when acting with other causes memory is usually retained. Alcohol incites attempts from impulse, post alcoholic depression, weak-mindedness, and insanity. An attempt during a first intoxication is very rare. In 39.3 per cent. of the cases alcohol was found to be wholly or partially the cause of the attempt. Unemployment is more likely to cause an attempt than destitution. Physical exhaustion is an important contributory cause in these two conditions. Of persons who are charged with committing crime, those whose offence was against the person more frequently attempted suicide than those whose offence was against property. In the weak-minded the attempt may result from very trivial causes, but the reverse not infrequently holds good. Insanity is more likely to cause suicide than attempts at suicide. In the latter 14.1 per cent. were due to this cause, the commonest forms of insanity being states of mental depression and then alcoholic insanities.

PERSONALITY AND OUTCOME IN CASES OF MENTAL DISEASES.

Bond[10] gives four tables showing personalities (or natural mental make-up) and outcome in 200 consecutive cases.

Seventy-four per cent. of these are found described as normal, 26 per cent. as abnormal; 19 per cent. as social, 11 per cent, as seclusive.

Dementia praecox is seen to differ sharply from manic-depressive, alcoholic, post-syphilitic and involution period psychoses in regard to the personalities in which it is found.

Normal personalities are noted in 93 to 85 per cent. of manic-depressive, alcoholic, paretic and involution period psychoses; but in only 29 per cent. of dementia praecox cases.

Seclusive personalities are noted in less than 4 per cent. of manic-depressive, alcoholic, paretic and involutional period psychoses, but in 50 per cent. of dementia praecox cases.

As regards hospital residence only 2½ per cent. of the social cases, in contrast to 50 per cent. of those who showed a seclusive tendency, are still in the hospital at the end of a four-years interval.

GYNECOLOGIC DISEASE IN THE INSANE.

Taussig[11] has examined 537 out of about 900 inmates of the St. Louis City Sanitarium, and found 252 to have some lesion in the pelvic organs sufficient to cause symptoms at present or in the future. These lesions are recorded: 87 suffered from retroversion and 52 from a relaxed pelvic floor. It seems probable that gynecological disease is only slightly more common in insane women than in the sane. In senile dementia, terminal dementia, and paranoia, only about one-third were diseased, in dementia praecox about one-half; among the imbeciles about two-thirds. In the manic depressive group about 74 per cent. showed gynecological lesions, and a large proportion of these showed a chronic inflammatory condition of the genital tract. The number of recoveries from this form of insanity after gynecological operations is so large that when a definite lesion is found it should always be corrected by local or operative measures.

BLOOD-PRESSURE IN THE INSANE.

Sagini[12] who has investigated the blood-pressure of 38 women and 33 men aged from 30 years upwards, suffering from various forms of mental disease, with Riva-Rocci's sphygmomanometer, comes to the following conclusions: There is no constant relation between the number of pulse beats and the degree of blood-pressure. In all mental diseases advanced age determines a rise of blood-pressure. In all mental diseases the curve of blood-pressure in the right arm is a little higher than that in the left. Occasional excitement and emotion of a certain degree is followed by a rapid rise of pressure without a corresponding variation in the pulse. In every form of mental disease food always causes a fall of blood-pressure. The mean blood-pressure of epileptics is lower than that found usually in normal individuals. Their pressure

varies, but never reaches a stage of hypertension, even in the period which precedes or follows the fit. It cannot be affirmed that a definite relation exists between mental conditions and the blood-pressure, nor that constant variations exist in the blood-pressure in relation to every form of mental disease, but there is an obvious tendency to increased pressure in paranoia, alcoholic insanity, and hysteria, and a tendency to low pressure in depressive states.

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Reports of Societies.

NEW ENGLAND OTOLOGICAL AND LARYNGOLOGICAL SOCIETY.

A meeting of the New England Otological and Laryngological Society was held at the Massachusetts General Hospital, Tuesday evening, November 18, 1913. The President, Dr. George L. Richards, in the chair.

Dr. George A. Waterman, Boston, read a paper on

ELECTRICAL TREATMENT IN TINNITUS.

The normal reaction of an auditory nerve to the galvanic current is best obtained by placing the indifferent pole on the back of the hand, while the testing pole with a small electrode is applied over the mastoid, or just in front of the tragus. When a sufficiently strong current is used with the cathode over the ear, the patient hears a distinct sound with the closing of the current. This sound has varying qualities in different people. It may be a hissing, humming, buzzing or ringing. Sometimes the reaction is elicited with a very modified current; while in some individuals a much stronger current is necessary to produce it. In fact, the current needed may be so strong that symptoms very disagreeable to the patient may result, such as an apparent tipping of surrounding objects, with a sense of giddiness and even faintness. In patients who have a hyperesthesia of the auditory nerve, very little current produces the reaction. Not only the closing of the cathode pole may give rise to the sound, but also the opening of the anode pole may give the same sound, though it is heard less distinctly, while the opening of a cathode and the closing of an anode give no reaction.

In cases where there is a partial degeneration of the auditory nerve, the normal reaction is reversed, that is, the anode pole gives a louder sound than the cathode. This is the so-called reaction of degeneration of the auditory nerve and is analogous to the reaction of degeneration phenomenon seen in disease of the motor nerves, and is, of course, of importance only from the point of view of diagnosis.

I took up the treatment of tinnitus by the use of the galvanic current at the suggestion of Dr. Clarence J. Blake, who described to me his early experience in experimenting with this method, and sent me an article written six or eight years ago, descriptive of good results following the use of the interrupted current applied to the mastoid with the anode pole.

Properly to carry out this treatment, one requires an apparatus that controls the galvanic current with the rheostat, in order that the amount of galvanism given may be graded, and so obviate the unpleasant results which may develop from too sudden an increase in its strength. It is important too, that the apparatus should include a galvanometer in order that the amount of current given may be controlled.

In treating patients I place the indifferent pole on the back of the hand, with a large electrode, and apply the anode pole over the mastoid bone, and then increase the current until the tinnitus ceases. The patient should give his careful attention to the subjective sound in order to determine at just what point it ceases to exist. In some patients a much stronger current is required to stop the tinnitus than in others. In some the cathode may produce this result better than the anode. In many cases neither pole reduces the sound at all. Usually the anode is the effective pole. When the strength necessary to cause the disappearance of the tinnitus is determined, (generally 3 to 6 milliampers,) this strength current is given from three to four minutes, making and breaking the current rhythmically every two seconds, fininshing the treatment by gradually reducing the current to zero by shutting down the rheostat.

As I have said, in many cases the tinnitus is not affected by this treatment. Out of eighty cases in which I have used this method nineteen or twenty have shown improvement in varying degrees. In some the noises have ceased for hours or days; in others the relief has been permanent weeks or months afterwards, as long as the patient was followed; such cases having had from five to ten treatments. In the majority of cases in which improvement was obtained I have written the patient's home physician directions for continuing the treatment. Unfortunately I have not had time to write these patients so I am unable to give absolute statistics as to the permanency of the improvement in all these cases. Dr. Blake and I have intended to compare our notes some time, to see if any definite pathological conditions are especially adapted to the galvanic treatment.

The outlines of a series of cases were given, together with the results produced by the use of galvanism in treatment.

DISCUSSION.

Dr. C. J. Blake: The original experiments were made forty years ago with an imperfect apparatus. A Stöhrer battery, an ordinary liquid cell battery, the strength of the current being adjusted by means of the slipping of the electrode across a bar, running lengthwise of the battery. It was a very rough adjustment indeed, and one in which it was impossible to get any refinement of application of the remedial current. The experiments made with the Stöhrer battery were, of course, somewhat

hazardous, and having a subjective noise in the left ear, it seemed to me that I was a good subject for test. When this Stöhrer battery arrived, in the latter part of 1870, I proceeded to experiment with it, trying the passage of the current, the anode and cathode, alternating over the mastoids, finding that with an increasing current there was increase in the subjective noise, and with a decreasing current, a decrease in the subjective noise.

Those immediate experiments were terminated by one in which, in consequence of mishandling and sudden interruption of the current, there was a sense of sudden shock by partial unconsciousness lasting for two or three hours, a sense of confusion lasting twenty-four hours, and terminating in a sound sleep. During that period of time, the noise in the left ear was considerably diminished. In further and more guarded experiment with the battery in question upon other subjects, it was found that if the application of the current decreased the circulation sound, it increased the hearing, but the results were not sufficiently satisfactory to make it worth while to continue them beyond a limited period, though they did determine a definite relationship between the galvanic anode, the hearing power and the circulation sound in certain cases. It was a satisfaction to have Dr. Waterman say that he proposed to take up the subject and test the value of this application of the current under a more favorable condition, with a better means of handling it. The first observation, of course, so far as the number of cases in which it was of benefit was concerned, was of very little value, as compared with the observations which he has made, but so far as I remember, the percentage of improvement was just about the same. In two or three cases, with the gross differentiation of current used, there were quite uncomfortable experiences on the part of the patients. In two of the cases, the noises were very considerably increased and the increase in the circulation sound continued in one case for two weeks; in another case for something over a month; in a third, there was not so prolonged an increase of the severity of the circulation sound, but the increase of the circulation sound was accomplished by a general sense of dizziness. There was no distinct vertigo. At any rate, these experiences sufficed to emphasize the statement of the late Dr. Beard that the electric current was a remedy of which it was better to use too little than a little too much.

The treatment which has been followed by Dr. Waterman seems advisable as a test treatment, in cases of severe subjective noises. In 25 per cent., as he has shown, some relief is afforded. Whether that relief is the result of the effect upon the blood vessels and so upon the circulation, the cause of the sound, whether it is the result of the effect induced in the sense centers, or whether it is purely suggestive, is a matter which is still to be determined; and it is to be hoped that Dr. Waterman will continue his investigations.

DR. D. CROSBY GREENE, JR. demonstrated a case of

EPITHELIOMA OF THE VOCAL CORD.

This patient, 41 years old, whom I show you, I operated upon two weeks ago for epithelioma of the right vocal cord, doing the usual operation of thyrotomy. The point of particular interest in this case, which I wish to speak of, is in connection with the after-treatment of the incision. In this case, I put in no sutures at all. I am using no sutures, because in some of my cases where I brought the cartilage together and sewed it tightly, there was a good deal of trouble with emphysema, and also a certain amount of sepsis.

DR. HARRIS P. MOSHER demonstrated a case of

SARCOMA OF THE ETHMOID.

This man, whom I show you, I operated upon a year ago for sarcoma of the ethmoid with involvement of the antrum. Up to the present time, there has been no recurrence and I might say here, it is the only one of this class of cases, that I have operated upon, where there was no recurrence within a year. In operating on this case, I used the Moure incision, and I wish to emphasize this method of operating. By using the Moure incision and method of operating, and by using an electric headlight, I think we are making an advance in the treatment of malignant diseases of the accessory sinuses. Until I tried this method, I was about as skeptical as I think most of my colleagues are, in regard to operating on these cases.*

Dr. Mosher also showed a hook and eye which he had recently removed from the left bronchus of a boy, four years old. The boy had complained of pain in the left side for eleven months. The x-ray showed the position of the foreign body.

DR. C. MORTON SMITH, Boston read a paper on the subject,

HAVE THE EARLY CLAIMS OF SALVARSAN BEEN REALIZED?†

DISCUSSION.

DR. A. C. GETCHELL spoke of two cases in particular where most brilliant results had followed the use of salvarsan. Both were cases of syphilis of the pharynx.

DR. C. R. C. BORDEN related a number of cases of syphilis of the nose and pharynx and of the quick improvement after the use of salvarsan. Dr. Borden was inclined to think that salvarsan should be used preliminary to extensive operations on the nose and accessory sinuses.

DR. S. J. BEACH spoke of two cases. He referred to a case of syphilis of the upper air passages, together with a severe vaso-motor rhinitis; after the use of salvarsan, the symptoms rapidly disappeared. He also called attention to a case of cerebral syphilis associated with severe and sudden deafness. This case cleared up after the use of salvarsan.

DR. F. N. BIGELOW reported two cases of spyhilis of the larynx, in which there was so much infiltration, and dyspnea became so marked that tracheotomy was necessary. The tracheotomy tube was removed after a short time and the cases cleared up under the use of salvarsan.

DR. H. P. ABBOTT reported a case of Vincent's angina, which resisted various treatments until salvarsan was applied locally. Applications were made every few hours and within three days, the throat had entirely cleared.

DR. C. B. FAUNCE mentioned the case of a chauffeur, 24 years old. He saw him a year and a half after the primary infection. He had given four doses of salvarsan at varying intervals. Sudden deafness had come on a month after the first dose had been given. The man is now in the same condition as when he was first seen. There is no improvement in his deafness.

* There has since been a recurrence in this case. Only what is said about this method of operating still holds.

† See page 269.

Book Reviews.

A Text-Book of the Practice of Medicine. By James M. Anders, M.D., Ph.D., LL.D. Eleventh edition, thoroughly revised. Octavo of 1335 pages, illustrated. Philadelphia and London: W. B. Saunders Company. 1913.

The eleventh edition of this standard text-book has been carefully revised. An excellent index is one of the most valuable features of a very satisfactory book.

Dreams and Myths. A Study in Race Psychology. By Dr. Karl Abraham, Berlin. Translated by William A. White, M.D., Washington. pp. 74. The Journal of Nervous and Mental Disease Publishing Company. 1913.

This brochure is No. 15 of the Nervous and Mental Disease Monograph Series, and embodies Abraham's studies of classical myths and sagas on the basis of the Freudian psychology, with special reference to the well-known dream theory. It is an attempt to prove that the application of Freud's teaching to primitive fantasies, which have become fixed in the various myths and sagas, may serve as the foundation of a new conception of their origin and development. The same objections which have been brought against the sexual psychoanalytic method in general will, no doubt, be raised against the explanation which the author here sets forth, but this makes its presentation none the less worthy of fair and unprejudiced consideration.

Social Work in Hospitals. A Contribution to Progressive Medicine. By Ida M. Cannon, R.N., head worker, Social Service Department, Massachusetts General Hospital. pp. xi-257. New York: Survey Associates, Inc. 1913. Russell Sage Foundation.

This book, dedicated to Dr. Richard C. Cabot, "whose insight, constructive imagination, and fearless pioneer spirit have been the chief factors in starting and bringing to its present status in this country organized hospital social service," is an admirably temperate statement of the relation of social service to hospital administration and efficiency. Miss Cannon, who has had charge of the development of this work at the Massachusetts General Hospital, is peculiarly fitted to speak with authority on the subject, not only from the viewpoint of a wide experience, but also as a leader in the establishment of an effective social service department in a large general hospital of conservative traditions. As stated in the introduction, the object of the book is to offer interpretations of present-day tendencies rather than to dogmatize as to the significance of work accomplished. In this the author has undoubtedly succeeded, and, if for no other reason, the book should be widely read as a judicial statement of what has already been done, and what may be expected in the future. Following a brief introduction, successive chapters take up the beginnings of hospital social service, the hospital background, the various medico-social problems, the basis of treatment, working together, records, organization, workers, and the future of hospital social service. A useful appendix reproduces various "forms" which have been found useful in the tabulation of cases. We cordially commend the book to physicians, and especially to those who may still entertain doubts of the wisdom of the social service movement, and to all others interested in the broader aspects of medical treatment.

Epidemiologic Studies of Acute Anterior Poliomyelitis. By Wade H. Frost. Washington: Government Printing Office. 1913.

This monograph, published under date of October, 1913, as Bulletin No. 90 of the Hygienic Laboratory of the United States Public Health Service, presents an extensive and careful study of three important recent local epidemics of acute poliomyelitis in this country in three successive years, namely, the epidemic in Iowa in 1910, in Cincinnati, Ohio, in 1911, and in Buffalo and Batavia, N. Y., in 1912. The total number of paralytic cases represented in this combined material was 817, of which 475 were investigated. Investigation was also made of 54 abortive and 71 suspected cases. The work is well illustrated with four maps and 34 charts. The attempt has not been made to correlate the epidemics, except by method of study, but each has been treated as an entity. The data and results both make this work a valuable contribution to the epidemiology of poliomyelitis.

Annual Report of the Bureau of Health for the Philippine Islands. By Victor G. Heiser, M.D. Manila: Bureau of Printing. 1913.

This report records the activities of the Philippine Bureau of Health for the fiscal year ended June 30, 1913. These include the usual functions of a public health service, *plus* those involved by the presence of tropical diseases. In addition to the usual sanitary and hygienic subjects of consideration, there is a careful alphabetic review of these diseases, from albinism to yaws. Foremost among the recommendations of the report is that of "a tax upon polished rice in order to discourage its consumption." This consummation, it is devoutly expected, would greatly reduce infant mortality and would save annually many thousands of lives now lost by beriberi. The second half of the volume consists of statistical tables; reports of divisions, district health officers, and boards of examiners; and a series of sixteen excellent full-page illustrative plates.

THE BOSTON

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MEDICAL LEGISLATION. FEDERAL OR INTERNATIONAL REGULATION OF THE SALE OF BICHLORIDE TABLETS.

THE recent frequency of accidental and suicidal poisoning by tablets containing corrosive sublimate has revived discussion of the need for legislative restriction of the sale and distribution of such tablets. In a recently published interview, Dr. Mark W. Richardson, secretary of the State Board of Health, is reported to have spoken on this subject in part as follows:—

"The intentional swallowing of poison tablets no legislation can prevent. But the public should have all the protection that law can render against the taking of such poisons by accident.

"However, legislation in certain other States would be more important than in Massachusetts, for most of the great drugmaking houses are located in Philadelphia and in Detroit. The ideal solution of the problem is national legislation, affecting all the states, and providing for a protective shape of tablets and packages or bottles containing them, or distinctive colorings, in addition to the labels which most of them bear at the present time. The mercury tablet is of about the same size and has the same feel as various tablets which are harmless, and that makes it dangerous for handling in the dark, when labels count for nothing."

The subject of federal legislation to regulate the sale of bichloride tablets was discussed by Martin I. Wilbert in the weekly report of the United States Public Health Service for Nov. 14, 1913.

After reviewing the statistics of suicides and accidental deaths from scheduled poisons in England and Wales in 1911, the author tabulates a complete series of 27 antiseptic tablets, containing mercuric bichloride, commonly sold in this country.

"Among the many suggestions that have been made to compel uniformity in shape and size of tablets of corrosive mercuric chloride, we have proposals to have them triangular, coffin-shaped, kidney-shaped, and in the shape of a skull, in addition to the various forms already in use."

"Even at the present time there is sufficient legislation, if enforced, to serve as a reasonable safeguard in connection with the sale of corrosive mercuric chloride at retail. No less than thirty-eight States include corrosive sublimate specifically in the laws designed to restrict the sale of poisons, and in but one of the existing laws, that of Utah, are corrosive sublimate tablets exempted from registration in the poison register, otherwise uniformly required for the sale of corrosive sublimate itself. During the present year, three States, Oregon, Nevada, and California, have enacted modified poison laws and specifically enumerate tablets of corrosive sublimate as belonging in 'Schedule A,' drugs, the sale of which is required to be registered in a book provided for that purpose. These several States also specifically enumerate 'antiseptic tablets containing corrosive sublimate,' being so far, the only States recognizing the present-day custom of labeling these very toxic preparations, 'antiseptic tablets.'

"In addition to specific agitation for the proper labeling of all preparations containing poisonous substances, the most promising innovation is the suggestion that a type form of corrosive mercuric chloride tablet or pastille be introduced in the Pharmacopoeia of the United States, with a view of providing adequate safeguards to prevent accidental poisonings. While the suggestions that have been made for this purpose are many and varied, it would appear that, in view of the rapidly growing intercourse between the different countries of the world, it might be desirable to secure international uniformity in regard to preparations of this type. It has been proposed, unless specific and valid objections could be offered, to adopt for inclusion in the Pharmacopoeia of the United States the description of mercuric chloride pastilles included in the German Pharmacopoeia. This latter Pharmacopoeia provides that pastilles of mercuric chloride consist of equal parts of corrosive mercuric chloride and sodium chloride, and requires that the pastilles be colored bright red with aniline dye, have a cylindrical shape, and be twice as long as thick. These tablets or pastilles must be wrapped individually in black paper, bearing the German equivalent of the word poison in white letters. The weight of a tablet must be stated, and the wrapped tablet is to be dispensed only in suitable glass bottles or tubes.

"As an argument for including in the Pharmacopoeia of the United States an official tablet of corrosive mercuric chloride, rather than enacting legislation to compel uniformity in the shape, size, color, and odor of all tablets containing corrosive mercuric chloride, it has been pointed out that inclusion in the Pharmacopoeia would not in any way interfere with the legitimately established trade of manufacturers, but would tend to discourage the sale and use of such preparations."

Whether international agreement would be necessary or practicable in the adoption of a standard bichloride pastille, it would seem that at least some federal legislative action in the matter is eminently desirable. Probably the best solution of the problem, however, would be the replacement of mercuric bichloride as a household antiseptic by some equally efficacious and non-poisonous bactericide.

THE SIGNIFICANCE OF HEADACHE.

There is no symptom which is quite so common in nearly all disordered or diseased conditions as headache. Headache presumably is caused by cerebral irritation of a reflex, toxic or mechanical nature. Usually it is a minor symptom in conjunction with the more important concomitants. Yet this symptom may embrace and be the only outward manifestation of the disease or disorder, and be so varied in its character, distribution, etc., that a study of the symptom, in the few conditions in which it so behaves, will furnish the entire pathological diagnosis.

A headache that is worse on rising in the morning, but which has a tendency to wear off during the day, suggests brain tumor, for the reason that during sleep the intraventricular pressure is lower and can accommodate the increased exudation of fluid which may accompany this condition. On rising, the sudden normal increase of intraventricular pressure impinging against this resisting fluid causes the headache. During the day the increased ventricular pressure prevents the exudation of more fluid, and in fact causes the absorption of some of the fluid already in the ventricle, and thus relieves the headache.

A headache which increases in severity toward evening, and even continues throughout the night points to either a malarial or luetic intoxication,—the severity at this time being due to the nocturnal activity of the parasite and its toxins. Blood examination will easily detect a malarial infection, while a Wassermann reaction test will help to identify a syphilitic infection. In syphilis the headache, besides being toxic in causation, may be due to syphilitic endarteritis of the cerebral vessels, to gummy infiltration of the brain, or to a pure gumma of the brain. In gummy tumor the predominating symptom will be that of a brain tumor, and the toxic character will be masked. If the headache is due to the endarteritis, it would be very likely to be accompanied by apoplectic hemorrhages of greater or lesser severity. In syphilitic infiltration of the brain, the headache might be accompanied by very severe motor, sensory, and even mental manifestations.

A headache coming on regularly in the afternoon or toward evening, and made worse at any time by lying down, and which is usually located in the frontal region, is possibly due to frontal sinus disease In this condition the upright position favors the discharge of the pus through the infundibulum into the nasal cavity.

The so-called reflex headaches are due to irritations of the nerve endings over diseased teeth, in ear disease, refractive errors, etc., in which the irritations from all these places are transmitted to the sensory center in the pons, and thence to the cerebral cortex. It would seem that the cerebral cortex cannot determine whence the irritation came exactly, hence it is that the pain sensation is returned to other places than that from whence it came. For this reason pain areas, the referred pains, are not of much diagnostic help, except that certain irritations are usually referred to definite places, as, for example, tooth irritation to the temporal region, as is also ear irritation.

The condition known as migraine is characterized by the intermittency of the pain, by ocular symptoms, and often by succeeding nausea and vomiting. The pain is often exceedingly severe and the onset sudden. It usually begins on one side and may spread over the entire head very rapidly. The condition subsides just as suddenly as it begins. The causation is undetermined. The present most accepted theory is that it is a reflex neurosis. Others believe it to be toxic in nature, due to the accumulation of uric acid and the xanthin bases. Formerly it was ascribed to a retention of fluid in the ventricles of the brain, caused by a very small foramen of Munro, but this did not explain any

more than the later theories, its onesidedness. Cyclic vomiting is believed to be the prototype of migraine in infants.

Headache, therefore, may be an unimportant transient irritation, or it may foreshadow a serious pathological condition. Hence the necessity for analyzing each instance, and for ruling out or establishing the presence of a gross pathological condition. Otherwise, when the nature of the headache becomes apparent, it will be too late to apply remedial measures.

ALCOHOLISM.

THE alcohol problem is one of the most difficult civilization has to settle. To this task the Fourteenth International Congress on Alcoholism addressed itself in Milan September last. Italy, although perhaps the largest wine producing country in the world, is said to have had, up to recent years, the smallest death-rate from chronic alcoholism. The historian Ferrero, by the way, in considering the vine in Roman History, declared that wine was an instrument in Romanizing barbarian provinces, the effectiveness of which has been too much disregarded. In Gaul, in Spain, in Helvetia, along the Danube, Rome taught many things,—law, war, road construction, city building, the Latin and Hellenic civilization and arts,—but she also taught wine drinking. Italy has from time immemorial cherished the vine. Oddly enough then, her humanitarians are now realizing the ravages of alcohol among the Italian people and the necessity of a vigorous campaign against this evil. Signor Falcioni in welcoming the delegates on the part of his government, spoke of an impression among some foes of alcohol that the Congress would not be welcomed in a great wine-producing country, and one which derived an immense part of its wealth from that source; but such was a mistaken impression, because his government well understood the object of the anti-alcoholic societies was not the suppression of wine drinking, but a campaign against the abuse of liquor. There were three hundred and fifty delegates, representing many governments and societies, asylums, hygienic institutes and so on.

Signor Falconi declared that up to recent years alcoholism among his people was confined to the cities and the factory workers, but that it is now spreading into the rural districts; and the enormous emigration from the latter has favored the spread of alcoholism, because those going to countries where alcoholism prevails more than in Italy return victims of the habit. And he considers that with the development of alcoholism there has been *pari passu* an increase of tuberculosis, and that there is a close relationship between alcoholism and crime.

MEDICAL NOTES.

TWO LIVING CENTENARIANS.—John Durrant, of Weybridge, England, is said to have been born in 1810. He smokes three ounces of strong tobacco weekly, but drinks no beer and very little wine.

Mrs. Bridget Dougherty Curran, of South Bethlehem, Pa., is said to have been born on Feb. 8, 1807, in Ireland. She still has four aged living sisters.

FIRE IN MILWAUKEE HOSPITAL.—Report from Milwaukee, Wis., states that on Feb. 10 a serious fire broke out in the basement of the municipal tuberculosis sanatorium in the neighboring suburb of Wanwatosa. Forty-five patients were safely removed. The total damage was $50,000.

BERI-BERI IN NEW JERSEY.—In the weekly report of the United States Public Health Service for Feb. 6, 1914, Dr. Herman B. Parker records the results of his investigation of several cases in the county jail at Elizabeth, N. J., which proved to be beri-beri. Twenty-two similar cases during the preceding three years were presumably also beri-beri.

UNITED STATES MORTALITY STATISTICS IN 1913.—Statistics published on Feb. 11, in Washington, D. C., show a general death-rate, for the registration area in 1913 of 13.8 per 1000, the same figure as in 1912.

"Of the eighteen registration states, Maryland, with 16.3 per 1000, showed the highest rate; Minnesota, with 10.7, the lowest. The other states were: California 11.9, Connecticut 14.4, Indiana 12.6, Kentucky 13.4, Massachusetts 14.7, Michigan 13.1, Missouri 12.4, Montana 13.0, New Hampshire 14.1, New Jersey 14.7, New York 15.2, Ohio 13.1, Utah 11.6, Vermont 12.6, Wisconsin 10.9.

"Of the forty-five registration cities, Portland, Ore., with 11.0 per 1000, showed the lowest rate; Memphis, with 22.9, the highest. Other cities' rates were: Birmingham 20.4, Los Angeles 14.0, Oakland, Cal., 12.3, San Francisco 16.7, Denver 14.5, Bridgeport 16.5, New Haven 16.2, Washington 17.05, Atlanta 19.3, Chicago 17.1, Indianapolis 16.3, Louisville 17.2, New Orleans 21.3, Baltimore 19.4, Boston 17.2, Cambridge 13.5, Fall River 18.1, Lowell 16.9, Worcester 16.8, Detroit 19.2, Grand Rapids 13.4, Minneapolis 13.0, St. Paul 13.0, Kansas City 16.3, St. Louis 16.2, Omaha 15.3, Jersey City 16.2, Newark 15.7, Paterson 14.7, Albany 19.2, Buffalo 17.2, New York 16.2, Rochester 15.3, Syracuse 16.3, Cincinnati 17.2, Cleveland 15.7, Columbus 16.2, Dayton 16.3, Toledo 17.0, Providence 15.8, Nashville 19.2, Richmond 22.4, Milwaukee 14.2."

Conference on Medical Education.—The Tenth Annual Conference on Medical Education and Public Health Education and Legislation is to be held in Chicago on Monday and Tuesday of next week, Feb. 23 and 24, under the auspices of the Council on Health and Public Instruction and the Council on Medical Education of the American Medical Association. Among the papers to be presented is one by President Lowell of Harvard on "The Danger to the Maintenance of High Standards from Excessive Formalism."

An Indian Centenarian.—White Eagle, a chief of the Ponca tribe, who died on Feb. 5 at Ponca City, Oklahoma, is said to have been born in 1803, and was supposed to be the oldest Indian in the United States.

Cancer Mortality in Königsberg.—Statistics recently published show that in 1880 the cancer mortality in Königsberg, Germany, was 53 per 100,000 of population. In 1893 it was 110; in 1907 it reached a maximum of 139. Since then it has steadily declined and in 1912 was 118. This recent decrease is believed due to the popular educative propagandum, initiated in 1907, which has led to earlier diagnosis and greater readiness to accept prompt and radical surgical treatment.

A Transfer of Authority.—Report from Washington, D. C., on Feb. 8 states that the bureau of food and drug inspection of the United States Department of Agriculture has been abolished. Its functions and authority will hereafter be exercised by the bureau of chemistry.

BOSTON AND NEW ENGLAND.

A Living Centenarian.—Morris D. Shimelovitch, of Brockton, Mass., who is said to have been born on Feb. 8, 1811, in Russia, celebrated recently his supposed one hundred and third anniversary. His health is excellent, and he walks outdoors daily.

Fire in Lawrence Hospital.—A fire occurred on Feb. 9 at the Lawrence (Mass.) General Hospital, but was extinguished before serious damage was done. Several patients were removed from their rooms, but no one was injured.

NEW YORK.

Health Federation.—The Health Federation of the City of New York, an association composed of some 150 organizations interested in matters of public health, was organized at a meeting held at the New York Academy of Medicine on Feb. 4, at which Dr. J. H. Huddleston presided. The plan of organization includes the establishment of an advisory body, to be known as the Central Council of Public Health, consisting of fifteen members, and among those appointed on the council were Dr. Huddleston, Dr. C. L. Dana, chairman of the Public Health Hospital and Budget Committee of the Academy of Medicine, Dr. Philip Van Ingen, medical advisor of the New York Milk Committee, and B. B. Burritt, acting general director of the New York Association for Improving the Condition of the Poor. At the meeting Dr. L. K. Frankel, one of the vice-presidents of the Metropolitan Life Insurance Company, reported that during the past year his company had sent visiting nurses to the homes of 17,000 of its industrial policy holders, making 108,000 visits at an expense of $61,000; E. S. Elwood, secretary of the Committee on Mental Hygiene of the State Charities' Association, described the work of the committee; and reports were made by representatives of various other organizations.

Division of Rural Hygiene.—The members of the State Grange, gathered in convention at Poughkeepsie on Feb. 5, were startled to learn from the health committee of the organization that while during the past year the death-rate in New York City was 13.7, in the country districts, villages and towns of less than 8,000 population of the state it was 15.4, and a recom-

mendation by the committee, urging the establishment of a special division of rural hygiene in the State Department of Health, was endorsed.

PAVILION FOR VENEREAL DISEASE.—An annex to the Long Island College Hospital in Brooklyn has been opened which is solely devoted to venereal diseases. The new pavilion, which has accommodations for 60 male patients, is two stories in height, the upper floor being reserved for gonorrheal cases and the lower floor for syphilitic. This is a welcome addition to the city's hospital facilities, for, with the exception of possibly one or two, none of the private hospitals have heretofore accepted patients suffering from venereal diseases, and those needing hospital treatment have been obliged to enter the public hospitals. For patients who are willing to pay for the privilege of greater privacy, two small wards, one on each floor and with four beds each, have been provided. The most approved modern treatment is assured by the hospital authorities, and specially trained male nurses are in attendance.

MORTALITY STATISTICS.—The weekly reports of the Health Department show that the mortality in the city in the month of January represented an annual death-rate of 14.80, as against 13.33 in December and 14.46 in January, 1913. The weekly average of deaths from measles increased from 9 in December to 12.5 in January; the weekly average from scarlet fever, from 5.25 to 11.25; from whooping-cough, from 2.5 to 3; from diphtheria and croup, from 22.75 to 31; from influenza, from 7.25 to 13.5; from epidemic cerebrospinal meningitis, from 2.75 to 3.25; from pulmonary tuberculosis, from 157.5 to 191; from pneumonia, from 107 to 133; from bronchopneumonia, from 85 to 108.25; from cancer, from 85 to 91; from apoplexy and softening of the brain, from 23.25 to 29.75; from organic heart diseases, from 208 to 241; from appendicitis and typhlitis, from 9.75 to 12.75; from cirrhosis of the liver, from 15 to 16.5; from Bright's disease and acute nephritis, from 113.25 to 123.5; and from puerperal diseases, from 9.25 to 15.25. Among the few diseases in which there was a decrease in mortality were the following: The weekly average of deaths from acute bronchitis declined from 15.25 to 13.76; from tuberculous cerebrospinal meningitis, from 11 to 9.5; from diarrheal diseases under five years, from 31.75 to 29.75; and from hernia and intestinal obstruction, from 15.25 to 12.75.

HOME SEGREGATION OF TUBERCULATES.—In last week's issue of the JOURNAL we commented briefly on the report recently published by the New York Association for Improving the Condition of the Poor, on its work in the home isolation and treatment of families made dependent by tuberculosis. In a model tenement, 27 such families, including 79 tuberculates, were segregated, and given fresh air, food, work and medical care.

"Eleven of these families, containing 23 tuberculous patients, 12 of whom were wage-earners, were discharged during the year. Six of the eleven families were rehabilitated, physically, socially, and economically. The other five had to be dismissed for persistent intemperance or refusal to follow advice. The condition of these, however, as a consequence of the treatment received was improved.

"No new cases of tuberculosis developed after admission. Sixty-one per cent. of the adult patients apparently were cured, 23% had their diseases arrested and 11% were much improved.

"In only four cases was there no progress. The improvement of the 65 children and 16 infants also was satisfactory. Eighteen of these were consumptive, 23 were suspicious cases, and most of the others were excellent candidates for the disease. At the end of six months, each child had reached a weight normal for its age.

"Upon admission to the hospital the average income of the six families was $6.42. When discharged the average weekly income of these families was a trifle less than $15."

This method, which may be regarded as an adaptation and extension of the "tuberculosis class" employed in Boston, is expected to produce social and economic rehabilitation as well as physical regeneration.

Current Literature

MEDICAL RECORD.

JANUARY 24, 1914.

1. KNOPF, S. A. *The Occupations of Afebrile Tuberculous Patients.*
2. NYDEGGER, J. A. *Hygiene of the Farmhouse and Farm.*
3. GOODMAN, A. L. *Tuberculosis of the Testicle.*
4. BROWN, L. *The Significance of Irregular Uterine Bleeding.*
5. ROBINSON, S. M. *Venous Circulation.*
6. CORNWALL, E. E. *Clinical Study of a Case of Chronic Intestinal Toxemia of Severe Type.*
7. CONKLIN, C. B. *Typhoid Spine. With Report of a Case Complicated by Thrombo-Phlebitis of the Left Femoral Vein.*
8. *SCHWARTZ, L. H. *Bacillus Lactis Bulgaricus in Infantile Gastroenteritis.*

8. Schwartz reports 55 cases of gastroenteritis in infants in which he used cultures of B. lactis Bulgaricus with good results. Some of the babies received no other medication—not even calomel or castor oil—and no bowel irrigations. While this treatment influenced diarrhea very favorably, it had no effect on vomiting. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

JANUARY 24, 1914.

1. BAINBRIDGE, W. S. *Chronic Intestinal Stasis Surgically Considered.*
2. QUIMBY, A. J. *Chronic Intestinal Stasis.*
3. HAYES, W. V. *Chronic Intestinal Stasis.*
4. ERDMANN, J. F. *Acute Pancreatitis.*
5. MCCASKEY, G. W. *Insanity Occurring in Latent Bright's Disease.*
6. LEWIS, S. *Abdomen Strengthening.*
7. WILENSKY, A. O. *Studies in the Treatment of Fractures Near the Elbow.*
8. MILLER, A. H. *Gas-Oxygen Anesthesia.*
9. ORENSTEIN, A. *Treatment of Disease in the Aged.*
10. TAYLOR, A. N. *The Physician and the Income Tax.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JANUARY 24, 1914.

1. *LOVETT, R. W. *Principles of the Treatment of Infantile Paralysis.*
2. HEKTOEN, L. *The Mechanism of Recovery in Pneumonia. With Special Reference to the Crisis.*
3. *WILLSON, R. N. *The Treatment of the Pneumonias.*
4. MALLORY, W. J. *The Differential Diagnosis of Cholelithiasis from Gastric and Duodenal Ulcer.*
5. UNDERHILL, A. J. *Cysts of the Prostatic Urethra.*
6. HORNSBY, J. A. *Equipment of a Small Hospital; Making Over a Dwelling-House.*
7. STEVENS, E. F. *The Ward Unit of the General Hospital.*
8. LAMOREAUX, L. A. *Architecture of the Modern Hospital for Contagious Diseases.*
9. SCHMIDT, R. E. *Architecture of the Great Charity Hospital.*
10. *DE TARNOWSKY, G. *Sulphuric Ether Larage in Infections. The Soulgouw-Morestin Method. A Preliminary Clinical Report of Thirty Cases Treated by This Method.*
12. NILES, G. M. *The Treatment of Pellagra: An Optimistic Survey of Its Present Status.*
13. GRUBBS, S. B. *The Plague Outbreak in Porto Rico.*
14. MERRILL, T. C. *Is There a Toxemia Referable to the Eating of Chestnuts?*
15. KRUMBHAAR, E. B., AND MONTGOMERY, C. M. *Syphilis in the Medical Dispensary.*
16. BRADLEY, F. *The Call of the Child.*
17. OLITSKY, P. K., AND OLMSTEAD, M. P. *Precipitation Tests in Syphilis.*
18. HANZLIK, P. J. *The Liberation of Formaldehyd from Hexamethylenamin in Pathologic Fluids.*
19. KOLISCHER, G. *Clamp Resection of the Urinary Bladder.*
20. PFENDER, C. A. *Brazier's Disease, Brass-Founder's Ague, or Acute Brass-Poisoning.*

1. Lovett advises the use of hexamethylenamin in suspected cases of infantile paralysis, absolute rest in the acute stages, with abstinence from massage and electricity till all tenderness is over and prevention of contractures by passive means. As soon as tenderness is over, generally at the end of four weeks, massage, electricity and muscle training are begun, of which the latter is the most valuable. Operative treatment and braces come later. This is a short, concise and very excellent article on this subject.

3. Willson emphasizes the importance of abundant fresh air, as near a milk diet as possible, forced water, frequent thorough cleansing of the gastro-intestinal tract, even with castor oil, every second or third day and avoidance of over-medication, as the important points in the successful treatment of pneumonia.

10. De Tarnowsky advocates the seemingly very radical procedure of pouring sulphuric ether into the abdominal or pelvic cavities at operation for pelvic or general peritonitis. In 30 cases no deaths have resulted. [E. H. R.]

THE JOURNAL OF EXPERIMENTAL MEDICINE.

JANUARY 1, 1914.

1. *WIGGERS, C. J. *Does Cardiac Rhythm Alone Determine Human Blood-Pressure Variations?*
2. KRUMWIEDE, C., JR., AND PRATT, J. S. *Observations on the Growth of Bacteria on Media Containing Various Aniline Dyes.*
3. GILLESPIE, L. J. *The Acid Agglutination of Pneumococci.*
4. *HANES, F. M. *An Immunological Study of Pneumococcus Mucosus.*
5. *ROUS, P., AND MURPHY, J. B. *On the Causation by Filterable Agents of Three Distinct Chicken Tumors.*
6. *MARINE, D. *Further Observations and Experiments on Goitre (So-called Thyroid Carcinoma) in Brook Trout.*
7. MARINE, D. *Observations on Tetany in Dogs. Relation of the Parathyroid Tissue Removed. Accessory Parathyroids. Pregnancy, Lactation, Rickets, Sulphur, and Diet. Relations of Parathyroids to Sugar Tolerance; Effect of Calcium Salts.*
8. THOMAS, W. S. *Experimental Hydrocephalus.*

1. Wiggers concludes that changes in cardiac rhythm are not the only determinants of blood-pressure variation in man. Heart-rate changes seem to be the only determining influence in blood-pressure variations in the minority of cases. The majority of cases show the intervention of respiratory influence.

4. Hanes studied the organisms described by Schaumüller under the name of Streptococcus Mucosus, which were obtained from six cases of lobar pneumonia. Inasmuch as his study showed that this well defined group of organisms had definite characteristics which indicated a closer relationship to the pneumococci than the streptococci, he prefers the name of Pneumococcus Mucosus.

5. Rous and Murphy have continued their studies of the production of tumors by means of an emulsion of fresh tumor that passes through a Berkefeld filter. They studied three entirely different varieties of chicken tumors. The filtrate in each instance when injected into another animal, only give rise to growths of the precise kind from which it has been derived. They believe that a group of entities, which are, of course, cell-free, exist in the filtrates, which cause in chickens neoplasms of diverse character.

6. By a comparative study of a trout hatchery in different years, Marine concludes that goitre in fish is a symptomatic manifestation of a fault of nutrition. In this particular hatchery water played no essential part in the causation of goitre. The determining factor seemed to be the diet. [R. I. L.]

AMERICAN JOURNAL OF SURGERY.

JANUARY, 1914.

FRACTURE NUMBER.

1. *MAGRUDER, E. P. *The Treatment of Fractures.*
2. VAN DUYN, E. S *Deductions from Our Experi-*

ence at the Hospital of the Good Shepherd in the Open Treatment of Fractures.

3. ESTES, W. L. *Conservation in the Treatment of Fractures.*
4. BRUCKNER, W. M. *Metal Bone Plating a Factor in Non-Union. Autoplastic Bone Grafting to Excite Osteogenesis in Non-Union.*
5. *ALBEE, F. H. *The Inlay Bone Graft as a Treatment of Ununited Fractures. A Report of Fifteen Successful Cases.*
6. STIMSON, L. A. *On the Diagnosis of Fracture.*
7. YOUNG, J. K. *Vicious Union in the Neighborhood of Joints.*
8. GERSTER, J. C. A. *A Splint for Maintaining Nail Extension During Transport.*
9. *COTTON, F. J. *Astragalus Injuries.*
10. ELSBERG, C. A. *Some Immediate and Remote Results of Fractures of the Skull and of the Spine.*
11. LUCKETT, W. H., AND STEWART, W. H. *Fracture of the Skull: the Roentgen Ray as an Aid in Its Diagnosis.*
12. SHLA, A. W. *The Operative Treatment of Fracture of the Olecranon.*

1. Magruder cites a case of comminuted fracture of both bones of both legs, in which the x-ray showed strikingly similar pictures. One leg was treated by the closed method; the other by an open method with plating, with the result that consolidation occurred four weeks earlier on the closed side. From this and similar experiences, he advocates the closed method in the treatment of fractures when an approximately anatomical coaptation can be secured, but considers operation indicated when there is wide displacement of fragments, and in particular fractures when ankylosis threatens. When operation is indicated, it should be performed as early as possible in order to wash out blood clots and tissue shreds, to bring the soft structures into closest approximation to the bone for the elimination of dead spaces and for splint effect, and in order to relieve the system of the unnecessary task of absorption. To maintain fixation in cases where there is tension, heavy plates are to be avoided, on account of the size of the foreign bodies introduced, which tend to cause pressure necrosis and infection. He finds tinned-steeled-annealed wire, passed partially through the cortex between periosteum and medullary cavity, without entering the canal at all, the best method when applicable, and especially in oblique and spiral fractures. For this procedure he used a grooved bone drill, through which wire is easily passed after the hole is made, and before the drill is withdrawn.

5. Albee points out that in cases of pseudo-arthrosis in ununited fractures in the ends of the fragments there is sclerosis or eburnation, due to a diminution or entire cessation of osteogenetic activity of the cells, with an over-deposit of calcium salts. The therapeutic requirements to meet this condition are fixation, stimulation of osteogenesis in the fragments, and an osteogenetic scaffold connecting the active bone in each fragment back of the eburnated areas. The Lane plate furnishes fixation only; the bone transplant fulfills the last two requirements, and if inlaid furnishes fixation as well. He cites illustrations in a series of fifteen cases of pseudo-arthrosis, in all of which bony union was obtained. His method consists in inserting a notched tibial graft into a groove in the fractured bone. Accuracy of approximation of graft to groove is obtained by the use of a twin saw with parallel blades, the graft being held in place by kangaroo tendon passed through drill holes in each fragment. In cases of ununited hip fracture, he dowels out a bone peg from a tibial graft, and drives this into a hole motor-drilled in the great trochanter through the center of the neck into the capital fragment.

9. Cotton calls attention to all different forms of injury to the astragalus that are likely to be met with. Some of these, when overlooked, give extraordinarily poor functional results; whereas, if the condition is recognized, the reduced cases recover extraordinarily well. The varieties mentioned are too numerous tc be reviewed in this column, but the article will afford a valuable chapter to anyone interested in the diagnosis and treatment of injuries to the ankle.

[G. A. L., JR.]

THE LANCET.

JANUARY 3, 1914.

1. *WRIGHT, A. E., MORGAN, W. P., COLEBROOK, L., AND DODGSON, R. W. *Observations on Prophylactic Inoculation Against Pneumococcus Infections and on the Results Which Have Been Achieved by It.*
2. SEQUEIRA, J. H. *Some Late Manifestations of Inherited Syphilis.*
3. LABBÉ, M., AND BOUCHAGE, A. *Glycosuria in the Course of Affections of the Liver.*
4. HERRINGHAM, W. P. *A Case of Diabetes Insipidus.*
5. PATERSON, P. *An Operation for the Fixation of a Moveable Kidney.*
6. GOULD, A. P. *An Unusual Sequel to Cholecystectomy.*
7. RAW, N. *Tuberculous Rheumatism.*
8. BATTLE, W. H. *Bullet Wound of the Spine.*
9. FORDYCE, A. D., AND CARMICHAEL, E. W. S. *Nasopharyngeal and Cervical Glandular Tuberculosis in Children.*
10. DAVIES, D. L. *Modern Treatment of Lachrymal Obstruction.*

1. In the first part of this article Wright and others discuss the causation, prophylaxis and treatment of the pneumonia which affects native laborers, and in particular the tropical native laborers in the Rand mines. He discusses the preparation of vaccines, technic and dosage, scheme of administration and maximum dosage, and describes in detail various complex experiments on this subject. So far the results show that the natives' natural deficiency in pneumo-opsonic power does stand in some causal relation with his low resisting power to pneumococcic infections.

[J. B. H.]

JANUARY 10, 1914.

1. *WRIGHT, A. E., MORGAN, W. P., COLEBROOK, L., AND DODGSON, R. W. *Observations on Prophylactic Inoculation Against Pneumococcus Infections and on the Results Which Have Been Achieved by It.*
2. *FRASER, H., AND STANTON, G. T. *Unpolished Rice and the Prevention of Beri-beri.*
3. FUNK, C. *Studies on Growth, the Influence of Diet on Growth, Normal and Malignant.*
4. CORNER, E. M. *A Simple and Successful Measure for the Perforation of a Gastric and Duodenal Ulcer.*
5. GRACE, J. J. *Note on the Treatment of Sciatica.*
6. JONES, A. W. *Two Cases of Post-operative Hemiplegia.*
7. SKEVINGTON, J. O. *Secondary Hemorrhage from Deep Epigastric Artery after Operations for Appendix Abscess.*
8. KENNEDY, A. M. *Rupture of the Heart by External Violence.*
9. CATON, R. *Health Temples in Ancient Greece and the Work Carried on in Them.*

1. In this second paper, Wright and others describe their results obtained from therapeutic and prophylactic inoculations of pneumococcus vaccines. The results of treatment of the disease itself showed

nothing in favor of the inoculation method. As a prophylactic method, there was a slight percentage favoring those who were inoculated against the uninoculated cases. They do not recommend any general inoculation against pneumonia, but they urge the further pursuit of investigations in this direction.

2. Fraser and Stanton discuss rice, polished and unpolished, and its relation to beri-beri in the Malay peninsula. They urge that effort be made to prepare a palatable form of unpolished rice and that its use be made obligatory by law if necessary. [J. B. H.]

British Medical Journal.

January 3, 1914.

1. *Gould, A. P. *An Address on Radium and Cancer.*
2. *Morison, R. *A Clinical Lecture on the Triple Syndrome in Abdominal Emergencies.*
3. *Osler, W. *An Address on the Medical Clinic: A Retrospect and a Forecast.*
4. Mackenzie, J. *On the Teaching of Clinical Medicine.*
5. Sprawson, C. A. *A Family with Cerebellar Ataxia.*

1. Gould states that "the true therapeutic use of radium rests upon its selective affinity for cancer cells and not upon a general caustic or destructive power." He then cites in detail five cases and discusses the dangers of this treatment such as danger to the operator, sloughing, thrombosis, hemorrhage and constitutional reactions. He then takes up the limitations of this treatment as regards inaccessibility, metastases, painful local reactions, etc. and whether or not radium should be used as an alternative to operation, citing four cases in which radium seems to be acting favorably in place of a most extensive operation. The article is of great interest.

2. This is a clinical lecture on abdominal emergencies based on eight illustrative cases.

3. This article of Osler's is sufficiently described by the title. It is of great interest and should be read by every one connected with medical schools and medical teaching. [J. B. H.]

January 10, 1914.

1. *Barr, J. *Pneumonia: Its Nature and Treatment.*
2. *Browning, C. H. *Investigations on Syphilis as Affecting the Health of the Community.*
3. MacLaurin, C. *The Treatment of Hydatid of the Liver.*
4. Spencer, W. G. *Two Cases of Tuberculous Peritonitis and Salpingitis with Menstrual Complications.*
5. Mayberry, G. M. *The Administration of Guiacol in Pulmonary Tuberculosis.*
6. Rudolf, R. D. *Epidemic Cervical Adenitis.*

1. This is an excellent clinical article on pneumonia. Barr here considers the incidence of the disease, its relation to race, sex, age; he takes up etiology, prevention, causes of death in adults and children. He discusses the causes of cardiac failure, the use of the abdominal ice bag, the maintenance of systolic blood-pressure, ventilation, etc. In the general principles of treatment he emphasizes the need of sleep; he advocates the use of lime salts, such as calcium chloride, etc., making claims for this method of therapy which, to say the least, must be difficult to substantiate. On the whole, the article is full of common sense except as regarding drugs. If each patient were given all those he recommends, his stomach would become a veritable apothecary shop, and the results might not be good.

2. Browning, in an interesting article, considers syphilis and its relation to public health. His investigation was based on the clinical examination of the patient, the examination of the members of his family, the history of the patient and his family, and the result of the Wassermann test with the blood of the patient and of the members of his family. In this study he takes up the prevalence of congenital syphilis, mental deficiency and epilepsy, heart disease in children, deafness in children, ozena, aortic disease, nervous diseases, eye disease, metritis etc. and its relation to syphilis. His conclusions urge further use of the Wassermann reaction, more thorough treatment in hospitals and institutions whenever possible. [J. B. H.]

Münchener Medizinische Wochenschrift.

No. 1. January 6, 1914.

1. *Baermann, G. *Therapeutic Results with Salvarsan Copper.*
2. Straub, W. *Experimental Chronic Lead Poisoning.*
3. Hacker, V., and Lebedinsky, N. *The Combined Effect of Ether and Radium on Embryonal Cells.*
4. Kleist. *Aphasia and Mental Disease.*
5. Oeller, H., and Stephan, R. *Clinical Studies with Abderhalden's Dialysis Method.*
6. Wegener, E. *Further Studies with Abderhalden's Dialysis Method.*
7. Berndt, F. *Perineal Enucleation of the Prostate.*
8. Lunckenbein. *The Treatment of Malignant Tumors.*
9. *Gibson, A. G. *Preliminary Report on a Streptothrix Infection as the Cause of Banti's Disease.*
10. Kehrer, E., and Dessauer, F. *Studies in Polvimetry by Means of the X-rays.*
11. Beyer, W. *Acute Diphtheritic Bronchitis.*
12. Schüle. *The Intravenous Use of Camphor.*
13. Bucky, and Silberg, M. *A Compression Tube with Bucky's Effect.*
14. Abahary. *Charles Richet.*

1. Ehrlich and Karrer have made a preparation of salvarsan and copper, assuming that the antiseptic action of these two metals together might be greater than that of either one alone. Baermann has used the new drug, therapeutically, in 45 cases of amebic dysentery, frambesia, malaria and leprosy. He describes the method of administration of this compound, the dosage, and the clinical studies which he has made with its use.

The drug had no effect in amebic dysentery, but gave striking results in the local and general treatment of frambesia, in tertian, quartan, and pernicious malaria, and in leprosy. Baermann considers these observations of a preliminary nature, but concludes that the results show for the drug a high chemotherapeutic strength.

9. Gibson has collected six cases of splenic tumor, of which three clinically were Banti's disease, among 300 autopsies or operations. Two distinct types of lesion were observed. In the first, the spleen was infarcted and contained small areas of pigmentation. In the second microscopic examination was more normal except for an excessive amount of blood and for increased trabeculations. The interesting feature of these cases, however, was that sections from each case stained by Wheal and Chown's method showed the presence of streptothrix filaments differing morphologically in the different types of lesion. Although cultures from the organs were negative, Gibson assumes that the splenic lesions were due to the streptothrix infection and that an agent of this kind may be the cause of certain cases of Banti's disease. [R. F.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 52. DECEMBER 29, 1913.

1. EPPINGER. *Concerning the Pathology of the Function of the Spleen.*
2. PEREZ. *Ozena an Infectious and Contagious Disease.*
3. HOFER. *On the Etiology of True Ozena.*
4. *BOSS. *The Relation between the Gall Bladder and the Chemical Reactions of the Stomach.*
5. JACOBS. *Granular Contraction of the Kidneys in Childhood.*

4. The gall-bladder has been considered of importance in preventing a constant flow of bile into the duodenum, irrespective of need for it, and in preparing a thicker and more efficient bile for the digestive processes. Various investigations have been made to determine the effect on gastric secretion of the loss of gall-bladder function, whether through its removal, or obstruction in the cystic duct. Hohlweg has stated that in this condition there usually results either hypoacidity or anacidity. The author presents brief examinations of twenty cases, which do not bear this out at all,—many show entirely opposite results. He agrees with Magnus that, so far as can be determined from the cases examined to date, a continuous, unchecked flow of bile, or on the other hand a diminished one, do not cause regularly either hypo- or hyperacidity. He considers that no definite conclusions can be drawn as to the effect of cholecystectomy on the secretion of hydrochloric acid.

[R. H. M.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 50. DECEMBER 11, 1913.

1. MEYER, O. *Opening of the Tear Sac Through the Nose.*
2. *NOVAK, J. *Atropin Treatment of Dysmenorrhea.*
3. HINTESTOISSER, H. *Postoperative Morphine Poisoning.*
4. SPARMANN, DR. *Report on the Course of Malignant Tumor Treated with Radium.*
5. SCHERBER, G. *Further Report on Cases of Syphilis Treated Early with Mercury.*
6. KERL, W. *Injections of Concentrated Solutions of Neosalvarsan.*
7. STRISOWER, R. *My Experiences in the Cholera Epidemic in Servia During the Summer of 1913.*

2. The author cites 38 cases of dysmenorrhea treated with atropin, of which 30 reacted favorably. The method of the action of atropin is not definitely known, but supposedly it reduces the force of the uterine contraction or lowers the patient's sensitiveness to them. In the former instance it might be of value in preventing imminent miscarriage. [F. S. K.]

No. 51. DECEMBER 18, 1913.

1. KYRLE, J., AND SCHOPPER, K. *Investigations on the Effect of Alcohol on the Liver and Testicles of Rabbits.*
2. ROSSLER, F. *The Treatment of Trachoma with Ultra-Violet Rays.*
3. *PHILIPOWITZ, T. *Contribution of the X-ray Therapy of Lymph Node Tuberculosis.*
4. FREUND, E. *Chemical Principles of Carcinoma Therapy.*

3. The author reports marked success in the x-ray treatment of tuberculosis of the lymph-nodes, and describes his methods. The majority of cases are cured, the others show marked improvement. Twenty-six patients were treated, one was lost track of, the rest gave the following results:

No. of Treatments.	No. of Patients.	Cured.	Nearly Cured.	Improved.
20-28	4	3	1	
10-20	8	2	4	2
3-10	13	0	3	10

[F. S. K.]

No. 52. DECEMBER 25, 1913.

1. PHILIPOWICZ, J. *Appendicitis in Old Age.*
2. *HOFBAUER, T. *The Clinical Significance of Thorax Depression.*

2. The author draws the following conclusions: It has generally been supposed that narrow thorax predisposes to phthisis. Czerny by investigation has proved that it occurs more frequently in children with full rounded chests and in whom the respiratory excursion is comparatively small. In such children the thorax is in a constant state of expansion, and though the static alveolar air is increased the renewal of air is diminished. From the above the author believes that in the usual methods of respiratory exercise that the value of inspiration is exaggerated and that deep expiration is at least fully as important. [F. S. K.]

REVUE DE CHIRURGIE.

JANUARY, 1914.

1. *CRILE, G. W. *The Kinetic Theory of Shock and Operation Without Shock.*
2. *BILLET, H. *The Anterior Routes of Approach to the Elbow Joint.*
3. LEVEUF, J. *The Right Omental Diverticulum in the Newborn, Its Vestiges in the Adult.*
4. FIESCHI, D. *Nevi Tissue.*
5. *HAMANT, AND PIGACHE, R. *Critical Study of Coccygodynia.*

1. Crile's article is a restatement of his familiar theory of anoci-association.

2. Billet believes that anterior approach to the elbow-joint is indicated for capsulorraphy, arthrotomy, or localized bone lesions.

3. Leveuf presents an embryologic study in explanation of the occurrence of pericolic veils and ligaments.

5. The authors believe that the term coccygodynia should be reserved for pain exclusively located in the coccyx. It is due to luxation of the coccyx from external or internal violence. The only treatment is surgical, complete resection of the coccyx, which cures the coccygodynia without involving functional disabilities. [R. M. G.]

REVUE DE MÉDECINE.

JANUARY, 1914.

1. *DEBRÉ, R., AND PARAF, J. *Complement Fixation. The Reaction of the Antigen.*
2. HAMBERT, G., AND ALEXIEFF, W. *Contribution to the Study of Cancerous Meningitis. (Conclusion.)*

1. In a long series of cases Debré and Paraf have performed complement fixation reactions upon the urine of patients suspected of genito-urinary tuberculosis. The antigen was, at first, a source of considerable difficulty, since all the substances employed showed great variation in sensitizing power. The latter, when once established, remained in most instances in its original strength only for a short time

The anti-serum of man, small laboratory animals and artificially protected horses and cows, was employed. Great variation was found from serum to serum and between different samples from the same animal. The serum of the horse was at last found the strongest and most lasting, and was used in the bulk of the work cited in this paper.

The urine from the suspected patient or from the suspected kidney is employed in varied dilutions, and the latter with the antigen and complement is mixed with the hemolytic system. The procedure from this point is similar to that used in the test of Wassermann. When the tests and controls react in the expected manner no trouble results. But, the antigen may become, through age or accidental infection, antihemolytic. The latter can be avoided by proper care in preserving the serum.

On the other hand, the urine, in certain instances, shows such an anti-hemolytic power. This difficulty is overcome with cloudy urines by centrifugalization of the specimen, diluted 1:10. When the urine is clear its anti-hemolytic power is titrated and a sufficient amount of complement is added to neutralize or attach the free antibodies in the urine.

In all, 128 tests were performed upon 83 patients. The findings have been confirmed by animal inoculation and in many instances by pathological examination of tissues removed at operation.

The results show an extremely high percentage of positive readings in cases which were known to be tubercular or were subsequently proved so. The converse is also true.

The importance of this simple and immediate test for the determination of unilateral tubercular renal involvement can scarcely be overestimated.

[L. H. S.]

Miscellany.

MASSACHUSETTS MEDICAL SOCIETY.

STATED MEETING OF COUNCIL.

A stated meeting of the council of the Massachusetts Medical Society was held at the Boston Medical Library, Feb. 4, 1914, at twelve o'clock noon, the president being in the chair and eighty-eight councillors present.

The minutes of the last meeting were read and accepted.

The following delegates were nominated by the chair and duly appointed:

Delegates to the American Medical Association for two years: J. B. Blake, Boston; alternate, Gilman Osgood, Rockland. H. G. Stetson, Greenfield; alternate, L. A. Jones, North Adams. L. F. Woodward, Worcester; alternate, J. F. Burnham, Lawrence. For one year, alternate, R. I. Lee.

Delegates to Maine Medical Association: F. W. Snow, Newburyport; F. W. Anthony, Haverhill.

Delegates to New Hampshire Medical Society: J. B. Thomes, Pittsfield; C. S. Adams, Wollaston.

Delegates to Rhode Island Medical Society: J. H. Gifford, Fall River; E. W. Burt, Westport.

To Connecticut State Medical Society: F. B. Sweet, Springfield; Philip Kilroy, Springfield.

To National Legislative Committee of the American Medical Association, Feb. 23, at Chicago, C. F. Withington.

To Conference on Medical Education, Feb. 24, and to the Association of American Medical Colleges, Feb. 25, at Chicago, H. C. Ernst.

The secretary read the petition of one Fellow for reinstatement, and a committee was appointed to consider the petition.

The reports of the committees appointed to consider the petitions for reinstatement of six Fellows were acted on by the council separately. Five were reinstated and one rejected.

The secretary read two letters from the American Medical Association inviting him to attend a meeting of the secretaries of the state medical societies at the building of the American Medical Association in Chicago on Feb. 25, and to present to this meeting the plan of organization of the Massachusetts Medical Society.

Dr. Arnold moved, and it was

Voted, That the council authorize the secretary of the Massachusetts Medical Society, or some member to be chosen by the president, to attend the proposed meeting of secretaries of the state societies and the conferences to be held at Chicago, Feb. 23 to 25, and that the society defray expenses other than those paid by the American Medical Association.

A letter was read from Wisner R. Townsend, secretary of the Medical Society of the State of New York, advocating the payment of the expenses of the delegates to the House of Delegates of the American Medical Association by the trustees of the American Medical Association. This was discussed by Dr. Arnold, who said: "Having served as delegate to the American Medical Association for several years, and knowing that matters of this sort are considered by the trustees in a very fair spirit, and that they are ready to do everything that is for the good of the association and of the state societies that comes within their means, and inasmuch as this has been presented to the trustees, and it is a question of ways and means, about which we know very little, it seems to me that we are hardly in position to take action at the present time. If the trustees should vote in favor of such action and the association pays the expenses, we should be very glad to be relieved of that expense. If the trustees decide at the meeting that it is inadvisable, I understand that the New York State Society is to bring it before the House of Delegates, and I move that this matter be referred to our delegates at the next meeting of the House of Delegates of the American Medical Association for their consideration at that time."

It was so voted.

The treasurer read his report for the eight and one-half months ending Dec. 31, 1913, and the report of the Auditing Committee was read by Dr. J. L. Huntington.

Voted, To accept the reports.

The report of the Committee on Membership and Finance was presented by Dr. F. W. Goss, recommending that two members be transferred from one district to another, that six be placed on the retired list, and that fourteen be allowed to resign.

Voted, To Accept the report and adopt its recommendations.

The Council voted the following appropriations for the standing committees:—

Of Arrangements	$3000
On Publications and Scientific Papers	$3000
On Ethics and Discipline	$100
On State and National Legislation	$300
On Public Health	$25

Also that three thousand dollars ($3000) from the treasury be distributed among the district societies.

On a query by a councillor as to how the dividend is distributed, Dr. Buckingham said that by a vote passed some twenty or thirty or forty years ago, the dividend is distributed among the different district societies in proportion to the amount of the dues collected by the district treasurer previous to a definite date, the object being to spur district treasurers to get in payments promptly. The time when payments should be considered in advance or in arrears was in the past at the close of the annual meeting. Last year when the new by-laws were made, a provision was inserted that this time should be brought forward, so that now it is the first of June. Thus, in order that a district may be entitled to draw anything on this rebate, payment of dues must be made before June 1.

The dividend is not distributed according to the number of members in a district society, but according to the amount of dues paid up. The society which sends in twenty-five dues with seventy-five members gets just one-third as much as the society which sends in the whole seventy-five dues before the stated time.

Dr. G. B. Shattuck presented the report of the Committee on Publications and Scientific Papers. He read the propositions submitted by Dr. Homer Gage at the meeting of the council on Oct. 1, 1913, and the vote referring the matter to the Committee on Publications, requiring a report at the next meeting of the council. (See BOSTON MEDICAL AND SURGICAL JOURNAL, Oct. 9, 1913.) The report of the committee was as follows:

"The Committee on Publications and Scientific Papers have considered the proposition that the Massachusetts Medical Society should take over the BOSTON MEDICAL AND SURGICAL JOURNAL, and do not consider this step would be wise, even if the owners should consider favorably such a scheme.

"The committee have considered the proposition that the Massachusetts Medical Society should issue a monthly bulletin of its own, and believe that the association with the BOSTON MEDICAL AND SURGICAL JOURNAL, outlined below, offers greater advantages both to the society and to the JOURNAL, and they therefore do not favor the independent issuance by the society of a monthly bulletin.

"The committee have considered the proposition concerning the change in the method of issuing the various publications of the society and a possible closer association with the BOSTON MEDICAL AND SURGICAL JOURNAL, and after conferences with the owners of the JOURNAL, offer the following suggestions, which have already been favorably considered by the owners.

"1. That some connection between the Massachusetts Society and the BOSTON MEDICAL AND SURGICAL JOURNAL is advisable and feasible.

"2. That the BOSTON MEDICAL AND SURGICAL JOURNAL be incorporated under the laws of Massachusetts.

"3. That after incorporation, the owners agree to give one share of stock to each member of a committee of three, to be appointed by the Massachusetts Medical Society, one of whom shall be the secretary of the society, which committee shall serve with the owners as directors of the BOSTON MEDICAL AND SURGICAL JOURNAL, having control over its affairs.

"4. That when a representative of the Massachusetts Medical Society shall cease to serve on this committee he shall surrender his share of stock to the owners.

"5. That the owners agree that as long as the association with the Massachusetts Medical Society shall continue they will transfer their stock only to physicians approved by the board of directors.

"6. That there shall be added to the editorial staff of the JOURNAL, to be appointed by the directors and with the approval of the editor-in-chief, an editor, or editors, who shall represent the Massachusetts Medical Society, and be members of the regular editorial staff of the JOURNAL, having a voice in the conduct of the JOURNAL, as well as in matters which peculiarly concern the society.

"7. That in consideration of the advantages expected to be realized by the Massachusetts Medical Society from its association with the BOSTON MEDICAL AND SURGICAL JOURNAL, and in further consideration of the fact that in the opinion of the present publisher such association may at least temporarily entail increased expense to the JOURNAL, to meet which there are at present no available resources, the Massachusetts Medical Society agrees, if it is necessary in the opinion of the directors, to furnish to the directors from its funds a sum not to exceed two thousand dollars a year for three years, to compensate the JOURNAL for possible financial loss arising from its association with the Massachusetts Medical Society.

"8. That if the association between the Massachusetts Medical Society and the BOSTON MEDICAL AND SURGICAL JOURNAL be terminated before three years have elapsed, the Massachusetts

Medical Society shall not be held financially responsible for any losses to the JOURNAL after the end of the calendar year in which the association is terminated.

"The Committee on Publications and Scientific Papers further recommend:—

"1. That if the above suggestions are adopted, the society abandon the separate publication of its proceedings and medical communications, and that as far as practicable it publish these and all other matter only in the BOSTON MEDICAL AND SURGICAL JOURNAL, in such form as may be later determined. These publications shall be sent to each member of the society.

"2. That as soon as possible some arrangement be made whereby each number of the BOSTON MEDICAL AND SURGICAL JOURNAL be furnished to each member of the society.

"3. That a special committee of three, one of whom shall be the secretary of the Massachusetts Medical Society, as previously stated, be appointed, with power to carry out the recommendations of the council and to serve with the owners as directors of the BOSTON MEDICAL AND SURGICAL JOURNAL for one year."

After some discussion, participated in by Drs. H. Gage, Worcester, Cotton, J. B. Blake, Crowell, Bartol, and Arnold, it was voted to accept the report.

On motion by Dr. J. B. Blake, the privileges of the floor were given to the members of the Committee on Publications and Scientific Papers, and Drs. Taylor and Osgood explained the provisions of the report. They favored a committee of three to consider and put into effect the recommendations of the committee.

Dr. Gage favored a committee to which to refer the report for further consideration on account of the importance of the matter. Dr. Crowell suggested that the question be referred to the Committee on Membership and Finance. Dr. Gage said it was immaterial to him whether it was given to a small committee, the Committee on Membership and Finance, or to an even larger committee, but on general principles, he believed that a smaller committee would be more efficient. Dr. Cotton thought the committee should be a larger one and representative of the state at large, and he moved that the committee consist of the following four officers of the society: president, vice-president, secretary, and treasurer, and five members of the council to be nominated from the floor. Dr. Harrington thought it would be better to have the five appointed by the chair, and proposed this as an amendment to Dr. Cotton's motion. The amendment being accepted by Dr. Cotton, the motion as amended was put by the president and was carried unanimously.

On motion by Drs. Palmer and Cook, it was voted to have the report of the Committee on Publications and Scientific Papers printed and sent to the members of the council, together with a report of the proposed committee of nine.

Dr. Ryder read the following report of the committee appointed to consider the working of the malpractice act:

"Your committee appointed to consider what if any changes should be made in the 'Act for the Defence of Suits for Malpractice,' report that they recommend that the articles stand for the present as they are, with such explanations as are herein described.

"Interpretations of the articles as given by the committee seemed to clear the atmosphere of misunderstanding and to give the secretary of the society a more succinct translation of them.

"Our conclusions were based largely on a report which Dr. George W. Gay received from the secretaries of the various state societies which have a Medical Defence Act, in response to a number of questions which he propounded.

"The epitomized summary of those replies is as follows:—

"The following state medical societies, twenty in all, have a medical defence act for the protection of their members when sued for malpractice: New York, New Jersey, Pennsylvania, Illionis, Iowa, Michigan, Massachusetts, Minnesota, California, Kentucky, Kansas, Indiana, Maryland, West Virginia, North Dakota, Nebraska, Mississippi, Missouri, Vermont, and Wisconsin. In replies to inquiries from all except the last, the following facts show a remarkable unanimity of opinion and practice in the framing of the acts and in the enforcement of the same.

"The act has been in force in the various states from two to twelve years, New York being first in the field, and having had a very large and a very successful experience in its use. The act is satisfactory in all the states with possibly one exception, the only state in which any move has been made to repeal the law.

"The average number of suits brought annually in the different states varies from none to about twenty-five or thirty. Of course a much larger number of threatened actions call for consideration by the medical defence committees, and are disposed of in various ways without coming to trial. In fact, this is one of the chief values of the act.

"The approximate annual expense of the act in the different states varies from nothing to six thousand dollars. Only one spends more than thirty-five hundred dollars annually. During the five years that the Massachusetts Medical Society has had the act in force the annual expense has averaged $385, or about eleven cents annually for each member.

"None of the state societies pay verdicts. They pay for counsel and court fees and perhaps a few other contingent expenses.

"Most of the societies do not pay the medical experts anything except travelling expenses, etc. Only four pay any expert fees and those are only nominal.

"Most of the societies defend their members in all civil suits regardless of the merits of the case. The decision of this question rests with the medical defence committee in all the societies. Two states have no separate committee, the work being done by the president and secretary.

"Private insurance is not generally encouraged. A few advise protection in damages, but not in defence alone. The objections to insurance against verdicts lie in the supposition that it encourages suits for the purposes of obtaining hush money, or settlements without trials. This can be obviated by a restraining clause in the policy.

"Many of the societies aid those carrying private insurance, some dividing the expense with the company. Others only advise, but do not incur any expense. Nearly all of the societies recommend their members to depend upon their counsel; in other words, to place their cases immediately in the hands of the societies for defence. It must be apparent to all that the earlier a case receives investigation the better for the defence.

"The evidence in relation to the advantages of the Medical Defence Act is overwhelmingly in its favor. In only one state has any effort ever been made to repeal, and that was not successful. The medical associations through appropriate committees can do this work much better than any agency. They understand the nature of the situations far better than any others can. They are not in the work for the money they can get, but only to protect the innocent from imposition and fraud. As a rule the societies do not settle cases, and under no circumstances do they pay damages. Hence there is no inducement for a threatened suit with that in view. They may advise the defendant in certain cases to settle, but he pays the bills, not the society.

"The suggestions for amendments to the act as read at a previous meeting of the councillors, which had for their ultimate aim a better understanding of the several articles of the act were as follows:

"1. 'The consideration of excluding from the benefits of our Defence Act all Fellows who have insurance with commercial companies.'

"The committee report that any Fellow according to *Article first* of the act, may avail himself of the privileges of this act, but that it is not the intent of the act to join hands with commercial insurance agencies. It is urged that all Fellows when possible place their defence in the society's keeping.

"2. 'A more exact definition of the sort of suits to be defended by the society: Should a member palpably negligent or culpable be defended—or only those Fellows whose suits involve blackmail?'

"Most of the state societies do defend their members in *all* civil suits regardless of the case, the actual decision resting with the Medical Defence Committee. Your committee recommend that in our society the decision of this question in any individual case be left to the judgment and discretion of the president and secretary as specified in *Article fourth*.

"3. 'Are any suits to be settled? If so, when is the society to assent to the settlement by the Fellow? Should the society ever pay anything toward a settlement?'

"It is recommended that the president and secretary be empowered to *advise* settlement whenever in their judgment such course seems discreet and wise, but that the society shall not assume any responsibility for payment of such settlement.

"4. 'Should medical experts called by an attorney in suits against our Fellows receive any remuneration from the society?'

"It is recommended that expenses only be paid by the society.

"5. 'Should a regular committee be appointed to consider the various questions arising with reference to malpractice suits, *i.e.* a committee on medical defence?'

"While most of the states do have such separate committees, it is recommended in our case that the president and secretary constitute such an advisory board as provided in *Article fourth* of the act.

"6. 'Is further advertising of the act advisable?'

"Your committee say no! Ignorance of the existence of the act is fast being abolished. Every member on joining the society is furnished with a copy of this act.

"7. 'Should all members irrespective of their means, be urged to avail themselves of the benefits of the act, or only those in straightened circumstances? Should Fellows be encouraged to give up commercial insurance and rely on our act?'

"It is recommended that all members avail themselves of our defence whenever possible, to the end that suits brought for the purpose of obtaining hush money may be deterred. Private insurance that pays damages engenders suits. Society defence discourages suits.

It is further recommended that the committee on medical education make some inquiry relating to the amount of instruction on ethics given in the various schools, whose diplomas we recognize, particularly with reference to malpractice suits and the fact that the majority of such suits have been brought as a direct result of the attitude of a fellow practitioner."

Voted, To accept the report and adopt its recommendations.

The committee appointed to draft resolutions on the death of Dr. R. H. Fitz, consisting of F. C. Shattuck, J. Collins Warren, George W. Gay, L. M. Palmer and Alfred Worcester, reported through Dr. Gay, as follows:—

Resolved, That in the death of Dr. Reginald Heber Fitz the Massachusetts Medical Society,

the medical profession, and the community suffer a grievous loss. Born in 1843, taking his M.D. from Harvard in 1868, he then passed two years in Europe, grounding himself thoroughly in the pathology of that day under Rokitansky in Vienna and Virchow in Berlin. His quality was promptly recognized and he was appointed instructor in pathological anatomy in the Harvard Medical School in 1870, succeeding Dr. J. B. S. Jackson as full professor in 1878. In 1892 he was transferred to the chair of theory and practice, resigning in 1908, when the age limit, then in force, retired him from the visiting staff of the Massachusetts General Hospital, to which he was appointed in 1887. He thus rounded out thirty-eight years as a teacher of medicine. Notable as were his services as a teacher of students and wise promoter of advance in teaching methods, his greatest services were as a teacher of the profession. In 1886, he read before the Association of American Physicians his masterly paper on "Perforating Inflammation of the Vermiform Appendix," which forced almost instant conviction that the appendix is the most frequent source of the dreaded "inflammation of the bowels," and also clearly setting forth the salient diagnostic features and surgical treatment. He also proposed the term "appendicitis," which has been universally adopted. In 1889, came his Middleton Goldsmith lecture on "Pancreatitis," again shedding a flood of light upon ill-understood conditions. The paper on pancreatitis showed in an equally high degree with that on the appendix the application to clinical medicine and surgery of accurate pathological knowledge, painstaking collection and sifting of the literature of the subject, and logical reasoning therefrom.

It is safe to say that no physician in recent times did more than Fitz to transfer treatment from the physician to the surgeon. And yet he was always conservative as regards operation and saw clearly the dangers inherent in the *furor secandi* sired by the safety of clean surgery. In his anniversary discourse before the New York Academy of Medicine in 1901 on "Some Surgical Tendencies from a Medical Point of View," and again in his presidential address to the Congress of American Physicians and Surgeons in 1907, entitled "The Border Land of Medicine and Surgery," he applied the curb to the excess of operative zeal. The character of his work and the rapid diffusion of knowledge secured merited recognition while he was still in his prime, and he was fortunate in enjoying for years the appreciation of his notable services to mankind.

Chief among the many honors which came to him were the presidency of the Congress of American Physicians and Surgeons and the Honorary LL.D. from Harvard. He was always ready to serve the Massachusetts Medical Society in any capacity, and was orator in 1894, choosing as his subject, "The Legislative Control of Medical Practice," and treating it with his characteristic thoroughness and lucidity.

He was a firm and loyal friend, with a warmth of heart best known to those who knew him best.

The society and the profession of medicine have lost a shining light; humanity has lost a friend. Let us take his example to heart, and strive, each according to his capacity and opportunity, to emulate, though we cannot hope to rival it.

Voted, To accept the resolutions and send a copy to the family of Dr. Fitz.

The secretary read a communication from the New England Sub-Committee on Obstetrics of the American Association for the Study and Prevention of Infant Mortality, as follows:

The New England Sub-Committee on Obstetrics of the American Association for the Study and Prevention of Infant Mortality called a meeting on December 20, 1913, at the Boston Medical Library to talk over informally the midwife situation in Massachusetts and whether or not it was advisable to act in favor or against any possible legislation which may be introduced into the Legislature of 1914 in the State of Massachusetts. There were asked to this meeting representatives of the medical societies, philanthropic societies interested in the care of pregnant women, social workers, certain physicians, especially from the mill cities in the eastern part of the state. There were about thirty people present at the meeting, Dr. H. W. M. Bennett of Manchester, New Hampshire, told of the workings of the Manchester City Mission where a group of public-spirited physicians with the help of certain philanthropic individuals in the city have done practically all the obstetrics among the poor in the city of Manchester, which is largely a mill town. Dr. Arthur B. Emmons spoke of the work of the Maverick Dispensary at East Boston, where there were no students but the work is carried on by two physicians who give their services for five dollars for each case. Many questions were asked of the workings of the City Mission in Manchester and the Maverick Dispensary in East Boston, and it was made clear that it was not necessary to have students in the community in order that the poor of the community may obtain good obstetric service. After a free discussion, Dr. Emmons brought before the meeting a set of resolutions which, after discussion and some changes, were adopted as follows:

Whereas, one hundred and fifty or more women are illegally practising as midwives, and

Whereas, a proportion of the immigrant population are utilizing these midwives to obtain obstetric services as shown by various investigations, and

Whereas, this problem has been met successfully in at least one industrial city of New England having a large immigrant population, and

Whereas, private organizations in Boston are meeting the necessity among a portion of its immigrant population, and

Whereas, the required standard of obstetrical proficiency for admission to practice of medicine in the State of Massachusetts is admittedly low, and

Whereas, a movement is on foot aimed to put the midwife in the immediate future on an equal standing with the physician before the law, Therefore

Be it resolved that this meeting, held under the auspices of the New England Sub-Committee on Obstetrics of the American Association for the Study and Prevention of Infant Mortality, urge the Massachusetts medical societies, through their geographic units, to organize immediately to meet the above situation in their respective districts by providing obstetric service especially to the large immigrant class, and

Be it resolved that the State of Massachusetts through the Board of Registration in Medicine be urged to amend its laws so as to bring them into conformity with modern medicine.

Be it further resolved that a copy of these resolutions be sent to the Board of Registration and the Massachusetts medical societies.

This was discussed by Dr. Cook, and it was

Voted, To accept the report.

The president nominated Dr. J. W. Stimson as councillor and supervising censor for the Worcester North District Society, to fill a vacancy, and he was appointed.

The resignation of Dr. F. W. Goss as a member of the Committee on Membership and Finance was read by the secretary. Dr. Gay said that this communication separates an old officer from the committee, and moved that in commemoration of his long and faithful service a rising vote of thanks be extended to Dr. Goss for his service.

The motion was put and all rose.

The president nominated Dr. Alfred Worcester to fill the vacancy made by Dr. Goss' resignation, and he was appointed.

Adjourned at 1.45 p. m.

WALTER L. BURRAGE, *Secretary.*

SOCIETY NOTICES.

NEW ENGLAND PEDIATRIC SOCIETY.—The thirtieth meeting of the New England Pediatric Society will be held in the Boston Medical Library, Friday, February 27, 1914, at 8.15 P. M.

The following papers will be read:

1. "Bacillus of Contagious Abortion," Dr. Marshall Fabyan.
2. "Inclusion Bodies in Scarlet Fever." Dr. Lewis B. Hill.
3. "Under what Conditions is the Diagnosis of 'Tuberculosis' in Children Justified?" Dr. John B. Hawes, 2d.
4. "A Voice Sign in Chorea," Dr. Walter B. Swift.

Light refreshments will be served after the meeting.

DR. CHARLES A. PRATT, *Pres.*
DR. FRITZ B. TALBOT, *Sec'y.*

BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on Tuesday evening, Feb. 24, 1914, at the Nutrition Laboratory of the Carnegie Institution of Washington, Vila Street, Boston, Mass., at 8.15 o'clock. The meeting will be conducted by the staff of the Laboratory.

Papers will be presented as follows:—

Mr. T. M. Carpenter, "Effect of Dead Space in Respiration Apparatus." (15 minutes.)

Dr. Francis G. Benedict, "Demonstration of Respiration Apparatus in Rabbits." (10 minutes.)

Dr. Raymond Dodge, "Quantitative Technic for the Knee-jerk." (15 minutes.)

Mr. H. L. Higgins, "The Effect of Posture on the Alveolar Air." (15 minutes.)

Dr. H. M. Smith, "The Measurement of Pulse-Rate by the Oscillograph." (10 minutes.)

Dr. Francis G. Benedict, "A Thirty Day Fast." (15 minutes.)

THOMAS ORDWAY, *Secretary and Treasurer,*
Harvard Medical School.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held at Masonic Temple, 171 Warren Street, Roxbury, Tuesday, Feb. 24, at 8 P.M. sharp.

Business. Communication: "Personal Identification," illustrated. Gustaf Gustafson, Secret Service Bureau.

Refreshments after the meeting.

BRADFORD KENT, M.D., *Secretary.*
798 Blue Hill Ave., Dorchester.

MASSACHUSETTS GENERAL HOSPITAL.—A surgical meeting, open to the medical profession, will be held at 8.15 p.m., on Friday, Feb. 20, 1914, in the lower amphitheatre of the out-patient department. Entrance on either Blossom or Fruit Streets.

The following papers will be presented:—

"Cancer of the Uterus," by Dr. Farrar Cobb.

"A Study of Bloood-Pressure in Hysterectomies and Other Radical Operations," by Dr. Harold Giddings.

APPOINTMENTS.

DR. WILLIAM C. BRAISTED, medical inspector U.S.N., has been promoted and confirmed surgeon-general and chief of the bureau of medicine and surgery of the Navy Department.

RECENT DEATHS.

DR. CHARLES E. SMITH of Whitesboro, Oneida County, N. Y., a graduate of the Albany Medical College in 1858, died from cerebral apoplexy on Jan. 25. For twenty-three years he had been postmaster at Whitesboro.

DR. CHARLES E. FROELICH, who died on Feb. 1 at Hartford, Conn., was born in 1843. He received the degree of M.D. in 1870 from the University of Copenhagen, Denmark. He had practised his profession in Hartford since 1873.

DR. A. F. LE DOUBLE, who died recently at Tours, France, was born in 1845. He was professor of anatomy at the Tours Medical School, and was noted especially for his work on the variations of the muscular system and of the bones of the skull, face and spine.

DR. EDWARD PAYSON FOWLER, who died of pneumonia on Jan. 29 at Pelham Manor, N. Y., was born in Coshocton, N. Y., on Nov. 30, 1834. He received the degree of M.D. in 1855 from the New York Medical College and practised his profession in New York City for over 50 years. He was a member of the New York Academy of Medicine, the New York Neurological Society, and the Medical Society of the County of New York. He is survived by his widow, by two daughters, and by one son.

DR. G. LLOYD MAGRUDER, who died of heart disease recently at Washington, D. C., was born in 1848. He was at one time dean of Georgetown University Medical School. He is survived by his widow, by one daughter, and one son.

DR. DANIEL C. LOGUE, who died on Feb. 3 in Bellmore, L. I., was born at Otisville, Orange County, N. Y. in 1832. After graduating from Wesleyan University, he obtained the degree of M.D. from the New York Medical College. At the outbreak of the Civil War he entered the naval medical service. He became surgeon of the *Monitor*, and is believed to have been the last survivor of her famous engagement with the *Merrimac*. After the close of the war, he settled at Brooklyn, N. Y., where he continued active in the practise of his profession until his retirement in 1900. He is survived by two sons, both also physicians.

Original Articles.

A STUDY OF SOME TYPES OF DISTURBANCE OF THE STOMACH AND INTESTINES ASSOCIATED WITH ADHESIONS INVOLVING THE INTESTINAL TRACT, AND THEIR TREATMENT.

By Henry F. Hewes, M.D., Boston.

The influence or function of adhesions involving portions of the gastro-intestinal tract, as a cause of pathological conditions or disturbance of health and function in the body, has always been something of a problem in medicine.

That adhesions, the result as a rule of some inflammatory affection in the abdominal cavity, as appendicitis, or ulcer, or cholecystitis, or tuberculosis, or the result of surgical operation upon the abdominal organs, do cause such disturbance of the bodily welfare with the production of symptoms, has long been a well recognized fact. The extent to which this pathological factor acts as a cause of disturbance, has, however, only recently become well understood, when through the perfection of the method of investigation of the stomach and intestines by the x-ray under the administration of bismuth, it has become possible to diagnose the existence of adhesions and the resulting mechanical effect of these upon the anatomy and physiology of the gastro-intestinal organs, without actually inspecting the abdominal cavity by operation or post-mortem examination.

As a result of the study of this subject under these conditions we have gained much light in regard to the manner of action of this pathological factor as a cause of bodily disturbance, and of the symptomatologies and clinical pictures which are associated with it. This manner of action of adhesions involving the stomach or intestines is very varied.

The primary action of adhesions appears to be either actual constriction or fixation, binding down to the peritoneum or to other organs, of a portion of the gut. As a result of such action we may have anatomically an actual narrowing of the lumen of the gut at the point of contact, or a kinking or looping, at this point or above it or below it. Even actual strangulation of gut or marked interference with blood supply may occur. Or we may have as a result of such constriction or fixation, a drawing of a portion of the stomach or intestines out of normal position, with the production of an abnormal bending or kinking, or simply a functional disability of the gut, in some portion far removed from the actual location of the adhesions.

With such distortion of the gut we get physiologically a disturbance of normal peristalsis and of the passage of the contents of the gut, in the portion affected, the portion where the constriction or kinking, or drawing out of position, whether at the point of adhesion or removed from it, occurs. Such a condition may give rise to the retardation or stasis of stomach or intestinal contents, above or even below the region where the physiological action of the gut is abnormal, or simply to accumulation of gas in portions above the region, or in other cases to increased rapidity of movements of contents by and below the point affected. Associated with the condition such symptoms as pain and distress, distention, constipation diarrhea, flatulence, vomiting, and marked nerve disturbance, or disturbance of nutrition, or possibly symptoms of so-called auto-intoxication may occur.

This constricting or fixing, or drawing out of position of portions of gut, in addition to the actual mechanical distortion of gut which is affected, appears also, in some cases, either as a result of some mechanical action, or by the abnormal functional conditions which are produced, as stasis of contents in the intestine, etc., to give rise to disturbances in the integrity or function of the gastro-intestinal tract, through the agency of reflex action. Thus in cases, spasm, or abnormality of peristalsis of portions of gut, stasis of contents or gas, may occur in portions far removed from the actual seat of lesion without the finding of any anatomical variation in the portion where the function is disturbed. For example, disturbance of the stomach, with imperfect emptying of contents, may occur in cases where no distortion of the stomach or duodenum is present, and where the only abnormality found is adhesions about the cecum and ileo-stasis of contents.

With the great diversity in the location of adhesions involving the gut, and in the forms of distortion which they cause, and with the complicated manner of action of these abnormal conditions upon function, it is clear, *a priori*, that the symptomatologies found in association with this condition of adhesions causing disturbance in the body, must be very varied. As a matter of fact they are, running well through most of the types of symptomatologies of gastro-intestinal disturbance, and of various types of nerve disturbance as well.

Many cases of this kind have, for example, the one symptom of constipation with perhaps some associated abdominal discomfort. Others with or without constipation complain chiefly of flatulence, accumulation of gas, distention, of all-gone sensation and depression.

On the other hand, some cases have violent pain and colic, and tenderness, suggesting appendicitis, or duodenal ulcer, others have severe diarrhea, others gastric symptoms of distress in the epigastrium, belching of gas, vomiting.

The symptomatologies depend to some extent doubtless upon the location of the actual lesion, or the point where the actual distortion of the gut, or functional disturbance induced by the lesion, occur. Exclusively gastric symptoms,

for example, occur more frequently where the adhesions are located near the stomach or high up in the intestine. However, they may occur where the actual adhesions are at the cecum, the fixation at the point and the dragging out of position of the gut resulting, causing distortion at the pylorus or in the position of the stomach. Or they may occur here apparently simply as a reflex from conditions lower down.

Lesions involving the same portion of intestine may in two cases give very different sets of symptoms. Thus some cases with fixation or constriction of the cecum, may have constipation, others may have alternating constipation and diarrhea, others continuous diarrhea, all depending partly upon the actual functional disability which the lesions set up, as retarded peristalsis with stasis in one, extra peristalsis or spasm of the ileo-cecal valve in another, and partly doubtless upon the nervous temperament and constitutional character of the individual affected.

A majority of these various symptomatologies found in association with adhesions, or distortion or disturbance of the gastro-intestinal tract due to adhesions, are clearly in no sense pathognemonic of this condition, since similar symptomatologies are found in association with other pathological or functional disturbances of the body. For example, constipation with some sign of abdominal discomfort, perhaps the most common symptomatology of adhesions, is a frequent finding of purely functional disturbance of the intestines, or of various conditions of organic disturbance other than adhesions. The continuous diarrhea often seen with adhesions is a symptom of functional disturbance, inflammatory colitis, improper assimilation of food. Alternating constipation and diarrhea is a common symptom of mucous colitis and of nerve disturbances. The stomach symptoms seen with adhesions are often similar to those found in nervous dyspepsia, in some cases of ulcer of the stomach and duodenum, and in gall stones.

Diagnosis or probable diagnosis that the symptoms in any given case are the result of adhesions can be made only by supplementing the study of symptoms with an x-ray examination, and in case of a positive finding, an exclusion of definite evidence of other conditions capable of causing similar symptomatologies.

Treatment of conditions of disturbance due to adhesions depends in each case upon the exact character of the pathological lesion or functional disturbance caused by the adhesion. In many cases complete relief of symptoms may be secured by a proper system of medical, as distinguished from surgical, treatment. In other cases surgical interference alone can produce a cure.

Since adhesions and their results are a common cause of conditions of disturbance, and since we possess successful methods of treatment of many of the conditions having adhesions as the primary cause of disturbance, and since the treatment is special in these cases, depending upon an understanding of the exact conditions present, it is essential, that in all cases of gastro-intestinal disturbance which cannot be accounted for by the accurate diagnosis of the existence of other pathological conditions, the possibility of adhesions as the cause of symptoms should be considered, and investigated by proper methods.

As an illustration of this subject, the influence of adhesions as a cause of conditions of disturbance of the stomach or intestines, and of the character and efficacy of special forms of treatment for the relief of these disturbances, I give the records of some cases, selected from the many cases of this type of malady which have come under my observation.

CASE 1. Male. Age 35. For at least 25 years the patient has been subject to frequent attacks of diarrhoea. The spells of looseness last from several days to two or three weeks. The number of movements vary. As a rule there are three or four a day —always very loose. Movements are of brown color. Mucus or blood have never been noticed by the patient. There is pain or cramp at times before a movement. At other times during the attack there may be a dull disturbed feeling in the abdomen. Attacks are more frequent in summer but occur throughout the year.

Food stuffs with large unutilized residue, as fruits and green vegetables always promote diarrhoea—but the trouble may occur on any diet. At times the patient has gone a month without an attack. He may have spells of one regular daily movement, without drugs, for a period of weeks between attacks. Then comes a period of constipation and then an attack. At other times he is constipated throughout the interval.

For the last three years the amount of diarrhoea, and of intestinal discomfort when not having diarrhoea, has been much increased. In 1911 the patient was operated upon for the removal of his appendix. Evidence of the previous inflammation of the appendix was found. Since the operation there has been just as much trouble as before.

There have never been any symptoms of dyspepsia, such as distress in upper abdomen after food, eructations of gas, etc.

The patient loses and gains weight by times but thinks he is always under weight.

Physical Examination: Condition of nutrition good. Haemoglobin 100. Heart and lungs normal.

Examination of faeces, obtained during a spell of looseness, shows a loose unformed stool, not watery, of brown color. No mucus or pus present. Blood test negative. Food elements all increased in amount over normal but no excess of any one form, when patient was on a test diet, as the Schmidt diet. The faeces were excessively acid.

X-ray examination with Bismuth shows

1. No abnormality as to stomach or duodenum.
2. Fixation of caecum to abdominal wall.
3. Marked 9 hour ileo-stasis, some 24 hour stasis in lower ileum, caecum, and ascending colon.
4. The transverse colon in its first portion shows a marked downward loop.

The x-ray report reads: "marked ileo-stasis with fixation of caecum by adhesions and an abnormality

of the transverse colon suggesting the possibility of kinking at this place."

The record of the case with the clinical history of alternate constipation and diarrhoea, the finding of ileo-stasis, of adhesions fixing the caecum and of the abnormality in the colon, suggests the following theory of the case.

As a result of a tendency to stasis of contents in the intestine, due probably to the fixation of the caecum and the abnormality in the anatomy of the colon, the intestines are not freely emptied regularly. The backed up intestinal contents, either by fermentation and consequent irritation of the gut, or by reflex action coming as a result of the abnormal quantity present, induces, at periods, increased peristalsis to relieve the condition, and periods of diarrhoea follow.

Acting upon this theory of the case the patient was placed under the regular administration of agar agar powder, mixed with small portions of calcium carbonate, with the idea of keeping the bowels regular without the use of cathartic drugs, that is to prevent the gradual backing up of the intestinal contents which in the past has preceded the diarrhoea attacks.

The diet used consisted of meat, fish, eggs, bread, potato, macaroni, rice, simple cereals, peas, custard, ice cream, eliminating foods with large refuse as fruits or green vegetables.

This system was installed June last. Since that time the bowels have moved daily with good full formed movements. There has been but one period of looseness, occurring about two weeks after the system was started, and this lasted but two days.

Otherwise there has been a complete disappearance of symptoms. This period of five months of freedom from symptoms is much the longest that the patient has ever had, and the result of the study of the case has so far indicated that the malady, or abnormal condition, can be controlled by this method of treatment.

Case 11. Male. Age 55. In 1886 the patient had a bad attack of diarrhoea in the summer lasting two weeks. Since that time he has been subject to occasional periods of diarrhoea lasting for a few days. These periods he has found as a rule follow a few days of constipation. For most of the time however between 1886 and 1910 his bowels have been regular and he has suffered only from the occasional attacks of constipation and diarrhoea coming perhaps three or four times a year.

In 1910 he was operated upon for the removal of the appendix. The organ was found to be acutely inflamed with some serum in the peritoneal cavity. Since this operation he has suffered almost constantly from constipation and has had to use drugs regularly for his bowels. There has been the same history of an occasional spell of looseness independent of the use of cathartics. In this period he has suffered at times from dull distress in his lower abdomen.

In 1911 in July he had a severe attack of diarrhoea lasting three weeks which was called colitis by his physician. He had several short attacks of diarrhoea up to October. From October, 1911 to July, 1912 he was constipated with rare short periods of diarrhoea. Since July, 1912 he has had alternate periods of constipation and diarrhoea, and marked intestinal discomfort much of the time. That is he has been constipated for a period of 2—3 weeks then had a few days of diarrhoea, then another period of constipation.

In the diarrhoea periods the faeces have contained much mucus. No blood noted.

Sept. 1st in London he had an x-ray investigation. The report of this examination is as follows.

"Marked ileo-stasis and caecal-stasis. Evidence of an abnormal condition of the walls of the caecum. Evidence of the existence of adhesions in the region of the caecum."

In London where his symptom at the time was constipation with much intestinal discomfort, he was placed on a treatment of paraffin oil and senna, used daily, and he has been on this treatment since. Under this regime he has had continual looseness of the bowels, one to three daily movements, and much discomfort.

He has not noticed that diet has much effect upon his trouble in the past.

Examination Nov. 8, 1912.

Physical Examination Normal. Haemoglobin 100. Examination of faeces—stool very loose and filled with gas bubbles, mucus present, no pus. The faeces were very acid. Blood test negative.

In the early history of this case we find a tendency to an occasional period of constipation followed by a day or two of diarrhoea. For most of the time the bowels were normal.

After the appendix operation constipation became a continual trouble with an occasional loose spell. It seems probable that this condition of constipation was due principally to the effect of the adhesions about the caecum following the appendicitis, or the operation for the removal of the appendix.

In recent periods with the more marked constipation, the diarrhoea spells have been much more severe and the amount of intestinal discomfort much increased.

During the last months there has been continued looseness, due probably to the constant use of cathartics, and continued intestinal discomfort.

As a result of the study of this case the theory was adopted, as in the first case, that the spells of diarrhoea were due primarily to the constipation, and tendency for the contents to collect or stagnate in the intestines. The primary cause of the trouble was in this case adhesions and injury to the intestinal wall.

The first step in the treatment of this case was the removal of all cathartics, under the use of which the patient had not prospered, to study the case under natural conditions. Injections of oil were given to promote defecation.

Under this regime the patient would go for several days with regular movements, then there would come a day of much intestinal discomfort followed by explosive diarrhoea. The faeces passed on these occasions were very foul. No one predominant form of bacteria could be isolated. Always a large growth of colon bacillus was present. An excessive growth of the gas bacillus was present.

Apparently even with the enemata there was the same tendency to stagnation of contents high up, which characterized the case, less marked with the enemata but still present, and the following intermittent periods of diarrhoea.

The patient was then placed upon regular administrations of agar agar powder and calcium carbonate.

Under this regime large daily defecations of formed faeces occurred, the occurrence of diarrhoea spells became less frequent and finally ceased. The

patient is now going upon doses of agar alone, and is practically without symptoms for months at a time.

These two cases, with evidence of the existence of adhesions and abnormality of the gut in the region of the cecum and first portion of the colon, show a marked similarity in their clinical character. In both we have as the principal symptom the intermittent occurrence of periods of constipation and diarrhea. In both the symptoms yielded to the same form of treatment devised to prevent the occurrence of the stagnation of the intestinal contents by promoting regular peristalsis all along the line.

The clinical findings in the two cases differed, however in one important feature. In number one the examination of the feces never revealed any abnormality save the looseness of the stools, with the evidence of excessive fermentation. In number two, however, mucus was always found present in the earlier examinations of the feces. In other words, the second case had some resemblance to the condition known as mucus colitis, in which as you know, the symptoms are frequently of a type similar to those seen in this case, that is, symptoms of alternating constipation and diarrhea. This observation on this case is one of many which tend to substantiate the well- known theory that many conditions described as mucus colitis are in reality symptom-complexes representing the result of the existence of adhesions involving the colon.

This type of symptomatology seen in these two cases represents one of the most common clinical pictures associated with adhesions involving the intestinal canal. In cases with this type of symptoms the lesion is as a rule in the region of the caecum or colon, or possibly the ileum. The cases come to the physician complaining, as a rule, of the diarrhea. But it is the constipation which must be treated, even in the cases which do not show the ordinary sign of constipation, that is, cases which have a regular daily movement of the bowels.

Before instituting treatment in these cases the physician must first establish the fact that adhesions, or distortion of the intestine, or caecal- or ileo-stasis are present. For the symptomatology alone does not necessarily mean this condition. It may occur from other causes where the specific treatment used here is not efficacious, as, for example, in some cases of actual colitis, in conditions of neurosis or debility, or from improper diet. Once assured that the lesion in question is present as a probable cause of the symptoms, the medical treatment described should be instituted. If this fails, operative procedures for cure may be considered.

As regards the treatment of cases of this type, that is, conditions of adhesions affecting the gut giving this special type of symptomatology of alternating constipation and diarrhea, it may be said that the general principle is the promotion of undelayed progress of the intestinal contents throughout the course of the alimentary canal, and the consequent prevention of stasis or stagnation. The details of the treatment are not necessarily in all cases the same. In these two cases the agent which was used successfully to promote regularity of action of the intestines was agar agar. This acts primarily by giving bulk to the intestinal contents and thus promoting peristalsis by natural means similar to the action of plentiful food residue. It does not act as a cathartic drug in the ordinary sense of the term, that is by stimulating peristalsis, by unnatural action upon the walls of the intestine, or by causing an unnatural or liquid condition of the feces.

Promotion of active peristalsis or excessive movement of the intestinal contents by means of real cathartics is not in my experience a successful means of cure in these conditions; at all events not as successful a means as the use of agar or of some therapeutic agent acting along similar lines. In the first place they are apt to cause continued looseness even if ileo-stasis is prevented. Secondly, they act more upon the colon than upon the region of the lesion. Case two, as you remember, had been subjected to a course of cathartic administration for a considerable period before I saw him, with no improvement in the condition.

The same statement may be made in regard to the use of enemata for the treatment of this condition. These agents may prevent constipation in the sense that they ensure regular defecation. But they do not in all cases promote regular movement of the intestinal contents in the region of the lesion, which is frequently too high up to be affected by them. They simply clear out the lower bowel, leaving the ileo-stasis as before. They may work where the adhesions or dilatation of the gut is situated in the transverse or descending colon. But at best they are a cumbersome and artificial means of treatment as compared with the agar.

Many cases of this type do not show actual constipation in the sense of absence of a daily movement. The constipation is higher up than the colon.

In the considerable number of cases of this type which I have treated successfully by medical means, I have found the administration of agar agar the most universally serviceable of any one means of achieving relief of symptoms. It can be taken continually over long periods of time without necessity for increase or dosage such as is seen in the use of cathartics, and cannot be said to inculcate a habit save in the sense that the use of foods with large residue, fruits, etc., may be said to cause a habit. Often it may be necessary at the start of treatment to use a cathartic or enema, but this should be discontinued after a few days.

In some cases of this condition other means of promoting regular intestinal action are equally successful, or even more successful. Some cases show complete relief under the use of Russian oil or other paraffin oils; others do well under a

system of massage or of exercises devised to promote action of the abdominal muscles. In some cases a combination of all these agents is necessary.

A considerable number of these cases do not yield to any form of medical treatment. In such cases surgical interference for the removal of adhesions, or short circuiting of the intestine may result in cure.

Case 3 represents another type of intestinal disturbance associated with this same underlying condition of adhesions involving the gut.

A. M. Age 25. Date of visit March 20th, 1913. For 8 to 10 years the patient has been troubled with diarrhoea. The trouble has been present to some extent almost continually during the time. Most of the time there are three to five movements daily, loose in character. There is no special pain associated with the trouble save some colic just before a movement, but often there is a sense of discomfort in the lower abdomen associated with excessive rumbling of gas.

Occasionally the patient will have a period of three to five days when there is but one movement daily, sometimes a formed movement. Very rarely this has occurred for as long a period as two weeks. Following such periods the patient almost invariably has a period of excessive diarrhoea starting with fifteen to twenty movements daily and gradually getting down to three or five a day. The periods of looseness last three weeks to two months. Rest in bed in such periods may reduce the number of movements to one or two a day but then diarrhoea always returns upon resumption of regular manner of living. The patient loses and gains weight in turns but never weighs as much as she should. She is not very strong but her general condition is not as bad as might be expected with such a history. She is able to work except in the periods of very severe diarrhoea. There is no history of symptoms at any time suggesting an attack of appendicitis. No typhoid.

Examination: . The patient is thin but fairly nourished. Haemoglobin 90%. Blood examination otherwise negative. Temperature normal. Pulse 80. Heart and lungs normal. Abdominal examination negative except for a slight tenderness in the right iliac fossa.

Examination of Faeces. Stool loose, about the consistency of porridge. No mucus, pus, or blood present. Blood test negative. Food elements present in increased amount but no excess of any one form, suggesting a specific fat or cellulose diarrhea.

The patient was advised to have an x-ray examination of the abdomen. In the meantime she was placed upon a regime consisting of a low refuse diet consisting of meat, and toast without butter, and the administration of bismuth. Under this regime, according to reports by letter the condition continued unabated. For a day or two under the bismuth there would be one daily movement but this was always followed by excessive diarrhoea. For some reason the x-ray examination was deferred.

April 10th the patient reported that for two days she had had a good deal of pain in the right iliac region and some nausea, but no vomiting. The bowels were loose as usual.

Examination at this time showed marked tenderness in the right iliac fossa with, however, no palpable mass. Temperature 100. Pulse 100. Blood showed a white count of 12000 per cmm.

The patient was placed in bed. The temperature remained between 99 and 100.5 for four days, then subsided to normal. The tenderness decreased but never wholly disappeared. This represents the first record of any disturbance suggesting appendix trouble in the history of the case.

Following this the x-ray examination with bismuth was made. It showed evidence of adhesions in the region of the caecum. The caecum was firmly bound down and immovable. The bismuth could be seen by the fluoroscope examination to pass freely back and forth through the ileo-caecal valve as if the valve were continually open. There was no ileo-stasis and no marked caecal stasis.

The explanation of this case as deduced from this record appeared to be the following:—As a result of an attack of appendicitis which occurred perhaps 8 to 10 years ago and was unrecognized, adhesions were formed binding the caecum and so affecting the gut that the ileo-caecal valve was not properly closed. April 10th, 1913, a slight recurrence of inflammation in this region occurred. As a result of this abnormal condition in the region of the caecum the contents of the intestine passed continually through the valve in both directions, thus keeping up a nearly continuous diarrhoea.

The patient was operated upon June 25th. The finding at operation was as follows:

A nearly obliterated appendix bound down by adhesions. Adhesions about the caecum binding it firmly to the peritoneal wall and apparently pulling upon the region of the ileo-caecal valve in such a manner as to keep the valve open.

The appendix was removed and the adhesions were separated to obviate all distortion and fixation of the caecum. Since operation there has been up to the present date, Jan. 1, 1914, complete freedom from diarrhoea.

This case differs from the first two in that the symptomatology was one of continuous diarrhoea rather than alternating diarrhoea and constipation, and that physiologically excessive peristalsis of the contents through the ileo-caecal region, rather than retardation, was present.

This case showed a symptomatology, continuous diarrhoea, less common in association with adhesions affecting the gut, than that found in the first two cases, alternating constipation and diarrhoea, but still not uncommon as an associate of this condition.

Apparently the effect of the adhesions in the case, as revealed both by x-ray examination, and examination at operation, and as suggested by the symptomatology, was to increase the activity of the movement of the intestinal contents, in marked contrast to the condition in the first two cases, where the effect was to retard the proper movement of the contents. Whether this result was due to actual distortion of the valve, or to spasm or reflex action I cannot say. At operation the valve appeared to be open.

I have seen several cases of this type showing an open ileo-caecal valve as revealed by x-ray examination, both under administration of bismuth by mouth, and by the use of bismuth enemata. Some of them show caecal- and ileo-stasis of bismuth in spite of the open valve, while some, like this case, show no stasis. Most

of them showed symptomatology of more or less continuous diarrhea except when kept in bed, as contrasted with the alternating constipation and diarrhea, or the continued constipation seen in the majority of cases of adhesions affecting the caecum or colon.

CASE 4 is an example of adhesions involving the intestine, giving a symptomatology of stomach disturbance, rather than intestinal disturbance as seen in the cases already reported.

Aged 55. Date of visit October 26, 1912. For a year or more the patient has suffered from dyspepsia. Two or three hours after meals he has a gnawing sensation in the pit of the stomach, associated with the belching of gas. There is no acute pain, no pyrosis or vomiting, occasional heartburn. The distress comes late in the forenoon, in the late afternoon, and sometimes at bed time, also at times in the early morning before breakfast. The taking of food, even of a few crackers, always relieves it. There is no distress immediately after meals, in fact, as stated, meals relieve symptoms. The spells of trouble are intermittent. He may be entirely free from symptoms for four days to a week and then have symptoms daily for one to three weeks. The bowels are regular. There is no appreciable loss of weight, but the patient has become very nervous and does not feel up to the mark as before this trouble began. There is no history of a former attack of appendicitis or of typhoid.

Examination. Well nourished. Haemoglobin 100%. Heart and lungs normal. Abdominal examination normal.

The fasting contents of the stomach obtained by tube twelve hours after the previous meal, a full dinner, gave the following findings: Amount 55 cc. Clear and watery, with slight sediment consisting, as seen under the microscope, of a considerable number of starch granules and fat drops. Free HCl was present. Blood test negative. Test meal contents obtained one hour after Ewald meal showed a total free HCl of 0.28%—that is, an excessive amount of acid.

The faeces gave a negative blood test upon several occasions. Stools were of normal size and character.

The results of this special examination of the stomach, together with the symptoms, suggested the presence of some lesion causing some constriction or spasm of the gut at or near the pylorus, or in the duodenum. The symptoms could have gone perfectly well with a simple hyperacidity, but the presence of 50cc. of acid contents, a hypersecretion, with an abnormal amount of food residue, as microscopically observed, a slight stasis in the stomach, suggested the existence of either an old ulcer in the duodenum or of some other cause, resulting, either by actual constriction or by reflex action, in the undue accumulation of gas, and possibly at times, of acid contents in the stomach.

X-ray examination showed

1. A marked six hour bismuth residue in the stomach.
2. Pyloric sphincter and duodenal cap well defined but dilatation of upper portion of duodenum apparent.
3. Nine-hour ileo-stasis, and evidence of adhesions about caecum.

From the combined findings an absolute diagnosis of some process causing a tendency to backing up of contents in the stomach, and a probable diagnosis of old duodenal ulcer as the underlying process, was made. Medical treatment was tried for a considerable period, as the tendency to stasis in the stomach was so slight that it was hoped it could be overcome by a proper method of dieting and hygiene. Improvement in symptoms but not cessation occurred. The case was then operated upon.

The findings at operation were:—

1. Adhesions between the duodenum and right wall of the abdomen. Some dilatation of duodenum above adhesions. No ulcer was found.
2. Evidence of a former appendicitis with adhesions about cecum.

The patient at the present time, six months after operation, has a complete absence of symptoms.

Note that in this case there was in the clinical findings, the findings by tube and the x-ray findings, evidence of disturbance of the function of the stomach in emptying its contents within the normal period, although by the finding at operation it was found that the adhesions present caused no actual obstruction of the pylorus or pulling or distortion of the stomach.

This is an example of what I have already described as the reflex action, of adhesions involving the gut, the setting up of disturbance of function, stasis and hyperacidity, and of subjective symptoms, in a portion of the gut in a region removed from the actual point of the adhesions, with no actual distortion present in the former region.

Six-hour gastric stasis of bismuth, less commonly twelve-hour stasis of food contents, are not infrequently found in cases where the adhesions are confined entirely to the cecum. In some cases such adhesions, though located far from the stomach, do by their dragging of the viscera out of position, cause some actual distortion of the stomach, or disturbance of its function, by actual mechanical effect. It is thought by some that ileo-stasis with consequent dragging down of the viscera by the load may sometimes do this. But in this case, as in several others, the stasis in the stomach appears to have been reflex from the action of the adhesions upon peristalsis lower down.

CASE 5. F. P. Age 38. Date of observation Nov. 9, 1912.

History. Five years ago the patient was operated upon for an acute attack of appendicitis. About one year after this he began to notice a heavy feeling in the epigastrium coming soon after eating. This was not present every day but bothered him off and on. One year ago the stomach symptoms became much more constant and troublesome. Distress soon after eating was often very marked. There was accumulation of gas in the stomach with distention and relief by belching at times. Six months ago the patient was jaundiced for a period of two months. At present he suffers from dyspepsia most of the time, is afraid to eat, and has lost fifty pounds

in weight. His bowels are regular. He has never vomited.

Examination. Haemoglobin 90%. Fasting contents of stomach, 10 cc. No food. No blood. Inflation shows size and position of stomach normal. Test meal contents. Free HCl=.05%.

X-ray examination. Peristalsis of stomach normal. No 6-hour bismuth residue. Caecum firmly held down by adhesions. Stasis of contents in ileum and in caecum. Operation showed adhesions fixing the caecum, adhesions extending from caecum and ascending colon to gall bladder and involving the region of the common duct and portal vessels.

January 1, 1914. Since the operation the patient has been free from symptoms.

In this case the symptoms, with the exception of the jaundice, were mostly those suggesting stomach disturbance. No evidence of actual stasis in the stomach, as in the last case, was found. It is true that the symptoms of distress, and of accumulations of gas, complained of by the patient, and laid by him in his stomach, may have been pain and accumulation in the intestine. But at all events the history was one of stomach disturbance.

SERODIAGNOSIS OF PREGNANCY. A REVIEW.*

By A. K. Paine, M.D., Boston.

One of the striking recent advances in obstetrics has been the formulation of the serodiagnostic test of pregnancy.

Needless to say, the diagnosis of the existence or non-existence of pregnancy is a factor of considerable importance in obstetrics, and it is true, as with many other things in the practice of medicine, that its solution depends almost entirely on individual judgment, subject to all the uncertainties and errors which attend such efforts. That individual skill and much experience increases the percentage of opinions that later prove to be correct is also true, but opinions only they remain until proved or disproved.

The wonderful advances made during the last two decades in the practice of medicine are the result largely of the illumination here and there of its mysteries by the bright light of scientific accuracy emanating from the modern medical laboratory. That this irregular illumination discloses complexities beyond even our imaginations only emphasizes the utter darkness in which we have struggled.

For the first time it seems a possibility that the subject under discussion may be lifted from the plane of conjecture to that of accuracy. Various attempts have been made to develop some method whereby the diagnosis of pregnancy could be accomplished by enlisting the aid of the laboratory; the antitrypsin test as carried out by Franz, Jarish, Rosenthal and Jochmann was one of these, a marked increase in the antitrypsin index indicating pregnancy, but as such an increase is also observed in a great number of diseases and disorders, its value as a diagnostic aid was nil. The complement fixation test of Fieux and Mauriac is open to the same objections, while the epiphanin reaction of Mosbache and the adaptation of the miostagmin reaction by Julchiero are impracticable and not confirmed.

It remained for Emil Abderhalden, director of the Institute of Physiology at the University of Halle, to offer a method whereby the diagnosis of pregnancy may eventually become a procedure of scientific accuracy.

This procedure is based on certain facts which have been disclosed by researches in the biochemistry of protective ferments. It has been demonstrated that substances containing elements common to body tissues, but of a different formation are, when introduced into the body, altered by various processes until their composition corresponds to that required by or acceptable to the body. The digestive process itself by which food is converted into body tissues represents perhaps the most commonly considered type of this procedure. Further, if these foreign substances are introduced directly into the blood there is created in the blood an agent described as a protective ferment, which attacks the foreign substance, reducing or changing it to substances tolerated or acceptable to the organism. Again, and of even greater interest and importance, each specific substance which may be introduced causes the formation of a specific protective ferment which attacks that substance, but no other. It is along these lines that Abderhalden has been working, and some of his experiments are extremely interesting.

If the serum of a dog is placed in a polariscope together with cane sugar no rotation occurs, indicating that there is no cleavage between the two, but if the dog's blood has first received an injection of cane sugar, that serum placed in a polariscope with the sugar exhibits rotation or cleavage, indicating that there was developed in the dog's blood as the result of the presence of the foreign matter, sugar, a substance which has the property of attacking sugar, changing its structure to one acceptable to the organism.

Abderhalden has further shown that substances natural to the body are foreign to the blood when introduced directly into it, causing the appearance therein of specific protective ferments. For instance, kidney tissue, or cells introduced into blood cause the appearance of ferments which are specific for such tissue, and further that such ferments are specific for the kidney tissue from other dogs as well. Another fact on which this procedure was based was the demonstration by Schmorl, Veit and Weichardt, that shortly after pregnancy begins and continuing for some days after its termination, chorionic epithelial tissue or cells from time to time enter the maternal circulation. Abderhalden was able to demonstrate that these chorionic cells

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in the blood stream gave rise to the formation of a specific protective ferment which attacks these cells, causing them to lose their individuality, becoming thereby acceptable to the blood, and Abderhalden's serodiagnosis of pregnancy consists in the demonstration of these protective ferments in the blood of a pregnant woman. The demonstration itself consists in showing that the serum of a pregnant woman will react on placental tissue, *i.e.* chorionic cells, outside of the body, owing to the presence in the serum of these ferments with a predilection or specificity for chorionic tissue, these ferments being developed in the blood of the pregnant woman to combat the invasion of its stream by chorionic cells, an occurrence continually happening, as shown by the work already mentioned, and corroborated by the investigations of Peters, Strahl, Beneche, Brice, and Teacher, who further showed that these cells are present in the blood stream as early as the first month of pregnancy. With these chorionic cells in the maternal blood, protective proteolytic ferments are mobilized which will cause cleavage of human placental albumen and its reduction into peptones and amino acids. Abderhalden states that there is in all probability a much greater exchange of substances between the placenta and the maternal blood during pregnancy than simple chorionic cells, which opens up a field of vast possibilities in the investigations of the various phenomena of pregnancy, particularly with reference to the so-called toxemias which may represent some disturbed balance between the entrance of various substances foreign to the blood and the production of the protective ferments to combat such an invasion. The study of the protective ferments offers an alluring prospect in other subjects than obstetrics, the work of Fuchs being especially interesting. He reports experiments which confirmed the absolutely specific nature for the organ involved of the ferments demonstrated by the Abderhalden technic. The serum of rabbits treated with human kidney tissue was able to digest kidney tissue in eighty-eight hours, while it did not digest liver tissue, and vice versa. He has also confirmed in further research the findings of others in regard to the specific digestion of testicle tissue by the serum of men with dementia precox and of ovary tissue by women under similar circumstances, but never the reverse. Also the total absence of any digesting property for the ovaries or testicles in the serum of patients with depressive mania, and further, the positive reaction in cancer cases. The reaction proved specific for the organ whether derived from human beings, calves or laboratory animals, and it was equally pronounced irrespective of the species.

The diagnosis of pregnancy by demonstrating the presence in the blood of a proteolytic ferment specific for placental albumen, as can be imagined, is a complicated procedure necessitating laboratory technic of a high grade. Abderhalden has from time to time changed, improved, and simplified his technic, all the while insisting upon the necessity of an absolute regard for the most minute details of the work. That other investigators were, especially in the beginning, unable to secure the same results as he himself did he attributes to errors in technic, and that most investigators appreciated this fact is witnessed by the character of their work, which improved as they eliminated the various sources of error. To illustrate the ease with which the results may be negated, one instance might be cited. Two investigators, Schimpert and Hendrey, working in Freiberg, were unable to substantiate Abderhalden's results. They went to Halle and worked in his laboratory perfecting their technic, but on returning to Freiberg again failed with their tests, when investigation soon disclosed the fact that the water of Freiberg, which was used to wash the placental tissue, was so soft as to cause a hemolysis of the blood in the placenta, resulting in a contamination of their material, and so a distortion of their results. Correcting this difficulty by the addition of salt to the wash water, they were then able to duplicate Abderhalden's work. Without reviewing the earlier technic of Abderhalden, in which a special polariscope was used to demonstrate cleavage between placental tissue and serum containing the specific proteolytic ferment, a brief description of the technic as employed at the present time may be given,—the so-called dialysation method. The theory and procedure by which the serodiagnosis of pregnancy is made may be first very briefly stated. The serum of a pregnant woman contains a specific proteolytic ferment, which has the power to digest placental albumen. Pregnancy can be diagnosed by demonstrating the presence of this ferment in the blood serum. Its presence in the serum can be shown by the addition of such a serum to placental albumen, resulting in a digestion of the albumen.

The serum is removed from a few c.c. of blood taken from a supposedly pregnant woman; this added to a small amount of thoroughly washed human placental tissue, is placed in a parchment bag (called a dialyser); the bag is then immersed in distilled water contained in a glass dish, the whole being incubated for a proper period. At the end of this period if the serum contains the proteolytic ferment present in the blood of a pregnant woman a more or less complete digestion of the placental albumen will have occurred. The parchment bag has the peculiar property of retaining albumen, but of allowing the products of albumen digestion to escape, that is, its walls are impervious to colloid substances, as albumen, or serum, but are pervious to crystalloid substances, as peptones, amino acids, etc, *i.e.* the end products of albumen digestion. So if any digestion of the placental albumen in the bag occurs as the result of the presence of a specific proteolytic ferment in the serum which was added to it, some of the products of its digestion

will escape from the bag into the surrounding sterile water, where their presence is determined by a delicate reaction in which a substance ninhydrin is used. This latter is a salt, which added to a solution containing peptones, polypeptids or amino acids gives a violet color on boiling, even though the amount of these end products of albumen digestion be exceedingly small.

While the theory of the procedure is comparatively simple, the actual practise of the test demands a high grade of laboratory skill and a most painstaking regard for the minutest detail. The following description of the test is as brief as is compatible with accuracy.

1. *Serum.* Thirty c.c. of the patient's blood are withdrawn from one of the superficial veins at the elbow, using a glass syringe of the type employed for antitoxin or serum administration. Needless to say, strictest aseptic technic is required. The serum from this blood should be used the same day, and it is important that it be free from corpuscular elements, bacterial contamination, and that no hemolysis has occurred.

2. *Placental Albumen.* This is obtained from fresh normal placentas, from which the membranes and fetal surfaces are removed. The placenta is cut in portions the size of a twenty-five cent piece and washed in running water to remove blood. It is then boiled in water containing two drops of glacial acetic acid to each two litres for five minutes in a porcelain dish; it is then boiled in a fresh water for another five minutes, when the water is tested after filtering for albumen, using the ninhydrin test. If the test is positive the placental tissue is boiled again and repeated until the filtered water is negative for albumen. The coagulated albumen, together with the last water, is placed in a glass jar and covered with a layer of toluol, the latter a balsam preparation which acts as a cover to prevent contamination of the contents of the jar. It is now ready for use, but should be tested on each occasion it is used, if more than one day elapses between tests. The important thing is to be sure that it is free from all dialysable substances, as peptones, alpha amino acids, etc.

3. *Dialysers.* The dialysers are porous parchment bags, those made by Shleicher and Schnell, No. 579A, being the most satisfactory. Each bag must be tested for the permeability of peptones and the non-permeability of albumens.

To test for permeability of peptones, 5 c.c. of a 1% solution a "Seiden" peptone with 20 c.c. of sterile water are placed in the bag and incubated for 16 hours at 29°C. The dialysate is then tested for peptone with ninhydrin; a moderate color indicates that the dialyser is suitable, a weak or strong color indicating that the dialyser should be discarded.

To test for the non-permeability of albumen, a solution of egg albumen is placed in the bag, and after incubation the dialysate is tested for albumen, a negative result indicating that the bag is a suitable one. After these tests the dialysers are washed and boiled, and then kept in chloroform water covered with toluol. They are washed and boiled after each test, and should be from time to time retested for permeability as indicated above.

4. *Ninhydrin* is the trade name of Triketohydrindenhydrate, a salt discovered by Ruheman, which when added to a solution containing albumen, peptones, polypeptids, or the amino groups in the alpha position to the carboxyl group gives a violet color on boiling. It is much more delicate and sensitive than the well known biuret reaction.

The fact that "ninhydrin" reacts with protein derivatives which no longer give the delicate biuret reaction, has made it doubly useful in following the transformations of the albuminous substances into their non-protein components. In order to ascertain to what extent abiuret compounds, which react with triketohydrindenhydrate, though they do not give the classic biuret reaction, may be distributed in the organism, Abderhalden and Schmidt have made an extensive search for such reacting substances. These were duly found existent in fresh milk, urine, saliva, blood-plasma and serum, lymph, sweat, the contents of cysts, egg, and meat, and it is necessary in the execution of tests involving the use of the reagent, to employ special precaution against contamination with skin secretion, small traces of which are sufficient to initiate a positive reaction.

As the result of applying the new ninhydrin test, Abderhalden has already found that certain biologic reactions, hitherto ascribed to the proteins, are associated with the presence of biuret contaminations which give the reaction. Thus it appears that various proteins which provoke distinct physiologic responses when introduced into the body lose this property if they are first purified by dialysis until the compounds reacting with ninhydrin completely disappear. The bearing of this on the study of anaphylaxis will at once be apparent. Abderhalden insists that all proteins employed in anaphylactic investigations must be subjected to thorough purification by dialysis before the responses which they may elicit are charged to the protein itself rather than to derived products accompanying it.

5. *Containers* should be of glass, sterilized, and should be of sufficient size so that there will be 1 c.m. between the walls of the container and the dialyser when the latter is placed in the container.

Technic of the Test. A dialyser previously tested as described is removed from the chloroform solution and washed. In it is placed one gram of the placental albumen, which is free from all dialysable substances. To this is added 1.5 c.c. of serum from the supposed pregnant case, after which the dialyser is washed in running water to remove any possible albumen contamination from its outer surface. It is then placed in the container with 20 c.c. distilled

water; the top of the water should be 25 cm. above the top of the dialyser contents and covered with a layer of toluol. The container is closed with a sterile cotton plug and placed in an incubator at 37.5° C. for 16 hours, at which time the dialysate is tested for the presence of the products of albumen digestion. Ten c.c. of it are taken free from toluol and placed in a small beaker. To it are added 2 c.c. of a 1% solution of ninhydren, after which it is boiled for one minute after the first bubbles appear. The color is read after thirty minutes.

A clear or yellow color denotes a negative result. A violet, light lavender, or bluish purple color denotes a positive result.

Controls. As with similar tests, a control test is necessary to insure the accuracy of the results. Fifteen c.c. of serum alone is placed in a separate dialyser, the dialysate being tested after incubation in the same manner, or 15 c.c. of serum may be inactivated by heating at 60° C. for ten minutes, after which it is placed in a dialyser with one gram of placental albumen, incubated and tested as before.

Jellinghaus and Losee give the following as the method of interpreting a test.

Dialysate negative with ninhydrin, controls negative, not pregnant.

Dialysate positive with ninhydrin, controls positive, not pregnant.

Dialysate positive with ninhydrin, controls negative, pregnant.

Dialysate positive with ninhydrin, controls positive, but distinctly lighter in color, pregnant.

They emphasize the need of minute attention to details and enumerate those especially needing care.

1. The placental tissue must be fresh.

2. The placental tissue must be free from blood.

3. If washed in very soft water salt should be added to avoid the possibility of hemolysis. After the blood is removed with the water containing salt, further washings are with plain water.

4. The placental tissue prepared for the tests should be tested each day before use for the presence in the water of any substances giving a positive reaction with ninhydrin; should any be present it should be reboiled as described in its original preparation.

5. The dialysers should be frequently tested with albumen and peptones for permeability.

6. The serum must not be hemolyzed and must be free from dialysable substances. It should be used from two to five hours after obtaining.

7. The contents of each vial of ninhydrin should be measured, as they do not always contain a full gram. Two c.c. of a 1% solution is used; this solution will keep seven days.

8. Emphasis is laid on the need of observing strict asepsis in handling the materials for the test and on the aseptic condition of all containers and utensils.

Coming to the practical and therefore interesting and important aspect of the test, we may first admit certain facts as sufficiently proven: first, the blood of a pregnant woman contains at least one substance peculiar to the pregnant state, *i.e.* a proteolytic ferment specific for chorionic epithelium (placental albumen), and second, that it is possible to demonstrate the presence of this substance by a bio-chemical test. The questions that immediately arise are: Is the test practical from the point of view of ordinary laboratory technic? Is it reliable? Can it be useful in the general practice of obstetrics? Or is it only of ultra scientific interest, a by-product of the research laboratory? The questions can best be answered by a generalized review of the work of the various investigators of its merits. That it has awakened much interest in the scientific world is evinced by the volume of literature on the subject published since Abderhalden's first reports in 1912. It is interesting and natural perhaps that the greater portion of articles concerning it are of German origin; next to Germany this country has been most prolific in its contributions. There have been reported in all considerably over two thousand cases in which the test has been applied. A study of these reports indicates several striking facts: first, that the reports of the early tests of the various investigators show a much higher percentage of failures than the more recent works of the same investigators and that the earlier failures were almost invariably because of faulty technic, a fact testified to by the authors themselves. Second, that the enthusiasm for the accuracy and practicability of the test increases rather than diminishes with the increasing familiarity with its details as acquired by the men engaged in the work.

It may be stated that there is almost an unanimity of opinion that the test is accurate in results and practicable in performance. Some investigators have questioned, however, the specificity of the ferment, their results seeming to show that positive reactions are possible with other conditions than pregnancy. For instance, Williams and Pearce state that it was never negative with a known case of pregnancy, but was also positive in two cases of nephritis, one of tabes, one of infectious carbuncle, and occasionally in perfect health. On the other hand, Schwarz vehemently attacks the work of Williams and Pearce, declaring their technic faulty and intimating that they don't appreciate what hemolysis means. Lindig, another who said the reaction was positive in other conditions than pregnancy, especially cancer, is taken to task by Abderhalden who says Lindig's errors are to be found in the use of a powdered placental preparation, the latter almost invariably giving a positive reaction, especially if kept for any time, the result apparently of some decomposition process which forms dialysable substances. Veit says

the test is a valuable one and brings up the point that the ectopic pregnancies do not react positively, probably because the chorionic cells are thrown off with the tubal abortion. Henkel, Sutman and McCord commended the test, McCord wth 240 cases and practically no failures. Abderhalden reports 200 cases with one failure. Jellinghaus and Losee report 563 cases, grouped according to the various stages of their technic, concluding that it is an accurate test for the presence or absence of chorionic cells still capable of being washed into the maternal circulation. Petri says it is amazingly accurate. Wolff describes his experiments, resulting in failure until he learned from Abderhalden himself the exact technic for preparing the placenta. He concludes that the method shows pregnancy in its very beginning and that the reaction is of special value for differential diagnosis between pregnancy and tumors. He says the test is not suited for general practice, but has great value in hospitals, where it can be performed often enough to ensure exact technic. Gambaroff reports from Moscow forty-eight cases of cancer and thirty-seven other cases in which the Abderhalden technic was applied, including twenty-two pregnant women and ten normal persons, the tabulated details showing remarkable concordance, constantly negative responses in the normal serum and constantly positive in all the others, with the single exception of a syphilitic who gave a positive cancer reaction. Judd says: "Some thirty or more of my own cases tested by this method have been quite in accord with the strict specificity of this test when putrefactive changes, fresh serum, and the proper selection of dialyzers have been carefully controlled." On the other hand, Heaney and Davis say a review of the literature and an experience with the test, together with the use of other means of testing the digestive activity of the blood, leads the authors to question the specificity of the test of Abderhalden; though since the need of such a reaction is great they urge that the test should be further tried and its results reported accurately. Schwarz suggests an error in technic to explain the failures. Echols says: "Fifty-seven tests were made according to Abderhalden's method; though the test will probably never be simple enough for the general practitioner to carry out, there is reason to believe that when done in properly equipped laboratories, Abderhalden's method will in the course of a year or so take its place with the Wassermann and Widal reactions in point of reliability." Ruhsamen reports ideal results in one hundred cases. Lichenstein, forty positive results in forty pregnancies, one positive result in thirty-four non-pregnant cases. Zoeppritz describes early failures, but with a mastery of technic perfect results in fifty cases. Engelhorn does not consider Abderhalden's dialysis method a specific reaction as a diagnosis cannot be reached by it, but there is some question of the accuracy of his technic. Mayer considers Abderhalden's pregnancy reaction a valuable aid to diagnosis. Schufer had two incorrect results in one hundred and twenty-three tests. Strange states that positive findings were obtained in 100% of the seventy-three women tested with Abderhalden's technic.

I am fortunate in being able to describe some results obtained here in Boston. These are from a series being prepared for a future report by Dr. W. H. Grant, the laboratory work being done by Dr. McCarthy of the pathological department of Tufts.

In twenty cases known pregnant, the first seventeen were positive by the Abderhalden technic, the last three negative, these accompanying difficulty with the dialysers. Eighteen cases clinically pregnant gave positive results in each case, four cases not pregnant gave four negative results. Besides these were twenty-eight tests in doubtful cases giving varying results, but which until sufficient time has elapsed to demonstrate the presence or absence of pregnancy, have no significance. The report of the completed series will be awaited with interest; in the meantime one is impressed by the concordance of the clinical and laboratory findings.

From a review of the literature one may draw several conclusions:

1. That the study of the bio-chemistry of the protective ferments is one destined to be of great importance in solving many of the hithertofore unexplained phenomena of health and disease.

2. That pregnancy aside from its local manifestations, evinces at least one general effort on the maternal organism similar to that evinced by pathological conditions, *i.e.* causing an invasion of the blood by elements foreign to it, and that there are developed in the blood substances to combat this invasion much in the same manner as the invasion of disease is combated, bearing out the tendency in evidence of late, to regard pregnancy as a pathological condition.

3. That although the Abderhalden test for the presence of the specific proteolytic ferment present in the blood of pregnant women is a difficult and extremely delicate one, a really surprising number of accurate results have been reported, especially surprising when considering that these reports are from a great number of widely separated and independent investigators, each of whom had to perfect his individual technic to a certain extent before it could be said that the theory and not his skill was being tested.

From which may be made the following deductions:

1. That the test is available where the services of a competent laboratory can be had.

2. That it is by far the most accurate method at our disposal for the diagnosis of pregnancy, comparing favorably as a test with the Widal and Wassermann reactions, in their respective fields.

3. That until some method is devised whereby the materials used, especially the prepared placental albumen, may be kept for some time

and in a more convenient form, and dependable dialysers more easily procurable, the test will not be generally available.

In this connection it may be mentioned that attempts are being made to simplify the technic so as to make it more generally available. Gutman, in a personal communication, expresses confidence that such a simplification can be accomplished, difficulty in procuring a special dialyser being the particular obstacle with which he is contending.

4. That it places in our hands a possible means whereby we may make a remarkably accurate diagnosis of the existence or non-existence of pregnancy, should the exigencies of any case demand a prompt determination of the fact.

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THE EFFECT OF "606" ON THE EYE, WITH THE REPORT OF SEVEN CASES OF SERIOUS EYE COMPLICATIONS FOLLOWING ITS USE.*

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WHEN Ehrlich first introduced his 606 there was a great fear in the minds of the ophthalmologists that the effects of the new preparation on the eye would be similar to that produced by other arsenical compounds such as atoxyl, arsacetin, and soamin, which had preceded it. All of these arsenic compounds had been claimed by their introducers to be harmless to the eye, but further experience proved this not to be the case. Quite a large number of cases of blindness were reported to have followed their use. Of these preparations, the one most largely used was atoxyl, an empirical, synthetical arsenic compound, which came into use in the treatment of sleeping sickness and was used to a considerable extent in the treatment of syphilis. Although, claimed at first to be innocuous to the eye, from a study of the literature for 1908, 1909, and 1910,—the years during which it was chiefly used,—I have been able to find over 100 cases of complete blindness and a large number of cases of partial blindness resulting from its administration. The ocular manifestations following its use always assumed the character of a primary optic atrophy. It was essentially a degenerative process affecting either the ganglion cells of the retina or the fibres of the optic nerve, somewhat similar to the condition produced by other toxic substances, such as methyl alcohol, quinine, and other toxic substances. Both eyes are invariably affected. The blindness may come on suddenly or gradually, but once the lesion is produced, it remains stationary or slowly progresses until more or less complete blindness results. A partial recovery occasionally occurs if the drug is withdrawn early enough. The condition is not improved by any treatment, and a second injection of atoxyl never improves vision, but causes a more profoundly injurious effect. With the ophthalmoscope the picture is seen to be one of simple optic atrophy.

The attitude of the ophthalmologists towards 606 was well expressed by Henderson, of St.

* Read at the October, 1913, Clinical meeting of the Staff of the Boston Dispensary.

Louis, who, in an article on the effects of atoxyl, in the *American Journal of Ophthalmology*, for November, 1910, says in his concluding paragraph: "The subject is worthy of careful consideration in view of the approaching distribution of 606. If I am correctly informed, this, too, is a synthetic preparation of arsenic. The world-wide publicity already given to the achievements of this remedy will result in its more or less indiscriminate use by every physician who can get it. In accepting and using this potent remedy we must not forget that all of its predecessors were for a time considered harmless in their action upon the visual apparatus by authorities in whom we had every right to repose the greatest confidence."

The important questions which the ophthalmologist wished to have answered were: (1) Is arsenobenzol innocuous to the healthy eye, especially the healthy optic nerve? (2) Can it be used when the nerve is inflamed? (3) Is it a safe and efficient remedy in the treatment of syphilitic disease of the eye itself?

Serious disturbances of the visual apparatus certainly do follow the administration of arsenobenzol in a certain number of cases, but when one considers the tremendous number of patients that have received it, the number of ocular disturbances following its use are small as compared with atoxyl and its allied drugs. An examination of the literature during the past three years shows that most authorities believe that the eye lesions following 606 are to be considered as relapses of syphilitic disease, and not a consequence of the arsenobenzol. There are still a few, however, who maintain that it is a menace to the eye and should be used only in special conditions. Ehrlich himself, in view of the bad results to the eye following atoxyl, advised caution in the use of his preparation and advised a careful examination of the eye before injection. Later, however, when he had received reports of a large number of cases without untoward effect upon the nerve, except in one case, he claimed that 606 was without detrimental effect upon the eye. He also deplored the fact that ophthalmologists were not making sufficient use of his preparation in syphilitic diseases of the eye. In defending the use of 606 against the charge that it was not without danger to the eye, in the *Wien. Klin. Rundschau* of Jan. 29, 1911, he states that disturbances of the optic nerve in recent cases of syphilis are found, not only after the use of salvarsan, but also after the use of Hg. On the other hand, when sufficiently large doses of salvarsan were used, such affections were never seen. The use of atoxyl and arsacetin show that the toxic symptoms increase with the amount of the dose injected. The optic nerve affected after salvarsan improves under antisyphilitic treatment, and sometimes it is cured by another injection of salvarsan. An affection of the nerve caused by atoxyl could never be cured by an additional injection with an arsenical preparation. Numerous other authors support the contention of Ehrlich that arsenobenzol is innocuous to the healthy eye, and the ocular lesions following its administration should be considered as manifestations of syphilis. Wechselmann and Selligshon of Berlin gave the injections in 1400 cases of their own, and collected reports from approximately 20,000. Of these cases, none showed any harmful effect upon the optic nerve. At first they excluded from the treatment any cases showing inflammation of the nerve, but later, after they had given the injection to several doubtful cases, that is, cases where it was impossible to say whether the nerve was inflamed, or not, without deleterious effect, they used it in several cases of outspoken optic nerve affection, with the result that the condition of the inflamed nerve was considerably improved, and in some cases cured. From this they conclude that 606 may be given with favorable results, even when optic neuritis exists. This opinion is confirmed by the experience of most writers. They also gave the remedy in a number of cases of primary optic atrophy, on which it had no apparent effect, either beneficial or otherwise. This, however, is quite contrary to the experience of others. Most authors agree that the effect of the 606 on the atrophic nerve is detrimental, that it causes a more rapid degeneration of the nerve, and that atrophy of the nerve should be considered a contra-indication for the administration of the drug.

A comparison of the lesion resulting after atoxyl with that following 606 will aid, I think, in determining whether the ocular lesions after 606 are due to the arsenobenzol or not. In atoxyl poisoning the lesion is essentially a degenerative one, resulting in an optic atrophy very similar to the condition produced by other toxic substances, whereas the lesion following 606 is an acute inflammatory one. Usually four to eight weeks, or even longer, after an injection of 606 the patient notices a sudden dimness of vision, which becomes rapidly worse. With the ophthalmoscope the vitreous will be found to contain a greater or less number of opacities which at times are so profuse as to prevent a clear view of the fundus. The disk, if it can be seen, is red and veiled, may be swollen, and the blood vessels, especially the veins, dilated and tortuous; scattered through the fundus will be found inflammatory exudates in the retina and choroid, often accompanied by hemorrhages. These are precisely the sort of lesions which appear in syphilitic disease of these structures and form a picture diametrically opposite to that found in atoxyl and allied poisoning. But one eye usually is affected,—although both may be. In atoxyl poisoning both eyes are invariably affected. Antisyphilitic treatment, or another injection of the 606, will usually improve and sometimes clear up the condition. After atoxyl no treatment benefits, and a further injection of atoxyl causes a

more profoundly injurious effect. Moreover, the late appearance of the lesion after the injection of the 606 seems to me to have a bearing upon the question of its causation. Usually it is a matter of weeks, or even months, after the injection before the ocular symptoms appear. As we know, the arsenic is rapidly excreted from the system,—usually after three to four days but few traces can be found,—and it seems to me that if toxic symptoms were to be produced they would be found shortly after the injection, while the organism was still under the influence of the arsenic.

Iritis, retino-chorioditis, optic neuritis, and ocular palsies from affection of the third, fourth and sixth nerves, as well as affection of the fifth nerve, have followed the use of salvarsan in a certain number of cases. Davids reports a case which had bilateral iritis following an intramuscular injection. Two weeks later a relapse occurred in one eye, which rapidly subsided after an intravenous injection. Van Lint reports two cases of iritis treated with salvarsan. Iritis was reproduced in the same eye after the injection. DuJardin and DeNeux have observed in two cases of secondary syphilis recently injected commencing optic neuritis, paresis of the superior oblique muscle and paralysis of the oculomotor, with beginning papillitis. They think that these conditions have a bearing on the administration of 606, but do not think it is a purely toxic action. They believe there exists a relationship between the modified syphilis and the action of arsenobenzol, causing a disturbance in the evolution of the disease. Shanz reports two cases of optic neuritis following the injection of salvarsan, which were cured by a repetition of the injection. We have had one case of affection of the fifth nerve following 606 at the Dispensary. There was anesthesia of the cornea and the right side of the forehead and the face. The lesions in the eye itself may be considered as syphiliomata produced by the immigration of the spirochetes which have been freed by the softening of foci by the injections. They are analogous to the tubercular metastases observed after the injection of tuberculin. It must be remembered that the nerves pass through narrow channels of bone lined with a tough connective tissue, which, as places of predilection for nests of spirochaetes, escape the therapeutic action of the 606. Some explain these apparent relapses as an endotoxin action, the endotoxins having been set free from the dead spirochaetes.

The relapses following 606 were much more frequent in the early days of its use, when there was more or less uncertainty in regard to the size of the dose, and the hope was entertained that it was the *therapia sterilans magna*, which would cure by a single injection. As a result, the amount given was too small to kill all of the spirochaetes, and those not destroyed were later able to cause relapses of the disease in various tissues. Moreover, it is held by some authorities that small doses have a provocative or irritative effect. According to Ehrlich, in such cases the parasites are not killed, the dose being too small, but irritated and in this condition produce greater quantities of toxins. At any rate, during the past year, during which the drug has been administered much more energetically, relapses in the eye have not been so frequent.

It has been the custom at the Dispensary to refer those cases which were to receive 606 to the eye room for examination, especially with reference to the condition of the optic nerve and the fundus. A report is returned, giving the vision of each eye and the condition of the fundus and optic disk. If the vision of either eye is below normal, the reason for the same, refractive error or otherwise, is stated. A record of the same is kept both in the skin room and in the eye room. We thus have an exact knowledge of the condition of the eye before the injection of salvarsan, and if a deterioration of vision should occur subsequently the case is referred again to the eye room for examination as to its cause.

During the past year, from July 1, 1912, to July 1, 1913, arsenobenzol has been administered, by a coincidence, 606 times. We have the records of four cases in which disturbances of vision followed the injection during this period. In addition to these four there were three other cases which received the injection just previous to July 1, 1912, but whose eye symptoms appeared or were treated after July 1, and these we have included in this group. It will thus be seen that but two-thirds of one per cent. of the cases receiving the injection show disturbances of the eye afterwards.

Of these seven cases, six showed serious lesions of the deeper structures of the eye, and in four of these practical blindness has resulted. In one case the relapse showed itself as an iritis, which readily improved after a second injection of arsenobenzol. In analyzing these cases, the important data are:—

1. The date of the injection.
2. The date of the onset of symptoms.
3. The character of the lesions in the eye; and
4. The result of treatment and prognosis;

and it is with a view to these headings that I wish briefly to describe these cases:

CASE 1. Man, 41 years of age.

(1) *Date of Injection of* 606. First injection Sept. 7, 1811. Second injection, February 20, 1912. Both eyes normal.

(2) *Date of Onset of Symptoms.* April 16, 1912, over six weeks after injection. Vision of right eye = 10/200.

(3) *Character of Lesion.* Numerous opacities of vitreous, disk blurred and veiled, several hemorrhages and exudates in chorioid and retina.

(4) *Treatment and Result.* In spite of energetic antisyphilitic treatment vision rapidly failed. At last examination, Sept. 26, 1913, vision = could

count fingers in temporal field. With the ophthalmoscope, vitreous opacities still present but not nearly so numerous, hemorrhage on disk—atrophic patches through fundus.

Case 2. Man, 27 years of age.
(1) *Date of Injection.* June 5, 1912. Eye normal.
(2) *Date of Onset of Symptoms.* Six weeks later noticed blurring of vision of left eye—vision = 20/80.
(3) *Character of Lesion.* Dust-like opacities of vitreous, disk swollen and red, veins engorged and tortuous—exudate in chorioid and retina.
(4) *Treatment and Result.* Intramuscular injections of mercury. Vision failed rapidly for a month at which time V = 4/200. Went to New York, treated there by a physician with pills and drops. Vision improved somewhat until last March when there was sudden loss of vision—no treatment since. Seen Sept. 16, 1913, when V = light perception. Received 606 again September 19,—two days later some improvement. Last seen September 30, V = hand movements at 2 m. Examination with ophthalmoscope shows massive exudates in vitreous obscuring all details of fundus.

Case 3. Young woman. Grace G. 22 years. Referred to eye room for specific iritis of right eye on June 20, 1912.
(1) *Date of Injection.* June 26, 1912. Vision of OD = 20/40. Vision of OS = 20/20. Fundus O.K. Iritis rapidly improved.
(2) *Date of Onset of Symptoms.* Six weeks later right eye became affected. Seven weeks later left eye became affected.
(3) *Character of Lesion.* Opacities of vitreous in both eyes—disks red and blurred.
(4) *Treatment and Result.* In spite of most vigorous antisyphilitic treatment together with pilocarpine sweats and subconj. injection of Dionin 10%, her vision rapidly grew worse and at the end of four months she had to be led to the dispensary for treatment. On Jan. 13, 1913, about five months after onset of symptoms, her lids became enormously swollen, red, tender and indurated so that she was unable to open them. A tense, tender swelling could be felt along the upper edge of orbit on both sides = orbital periostitis. Vision = hand movement. Later showed syphilitic nodule on sclera. Under vigorous specific treatment with pilocarpine sweats gradually improved in course of next few months. Vou = 20/40, July 12, 1913. Last seen September 23, 1913. Vitreous quite clear; few atrophic spots in fundus. On posterior surface of cornea deposits of inflammatory exudate. V OD = 20/100, V OS = 20/70.

Case 4. Man, 23 years of age.
(1) *Date of Injection.* July 24, 1912. Eyes normal.
(2) *Date of Symptoms.* Two weeks later pain and redness of left eye.
(3) *Character of Lesion.* Iritis with posterior synechia.
(4) *Treatment and Result.* Received a second injection of 606 on August 28. Rapid improvement.

Case 5. Man, 42 years of age.
(1) *Date of Injection.* August 20, 1912. Eyes normal.
(2) *Date of Symptoms.* Seven weeks later vision of left eye failing. Vision = light perception only.
(3) *Character of Lesion.* Vitreous so smoky that details of fundus could not be made out. Three weeks later developed an iritis.
(4) *Treatment and Result.* Iritis improved rapidly under local treatment—atropine. Condition of vitreous remained practically the same in spite of antisyphilitic treatment. Saw him last on January 10, 1913. Vision very slightly improved. Could count fingers with OS. With opthalmoscope condition of vitreous practically the same.

Case 6. Man, age 27 years.
(1) *Date of Injection.* Oct. 9, 1912. Vision and fundus normal.
(2) *Date of Symptoms.* March 26, 1913, five months later, V OD = 20/50. Could not state just when symptoms began but quite recently.
(3) *Character of Lesion.* Large vitreous opacities—disk red and veiled. Fundus indistinct.
(4) *Treatment and Result.* Received injection of 606 without any apparent improvement. Specific treatment. Last examined May 31, 1913. V OD = 20/70. Fundus indistinct—numerous floating opacities of vitreous.

Case 7. Woman, Sarah B. Age 29.
(1) *Date of Injection.* February 12, 1913. Eyes normal.
(2) *Date of Symptoms.* Six weeks later, on March 26, 1913, returned saying vision of left eye had become dim several days before. V OS = 20/120.
(3) *Character of Lesion.* Some haziness of vitreous. Disk red and blurred—retino-choriodities in macula.
(4) *Treatment and Result.* Three days later showed beginning iritis. Specific treatment. Condition grew worse. April 2 received second injection 606, no improvement. April 17 vision = 7/200. Improvement from this time on. July 8 vision = 20/50. Last seen September 30, 1913. Vitreous clear. Few glistening spots in macula and other parts of fundus. Disk O.K. Vision = 20/30.

In analyzing these cases, the first point that strikes one is the length of time that elapsed between the time of the injection and the onset of the eye symptoms. In every one of the cases involving the deeper structures of the eye a period of at least five to six weeks elapsed before the onset of the symptoms. Surely all the arsenic had been eliminated from the system by this time. The second most striking feature is the severity of the eye lesions. In four out of six of the cases in which the deeper structures of the eye were involved practically complete blindness resulted. None responded to the ordinary anti-specific treatment. This is not in accordance with the views expressed by others who say that lesions following 606 are usually improved by specific treatment. In both of the other cases the vision was impaired, in one quite severely, a vision of 20-70 resulting. While I believe that in all of these cases the effects were due to the disease and not to the drug, it tends to prove that the character of the disease is changed, that its virulence is increased. This would support the contention of those who believe that insufficient doses have a provocative

direct ancestry. A careful analysis of histories, however, would lead us to place this latter estimate much higher. We often find in the history of the parents that the home surroundings were not comfortable, that one or both parents were unable to adapt themselves to commonsense relations, or that the father, for example, had not made a success of life. Many of these cases of marital incompatibility, and of the unambitious, unsuccessful drones, were very probably mild cases of dementia precox themselves, or the results of the same disease, with partial recovery.

When we consider that heredity is so important in the etiology (in fact Clouston insists that heredity is always present), we should be prepared to find that there is a distinct type of personality that seems predisposed to this form of mental disease. This is the case, and August Hoch has given this type a name which is very apt, the "shut-in personality." Jelliffe, in an article on pre-dementia precox, describes this so well, that I will quote a passage:—

"My own observations of patients whom I have known intimately since childhood have shown that the paranoid dement in particular has been rather abnormally brilliant, but with the lights turned inward rather than outward. They were extremely unpractical in the use of their hands, or in any adaptation to material ends. They were utterly unable to observe with accuracy anything physical or material, for their minds were constantly turned in upon their own meditations. They were all unready to adapt themselves to uncongenial environment. . . They were subject to fits of abstraction, when they would not hear or see what would attract a normal youth. They were usually irritable to their families, but most desirous of being thought either amiable or brilliant by strangers. They were abnormally sensitive and suspicious, and most were prone to discuss deep, unsolvable questions."

It can scarcely be claimed that all such children as have just been described are really partially developed cases of dementia precox, but there is very little doubt that in such children we have a very fertile field for the development of the disease. If physicians would bear in mind that such children, especially where there is a known hereditary taint in the family, are in danger, and would take steps to prevent further development, a tremendous amount of good could be done.

You may easily imagine from this that dementia precox is a disease of childhood, and though that is essentially true, many cases show the first symptoms much later. The fact that in a large percentage, however, the trouble first appears at or about the age of puberty or of adolescence, and in many other instances during pregnancy or the menopause, has led many psychiatrists to contend that it is in reality a product of auto-intoxication, probably caused by some internal secretion of the testicle or ovary. Considerable investigation is being done in this line, and more light may be shed on the etiology.

The onset of the typical symptoms of the disease is very gradual, and though cases of an abrupt onset are reported, it is very seldom that such are substantiated by careful investigation. Loss of ambition, indifference, sudden and unaccountable fits of temper, suspiciousness, and a desire to be left alone by former friends and companions,—all of these are typical symptoms of beginning dementia precox. Inability to concentrate the attention, lack of judgment and the habit of shifting from one line of work to another, are other symptoms. If there are delusions, though these are not usually among the early symptoms observed, they are apt to be especially noticeable because they are silly. I will not attempt to describe the later symptoms, such as peculiar mannerisms, negativism, mutism, stereotypy, cataleptic conditions, etc., for they only appear when the disease is so far advanced that, as a rule, the patient has already been committed to an insane hospital.

A short account of a patient formerly under my observation will give an illustration of a fairly typical case of dementia precox:—

In this case there was a very marked insane heredity. The father is strong physically, but admits that he is very nervous. The mother was a patient at McLean, twenty years ago, and is at present a woman of very poor judgment and very emotional. She has recently had a nervous breakdown and went for treatment to a private sanitarium. A sister of the mother is at McLean, where she has been for some years. Another sister has been at McLean. A third sister who is in the West, has broken down mentally. A brother was never in any institution but was admittedly unbalanced. The patient's maternal grandfather died of apoplexy and his maternal grandmother had melancholia and died of paralysis.

On the father's side, the history was nearly as bad. An aunt is now a patient at Worcester, while his grandfather committed suicide and his grandmother died of tuberculosis. There is probably even more hereditary taint in the family history, as even this much was only admitted after very close questioning.

The patient himself was delicate as a child and very nervous. He had a strong temper and a stubborn will. He did what he wished and would take advice from no one. He seldom played with other boys, but spent his time working with machinery and electrical appliances. He was fond of music and became very proficient instrumentally. He liked school also, and as he was bright in his studies, was encouraged in this line and went to college, where he graduated with honors. While at college he kept up his music and took work at the Conservatory of Music. He neglected his own comforts, was very irregular about his meals and often did not get sufficient sleep.

After leaving college, he tried several pursuits but never kept at one thing for any length of time. He tried life insurance work, was for a time in a banking office, dropped his work entirely and read German for a few months, formed an orchestra of which

he was the leader, and worked for a time with the men destroying gypsy moths. He enlisted in the navy as a musician but soon disappeared. He was later found working in a machine shop and was arrested as a deserter. He was discharged from the navy because of his mental condition and was committed.

In this case, I believe that much could have been done to prevent his breakdown if he could have been properly held back and not allowed to have his own way in everything. Of course, with a family with such a taint, it is impossible to expect that proper judgment would be used in bringing up such a precocious child, and perhaps the only possible prophylactic measure would have been the prevention of the marriage of two such neuropathic parents.

The fault has been found with most of the text-books on mental diseases, that they go into great detail concerning the etiology, pathology and symptomatology, but are very unsatisfactory in their recommendations for treatment. This is particularly true when the disease in question is dementia precox. White, at the head of the Government Hospital for the Insane, at Washington, whose "Outlines of Psychiatry" is used as a text-book in many of our schools, says, "These cases will, of necessity, have to spend most of their lives in a hospital. It is, therefore, desirable to educate them as early as possible in good habits. They should be encouraged to some form of education, preferably out of doors. Under the influence of hospital surroundings and farm life these cases may get on very comfortably and the dementing process be considerably retarded." This is all he has to say about treatment, with the exception of advising the correction of any functional abnormalities.

The text-books, however, are written as a rule by hospital men, and as they seldom see cases of dementia precox until they are fairly well advanced toward the hopeless later stages, it is not to be wondered at that their views are so pessimistic. If we are treating a case of yellow fever and do not begin treatment until the appearance of black vomit, about all we can do is to arrange for digging the grave.

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Here is the point that I want especially to emphasize. The man in general practice is the one who can do this best. Those of us who are specializing in this work must keep in closer touch with the general practitioner and encourage him to discover these cases early and begin treatment before irreparable damage is done. These same men in general practice, commit patients to our insane hospitals, but how many of them ever visit the hospital to follow and watch the patients they send there? Perhaps they feel they would be intruders, but I am sure they would be welcomed at any of our hospitals

Children, whose parents or family have a marked neurotic taint, especially if they show signs of precocious brilliancy, should be closely watched and kept from unnecessary stress. In school they should be held back, and not encouraged by ambitious teachers and admiring parents to outstrip their comrades. Instead, they should be compelled to keep out of doors and enter into games with other children. Bashful little "shut-ins" should be coaxed out of their shells and encouraged to make friends. Those who show especial aptitude for music or art, should not be allowed to spend too much time with these studies at the expense of other necessary, though more prosaic pursuits, for it must be remembered that there is a very thin partition between genius and mental trouble. The child's environment should be noticed. If, as is often the case, it is an only child, it is often well to advise a boarding school, for with all the well-known disadavantages, the close association with other children is better than being too much with "grown-ups."

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While on the subject of treatment, I wish to make brief mention of the latest development in the treatment of mental diseases. Probably for the very reason that writers on insanity have so little to suggest in the way of treatment, they are apt to follow any new fad that offers hope. The latest fad is psychanalysis, and though it undoubtedly has much of good in it, especially in the treatment of hysteria and neurasthenia, I am much opposed to its use in cases of dementia precox. Without going into its sexual aspect, which repels many of us, it seems to me that dementia precox patients are all too introspective anyway, without any further encouragement. Personally, I have seen this treatment used on only one case of dementia precox, and the apparent results were very bad.

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As I said early in this paper, the prognosis in dementia precox is considered bad. However,

recently, numerous recoveries have been reported. Many of these have been for private hospitals, as is to be expected, for they have the advantage of receiving patients early, before the family would be willing even to think of a state hospital. Many of these recoveries would probably show some deterioration on careful examination, but if they are able to return to their homes and lead useful lives, why are they not just as properly classed as recoveries as cases of manic-depressive insanity when the expected usually happens, one or many recurrences.

DIABETES AND SURGICAL OPERATIONS.

BY CHARLES GREENE CUMSTON, M.D.,

Privat-docent at the Faculty of Medicine; Fellow of the American College of Surgeons; Honorary Member of the Surgical Society of Belgium, etc., Geneva, Switzerland.

IT is at present an acquired fact, that diabetics may be submitted to operations of vast import with a successful outcome. To give a general idea as to what can be accomplished I will cite a few cases at random. Chavannaz has operated on five diabetics with one death. These cases were a laryngeal carcinoma, death eight days later; malignant disease of both ovaries, cure; castration for orchiepididymitis, cure; two amputations at the thigh, cure by first intention. Caralp (*Thesis*, Bordeaux, 1912) records one amputation of breast by Willy Meyer's method for an ulcerated carcinoma of breast, cure; three amputations at thigh for diabetic gangrene, all recovered; two hysterectomies for fibroid, both recovered; one palliative curettement for cancer of cervix uteri, cure; five trepanations for mastoiditis, with two deaths. The fatal cases were due, in one to old age, the patient being 76 years old; the other presented acetone in the urine. Richard operated on a buccal cancer successfully, Redard an epulis, Israel several cases of renal cancer and a suprapubic cystotomy, without any deaths. To these cases I may add six of my own, namely, one amputation at thigh for diabetic gangrene, death; one suprapubic prostatectomy, recovery; one strangulated hernia, and one amputation of the great toe and excision of two carbuncles, all successful.

Now, although diabetics are operable, the chances of success are naturally the greater when they have been first submitted to an antidiabetic diet in order to reduce as much as possible the glycosuria. This diet should be followed until the patellar reflex has returned, if it was found absent. The treatment should be very minute in all details, although it must be admitted that operation has been successful in instances in which time has not permitted a long period of diet and antidiabetic treatment. It goes without saying, that when the operation is not urgently indicated one should carefully prepare the patient, selecting either Bouchardat's or Cantani's regimen as being the most rigorous.

My cases were submitted to a diet of broiled meat, potato and gluten bread, with the administration of bicarbonate of soda and Vichy water. Antipyrine and lithium carbonate are also of value. The present-day diet generally employed seems to be roasted or broiled meats, purée of green vegetables and gluten bread. This regimen is advantageous, inasmuch as it diminishes the hyperglycemia. Alkalines particularly favor oxidation of organic substances and by their use the urine becomes less dense and less acid, the urea increases in amount, while the uric acid and albumin decrease, likewise the amount of sugar present.

The drugs resorted to as antidiabetic are more for the purpose of reducing the glycosuria than the hyperglycemia. Opium checks the thirst, diminishes the hunger and limits the glycosuria. It may be given in the form of Dover's powder, morphine or codeine combined with belladonna. In debilitated patients strychnine is useful, or when there is a diminution of sight or atony of the digestive functions. Valerian and arsenic act on the metabolism. The former drug has a favorable action on the polyuria and polydypsia, it also decreases the urea. Arsenic acts as a vascular tonic and influences metabolism, but its results are, on the whole, doubtful. In moderate doses, glycerine may counteract the loss of flesh. Ricord, long ago, prescribed iodine in sudden recurrence of diabetes, while the tincture of iodine, 5 to 20 drops at meals, has been given by Bérenger-Férand, and the syrup of the iodide of iron by Bouchardat.

Various acids have been prescribed, such as carbolic, nitric, salicylic and phosphoric, likewise, sodium salicylate, chloral, cocaine; astringents, like alum, tannin, etc.; oxidants, such as potassium chlorate or permanganate, inhalations of oxygen, etc. Antipyrine has given remarkable results, but as soon as it is stopped the sugar returns in the urine. The hydrochlorate and valerianate of quinine have given good results. Bar and Blum praise glutaric acid as a very active antiglucosuric remedy. But besides a proper diet, I believe that bicarbonate of sodium, the salts of lithium and antipyrine, represent the surest means of controlling the morbid process.

When once we have the diabetes under control, the analysis of the urine having shown a constant decrease in the amount of sugar from the effect of treatment, and having revealed no evidence of a serious lesion of the renal or hepatic glands, the reflexes being normal, what is the next step to be taken by the surgeon? I am firmly convinced that the diabetic diathesis plays no part in the complications arising after a surgical operation. It only acts by depressing the organism and facilitating infection, the

sugar present in the tissues being an excellent medium for the growth of bacteria. Then, too, experience has demonstrated that anesthesia and the operation *per se* are factors to be considered.

Years since, the great Claude Bernard showed that glycosuria occurred after the administration of chloroform from irritation of the terminal filaments of the pneumogastric, and all surgeons are aware that in normal subjects temporary glycosuria after chloroform is not uncommon. Chloroform undoubtedly disorganizes the hepatic and renal cells and reacts on the nervous system. Ether is not free from criticism, and the same may be said of ethyl chloride and somnoform. It is, in my opinion, safer to resort to local anesthesia when possible, but if general narcosis is required, it should be of as short duration as possible, the quantity of the anesthetic being reduced by a preliminary narcosis with somnoform or ethyl chloride.

The most absolute asepsis is required. It is not the sugar circulating in the blood wherein resides the danger, but the association of pathogenic bacteria with the sugar. Then, as diabetics are weak physically, it naturally follows that the loss of blood is to be avoided.

There are certain affections which are more or less dependent upon the diabetes, such as abscess and carbuncle. General pathology teaches us that the greater the acuteness and intensity of the infectious process, the more rapid and free shall be the surgical interference. Therefore, in diabetics particularly, large and free incisions are to be made in the abscesses, and in the case of carbuncle the lesion shall be freely excised. The same may be said of diabetic gangrene, which results from an excoriation or a small wound. Local treatment is useless and high amputation of the limb is essential if a successful outcome is to be obtained. Frequently after these major amputations the sugar will be found in lesser quantity than before the interference. Let it also be said that a temporary glycosuria has been met with in cases of extensive abscess or carbuncle which has led the surgeon to suspect diabetes, but free drainage of the septic focus in the one, and excision in the other, has led to the disappearance of the sugar in the urine.

To sum up the question, I would say that in all cases of diabetes requiring operation, when the latter is not urgent for the saving of life, the patient should first be put upon a strict diet and treatment with drugs. When the glycosuria is sufficiently under control the operation may then be proceeded with. The reflexes should be nearly normal for a good prognosis, although this is not absolutely necessary. The urine should not contain either acetone or B. oxybutyric acid. The presence of urobilin or albumin should be a warning against interference. The quantity of urea secreted should be nearly normal. The length of time required for the operation and the quantity of the anesthetic given should be reduced to a miniumm, likewise the loss of blood.

Clinical Department.

THE SIGNIFICANCE OF EARACHE.

By Irving Sobotky, M.D., Boston.

"Doctor, I have a terrible pain in my ear." This statement, so often heard and so often made light of by the physician, should be the same danger signal to him as severe pain in the right iliac fossa and should be watched just as carefully as a case of acute appendicitis.

Too often the complaisant practitioner does not recognize the seriousness of earache and believes his duty done when he orders hot sweet oil to be dropped into the ear.

Now, what must the physician consider from the one symptom of earache? He must think of acute otitis media, acute catarrhal otitis media, furuncle of the auditory canal with or without diffuse inflammation, otalgia dentalis (earache due to decayed teeth). Neuralgia, affections of the maxillary antrum and tuberculous laryngitis cause referred pain in the ear, but are beyond the scope of this paper and are only mentioned as possible causes of earache in the absence of any other etiological factor.

By far the most common and the most dangerous cause of earache is an acute otitis media. Dangerous, because it can rapidly develop into a mastoiditis and a meningitis, especially in children. That is the reason why it must be recognized and treated at once; why every effort must be made to detect the tenderness on pressure, that is present when the mastoid antrum becomes involved and why the case must be referred to a competent otologist the instant there is the slightest evidence of the existence of this mastoid tenderness. Only an otologist is capable of treating a mastoiditis.

In order to recognize the condition causing the pain, the physician must be familiar with the normal appearance of the tympanum and thus be able to compare it, intelligently, with the picture presented by an acute otitis media. The text books on otology, give clear descriptions and pictures of the normal appearance of the tympanum. This study should be supplemented by the examination of normal ear drums and the identification of the landmarks.

Before examining the patient, however, these three questions can be asked. How long have you had the pain? Did the pain keep you from sleeping? Is there any discharge from the ear? The first question gives the examiner some idea of the duration of the infection. The second is a measure of the severity or intensity and the third raises the question of sufficient drainage.

A satisfactory examination of the ear cannot be made unless the ear is thoroughly wiped free of any cerumen or secretion, but it must be

borne in mind that this cleansing will produce some hyperemia, both of the tympanum and of the auditory canal.

The picture presented by the affected tympanum should now be compared with the normal. If the tympanum is of a scarlet red shade and bulges into the auditory canal and the long process of the malleus is invisible, a diagnosis of acute otitis media (suppurative) can be made. However it is not always easy to make the differential diagnosis between a suppurative and a catarrhal otitis media, especially in the early stages. As a rule the pain is much more severe and the temperature from one to two degrees higher in an acute suppurative otitis media.

As in abscess formation in other parts of the body, complete drainage of the middle ear cavity must be immediately established by means of a free, curved incision of the tympanum, or in other words, a paracentesis must be done even if the ear has commenced to drain.

If the tympanum is a yellowish red color with wavy, hair-like lines running across (exudate lines) with perhaps a few small air bubbles in the lower posterior quadrant and the pain not especially severe nor the temperature above 100 F a diagnosis of acute catarrhal otitis media must be made. In this condition the malleus is visible but the long process shows hyperemia sometimes of a high degree. At the onset of a severe catarrhal condition the appearance of the drum is very similar to the acute suppurative middle ear.

The treatment is the same as the suppurative type, namely, a paracentesis but in contrast, if there is no free drainage after the paractentesis has been done, the middle ear should be gently inflated, per Eustachian tube, and the secretion thus forced through the incision in long, tenacious, mucous strings.

As a proper paracentesis is the essential treatment, the technique will be described.

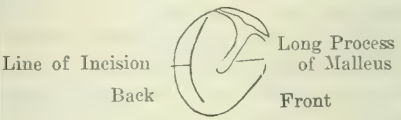
It is usually not necessary to use a general anesthetic; a local application of equal parts of menthol, cocaine and carbolic acid mixture, will give a high degree of insensibility to pain if applied to the tympanum, for five minutes, in the form of a soaked cotton tampon.

A free incision is best obtained by the use of a sharp paracentesis knife, shaped like a scalpel or curved bistoury. The arrow head shaped paracentesis knife is unsuitable.

Previous to the operation the canal should be mopped out with cotton moistened with alcohol. The instruments should be sterilized with alcohol or by boiling, and the hands should be carefully sterilized.

After sterilizing the knife, the ear speculum, and the hands, the index finger of the left hand should be placed in the convolution of the auricle, just above the external meatus and traction exerted in an oblique direction, upwards and backwards in adults, and downwards and slightly backwards in young children. This straightens the canal. With the patient's head firmly held, the knife should be introduced along the posterior part of the floor of the canal, with the cutting edge directed upwards. With an *absolutely clear* view of the tympanum the curved incision should be made in the posterior quadrant by puncturing the tympanum almost at the lower border of its attachment and incising from below, upwards. (See cut.)

Care must be taken not to insert the knife so deeply as to wound the promontory mucous membrane. After wiping out the discharge and the blood a cotton wick should be placed in the canal and instructions should be given to syringe the ear every two hours with a pint of hot boiled water, the ear syringe to be boiled at each syringing.



The patient should be seen every day until the discharge has ceased and every effort should be made to encourage free drainage as the acute symptoms may return should there be any obstruction to the flow of pus. Should these symptoms recur it is well to repeat the paracentesis.

The great danger of mastoiditis developing from an acute otitis media should compel the physician to examine very carefully the mastoid region at each visit. The neglect of the early mastoid symptoms may result in intracranial infection or in the necrosis of the anterior wall of the mastoid antrum and of the tip of the mastoid process, the abscess here showing itself as a large post auricular swelling with sometimes a burrowing of pus along the neck muscles.

As it is very necessary to differentiate between mastoiditis, and an inflammation of the auditory canal, the symptoms of both will be given:—The mastoiditis symptoms are chiefly those of pressure from the secretion in the mastoid cells. Pain, swelling, some redness and marked tenderness on finger pressure over the mastoid process together with a high temperature and constitutional symptoms are the distinguishing features of mastoid involvement. On examination with the ear speculum, a bulging may be seen in the posterior and superior wall of the canal, although this is by no means always present. Inflammation of the canal, with or without furuncle, causes great pain in the region of the ear, aggravated by moving the auricle up and down and by chewing. The diffuse inflammation may simulate the redness and bulging of the posterior superior wall of the canal in mastoiditis but differs, materially, in situation; the mastoid symptom being posterior and in the bony part of the canal, while the canal inflammation produces swelling in the in-

ferior wall of the anterior cartilaginous portion of the canal. The temperature is much lower than in mastoiditis and constitutional symptoms are lacking or very slight.

In all otitis media cases the throat and nasopharynx should be examined for enlarged tonsils and adenoid. The relationship of adenoid to frequent attacks of otitis media has been conclusively proven, hence it is the duty of the physician to *completely remove* the adenoid and enlarged tonsils after the acute symptoms have subsided. When removing the adenoid it must be the aim of the operator to remove all of the adenoid tissue, as a large central adenoid may not cause anywhere near the trouble that bits of adenoid tissue can produce in the fossa of Rosenmüller and around the Eustachian orifice.

Furuncle of the canal is a frequent cause of earache, but the pain is not as deep seated as in otitis media although it is usually more exquisite. Furuncle can readily be diagnosed as it is easy to see and moving of the auricle causes severe pain. The characteristic red swelling, about the size of a pea, extremely tender to probe touch and situated at or near the external meatus is in decided contrast to the findings in an otitis media.

The treatment of furuncle of the auditory canal consists of a free incision, under local anesthesia, the application of dry heat, and tampons of 10% ichthyol and glycerine or 3% carbolic and glycerine or 5% aluminum acetate solutions, renewed every three hours.

Impacted cerumen may cause pain in the ear but it is not severe. The presence of cerumen is easily determined and the treatment self evident.

If the ear has been carefully examined and no cause discovered for the pain, the teeth should receive the examiner's attention. Pain due to bad teeth is often referred to the ear and the prompt dental treatment of such a case will eliminate the earache.

In the absence of any of the above named conditions, the patient should be referred to a neurologist for an opinion as to the likelihood of neuralgia.

If the underlying cause is a tuberculous laryngitis or empyema of the maxillary antrum, the symptom complex will be sufficient to determine the diagnosis.

It often happens that patients complain of repeated attacks of earache either with or without suppuration. This is due, in the vast majority of cases, either to the naso-pharyngeal secretions being forced into the middle ear through the Eustachian tube, or by the blocking of the drainage by adenoid tissue at the Eustachian orifice. Hence every patient with such a history must be forbidden the use of nasal irrigations and must be warned against blowing the nose violently and thus forcing secretions into the middle ear.

If any adenoid tissue is present it is, of course, essential to remove it, as stated above.

SUMMARY.

This paper is intended as a plea to the practioner to treat earache with the respect it certainly deserves and as an aid to him for the recognition of the conditions causing the symptom.

Therefore these points are to be emphasized:

1. The cause of the earache must be determined.
2. Treatment must be prompt.
3. The patient must be closely watched for complications (mastoiditis).
4. If complications develop, despite careful treatment, the patient must be immediately referred to an otologist.
5. In repeated attacks of earache, nasal irrigations and violent blowing of the nose must be prohibited.
6. Enlarged tonsils and all adenoid tissue must be removed.

Reports of Societies.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

Thirtieth Annual Meeting Held at Washington, D.C., May 6, 7, 8, 1913.

The meeting was called to order by the President, Dr. Charles L. Minor, Asheville, N. C.

He said that this Association was the first society in the United States to pay special attention to tuberculosis. Valuable papers on climatic treatment, careful studies on the use of tuberculin, pioneer work on nomenclature and classification, important papers on early diagnosis and on pneumothorax, and many others which had a strong influence on the development of an interest in tuberculosis in this country can be found in the 28 volumes of Transactions. A glance at the list of officers and directors of the National Association for the Study and Prevention of Tuberculosis shows that the members of the Climatological Association have been active and prominent in it from the start, and that the latter is in justice the parent of the national society. The Association has made a study of mineral springs and climatic resorts. Dr. Minor outlined his plans for widening the scope of the Association.

Dr. James Dudley Morgan, of Washington, presented a paper on "The Effect of Climatic Changes on Rheumatism and Neuritis." Rheumatism is a disease of temperate climates; it is not always most common in winter; it is most common in adolescence and manhood, when the powers of resistance are greatest, and in moderately low temperature accompanied by moisture. Soil and climate *per se* have little to do with rheumatism, but may lessen the resistance and render the system more open to attack. Bad ventilation favors the occurrence of rheumatism. Rheumatism, neuralgia and gout are made worse by the approaching storm. The case of Captain Catlin, described by Dr. Weir Mitchell in his article on the "Relation of Pain to Weather,"

published in 1877, was referred to. Dr. J. M. Roddy's article on "Weather Forecasts and Health," 1898, was quoted.

DR. HENRY SEWALL, of Denver, read a paper on "Auscultatory Determination of Early Pathological Changes in the Lungs." Dr. Sewall said that through auscultation of the voice and whisper we have unrivalled means for the detection of minute tissue changes throughout the pulmonary region; with these are included vocal fremitus and percussion resonance. The more marked tactile fremitus and vocal resonance, distinguishing the right from the left apex of the normal lungs, depends on the immediate contiguity of the former structure, with the resounding trachea, whose vibrations are thus transmitted transversely through the pulmonary tissue. Any infiltration of this tissue which improves its conducting or resonating properties must amplify and extend the sounds heard in auscultation. It is necessary to analyze the sounds into those vibrations due to resonance of the viscera and those of the chest wall. The latter vibrations can be damped by pressure of an appropriate form of stethoscope.

Vibrations transmitting the whisper are confined almost wholly to the viscera. Modification of the voice sounds by which their quality becomes more amphoric and their duration prolonged into an echo are the striking characters which, when accentuated by stethoscopic pressure, indicate pathological changes in the viscera. This method of examination reveals the intensity and distribution of morbid changes within the lungs, even when these changes are too slight to appeal to the senses through any other method.

DR. J. N. HALL, Denver: For nearly twenty years Dr. Sewall and I have had opposite sides of the same ward of the City Hospital, and I have seen the cases as they came in. I wish to testify to the striking work that he has done. I have seen him diagnose cases which were positively unique.

DR. W. H. SWAN, Colorado Springs: Dr. Sewall speaks of the value of the x-ray in showing the early stages of tuberculosis. I think we sometimes overlook very marked signs by ordinary examination when the x-ray shows them very distinctly. I recall now a case where several experts failed to recognize a well-marked and large cavity, but the x-ray showed a very distinct cavity, with definite outline and thickened wall. Even after it was demonstrated by the x-ray there were absolutely no physical signs to show it. This must lead us to be very cautious as to many of our physical findings.

DR. WILLIAM LEROY DUNN, Asheville, N. C.: I would like to know what particular formula the doctor has found especially adapted in this whisper voice in bringing out the best evidence.

DR. SEWALL: I direct the patient to repeat the words, "one-two-three" and note the prolongation of the sound from one syllable to the other, as well as the change in quality. If what I have said is true there is rarely need for any tuberculosis except in certain particular instances, to reach the open stage. My thesis is that the procedures of physical diagnosis within our reach are capable in the vast majority of cases of disclosing the presence of glandular and pulmonary tuberculosis in a stage so early that not only is the patient still non-infective, but is capable of responding to the curative measures of hygienic living.

DR. P. M. CARRINGTON, of the U. S. Public Health Service, read a paper on "The Climate of San Diego, California, with Relation to Renal Diseases." The author had recovered from a tubercular infection in New Mexico, and afterwards derived great benefit from a two years' residence in San Diego, where he was sent to recuperate from an attack of nephritis. The rainfall of San Diego is given as ten inches, occurring from October or November until March. The relative humidity ranges from 67% in December to 80% in July, with a mean annual of 75%. Occasionally temperatures of 100° F. have been recorded, and as low as 32° F. The equability of the climate is marked. The climatology of nephritis was discussed with special reference to the San Diego region. Cases were cited to show the benefits derived in this class of cases. It is a climate which necessitates no seasonal change of clothing, and suitable fruits and vegetables are grown all the year, making proper diet obtainable.

DISCUSSION.

DR. POTTENGER: We know there is a very great difference in the climatic conditions of places comparatively close together, because Los Angeles has one climate, Santa Barbara has a still different one, San Francisco still another. San Diego is particularly suited to this type of disease, having a very equable climate, free from rapid changes. At Monrovia, one hundred miles away, our daily variation is thirty degrees. If you will take the temperature at 7o'clock in the morning and add 30 degrees you will have the maximum temperature for that day.

DR. A. C. GETCHELL, Worcester: Many of the patients that I have to do with from time to time owe their troubles very largely to the effect of the climate in which they are living, and I hope that the men who live in these better climates will continue to impress upon us their importance in the treatment of pulmonary tuberculosis. It is true that it is impossible for large classes of patients to take advantage of the better climates. There is a growing tendency toward treatment of disease by hygiene and diet, and other matters which pertain to biology of the system. I think that the quality of atmosphere lived in and breathed is an exceedingly important matter in the treatment of disease, and the value of climate cannot be too persistently impressed upon us.

DR. CASSELBERRY: A brief sojourn at San Diego some years ago tends to confirm its climatic advantages as described by Dr. Carrington. There is not only equability of temperature, but the general quietude is conductive to equanimity of mind, with a disposition to get out into the sunshine, and but little disposition to do anything else.

DR. GEORGE W. NORRIS, of Philadelphia showed a series of lantern slides made from frozen sections of the cadaver, illustrating various anatomical relations of importance in thoracic diagnosis, such as: The relative distance of the lungs and heart from various points on the thoracic wall. (2) The causes for the physiologic differences in tactile, auscultatory and percutory findings on the two sides of the chest. (3) The position of the heart and lungs in cases of pleural and pericardial effusion. (4) The location of early and late tuberculosis lesions of the lungs. (5) The location of the cardiac valves in relation to each other and to the anterior chest wall.

Dr. Philip King Brown, of San Francisco, showed lantern slides illustrating the frequency and extent of peribronchial lymph-gland tuberculosis in cases with some constitutional symptoms without marked physical signs. The general tendency of infections from this source to extend upward to the apices, the plates showing the various stages of this extension. In general, the contribution of x-ray plates of the chest aids in the diagnosis of tuberculosis of the lungs.

Dr. J. C. Wilson, Philadelphia, read a paper on

BLOOD-SPITTING IN HEART DISEASE.

The syndrome hemoptysis occurring in cardiac cases is better studied in office work than in any other clinical relation. Its incidence is much more frequent than the literature would indicate. It is often overlooked in history-taking. Brief statistical studies: the clinical variations; the association with pulmonary lesions; difficulties in diagnosis; immediate and remote prognosis. Remarks upon treatment.

DISCUSSION.

Dr. J. M. Anders, Philadelphia, Pa.: I wish to emphasize the difficulty that I have met with in a few cases in differentiating aortic insufficiency associated with hemorrhage of the lungs from pulmonary tuberculosis. It is true that cases of aortic insufficiency associated with pulmonary hemorrhage form but a small percentage of the total. On account of certain symptoms, such as flushes and night sweats leading to exhaustion and blood spitting, all of which may arise in aortic regurgitation, this disease may bear a close resemblance to pulmonary tuberculosis. I agree with Dr. Wilson that the incidence of blood-spitting in cardiac diseases is greater than has been supposed. In the treatment, also, I fully agree that no special form of medication should be instituted, except in the very few instances where there is great exhaustion.

Dr. DeLancey Rochester, Buffalo, N. Y.: I do not think that we can always positively say that hemoptysis is due to heart disease alone without further inspection of the lung. I call to mind one case, exceedingly instructive, of a young lad with rheumatism, with an endocarditis, mitral stenosis and aortic insufficiency combined,—a combination which I rarely have seen. He came in spitting blood, and no tubercle bacilli were found in his sputum. He improved decidedly, and finally got up and was moving about the ward. He was suddenly taken with severe pain and hemorrhages, and he had all the signs of a pulmonary infarction. Tubercle bacilli appeared in his sputum. There was a case which would undoubtedly have gone without appreciation of involvement of the lung, except that he was under observation. The boy finally died of tuberculosis. Unfortunately, an autopsy was not allowed. Within the last two years there has been brought forward in Buffalo through the studies of Dr. Bush and Dr. Clowes, Dr. Bush being the professor of physiology, and Dr. Clowes assistant in the New York State Cancer Laboratory, a means of treatment of hemorrhage which has proved very successful in various cases. This is the production of a serum from which the antitrombine, which is normally in the blood, is removed by their method of procedure. I will not go into detail because a paper will be published in the *New York State Medical Journal* in regard to this matter. About 15 c.c. of the solution is made, and is injected subcutaneously, or in some cases intravenously, I think, which has as good results in one way or the other. These injections stop hemorrhage in many cases. In 5 cases, 3 of pulmonary tuberculosis and 2 of hemorrhages of the stomach, the results have been remarkable, the hemorrhage stopping within a few hours after the injection of the serum, and not recurring. Sometimes a number of injections are necessary, but I understand that this material will be put upon the market soon from one of the large manufacturing houses. Of course all hemorrhages cannot be stopped with a serum, but I think it is well worth considering.

Dr. J. H. Elliott, Toronto, Canada: I would like to relate one case, a woman about 36 years old, who has had recurring hemorrhage for some 15 or 16 years; they were supposed to be due to pulmonary tuberculosis. No tubercle bacilli had ever been found, but when I first examined her I found a fibrous condition of the right apex. The signs were slight, however. During the first two hemorrhages I could find no physical signs in the lungs. On the third occasion I was rather surprised to find the signs in the left apex, opposite to that which I had diagnosed formerly as tuberculous. At this time there was present, which I had not found before, a murmur of mitral regurgitation. The heart was somewhat enlarged; I had an x-ray made of the chest, and with the fluoroscope there was a pulsating tumor on the descending arch of the aorta, the side on which the physical signs of hemorrhage had appeared.

Dr. J. C. Wilson, Philadelphia: The importance of blood-spitting in heart disease depends on two facts. First, that in the great majority of cases the blood lost is very small and the hemorrhage occurs at long intervals. Its symptomatic value may for this reason be wholly overlooked. Second, that hemoptysis, to many practitioners, suggests disease of the lungs rather than disease of the heart. Hence uncertainties, even errors, in diagnosis. The difficulties in diagnosis are increased by the occasional occurrence of copious blood-spitting in heart disease and in associated cardiac disease and pulmonary tuberculosis. The necessity of a correct diagnosis in any given case arises from the facts that blood spitting in heart disease tends to relieve congestion and is often followed by relief of symptoms and does not really call for energetic treatment; whereas the blood-spitting of lung disease usually demands active therapeutic measures, and is liable to be followed by fever, broncho-pneumonia and an extension of the original process.

Dr. Joseph H. Pratt, of Boston, made a communication on "The Action of Carbon Dioxide Baths on Blood Pressure, with a description of a new functional Test of Cardiac Efficiency." The author has been making these observations on carbon dioxide baths for eight or nine years. Shortly after these baths were employed in heart disease the claim was made that the pressure was raised because it was thought desirable in these cases to raise it; later the announcement was made that the action was to reduce blood pressure. Gottfried Müller, in careful studies of the action of these baths in healthy subjects, concluded that their chief action on the blood pressure was dependent on the temperature of the water. Dr. Pratt used a bath of

40 gallons of water at 90° F. for ten minutes, containing 1000 c.c. strong hydrochloric acid and 1000 gms. of sodium bicarbonate. He does not use calcium chloride or sodium chloride. In a case of moderate cardiac inefficiency there will generally be a silght elevation of the blood pressure. He found also that in cases of marked cardiac inefficiency there was a fall of pressure at that temperature. Dr. Pratt advanced the opinion that the response of the blood pressure in a given case of heart incompetency, when treated by carbon dioxide baths of the strength noted, is an index of the degree of the incompetence, and in case of a fall this plan of treatment would be counterindicated.

DR. JUDSON DALAND of Philadelphia read a paper entitled "Clinical Observations on Blood-Pressure." Dr. Daland prefers the mercurial instrument as being more accurate. Diastolic pressure observations are often omitted whereby valuable information obtained from a study of the low and mean pressure is lost. Repeated examinations were advised. The whole subject was analyzed. Time of day, occupation, position, temperament and circumstances connected with a visit to the physician's office modify the record. Extraordinary variations, all tending to hypertension, are observed in the neuropathic. Driving an automobile for two hours through crowded streets caused an increase of 30 mm. in the systolic blood-pressure and 15 mm. in the diastolic. Neurotic women, experiencing fright when having pressure measured, have a marked rise. Hypertension due to uremic states is usually uninfluenced by most drugs. In a case of Addison's disease with great destruction of the adrenals, the systolic pressure was 90 mm., and the diastolic pressure was 70 mm.

(To be continued.)

Book Reviews.

Practical Prescribing, with Clinical Notes. By ARTHUR H. PRICHARD, M.R.C.S., L.R.C.P., R.N. London: Henry Frowde, and Hodder and Stoughton 1913.

This volume in the Oxford Medical Publications series is essentially a case-history book in internal medicine,—the first of its type in England. The author's aim was to supply information of service to students and practitioners wishing to obtain practical knowledge of prescribing. The common medical diseases are grouped under convenient pathologic or regional headings, and each is illustrated by one or more selected, epitomized cases, with treatment, note, and comment. Though somewhat different in mode of presentation, the method is essentially that familiar in the highly successful American case text-books. The value and vitality of this method of instruction are now so well recognized in this country as to require no further comment. The present volume is evidence of the beginning development of a similar advance in British medical teaching.

The Practitioner's Practical Prescriber. By D. M. MACDONALD, M.D. London: Henry Frowde, and Hodder and Stoughton. 1913.

This small volume in the Oxford Medical Publications series is intended as a pocket formulary and epitome of symptomatic treatment. Portions of it have already been published discretely in the *Clinical Journal*, the *Practitioner*, the *Hospital*, and the *British Medical Journal*. The first part, comprising about three-fourths of the book, is an alphabetic syllabus of the therapeusis of common diseases from abortion to whooping-cough. The second part consists of juvenile and adult posologic tables; the third gives practical directions and points in prescribing; the fourth enumerates the common incompatibles; the fifth consists of "therapeutic brevities"; the sixth describes the treatment of emergencies in everyday practise; and the remaining sections deal with diet tables, gavage, recipes, duration of pregnancy, and other miscellaneous information. On general principles, one does not approve such rule-of-thumb reference books and compendia, but the present manual seems in the main accurate and as little objectionable as any of its class.

The Deaths of the Kings of England. By JAMES RAE, M.A., M.D. London: Sherratt and Hughes. 1913.

From time to time during recent years there have appeared in the *British Medical Journal* interesting articles on the death-beds of several British monarchs. Further study on this subject is, however, now made superfluous by this admirable and absorbing work of Dr. Rae. He has collected from records and historic manuscripts the authentic original data in the case of each king, or ruler, and of his consort, presenting a complete case-history series, with diagnostic discussion, from William First to Fourth. Moreover, in his introduction, he has analyzed this series of cases, classifying the various causes of death, as in vital statistics. Interestingly enough, in spite of the almost continuous relationship between the patients, there is a striking absence of familial or hereditary disease. Chronologically the kings fall roughly into groups, in which the cause of death corresponds approximately with the conditions of life. The early, campaigning kings, died of trauma or dysentery, those of medieval times by infection, those of recent times of pulmonary, cardio-renal, or circulatory disease.

The volume is not only an excellent piece of medico-historical research, but might to advantage even be employed as a text-book for case-teaching in clinical diagnosis. The author deserves the greatest praise for the scholarly and scientific accuracy and literary merit of this unique monograph.

THE BOSTON

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TUBERCULOSIS FOLLOWING TYPHOID FEVER.

Some time ago Lieutenant-Colonel Charles F. Woodruff of the Medical Corps, U. S. Army, now retired, became impressed with the idea that tuberculosis was extremely apt to follow typhoid. During the past two years he has been engaged in extended and painstaking researches in this country and in Europe, with a view to ascertaining whether this were actually the fact or not, and in an elaborate paper read at the January meeting of the Medical Association of the Greater City of New York he made the distinct claim that there is a definite relation between the two diseases. Some preliminary comment on this paper was made in the issue of the Journal for Feb. 12 (p. 259).

It is not strange, he thinks, that medical literature should be so devoid of studies regarding this matter when we consider that the long interval which may elapse between the beginning of tuberculous activity and the onset of symptoms generally prevents the discovery of the activating cause. Consumptives appear to have had more typhoid than the rest of the population, though there is no way of determining this point accurately. Statistics which were quoted indicate, however, that such is probably the case, and there are other facts which, taken together, are believed to show a relationship between typhoid and tuberculosis, though each by itself is of little value. Thus, the mortality curve of tuberculosis, which rises rapidly from childhood, reaches its maximum before thirty and declines after thirty-four, while the maximum in the curve of typhoid is reached at fifteen and declines after twenty-five. The curve of tuberculosis seems to follow that of typhoid after an interval of about nine years, and the average length after tuberculosis is said to be seven years. This might mean, therefore, that the typhoid, mostly contracted before twenty-five or thirty, has been partly responsible for raising the maximum mortality from tuberculosis nine years later. Again, it is significant of the relation of typhoid to tuberculosis that males predominate in the deaths from both causes. Furthermore, where typhoid fever is prevalent there should be more tuberculosis than in places free from typhoid, and variations in the typhoid death-rate should be followed by similar variations in the tuberculosis deaths there. It is also evident that in a place where tuberculosis is quite common, typhoid should have more effect in increasing the death-rate from tuberculosis than in places having little tuberculosis.

These propositions, Colonel Woodruff believes, would seem to be proved by a series of charts which he found in the Office International d'Hygiene Publique in Paris, in which it is worthy of note that the two curves show more or less parallelism throughout the civilized world. On the charts are given the curves for other infections,—smallpox, diphtheria, scarlet fever, and plague; but these came in epidemics, and presented irregularities having no apparent relation to the two endemic diseases. Unfortunately, neither measles nor whooping-cough, which, together with typhoid, he regards as the diseases most frequently followed by pulmonary tuberculosis, was considered of sufficient importance to record, and there is no means of determining how far they were responsible for irregularities in the curves. The curves indicate, in general, that for every reduction of five deaths by typhoid there are more than three lives saved from death by tuberculosis in the time covered by the charts. Karl Pearson, the eminent statistician, warns, indeed, against drawing conclusions from parallel curves, as it not infrequently happens that there are two independent causes at work, one for each set of facts, and wholly unrelated; but in view of the evidence that typhoid is frequently followed by tuberculosis, Colonel Woodruff thinks there can be no reasonable doubt that the reduction of

typhoid is responsible for a good share of the modern reduction of tuberculosis.

He stated that in the United States Army the dependence of tuberculosis upon typhoid was seen after 1890, when, as in civil life, bacterial diagnosis became more common; but after antityphoid vaccine was widely used, tuberculosis ceased to decline with the typhoid. Major F. F. Russell of the Army Medical Corps, who was largely instrumental in having antityphoid vaccination introduced into the army, was one of those who participated in the discussion of the paper, and he took issue very decidedly with its author in regard to the latter statement. If, he said, the contention were true that such vaccination activates tuberculosis, there should have been some increase in the amount of tuberculosis in the army; whereas the records published in the annual reports of the Surgeon General distinctly showed that for the past five years, during three of which antityphoid vaccination had been compulsory, there had been a steady decline in the disease.

REORGANIZATION OF THE MASSACHUSETTS STATE BOARD OF HEALTH.

THE recent report by a surgeon of the United States Public Health Service upon the public health administration in Maryland is of particular interest at this time in Massachusetts since the question of the reorganization of the State Board of Health has come up. Dr. Fox made a careful study of the state department of health and under agencies, having sanitary functions, in the state of Maryland. His study continued during the last six months of 1913. Some of the conclusions are particularly timely.

"From this investigation it is seen that the state board of health has been merged into a department in which, however, it retains the executive control and quasi-legislative powers. Since the board does not sit constantly, however, in the interim of meetings the duties arising must be performed by the executive officer of the department. At least theoretically, therefore, the responsibility and the power of initiation to meet emergency does not appear to rest squarely enough on the administrative official whose duty it is to handle the executive work."

"Furthermore, by reason of the method of appointments on the state board of health it would be possible at any time for its personnel to be so changed for political reasons as to include members without the necessary knowledge of public health needs. While the present board is composed mainly of men of eminence in public health matters, who support the secretary in his actions, it might at times become political at the will of the governor of the state."

"Generally speaking, state boards of health by reason of their organization and slow-moving methods are not in position to exercise all the functions which should be required of a department of health. The state department of health should be able to act quickly and efficiently, and in our opinion this can best be accomplished when it is presided over by an all time health official who has as his subordinates a sufficient number of capable bureau chiefs and a board or council composed of public officials, business and professional men, to act in an advisory capacity only. This officer should have the power of initiation and he should have as a part of his department an adequate county or district health organization which should be subject to the control of the state department and work under it for the prevention of disease and the improvement of the public health."

"It would appear to be the modern tendency to place organizations such as departments of health under the control of one head, as instanced in the states of New York and Pennsylvania, and in the Philippine Islands."

The argument seems to us to be sound. We believe that the same conditions and the same reasons which induced the special public health commission of the state of New York to recommend, and the New York legislature of 1913 to vote to change a state board of health into a system of a single highly paid commissioner of health with an advisory board hold equally well in Massachusetts.

There are a number of bills before the present legislature with the view of reorganizing the state board of health. Practically all of them call for a paid board of several members. According to the Public Health Bulletin, No. 54, of the United States Public Health Service, only one state has a paid board of health. The other states have either unpaid boards or a single commissioner. It seems to us that the tendency of the times and the weight of authority is entirely in favor of the single commissioner of health with an advisory board. Experience has shown that men of large calibre and of great experience in public health will give freely of their time

to the state in an advisory capacity. The entire time and services of such men cannot be secured by the state on paid boards. If the state board of health is to be reorganized, and on the whole reorganization seems desirable, we disapprove of the paid board of health and heartily endorse the system of a single highly paid commissioner of health in authority, with an advisory unpaid board.

UNIFORM CHILD LABOR BILL.

The legislature of 1913 made an important step in public health by passing in its essential form, the uniform child labor bill. The uniform child labor bill had been carefully considered for a number of years and was adopted by the Commission on Uniform Laws only after prolonged careful study. The essential part of the bill was the reduction in the hours of work for children under sixteen, from ten hours a day to eight hours a day. In other words, it made compulsory in all the occupations throughout this state, the standard hours of work that are accepted by the state and by most municipalities when they employ labor. From a public health point of view, this was a sane step towards a better and healthier class of workers. It is generally agreed that to attach a child of fourteen to a machine for long hours each day makes that child prematurely old. The reduction of a working day to eight hours is little enough, but it gives a child from fourteen to sixteen some opportunity for out-of-door exercise and recreation, and counteracts to some extent the serious effects of fatigue upon the nervous system.

As might be expected a number of bills have been introduced into the Massachusetts legislature this year either to repeal or to modify this law so that children under sixteen can again be worked ten hours a day. In the daily press there have been featured some irresponsible statements that the child labor law of 1913 has thrown children out of work and has allowed them to roam the streets in idleness.

Careful investigation of the facts has shown, in the first place, that few children have been discharged. In most instances in Massachusetts, as in Ohio, the mills have found little difficulty in adjusting the eight-hour day of children under sixteen to the usual working day of ten hours, which holds for the other workers. In the second place, the hardships in individual families brought about by this change have been almost negligible.

It would be surprising indeed if some little hardship did not come to a few in order that large numbers might be benefited. It is inconceivable that any one can seriously believe that the health and general welfare of children between fourteen and sixteen years of age can be improved by putting them back into the mills and shops for two hours longer each day. Even in the exceptional case where the strongest boy of fifteen may not be harmed by ten hours' work a day, he is probably better off with eight hours' work and some play, with the opportunity of putting some of his energy into study or industrial education.

Children under sixteen should not work more than eight hours a day. The bills which seek to repeal or modify the eight-hour law for children under sixteen should be defeated.

MEDICAL LEGISLATION. REGISTRATION OF VITAL STATISTICS.

There is at present pending before the Massachusetts General Court a bill providing that the registration of vital statistics in this Commonwealth be placed in charge of the State Board of Health. This work is at present done by local authorities in each community, often a city or town registrar. The State Board of Health must then coördinate this information for its own use, with resultant inaccuracy and duplication of labor.

"The present bill provides in the first place that the State Board shall have charge of the registration of births, marriages and deaths in the state, shall assume the administrative work necessary to do this, including the way in which it shall be done, shall designate the forms and blanks to be used, and have authority to enforce the law throughout the state in a thorough and uniform manner.

"It is proposed to create under the State Board a director to be named state registrar of vital statistics, and registration districts are provided, the same to be the different cities or towns. The act further provides a penalty for the registrar in any district who shall in the judgment of the State Board fail or neglect to discharge efficiently the duties of his office or

who shall fail to make promptly the required returns."

Massachusetts is one of the few registration states where vital statistics are not lodged primarily in the hands of the State Board of Health. It seems eminently desirable that this anachronism should now be corrected.

MEDICAL LEGISLATION. DISCLOSURE OF PROFESSIONAL INFORMATION.

THERE is at present pending before the Massachusetts General Court, and now under consideration by the Committee on Judiciary, a bill to prevent the disclosure of professional information by physicians and nurses on the witness-stand, "unless such information indicates that the patient has been the victim or subject of crime." This raises again the old question of the admissibility of privileged medical communication as testimony and of the sanctity of *sub sigillo* statements. In point of practise, expert evidence in court is largely concerned with matters of fact and opinion, and seldom involves the quotation of hearsay. The status of the medical expert is still far from satisfactory, but it does not appear that this bill would in any way amend it. It seems better that physicians, like other witnesses, should be required to answer all questions allowed by the court, and that the court should exercise discretionary jurisdiction as to what questions may be asked, and as to the proper application of the evidence.

MEDICAL NOTES.

POSTPONEMENT OF ACTION ON RADIUM CONSERVATION.—In the issue of the JOURNAL for Jan. 29 (p. 176) we commented editorially on the Foster Radium Conservation Bill, then pending before the United States House of Representatives. The Rules Committee of the House decided on Feb. 5 not to allow the House to take up this measure at the present session. A similar measure, however, the Thomas Radium Conservation Bill, is still under consideration by the Miners' Committee of the Senate.

LONDON DEATH-RATES IN DECEMBER, 1913.—Statistics recently published show that the total death-rate of London for December, 1913, was 14.9 per 1000 inhabitants living. Among the several districts and boroughs the highest rate was 19.7 in Shoreditch, a crowded east-side slum; and the lowest was 11.0 in Lewisham, an open southern suburb.

A LIVING BRITISH CENTENARIAN.—Miss Ritso, of Bath, England, is said to have been born on Jan. 26, 1812. Her parents were both centenarians.

BOSTON AND NEW ENGLAND.

TWO CENTENARIANS.—Mrs. John Y. Belyea, who died in Upton, Mass., on Feb. 15, is said to have been born on May 24, 1808, at St. Johns, N.B. She was married in 1833, but had been a widow since 1880. She migrated to the United States in 1891. She is survived by one aged daughter.

Mrs. Kate Montosky, who died at Collinsville, Conn., on Feb. 17, is said to have been born on Sept. 14, 1810, in Russia. Her health was exceptionally good until recently.

LAWRENCE GENERAL HOSPITAL.—The recently published thirty-eighth annual report of the Lawrence (Mass.) General Hospital and Children's Home records the work of those institutions for the year ended on Sept. 30, 1913. During this period a total of 3800 patients were treated in all departments of the hospital, including 165 obstetric cases. Eight nurses were graduated from the training-school.

HOSPITAL BEQUEST.—The will of the late Catharine E. Galvin, of Watertown, Mass., who died on Jan. 15, was filed on Feb. 16, in the probate court at East Cambridge, Mass. It contains a bequest of $2000 to the Carney Hospital, South Boston.

NEW YORK.

O'LOUGHLIN MEMORIAL.—A new emergency ward in St. Vincent's Hospital, designed as a memorial to Dr. Francis N. O'Loughlin, the senior ship surgeon of the White Star Line, who lost his life in the disaster to the Titanic, was dedicated to the use of disabled seamen on February 16. Dr. O'Loughlin was a constant visitor to St. Vincent's, in attendance on injured sailors, and at the exercises the principal address

was made by Dr. Edward C. Titus, for many years an associate of his.

Radium Institute of America.—At a meeting of the Radium Institute of America, held at Columbia University on Feb. 17, papers were read by Prof. George B. Pegram, Prof. William Duane of Harvard, Francis C. Wood, director of cancer research, Columbia University, and others. The principal address was made by Dr. Robert Abbe of New York, who was among the first investigators to make practical use of radium, and in it he announced that he had just received a report from Dr. Alexis Carrel, who, at his request, had been making researches at the Rockefeller Institute, and that this report had convinced him that the manner in which he had been applying radium in the treatment of malignant and other growths was wrong. The experiments of Carrel had demonstrated that the gamma rays, which had been depended upon for stopping cellular growth, were almost entirely inert, while the beta rays, which had been considered of little or no value, were extremely active in this respect. "His (Carrel's) experiments," said Dr. Abbe, "are only just beginning. Where they will end I will not attempt to forecast, except to suggest that within five years from now we will know vastly more about radium than we know at this time. . . This new method of studying the isolated rays emitted by radium will end our period of confusion as to the qualities of each ray. I know that the action of each ray is different from the others, but more work under Dr. Carrel's cautious hands and on the part of others will be needed before we can assign to each division of the isolated rays its exact rôle."

Inoculation for Tuberculosis.—At a recent meeting of the City Board of Health a resolution was adopted denying the application of Dr. Hans Karfunkel for permission to inoculate living cultures of an unidentified bacillus in the treatment of tuberculosis. Some time ago Dr. Karfunkel, who is from Berlin, made the application referred to, and, in compliance with the rule of the board, he described in full the manner of using the vaccine and submitted a culture for examination. He stated that the culture was originally obtained from an abscess developed in a patient after inoculation with Piorkowski's vaccine, and subsequently the same living organism was said to have been found in other vaccines used for the treatment of tuberculosis. Examination at the Research Laboratory, however, showed that the organism was in no way related to the tubercle bacillus, but that it belonged, in fact, to the group of spore-bearing bacilli of which the hay bacillus is the main type.

Death-Rate for Week Ending Feb. 14, 1914. —There were 1553 deaths and a death-rate of 13.88 per 1000 of the population reported during the past week, against 1732 deaths and a rate of 16.82 for the corresponding week of 1913, a decrease in the absolute number of deaths of 179, equivalent to a decrease in the relative number of deaths of 313—and a decrease of 2.94 points in the rate.

The following causes showed an increased mortality: Measles, scarlet fever, diphtheria and organic heart diseases; typhoid fever and cerebro-spinal meningitis were accredited with the same number of deaths as in the corresponding week of 1913. The following causes showed a decreased mortality: Whooping cough, influenza, bronchitis, lobar pneumonia, bronchopneumonia, pulmonary tuberculosis, other forms of tuberculous diseases, Bright's disease and nephritis, diseases of the nervous system and violence.

The number of deaths reported during the week of infants under one year of age was 226, which was 72 less than in 1913: the number of deaths of children under five years of age was 348, a decrease of 110 deaths; from five to sixty-five years there was a decrease of 54 deaths, and at sixty-five years and over a decrease of 15 deaths.

The death-rate for the first seven weeks of 1914 was 14.61 per 1000 of the population as against a rate of 14.98 for the corresponding period of last year.

The Use of Common Cups, Towels, and Forks.—Attention having been called to the fact that the Board of Health regulations with respect to common drinking cups and roller towels, are not being observed as they should be, Commissioner Goldwater is taking steps to secure fuller compliance with the department regulations. Letters have been sent to those found violating the sections of the Sanitary Code with respect to drinking cups and roller towels, warning them that a continuance of the offense will render the offender liable to arrest and prosecution.

In this connection, it may be stated that the department is also contemplating action against the use of common forks at the saloon free lunch counters. Investigation has shown that forks, used by one person in eating from a common dish of some food, such as hash, potato salad, sauerkraut, etc., are returned after using, to a glass containing some cold water only, to be picked up and used in the same way by succeeding persons. This very personal tool thus comes into more or less intimate contact with the saliva of the mouth and the mucous membrane of the tongue and lips.

In view of the fact that disease-producing bacteria, some of them a most virulent kind, may be present in secretions of the mouth and throat, it is deemed important to prohibit this common use of such eating utensils. In an examination of the common bar-room fork, undertaken sometime ago in Louisville, disease germs were found in thirteen out of sixteen specimens examined. It is suggested that the food at such lunch counters be prepared beforehand in the form of sandwiches, etc., and handed out to the individual, or else each customer be given food on a plate with individual utensils and that these utensils be thoroughly washed after using.

SMALLPOX AT NIAGARA FALLS.—On Feb. 1, there were 130 cases of smallpox at Niagara Falls, N. Y. If the epidemic continues, it may become necessary to isolate the entire town.

SALE OF BICHLORIDE TABLETS.—In last week's issue of the JOURNAL we commented editorially on legislative regulation of the sale of bichloride of mercury tablets. On Feb. 17 a regulation was adopted by the New York board of health, providing that after March 1 bichloride of mercury tablets may be sold at retail only on prescription of a physician.

Current Literature

MEDICAL RECORD.

JANUARY 31, 1914.

1. THOMPSON, W. G. *Occupational Diseases.*
2. HEISER, V. G. *Beriberi. An Additional Experience at Culion. How Can a Knowledge as to Its Prevention Best be Applied from the Standpoint of State Medicine?*
3. NICHOLS, H. J. *The Relation of Experimental Syphilis to Eugenics.*
4. *WAGNER, J. *Report of Cases of Amebic Dysentery Treated with Emetine.*
5. SOLOMON, M. *Some Remarks on the Meaning of Dreams.*
6. GWYN, M. K. *The Healy Puzzle Picture and Defective Aliens.*
7. STEWART, D. H. *A Vegetable Hormone in Cases of Ileus and Gastric Dilatation.*
8. HUBBY, L. M. *The Treatment of Deafness with Sonorous Vibrations by the Zünd-Burguet Method.*
9. GREENWALD, M. *Clinical Observations of Auscultation at the Acromion Process.*

4. Wagner reports a small number of cases of amebic dysentery successfully treated with emetine hydrochloride. He finds the action of this drug specific in this disease. It should be given, he says, in gr. ½ doses hypodermically daily for seven days. The effect is immediate and pronounced, and no untoward symptoms are observed. As recurrence may occur, a repetition of the treatment is advisable. The administration of emetine is a useful test in the diagnosis of diarrhea of obscure origin; if the condition is relieved it is proved to be amebic dysentery. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

JANUARY 31, 1914.

1. MILLS, C. K. *Neurology at the Recent (Seventeenth) International Congress of Medicine.*
2. GWATHMEY, J. T. *Oil-Ether Anesthesia.*
3. NOVACK, H. J. *Large Gallstone Passed per Viam Naturalem.*
4. KNOX, H. A. *Mental Defectives.*
5. KENNEDY, J. W. *Foreign Bodies in the Appendix.*
6. HILLS, R. *The Modern Treatment of Chronic Nephritis.*
7. CUNNINGHAM, W. P. *Dermatoses Neuroticae.*
8. ROSENBLOOM, J. *On Testing Urine for Bile Pigments and for Diacetic Acid.*
9. VAUGHN, V. C. *The Etiology of the Infectious Diseases.*

SURGERY, GYNECOLOGY AND OBSTETRICS.

JANUARY, 1914.

1. *LAMBERT, A. V. S. *Treatment of Diffuse Dilatation of Esophagus by Operation.*
2. *CLARK, J. G., AND KEENE, F. E. *The Relation Between the Urinary System and Diseases of the Female Pelvic Organs.*
3. *BLOODGOOD, J. C. *Diagnosis and Treatment of Borderline Pathological Conditions.*
4. *LEONARD, V. N. *The Post-operative Results of Trachellorrhaphy in Comparison with Those of Amputation of the Cervix.*
5. *BOORSTEIN, S. W. *Syphilis of Bones and Joints, with Report of Ten Cases.*
6. *SULIG, M. G., AND TOBOLSKE, L. *The Inguinal Route Operation for Femoral Hernia; with a Supplementary Note on Cooper's Ligament.*
7. SHERMAN, H. M. *Congenital Dislocation of the Hip. A Rational Method of Treatment.*
8. KERR, N. *Tumor of Large Nerves Associated with Fibroma Mulluscum; with Exhibition of Largest Specimen on Record.*
9. FRINK, V. A. *Cysts of the Omentum; with Report of a Case.*
10. BENDIXEN, P. A., AND BLYTHING, J. D. *Pneumatic Rupture of the Bowel.*
11. STRAUSS, A. A. *An Artificial Ureter Made from the Abdominal Wall.*
12. GARDNER, J. A., AND SIMPSON, B. T. *The Relation of Multiple Adenomata to the Etiology of Enlargement of the Prostate Gland.*

1. Lambert suggests cardioplasty as the operation for the relief of diffuse dilatation of the esophagus. Cases resulting from cardiospasm can be permanently

cured this way. In these cases the esophagus is found to be lengthened as well as dilated. The operation is by the abdominal route, after a preliminary gastrostomy.

2. Clark and Keene show by excellent diagrams the close and important relationship between pelvic disease in the female and diseases of the urinary system. They urge routine cystoscopic examination in all cases presenting vesical symptoms.

3. Bloodgood's article is of the type which is of extreme importance to surgeons in educational work for the general practitioner.

4. Leonard believes that the presence of a marked endocervicitis should be considered as a contraindication to trachellorrhaphy. Post-operative hemorrhage occurs in about 5 per cent. after amputation of the cervix, but very rarely after thachellorrhaphy, the improvement in symptoms after the latter operation being as great as that from the former. Trachellorrhaphy, unlike amputation of the cervix, is not a curative operation for endocervicitis. Fertility is much more likely to follow trachellorrhaphy than amputation of the cervix, which latter is more liable to be followed by abortion than the former, which has no effect on subsequent pregnancy. Labor after amputation may be very difficult, while normal after trachellorrhaphy. Trachellorrhaphy then is the operation of choice in women of child-bearing age.

5. Boorstein's article on syphilis of bones is well illustrated by case reports and plates.

6. Sulig and Tobolske advocate and plainly explain the inguinal route for cure of femoral hernia.

[E. H. R.]

THE QUARTERLY JOURNAL OF MEDICINE.

1. *WARRINGTON, W. B. *Intracranial Serous Effusions of Inflammatory Origin. Meningitis or Ependymitis Serosa—Meningism—with a Note on "Pseudo-tumors of the Brain."*
2. *ELLIOTT, T. R. *The Experimental Formation of Acute Gastric Ulcers.*
3. *GASKELL, WALLIS, SLADDEN, VAILE AND GARROD. *A Contribution to the Study of Bronzed Diabetes.*
4. *GIBSON, A. G. *On the Infective Nature of Certain Cases of Splenomegaly and Banti's Disease.*
5. *COWAN, HARRINGTON, AND RIDDELL. *On Pneumopericardium.*
6. GOETSCH, E. *Critical Review: The Pituitary Body.*

1. Warrington discusses in a thorough and interesting manner the pathology and symptomatology of serous effusions within the skull, illustrating his remarks with case reports. These effusions may be acute or chronic. The acute cases, the serous meningitis of Quincke, are most often secondary to a septic focus, usually in the ear. The division between "meningism" and meningitis serosa, on the one hand, and between the latter and purulent meningitis, on the other, is not sharp and distinct, but gradual. The examination of the spinal fluid furnishes the most important distinction. In meningism it is normal, except for increased pressure, which is usually present. (The pressure is often normal.—W. T.) In meningitis serosa the fluid shows inflammatory signs, such as increased protein, increased cell counts, but micro-organisms are usually absent and the fluid is clear. In the chronic cases the symptoms and signs are those of increased intracranial tension, due to an acquired internal hydrocephalus. In these patients the erroneous diagnosis of tumor of the brain is often made, and indeed the differential diagnosis is very difficult. They frequently recover after a decompression, usually with some permanent impairment of vision.

2. Elliott has discovered that acute ulcers of the stomach may be produced in guinea-pigs with great regularity by subcutaneous injection of the substance tetrahydro-B-naphthylamine hydrochloride. The first change appeared in one hour after the injection, and consisted of necrosis of the surface epithelium, often accompanied by small hemorrhages into the mucous membrane. Within 24 hours the ulcers are fully developed, extending down to the muscularis mucosae. They healed with great rapidity unless they became infected. Guinea-pigs that were deprived of food before and after the injection, did not develop ulcers. Chronic ulcers could not be caused by this method. The writer concludes that the ulceration is due to the action of the gastric juice on the damaged mucous membrane. Acute gastric ulcers in man are probably often caused in a similar way by the combined action of the gastric juice and toxic substances.

3. This article contains a careful study of the urine, feces and blood, and the autopsy findings in a typical case of hemochromatosis, a condition in which cirrhosis of the liver and pancreas is accompanied by the deposition of pigment in the skin and internal organs, and in the later stages by diabetes. The most important facts brought out were with reference to the iron metabolism. The blood was found to contain an excess of iron, while the feces and urine contained no iron. In the kidney the interesting discovery was made that the convoluted tubules of the first order contained no iron, while those of the second order and the glomeruli showed large amounts. This suggests that the iron is excreted by the glomeruli, but is taken up again by the tubules of the second order. The hypothesis is advanced that the pigment is derived from nucleo proteins and not from hemoglobin.

4. Gibson describes structures found by him in sections of spleens in cases of splenomegaly, which he regards as parasites of the streptothrix family. He claims that these bodies are the cause of the splenomegaly, although he has observed them only in sections and has not cultivated them. The cases in which he found them included Banti's disease, chronic passive congestion and syphilis.

5. The writers publish a very interesting series of radiographs of a case of pneumopericardium uncomplicated by effusion. The cardiac dullness was not obliterated and the diagnosis was made possible only by x-ray examination. [W. T.]

THE PRACTITIONER.

JANUARY, 1914.

1. BENNETT, W. H. *Some Clinical Experiences in Deceptive Symptoms.*
2. JONES, D. W. C. *Gait in Nervous Disease.*
3. *GRAY, H. T. *Stomach-aches Associated with General Infections in Childhood.*
4. *PRITCHARD, E. *Some Physiological Principles Concerned in the Nutrition of Infants.*
5. HARTLEY, J. *Acute Intestinal Obstruction as It Concerns the General Practitioner.*
6. COCKAYNE, E. A. *Jaundice.*
7. *THOMSON, H. H. *The Diazo- and Russo-Reactions in Pulmonary Tuberculosis.*
8. OLIVER, G. *Practical Points in Sphygmomanometry.*
9. WATSON, A. *Some Observations on the Effect of Hypodermic Injections of Adrenalin on the Blood-Pressure.*
10. MENNELL, J. B. *Massage as a Therapeutic Agent in the Treatment of Neurasthenia.*
11. OLIVER, J. *Painful Menstruation.*
12. SAVILL, A. F. *Some of the Uses of Electricity in Medicine.*
13. GAUNTLETT, E. G. *Recent Work in Surgery.*
14. PIKE, J. B. *Encapsulation as a Factor in Pathology.*
15. JOHNSON, R. *Khargeh Oasis as a Health Resort.*

3. Gray believes that stomach-aches in childhood can be explained by interference with the normal passage of food through the intestine. Such interference may take place in three ways through abnormal conditions:—

1. In the lumen of the intestines.
2. In the intestinal wall.
3. In the mesentery.

Under the first heading he discusses cases of abdominal pain associated with diarrhea; under the second, those rarer cases associated with purpura, in which the chief and often only symptom is pain. Such pain may occur in tonsillitis, diphtheria and other conditions. Under the third heading he considers acute inflammatory conditions, such as appendicitis.

4. Pritchard, in a thoughtful article, considers in detail the physiology and chemistry of digestion and metabolism of infants. The paper is interesting, but not suited for review.

7. Thomson, basing his investigations on 500 cases of pulmonary tuberculosis, concludes in regard to the diazo- and Russo-reactions that (*a*) a persistent diazo-reaction or a combined diazo- and Russo-reaction in pulmonary tuberculosis of recent onset is a sign of serious significance; (*b*) the disappearance of the diazo-reaction is usually associated with general improvement; (*c*) a positive diazo-reaction with negative Russo- is less serious than the combined reactions; (*d*) these reactions mean severe systemic intoxication and contra-indicate the use of tuberculin.

The Russo-reaction consists in adding 2-3 drops of a 1-1000 methylin blue solution to a small quantity of urine in a test-tube. When positive, the solution changes from peacock blue to an emerald green color.

[J. B. H.]

EDINBURGH MEDICAL JOURNAL.

JANUARY, 1914.

1. *KER, C. B. *Isolation and Quarantine Periods in the More Common Infectious Diseases.*
2. *MCNEIL, C. *The Association of Acutely Fatal Illness in Infants and Children with Abnormal Constitutions (Status Lymphaticus).*
3. BRUCE, A. N. *Spinal Changes in Pseudo-Hypertrophic Paralysis.*
4. DUNDAS, W. C. *What is Genuine Milk?*
5. OLIVER, J. *Fertilization Time and the Inception of Gestation in Women.*
6. STRUTHERS, J. W. *Spontaneous Recovery after Perforation of Duodenal Ulcer.*
7. WILKIE, D. P. D. *Case of Osteochondritis Deformans Juvenilis.*

1. This article is full of practical information concerning the acute infectious diseases, their periods of incubation, isolation and quarantine. It presents nothing especially new, however.

2. McNeil discusses from various points of view the subject of status lymphaticus. He divides these cases into three groups: (1) Infants found dead in bed overnight. (2) older children or young adults succumbing during anesthesia. (3) young adults dying suddenly during bathing. He reviews the historical features of this strange condition and then takes up the age incidence, sex incidence, general appearance of the body in these cases and morbid anatomy. This latter he discusses in detail, with special reference to these lymph glands and tissues, suprarenals, thyroid, pituitary, and others. He presents the details of the findings in 13 cases of sudden deaths in infants. The article is carefully summarized, is provided with excellent plates and an elaborate bibliography. [J. B. H.]

THE INDIAN MEDICAL GAZETTE.

JANUARY, 1914.

1. CRAWFORD, D. G. *Surgeon-General James Ellis.*
2. *KENNEDY, R. *Note on Ambulance Transport in Very Difficult Mountainous Country.*
3. MAYNARD, F. P. *A Useful Modification in Extirpation of the Lachrymal Sac.*
4. RIELEY, S. D., AND HOWLETT, F. M. *A Few Observations on Myiasis (Screw-Worm Disease) in Behar.*
5. MILTON, F. *Does Bilharzia (Schistosomiasis) Exist in India?*
6. HOOTON, A. *The Treatment of Simple Fractures, Dislocations and Sprains by Massage and Early Movement.*
7. CHATTERJI, K. K. *A Clinical Lecture on Phylacogen.*
8. HODGE, E. H. V. *Notes on Some Cases.*
9. GOOD, J. *Guttate or Nodular Keratitis.*

2. Kennedy's article is illutsrated by six excellent photographic plates representing ingenious methods of transporting the wounded in rough or mountainous country. [R. M. G.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 2. JANUARY 13, 1914.

1. *FRAENKEL, E. *Skin Lesions in Typhus and Typhoid Fevers.*
2. LEBER, A. AND V. PROWAZEK, S. *A Journey in the South Sea Islands and Dutch Indies.*
3. REICHEL, H. *X-ray Findings and Operation in Carcinoma of the Pylorus.*
4. MAYER, A. *Abderhalden's Dialysis Method. Luetic Index and Its Application.*
6. LESSER, F. *The Quantitative Wassermann Reaction in the Treatment of Syphilis.*
7. KLAUSNER, E. *The Palladin Reaction.*
8. BRONSTEIN, J. *The Technic of Sero-diagnosis.*
9. KIENBÖCK, R. *The Dosage of X-rays.*
10. DÖLGER, R. *A New Suction Ear Syringe.*
11. WEBER, A. *The Registration of the Auricular Pulse from the Esophagus.*
12. *OELLER, H., AND STEPHAN, R. *Clinical Studies with Abderhalden's Dialysis Method. (Conclusion.)*
13. SUDHOFF. *Julius Preuss.*

1. To gross appearances the skin lesions of typhus and typhoid fevers are very similar. Fraenkel has been able to excise the skin in two cases of typhus fever, to fix it immediately and to study the histological changes in the fresh tissue. In typhoid fever, there occurs a true lesion of the skin with collections of organisms and cells, leading to a pressure necrosis. In typhus fever, on the other hand, the small arteries of the skin are affected, with infiltration around them leading to peri-vascular nodules which result in characteristic gross appearances. Fraenkel believes that this lesion is peculiar to typhus, and serves as a means for making a differential diagnosis between the two diseases.

12. Oeller and Stephan give a thorough review of the literature which has accumulated on Abderhalden's dialysis method. The test has been applied in gynecology, psychiatry and internal medicine as a means for diagnosis. In the majority of pregnancy cases, placental tissue is split by a protective ferment in the blood. But the same reaction is obtained in a relatively large percentage of non-pregnant cases. In psychiatry, and in internal medicine, especially in diseases of internal secretion and tuberculosis, several observers have reported brilliant results from the test. Critical studies, however, show that the results obtained have not been specific for any one organ or for any definite type of disease, and therefore Oeller and Stephan feel that the method is not of any special value.

The difficulty with the observations recorded is their lack of proper control. Oeller and Stephan report experiments to prove this, and show how better controls should be made. They conclude that Abderhalden's method cannot be applied for general clinical use until the theory of protective ferments is established more soundly. [R. F.]

No. 3. January 20, 1914.

1. Henkel, M. *Ray Treatment in Gynecology.*
2. Klein, G. *Preliminary Remarks on the Treatment of Carcinoma by the Combined Use of Mesothorium, X-rays, and Intravenous Injections.*
3. Rehn, E. *The Cutaneous and Subcutaneous Connective Tissue as Plastic Material.*
4. *Lust, F., and Rosenberg, F. *The Etiology of Infantile Paralysis.*
5. Fauser, A. *Serology in Psychiatry.*
6. Weinbrenner. *Carcinoma of the Skin Cured by Salicylic Acid.*
7. Beck. *The Stability of Skopolamin Solutions.*
8. *Dietlin, M. *A Case of Unilateral Gigantism.*
9. Mayer, O. *Formaldehyde Spray as a Means of Disinfection with and without Diminished Air Pressure.*
10. Graumann, M. *The Early Diagnosis of Measles.*
11. Strebel, H. *Other Cathodal Rays as Substitutes for Radium and Mesothorium.*
12. Müller, C. *The Physical and Biological Basis for the Use of Radio-active Substances and Their Substitution by Roentgen Rays.*
13. Groth, A. *Vaccination in Bavaria During* 1912.
14. Reichel, H. *X-ray Findings and Operation in Carcinoma of the Pylorus. (Conclusion.)*

4. During 1913, seventy-one cases of infantile paralysis were seen in the Heildelberg clinic. Recent advances in the study of the disease have determined its etiology. One of the theories in regard to its transmission has been that the virus is carried by fowls on account of a disease in these animals which clinically is not unlike poliomyelitis. Lust and Rosenberg conducted experiments to determine whether fowl paralysis showed histological findings which resembled those of infantile paralysis, and whether fowls could be inoculated with the virus.

From their results Lust and Rosenberg concluded that hens were neither artificially or naturally prone to the disease, and that while hen paralysis may be caused by a filterable virus related to that of poliomyelitis, the diseases are not absolutely alike.

8. It is recognized that a certain degree of asymmetry is normal in individuals. Rarely hemihypertrophy or unilateral gigantism occurs when one side of the body develops to a much greater extent than the other. Dietlein reports such a case. There are various theories as to the cause of the overgrowth, certain authors believing that it is due to connective tissue hyperplasia, muscular hyperplasia, or nervous disturbances. None of these factors appeared to play a part in Dietlein's case. He believes that the condition was possibly due to a congenital hemi-elephantiasis caused by abnormal development of the veins on one side of the body. As proof of this was the fact that all the veins of the affected side were larger than on the other side. [R. F.]

Obituary.

ROSWELL PARK, M.D.

Dr. Roswell Park, who died on Feb. 15, at Buffalo, N. Y., was born on May 4, 1852, in Pomfret, Conn. He received the degree of A.B. from Racine (Wis.) College in 1872, and that of M.D. in 1876 from Northwestern University. From 1877 to 79 he was demonstrator of anatomy at the Women's Medical College, Chicago, and adjunct professor of anatomy at Northwestern University from 1879 to 82. In the latter year he became lecturer on surgery at the Rush Medical College, Chicago, and in 1883 surgeon to the Buffalo (N. Y.) General Hospital and professor of surgery at the University of Buffalo. In 1891 he published "Lectures on Surgical Pathology." In 1892 he received on honorary degree of M.D. from Lake Forest University, and in 1895 an honorary A.M. from Harvard. In 1896 he published his "Text-Book of Surgery," in two volumes, and in 1897 his "History of Medicine." In 1902 he received an honorary degree of LL.D. from Yale, and in 1907 published "The Principles and Practice of Modern Surgery." He was a former president of the American Surgical Association and of the Medical Society of the State of New York. He is survived by his widow.

Correspondence.

PAIN FROM FRONTAL SINUS DISEASE.

Boston, Feb. 20, 1914.

Mr. Editor: In the number of the Boston Medical and Surgical Journal for Feb. 19th, 1914, page 283, there is a statement which seems to me to be incorrect. According to my experience, pain from frontal sinus disease begins in the morning and usually disappears or diminishes in the afternoon. Your editorial says that the headache comes on regularly in the afternoon or toward evening, which is certainly contrary to what is taught in all text books dealing with diseases of the nose.

Yours truly,
John W. Farlow, M. D.

Miscellany.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE TWO WEEKS ENDING FEBRUARY 14, 1914.

January 21, Surgeon J. A. Murphy ordered to the *Michigan.*

February 2, P. A. Surgeon J. B. Mears, detached: *Cincinnati* to home.

P. A. Surgeon C. E. Strite, detached: *Michigan* to home.

February 3, Surgeon R. R. Richardson, to Naval Training Station, Great Lakes, Ill.

P. A. Surgeon F. H. Brooks, to Navy Yard, Norfolk, Va.

Asst. Surgeon J. J. O'Malley, to Naval Hospital, Norfolk, Va.

Surgeon H. E. Odell, to Naval Hospital, Canacao, P. I.

February 4, P. A. Surgeon E. O. J. Eytinge, detached: Naval Hospital, Mare Island, Cal., to treatment at that Hospital.

February 5, Surgeon C. N. Fiske, to Navy Yard, Mare Island, Cal.

P. A. Surgeon C. B. Munger, to Receiving Ship, Puget Sound, Washington.

P. A. Surgeon W. S. Hoon, detached: Mare Island Yard, to *Pittsburg.*

P. A. Surgeon W. H. Short, detached: Naval Station, Guantanamo, Cuba, to temporary duty Receiving Ship, Mare Island, Cal.

P. A. Surgeon F. W. P. Hough, detached: Insular Government, P. I., to *Cincinnati.*

P. A. Surgeon E. C. White, detached: Naval Hospital, Canacao, P. I., to home and wait orders.

February 7, Commissioned from:

Surgeon W. S. Hoon, from November 14, 1913.
P. A. Surgeon A. B. Davidson, from March 28, 1913.
P. A. Surgeon J. J. O'Malley, from October 8, 1913.
P. A. Surgeon R. F. Sheehan, from October 5, 1913.
P. A. Surgeon W. H. Halsey, from October 1, 1913.
P. A. Surgeon W. J. Riddick, from March 28, 1913.
P. A. Surgeon D. C. Walton, from March 28, 1913.
Asst. Surgeon W. W. Wickersham, from January 14, 1914.

February 12, Surgeon R. E. Hoyt, detached: *Michigan;* to sick leave.

P. A. Surgeon Heber Butts, detached: *Elcano* to *Wilmington.*

P. A. Surgeon Martin Donelson, detached: *Wilmington* to Naval Station, Iloagapo, P. I.

Asst. Surgeon R. C. Davis, detached: Naval Hospital, Canacao, P. I., to *Elcano.*

February 6, Medical Director C. F. Stokes, detached chief of Medicine and Surgery; to temporary duty in connection with that bureau.

Surgeon F. E. McCullough, to temporary assistant to Bureau of Medicine and Surgery.

Surgeon T. W. Richards, detached: Bureau of Medicine and Surgery, to fleet surgeon, Atlantic Reserve Fleet.

UNITED STATES PUBLIC HEALTH SERVICE.

EXAMINATION OF CANDIDATES FOR ASSISTANT SURGEON.

A board of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 B Street, S.E., Washington, D. C., on Monday, March 9, 1914, at 10 o'clock a. m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service. Examinations will be scheduled to be held at other stations of the Service at a later date.

Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character, one preferably being from a Doctor of Medicine.

For invitation to appear before the board of examiners, address "Surgeon General, Public Health Service, Washington, D. C."

NOTICES.

MASSACHUSETTS GENERAL HOSPITAL.—A surgical meeting open to the medical profession will be held at 8.15 p. m., Friday, Feb. 27, 1914, in the lower amphitheatre of the Out-Patient Department. Entrance on either Blossom or Fruit Streets.

Dr. Channing C. Simmons will present "Treatment of Osteomyelitis."

Dr. Beth Vincent will present "Choice of Methods of Technic in Transfusion of Blood."

THE HARVEY SOCIETY. — The ninth lecture will be delivered on Saturday, February 28th, at 8.30 p. m., at the New York Academy of Medicine, 17 West 43d street, by Prof. Richard P. Strong, Harvard University.

Subject: "The Etiology of Oroya Fever and Verruga Peruviana."

THIRD INTERNATIONAL CONGRESS ON OCCUPATION DISEASES.—The undersigned committee has been organized for the purpose of inviting the attention of the Medical Profession and all others interested in the prevention of Occupational Diseases to the Third International Congress on Diseases of Occupation to be held in Vienna in September, 1914.

Among the topics which will be considered at the coming Congress are:

1. The physiology and pathology of fatigue, with special reference to vocational work and to the effects of night work on the nervous system.
2. Work in hot and damp air.
3. Occupational Anthrax
4. Pneumononiosis.
5. Injuries caused by electricity.
6. Industrial poisons.
7. Injuries of hearing caused by industrial pursuits.
8. Miscellaneous communications.

SOCIETY NOTICES.

BOSTON SOCIETY OF MEDICAL SCIENCES.—The Boston Society of Medical Sciences announces a meeting of the Harvard Medical School Historical Society (Wm. J. Kerr, Secretary), on Tuesday evening, March 3, 1914, in the amphitheatre of the Peter Bent Brigham Hospital, at 8.15 o'clock. Program:

Dr. Fitz: "Caleb Hillier Tarry on Exophthalmic Goitre."

Dr. Walton: "Medical Saints in Art" (illustrated).

Dr. W. S. Thayer: "Notes on Cotton Mather."

THOMAS ORDWAY, *Secretary and Treasurer,*
Harvard Medical School.

APPOINTMENTS.

The following appointments to the Medical Staff of the Boston Dispensary have been made: Dr. John H. Bufford, Physician in the Dermatological Department; Dr. W. G. Funnell, Assistant Surgeon in the Eye Department; Dr. J. H. Blaisdell and Dr. Harold W. Dana, Assistant Physicians in the Dermatological Department; Dr. Leroy A. Luce, Physician in the Electrical Department; Dr. W. L. Quennell, Dr. Edward Martin, and Dr. Samuel G. Paolo, Assistants to the Physicians in the Children's Medical Department.

RECENT DEATHS.

DR. HORACE EUGENE MARION, a Fellow of The Massachusetts Medical Society, formerly chairman of its Committee on Medical Diplomas, Medical Director of the 2d Brigade, M. V. M., died in his automobile of heart disease at Boston, February 8, 1914, aged 70 years. He was a native of Burlington, Vt., and a graduate of Dartmouth College with the degree of B.S. in 1866 and M.D. in 1869. He had lived and practised in Brighton since 1870. He was a member of the Obstetrical Society of Boston and was much interested in Masonic and G. A. R. affairs.

DR. ALBERT H. TOMPKINS, who died recently in Jamaica Plain, was born at Little Compton, R. I., in 1844. He received the degree of M.D., in 1875 from the Boston University Medical School. He was a member of the American Institute of Homeopathy and of the Massachusetts and Boston Homeopathic Medical Societies. He is survived by his widow and by one son.

DR. CLAUDIUS L. HOYT, who died of nephritis recently in Manchester, Mass., was born at that town in 1851, and had practised dentistry there for many years.

DR. STANLEY HOWARD MACGILLVARY, of Brooklyn, N. Y., died on February 16 at St. Mary's Hospital, after an operation for appendicitis. He was a native of Sydney, Cape Breton Island, and 45 years of age, and was graduated from Bellevue Hospital Medical College, New York, in 1890.

DR. WILLIAM KELLY SIMPSON of New York, professor of laryngology in the medical department of Columbia University, died from cerebral apoplexy on February 6. He was born in Hudson, N. Y., on April 18, 1855, and was graduated from Cornell University in 1876 and from the College of Physicians and Surgeons, New York, in 1880. He served as interne at the Presbyterian Hospital, and after engaging in private practice became well known as a specialist in diseases of the throat, ear and nose. At the time of his death Dr. Simpson, in addition to his professorship at Columbia, held the positions of laryngologist to the Vanderbilt Clinic, consulting otologist to the Presbyterian Hospital, and consulting laryngologist to Seton Hospital, the New York Foundling Hospital, St. John's Riverside Hospital, Yonkers, and Somerset Hospital, Somerville, N. J.

Address.

RELATION OF THE GENERAL HOSPITAL TO THE TRAINING SCHOOL FOR NURSES.*

By Henry M. Hurd, M.D., Baltimore.

The history of the training school movement in the United States is most instructive. Among the first schools in this country were those at Bellevue Hospital, at the Massachusetts General Hospital, at the New Haven Hospital, at the Philadelphia Hospital and later at the Illinois Training School. All were separate organizations endowed and organized by philanthropic women which had contractual relations with their respective hospitals, but were in no sense a part of the hospital. They were under contract to furnish a certain number of nurses to do the nursing work of specified wards, but the hospital itself felt no responsibility for the management of the school and in fact any effort on the part of the hospital to control the school was evidently resented by those who had charge of it. This was largely due to the fact that the organization of schools in this country to educate and train nurses, especially women nurses, had been regarded a dangerous experiment by conservative members of the medical profession. Training schools had a standing very much like that of the "votes-for-women movement" just now. They were still in the marching stage. They had their faces set towards the promised land but had not arrived. For this reason the ladies who were interested in the organization and devedopment of training schools were compelled to organize them without assistance from hospital authorities, as separate and distinct institutions. This was unfortunate. because it engendered a spirit of mutual criticism which continued for a long time between hospital officers and those who were managing training schools. Hospital officers and physicians under the circumstances were quick to criticise the management of the schools and to exaggerate deficiencies and short-comings even when they did not altogether condemn the whole scheme as impracticable. On the other hand boards in charge of training schools were equally inclined to criticise hospitals and to assert that if the management of them could be committed to the training schools, the care of the sick would thereby be much facilitated, and all administrative difficulties would disappear. We hear such statements from excellent women even at this day. I do not complain of the spirit of antagonism between training schools and hospitals —it was inevitable—and I only mention it to show why after a time it became absolutely essential that the school and the hospital should be more closely related. The jealousies, antagonisms and needless criticisms which hampered the work of both hospital and training school finally led a wise and far-seeing medical man, Dr. Edward Cowles, then superintendent of the Boston City Hospital, to organize a training school in that Hospital, under its control and not under a separate board of lady managers. The advantages of such identity between the school and the Hospital proved so great that it has become the ordinary relation between hospitals and training schools; the training school being now considered an indispensable and integral part of every hospital.

Of the early training schools which I mentioned in the beginning of this address, but one remains in a state of single blessedness. The rest have been wooed and won by hospitals. The Illinois Training School connected for a quarter of a century or more with hospitals in the city of Chicago, has been under the control of a wise and liberal board of lady managers from its organization, and has maintained its autonomy. I predict, however, that the time will come when its management will see the importance of a closer relation than that of friendship with a good hospital to secure greater opportunities for the school and greater efficiency in its work.

It is not strange that the mutual advantages of a union between the training school and the hospital have been apparent in every city where it has been tried. An organic relation has brought about a good understanding between the management of the hospital and the superintendent of the training school so that the latter has been responsible for the selection of nurses and the hospital has appointed them. It has afforded better opportunities for training because the work has been carried on through the mutual efforts of the superintendent of the hospital and the superintendent of the training school. Pupil nurses have not found themselves in the hospital as a matter of privilege exposed to the criticism of unfriendly medical men but have become a part of the hospital machinery. Consequently the nurse has a better standing and larger opportunity to secure a thorough efficient training. This better relation between the two has also brought a recognition of the duty of the hospital to train its nurses and thus to contribute materially to the welfare of the community and to the health of the whole city.

In the vast majority of general hospitals, therefore, and in such other hospitals as are not under the control of religious orders the training school for nurses has become an integral part of the hospital and receives the same recognition as any other portion of the hospital. In fact in many hospitals it is conceded that the mission of the hospital is not only to take care of the sick, and to promote the training of medical men in its wards as internes. but also to

* Read at the graduating exercises of the Massachusetts General Hospital Training School for Nurses, January 15, 1914.

foster the training of young women as nurses. For the future there seems no reason why the training school and hospital authorities everywhere through the country should not walk hand in hand in an effort to promote the better training of nurses and better care of patients.

While I would not seek to minimize the great advantage to the training school and to the hospital of this mutual relation, candor compels me to acknowledge that the union of the two has not at all times and in all places been an unalloyed benefit, and it is not now. I cannot disregard the patent fact that many small hospitals and special hospitals have taken advantage of this relation to exploit the training school for the benefit of the hospital. Such exploitation has generally occurred because of the discovery that a training school for nurses was a valuable asset to a hospital. It not only advertised the hospital as better than one which did not possess a training school, but also enabled the proprietor of the small special hospital often times to procure a nursing service at a cheaper rate than would be possible in any other manner. This has led to the organization of training schools in many hospitals where a training school ought not under any circumstances to exist. Take a single example, and there are many such, of a small hospital interested solely in the surgical diseases of women, owned and operated as a private enterprise. Such a hospital in the interest of nursing has no right to organize a training school. After a period of special service the nurses graduate and become so-called trained nurses in the community to encounter active and acute diseases with which they have had no experience and to cope with the emergencies which may arise in the treatment of such cases. This has been done I am sorry to say in too many instances with the effect to lower the standard of nursing and has led to an imperfect fulfilment of the duty which the hospital owes to the pupil nurse in a variety of ways. It is unjust to the nurse and a fraud upon the public. Practical nursing has not been well taught because the special hospital has not had material enough to permit the nurse to receive instruction in the various branches of nursing.

It soon became apparent to those who were thus conducting special hospital training schools that the best women did not care to come to them for training, because they were not eligible to registration under the laws of states in which the duty of the public toward well-educated nurses had been scrupulously considered. It consequently became necessary for special hospitals, in order to carry out their original plan to train pupil nurses, to accept persons for training whose educational qualifications fell below the proper standard. The result has been the graduation of many persons not fitted by education or training to assume the duties which naturally devolve upon a trained nurse. In many instances nurses not old enough to commence training, who had not received sufficient education prior to entering upon the study of nursing, after an inferior course of study were sent out to serve the community with imperfect ideals as to nursing and an inadequate training in its different branches. This has discouraged applications on the part of capable women who in the better schools must spend three years of their time to secure training in a good hospital in addition to several years already spent in procuring a preliminary education. These women, superior women, I think we can call them without flattery, are unwilling to spend time and effort in the arduous labors of a training school of the higher grade to find themselves as graduate nurses in unfair competition with imperfectly educated women, with aims and ideals far below those of a well educated nurse. This is the reason why we hear complaints that hospitals find it difficult to procure pupil nurses for their training schools. I have already alluded to the attempt which has been made in some quarters to meet the difficulty by lowering the standard of educational requirements for nurses. It has even gone beyond this. Not only has the educational standard been lowered but the age and health of those selected for training have often not been considered, until finally there is danger that the educated nurse will not be fit either physically or by age as well as by education to assume her difficult and trying duties. Many persons seem to forget, or at least to lose sight of the fact that the training school for nurses is a school, that pupil nurses should be treated in all respects as students in other schools and admitted to courses of training only when they are fitted to enter upon the study of nursing. The training school is an educational institution connected with a hospital, precisely as a medical school is a school similarly connected with a hospital, and neither of them can be treated as an economic device to secure cheaper nurses and cheaper medical men. A moral compulsion consequently ought to be exercised on all hospitals both from without and within to establish and maintain good training schools with proper educational standards in the interest of better nursing, rather than in the interest of economy to the hospital. The best hospitals do not always take perfect care of their patients, nor do the best training schools always turn out perfect nurses. They do the best they can with the best persons attainable. Hospitals for their own good and that of the state and the public cannot afford to foster the production of inferior nurses simply because they are more easily procured and less costly to train. Such schools are not cheap in the long run, nor do they permanently benefit the hospital, because they ultimately prevent the best women from entering the profession of nursing.

An entrance requirement therefore would seem essential for every pupil nurse. The hospital has a right and duty to fix an educational entrance requirement as much as a health requirement, and in its turn should give a good,

thorough honest course of instruction. To attempt to get something for nothing is an economic error which sooner or later will destroy all ideals of nursing and lower the standards of all training schools. The interests of the hospital and of the school are identical. Every pupil nurse has a right to a first-class training, and every hospital has an equal right to expect that women of education and refinement will apply for appointments as pupil nurses and will avail themselves of the opportunities afforded by a proper training school. I am persuaded in fact that every training school which has a good preliminary educational requirement and gives pupil nurses reasonable hours of labor with due recognition of the severity of the work, and a thorough and sensible course of instruction will not lack for pupil nurses. I repeat that they will not lack for nurses if proper attention is paid to the health, welfare and education of pupil nurses, because it is evident to all who have anything to do with training schools that educated women of the right stamp are as anxious to enter the profession as ever. Many have been deterred from doing so by the fact that the well educated nurse after years of study and training, found herself obliged to compete with nurses who had not received similar advantages. She had no protection from half-educated or unscrupulous competitors.

After much thought, I have come to the conclusion that every hospital should educate two classes of attendants upon the sick, one to be known as trained nurses and the other as trained attendants. The trained nurse should be guaranteed her proper position as a nurse under a state registration and the right to maintain her privileges by an appeal to the courts if need be. The semi-trained nurse should be called an attendant upon the sick, her duties, privileges and right should equally be fixed by law. In the U. S. Army medical corps the surgeon is never confounded with the hospital steward, nor do we find the hospital steward arrogating to himself the duties and responsibilities of the army surgeon. Similarly in the world at large as at the hospital, the trained nurse should occupy a higher position and be in no danger of competition from the untrained woman. The key to the whole situation is an adequate registration law for nurses.

The laws of every state should recognize the legal status of the nurse earned by virtue of the hard work which she has done and should protect her in her rights. This is not trade unionism as some people claim, but simple justice and it is the duty of hospital men to make every effort to supply this protection to nurses who have come to us in good faith and who have done their duty thoroughly and conscientiously for three years. Hospitals or individuals should not allow considerations of economy to impair faithful work.

When in an adjoining state the superintendents of prominent hospitals in a communication to the State Department of Education expressed the conviction that it was essential to lower the standard of educational requirements for nurses in order to educate nurses for the service of the public, one cannot help feeling that they acted hastily and without fully appreciating the consequences of their act.

The lack of nurses complained of by these gentlemen was more the lack of pupil nurses in the hospitals than of trained nurses in the community at large. There is in fact little scarcity of trained nurses in any community. There may be a scarcity of good nurses simply because the profession of nursing has been flooded with nurses of insufficient education, who had been accepted for training on similar pleas or turned out from correspondence schools. If those who are thus charitably interested in supplying nurses to the public will call to mind the large numbers of nurses ready in every city to serve the public but finding difficulty in getting cases, they must confess that the lack of nurses of which they complain cannot be a crying evil. Nurses ought to be protected in the rights which they have earned for themselves precisely as physicians and lawyers are protected. Physicians cannot practice unless they have had a certain degree of education and can fulfill certain professional and educational requirements. A lawyer is not admitted to the bar until he can show that he has spent a specified time in the study of his profession and has done a prescribed amount of work. In Maryland undertakers and barbers even are required to be examined and licensed. Similar care should be taken to supply to the trained nurse the protection of the law. To this I may add a statement which has doubtless occurred many times to all of you. The welfare of both hospital and nursing profession alike is irrevocably bound together. The hospital cannot do its work thoroughly and meet the requirements of the modern hospital treatment of the sick without the help of the trained nurse. Trained nurses on the other hand cannot receive their proper instruction except in a general hospital and in a training school managed and controlled by the hospital authorities.

The time is past, far past I hope, when any one can propose that the training school should be divorced from the hospital and placed as formerly under the control of a separate organization. I go farther than this, in fact, because I believe in order that nurses may enter upon the higher education which now seems to be required by every nurse, to fit her for calls to better and larger service, it is essential that higher schools of instruction also be connected organically with hospitals. The good work of Teachers College in New York needs to be supplemented by a closer connection with a hospital. The incentive to education which comes with the grouping together of large bodies of young women in the training school and in the hospital wards must not be overlooked. Trained nurses have

done much for hospitals and hospitals in turn have done much for nurses. It is impossible for any one to "assess" the mutual benefits, to use a legal phrase.

I now come to the most pleasing duty of my address (I do not allude to giving advice) and I feel it not so much a duty as a pleasure to welcome you as nurses to the great band of nurses who have gone before you. The leaders of this band who obtained their education twenty-five or thirty years ago, were few in number but mighty in faith and the onward march of those who have followed them in constantly increasing numbers has justified the correctness of their vision. Numbered at first by tens and by scores, they now see their successors numbered by thousands.

I congratulate you upon the completion of your chosen work. You have labored long and zealously and have attained the honor for which you have striven. A diploma is not much in itself, a mere piece of parchment with some stately unfamiliar words written or printed upon it. It is related that Thoreau the naturalist once in writing of the diploma which he had received from Harvard University, uttered the bitter gibe "In future let every sheep keep his own skin; I wish none of it," and so he might if the sheepskin or parchment constituted the whole of the diploma. It is not the parchment itself, after all which you prize but it is what it signifies. Ingersoll once said that a bill of fare is not a dinner. True enough, but it may be the *promise* of a dinner just as this piece of parchment gives promise of an educated nurse, of one who by study and toil and training of the head, hand, mind and heart has fitted herself to undertake the most serious of all callings. I always enjoy reading the vigorous outline which Florence Nightingale gave of her conception of what a nurse ought to be. She believed that the object of training was to teach not only what was to be done but how to do it. The physician or surgeon should order whatever needs to be done for the patient's care, but the training of the nurse should teach her how to do it to his order. Training must also teach the symptoms of disease so that the nurse may know what certain symptoms indicate about any disease and whether the patient is worse or better when the symptoms change. *Telling the nurse what to do* is not enough and cannot be enough to make her work perfect. To use Miss Nightingale's words, "The trained power of attending to one's own impressions made by one's own senses, so that these should tell the nurse how the patient is, is the *sine qua non* of being a nurse at all." It is not sufficient to use "the sense you have got." The nurse's eye and ear, her smell and touch and even her taste are all to be trained and all may be as necessary to the welfare of her patient as her head. The nurse should be trained to observe, in fact her powers of observation require training. As Miss Nightingale says "Merely looking at the sick is not observing. To look is not always to see. It needs a high degree of training to look, so that looking shall tell the nurse aright, so that she may tell the medical officer aright, what has happened in his absence. Observation tells the nurse how the patient is, reflection tells what is to be done; training tells how it is to be done. Training and experience are of course necessary to teach us too, how to observe, what to observe, how to think, what to think. Observation tells us the fact; reflection the meaning of the fact. Reflection needs training as much as observation." These terse sentences go to the root of the whole theory upon which she wrought in her training of nurses.

In the light of her illuminating words how trivial and childish appear the objections which we hear to the so-called over-educated and overtrained nurse and the laudation heard even now in the year of Our Lord 1914, of the natural born nurse who "mothers" her patients, who needs no training and who only follows her heaven-born impulses and her womanly intuitions.

The first and foremost ideal in the mind of every one is clearly that of self-sacrifice. In your chosen calling you subordinate inclination to duty and become absorbed in the development of a purpose of personal service. This motive consecrates your work and gives it a human touch. Nursing without it is mechanical; with it you become transformed into ministers of mercy and find the fullest scope for enthusiasm and self-devotion.

Another ideal allied to it which is developing rapidly is that of helpfulness to the community. We find trained nurses now in great demand as school nurses, tuberculosis nurses, visiting nurses orthopedic nurses, and mothers'-relief nurses, nurses in charge of milk stations, social service workers and settlement nurses. Those who enter upon work of this character do so at much sacrifice of money and personal comfort. They could do "better for themselves," to use a popular phrase, if they devoted their time to private nursing, but they cannot disregard the call of the common weal and they forsake ease and the call of a good time to carry the gospel of health to the ignorant, the poor and the suffering. All praise to them! They are practically paying the debt which we all owe to the suffering poor. We owe it but they pay it.

There are compensations to the nurse for her life of self-sacrifice and her spirit of helpfulness. She becomes self-reliant and gains a mental poise, a breadth of sympathy and steadiness of purpose which are granted to but few. I need not urge you to cherish these ideals and cultivate their growth.

In receiving your training you have acquired new ideals of life and of personal service. You have the *esprit de corps* of your chosen profession. This represents a body of sentiment which has been growing in your minds for three laborious, but I trust, happy, years—somewhat, possibly as a result of the traditions which you have

inherited from those who have gone before you but unquestionably much more because of the growth and development of your own hearts, minds and characters during training. You have caught the spirit and received the baptism of new emotions, ideals and aspirations. I welcome you to the profession of nursing and I bid you God speed.

Original Articles.

THE RELATIONSHIP BETWEEN EPILEPSY AND MIGRAINE.*

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Epilepsy resembles migraine in many of its aspects. Both occur with great frequency as a direct inheritance from the family of either parent. Both recur with more or less periodicity in the individual. On the one hand the picture is that of an explosion of motor energy; on the other that of an explosion of sensory energy.

Each may be preceded by an aura referable to a disturbance in a definite cortical area. Although the aura of migraine presents the visual type in the form of scotoma and hemianopsia, while epilepsy commonly exhibits the pneumogastric aura, or the sensory or motor disturbance of the arm, face or leg; nevertheless, we may on the other hand have the migraine attack ushered in by paraesthesia of the arm, lip and tongue (with or without aphasia), while epilepsy may be preceded by visual disturbance, as dimness of vision or scotoma.

Not only may the same sort of an aura introduce an attack of epilepsy or migraine in different individuals, but in both diseases the warning may make its appearance independently without being followed by an attack. Just as in epilepsy the numbness of the hand or twitching of the fingers may come daily or several times a day over varying periods of time, only to be followed by the convulsive seizure at intervals of weeks, in the same way in a subject suffering from migraine attacks every few weeks preceded by scintillating scotoma, I have seen the appearance of daily attacks of the scotoma alone, over periods of weeks, each attack lasting from twenty to forty minutes.

The occurrence of psychic symptoms associated with the attack of migraine or epilepsy has been described by various authors; and indeed the attack in either disease may be replaced by a psychic equivalent.

Another common symptom frequently met with in both epilepsy and migraine is somnolence. It is astonishng to see a patient suffering intensely from hemicrania sleep soundly for a number of hours in the midst of the attack; and frequently attacks which come on during the day will disappear during sleep at night time. Just as somnolence appears often as part of the disease in migraine, so it may manifest itself in attacks of epilepsy, not as a result of exhaustion, but as a symptom of the disease. The following two cases are cited as illustrative of this rather than as being unusual in any way:

A boy of ten years, whose mother has suffered from periodical sick headaches since childhood, has had attacks for two years, in which there is a sensation of gas in the stomach lasting one or two seconds. When these come on he runs to his mother, saying he is afraid, and grasps her tightly, crying out "Don't let them hurt me!" or similar expressions. The pupils are dilated, the face congested and saliva drools from the mouth. The patient does not reply to questions, and after exhibiting these symptoms two or three minutes goes into a sound sleep for half an hour to an hour. Sometimes the pneumogastric aura is followed by convulsions.

A man of twenty-four years whose mother has periodical headaches lasting all day two or three times a year, has suffered for eight years from attacks of severe headaches, which always come in the left temple, recurring at intervals of eight or ten months. Each attack is ushered in by right hemianopsia, immediately followed by numbness of the right hand and wrist and right corner of the mouth, together with aphasia. This condition lasts half an hour, during which time the patient can walk around and understand conversation, but cannot speak. At the end of a half-hour dull headache in the left temple, associated with drowsy feeling and stupor appears, which, at the end of another half an hour, terminates with vomiting. If he can lie down and sleep when the aura begins, he awakes in less than an hour without discomfort.

The foregoing characteristics are only illustrative of points of *similarity* existing between the two diseases. There are however certain points of *relationship* which exist between them.

It is not the object of this paper to discuss the pathology of the two diseases in question. As is well known, various hypotheses have been advanced to account for the cause of the attacks in the two neuroses. None however can be accepted as generally true for all cases, and in comparing the two diseases we are forced to depend in accepting the diagnosis of migraine or epilepsy on the clinical picture presented. The features indicative of a relationship between epilepsy and migraine may be classed under the following heads;

(1) The interchange of one disease for the other in different generations of the same family.

(2) The appearance of migraine in early life, giving place to epilepsy later, with a resulting disappearance of the migraine or diminution of the intensity of the migraine attacks. In these

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cases the epileptic seizures may be ushered in by the same aura which gave warning of the earlier attacks of migraine.

3) The development of migraine attacks in patients previously suffering from epilepsy, and in whom the epilepsy has been cured by bromide treatment.

4) The appearance of symptoms of epilepsy in migraine attacks of certain individuals.

The interchange between epilepsy and migraine in different members or different generations of the same family has been remarked upon by various authors, as being significant in the consideration of the relationship of the two diseases.

Kovalevski found of the various hereditary diseases in the histories of patients suffering from migraine, that epilepsy occupies first place.

Bourneville found that migraine was present in the relatives of 24 per cent. of his cases of epilepsy.

Dejerine on analysis of Bourneville's cases found that in 250 epileptics 51.6 per cent. showed alcoholism, 24.5 per cent. migraine, and 21.2 per cent. showed epilepsy in the ancestors.

Féré, showed that in 108 cases of epilepsy, the father had migraine in 88 instances, and the mother had migraine in 116 instances. He further showed that out of 206 epileptic women, 40 had children who were affected with migraine.

Ulrich found that in five hundred cases of migraine 99 (or 20 per cent.) showed a direct or indirect relationship to epilepsy. In about 8 per cent. there was epilepsy in the relatives of the patients; in about 12 per cent. migraine and epilepsy occurred in the same individual.

The fact that attacks of epilepsy and migraine sometimes alternate with more or less regularity in the same person, may be due to the coincidence that the patient is suffering from the two diseases. For it would not be strange that two diseases so commonly found thriving on neuropathic soil should at times afflict the same individual. But substitution of one disease for the other in a person, or the occurrence of symptoms common to both diseases in an attack must indicate relationship. The occurrence of migraine in the early years of life of individuals giving place to epilepsy in the later years was first described by Liveing in 1873.

He cites the case of a woman of thirty-seven years, suffering from epileptic fits. The patient's brother and sister were both epileptic, though there was no history of the disease in either parent. The patient suffered from the age of twelve with sick headaches, coming chiefly at the menstrual period. These were frequently preceded by a visual aura of dim vision and numbness of the fingers. At the age of thirty-five the headaches stopped and were replaced by epileptic seizures, which also came at the time of the catamenia.

Liveing quotes another similar case, and follows it by a number of instances showing the connection between these two diseases, collected from the literature of the times.

Krafft-Ebing reports a case in which the epileptic attack ends in a hemicrania.

A woman of twenty-six years, whose mother and sister had suffered from hemicrania, had been subject since puberty to attacks of premenstrual migraine with scintillating scotoma. Two years previous to the time he first saw her, she had been observed to manifest a lapse of consciousness, which lasted about ten minutes, that is, as long as the scotoma had continued, during which time she made inarticulate noises and did not respond to questions. At the end of ten minutes, the patient regained consciousness, suffering from hemicrania, but was amnesic to all events which transpired during the disturbance of consciousness. Five months later she had her first epileptic attack during sleep, and when the convulsions had ceased she came to herself with her usual headache. Since that time the epileptic attacks have come always at night and are always followed by hemicrania.

Spiller reports two cases of patients who had had migraine since early life, in whom symptoms of abortive forms of epilepsy made their appearance later.

Gowers reports the case of a woman aged thirty-two years, who, at the age of eight years became subject to periodical headaches, which were preceded by dimness of sight, and usually ended after some hours with vomiting. They continued until the age of thirty years, when she became subject to epileptic fits. The headaches ceased entirely when the epilepsy began, and remained absent until she came under treatment. While under treatment the fits were arrested, but the headaches returned with greater severity than ever.

Turner cites the case of a man of thirty-six years, whose father was a confirmed epileptic and whose sister suffered from paroxysmal headaches. The patient had epileptic fits from the age of sixteen to twenty-five years, when they ceased and gave place to attacks of paroxysmal headaches, coming on in the early morning, lasting about three hours, and recurring every week or ten days.

Flateau in his recent monograph on migraine reports the case of a woman thirty-four years old, whose mother and sister had suffered from migraine, and who at the age of 17 had severe attacks of headache lasting two days. When menstruation began the headache attacks increased in severity. During the last three years before Flateau saw her she had developed typical epilepsy, and the headaches had ceased.

The following case was recently seen by the writer at the Massachusetts General Hospital.

She was a woman of twenty-seven who had been subject to periodical headaches from early childhood up to the age of nineteen. These headaches were preceded by blurring of vision, and were associated with vomiting. Her great grandmother suffered from paroxysmal headaches, but otherwise her family presented no history of epilepsy or migraine.

At the age of nineteen the attacks of headache ceased and were replaced by dream-like periods lasting several minutes, during which the patient was unable to move and could not reply to questions. In these periods the patient says there is a train of thought that she cannot afterwards recall. During the past year these attacks have given place to typical epileptic convulsions, recurring every two weeks in which the patient usually hurts herself in the fall, and has bitten her tongue. By the advice of her doctor she was recently married in the hope of thereby curing the attacks.

Hemianopsia as an aura in epilepsy is of rare occurrence. Gowers maintains that it never occurs, but as is well known, it is frequently seen as the first stage in an attack of ophthalmic migraine. The following case observed by the writer illustrates the fact that it may occur as an aura of epilepsy, and so closely does it conform to the migraine type of hemianopsia in its character and long duration before the attacks that it strongly suggests a relationship between the two diseases.

A man of thirty-four has had attacks of epilepsy since the age of eighteen. There is no history of epilepsy in his parents or in their immediate relatives, except that his mother's father who was alcoholic had convulsions in late life. The patient has one brother and three sisters, one of whom has severe headaches periodically, which are not, however, associated with eye symptoms.

The patient has had convulsive attacks since the age of eighteen, coming four or five times a year. These are always preceded by a right hemianopsia. The loss of vision begins on the right side and extends inward until it reaches the median line in the course of one or two minutes, and at the same time there may be flashes over the blind field after the hemianopsia is well established. The hemianopsia lasts from fifteen to thirty minutes before unconsciousness sets in. This delay usually enables the man to reach home from his office before the convulsions begin. The loss of consciousness is immediately followed by general convulsions, lasting several minutes, after which he lies in a heavy sleep two or three hours, and awakens with a heavy feeling head and is lame all over for from one to three days. The attacks persist with the same frequency in spite of liberal doses of bromide and careful regulation of the general condition.

From the age of ten to eighteen years this patient had severe headaches two or three times a month which came on during the day or night and lasted three to five hours. The pain was across the forehead, never limited to one side of the head, and was never preceded by scotoma or hemianopsia, nor followed by vomiting.

Krafft-Ebing, Savage, Féré, and Cornu have shown that in certain cases where epilepsy attacks have been cured by the bromide treatment, migraine may develop as a substitute, and Flateau asserts that his experience corroborates this.

The following case, a patient who has been under the observation of the writer for five years, will illustrate this point.

He was a boy of 14 years when first seen in May, 1908. There is no history of epilepsy or migraine in either parent or in their families. At the age of two, while teething, he had a convulsion lasting five minutes. At the age of three, while feverish with bronchitis, he had a second convulsion lasting five minutes. A third convulsion was at the age of six, and the fourth at the age of eleven. For the three years previous to the time he was seen by me, he had had convulsions every three to six months, mostly in the morning before getting up. The attacks were of a typical form of major epilepsy. He had led his class at school in studies, and excelled in athletics. Under treatment of regulation of diet and moderate doses of bromide the attacks ceased. Three years later however, while still under treatment, he had an attack which he described as follows:

"On the 28th of April at eleven a. m. I was suddenly seized with a dimness of vision which lasted twenty minutes, at the end of this time I could see as well as ever, but the instant the dimness left I felt a drawing sensation at the tip end of the thumb of my left hand for a space of two minutes. This sensation passed from one finger to the other in the order of the fingers and up into the hand, the little finger receiving the strongest drawing. I then felt the same sensation half way up the left arm and in the upper lip and roof of the mouth on the left side of the face, all of which passed away in two or three minutes, and was followed by dull headaches over the eyes."

During the next two years these attacks were repeated at intervals of three to six months, and not until recently did the convulsions return, when the patient became lax in following his treatment.

That the headache attack with its visual and paraesthetic aura which replaced the convulsion, was not an abortive form of epilepsy seems probable, since it presents the clinical picture of migraine. As is well known, the aura of migraine lasts over a prolonged period of time, while that of epilepsy precedes the attack by only a short interval.

This case is interesting in connection with one reported by Féré in his book on "Les Épilepsies et les Épileptiques," written in 1890.

A woman of fifty-four years while writing a letter suddenly felt a severe pain over the right eye, and "the flickering lights of a thousand candles" appeared on the right side of her field of vision. So severe and sudden was the pain that she thought some one had thrown a stone at her, and on going to the door to see who had done it, met her husband, and was surprised to find she could not see the left half of his face. When she tried to explain to him her condition, she was unable to manage her tongue, or to articulate her words. She then felt her fingers and thumb of the left side flex on the palm with a pain extending up the forearm, and the whole arm was raised to the height of the shoulder, while the face was turned toward the right and the lips were seized with convulsive twitchings. These convulsive movements lasted only a minute, but the headache, hemianopsia and aphasia persisted for fifteen minutes. At later intervals there were five recurrences of similar attacks, and when bromide treatment was instituted the convulsive attacks no

longer appeared; only the pain, scintillating scotoma, and hemianopsia remained.

The occurrence of migraine attacks and epileptic seizures in the same individual and ushered in by the same visual aura has been described by various authors. The following case, observed by the writer, is an excellent illustration of this phenomenon:

A man thirty-seven years old, a tanner by trade, gave a history of migraine in both parents: the mother had periodic sick headaches as a girl, but outgrew them in middle life; the father has had periodic occipital headaches of great severity, associated with vomiting, ever since he can remember. There was no history of epilepsy in the family.

The patient had periodic headaches with nausea and vomiting as a boy, which continued until he was eighteen, none of them being associated with visual disturbance.

About three years previous to the time he was seen by the writer, he began to have left supraorbital headaches, preceded by flickering scotoma, but not associated with nausea or vomiting. He had forty or fifty of these attacks during the three years, always coming on in the day-time and lasting a number of hours. His scotoma consisted of a luminous spot before the eyes, which contracted and expanded like the opening and closing of a butterfly's wings.

About two years previous to his first visit, he one day had a violent attack of the scotoma, and lay down on a couch, asking a companion to get him a glass of water from the next room. The last thing he remembered was that the furniture in the room appeared to be jumping up and down with the flickering of his scotoma. When his companion returned with the water the patient was found on the floor in a general convulsion.

Two similar attacks occurred later at intervals of about six months—one in a barber's chair, the other while driving.

The writer was called in consultation to see this patient, who was suspected to be suffering from a brain tumor. Three days previously he had been found in bed in the morning suffering from intense frontal headache. This had persisted since and had required hypodermic injections of morphine. There had been occasional attacks of vomiting during this time. The patient had been much run down during the previous months with overwork and domestic worries.

The physical examination showed a well-developed man. The pupils were equal and reacted well. Ophthalmoscopic examination was negative. There was no impairment of any of the cranial nerves. The reflexes were normal. There was no Babinski. The temperature was 98.6, the pulse 45, and blood pressure 130.

For many days preceding the onset of this severe and prolonged headache, and for several weeks following it, there were daily attacks of the flickering scotoma lasting a few seconds, sometimes occurring two or three times a day; and a subsequent examination of the visual fields by Dr. George Derby revealed a homonymous scotoma still persisting.

The persistence of a scotoma of this sort would raise the question as to the existence of a permanent organic lesion of the brain, which might account for the appearance of the convulsive attacks. Cases have been described however, in which the scotoma may continue for a long time after the attacks of ophthalmic migraine. Inasmuch as we often find patients suffering from ophthalmic migraine exhibiting at one time the scotoma followed by the headache, and at another time accompanied by a headache, just as the aura which precedes epilepsy may be followed by the convulsion or occur independently, it is difficult to say whether the above patient's minor attacks should be considered as attacks of aborted epilepsy or migrainous scotoma.

The appearance of symptoms of epilepsy and migraine in the same attack of an individual has been noted by various observers.

Tissot in 1780 wrote that he had very often seen convulsive movements of the forehead, eyelids and face muscles, associated with migraine, and that sometimes the convulsions involved the entire body.

He described the case of a girl of twelve, who together with the hemicrania attack felt a numbness in the little finger of the same side, which spread successively to the other fingers, the forearm, upper arm and neck with occasionally a spasmodic retraction of the head and spasm of the jaws. There was no loss of consciousness, but the attack was followed by vomiting.

Parry in 1825, wrote that he had seen instances of obfuscation of sight lasting many hours after an epileptic fit, from which the patient was otherwise fully recovered. In his case it was only the perpendicular half of the object that could be seen.

Price reports the case of a patient, twenty-one years old, whose father suffered from attacks of severe headache, preceded by blindness for a few seconds, and then by numbness of the arms, tongue and lips. The father also had two sisters afflicted with migraine. Six out of seven of the patient's brothers and sisters also had migrainous attacks, and in three of them the headaches were associated with numbness or weakness of one half of the body. The patient had had paroxysmal headaches since he was six years old, coming several times a year and occasionally preceded by numbness of the right side of the body. This paresthesia began in the toes and crept up, affecting in succession the leg, arm, trunk, face and tongue, being felt most markedly in the hand and foot and but slightly over half the trunk. At times he had been unable to control the affected arm and leg during the attack. The paresthesia lasted from twenty minutes to an hour, and was followed by severe hemicrania on the side of the head opposite the numbness, lasting from twelve hours to three days. Other attacks were preceded by blurring of vision and hemianopsia. In a "light attack" seen by Price, the face was pale, the lips cyanotic and the speech thick; while occasional twitchings of all four extremities were noted, the arms flexing at the elbows, and the thighs adducting.

That epilepsy is related to migraine is still denied by certain men who have written on the subject, although the majority of the authorities accept the fact.

Liveing in his early work on migraine published in 1873, recognized the relationship between epilepsy and migraine. He writes, "Epilepsy is doubtless the neurosis which exhibits the closest connection with megrim, both in the occasional replacement of the one affection by the other, and also in the occurrence of cases of character intermediate between the two."

Féré says that epilepsy is among the frequent accompaniments of ophthalmic migraine, especially partial epilepsy. Ophthalmic migraine may develop in a person who has previously had partial epilepsy and still has attacks of paraesthesia in the side of the body in which the epileptic movements occurred. He also speaks of cases in which migraine may precede epilepsy, or the two may occur together, or in which the migraine may become less severe after the epilepsy has made its appearance.

Wernicke in 1881, maintained that migraine is not infrequently complicated with certain phenomena of epilepsy, and may appear as a forerunner of epileptic attacks.

Kovalevski calls attention to the substitution of one neurosis for the other. Epstein regards migraine as the equivalent of epilepsy in some cases. Cornu maintains that one neurosis may be transformed into the other. Charcot and Krafft-Ebing maintain that when scintillating scotoma appears in an epileptic attack it is related to migraine. Oppenheim writes that migraine sometimes, though rarely, develops into epilepsy.

Turner, in his book on epilepsy, states that he has observed a relationship between epilepsy and migraine in 4.3 per cent. of his cases. This relationship manifested itself in one of the four following ways:

(a) Periodic headaches in one parent, and epilepsy in the off-spring, and vice versa.

(b) Headaches in early life, replaced by epilepsy in later life.

(c) Epilepsy in early life, replaced by headaches in later life.

(d) Both existing simultaneously in the same individual.

Spratling, in his book on epilepsy, gives but little space to its relationship with migraine. In speaking of the sensory equivalents of epilepsy, he writes "The Migraines also belong to this group. The relationship between these affections and epilepsy has long been in dispute. I believe it is associated with the disease, especially in women, who more frequently show a periodicity in convulsive phenomena than men."

Ulrich recognizes the following conditions to explain the occurrence of epilepsy and migraine in the same patient:

(1) Migraine may exist as a symptom of epilepsy.

(2) Both may develop side by side in an individual, springing from the same low order of nervous development.

(3) Severe migraine attacks may produce convulsions.

(4) Constant recurrence of migraine attacks may lead to the development of true epilepsy.

(5) Migraine attacks may disappear as epilepsy develops, just as they do in the development of grave organic diseases of the brain (dementia paralytica).

Spiller expresses his views on the subject by the following remarks:

1. Attacks of migraine occur with nausea and vomiting; this form is known as simple migraine, and usually remains unaltered during the life of the patient.

2. In other cases visual disturbances (hemianopsia, scintillating scotoma, and amaurosis) are associated with migraines, and the disease is known as ophthalmic migraine.

3. When paralysis of the ocular muscles occurs with the migraine, the disease is described as ophthalmic migraine.

4. Migraine, especially the ophthalmic form, is related to epilepsy, and the attacks of migraine may precede for many years the convulsive attacks of epilepsy, although in most cases of migraine, no convulsions are ever detected.

5. In some cases epilepsy appears in the form of one or more of the disturbances seen occasionally with migraine; and later, even after many years, convulsions develop. The disease may be epilepsy from the beginning. It matters little, with our uncertain knowledge of the pathology of the two diseases whether we regard these as abortive cases of migraine that later become associated with epilepsy, or as abortive forms of epilepsy (sensory epilepsy) in which the convulsions later become apparent, provided we recognize a relation between some forms of migraine and epilepsy.

Flateau in a study of five hundred cases of migraine has observed a relationship to epilepsy in thirty-six cases, or 7.2 per cent. In certain of these cases the attack in the individual manifested itself first as migraine, then as epilepsy of the petit mal type, and finally in later life as convulsive attacks with the epileptic Dämmerzustände.

Among those denying the existence of a relationship between the two neuroses in question the opinions of the following men are to be valued in the light of their wide experience with these diseases:

Gowers writes, "The traces of a definite relation of migraine to epilepsy are slight. In extremely rare instances one affection may develop while the other goes an, and, as we have seen, the same premonitory disturbance may even be at-

tached to each. But such cases are so rare as rather to emphasize the rule to which they form exceptions. When the exceptions are carefully examined, they show that any relation to epilepsy is indirect. Epilepsy develops from migraine as an indirect consequence of the effect of the intense pain, and associated cerebral disturbance. The influence of this may be traced through stupor, sleep, delirium and loss of consciousness, to definite epileptic symptoms."

Hubbell, the ophthalmologist, states that he has questioned three to four hundred patients who were afflicted with ophthalmic migraine, and in not one of them has he found that epilepsy existed in any form, nor was epilepsy described in the antecedents or descendants of the patients.

Strohmayer has often found epilepsy and migraine existing in the same person, the epilepsy usually making its appearance later than the migraine. Substitution of one for the other he has not found. When this appeared to take place the migraine was but a symptom of the epileptic condition, or epilepsy made its appearance as a new element in addition to the migraine. In the atypical cases, the diagnosis between the two diseases may be difficult.

Moebius maintains that migraine is essentially different from epilepsy. Under certain circumstances it may be impossible to say whether migraine or epilepsy exists, as when the aura alone appears. But in such cases it is either one or the other. The difficulty lies only in the inability to recognize which it is. If we put aside the rare cases in which migraine turns into epilepsy, we have only to consider the cases in which epileptic as well as hemicranic symptoms exist. In these cases we are concerned with epilepsy which simulates migraine. As a general rule we can assume that where there are convulsions the case is one of epilepsy. "Migraine symptoms," he says, "are exclusively sensory and I never made a diagnosis of migraine where there is the slightest appearance of convulsions at the corner of the mouth or in the tongue. One can say, that when convulsions appear in an attack it may seem to be migraine but is in reality abortive epilepsy."

Moebius denies for instance that the case of Féré cited above represents a change from epilepsy to migraine, but maintains that it indicates that through bromide treatment the convulsive feature of the attack has been eliminated, leaving what is really an abortive form of epilepsy.

That the attacks similar to that reported by Price, and described in the foregoing pages of this paper, should be relegated to the province of epilepsy according to the claims of Moebius, on account of the twitching spasms of the limbs, seems arbitrary, inasmuch as the clinical picture is that of migraine; for we must admit that paraesthesia of long duration is an aura distinctly characteristic of migraine, as is also hemianopsia, while the absence of loss of consciousness with the prolonged hemicrania, complete the clinical picture.

One cannot review the statistics of various authors which describe the frequent interchange of epilepsy and migraine in different generations of the same family without being convinced that they indicate a definite relation between the two diseases. Nor can one read the histories of the cases described in the earlier pages of this paper in which substitution of one neurosis for the other occurs in the lifetime of the individual without having his conviction of this relationship strengthened.

Moebius in denying that there is a relationship between the two neuroses puts this evidence aside with the statement, "If we regard the rare cases in which migraine turns into epilepsy," while Gowers passes by the importance of this relationship with the statement "If a person subject to migraine becomes liable to epilepsy, the migraine may cease, or become slight or rare, and return if the fits are arrested."

We must also accept in considering the relationship the group of cases in which bromide treatment of epileptic fits changes the clinical picture of the attack from that of epilepsy to that of migraine.

We still are confronted however, with those cases presenting attacks apparently migranoid in character but also associated with convulsive movements. Shall we accept the dictum of Moebius that the presence of convulsive movements must relegate these cases to the domain of epilepsy? It seems to me that since we must accept a relationship between the two neuroses in different generations of the same family and in different attacks of the same person, that surely we may recognize that symptoms of epilepsy in an attack of migraine may indicate the existence of a relationship between the two diseases in that attack, and need not, according to the dictum of Moebius, stamp that attack as essentially epileptic.

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A RADIOGRAPHIC STUDY OF THE MASTOID.

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The following observations were made from a large series of X-ray plates in possession of the Massachusetts Charitable Eye and Ear Infirmary and I wish to thank the various members of the staff for their permission and assistance. In many instances the X-ray interpretations could be verified by operative findings.

The use of the X-ray plate for aid in diagnosis of mastoid conditions is recent and promises to be of great value, especially in differential diagnosis between an acute mastoiditis and an acute exacerbation of a chronic sclerosed mastoid. As a rule, the mastoid picture shows a more minute change in pathology than is shown in that of the accessory nasal sinuses. The reverse is true perhaps of transillumination. For detecting changes in the antrum of Highmore, for example, the transilluminator is more accurate than the X-ray, but in the mastoid the X-ray will differentiate between a congested though cellular mastoid, one whose cells are broken down and one that is sclerosed, while the transillumination of the mastoid simply shows some pathological condition obstructing to different degrees the rays of light.

It is not necessary to go into the details of how the X-ray exposures are made and the plates developed. Suffice it to say that the side of the head to be skiagraphed is laid on the photographic plate with the film side up. Sometimes the auricle is left in its natural position and at other times it is turned forward. The rays are directed through the head from a point posterior to the opposite mastoid, so as to avoid superimposing any dense structures of the head. For this reason the bony external auditory canal is not shown as a distinct oval but more as a mottled area, and other relations are more or less distorted. The more carefully a plate is exposed and developed, the more accurate and easy will be the interpretation. A sclerosed or normal cellular mastoid can be made out in almost the poorest plate but for interpretation of slight pathological changes in acute matoiditis a good plate is an absolute necessity. Plates of both mastoids should be taken in all cases for comparison.

The normal cellular mastoid projection shows the cellular spaces clearly and the thin partitions are clear cut. Anterior to the cellular area is a roughly triangular, dense area which is the petrous portion of the temporal bone. Within this area the bony meatus shows as a less dense and mottled spot. Had the projection been taken in the direction of the auditory canal, the meatus would have been shown as a hole. Anterior to this triangular area is seen the ascending ramus of the jaw and its articulation. The upper border of the triangular area is formed by the zygoma and its projection posteriorly as the linea temporalis. The middle cranial fossa lies above the border. The zygomatic cells, when present, often show projected in and above this border. The antrum in a normal, cellular mastoid is rarely distinguishable from the other cellular spaces. The position of the lateral sinus and sigmoid curve can generally be made out but is not as distinct as in a sclerosed mastoid. As in the latter, the anterior border is more distinct. In a general way, it passes from the upper, posterior part obliquely downward and forward to the bulb which lies under the middle ear. The tip is always seen as a distinct free border. The tip may be more or less solid or filled with cells so as to leave only a shell-like cortex.

Posterior to the sinus is seen the posterior cranial fossa in which lies the cerebellum. The suture lines of the occipital, parietal and mastoid bones often can be seen distinctly. In the young the cellular area is much restricted and the cells are generally smaller than in older individuals. Not unfrequently there is much variation in the size, shape and arrangement of cells in different cases but there is a striking similarity between the two mastoids of the same individual. If there is a small mastoid on one side, the other will be small. If one mastoid has small diploëtic cells, the other has also, or if one has large pneumatic cells, such are found in the other. The outline of the cellular area is generally similar in both. The auricle must be mentioned here, not because we desire its projection, but because its shadow frequently masks or accentuates some border and allowance must be made for it.

The X-ray picture of the mastoid in acute conditions varies as the pathological processes advance. In the majority of cases of acute otitis media the mastoid cells are affected simultaneously, even though the pathological condition be only a participating congestion. In all severe infections the mastoid cells are probably likewise infected, and pus from the mastoid is added to that from the middle ear. In this congestive stage the natural cellular appearance of the mastoid would be preserved with the exception that there would be a loss of definition between the cell spaces and their partitions. In fact the whole plate of the mastoid region shows less penetration to light than the other side. This is the most difficult stage of mastoid inflammation to interpret. Almost perfect plates of both sides, equally exposed and developed, are required. This picture can be simulated by other inflammations and congestions of the surrounding soft parts, most commonly, furunculosis of the external auditory canal. Fortunately, this

stage of mastoid involvement rarely requires surgical intervention.

After six to ten days the picture changes in cases of virulent mastoiditis. There is now seen a distinct blurring of the mastoid structure. The cell partitions are barely made out and there is very little contrast between the cell spaces and their partitions. At the end of this time, actual loss of some cell partitions may be made out. In such a mastoid, the cell spaces would be found filled with pus, the mucous membrane lining swollen and polypoid, and there would be some softening of the bony partitions.

Plates of mastoiditis which has progressed for two, three or four weeks show still different pictures and usually are easy to interpret. At this stage is noted distinctly loss of cell partitions, especially in the tip or in the center over the lateral sinus. Areas less affected by the pathological changes still show blurred cellular structure. Later, well advanced cases may show no cellular structure in any part and may even show cavity formation due to destruction of bone. These mastoids, as found at operation, are very vascular, broken down, and filled with granulations and a little pus.

Perisinous abscess in the central portion of the mastoid is sometimes diagnosed in those cases above spoken of where cavity formation is noticed is that region. Where the bony wall of the sinus and the cellular structure over it has been absorbed by the pathological process, it is conceivable that such a cavity should show in the plate because the rays can thus more easily penetrate that area. A perisinous abscess well posterior, and an extradural abscess, both being partially beyond the limits of the normal cellular mastoid, frequently show up distinctly. The impression is that of a cavity or less dense area surrounded by a dense areola fading off gradually above and posteriorly. A brain abscess has not been observed. Sinus thrombosis is probably not recognizable to any extent. There is no reason to believe that clotted blood has any different effect on the penetration of the rays than fluid blood. The reason for the impression of the lateral sinus on the plate will be spoken of in connection with the sclerosed mastoid.

There are many cases of mastoiditis that never come to operation and, after weeks or months. the majority get well. The X-ray seems to throw some light on what happens to the mastoid in these cases and how nature cures them. It has been mentioned that the cell partitions are absorbed as the process goes on and all the spaces are filled with granulations and the quantity of pus is diminished as the virulence of the infection is gradually overcome. Have we not now a condition similar to that after operation when the mastoid cavity has been cleaned out and later filled with granulations in the process of healing? What happens to the post-operative cavity? Regenerated bone, usually homogeneous. but rarely cellular, fills the cavity as is seen in X-ray plates of old post-operative cases and as is found in operating on cases of recurrent mastoiditis. In the post-operative cases the bone regenerates from the periphery of the cavity and frequently leaves a seam of fibrous tissue directly under the cicatrix of the incision. It is also observed that bone is not regenerated in the area where the sinus was uncovered by operation. With the above clinical and X-ray evidence that post-operative mastoid cavities fill in with granulations followed by regenerated bone, can it be doubted that this same process takes place in an unoperated case cured by nature? A few of these transition cases were found in which the X-ray showed almost a homogeneous shadow and at operation a soft, bleeding, regenerating bone and granulation tissue was found but no pus. If for any reason, as, for example, carious ossicles on a marginal perforation, the antrum and middle ear did not heal as the mastoid was filling in with bone, a chronic suppurative ear would result.

We have considered above what takes place in an adult, fully developed mastoid. Let us now consider what would be the result in babies and young children where there is only an antrum and rarely a few cells budding off. In this group occur a goodly proportion of our acute suppurating ears and it is a well known fact that discharge from a baby's ear is very chronic. When operation is performed the antrum is found filled with granulations. Though the antrum is of about adult size, the mastoid tip and surrounding parts are proportionally smaller and close to one another. The normal antral lining has been destroyed so that as the child grows the budding off of cells will not take place. The bony parts will enlarge some but not in proportion to those filling with cells. The sinus is left nearer the antrum and the groove is deeped in the bony parts. Does not this explain the small, sclerosed mastoid of later life with its ivory like texture and its lateral sinus so close to the posterior wall that easy access to the antrum is impossible? On the other hand, how rarely does a lateral sinus obstruct the surgeon's passage to the antrum in an acute cellular mastoid.

Let us now consider the appearance of the sclerosed mastoid in the X-ray plate. The sclerosed mastoid is the type always seen in cases that have or have had a chronic suppurative middle ear and mastoid. So constant is this relation that with one exception, all cases diagnosed clinically as a chronic suppurative ear showed a sclerosed mastoid. The one exception was a case of atresia of the canal with granulations and foul pus. The mastoid was cellular and the middle ear normal after curing the canal. The reverse, however, is not so constant. Acute exacerbations of a chronic suppurative ear or acute otitis media in an ear which was once a chronic suppurative ear frequently can-

not be differentiated clinically from an acute attack in an otherwise normal ear. Here, the X-ray shows us the past history as represented by a sclerosed mastoid. And again, given an X-ray plate of a sclerosed mastoid, it is practically impossible to detect the presence of an acute inflammation.

In a completely sclerosed mastoid no cells whatever can be seen. The bone looks smooth and dense. The meatus and middle ear are seen as in normal mastoids as a less dense area. Usually the antrum shows as a mottled area just above and posterior to the meatus. The lateral sinus generally shows very distinctly in this type of mastoid. The more dense the sclerosed bone and the longer it has existed, the more distinctly does the sinus stand out. The anterior border of the sinus is generally more distinct than the posterior. In some cases the latter can hardly be defined from the surrounding bone. The sinus shows so clearly in this type of mastoid because of the fact that the sigmoid groove is very deep in the mastoid bone. This makes it easy for the rays to pass through the small amount of bony cortex over the path of the sinus while it is difficult to penetrate the mass of sclerosed bone on the borders. The fact that there is blood in the sinus does not help to make it conspicuous. On the contrary, it would tend to limit the contrast because light can pass less easily through blood. In cases of cellular mastoids, the dense borders are replaced by cells which obstruct the rays very little and this explains the inconspicuousness of the sinus in the normal mastoid. The position of the sinus varies in the different cases and the position in the plate is of some value to the surgeon before operating. One cannot lay a measure on the plate and say that the sinus is just so many millimeters posterior to the posterior wall of the canal. The projection so measured would be deceptive for several reasons. First, the Röntgenologist may have placed the heads at slightly different angles, or the shape of the individual head made this imperative. The course of the sinus not only varies, as seen in a lateral projection, but may be nearer the surface in some cases than in others. The more marked the light penetration over the sinus, the more superficial it must be. The more acute the angle at the knee (junction between sinus proper and sigmoid portion), and at the same time superficial and projected close to the posterior wall, the more troublesome it will prove while excavating a passage to the antrum. In some cases the anterior wall of the sinus can be seen projected over the posterior and inferior portion of the antrum and in such cases the sinus is liable to be uncovered before reaching the antrum.

Some sclerosed mastoids, especially the larger ones, occasionally show a large area about the antrum or extending down toward the center which is less dense and mottled in appearance. At operation such a mastoid is found to be broken down with areas of pus, granulations of cholesteatome. Sometimes a distinct cholesteatome cavity may be seen.

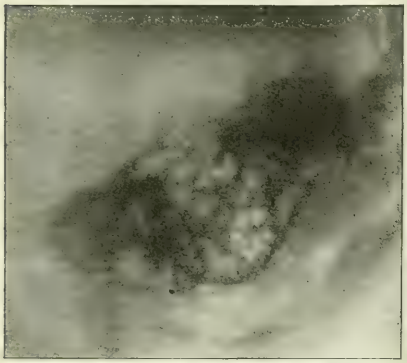
The appearance of the tip of a sclerosed mastoid which dates from infancy is often characteristic. As had been said, the tip cannot be developed by budding cells from the antrum nor can it be filled in by regenerated bone after destruction of the existing cells as in cases in which the sclerosing process started later in life. In these cases the tip is densely sclerosed but has fine wavy lines, as is seen in ivory. This appearance has been interpreted as diploëtic but is not found so at operation. These cases give the best detailed pictures and at times the mastoid vein and foramen is seen and on two occasions the Fallopian canal could be made out. A line of fracture through the mastoid was shown clearly in a plate and later was demonstrated by operation.

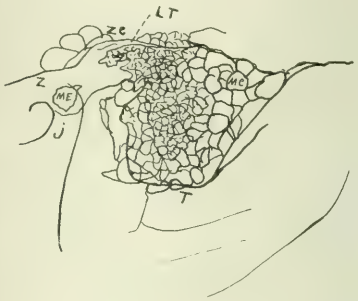
There is one type of case that has not yet been spoken of, namely, the so-called effectus ear. By that term is meant any ear which shows by scars or perforation of the drum membrane that there has been a past suppuration. An X-ray plate of such an ear shows all degrees, from a normal cellular mastoid, partly cellular, semi-sclerosed to a completely sclerosed mastoid. the same patient may have a sclerosed mastoid, on one side and a semi-sclerosed or normal mastoid on the other and yet both ear drums are effectus and there is history of past ear trouble. This observation may be easily explained. It is well known that a mild acute ear can cause a scar by rupture of the drum or by having a paracentesis done, suppurate for a short while and then dry up without distinctive involvement of the mastoid and yet be classified as an effectus ear. Had this process gone farther before clearing up there would have been more damage to the drum and the mastoid would have been structurally altered. Partial sclerosis, which always advances from the periphery, would have resulted. The cells remaining were either uninjured cells that escaped the suppuration or a regeneration of cells, the latter having been observed clinically by others. The fact has been known clinically that a discharge existing for years in a chronic suppurative ear may cease and the drum cicatrize and in these cases is to be found the explanation of the sclerosed mastoid seen in an effectus ear. Nothing shows more clearly than X-rays of effectus ears the varying degrees in which suppurations in the middle ear affect the mastoid structure.

The following more detailed statistics may be of interest. The total number of mastoid pictures tabulated was 460. Many others were discarded either because the plates were poor or because of insufficient data. The number of pathological mastoids was about evenly divided between the right and left sides. There were many more sclerosed mastoids on the right side

than on the left but the number of acute mastoids on the left side equalized the division. This coincides with the records of the mastoid operations performed at the Infirmary for the past ten years. Although one side may prevail over the other for a given period, the average is about the same for each side.

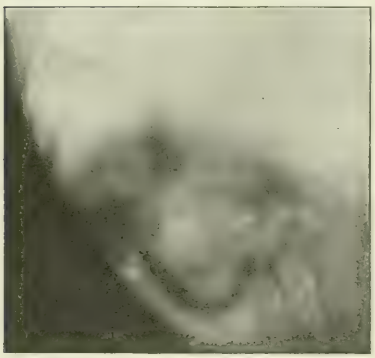
In cases where the clinical diagnosis of chronic suppurative ear was made, 94% showed total sclerosis of the mastoid and 6% semi-sclerosis. In the cases where a diagnosis of effectus ear was made, 56% were totally sclerosed, 27% semi-sclerosed, and 17% were cellular or normal. In cases where no diagnosis of a past or present suppurative process was made, 92% had normal mastoids and 8% were sclerosed or semi-sclerosed. 10% of the cases diagnosed as acute suppurative otitis media showed sclerosed or semi-sclerosed mastoids. These represent the cases of acute processes superimposed on an effectus ear, or the acute exacerbation of a chronic ear. These latter are often difficult to differentiate clinically. The conditions found at operation were compared with the clinical and x-ray diagnoses in seventy-five cases.

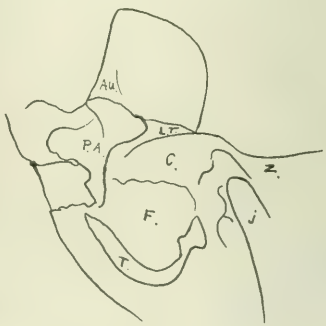




A left normal cellular mastoid. Female. Age 26. The right mastoid was sclerosed from a chronic suppurative ear of 12 years' duration.

M C, mastoid cells. Z C, zygomatic cells. Z, zygoma. ME, middle ear and canal. j, ascending ramus of lower jaw. T, mastoid tip.

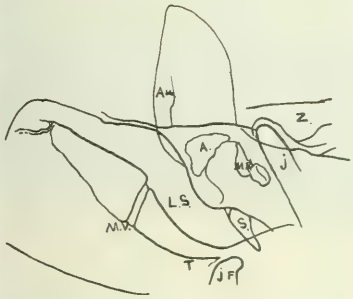




A right acute destructive mastoiditis. Male. Age 48. A discharging ear for two months.

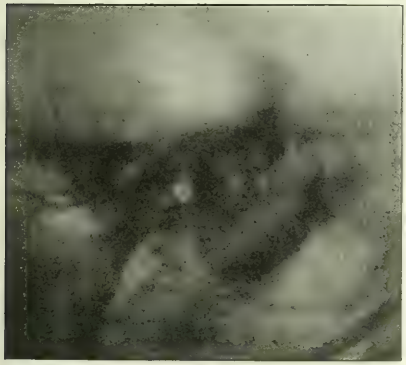
LT, remains of mastoid cortex at tip. F, homogeneous area where all cellular structure is replaced by pus and granulations. C, localized area suggesting some remnants of cellular structure bounded above by the linea temporalis. P A, shadow due to post-auricular abscess and granulations over the sinus. j, ascending ramus of lower jaw. Au, auricle. At operation there was found a post-auricular abscess, perforation of the cortex and the mastoid filled with pus and granulations. Some cellular structure was found about the antrum.

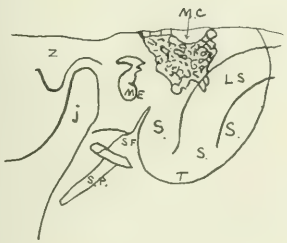




A right sclerosed mastoid. Female. Age 12. The left mastoid was similarly sclerosed and verified at operation. Both ears had discharged since five years of age.

Au, auricle. L S, lateral sinus. S, styloid process. Z, zygoma. j, ascending ramus of lower jaw with the articulation. M E, middle ear. M V, mastoid foramen and vein. T, sclerosed tip. JF, jugular foramen. A, less dense area in sclerosed bone suggesting site of antrum.





A left sclerosed mastoid. Male. Age 50.
M E, middle ear and canal and shadow of maleus. Z, zygoma. j, ascending ramus of lower jaw. M C, remnants of some ill-defined mastoid cells. L S, lateral sinus. Posterior border not distinct. S S S, sclerosed area. The wavy ivory-like structure is visible in the negative. T, mastoid tip. S P, styloid process. S F, stylo-mastoid foramen and Fallopian canal.



A right sclerosed mastoid showing a line of fracture. Male. Age 36. The left ear was an effectus ear and the mastoid sclerosed. The right ear had discharged for three weeks and the patient had a right facial paralysis for that length of time.
F F F, line of fracture from the occipital suture (S F) across the mastoid and facial ridge (F R). S A, softened area in the mastoid. S S, sclerosed area. T, mastoid tip. L S, lateral sinus. L T, linea temporalis. Z, zygoma. j, ascending ramus of jaw. At operation the line of fracture was found in a sclerosed mastoid with a softened and broken-down centre.

LABORATORY PHYSIOLOGY IN COLLEGE AND IN MEDICAL SCHOOL.

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In 1885, Professor John C. Draper of the Medical Department of the University of the City of New York published his highly interesting book entitled "Medical Physics." By way of introduction he says: "It is no exaggeration to say that there is not a tissue, organ or function of the body, the proper comprehension of which does not involve a knowledge of the laws of physics. We may with equal justice affirm that there is scarcely a principle of physics which is not applied in some form in the human body." He then laments the general ignorance of physics by American physicians, especially as compared with Europeans, and offers his text as a wholesome corrective. He deals, somewhat *in extenso*, with fundamental principles, but makes many pioneer applications of these principles to the science of medicine.

Nearly thirty years have passed since this work of Dr. Draper first appeared. During this period the teaching of Physics as a separate subject has been taken up by many schools, carried for a while, and subsequently dropped; not, however, without distinctly affecting methods of teaching. We take note of physical principles in pathology, surgery and hygiene, but more particularly in physiology a greater part of whose manifestations are simply physical. Yet in these several branches of medicine, use is made chiefly of such of the data of physics as are directly applicable; the broad general principles are no longer taught in the medical school. We have come to see that medical science is specific, not general; deals not with the universality of law, but with the operating of universal law under particular, well-defined conditions. As a consequence of this change in our view-point a knowledge of the science of physics is now demanded not as a part of the medical course but as a necessary prerequisite. Knowledge of physical laws is, as Draper urged, essential to the proper comprehension of bodily functions, but that knowledge must be acquired where universals are taught,—in the academic side of the university; whereas a knowledge of the specific applications of those laws to the functioning human body must be learned in that department of the university devoted to the special study of the human body, to wit, in the medical school.

A similar comparison might be drawn from the methods of teaching chemistry. Not so many years ago, nearly all schools used valuable time teaching medical students fundamental principles in chemistry:—the laws of chemical combination and dissociation, nomenclature, periodicity, atomic theory, reactions and compounds of the metals and non-metals. Today, however, all of this general knowledge must be acquired before entering the medical school; and we are looking forward to the time when organic chemistry together with qualitative and quantitative analyses will also be a part of all premedical courses. Here again we recognize the principle that knowledge of general application should

be acquired in the academic side of the University; in its place in the medical school we are to teach the application of those general laws in the determining of the problems of human metabolism, in investigating physiologic and pathologic analyses and syntheses, and in estimating all those chemical reactions characteristic of bodily activity.

Since we have accepted this welcome readjustment in the departments of physics and chemistry (moved somewhat hurriedly albeit tardily thereto by the suasion of the Council on Medical Education), why should we not continue the good work in other departments, notably in the department of physiology? In our medical schools, in the department of physiology, we are giving courses parts of which properly belong to the work of the high school and college. We spend many long hours in the discussion and demonstration of fundamental biological laws (e. g. nerve-muscle reactions), studies as much out of place in the routine medical course as would be discussions of work and energy, motion and force. We seem to assume that there are no other agencies for the teaching of physiology as a pure science, and that, perforce, we must be elementary before we can be advanced. But there exist other excellent agencies for just such elementary training; hence we have no justifiable excuses for allowing our methods to lag ten to twenty years behind the pedagogical spirit of the times. As in chemistry and physics, we should require that all physiological data having a general application be taught in a premedical course, so that time may be reserved in the medical course in physiology for a dealing with data concerning human functioning specifically. "But" urges a highly-respected correspondent "there is no such thing as a human physiology; physiology is the same in frogs and cats as in man." Qualifiedly, yes; when considered as a pure science,—as a problem in biology; but not so when considered as an applied science. Aside from the many variations between physiologies of the higher and lower types, it is also true that in so highly complex a specialty as modern medicine there is a specific physiology—a physiology of the living, human body concerning whose functionings and varied manifestations the medical student needs a profoundly intimate acquaintance. Moreover, true to the growing spirit of teaching universals in the academic side of the university, and applied science in the professional and technical schools, we may ere long do in physiology as we have done in physics and chemistry, and insist on a premedical knowledge of biological principles so that we may utilize the needed time in the medical school for studying the action of those biological laws as manifested in the human organism. Our great obligation in the laboratory of medical physiology is to so train our students in the accurate observation of the multiple manifestations of the activities of the normal human mechanism that, when they enter the department of clinical medicine, they will be able to determine immediately the physiological significance of manifestations indicative of departures from the normal; students so trained would not only instantly recognize morbid conditions but they would, in the great majority of cases, be able to promptly deduce presumptive causal factors, provided, all the problems of the physiological laboratories were studied in the true spirit of investigation.

This unconventional point of view has been presented in general terms by others. Flexner (Bulletin No. 4 p. 59) says: "Physiology and pathology belong, then, in the university, because there is much more to them as sciences than the medical school has time for"; also (p. 60) "Physiology as an element of a liberal education, sweeps the whole horizon impartially, interested in genetic processes, searching for general laws. It works to best advantage with simple forms, . . .with jellyfish and cats in preference to man; an admirable introduction to medical physiology, but not really the same thing." Professor Matthews, of Chicago is quoted by Flexner as believing that both physiology and pathology (presumably, as general sciences) "should follow the example of physics, botany and chemistry and leave the medical faculty and be regarded as subjects prerequisite to the study of medicine" (*ibid* p. 60. Dr. Frederick T. Lewis of the Harvard Medical School takes a different view, a view burdened with some inconsistency. In an article entitled "The Preparation for the Study of Medicine" (Popular Science Monthly, July, 1909, 75, 65) he recommends that the matriculant in medicine should have taken premedical courses in college in zoology, botany, chemistry, physics, psychology, history, philosophy, political economy, English, French, and German. Under zoology he recommends the study of morphology by vertebrate dissection, embryology, histology and microscopic technique; but under the heading of "College Physiology" he says; "Some colleges offer courses in physiology which are dilute presentations of medical school work." "It is wholly undesirable for the medical student to take time from other college work for the sake of such courses." This is remarkable! Why, after recommending morphology, does Dr. Lewis balk at the equally important part of zoology embodied in those manifestations of life constituting physiology? Is not the muscle active as instructive as the muscle dead? Are not the conditions regulating activity as interesting as mere form and position? Or, again, is the study of vertebrate physiology any more of an intrusion on medical work than vertebrate dissection is a substitute for human anatomy? For the sake of sweet reasonableness, let us paraphrase Dr. Lewis' quotation thus: "Our medical schools are offering courses in physiology which, because of their elementary character, belong chiefly to the college," "It is

wholly undesirable for the medical student to take valuable time from his medical course for the sake of courses logically belonging to the academic side." This latter statement is really the text for Dr. Lewis' article (q. v.) for everything except physiology. Why except physiology, or rather that part of physiology which is fundamentally biological in its scope?

To ascertain to what extent the medical school may be duplicating work offered in secondary schools, several high school text-books were examined; and from one (Advanced Physiology and Hygiene, Conn and Budington) the following experiments are selected from the large number given: Experiments on beef heart and valve action; beating heart of frog or turtle; capillary circulation; lacteals in mesentery of cat; ciliary movements in frog; nerve-muscle preparations from gastrocnemius of frog; some characteristics of heart muscle (frog); spinal reflexes (frog); artificial eye; experiments with the "Harvard Apparatus." Are any of these omitted in the medical course?

Furthermore, to ascertain to what extent the subject of physiology is being offered in college, and the adequacy of the college course as a substitute for the biological part of the present course in physiology in the medical school, an inspection was made of the catalogs of about sixty colleges, supplemented by requests for detailed information in a certain proportion of cases. The information gleaned was often unsatisfactory owing to the frequent omission of definite statements as to the actual work done in both the lecture-room and in the laboratory: so it well may be that some colleges giving satisfactory courses are not herein listed. Six colleges, Baylor, Brown, Chicago, Dartmouth, Illinois and Yale give courses in *general* physiology equal or superior to the courses now given in most medical schools. A part of the work at Yale is as follows: "Physiology Chemistry, a course dealing with the chemical side of Physiology. A laboratory fee of fifteen dollars is charged." 12 hrs. 2d half. "Physiology of Nutrition. A course of lectures, recitations, and demonstrations, dealing primarily with the physiology of secretion, digestion, absorption, excretion, metabolism, and other general questions bearing on the subject of animal nutrition." 2 hrs. 2nd half. "Physical and Nervous Physiology. Lectures and recitations (three hours a week) with assigned reading in a text-book, and laboratory work in the mechanics of muscle and nerve, the nervous system, the circulation and respiration." 9 hours 1st half. At the University of Illinois, besides histology, hygiene and research, there is offered in the department of physiology the following: "Major Course.—Physiology of nerve and muscle; circulation; secretion; respiration; digestion; metabolism. Lectures and laboratory. (Full medical credit in physiology)" 2nd semester; 10 hours a week. Prerequisites: General Physics; Chemistry—Inorganic and Organic, Quantitative and Qualitative Analyses, Organic Synthesis; Zoology: Vertebrate, and Comparative Anatomy, Microscopical Technique and General Vertebrate Embryology. So complete are these courses that they are fully accredited in the Medical Departments; a fact which indicates, as the Yale catalog states (p. 143), that these courses in the medical school "are of an essentially biological character." It indicates, furthermore, that we are giving an academic, premedical course in physiology in the medical school instead of the technical course that should be given. What possible excuse can there be for a continuance of this condition? Why devote weeks to biological problems when the time is vitally needed for the training of men to an intimate acquaintance with the problems of human bodily activities? The entire assignment of hours in the department of physiology is none too ample for the acquiring of accurate information concerning the mechanism of the normal human body; and, since departures from the normal constitute the student's future field of investigation, it becomes doubly imperative that his knowledge of the normal be as profound as possible. Time may be spared for no work except the strictly professional, until satisfactory proficiency permits of the assignment of correlated problems. Let no one think that any of this study of the functioning human body may be taken up in physical diagnosis, or in topographical or regional anatomy. The latter is but a necessary preparation for accuracy of work in physiology; and completeness of information in human physiology is the *sine qua non* for success in diagnosis.

Besides the six colleges mentioned above, the following schools give courses which seem to be ample substitutes for the biological work in the medical school: Arkansas, Alabama, Bryn Mawr, Columbia, Cornell, Georgia, Indiana, Kansas, Missouri, Nebraska, Northwestern, Ohio State, Pennsylvania, Princeton, Purdue, Wisconsin and Texas. Again the question may be repeated: With twenty-two schools, at least, giving the biological work in physiology, what excuse can there be for any medical school duplicating the work? Twenty-four other schools offer courses either too elementary, or too specifically correlated with hygiene or with the teaching of physiology in secondary schools, to permit of their being added to the above list. Three schools, Boston University, Johns Hopkins and New York, offer courses in physiology to specials or graduates only. Four schools, Bowdoin, Drake, McGill and Tulane apparently offer no work in physiology. Two, at least, Dartmouth and Leland Stanford Jr. give their course in medical physiology in the academic department, a method quite at variance with the pedagogical principle this paper propounds; while seven, Cincinnati, Harvard, Iowa, Michigan, No. Dakota, Tufts and Utah offer academic physiology in the department of medicine, a method equally at variance with the idea herein

proposed. My premise is that medical education should be strictly technical, whereas the work on the academic side, as Dr. Souchon and others have contended, should be concerned with universals. If this premise be granted, then the medical school has neither the time nor the "atmosphere" for teaching general laws; nor has the academic side the equipment or spirit for teaching specific applications. That such cross teaching is being done today is due chiefly to two causes: (a) identity of subject-matter, and (b) non-recognition of the real difference in purpose of these two departments of the University. It can not be urged too often that the student has a right to the strict technical education that the needs of the community demand. Moreover, as Dr. Lewis urges (ibid p. 74), "In this great pursuit he will not become narrow. He will develop what Dr. James Jackson long ago described as a 'mind liberalized by scientific studies.' If he loses a certain breadth of culture because of specialization, still as Cardinal Newman has said, 'the advantage of the community is nearly in inverse ratio with his own.'"

It is submitted that the following subjects, now a routine part of most physiology courses in medical schools, be relegated to the academic department, where they more properly belong; there to be smelted to such values as may be useful in the development of a broad general course in general physiology: Muscle tissue experiments such as elasticity, extensibility, cohesion, consistency, irritability, contractility, time of contraction, curves, latent periods, phases of shortening and relaxation, isotonic and isometric contractions; variations in strength of stimuli, temperature, and drugs; treppe, contractures, fatigue, curve of work, summation. Electric phenomena, as demarcation current, negative variation, monophasic and diphasic action currents, rheoscopic frog, electrotonus, velocity of nerve impulse, direction of impulse, variations from external factors, refractory period, nature of nerve impulse, trophic phenomena, degeneration and regeneration. Reflex frog. General functions of the spinal cord. Characteristics of heart tissue of the poikilothermous animals. Hematology, capillary circulation, time of circulation, mechanical factors, volume curve. Automaticity of heart, and effect thereon of the salts of Na., K. and Ca. in varying percentages. "All or none" law, refractory period, compensatory pause, normal sequence, cardiac nerves and their action, vasomotor nerves. Principles and mechanics of respiration, chemical and physical changes in respired air and the relation thereto of the diffusion of gases, innervation of respiratory movements, variations from external factors. General physiology of digestion and alimentation, ditto excretion. Physiology of glands. Decerebrate frog, decerebellate pigeon, studies on the semicircular canals of frogs and pigeons and on the saccule and utricle of the *palaemon*. Embryology of the chick and pig; and studies on the growth of chick and pig as affected by variations in alimentation.

These are samples of the subjects now cumbering our routine work in laboratory physiology. No one questions their individual values as items of general physiology, or as topics for assignment in the research laboratories; and it may be admitted that a few may be utilized for purposes of demonstration; but the great mass has no place in a department presumably devoted to the training of men to an efficient knowledge of the functioning *human* body. Such subjects should be taken out of the medical curriculum, and in their stead should be placed studies upon such physiological phenomena as are manifest in, and demonstrable on, the body of a fellow student. To be sure, all known facts cannot thus be studied; some things must be learned by hearsay. The intricate, hidden details will have to be worked out by the specialist in research; his findings will be gratefully accepted by that great body of earnest men who have neither the opportunity nor the economic necessity for such prolonged investigations. However, there is an ample supply of desirable experimental problems; and, since time and privilege are so limited, shall we not rather put our great emphasis on just that data which must inevitably serve as the major premises in all the clinical syllogisms of the practitioner's future?

Why encumber ourselves with the ghosts of the past when once freed from the chains of a halting belief? When the manufacturer of today discovers his plant not running at maximum efficiency, he directs a searching investigation to the end that wornout machines be replaced, antiquated methods be abolished, and systems demonstrably useful be introduced. Shall not the teacher as dispassionately weigh? When he finds himself burdened with excess of demands, unable to accomplish needed results because of the press of conventional tasks, shall he not bravely assume the courage of his convictions and sharpen his scalpel forthwith? The great responsibility of the teaching in the laboratory of physiology is to train the men to observe carefully, record accurately, and deduce logically; and the best data for this supreme work is just that which is of greatest pertinence to the life-work of the physician.

The cases of infectious diseases reported to the Boston Board of Health for the week ending February 24, 1914, are as follows: Diphtheria, 68; scarlatina, 147, of which 14 are non-resident; typhoid fever, 5, of which 2 are non-resident; measles, 61; tuberculosis, 35, of which 2 are non-resident.

The death-rate of the reported deaths for the week was 16.72.

Clinical Department.

THE TREATMENT OF UTERINE CARCINOMA WITH CANCEROUS ASCITIC FLUID.

BY ROBERT M. GREEN, M.D., BOSTON,

AND

FRANK C. W. KONRAD, M.D., BOSTON.

[From the Gynecologic House Clinic of the Boston City Hospital.]

IN February, 1910, the late Dr. Hodenpyl, of New York, first reported[1] his work in the treatment of carcinoma with cancerous ascitic fluid. The somewhat startling success recorded in his early cases aroused great expectations of the possible value of this new therapeutic measure. Unhappily, Dr. Hodenpyl's untimely death prevented the completion of his own experimental researches.

The subject, however, interested many others, and several made similar laboratory and clinical investigations, with varying results. In May, 1911, Risley, of Boston, published[2] a report of his work, done at the Massachusetts General Hospital, under the direction of the Cancer Commission of Harvard University, which may be regarded as the conclusive continuation and completion of Hodenpyl's studies.

Risley described the theory and technic of his procedure, the animal experiments by which he determined the safety of administration of the cancerous fluids, and finally the clinical histories of a series of 45 cases of human carcinoma, which he treated over a considerable period of time with cancerous ascitic fluids from 5 cases. Some of the treatments were with autogenous, the majority with heterogenous fluids.

From a critical and dispassionate study of his results, Risley's conclusion was that "the use of cancerous ascitic fluid from patients in the active or even moderately resistant stages of the disease has no permanent effect in preventing or checking the growth of cancer, or of permanently benefiting the patient. Temporary beneficial effects may be noticed for periods of one to five months, but the course of the disease is in no way permanently retarded. Temporary relief from pain, especially in uterine cancer, and retardation of the growth for periods varying from one to five months may be expected in a small percentage of the cases."

In an appendix, Risley reported in brief a further series of 20 cases similarly treated; and from a further study of them and of his earlier cases concluded that "great symptomatic relief can be obtained in a good percentage of the patients treated, evidenced by relief from pain and improvement in nutrition and general physical condition. Retardation is noticeable and in many cases is prolonged from one to six months."

During the winter following the publication of Risley's article, the present writers had the opportunity of observing several cases of in-operable uterine carcinoma in the gynecologic wards of the Boston City Hospital. In view of the occasional relief from pain and the temporary retardation of growth which Risley had observed in cases of this type, it seemed worth while to make further trial of the method of treatment with cancerous ascitic fluid. An abundance of such fluid was obtained from one of the cases in our series, and with this were made autogenous inoculations in her case, and heterogenous in five other patients. The treatment was continued in some instances over a period of four months. The reporting of this series of cases has been delayed for two years, in order that final results might be recorded, so far as obtainable. For the privilege and opportunity of observing, treating, and reporting these cases, we wish herewith to express our grateful and appreciative acknowledgments to the visiting surgeon and to other members of the staff.

CASE 1. *Gynecological Records,* vol. 165, p. 281. M. G. Aet. 55. A widow. Two previous morcellations for inoperable carcinoma uteri. Patient has had six normal labors at term. Menopause eight years ago. Entered hospital June 5, 1911.

P. E. Well developed, pale and emaciated. Heart and lungs normal. Abdomen presents a sensitive mass, size of a grapefruit, rising above the symphysis, and apparently connected with the uterus. The posterior lip of the cervix is eroded and freely bleeding. Induration of anterior lip extends to and involves the base of bladder. The uterus is enlarged to size described above. Liver enlarged.

Diagnosis. Recurrent general abdominal carcinosis.

This patient remained in hospital 14 weeks. She gradually developed considerable ascites and on Aug. 10, 1911, was tapped and Ov ℥xi of clear greenish fluid withdrawn into sterile flasks. Examination of this fluid showed it to be sterile, with a low specific gravity. Cytologically its centrifuged sediment consisted largely of flat epithelioid cells.

On Aug. 14, 10 cc. of this fluid were injected into the patient's abdominal wall, without local or general reaction. On Aug. 17, 20 cc. were given, and on Aug. 22, 30 cc., both also without reaction.

The patient's condition now became rapidly worse. The ascites recurred, and on Sept. 4 she was tapped of Oxii of similar fluid, which was similarly preserved. The patient died on Sept. 8 without benefit from treatment.

CASE 2. *Gynecological Records,* vol. 167, p. 69. A. D. Aet. 42. Married 15 years. Born in England. Admitted to hospital July 12, 1911.

Obstetrical History. Full term; 6; last in Sept., 1907. Premature, 4. Miscarriage, Feb., 1911. Vaginal discharge, continuous since 1899; slime and blood; medium amount. Pulse, 132; temperature, 100.8°.

Aug. 16, 1911. 5 cc. ascitic fluid into abdominal wall.

Aug. 19, 1911.	10 cc.	Temperature oscillates between 98° and 100° but no change can be noticed as referable to the injections.
Aug. 22, 1911.	15 cc.	
Aug. 25, 1911.	15 cc.	
Aug. 29, 1911.	15 cc.	
Sept. 2, 1911.	20 cc.	
Sept. 6, 1911.	20 cc.	

Sept. 12, 1911. Vaginal examination: Vault of vagina is occupied by an indurated crater; uterus is enlarged to two fingers above the symphysis. As yet there is little extension into broad ligaments. Recto-vaginal septum is infiltrated with the growth, especially on both sides.

Discharged on request.

Patient seemed much improved in general condition and was relieved of pain.

Case 3. *Gynecological Records,* vol. 167, p. 269. N. W., aet. 55. Married; born in Ireland. Admitted to hospital July 24, 1911.

Previous History. Gyn. Records, vol. 166, p. 193. Diag. carcinoma uteri. Discharged on request. In hospital one week. Not relieved.

Readmitted July 24, 1911.

Obstetrical History. Full term, 0; premature, 4; last 20 years ago at 4 months; vaginal discharge, bloody; medium amount; red clots; continuous for five weeks; pulse, 92; temperature, 100°.

Aug. 19, 1911. Patient is having injections of cancerous ascitic fluid: complains of slightly less pain; temperature slightly elevated.

Aug. 16, 1911. 5 cc. of fluid injected into abdominal wall.

Aug. 19, 1911. 10 cc.

Aug. 22. 1911. 15 cc.

Aug. 23, 1911. Patient passed pieces of tissue by vagina, size of baseball; says she feels much relieved; injections continued.

Aug. 25, 1911.	15 cc.	No temperature changes were noted referable to the injections.
Aug. 30, 1911.	15 cc	
Sept. 2, 1911.	20 cc.	
Sept. 6, 1911.	20 cc.	

Sept. 13, 1911. Patient died at 12 m.

Case 4. *Gynecological Records,* vol. 168, p. 221. C.D., aet. 50; single; born in Ireland. Admitted to hospital Aug. 18, 1911.

History. Patient has flowed almost continuously for nine months, and until two weeks ago. Pain across lower abdomen and in back for two weeks; none before. Has incontinence of urine and pain with micturition for three weeks. Vaginal discharge has never been foul. Has lost considerable weight and has had a cough for four to five months but raises nothing with it. Has often had night sweats.

Defecation, irregular; appetite, poor; bowels, constipated; digestion, poor; pulse, 90; temperature, 100.4°. Urine: alk, 1016; alb. s. t., few squamous and pus cells.

Physical Examination. Well developed but shows loss of weight; very anemic and looks 65 years old. Pulse is regular, of good quality slightly increased tension and not rapid.

Lungs: Negative except for sticky râles at both bases.

Heart: Normal size; systolic murmur over whole precordium and transmitted to axilla. A_2 P_2.

Abdomen: Soft and negative except for indefinite mass on left over sigmoid, apparently connected with the intestine; tenderness over whole lower abdomen on deep pressure.

Vaginal Examination. Stretched, intact introitus; good perineum; mucous membrane is pale; cervix is replaced by an indurated crater mass which fills the vaginal vaults with infiltrations extending on either side of broad ligament; uterus is not made out on account of abdominal rigidity; considerable brown, foul vaginal discharge; recto-vaginal wall also infiltrated; chain of glands in both groins.

Patient was given injections of cancerous ascitic fluid every third day in doses from 10 to 30 cc. from Aug. 20 to Nov. 17. Patient failed steadily and died on Nov. 22.

Case 5. *Gynecological Records,* vol. 169, p. 177. M. A., aet. 39; married. Nativity, Italy.

Sept. 12, 1911. Bleeding from vagina for a long time. Backache. Further history unobtainable.

Physical Examination. W. D. and emaciated. Patchy consolidations in the lungs. Abdominal: mass extending from pelvis three fingers, above symphysis. Vaginal: large ulceration involving entire circumference of upper vagina; cervix almost gone; marked induration throughout pelvis. General condition poor; cachectic. Inoperable carcinoma.

Course. In the hospital 25 days. Temperature irregularly elevated but tending toward the normal.

Sept. 16, 1911. 5 cc. ascitic fluid into abdominal wall. Temp. 99.8°—98.6°.

Oct. 3, 1911. 10 cc. ascitic fluid into abdominal wall. Temp. 98.6°. No reaction.

Oct. 8, 1911. Died suddenly, apparently of embolus.

Case 6. *Gynecological Records,* vol. 169, p, 181. M. B., aet. 55. A widow. Nativity, Boston.

Sept. 13, 1911. Pains; flowing; loss of weight for past 15 years (65 pounds). Menopause six years ago. No flowing till one month previous to entrance.

Physical Examination. W. D. and N. Heart; lungs; abdomen, negative. Vaginal: Cervix is cancerous; uterus is somewhat movable.

Sept. 14, 1911. Vagina not much infiltrated. G. C. poor. Rectal: Stricture of rectum, admitting tip of finger; infiltration of rectal wall. Broad ligaments quite free.

Course. In the hospital 33 days. Temperature irregularly elevated, maximum 102° Sept. 14.

Sept. 16, 1911. 5 cc. ascitic fluid into abdominal wall. Temperature 99°-100°.

Sept. 21, 1911. 7 cc. ascitic fluid into abdominal wall. Temperature 99°.

Sept. 25, 1911. 10 cc. ascitic fluid into abdominal wall. Temperature 99°-99.8°.

Oct. 1, 1911. 18 cc. ascitic fluid into abdominal wall. Temperature 98°-98.8°.

Oct. 5, 1911. 20 cc. ascitic fluid into abdominal wall. Temperature 98°.

Oct. 9, 1911. 25 cc. ascitic fluid into abdominal wall. Temperature 98° -99.2°

Oct. 14, 1911. 30 cc. ascitic fluid into abdominal wall. Temperature 98.4°-99°.

Oct. 16, 1911. Discharged with local condition unchanged, general condition much improved.

CONCLUSIONS.

1. These cases all showed a slight and irregular elevation of temperature, which, however, bore no apparent relation in its oscillations to

the injections of cancerous ascitic fluid, but seemed rather to be due to septic absorption from the ulcerating surface of the cancer.

2. The results obtained correspond with those obtained at the Massachusetts General Hospital. Cases 1, 4, and 5 gave no apparent reaction; Cases 2 and 6, according to their own statement, were relieved of pain and improved in general physical condition; the third case showed an apparent temporary relief of pain, and the tumor was apparently caused to slough, as evidenced by the tissue passed per vagina.

3. Four of the cases died of the disease and apparently without retardation. Two other cases were discharged and lost to observation.

4. That the injections of serum do have a beneficial effect can hardly be doubted, but whether this effect is due simply to a serum isotonic with the blood and acting as a stimulant or whether the reaction is specific, remains still to be proven. Patients with extensive cancer are usually cachectic and ill nourished, and therefore it is easy to conceive that the injection of a highly nutritive fluid, saline and isotonic with the blood, would have a stimulating effect and aid in the improvement of the general condition, and thus probably also the resistance to the inroads of the cancer. The reaction, however, is slight, very temporary and shows slight or no specificity.

REFERENCES.

[1] Hodenpyl: N. Y. Med. Rec., Feb. 26, 1910, p. 359.
[2] Risley: Jour. A. M. A., May 13, 1911, p. 1383.

Reports of Societies.

BOSTON SOCIETY OF PSYCHIATRY AND NEUROLOGY.

REGULAR MEETING AT THE BOSTON MEDICAL LIBRARY, NOV. 20, 1913, D. H. FULLER, M.D., SECRETARY.

DR. GEORGE A. WATERMAN read a paper on

THE RELATIONSHIP BETWEEN EPILEPSY AND MIGRAINE.*

DISCUSSION.

DR. G. S. DERBY: I was very much interested in one of the cases which Dr. Waterman reported, a man whose eyes I had an opportunity to examine. What struck me as most unusual was a permanent scotoma of the hemianopic type, which was present in the upper nasal quadrant of the left and in the upper temporal quadrant of the right eye. The outlines of the fields for white were normal. The colors were somewhat contracted, and showed a marked degree of interlacing. The fundus examination showed nerve-heads which were somewhat blurred and congested. Previously, I had not seen cases of this type, with a permanent scotoma, in connection with migraine or epilepsy, and it seemed to me that it must represent an organic change, probably brain tumor.

DR. P. C. KNAPP said that although Dr. Waterman had collected more evidence in favor of the relation between migraine and epilepsy than he had supposed could be found, he was nevertheless not convinced that the apparent association of the two affections was anything more than a coincidence. The treatises on nervous diseases thirty or forty years ago had much to say of the relation between the two affections; some of the more recent works, notably the new work edited by White and Jelliffe, do not even refer to it. As has already been said the convulsive seizure and the attack of migraine may at times be merely syndromes, due to some morbid process in the brain, and not independent diseases. Hence it is possible that a single underlying disease may produce at one time migraine, at another a convulsion, just as the cortical degeneration of general paralysis may produce an apoplectiform seizure or a convulsion. Although migraine is chiefly a sensory disorder, it may at times be preceded by a motor aura-aphasia or hemiplegia. A permanent hemianopsia or segment defect, due possibly to a hemorrhage, is occasionally seen. Dr. Thomas a few years ago reported several cases and he had seen several himself. Of all common affections of the nervous system, migraine is the one which most frequently shows a familial occurrence and is usually markedly hereditary; in epilepsy, on the contrary, similar heredity is rather rare and a pronounced familial occurrence is almost unknown. He had found migraine, in some large families, fifteen or twenty or more, affecting over fifty per cent. of those investigated, yet in no case was there any trace of epilepsy. Epileptics, of course, often have headaches, especially after a fit, and the headache may occur after an attack of petit mal or an attack in sleep, of which no note has been made. Headache, however, is of extremely common occurrence,—only 10 in 3000 cases investigated by Jelliffe being exempt, but not every headache can be regarded as migraine. Again, epilepsy is usually a progressive disease, often leading to dementia, whereas many cases of migraine recover after the age of fifty, and the disease never leads to mental deterioration. Although he had had the relation between the two affections constantly before his mind, as a result of early reading and the frequent discussions on the subject, he had failed to find in actual practice in the last thirty years any such association, and, above all, he believed that there was no justification for suggesting any such association to the epileptic and still less to the migraine patient.

DR. G. L. WALTON: We have listened to a masterly argument in favor of a case which has always seemed to me inherently weak. The material collected to substantiate this claim has a rather formidable aspect until we remember that the list comprises a comparatively insignificant number of isolated and unusual cases selected from an enormous mass of material consisting otherwise of typical migraine and epilepsy offering no suggestion of resemblance or analogy beyond the superficial one to which I shall shortly refer. Indeed, we are not sure that they are all cases of migraine and epilepsy, whether typical or atypical, and that cases have not been included in which unilateral headache and

*See page 357.

convulsion have arisen from other cause or causes than migraine and epilepsy. I remember very well a case of pituitary tumor in which unilateral sick headaches, with temporary hemianopsia, preceded, for many years, the permanent loss of visual field and the other diagnostic signs of the lesion from which the patient died, and which was confirmed by autopsy. I do not know today whether these early headaches were symptomatic of the tumor, or were migranous and merely a coincidence. Whatever the fact, neither this history nor a hundred such histories would lead the most speculative clinicist to argue a relation between migraine and brain tumor. Nor can I see that the line of reasoning by which it is attempted to draw an analogy between migraine and epilepsy is much sounder.

Again, in estimating the value of the statistics collected to fortify this claim we must not neglect to exercise the control without which such statistics are of no value. Thus, migraine is a very common, and epilepsy a fairly common disease. In looking up the subject of migraine, I found in one hundred healthy persons, seventeen typical cases of migraine, and more of migranous headache. It is not surprising, therefore, that a certain investigator has found forty cases of migraine among the children of some two hundred epileptics. We should expect not far short of forty cases of migraine among the children of two hundred healthy persons taken at random. If the children averaged more than one to an individual (a fact upon which we are not enlightened) we should not be surprised at an even greater proportion of migraine. If these statistics show anything, then, instead of fortifying the contention of the reader, they show that there is no more migraine among the children of epileptics than among the children of other individuals.

A word upon the so-called resemblance between these diseases. This resemblance seems to me a very superficial one, bearing little relation to the fundamental characteristics of the two conditions. The pathognomic features of epilepsy are (1) unconsciousness, (2) the brief duration of the convulsions which are supposed to be the motor analogue of the pain in migraine, (3) the fact that whatever movements are made or whatever psychic equivalents may appear are unconscious and automatic. In migraine, on the other hand, (1) there is no suggestion of unconsciousness, (2) the duration of the pain is one of hours instead of minutes, (3) there are no automatic and unconscious movements, and the psychic equivalent is a conscious one. The main resemblance seems to lie in the fact that both are recurrent with more or less periodicity, and that, in each, an aura is apt to precede the attack. But even when the visual aura, which commonly precedes migraine, precedes epilepsy, it generally is not characterized by scotomata, but is oftener irritative (hallucinatory) in its nature.

The practical question is whether we have enough evidence of the analogy and interchangeability of these diseases to warrant frightening the victim of migraine with the prospect of becoming an epileptic. I can only say that I am decidedly of the opinion that we have not.

Dr. F. S. Hodskins: I have seen only one case in which attacks of migraine were followed by typical seizures. This patient had severe attacks of migraine for several years until finally the migranous attacks would alternate with epileptic convulsions, which finally replaced the migranous attacks altogether. I have also seen one case in which epilepsy and migraine were combined and seemingly the two diseases had no relation to each other. Dr. Knapp has spoken of the small number of epileptics in which he has obtained a history of similar heredity, this has been my experience.

In closing the discussion Dr. Waterman said: Some years ago Dr. Putnam published an article descriptive of the relationship existing between migrain and supraorbital neuralgia. On account of his well-known interest and wide experience in the diseases under discussion this evening I should like to read his opinion on the question in hand which he sent me together with a note saying he regretted his inability to be present.

"I have seen, as no doubt others have, a number of cases illustrating very strikingly the affirmative side of your proposition with regard to the connection between epilepsy and migraine. I suppose, on the other hand, that when it comes to the pathology of these disorders, no very definite work has been done in the way of establishing a close relationship. For my part I am a believer in the "neuropathic family idea of Féré and others, and I think that the two affections of which you speak do stand closer to each other than most of the others on the neuropathic list, although the difference in respect to relatedness is one mainly of degree.

"Dr. Clark and other men have written interestingly on the subject of myoclonic disorders, some forms of which also bear a close relationship to epilepsy, as no doubt you know.

"One more point has always seemed to me important—namely that I presume we all of us have, in a latent form, lying beneath the surface, as it were, the possibilities and potencies of many forms of inferiority (developmental, autotoxic, etc.) corresponding to all these types. In other words, our organisms are like crystals which one might assume to be capable of fracturing in various different planes but far more easily in certain planes than in others, and although with most of us these fractures may never actually occur, yet any one of them might occur under sufficient stress. There are, in short, I think, many points of less resistance, even in healthy persons, corresponding to the actual defects seen in persons in whom these 'fractures' actually take place. Speaking clinically and practically, I suppose few persons would maintain that migraine, which is so common, ought to be considered as a bar to marriage, while epilepsy should be so considered. What do you think on this point?"

In reply to Dr. Walton's objection to the points of similarity between the two diseases described in the introduction of the paper; I am willing to concede that in the sense of an explosion, meaning a sudden outburst, that an attack of migraine could not perhaps, be considered an explosive phenomenon. He must admit, however, that just as epilepsy is a liberation of motor energy, migraine on its part, represents a liberation of sensory energy. The fact that the aura, when visual, may have different qualities in the two diseases is of course generally known. Just as it is recognized that the character of the paraesthesia of the arm and face differ in the two diseases in the rapidity of onset and the areas involved. These are points of difference between the two diseases, although even here their borderlands may meet as in the occasional instances when the same type of aura may introduce at one time an at-

tack of migraine, and at another time an attack of epilepsy in the same individual.

In general we must recognize that the frequent occurrence of an aura in both diseases indicative of a disturbance in a definite cortical area, does suggest a similarity between the two diseases, as does also the fact that in both neuroses, this aura may occur at times independently of an attack.

That psychic equivalents are not seen in migraine as well as in epilepsy, is of course, not true. Many writers have described psychic symptoms in attacks of migraine, similar to those in patients suffering from epilepsy. Kovalevski has reported cases of migraine in the course of which typical "dämmerzustände" analogous to the epileptic form, made its appearance, and I would call attention to the observations of Zacher, Brackman, Mingzini, Féré and Krafft-Ebing who have described migraine attacks associated with psychoses, as hallucinations, stuporous conditions, impulsive movements and amnesia. Though these instances do not exhibit an absolute loss of consciousness, they do indicate similarity in the alteration of consciousness described.

The fact that Dr. Hodskins has seen three thousand cases of epilepsy and never noted any relationship to migraine in but one of them is interesting, but does not, of course, mean that such relationship may not have existed in some of them, if the cases had been studied, with such an investigation in view. I presume we have had two or three thousand cases of epilepsy at the Massachusetts Hospital in the past ten or fifteen years, yet I doubt if the records would anywhere mention that a relationship to migraine has been observed, and yet only three days ago, having this question in mind, I called back a girl, who was being treated for epilepsy, as she went out, and learned on inquiry that she had suffered from migraine until eighteen, when the attacks stopped and gave place to petit mal, which in turn, developed a few years later into major attacks. How many more such cases might have been found if careful inquiry had been made of other patients is, of course, conjecture. But these points of relationship must be brought out by questioning, they are not presented to one.

Dr. Knapp's contention that the question of relationship between epilepsy and migraine is an old and discarded one, is, I think, unfounded, for although early writers did recognize and discuss it, much attention is paid to it in many articles during the past ten years, several of which have been referred to in the foregoing paper.

While Binswanger, in his recent book on epilepsy gives two pages to it, Flateau in his excellent monograph on migraine, devotes at least ten or twelve pages to the discussion of the subject. The case Dr. Knapp refers to in which a patient with persistent hemianopsia died of a cerebral hemorrhage, does not, I think, have any bearing on the patient referred to in the present paper, in whom the attacks of sick headaches were replaced by headaches and epileptic seizures preceded by scotoma in a young person. Of course, instances of patients suffering from night attacks of epilepsy, waking with morning headache, have been observed by most of us who are familiar with the disease. I do not think, however, that this error would apply to any, but one of the cases reported in the foregoing paper; in Krafft Ebing's case it was recognized that hemicrania did follow, in the morning, the epileptic seizure of the preceding night.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

Thirtieth Annual Meeting Held at Washington, D.C., May 6, 7, 8, 1913.

(*Continued from page 322*)

DISCUSSION OF DR. PRATT'S AND DR. DALAND'S PAPERS.

Dr. Minor said: As regards the question of tension, Dr. Pratt's remarks on the therapeutic use of water interested me because we all have a number of cases of high tension in which, after a while, you exhaust all your therapeutic resources and you come up against a dead wall. You have tried the nitrites and the iodids, which I still firmly believe in, and dietetic regulation, and hygienic regulation, but when they fail us I believe that warm water will prove our most valuable resource.

Like Dr. Daland, I have not found very much use in nitroglycerine, and I am always looking for something which will meet the needs of these cases of hypertension. They are increasing in our country every day. Owing to the foolishness of our American system of living, they are taking larger toll of people, and we are getting more and more cases in which it is very essential for us to find some means of holding down that pressure. There are some agencies that are reported to have a wonderful effect, and they talk to us a great deal about high frequency currents, and it is unquestionably remarkable how such currents can temporarily greatly reduce blood-pressure, but I have never found anything permanent in their effects. The patient cannot constantly be running to take electricity, but everybody has at his disposition a tub of hot water. As to whether the addition of carbonic acid in the low tension cases is so valuable, I do not know, but in high tension cases I am a firm believer in hot water.

Dr. Pratt: Dr. Minor suggested that I should use a greater variation in the temperature of the baths. My object was not the reduction or elevation of the blood-pressure, but the study of the action of the carbon dioxid baths on the blood-pressure at the temperature at which the baths are used in the treatment of heart disease. I have used the iodides in a large number of cases of hypertonia during the past ten years, and I have never been able to convince myself that they produce a fall in the blood-pressure. I do not believe you can reduce the blood pressure in chronic nephritis permanently by any measure, and if it could be done, I am not at all sure that it might not be harmful. Bier pointed out many years ago that the rise in blood-pressure in nephritis possibly was an aid to the functional power of the kidney. This method of treatment should be given a fair trial. I believe it is very important to make observations on the pulse and the effect of each bath on the blood-pressure. In every treatment that has been given I have always insisted that trained attendants should record the blood-pressure before and after the bath and, of course, the temperature and strength of the bath should be carefully recorded. It is said that you can lower the blood-pressure in chronic nephritis by dietetic regulation. In one of my cases of chronic interstitial nephritis, with a strong heart and hypertonia, the effect of a low protein diet was

carefully studied; the food was reduced in protein to less than 40 gms. a day, but at the end of the month there was no definite fall in his blood-pressure. Dr. Folin examined the blood in two of my cases of hypertonia without nephritis, and found that there was no abnormal increase of non-protein nitrogen in the blood. I find that I did not make clear the test that I proposed. Give the patient a bath of full strength at 90 degrees for ten minutes; a fall in the blood-pressure is the sign of a weak heart. Normally, a distinct rise in the blood-pressure results from this bath. If cool carbon dioxide baths 89° to 92° F. produce a fall of blood-pressure they will do harm rather than good.

Dr. Babcock: When you say the temperature is 90°, will you tell me the strength of your bath as to carbon dioxide?

Dr. Pratt: The total strength of the bath is prepared by adding 1000 c.c. hydrochloric acid, and 1000 gms. of sodium bicarbonate to a tub of ordinary size filled with water. Hydrochloric acid injures solid porcelain tubs, as well as those made of iron. The substitution of formic acid for hydrochloric acid, as recommended by Dr. Hinsdale, is a practical and useful improvement in technic.

Dr. Daland: I am not in accord with the view that hypertension is always compensatory. I believe it is always symptomatic, and occasionally compensatory. I agree very heartily with Dr. Elsner when he speaks about the wide distress in the minds of the patients on the announcement of the physician that he is suffering from hypertension, and also agree with him that the influences of sorrow and distress are a cause of this same condition. And I think this announcement of the condition will make him worse. Dr. Babcock dwells very properly upon the enormous influence of rest in these cases as a wonderful factor in many of these cases of high blood-pressure. As to the beneficial influence received by a patient from nitroglycerine in doses of 1-250 grains dry on the tongue, these beneficial results are perhaps to be accounted for on the ground of their psychic effect. Many of these individuals are generally thrown into a high state of nervous tension by the oncoming of an attack, and are directly greatly benefited by regarding this aspect of the case.

Dr. Frank Taylor Fulton, of Providence, R. I., read a paper on

AURICULAR FLUTTER

and reported a case. Auricular flutter is a term applied to a condition which is characterized by an extremely rapid action of the auricle, the rate being usually somewhere between 200 and 330 per minute. It is the result of some pathological impulse formation. The ventricular action may be varied. As a rule, there is always some grade of heart-block. Most commonly the ventricle rate is one-half that of the auricle; it may, however, be one-fourth that of the auricle, or the transmission of the impulse to the ventricle may be very irregular, so that the pulse may closely resemble the pulse of auricular fibrillation. Flutter is closely related to fibrillation, as well as to regular tachycardias of less rapid rate than itself. The condition has been considered to be rare, but the electro-cardiograph has demonstrated that it is probably not very uncommon. It may be detected by the use of the polygraph, although the tracings made by this means are sometimes extremely difficult to interpret. It is not necessarily a permanent condition; the heart action may return to normal and remain so for a long time. It sometimes occurs in paroxysms; the case in point is paroxysmal in type and has been under observation for seven years, during which he has had many attacks, the paroxysms at times lasting for ten or twelve hours or more, but more lately have been less severe and last only for an hour or two. The tracings show the radial and venous pulse during the paroxysm and at the time of transition to the normal rhythm.

Evidence seems to show that the origin of impulse is not from the normal point of origin; some other point than the normal pacemaker has taken on the function of stimulus production. The reasons for this were stated. The first case reported was in a man of 48 suffering with progressive, chronic nephritis with paroxysmal dyspnea and edema. Onset sudden while in the hospital. The flutter lasted for a month, and suddenly became normal. Digitalis in moderate doses of the tincture was given, but without effect. The rate was 143 per minute and there was Cheyne-Stokes' breathing. The patient is still in the hospital. The second case occurred in a man of 54 with gradually increasing edema and dyspnea for a year, due to chronic nephritis and an enlarged heart in decompensation. The pulse-rate was 136 to 138. The auricular waves in the venous tracing were at the rate of 272 per minute. The rate slowed after using digitalis, due to an increased grade of heart-block.

The third case was in a man of 70. There was palpitation following a nervous breakdown. Tracings of these cases were shown by lantern slides.

Dr. Fulton: I emphasize particularly the analysis of the radial curves because I am convinced that many cases with this mechanism can be diagnosticated without any mistake by the radial curves alone. There are other conditions which might bring about somewhat similar appearances, but I think there is no question but that the radial tracing alone is of a great deal of value in making the diagnosis; the reason that it is of value is that cases have been simultaneously studied with the electrocardiograph and the polygraph, so that the tracings which are so clear with the electrocardiograph can also be identified by the use of the other instrument. The possibility of extra-systole must, of course, be kept in mind.

Dr. F. Fremont-Smith, of Washington, read a paper on the

NUTRITIONAL EFFECTS OF INTERMITTENT ALBUMINURIA OF ADOLESCENCE.

Two brothers, aged five and nine, in 1901 developed an acute infection which was eruptive and was termed German measles by two competent physicians, but may have been scarlet fever. During their brief illness both showed albuminuria. It is not known whether they had albumen previously. For eight years both patients continued to present albumen from time to time, and at various hours during the day, with the utmost irregularity as to the hour. The cases were not orthostatic, postural or lordatic. The patients spent the winters each year in a balmy sub-tropical climate and the summers on the Maine coast. The striking fact was that the amount of albumen, the extraordinary irregularity of its occurrence,—one specimen loaded to an alarming extent, the very next absolutely free from serum albumen, regardless of the hour of the day, or of posture, continued un-

interrupted in the moist heat of southern winters or in the chill of the north. No nutritional faults were observed. The conclusion from studies of the literature corroborated the opinion that transitory albuminuria, intermittent or remittent, has little or no effect on the nutrition of the child, but that all such cases should be closely watched.

DR. GUY HINSDALE, of Hot Springs, Virginia, read a paper on

AMERICAN MINERAL WATERS: LATER ASPECTS OF THEIR ANALYSIS, CLASSIFICATION AND THERAPEUTIC PROPERTIES.

Dr. Hinsdale explained and illustrated the new form of stating water analyses, in which values are assigned to the various basic radicles and acid radicles and not to the familiar salts even in hypothetical combination. The latter method has been abandoned by U. S. Government chemists and all determinations are made in parts per million. The different groups of mineral waters and their therapeutic qualities were commented on. The subject of radioactive waters and their occurrence in the United States and in Europe was considered and also the means of artificially rendering a given water radioactive.. This involved the subject of radium and its emanation. The waters of the Yellowstone National Park and of the Hot Springs of Arkansas have been carefully studied and reported as radioactive by Government chemists. The electroscopic method was described and the various units of radioactivity were noted. The preference was given to the "Curie" or "Millicurie" used in France and in the United States. The author visited the water laboratory of the U. S. Department of Agriculture and reported that the chemists of the department were engaged in a study of all the available springs in the country.

DISCUSSION.

DR. A. JACOBI: I would like to know what the radioactive condition of all those wonderful mineral spas means for us. I am only a general practitioner and I want to know what they are good for. What do they claim the physical or theoretic effect is?

DR. W. E. CASSELBERRY, Chicago: I inquire if the author has formed an opinion as to the real efficacy of the radioactive qualities of the springs we mentioned. We have long ascribed the effects to the heat and elimination from the skin in the hot bath. It is well known that the hot springs of Arkansas have effects on certain diseases and that the chemical composition in these waters is almost identical with the composition of the waters of Lake Michigan, but it has been for years a mystery for which no explanation has been given as to what the superior efficacy might be due, aside from the heat and the elimination which seems an inadequate explanation, because the same effects could not be produced by artificially heating the water from Lake Michigan.

DR. KAHLO: This subject has been very extensively investigated in various parts of Europe. I have just returned from there, and took occasion while abroad to investigate this particular subject, and a great deal of importance is attached to this question there, not only at mineral water resorts, where the waters are more or less radioactive, but in the treatment of certain diseases by radium. A good deal of work has been done by Professor His in Berlin, and by Von Noorden and Falta in Vienna. They have used this treatment in a great many diseases, with varying results. I think that there can be no question as to the value of the radium treatment in certain forms of rheumatism and gout. How far these results differ when radium is used, and when the naturally radioactive waters are used, I do not know. They attach great importance to this treatment not only by inhalation, but hypodermically and by the mouth, and it is used very largely in the bath. There it is usually prescribed in the proportion in which radium emanation exists in the Gastein water. This is a subject which will receive more and more attention from the members of our profession in this country, because, while it is comparatively new, efforts are now being made to determine the exact degree of radioactivity of our own waters. The test by the fontactoscope is a very simple one. The technic is not difficult to acquire, and but little allowance need be made for the personal equation in such an investigation.

DR. FREMONT-SMITH, Washington: I beg to ask for information from Dr. Hinsdale whether there are any popular spas in Europe which are not radioactive. Also I should like to ask what is the grade of radio-activity of the springs of Hot Springs, Va.

DR. HINSDALE: Dr. Jacobi inquires about what value radioactivity would have for us in the treatment of disease. I have had no experience with treatment of patients by distinctly radioactive measures although the Germans have published a great deal about it, and the work of Klemperer is probably the most complete exposition of it. They all seem to claim great benefit in the treatment of rheumatism and gout and chronic affections of that type. We, I think, in this country have not received data enough to know what waters are radioactive. The government has not yet announced what waters of Virginia are radioactive. They have been tested by the government experts, and I suppose we will hear more about that later, but I am in no position yet to make any publication about it. There is a very long list of European spas that are found to be radioactive, graded according to measured scales. We will probably find that most all the springs of Europe are such. As far as the proportional assignment of benefit to the radioactivity and to other features of the spa treatment, I may say that at Aix they do not claim that radioactivity is the principal means by which benefit is derived. They attribute a great deal of benefit to the moisture and to the heat and to the manipulations which are given at Aix. Of course, they do assert that the radioactivity helps to some extent in the treatment of these cases. They are not dogmatic in their claims. I wish that I could give you more definite information about the radio-active springs of this country, but we are not in a position to make any definite statement about it, perhaps next year we may do so.

DR. ROBERT H. BABCOCK, of Chicago, read a paper on the

CAUSE OF BRONCHIAL ASTHMA.

He said that in every case of asthma one should search for some focus of chronic infection in the nasal accessory sinuses, in a chronic hyperplastic ethmoiditis, or in some closed cavity in any other part of the body. If found, advise its removal by surgical interference. If the absorption of a foreign protein can be presented in this manner, it is likely that the asthmatic seizures will be prevented or greatly ameliorated. In cases of asthma traceable to

animal or vegetable emanations or to some article of food to which the person has become sensitized, we can do nothing more than avoid exposure to the exciting cause. Dr. Babcock with other investigators concludes that bronchial asthma is a manifestation of anaphylaxis, or a protein sensitization or hypersensitiveness on the part of the animal to protein introduced into the system either by way of the alimentary canal or parenterally, *i.e.* some other channel which permits absorption.

Dr. W. E. Casselberry, Chicago, read a paper on

THE RECOGNITION OF EARLY CHANGES IN THE LARYNX IN TUBERCULOSIS.

The first definite change provoked by the bacillus in the larynx is an infiltration of the mucosa and submucosa, the tubercles being deposited near enough to the surface to change its aspect. The infiltrations fall into three groups:

1. Mammillated hyperplasia, by reason of the globular form of tubercles.

2. Granulomatous and verrucous formations, which may make an early appearance, although usually they appear only after ulceration.

3. Incipient edematous hyperplasia, rarely gross edema.

Favorite sites stamp upon the lesions additional distinctive marks, one of the most characteristic of which, a furrow in the vocal angle, has received little notice. Mammillated hyperplasia, commencing at the base of the vocal process and marked by a furrow in the vocal angle, is the most distinctive and one of the earliest signs. Interarytenoid hyperplasia, alone, is indistinguishable from non-tuberculous forms. But both together solve the problem of differentiating tuberculous laryngitis, from simple laryngitis in a tuberculous subject. This question concerns mostly the hopefully resistant type in which, if recognized early, the results of treatment justify every effort and any sacrifice. Somewhat later a bilateral development of the furrow in the vocal angle leads to an appearance or squaring of the semicircle of the posterior commissure, which is strikingly characteristic. Thus a diagnosis from the laryngeal image alone is usually, albeit not invariably, possible, every additional test being exceptionally required to remove all doubt.

DISCUSSION.

Dr. C. L. Minor: I am satisfied that too many neglect to examine the larynx of patients. Every man who has examined the lungs has not done so satisfactorily until he has also examined the nose and larynx.

Dr. C. C. Browning: We have not completed the examination of the respiratory tract of a tuberculous patient until the nose and throat have been thoroughly examined. The larynx should be carefully watched, especially during the beginning of the use of tuberculin. Frequently changes will be brought about in the larynx before they would be noticeable in the lung, or by the temperature or other signs which we are likely to look for in the detection of tuberculosis, and if the dose is repeated too frequently or is too large we may bring about disastrous results in the larynx, when by the careful watching and graduating the doses by the condition of the larynx we may bring about an excellent result. I am satisfied that the universal recommendation, without further consideration, that you should put all patients out of doors and unprotected may have its exceptions. Not that the general principle does not hold good, but we must individualize in our cases.

Dr. Kinghorn: I would like to ask Dr. Casselberry as to treatment. I have often been doubtful whether to put the patient's voice at absolute rest, suspecting a tuberculous condition, or whether simply a modified rest of the voice. I would like to ask whether he would put the patient at absolute rest.

Dr. Casselberry: You may have noticed that the effort in the paper has been to systematize the early lesions of tuberculosis of the larynx and to formulate a rule of thought as an aid to their recognition. The lesions are so diverse that I felt, unless one could reduce their presentation as well as recognition to order, that nothing would be gained. Examination of the larynx is rendered comparatively easy by a one per cent. cocaine solution sprayed sparingly into the fauces, not mopped on with cotton, and it is harmless if one tells them to spit out, and not to swallow immediately afterward. Furthermore, for those who are wearing glasses the substitution of an ordinary small, well-focussed brilliant head light, which eliminates one angle of reflection from the course of the light, has the advantage of disclosing small lesions in the larynx with less blurring of outline.

In regard to rest for the voice in the treatment. Yes, provided it be tuberculosis of the larynx and not merely laryngitis in a tuberculous subject, he should have perfect rest if he will take it. Absolute rest to the voice is one of the first principles of the treatment, but one must know that it is tuberculosis of the larynx before feeling justified in subjecting a patient to such a trial and inconvenience.

(To be continued.)

Book Reviews.

The Elements of Bandaging and the Treatment of Fractures and Dislocations. By William Rankin, M.A., M.B., Ch.B. With 68 original illustrations. London: Henry Frowde, and Hodder and Stoughton. 1913.

This small volume in the series of Oxford Medical Manuals is based on the author's demonstrations to medical students preparing for the practical portion of their final examination. One may well cavil with its opening statement that "the fine art of bandaging is no longer a necessity." Indeed, the section on bandaging, constituting one-fifth of the book, teaches little but the spiral reverse, figure of eight, and spica. The section on fractures, comprising three-fifths of the book, is equally meagre for so important a subject, though the essence of its teaching is excellent. The section on dislocations is correspondingly brief. The figures throughout are excellent. Despite certain merits, the book as a whole is one which for obvious reasons is not to be recommended. No doctor ought to undertake the treatment of fractures or dislocations who does not know more about them and about bandaging than is here set down.

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THE INTERPRETATION AND MANAGEMENT OF LOW BLOOD-PRESSURE.

MEDICAL literature at the present time teems with references to high blood-pressure, its significance, and measures more or less efficient in causing its reduction. Of course we meet with numerous incidental allusions to low blood-pressure also; but it may safely be said that there is decidedly less definite information regarding it. One of the most illuminating contributions which has as yet been made to our knowledge of the subject, and one which is especially worthy of note as being based on practical observation and experience, is to be found in an address by Dr. Edward E. Cornwall of Brooklyn, N. Y., at the sixteenth annual meeting of the Associated Physicians of Long Island. The variations in blood-pressure found in different individuals, he very properly states, are so great, both in apparent health and in conditions of compensation of the circulation necessitated by disease, that it is impossible to draw rigid lines and say that pressure below these lines is abnormally low. Only such a general statement as the following can be made, and this must be subject to exceptions: For a young adult a systolic pressure of 100 mm. of mercury may be low; for a person of middle age, one of 110; for an elderly person, one of 120; for a person with sclerosis or spasm of arteries supplying a vital region, one of 140; for a person with advanced interstitial nephritis, one of 180. These, as mentioned, are systolic records, and such as are generally taken as the measure of the blood-pressure; but if our observations are confined to the systolic record alone, their clinical value will be small, and we will frequently find the inferences drawn from them contradicted by other evidence. The diastolic pressure is fully as important as the systolic, and the author therefore considers it essential to consider the records of the two together in their numerical relations, that is, the difference between them and their place in the pressure scale; which affords a very useful, though only partial, index of the degree of efficiency of the circulation. The difference between the systolic and diastolic pressure tells us the fall in the circulation between the heart and the arterioles, and is analogous to what in hydrostatics is termed a "head of water." This fall is the pulse-pressure. There is reason to suppose that there is a particular place in the pressure scale for each individual and each particular condition where a given pulse-pressure, other things being equal, will produce the fullest circulation, and one at the same time attended with the greatest circulatory flexibility and reserve power; also that pulse pressures placed above or below this ideal point in the scale, in order to produce an adequate circulation, must ordinarily increase in magnitude, that is, take on an overload, and that such an overload means more or less diminution in the flexibility of the circulation and in the reserve power of the heart. If the diastolic pressure fails to fall in correspondence with a falling systolic pressure, thereby permitting the pulse-pressure to become unduly small, or if, on the other hand, the diastolic pressure falls so low, relatively, that the pulse-pressure takes on a large overload, clinical symptoms of circulatory insufficiency may appear.

Low blood-pressure, although frequently pointing to myocardial degeneration, Cornwall believes more often signifies vasomotor relaxation or paralysis due to toxemias or to nervous and reflex conditions. In uncomplicated cases of myocardial degeneration an extra demand on the circulation may increase the pulse-pressure disproportionately, and the failure of the systolic pressure to rise sufficiently to enable the pulse-pressure to assume the requisite overload may be a measure of the extent of the degeneration. In cases of such degeneration accompanied by arteriosclerosis or nephritis, which naturally raise the diastolic pressure, there is regularly an increase of the systolic pressure,

and an overload in the pulse-pressure, so long as the reserve power of the heart holds out; but when this power, already encroached upon by the myocardial degeneration, is no longer sufficient to support the overload, the circulation fails with the falling systolic pressure. In instances of myocardial degeneration with coexisting conditions which require a compensatory high pressure, the appearance of low blood-pressure is to be looked upon as a bad prognostic sign. Very many chronic toxemias of intestinal origin, as is well known, are associated with conditions which produce high blood-pressure, such as arteriosclerosis and nephritis, but many others are attended with low pressure. In the latter class of cases a nonputrefactive diet is found to raise the pressure, while in the former a diet of this character constitutes a most valuable means of lowering the high blood-pressure. In most acute infections the systolic pressure is low, and the diastolic also, unless there is an obstruction in the periphery. In lobar pneumonia, however, lowering of the blood-pressure to any considerable degree occurs less commonly than in most acute infectious diseases. Ordinarily it is lowered somewhat at the onset, and again at the crisis. In cases of apparent primary vasomotor paralysis and in cases with pronounced myocardial failure, which are not uncommon, the blood-pressure is likely to be very low. In 27 out of 30 cases of pneumonia, all of which terminated favorably, the systolic pressure fell below the pulse-rate; thus contradicting the assertion of Gibson and Hare, that when this occurrence is noted in pneumonia, the prognosis is bad. In pericarditis, as in myocarditis, there is regularly diminution of the systolic force and a lowered systolic pressure, while in compensated valvular disease the blood-pressure is usually normal, except in the case of aortic incompetence, where the systolic pressure is regularly high and the diastolic regularly low. When there is pronounced loss of compensation in valvular disease the blood-pressure falls. In chronic wasting diseases generally the pressure is low, and the same has been observed in cases of excessive tobacco smoking. Surgical shock is recognized as an effective cause of low blood-pressure.

The diastolic pressure appears to be more stable than the systolic, and to show less often marked variations from its normal without definite pathological cause. It indicates the peripheral resistance, which in many instances is determined by permanent pathological conditions. Vasodilator drugs may improve the circulation by increasing the pulse-pressure, while cardiac-depressant drugs may lower the diastolic pressure by diminishing the systolic force and calling for a pulse-pressure overload. In the interpretation of blood-pressure findings, considerable allowance may have to be made for the neurotic factor in the patient and the personal factor in the observer, and the clinician must constantly guard against being misled by these findings, and especially against ascribing too much importance to them when unsupported by other evidences of disease. In the treatment of low blood-pressure removal of the cause, if possible, is, of course, the first duty. If the cause is a chronic toxemia, it can very often be removed or lessened, and this is particularly true of intestinal toxemias. An essential element in the treatment of low pressure is rest, and in persistent low pressure following any of the acute infections, prolonged rest in bed is necessary. If there are definite signs of circulatory insufficiency, cardiac stimulants may be called for, and of the drugs of this class Cornwall has found strychnine, stropanthus and caffeine most generally useful. Digitalis, which may prove of great service in cases with low diastolic pressure and a fairly healthy myocardium, is contraindicated in those with myocardial degeneration and a relatively high diastolic pressure. In cases with sudden severe falling of the diastolic pressure due to toxemic vasomotor dilatation, adrenalin and pituitrin would seem suitable agents to employ. When there is low blood-pressure as the result of severe hemorrhage, the rapid introduction into the circulation of normal saline solution, as well as elevation of the lower part of the body, is called for. In some cases with a relatively high diastolic pressure and a small pulse-pressure, nitroglycerin may prove useful by enlarging the latter, but in cases in which the diastolic pressure is low this drug is absolutely contraindicated.

MEDICAL LEGISLATION. THE REGISTRATION OF NURSES.

There is at present pending before the Massachusetts General Court a House bill (No. 1186) relative to the registration of nurses in

this Commonwealth. This bill provides for an amendment of the act of 1910 by substituting for one of its sections a new section as follows:—

"Applicants for registration under this section, who shall furnish the board with satisfactory proof that they are twenty-one years of age or over, of good moral character, and that they have received a certificate of graduation from a training school for nurses, giving at least two years' training in a hospital, and considered efficient by the board, shall, upon payment of a fee of five dollars, be examined and if found qualified, shall be registered and authorized to use the title 'registered nurse' and shall receive a certificate thereof from the board signed by its chairman and secretary.

"An applicant who fails to pass an examination satisfactory to the board, and is therefore refused registration, shall be entitled, within one year after such refusal, to a re-examination at a meeting of the board, called for the examination of applicants, without the payment of an additional fee. The said board may, after a hearing, by vote of a majority of its members, annul the registration and cancel the certificate of any nurse; and, without any hearing, may annul the registration and cancel the certificate of a nurse who has been found guilty of a crime or misdemeanor.

"The board shall have authority under this section to investigate at any time the training schools for nurses in this Commonwealth for the purpose of determining their fitness and efficiency, as shown by their general equipment, by the character, the methods, and the extent of instruction given therein.

"For the purpose of such investigation, the board may employ a person legally entitled to 'R. N.,' and who is a graduate of a training school for nurses connected with a hospital of at least fifty beds, and which gives a course of instruction in the art of nursing, covering a period of not less than two years."

The essential purpose of this amendment is to give the Board of Registration of Nurses authority to inspect the training-schools whose graduates, by virtue of their diploma, seek registration by the board. A previous attempt to secure legislation to this effect was made by the Massachusetts State Nurses' Association in 1913; but the measure then introduced was defeated in committee by opponents who objected that it would place too much power in the hands of the board. As a matter of fact, it does not seem that this argument is of importance, since the board is an appointive body from which one member is retired each year, and its personnel could readily be changed, if it showed any tendency to arbitrary abuse of authority.

The need and desirability of such inspection are obvious, for without it there can be no standard of training on the adequate basis of which a diploma may be accepted as evidence of fitness. The proponents of the bill have pertinently pointed out that similar training-school inspection has proved of value and success in New York and Illinois, where it has already been adopted. Such examples are important arguments in its favor.

The public needs protection against incompetent nurses as well as against incompetent physicians. The establishment of nurses' registration was a recognition of this fact. But that protection is not adequate without some means of assuring the quality of training received by the nurse who is a candidate for registration. This assurance is provided by the present amendment, and the inspection thus established would not only protect the public against the graduates of inferior schools, but would inevitably raise and make uniform the standards of nurses' training throughout the state.

The hearing for this bill is to be at the State House on Tuesday, March 10, before the Committee on Public Health. It is to be hoped that physicians who recognize its importance, and who are themselves vitally concerned in the maintenance of reliable training for nurses, will be present to speak in explanation of the bill and to advocate its favorable report and passage.

MEDICAL LEGISLATION. THE TUBERCULOSIS PROBLEM.

ON Tuesday of next week, March 10, at 10.30 a.m., there will come up for hearing at the State House before the Committee on Public Health the legislative bills introduced by the Recess Committee on Tuberculosis. These bills, embodying the recommendations of the full committee, include those from House 922 to 931 inclusive. At the same time hearing will be given to certain other bills, House 530 to 533, which have been introduced by a minority of one of the committee. In addition to these, House Bill 1828, not introduced by the Recess Committee on Tuberculosis, will also be heard. These latter bills, House 530-533 and 1828, which include a plan for the reorganization of the State Board of Health on the basis of a paid board of five members, the establishment of a

commission on tuberculosis, and the establishment of a definite policy for the treatment of tuberculosis, we believe to be unnecessary and unwise.

The policy of this JOURNAL in regard to the proposed reorganization of the State Board of Health has already been clearly stated. We are therefore opposed to any proposed legislation which departs from this policy. We are also opposed to any bills which will in any way hamper the centralization of authority in tuberculosis work, which is so desirable and which is strongly advocated by the Recess Committee.

The bills advocated by the full Recess Committee, House Bills 922-931, seem on the whole commendable and deserving of passage.

House 922, An Act to Establish a Department of Diseases Dangerous to the Public Health, is a commendable bill but unnecessary, as the State Board of Health, we believe, already has the power to establish such a department.

House 923, An Act Relative to Inspection by the State Board of Health of all Institutions Caring for Diseases Dangerous to Public Health; and House 924, An Act Relative to Supervision of Local Boards of Health by the State Board of Health, we believe to be wise and desirable.

House 925, An Act to Provide for the Care and Treatment of Incorrigible Tuberculous Patients in a Separate Institution, we believe should not be passed at the present time. The principle embodied in this bill is a commendable one, but further investigation should be made as to the advisability of caring for such incorrigible patients in an institution or institutions already existing, before the state is called upon to build a new and separate hospital for such patients.

House 926, An Act Which Allows Towns and Cities to Incur Indebtedness Outside Their Debt Limit for the Purpose of Building Hospitals, will help certain cities and towns to build local tuberculosis hospitals, which at present they are finding it difficult to do.

House 927, An Act to Allow the State Board of Health to Standardize Tuberculosis Dispensaries, is an excellent one and should by all means be passed.

House 928 defines the powers and duties of the State Board of Health in regard to the ventilation of school buildings in the Commonwealth.

House 929 repeals an existing law, that no hospital shall be established within 100 rods of an inhabited dwelling house in any adjoining city or town without the consent of such city or town. The bill is worthy of passage subject to the supervision of the State Board of Health.

House 930 is an Act Requiring the Trustees of Hospitals for Consumptives to Reserve the Westfield State Sanatorium for Women and Children Only. We believe that this question should be left to this board of trustees to decide.

House 931, An Act Relative to the Removal of Certain Persons Infected with Tuberculosis, will be of great assistance to local boards of health throughout the Commonwealth in caring for that most dangerous class,—the alcoholic and incorrigible advanced consumptive.

These bills, 922-931 inclusive, which have been briefly commented on above, represent the result of a summer of very hard work by the Recess Committee on Tuberculosis of the House of Representatives after about 40 public hearings. They bear on important phases of the health problem in this state, and should receive serious consideration and advocacy by the medical profession as well as by the legislature.

JULES CLARATIE AND THE MEDICAL PROFESSION.

BY the recent death of this great French author and journalist, the medical profession has lost one of its warm admirers and faithful portrayers in fiction.

One of the just criticisms of many modern novelists that the physician is entitled to make, is of the great liberties taken with medical facts and the ignorance displayed, almost childish at times, in dealing with medical subjects. Too much realism and practical medicine in fiction is surely to be deprecated by none more than the physician. Such statements as are made concerning well-known medical facts should, however, be accurate as far as possible for the day and generation in which they were made.

It is refreshing then to think of this great writer, a good friend of medicine, and of his works of fiction concerned with medicine. Among these, "Jean Mornas," and the "Amours d'un Interne" are perhaps the most notable. In the latter novel, according to an article in *La Chronique Médicale*, is shown a

profound knowledge of things medical and scientific. Claratie writes of hysteria especially in a manner showing deep knowledge of this subject. Many of the most unusual cases of this interesting and many-sided affection, he had the opportunity of observing at la Salpêtrière. The sick themselves, the internes, the wards and laboratories of hospitals were all described with wonderful accuracy, but not with pedantry.

When the tired physician seeks relaxation in the form of a novel, and literally has his teeth set on edge by some bizarre or impossible statement concerning medical matters, he will certainly long for the accuracy and care used by this great author in all subjects pertaining to medicine.

SCHOOL DENTAL CLINICS.

The recently published proceedings of the meeting of the International Dental Federation at The Hague in 1913, show that there are in Germany over 200 school dental clinics; in Sweden, 40; in Norway, 10. Dr. Jessen, of Strassburg, chairman of the congress, announced the following outline of rules of dental care and conservative early treatment.

"From the age of two and one-half years it is desirable that children's teeth be inspected every six months in order to treat the deciduous teeth before they ache, and allow the children to enter the public schools with healthy mouths. It is desirable that every child from this age have his own toothbrush and be practised in its use. The mouths of children who come at an older age to the school clinics should be treated as much as possible in a conservative way. Decayed teeth which cannot be filled must be extracted. Dry roots of deciduous teeth must be left in the mouth till the permanent teeth appear. This will preserve the shape of the jaw. Decayed crowns with dry roots should be cut off and the roots filed smooth. The six-year molars are to be saved if possible until the age of twelve and must be extracted only when they cannot longer be saved or when there is not sufficient room in the mouth. Each child is to be treated individually with methods suited to his age, constitution and character."

ALPHONSE BERTILLON.

Alphonse Bertillon, who did most to elaborate the science of anthropometry, from which he evolved in 1879 a system of criminal identification, died February 13, last. By his work the records of municipal police departments were improved far beyond those of their courts. The police of great cities now regularly exchange the Bertillon measurements of convicted men, and can thus recognize criminals of national and oftentimes of international disrepute. Bertillon was himself for thirty years the head of the Paris Bureau of Identification.

This remarkable man has been considered the inventor of the finger print method of identification, but erroneously. When Mr. William A. Pinkerton was in China he found that the merchants impress their thumbs rather than write their signatures on documents and business agreements, and have ever with them for this purpose a cake of ink. And this, it seems, has been the custom for centuries, from time immemorial, indeed. From China the use of the thumb print spread to India, whence the English introduced it to London. Francis Galton published his *Finger Prints* in 1892 and soon after his *Index of Finger Prints*. He computed that the chance of a finger print of an individual being duplicated by that of another is one in sixty-four billions. And he first reduced finger printing to a system and proposed it to Bertillon. The latter was for a long time skeptical as to its utility, preferring his own system of measurements. It is now a part of the Bertillon system. It was one of the most pitiful incidents of the Dreyfus trial that Bertillon, who had written several works on identification through handwriting, gave an expert opinion which went far toward sending the unfortunate soldier to Devil's Island. The question of the treason of Dreyfus hinged on the identification of letters written by him with that of the infamous bordereau. Bertillon concluded this document and these letters to have been written by the one person. And he so testified, as one of three experts engaged by the state, two of whom declared against Dreyfus, the third maintaining that the soldier had had nothing to do with the bordereau. With the latter two experts engaged by the defense coincided. The verdict at that trial doomed Dreyfus to imprisonment for life in the pestilential tropics. Five years after, through the efforts of Zola, Picquart and others he was returned to Paris, where his case was reversed in the manner with which all the world is now familiar.

MEDICAL NOTES.

Legality of Vasectomy.—Report from Fort Madison, Iowa, on Feb. 19, states that a test case is to be made in the instance of a prisoner in the local penitentiary who protests against the operation of vasectomy which was to have been performed on him under the new law for the sterilization of criminals and insane. The convict will take legal procedure to resist its performance, and his fellow-prisoners are said to have raised from their earnings a sufficient sum to defray the costs of the trial. Despite one's realization of the undesirability of procreation among the unfit, one cannot help sympathizing with the attitude of the convicts.

Scarlet-Fever at University of Illinois.—Report from Champaign, Ill., on Feb. 19 states that scarlet-fever is epidemic among students at the University of Illinois. There have already been a number of cases and two deaths of the disease.

Eradication of Malaria and Typhoid.—On Feb. 21, Senator Ransdell introduced into the national Senate a bill carrying an appropriation of $500,000 for the study and eradication of malaria and typhoid fever in the United States.

BOSTON AND NEW ENGLAND.

Birth of Triplets.—Report from Chatham, Mass., on Feb. 20, announces the birth to Mrs. Edward L. Clark, of that town, of triplets, two boys and a girl, weighing respectively 6, 6¼, and 7 pounds.

Sale of Morphia on Telephone Order.—In the Boston municipal court on Feb. 20, Judge Murray ruled that it is illegal to sell cocaine, morphine, or opium, on an order given by a physician over the telephone, and fined a drug clerk $25 for so doing. The statute reads "upon the written prescription or order of a physician," and does not include on oral order given directly or telephoned.

Hospital Bequests.—The will of the late Mrs. William A. Abbe, of New Bedford, Mass., which was filed in that city on Feb. 21, contains a bequest of $50,000 to the St. Luke's Hospital of New Bedford, and one of $5000 to the Boston Lying-in Hospital.

NEW YORK.

Smallpox and Vaccination.—Health Commissioner Biggs recently addressed a letter to the health officers of the state in reference to smallpox. During the year 1913, he says, there were 823 cases of the disease in New York state. In the large cities of New York, Buffalo and Rochester, with a population of over 6,000,000, where the law compelling the exclusion of unvaccinated children from school has been rigidly enforced, there have been only 39 cases—mostly imported. Smallpox now exists in epidemic form in Niagara Falls, where there is a widespread sentiment against vaccination. The cases in this epidemic have been of a mild type, but in unvaccinated communities there is every possibility of the epidemic becoming far more serious. From Jan. 1 to Jan. 27 there were reported 154 cases at Niagara Falls and 15 cases at other places in Niagara County; also a number of cases in Chautauqua, Erie, Herkimer and Montgomery counties.

Two New Appointments. — Commissioner Biggs has appointed Dr. H. L. K. Shaw of Albany director of the division of child hygiene in the State Health Department. Dr. Shaw has been clinical professor of diseases of children in the Albany Medical College, and is at present chairman of the pediatrics section of the American Association for the Study of Infant Mortality. Commissioner Biggs has also appointed Dr. Augustus B. Baldwin of New York director of the division of laboratories and research. Dr. Baldwin is a graduate of the Massachusetts Institute of Technology and of the medical department of Columbia University. At the latter school he has held a number of positions, and from 1909 to 1913 was adjunct professor of bacteriology.

Outbreaks of Typhoid.—The State Health Department reports recent outbreaks of typhoid fever at Ellicottville, Cattaraugus County; Walden, Orange County; and Fishkill, Duchess County. The outbreak at Fishkill, it states, is a striking illustration of the quick spread of infection from one unsuspected source. An unrecognized case of typhoid, the infection of a few bottles of milk, resulting in four cases, the infection of a well by one of these cases, and then eight cases among the few persons who used the water of this well, giving a probable

total, exclusive of the first case, of 18 in a village of 500 inhabitants—all present a striking chain of evidence which would seem to leave no doubt as to the origin and development of this outbreak.

A CENTENARIAN.—Theodore Harris of Camden, N. J., died on February 13, at the alleged age of 110 years. He was a native of Maryland and served in the navy throughout the Civil War, and the records of the Navy Department appear to support the correctness of his great age, as they give the date of his birth as May 20, 1813.

ORTHOPEDIC DISPENSARY AND HOSPITAL.—The recently published forty-sixth year book of the New York Orthopedic Dispensary and Hospital, records the work of that institution for the calendar year 1913. During this period 7490 patients were treated at the dispensary, of whom 2506 were new cases. At the hospital, 510 operations were performed on 444 patients. The patients made 30,366 visits to the dispensary, and 11,022 visits were made by nurses to patients in their homes. A year ago an appeal was made to the public for $1,000,000 to erect, equip, and maintain a new hospital building. Of this sum, $545,000 have already been raised. A site has been selected and purchased, plans are in preparation, and the work of construction will be begun as soon as the remainder of the sum can be secured.

COST OF CARE OF ALIENS.—A report of the hospital investigating board, submitted on Feb. 19 to the New York board of estimate, states that the city expends annually $1,000,000 for the hospital and almshouse care of aliens, many of whom have entered this country within five years, and were diseased on admission.

OFFICERS, NEW YORK NEUROLOGICAL SOCIETY.—At the last regular meeting of the New York Neurological Society, the following officers were elected.

President, Dr. Smith Ely Jelliffe; first vice-president, Dr. E. G. Zabriskie; second vice-president, Dr. F. Kennedy; corresponding secretary, Dr. J. Ramsay Hunt; recording secretary and treasurer, Dr. C. E. Atwood; councillors, Drs. L. P. Clark, A. S. Taylor, F. Tilney, C. L. Dana, and I. Abrahamson.

Current Literature

MEDICAL RECORD.

FEBRUARY 7, 1914.

1. POLK, W. M. *Treatment of Retrodisplacements of the Uterus.*
2. CLARK, L. P. *Some Observations upon the Etiology of Mental Torticollis.*
3. CARTER, W. W. *Operations for the Correction of Deformities of the Nose.*
4. JEWETT, D. B. *Hypophyseal Disease as Related to Diabetes Insipidus; with Report of Two Cases.*
5. GILMOUR, A. J. *A Case of Scleroderma.*
6. WILLIAMS, E. H. *The Drug-Habit Menace in the South.*
7. BERNSTEIN, E. P. *Brain Abscess Due to the Bacillus Coli Communis.*

FEBRUARY 14, 1914.

1. SCHMIDT, A. *Some Remarks Concerning Chronic Diarrhea and Constipation.*
2. MARSHALL, H. W. *Stiff and Painful Shoulders.*
3. NICHOLS, J. B. *Metabolism and Vitality.*
4. *BERLIN, W. C. K. *Bacteriaemia, Infections and Bright's Disease.*
5. BUGBEE, H. G. *Further Observations on the Use of the High Frequency Spark for the Relief of Prostatic Obstruction in Selected Cases.*
6. HAGEMANN, J. A. *The Upper Respiratory Mucous Membranes as Emunctories.*
7. OCH, B. F. *Dermatoses Due to Toxemia.*

4. Berlin invites discussion and investigation of some new ideas on the causation of Bright's disease. Nephritis, he says, is always of bacterial origin, and cultures taken from fresh urine will give abundant colonies of micro-organisms. The toxemias do not cause nephritis, although they do increase the blood-pressure. When acute inflammation of the kidney subsides it leaves the renal tissue damaged and degenerative changes, *i.e.* chronic nephritis, begin at once. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

FEBRUARY 7, 1914.

1. DACOSTA, J. C. *Personal Experience with Tumors of the Carotid Body.*
2. PEDERSEN, V. C. *Neoplasm of the Bladder.*
3. *KEMP, R. C., AND VANDER VEER, A., JR. *An Inflating Gastroscope and Duodenoscope.*
4. CHAMBERLAIN, W. P. *The Etiology of Oriental Beriberi.*
5. EHRENREICH, S. G. *A Case of Auricular Fibrillation in a Child.*
6. ROSENOW, E. C. *Lesions Produced by Various Streptococci; Endocarditis and Rheumatism.*
7. DARNEY, V. *Herpes Zoster Oticus.*
8. TAUNEBAUM, S. A. *Psychanalysis.*
9. SEELYE, H. H. *Cutaneous Epitheliomata Cured by Sunlight.*

3. Kemp and Vander Veer describe the direct pneumatic gastroscope which they use in stomach cases. They find it a valuable aid in locating and studying ulcers, polypi and foreign bodies in the stomach, and therefore indirectly useful in the prevention of gastric cancer. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JANUARY 31, 1914.

1. *MAYO, W. J. *Accidental Injuries to the Descending Portion of the Duodenum During Removal of the Right Kidney.*
2. *MCWILLIAMS, C. A. *The Periosteum in Bone Transplantations. Is Contact with Living Bone Necessary for the Life of Grafts, and Will Transplanted Periosteum Produce New Bone?*
3. KNIGHT, C. P. *Epididymotomy.*
4. RICHTER, H. M. *Congenital Pyloric Stenosis. A Study of Twenty-Two Cases with Operation by the Author.*
5. YOUNG, W. W. *Paroxysmal Hemoglobinuria, with Report of a Case.*
6. DANNREUTHER, W. T. *Corpus Luteum Organotherapy in Clinical Practice, with Report of a Case of Bilateral Salpingo-Oophorectomy in Which the Administration of Corpus Luteum Extract was Followed by the Re-establishment of Menstruation.*
7. THOMAS, B. G., AND IVY, R. H. *Use of Cholesterinized Antigens in the Wassermann Reaction.*
8. COHOON, R. C. *Increase in Toxication of Ether by New Methods of Administration.*
9. SPITZIG, B. L. *Vagotony and Its Relation to Mucous Colitis.*
10. FOWLER, O. S. *Ureteral Obstruction Causing Urinary Stasis. A New Etiology in Kidney-Stones, with a New Method of Nephropexy to Secure Ideal Natural Drainage.*
11. GARCIA, L. C. *The Practical Application of Military First Aid in Railway Surgery.*
12. CUNNINGHAM, A. T. R. *Report of a Case of Gradual Occlusion of the Common Carotid Artery in the Treatment of Pulsating Exophthalmos.*
13. STEWART, H. M. *Case Illustrating Value of Roentgen Ray in Diagnosing Obscure Fractures.*
14. THOMAS, W. H. *Abscess Caused by Fish-Bone; Hematemesis Controlled by Hot Water.*
15. GEBSTLEY, J. R., AND FULLER, H. B. *A Simple Technic for Blood-Cultures in Children.*
16. VIKO, E. *Tension Sutures.*
17. ROSENBLOOM, J. *The Preparation of Dried "Zymase" from Yeast, for Use in Fermentation Tests of Urine.*

1. Mayo finds that such injuries practically never occur except as the result of a binding down of the duodenum from infection or carcinoma, or when the pedicle of the kidney slips and large forceps are applied and left on several days to control hemorrhage.

2. McWilliams concludes from experimental work that the theory that contact with living bone is necessary for the subsequent life of grafts must be given up. Living bone grafts have life inherent in themselves and are capable of permanent growth, even when transplanted into the soft parts.

The life of grafts is dependent on sufficient blood supply. Forty-eight per cent. of the author's bone grafts were successful without periosteum whether contacted with living bone or not. This goes to show that there is some other factor present making for the life of grafts than the periosteum or contact with living bone, and this the author believes is a sufficient blood supply. Periosteum, however, is a strong factor in producing this supply and should always be used when possible. [E. H. R.]

FEBRUARY 7, 1914.

1. *CHAPIN, C. V. *The Air as a Vehicle of Infection.*
2. *SCHMIDT, A. *Hyperacidity of the Stomach.*
3. NEILSON, C. H. *Some Points in the Treatment of Hyperacidity, Especially with Reference to the Use of Hydrogen Dioxid.*
4. WARFIELD, L. M. *Presence of Dialyzable Products Reacting to Abderhalden's Ninhydrin in the Urine of Pregnant Women.*
5. *LOWY, O. *A Serum Reaction as an Aid in the Diagnosis of Cancer.*
6. VON EZDORF, R. H. *Investigation of the Prevalence of Malarial Fevers in the United States by the United States Public Health Service.*
7. COLE, H. C. *Possibilities in the Routine Practice of a Small Hospital.*
8. DICK, G. F., AND EMGE, L. A. *Brain Abscess Caused by Fusiform Bacilli.*
9. RANSOHOFF, J. *Heredity in Bone Lesions, with the Report of an Unusual Family History.*
10. REYNOLDS, C. E. *A Case of Brain Abscess.*
11. WILDER, W. O. *A Case of Hardware Swallowing.*
12. DORRANCE, G. M. *A Transverse Incision for Operation on the Scrotum.*
13. BARR, A. S. *A Case of Right Inguinal Hernia of Ovary and Tube.*
14. PARKER, C. A. *A Congenital Malformation of the Neck.*

1. Chapin gives a most thorough review of the etiology and mode of transmission of all the so-called infections in contagious diseases and shows that in practically none except tuberculosis can the factor of air infection be given any weight, except that of close contact.

2. Schmidt advises gastroenterostomy in those cases of persistent hyperacidity of the stomach in which internal treatment has failed and in which the condition unfits the patient for work. When comfort only is concerned, medication is the more preferable form of treatment.

5. Lowy found in 19 cases of carcinoma, examined by Abderhalden test, a positive test in all cases. Three post-operative cases of two, four and five years' duration and who do not now show any clinical signs of recurrence gave negative reactions. One case of benign tumor of the breast, one of fibroid and one of diabetes gave positive tests, but Lowy believes these due to faulty technic. He feels that the test is of value and might be of especial value in obscure stomach cases and in women approaching the menopause. [E. H. R.]

THE LANCET.

JANUARY 17, 1914.

1. FOX, R. H. *The Progress of Life Assurance Medicine in the Past Thirty Years.*
2. *GORDON, W. *The Value of the Cardiac Sign in Cancer. Fifty Consecutive Diagnoses with 6% of Error.*
3. COPE, V. Z. *The Early Diagnosis and Treatment of Ruptured Intestine.*
4. YEARSLEY, M. *The Question of "Concubitancy" in Cousin Marriages.*
5. TURNER, G. G. *Recurrent Intussusception: The Record of a Case Which was Operated upon Three Times.*
6. DUFF, D. *Notes on a Case of Extra-uterine Pregnancy in a Rudimentary Fallopian Tube.*
7. WHITE, H. *A Case of Schistosomiasis.*
8. ROLLESTON, H. D., AND FRANKAU, C. H. S. *Acute Leukemia Simulating Caries of the Spine.*
9. ARMSTRONG-JONES, R. *The Rational Treatment of Incipient Insanity and the Urgent Need for Legislation.*

2. Gordon again enthusiastically endorses the cardiac sign in cancer and describes cases in which this sign has been of great help in diagnosis. This sign is based on the abnormal increase in the area of cardiac dullness. It is very hard to see why such increase should occur in loss of flesh due to cancer more than it does in other cases where the loss is due to other causes. [J. B. H.]

Obituary.

HORACE EUGENE MARION, M.D.

DR. HORACE EUGENE MARION, of Brighton, who died suddenly of heart disease on Feb. 8, was born at Burlington, Vt., on Aug. 3, 1843. In 1862 he entered Amherst College, but left to enlist in the Union Army, where he served in the ranks for the remainder of the Civil War. In 1866 he received the degree of B.S. from Dartmouth College, and that of M.D. in 1869. He immediately settled at Brighton, where he continued active in the practise of medicine until his death.

Dr. Marion was formerly president of the Middlesex South District Medical Society and was a member of the American Medical Association, the Massachusetts Medical Society, Massachusetts Association of Boards of Health, Boston Society of the Medical Sciences, Obstetrical Society of Boston and the Boston Medical Library Association. After the War he continued to serve in the local militia. and became medical director of the second brigade, M.V.M. He is survived by his widow, one daughter, and one son.

The unvarying cheerfulness of Dr. Marion's disposition made him, as a practitioner, particularly beloved by all his patients and colleagues. He was modest but vivacious, energetic and companionable. One of his many friends has fitly said of him that he went about with "high thoughts seated in a heart of courtesy." He died happily, as every physician would wish to do, without warning in the readiness of his daily activity, and gave his life as quietly at the end as he had always given it for his fellow-men.

Miscellany.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, WEEK ENDING FEBRUARY 21, 1914.

February 13, Medical Inspector William C. Braisted, detached from duty as Fleet Surgeon of Atlantic Fleet, and ordered to duty as Chief of Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

Assist. Surgeon J. B. Walker, commissioned assistant surgeon in Medical Reserve Corps, from January 23, 1914.

February 18, Medical Inspector E. P. Stone, ordered to treatment at the Naval Hospital, New York, N. Y.

P. A. Surgeon W. L. Mann, Jr., detached from Naval Hospital, Mare Island, Cal., and ordered to Asiatic Station, via Army Transport leaving San Francisco, Cal., March 5, 1914.

Assist. Surgeon W. W. Wickersham, Medical Reserve Corps, ordered to Navy Yard, Brooklyn, N. Y.

RECENT DEATHS.

DR. FREDERICK H. OSGOOD, who died last week at Allston, Mass., was born in Newton, Mass., on April 16, 1857. He graduated from the Massachusetts Agricultural College in 1878, and after studying at the Royal Veterinary College, Edinburgh, settled in the practise of his profession at Springfield, Mass. He was for a time lecturer on cattle pathology and professor of veterinary surgery at the Harvard Veterinary Medical School. From 1884 to '87 he was president of the Massachusetts Veterinary Association, and served on its executive committee from 1888 to 96. From 1885 to 96 he was vice-president of the United States Veterinary Medical Association, and in the latter year its president. In 1891 he became veterinary surgeon to the Massachusetts Volunteer Militia. From 1894 to 96 he was chairman of the Massachusetts Cattle Commission. He was also president of the Association of Cattle Commissions of New England and a fellow of the Edinburgh Veterinary Medical Association. He is survived by a daughter and two sons.

DR. WESLEY B. PERKINS, who died on Feb. 19, at Roxbury, Mass., was born at Windsor, Me., in 1842. He was educated at Kent's Hill Academy, Me., and at Bates College, and practised as a physician at Bridgton and at Malden, Mass., until his retirement in 1906. He is survived by a niece and by one brother.

DR. JAMES A. COX of New York died on February 3, at the age of 55 years. He was a native of Kentucky and was graduated from the Long Island College Hospital in 1891.

DR. EDWARD GARDINER DAY of New York, a graduate of the College of Physicians and Surgeons in 1888, died on February 3. He was born in 1843 and retired from active practice in 1908.

DR. NATHAN S. MARSHALL, who died recently at Knoxville, Tenn., was born in 1831. He was a naval surgeon, and served aboard the *Vandalia* in 1854 under Commodore Perry.

DR. JAMES JOSEPH BURNS, of the Borough of the Bronx, New York City, died on Feb. 19, at St. Francis' Hospital, after an operation for appendicitis. He was born in New York, and was 33 years of age. Dr. Burns was graduated from New York University and Bellevue Hospital Medical College in 1902, and afterwards served as interne in Bellevue Hospital.

NOTICE.

THE BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on Tuesday evening, March 10, 1914, in the Surgical Amphitheatre of the Boston City Hospital, at 8.15 o'clock.

The meeting will be conducted by the staff of the Boston City Hospital.

The program will be as follows:

Exhibition of cases.

Dr. F. W. White: "Benzol Treatment of a Case of Leukemia." (5 minutes.)

Dr. F. B. Lund: "Treatment of Oblique and Comminuted Fractures of the Femur." (5 minutes.)

Dr. Ernest Young: "Extra-Uterine Pregnancy." (10 minutes.)

Dr. F. J. Cotton: "The Principles in the Treatment of Infected Joints." (5 minutes.)

Dr. J. H. Cunningham, Jr.: "Specimen of Carcinoma of the Prostate, Associated with a Large Prostatic Cyst." (5 minutes.)

Dr. F. H. Lahey: "Statistics of 100 Deaths Following Appendicitis." (10 minutes.)

Dr. G. P. Sanborn: "Remarks in Intra-Spinous Serum Treatment of Syphilis of the Central Nervous System." (5 minutes.)

Dr. F. S. Graves: "A Case of Two Primary Heterogeneous Malignant Tumors with Metastases from Each in the Liver." (5 minutes.)

Dr. O. J. Hermann: "Observations on the Luetin Test." (By invitation.) (5 minutes.)

Dr. Horner: "Treatment of Typhoid Fever with Vaccines." (5 minutes.)

THOMAS ORDWAY, *Secretary and Treasurer*,
Harvard Medical School.

Original Articles.

VACCINATION EFFICIENTLY PERFORMED.*

By Edmond F. Cody, M.D., New Bedford, Mass.

City Physician, New Bedford, Mass.

One hundred fifteen years ago, Dr. Edward Jenner published "An Inquiry into the Variolae Vaccinae," and showed that vaccinal inoculation protected the human organism against smallpox. Subsequent experience has substantiated his observation, and variola no longer prevails in countries where vaccination is regularly and efficiently performed.

Where this important sanitary measure is irregularly practiced, as in the United States, the disease recurs at intervals, less severe than in former times, but nevertheless, with considerable mortality and at large cost to the community; as examples, in 1900, the cost of municipal control of 171 cases of smallpox to the city of New Bedford was $23,000; in the spring of this present year, a few cases in our city cost about $10,000.

Smallpox has prevailed in this part of Bristol County nearly every year since 1900, limited almost entirely to people who have come from that part of Canada called Arcadia, and who are without exception, unvaccinated. As their route of entrance is by rail they are not subject to the measures imposed at points of entry along the coast. Their children attend parochial schools and are not amenable to our statutory vaccinal requirement. The exceptions have been persons whose protection had long since run out.

The progress of preventing smallpox in a country like ours where vaccination is optional after the age of entrance to public schools, is rendered difficult by persons who would have others believe that the procedure is useless, harmful or fatal. Organized opposition to vaccination appears to have had its inception in Jenner's England, where compulsory vaccination may now be evaded by a declaration of conscience. An English gentleman could offer no other explanation for this opposition than the well known love of the English to protest against law. Physicians, unburdened by knowledge and unrestrained by conscience, join the ranks, to sell exemption certificates, or with a keen eye to business, as the leading Boston anti-vaccinist, who specializes in a line of "medical practice" which he cannot advertise in this state through legislative restriction.

So long as the opponents confine their arguments to theories, no harm is done. Through a publicity service they keep informed of all illnesses and deaths which by even the wildest flight of fancy could be ascribed to vaccination. Their effective arguments against vaccination are based on the severe sore arms and loss of wage subsequent to vaccination improperly performed in factories and tenement houses in time of epidemics. We can more fully appreciate the statement of an anti-vaccinist candidate for the legislature, this fall, who said: "I expect an increased vote on account of the many vaccinations done in the mills." The real danger from this agitation is that the legislative campaign may be successful and annul our only existing law on the subject, for our legislators may be moved by arguments based on prejudice and falsehood as by truth.

The manner of combatting opposition to vaccination is to vaccinate well, and I would predict that twenty years of efficient vaccination in this state would silence all opposition.

Vaccinia is a disease communicable by inoculation, pursuing a definite course, and conferring immunity against smallpox for a varying period. Peculiar resistance may be manifested according to previous diseases or vaccinations, to innate or inherited characters, or to a number of intercurrent circumstances. In people previously unvaccinated, the eruption begins seventy-two hours after inoculation as a papule, and is fully apparent on the fifth day as a vesicle; on the seventh it has reached maturity, when it is a flat umbilicated vesicle surrounded by a rose red areola. This is the positive and unvarying picture of a successful primary vaccination, "A section of a pearl on a rose leaf." The celebrated wit, Charles James Fox, meeting Dr. Jenner in a large gathering said to him, "Tell me, Dr. Jenner, what is your vaccination like?" Exactly like a section of a pearl on a rose leaf," was the reply.

Crusting of the vesicle begins about the eleventh day and the crust is exfoliated from the twenty-first to the twenty-eighth day, leaving an indelible and characteristic scar, at first red, bleaching with time to white, sharply defined, with distinct pitting.

The "raspberry excrescence" is not infrequently seen three to seven days after inoculation. It becomes red, hard, and naevoid and may persist for months, leaving no scar, and conferring no protection. Its occurrence demands another operation.

THE TECHNIQUE OF VACCINATION.

To learn the technique of authoritative sources, a questionnaire was sent to the four medical schools in Massachusetts. The following replies were received:

Harvard, informant, Dr. M. J. Rosenau. Vaccination is taught practically and theoretically. Technique, incision; sharp needle—really a scratch. Vaccine, that licensed by the govern-

* Read at a meeting of the South Bristol District Medical Society, Fall River, November 13, 1913.

ment. Each student vaccinates one or more persons. Studies progress of the take to scar formation. Two insertions are made, each about three quarters of an inch long and about one inch apart. Students also visit the vaccine farm and see the propagation of the virus. "I spend perhaps, all told, six hours upon the subject of vaccination."

Dr. Rosenau is emphatic for incision and says that scarification is discouraged as dangerous; that it is forbidden by law in Germany.

Tufts, informant, Dr. W. R. P. Emerson. Taught practically at the clinic. Technique, scarify with needle; apply a drop of vaccine and allow to dry; gauze and adhesive tape dressing. Two scarifications are made. Mass. state vaccine is advised. Two insertions are made, ¼cm. in diameter, 1½ inch apart. Patients return in one week; students see them in all stages.

Similar inquiries with an additional question on revaccination were sent to the Surgeon Generals of the War, and the Navy Department, and Public Health Service with these responses:

War Department, informant, Capt. Albert G. Love. Technique: area cleansed with green soap then alcohol; dried with cotton or gauze; abrasions made by scraping or scratching on the selected area. Abrasions, three, one inch apart. Instrument ivory point or sterile scalped. Dressing, sterile gauze, perferably, sometimes vaccine shield. Dressing changed as often as necessary to keep it clean and in good condition; if the vaccination is successful the second dressing is always sterile gauze. Source of vaccine, large manufacturers of the country. If primary vaccination fails, the process is repeated in a reasonable time and is again repeated if the second attempt fails. In practice, practically all men upon enlistment and re-enlistment are vaccinated.

Navy Department, Surgeon General C. F. Stokes. No uniform technique is prescribed. Vaccine points usually employed; source varies. All recruits are vaccinated and repeated until the medical officer is convinced that the person is protected. Crews of ships are inspected from time to time for vaccination and in the event of an epidemic all persons are vaccinated.

Public Health Service, Asst. Surgeon General J. W. Kerr. "There is a general agreement that the best method of vaccination is the simplest and in this respect scarificaton has a distinct advantage; the use of vaccination shields should be avoided and aseptic bandages used."

This department furnishes the information that government licenses for propagation of vaccines have been issued to nine manufacturers.

Absolute cleanliness with a minimum of injury to the skin with aseptic protection during the development of the vesicle until scar formation, are essential to a proper vaccination. Rosenau[1] writes: "The operation may be compared to the transfer of a culture in a bacteriological laboratory. Precisely similar precautions to prevent contamination must be used in both cases. Vaccination must be considered as a surgical problem. No person unfamiliar with surgical cleanliness should be permitted to perform this "little" operation. "The scar should not be regarded as a deformity; to the sanitarian a typical vaccine scar is a sanitary dimple."

Dr. William Osler[2] refuses to vaccinate on the leg unless the patient will agree to remain in bed during the course of the vaccination.

After a discouraging experience with leg vaccination, I now refuse to vaccinate unless the deltoid site be agreed upon. Here inspection is easy, trauma is less likely to occur, and if infection follows, it runs a milder course.

I mention the shield only to condemn it. It is bulky, and invites violence. It often becomes loosened and scrapes the vesicle; it prevents radiation and produces the effects of a poultice; and among the poor it is loaned about to different children, often heavily coated with purulent secretions.

The arm having been dressed after the operation, the patient should return in seven days, or earlier, should constitutional or severe local symptoms appear. The dressing should be removed and the physician look for "a section of a pearl on a rose leaf." If present a bland ointmet with sterile dressing is applied, and in this manner the lesion is cared for until it is dry. If the vesicle has not matured and a mere scratch remain, if we revaccinate the patient in a week or two we may expect to see at the site of the first attempt an awaking which aroused and runs a short course synchronously with the second inoculation, through local anaphylaxis.

When the scar is seen then may a certificate of successful vaccination be given, and not until then. A vaccinated patient should be under the observation and guidance of the vaccinator until all chance of coccogenous infection is past.

Three illustrative cases.

CASE 1. B. K., aged four; vaccinated in the last week of May, 1912; tetanic convulsions appeared June 15; brought to hospital on 16, very dirty, with foul vaccinal wound; no sign of having worn protective dressing; died on 17; death certificate signed "Tetanus following vaccination."

CASE 2. Mary B. March 17, 1913, her four-year-old son was found ill with smallpox; she was "vaccinated" (her arm was scratched with a point), and she accompanied the little son to the hospital to care for him; she developed a severe cellulitis from the point of "vaccination" involving the whole arm, and on April 5 became ill with smallpox.

CASE 3. E. B., thirty years old; four times he has been vaccinated in cotton mills during four epidemics, lost altogether eleven weeks' work, convalescing; his mother has smallpox of fourteen days' duration; the son became ill today (Aug. 25, 1913).

In the first case, B. K., it seems that the most elementary attention to cleanliness could have prevented the tragic sequence.

The same can be said of M. B. The coccogenous infection killed the vaccine bodies, and variolous infection followed.

E. B. has my heartiest sympathy, in that risking his life, in four vaccinations in a dusty mill, all unsuccessful, with eleven weeks of suffering and loss of wage, he did not acquire immunity; I rejoice that he survived and congratulate him on finally achieving smallpox, which will put him beyond the reach of factory vaccinators in the future. You of Fall River appreciate how poorly factory vaccination is done, and the invalidism that follows. The bad results are interpreted by the laity as evidences of the true vaccinal course, and as the operator does not see the patient a second time, the unhappy victim goes on his way to expose himself perhaps recklessly to infection. If he have variola, his experience is capitalized by the opponents of vaccination.

In Dr. Jenner's time it was believed that the immunity conferred by vaccination lasted through life; subsequent observation has shown this to be within wide ranges.

Theobald Smith[3] has recently explained the variation in this way: "It is now well known that vaccination protects only for a limited period. The body forced to produce a variety of antibodies under pressure is not likely to continue such manufacture indefinitely after the stimulus is removed. Nature is not lavish in producing unused commodities. Animals naturally immune do not carry an appreciable quantity of immune bodies about. Their protection is guaranteed by more economical processes of life of which we know as yet very little. The length of time elapsing between vaccination and exposure, therefore, is of great significance in the success or failure of protection. . . . There is the principle of active immunization itself which must be carefully kept before us. When we discuss vaccination as a preventive, we mostly fail to take into account that we are asking something of the individual to be vaccinated, rather than giving him some thing. We are asking his tissues to go through the preliminary process of training to meet some future emergency. Vaccination is a process of education for being better prepared to meet an invasion at once, before it has grown to any dimensions. We have no reason to suppose that the characteristics of the body will be materially and permanently altered by such a training. If the body is below par in the supplying of immune bodies, it is likely to remain so, despite the vaccination. Of two individuals treated preventively alike, one may be able to cope successfully with a large or more virulent dose than the other. The plane of immunity of both is raised by vaccination, but unequally so, and in proportion to their natural endowments."

REVACCINATION.

Kitasato[4]. 931 revaccinations.

After 1 year	14	per cent.	successful
" 2 years	33	"	"
" 3 "	47	"	"
" 4 "	57	"	"
" 5 "	51	"	"
" 6 "	64	"	"
" 7 "	73	"	"
" 8 "	80	"	"
" 9 "	85	"	"
" 10 "	89	"	"

Lescohier[5] in a series of 251 revaccinations obtained practically the same results. Millard[6] states that the government report of the German Confederacy shows from 91 to 93% successful revaccinations after ten years. It is manifest that protection is exhausted in one half of all people five years after inoculation and in the rest at the latest about the tenth year. The power to modify the disease continues into later life.

Vaccination is clearly indicated at five or at the latest, ten year intervals. The results of periodic vaccinations support this statement. A recent writer estimated that the unvaccinated in England was rapidly increasing, due to parents availing themselves of the "conscience clause" and that a few years would prepare the country for a wide spread epidemic. Since our state law requires vaccination only as a requirement on entering school, and except on possible exposure, no revaccination is done, it is evident that our cities are practically unprotected. True, our immigrants before mentioned have borne the burden, so far being virgin soil for that seed. The devaccinated have some immunity and have shown the resistance.

The local response to revaccination varies in proportion to the amount of ferment remaining from the reaction induced by the primary inoculation. We may observe the typical primary picture, showing complete loss of immunity; or a rapid course of a few days; or a small papule or transient erythema may be the only sign, and leaving no scar.

Dr. Jenner and his immediate successors made one puncture or incision. In seeking to prolong immunity when smallpox among the vaccinated occurred multiple incisions were employed, and have been generally employed throughout Europe ever since. Bonn[7], Immermann[7], Pfeiffer[7], Seaton[8], Simon[8], Roger[9] and Cory[10] agree that a constant relation exists between the number of scars and the degree of immunity afforded.

The figures of Marson are familiar:

	Cases.	Deaths.	Mort. %
Unvaccinated	2654	996	37.2
Stated to be vaccinated but with no scar	290	74	25.5
One scar	1357	125	9.2
Two scars	888	53	5.9
Three scars	274	10	3.6
Four or more scars	268	3	1.1

Rosenau in his recent text book says: "The number of incisions has an important bearing on the probability of the take as well as protection; it is not wise to depend on one; the relation to the number of vesicles and the amount of reaction to the degree and length of immunity has not been worked out."

American vaccinators generally have been content with one puncture and regard additional punctures as assurances of a successful take.

Size of Scar to Immunity: Russell, Marson and Gayton are quoted by Hanna[11] as believing that the quality and size of the scar area have an important bearing on the amount and extent of the eruption and consequently on the severity of the disease. Corlett[12] believes the protection to be proportional to the size of the scar.

Hanna in a study of the scar area in 943 revaccinated persons who developed smallpox in Liverpool drew the same conclusions.

These phases seemed to me to be of unusual interest and well worth further investigation. Marson's figures, and the continued European practice of multiple incisions with the low incidence of smallpox would warrant further study. For this purpose these questions were submitted to two biologists and two clinicians:

Is greater vaccinal immunity conferred by multiple incisions?

Is the degree of resulting immunity to be estimated by the diameter of the scar?

Dr. Simon Flexner replied that he was unable to answer the questions.

Dr. Alvah H. Doty answered: "I am entirely satisfied that multiple punctures are unnecessary and that all the immunity that vaccination affords can be obtained by a single scarification properly performed with tested virus. This practice has been followed by the Department of Health of New York with the most satisfactory results and is accepted throughout the U. S. and is becoming generally accepted throughout Europe.

"I do not believe that the degree of immunity can be estimated by the diameter of the scar or scars provided the latter are of reasonable size and typical. . . I believe it is unnecessary and a mistake to make the scarification too large. The success of the operation depending rather on the character of the virus and having it well rubbed in without the too free escape of blood."

Dr. Theobald Smith: "I would say that immunity is strengthened in proportion to the number of vaccinal punctures. This fact has been determined by observation. I am not sure that we can explain it on the basis of our present knowledge of immunity.

"As regards the size of the scar, a number of factors may enter. The pustule may have been disturbed; the scab may have been torn off and the ulcer increased in size. It is also possible that when two vesicles are close together they may fuse and thereby increase the size of the scar. The final scar may be increased by injury due to secondary infection of the vesicle. In any of these cases, it would be difficult to say how far the immunity had been influenced."

Dr. John H. McCollom: "It seems to me that a longer immunity is conferred by making three scarifications. . . I can give you no definite figures on the matter, but after a very careful study of the whole subject, I am thoroughly convinced that there should always be three insertions of virus when a person is vaccinated. The experience of the German Empire is confirmatory. It is the custom there in many of the cities to vaccinate a person on each arm and to make three incisions. I never yet have seen a person with six scarifications, no matter how long a time had elapsed since vaccination was performed, have smallpox.

"In regard to your second question so far as the appearance of the scar is concerned, that is a question that cannot be definitely answered. Three reasonably good scars is a fairly sure indication of protection, but the mistake must not be made of thinking that because a person has a large scar, it is an indication of successful vaccination." Here follows the description of the scar resulting from a negative take and the letter concludes thus: "Physicians and the public must be carefully taught that vaccination is not such a simple matter; that it requires an expert to state definitely whether vaccination has been successful or not."

Vaccine: The State Board of Health has propagated and issued vaccine to the physicians of the state since 1904; in the years 1904-1912, 449,378 tubes were dispensed, and from Dec. 1, 1912 to Oct. 14, 1913, 102,942 tubes; a few complaints have been made, which on investigation have always been found to be based on errors of technique rather than to defects in the vaccine.

For more than a year I have used this vaccine exclusively on all patients and on myself. I have been able to get a take in every primary vaccination on the first trial with slight constitutional reaction.

CONCLUSIONS.

Vaccination is a surgical procedure; hence demands surgical asepsis.

The patient must be under the supervision of the physician until scar formation, when a certificate may be given.

He should be told that his immunity is for a limited time; if liable to exposure to be revaccinated.

As those countries are most free from smallpox where vaccination is regularly imposed, a revaccination of all persons in a state should be required at stated intervals.

Vaccination should be done with a minimum of trauma.

The experience of most observers warrants two or more incisions.

Vaccination efficiently performed protects against smallpox.

Vaccination efficiently performed silences opposition.

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[5] Lescohier: Journal American Medical Association, Vol lxi, No. 7
[6] Millard: British Medical Journal, March 22, 1913.
[7] Nothnagel: Encyclopedia of Practical Medicine.
[8] Aitken: Science and Practice of Medicine.
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[10] Cory: Theory and Practice of Vaccination.
[11] Hanna: Studies in Smallpox and Vaccination.
[12] Corlett: The Acute Infectious Exanthemata.

CORRELATIONS OF CEREBRO-SPINAL FLUID EXAMINATIONS WITH PSYCHIATRIC DIAGNOSES. A STUDY OF 140 CASES.*

By Mary Elizabeth Morse, M.D., Worcester, Mass.

Assistant Pathologist, Worcester State Hospital.

[From the Laboratory of the Worcester State Hospital.]

The scarcity of actual correlations between findings in the cerebrospinal fluid and psychiatric diagnoses in any considerable series of cases makes of value a review of the results in a large hospital for the insane. The object of the present study has been to discover of how much value examinations of the cerebrospinal fluid have been in changing, confirming or making more accurate the psychiatric diagnoses. The focal points of interest in this connection are, of course, the diagnosis of paresis and of cerebral syphilis. It may be said in a general way that this review has shown that paresis is not actually as frequent as would appear from purely clinical examination, and that the cases which are most likely to be mistaken for it are Korsakow's psychosis, cerebral arteriosclerosis and cerebral syphilis.

The method† adopted in this hospital is to have a Wassermann test made on the serum of each new patient unless this has been recently done in another institution. If the result is positive, and also in negative cases in which the symptoms or signs are suggestive, the cerebro-spinal fluid is examined for the Wassermann reaction, cytology and globulin content. Similar tests are being carried out also on old patients as rapidly as possible. The Wassermann reactions are done at the laboratory of serum diagnosis of the Harvard Medical School. The remainder of the examination, except the differential count, may be done by a non-medical laboratory assistant, who is familiar with blood counting and elementary chemistry.[1]

Statistics. The period chosen for study was the year ending Jan. 1, 1914. During this time 626 Wassermann reactions have been done on the sera of 618 patients, 445 of whom were admitted in 1913, and 173 before that time. The 1913 admissions form an unselected group from which may be estimated the frequency of syphilis in patients admitted to this hospital. The results are:

Wassermann reaction in the serum positive in 80 cases (18%).

Wassermann reaction in the serum negative in 362 cases (81.3%).

Wassermann reaction in the serum doubtful in 3 cases (0.7%).

This percentage of positive sera is lower than that of Paine,[2] who in his study of 200 consecutive admissions to the Danvers State Hospital found 24.5% positive.

During the year ending Jan. 1, 1914, 142 cerebro-spinal fluids from 140 patients have been examined for the Wassermann reaction. Of the 76 specimens from 1913 admissions, 33 (43.4%) gave a positive, 43 (56.6%) a negative result.

CLASSIFICATION.

We have used as a basis of our grouping of the fluids for study, the diagnosis given by the physician on the card accompanying the specimen to the laboratory, combined with the serological and cytological findings in the fluid. It must be emphasized in the beginning that in many instances this clinical diagnosis represents not the final, but the provisional diagnosis after the routine physical and mental examination, and is made with the reservation that it may be changed by the serological and cytological evidence.

* Worcester State Hospital Contribution No. 20 (1914. 1).

† Method.—The following is the method adopted for the Wassermann reaction: "Three antigens differing in fixing power are used for each specimen. Two are from human hearts and are reinforced with cholesterin; the third is the alcoholic extract from a fetal syphilitic liver. The complement, which is ten per cent. guinea-pigs' serum, is titrated daily to determine the unit; two units are used in the test. The amboceptor is titrated against .5 cc. of 10 per cent. guinea-pigs' complement in order to determine the amboceptric unit. Two units are used in the test. The amboceptor value is re-determined before each test. Washed sheep's corpuscles, are made up with normal salt solution to 5 per cent. suspension. Five-tenths of a cubic centimeter is used."

"The following controls are used for each test; a strongly positive syphilitic serum; a weakly positive serum; a negative serum, and tubes containing double the amount of each antigen."

"All doubtful cases are repeated at the next test, and if there is sufficient serum, varying amounts of antigen and serum are used, so that the resulting test rarely gives a doubtful result."

The Noguchi test for globulin was used, and was performed as follows: to 0.2 cc. of cerebro-spinal fluid, 0.5 cc. of a 10 per cent. solution of butyric acid in normal salt solution is added, and the mixture heated to boiling. One-half a cc. of normal sodium hydroxide solution is added, and the tube boiled slightly. A flocculent precipitate within 15 minutes indicates a positive result.

For the cell count in the fresh fluid, 0.1 cc. of 3 per cent. acetic acid and 1 cc. of cerebro-spinal fluid (well shaken) are mixed in a white blood counter, and ten fields are counted.

The sediment is prepared for differential counting by the Alzheimer method, *i.e.* by adding to 3 or 4 cc. of cerebro-spinal fluid twice its volume of 95 per cent. alcohol, centrifuging for one hour at high speed, and hardening the precipitate in absolute alcohol, followed by absolute alcohol and ether. The coagulum is removed from the centrifuge tube with a pointed glass rod; embedded in celloidin; cut in sections 7 m. thick, and stained with pyronin-methyl-green. In fluids showing a high or moderate pleocytosis 200 cells were counted. When cells were present in normal or slightly increased numbers, several sections (5 to 8) were gone over carefully and the actual number of each variety of cell present was stated.

The following classification was adopted:—

1. Cases diagnosed clinically as paresis, with which the findings in the fluid were on the whole in accord: 47 cases.

2. Cases diagnosed as paresis, in which the spinal fluid was negative or doubtful; 13 cases.

3. Cases in which the fluid was sent in to the laboratory with the diagnosis "Paresis?"; 20 cases.

4. Cases of organic dementia, including cerebral syphilis; 15 cases.

5. Alcoholic group, including both the acute and chronic forms; 10 cases.

6. Negative fluids from a variety of conditions, including manic-depressive insanity, dementia precox, imbecility, etc. These will not be further considered here.

It is obvious that in this group there is considerable latitude of judgment given on both the clinical and the laboratory sides, but at least it brings out the difficulties of diagnosis and the type of case in which the examination of the cerebro-spinal fluid is of particular value.

Group 1. In this group of 47 cases the Wassermann reaction on the serum was positive in 41 cases, negative in 4, and not recorded in 2 cases. The cerebro-spinal fluid was positive in 36 cases, negative in 9, and not recorded in 2 cases. The serum and fluid were both positive in 36 cases, the serum positive and fluid negative in 5 cases, the serum negative (tested twice) and fluid positive in one case; both serum and fluid negative in 3 cases, and one or the other not recorded in 2 cases.

All these fluids except one, however, showed a pleocytosis, and all but two contained plasma cells. All gave positive ammonium sulphate or Noguchi reactions, usually in high dilutions.

The Wassermann reactions, with the one exception mentioned have not been repeated in cases giving negative results. We should not consider that a single negative report on the fluid where it is impracticable to use "auswertung" methods[3] would weigh decisively against the diagnosis of paresis, if the cytology and clinical picture were typical. Cases showing a positive reaction in the serum and a negative one in the fluid, with a positive cytology, suggest, of course, cerebral syphilis in contradistinction to paresis, and cases in which the serum and fluid are both negative can be put in the paresis group only if the clinical and cytological evidence is very strong.

Schoenhals[4] has recently reported four cases of clinically typical paresis, in which serum and fluid gave repeated negative reactions, but in which the globulin test and the cytology were positive. In three of the cases the diagnosis of paresis was verified by autopsy. All the cases were of the slowly progressing form.

Two of the cases in this series having negative reactions in both serum and fluid are clinically advanced cases of the dementing form of paresis of at least one and a half and two and a half years' duration, respectively. One shows Argyll-Robertson pupils, tremors and practically normal knee kicks; the other slurring speech, rigid pupils, absent knee kicks, incoordination and a positive Romberg sign. The third is apparently an early case of the expansive form, with unequal pupils, reacting sluggishly to light, exaggerated and unequal knee kicks, unsteadiness and tremors.

Of the cases with the Wassermann positive in the serum and negative in the cerebro-spinal fluid, it may be said in a general way that the clinical picture and physical signs are more in accordance with paresis than with cerebral syphilis. In two cases the infection was respectively at least twenty and twenty-three years before the beginning of the psychosis; in the other three cases, the date of infection is unknown. The onset was gradual in all cases. Four of the patients are in an advanced stage of dementia, while the fifth is apparently an early case of the expansive form. Two of the patients have Argyll-Robertson pupils, two contracted pupils, inactive to light, and reacting only slightly to accommodation; the fourth has active pupils. One of the cases is of eleven years' duration.

Group 2. In the second group, those cases diagnosed clinically as paresis, but with doubtful or negative findings in the cerebro-spinal fluid, are two cases typical clinically of the expansive form of paresis. In one the fluid was taken on the day of death, in the other a week before. The sera were both positive, one fluid positive, the other negative. The globulin reactions were slight, the cell counts within normal limits and the sediments showed small numbers of lymphocytes and endothelial cells, with, in one case, possible plasma cells. Unfortunately, no autopsies were obtained, but it seems probable that the terminal stage of the disease may account for the indefinite findings.

In this group is also one other case with anomalous findings: a patient with the clinical symptoms of the dementing form of paresis, with pupils reacting sluggishly to light, exaggerated knee jerks, unequal facial innervation, and slight Romberg sign. The Wassermann reaction was negative in the serum, positive in the cerebro-spinal fluid. The examination of the first specimen of fluid showed a slight Noguchi reaction, a slight cell increase consisting of lymphocytes with a few doubtful plasma cells. The second specimen, taken a month later, gave negative ammonium sulphate and Noguchi reactions, a normal cell count and only a few lymphocytes in the sediment.

Another patient in this series has the following history: 58 years old, a painter for 25 years. In the Worcester State Hospital four and a half years. Has had both lues and numerous attacks of lead colic and has used alcohol in moderation. Six months before admission patient lost interest, became reticent, and irritable, and had attacks of dizziness. On admission he was quiet, euphoric, with delusions

of persecution and reference. He was imperfectly oriented for time and place; had but slight grasp on his surroundings and no insight. Memory was fair; speech somewhat slurring, pupils active, gait unsteady, knee jerks exaggerated, suggestive Romberg's sign. The patient is in a stationary condition, and although quite irritable, is able to work regularly. The Wassermann reaction was negative in the serum, doubtful in the cerebro-spinal fluid. The latter gave negative globulin tests, but a slight lymphocytosis. It is possible that this may be a case of lead encephalitis, although there is no very definite evidence to support this view.

The revised diagnoses in the other cases of this series are: Korsakow's psychosis, 3 cases; acute alcoholic delirium (terminating fatally, no autopsy), 1 case; dementia precox, 3 cases; unclassified depression, 1 case.

On examination of the histories of the patients who proved not to be paretics, the reason for the diagnosis of general praralysis is in most cases obvious. All the cases presented more or less suggestive physical signs, ranging from pupillary inequality, tremors or changes in the reflexes to sluggish reaction to light, speech defect, and in some of the alcoholic cases ataxia. In four cases also the Wassermann reaction in the serum was positive, in two others there was a history of syphilis, while in four syphilis was denied and the Wassermann reaction in the serum was negative. Another fact standing out prominently in this group is alcoholism, which was present in all but one of the cases.

Group 3, in which the fluids were sent to the laboratory with "question of general paralysis," comprises 20 cases. The diagnosis was confirmed in five cases by positive Wassermann reactions in serum and fluid and typical cytology in the latter.

One of these, a man of 61 years, had previously been diagnosed an early senile dementia. The diagnosis of paresis in this case has been substantiated by autopsy. Another patient, a woman, 54 years old, was admitted after a suicidal attempt, showing depression with psychomotor retardation, but without physical signs. The first diagnosis was manic-depressive, or a depression of arteriosclerotic origin. The patient is now dementing, is confused and excitable, and definite signs have appeared.

One case of clinical paresis examined a week before death showed conditions somewhat similar to the terminal cases mentioned in Group 2. The serum gave a negative reaction, the fluid a suggestion of a positive. The globulin was considerably increased, the cell count normal, and the sediment contained small numbers of lymphocytes and endothelial cells. The revised diagnoses in this group are: Alcoholic hallucinosis, 2 cases; acute alcoholic delirium, 1 case; alcoholic deterioration, 1 case; dementia precox, 6; manic-depressive with deterioration, 1 case; manic phase of manic-depressive insanity, 1 case.

A study of the histories of these cases brings out the frequency of the same three factors noted in the previous group,—physical signs, syphilis and alcohol. Ten patients in addition to those in whom the diagnosis of paresis was confirmed, had positive Wassermann reactions in the serum, one other gave a history of syphilis, one had signs of the disease, two denied lues and had negative Wassermann reactions, and in one case no clinical history was obtained. Nine patients, exclusive of the paretics, had a history of alcoholism.

Group 4, that of the organic dementias, contains 15 cases. The examination of the blood and cerebro-spinal fluid has helped considerably to differentiate the etiology of these cases. In seven the Wassermann reaction was positive in the serum, and negative in the cerebro-spinal fluid. Two of these showed negative globulin reactions and negative cytology, the other five a positive globulin reaction, lymphocytosis, with, in three cases, the addition of plasma cells. One of these patients, diagnosed paresis during life, was found at autopsy to have cerebral gummata. In one case in which the serum was not recorded the fluid gave a negative Wassermann reaction, but a positive globulin test and a lymphocytosis. One case presented a negative Wassermann reaction in the blood and a positive in the fluid, with increased globulin content and a lymphocytosis. In five cases the serum and fluid were entirely negative. In five of this group, therefore, in addition to the autopsied case, it seems permissible to assume a syphilitic etiology for the trouble.

Group 5. Ten fluids were sent in from patients with the diagnosis of various forms of alcoholic psychoses: acute alcoholic hallucinosis, 5 cases; chronic alcoholic hallucinosis, 1 case; alcoholic deterioration, 2 cases; Korsakow's syndrome and alcoholic traumatic, each 1 case. One of these cases had a positive Wassermann reaction in the serum, and a negative one in the fluid, but an increase of globulin and a lymphocytosis. One other had similar findings, with the exception that the Wassermann reaction in the fluid is not recorded. Four patients had positive Wassermann reactions in the serum, but cerebro-spinal fluids negative serologically and cytologically. One case with a negative reaction in the serum but in whom the Wassermann reaction in the fluid was not recorded, had a slight increase in globulin, but negative cytology. One case gave negative reactions to all the tests, and one an isolated positive Wassermann in the spinal fluid. One patient on whom the diagnosis of alcoholic hallucinosis was made, was found to have a positive Wassermann reaction in serum and cerebro-spinal fluid, an increase of globulin, and a pleocytosis, with the presence of plasma cells. It is impossible to exclude cerebral syphilis in the alcoholic cases who show a positive Wassermann reaction in the serum, a lymphocytosis and globulin reaction in the cerebro-spinal fluid, and doubtful physical signs.

DISCUSSION.

In reviewing these groups, it is found that among 80 patients in whom the diagnosis of paresis was made definitely or in whom a suspicion of it was entertained, in 57 at the most 71%) the diagnosis appears to be confirmed after examination of the serum and cerebro-spinal fluid. In the 60 cases in which the diagnosis was made definitely, it seems to be substantiated by serological and cytological evidence in 50 cases, or 83%.

On the other hand, three cases of paresis have been discovered by the routine examination of the serum and cerebro-spinal fluid in patients diagnosed on admission as senile dementia, arteriosclerotic depression and alcoholic hallucinosis.

The groups into which the non-paretic cases fall are: the alcoholic, 10; the dementia precox, 9; the manic-depressive, 2; unclassified depression and undiagnosed, 1 each. The revised diagnosis in all the cases, except possibly the Korsakows, would doubtless have been attained by clinical observation alone in the course of time, but for rapid elimination of the suspicion of paresis, the serological and cytological examination of the cerebro-spinal fluid is essential. It is also a common experience in large hospitals that there are on the chronic wards certain demented patients who are supposed to be long-standing cases of paresis, the diagnosis having been made on their admission in pre-Wassermann days, and never challenged. When their sera and fluids are examined, however, the results in a certain proportion of cases are found not to be in accord with the diagnoses and the cases appear on closer inspection to be cerebral arteriosclerosis or syphilis, or Korsakow's psychosis.

Correlations of clinical and autopsy findings from the Danvers[5] and the Worcester State Hospitals[6] in pre-Wassermann days have shown that there is a positive error of about 15% in the clinical diagnosis of paresis. The study of clinical diagnoses before and after examination of the serum and cerebro-spinal fluid goes to prove the same point, *i.e.* that paresis is actually not as frequent as it appears to be from purely clinical observation.

Since Wassermann tests and cerebro-spinal fluid examinations have been commenced, however, the tendency in this institution at least, has been toward more reserve in the diagnosis of paresis, and more care has been exercised in making a differential diagnosis, particularly from cerebral syphilis and arteriosclerosis.

CONCLUSIONS.

Our conclusions may be summarized as follows:

1. Examination of the serum and cerebro-spinal fluid leads to a reduction in the number of cases diagnosed as general paralysis.

2. The cases which have been found most difficult to differentiate from paresis without examination of the serum and cerebro-spinal fluid are cerebral syphilis and arteriosclerosis and Korsakow's psychosis. In regard to cerebral syphilis, however, it must be said that although the findings in the serum and cerebro-spinal fluid are supposed to be sufficiently characteristic to permit a differential diagnosis from paresis, in the individual case they frequently leave one in doubt.

3. In a large insane hospital the routine examination of the serum and cerebro-spinal fluid finds, perhaps, its most immediate value in the rapid confirmation or elimination of the suspicion of paresis in new patients and in revision of the diagnoses of certain patients admitted in pre-Wassermann days.

Thanks are due to the staff for help in collecting the clinical data.

REFERENCES.

[1] The cell counts and globulin reactions in this series have been done by Miss Marion Sheet Stone, A.B.

[2] BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. clxviii, No. 14, April 3, 1913.

[3] The amount of cerebro-spinal fluid used for the Wassermann reaction in these cases was 0.5 c.c.

[4] Schoenhals: Monatsschr. f. Psychiatrie u. Neurologie, Vol. xxxix, No. iii, p. 230, Sept., 1915.

[5] Southard: Journal of Nervous and Mental Diseases, Vol. xxxvii, No. 1, Jan., 1910.

[6] Otis: To be published soon.

TWO CASES OF LUNG ABSCESS CURED BY OPERATION.

BY WYMAN WHITTEMORE, M.D., BOSTON.

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These two cases are reported because in each an abscess of the lung followed immediately after taking ether. One patient had been operated on for a deviated septum and the other had had several teeth extracted. It seems probable that both these cases were due to aspiration of some infective substance.

Both cases are perfectly well at the present time. The first case was operated on a year and three months ago and the second four months ago.

I criticize my technic in the first case at the present time because the operation was done at one sitting. The lung seemed to be adherent to the lower half of the pleura that was exposed in the field of operation, but although I stitched the lung to the pleura before opening into the abscess, yet this patient developed an empyema two weeks after the operation, which I feel was due to leakage of septic material into the pleural cavity. This necessitated a second operation, from which the patient made a speedy recovery.

I think the technic I used in the second case a much safer one. In this case at the first opera-

tion, after exposing the pleura, I placed several gauze sponges against it, and did nothing else except suture the skin and muscle flap back into place. At the second operation, five days later, I found the lung very adherent to the pleura, and after draining the abscess the patient made an uninterrupted convalescence.

Case 1. A married woman of 21, entered Sept. 17, 1912.

F. H. Mother, father, one brother and husband well. Married fifteen months. No children. No miscarriages. No tuberculosis, neoplasm or neuroses. No exposure to tuberculosis.

P. H. Measles, scarlet fever, whooping cough, before five years of age, "nervous prostration" at 18, brought on by over-work and worry; treated for three months with good recovery. Otherwise always well and strong, until November, 1911. No chronic cough. Took cold easily. Cta. at 13. Appetite always good. Bowels constipated. Weight 143.

P. I. Oct. 31, 1911, took ether and had 15 teeth out. Nov. 1, "caught cold." Nov. 2, went to bed with sharp pain, worse on cough in lower left axilla and a dull heavy weight in front of left chest above breast. Coughed night and day, raised thick, dark brown sputum. Was in bed eight weeks, cough gradually lessening and sputum gradually getting lighter in color until it became white and watery, "temperature irregular, 98.6-101, pulse normal, appetite and nutrition good." Cough never entirely ceased but she was up and about and in Jan., 1912, started housekeeping again, and was in fairly good health until March, 1912.

On March 23, 1912, had two hemorrhages within half an hour, raising about 2½ cups of dark red blood.

April 5, 1912, was sent to Sharon Sanitarium with a diagnosis of tuberculosis. In bed for two days after which she was up and about until May 15 when she was discharged against advice.

Patient states that repeated examinations for tubercle bacilli were negative. Within a week from the time of discharge was in bed again with pleurisy, up in two weeks and has remained in fairly good health except that cough had continued. Took cold in August which was followed by return of sputum, cough and pleurisy. Five days before entrance, taken with sudden sharp pain in upper left chest, more severe than pleurisy pain. Felt a gurgling in chest, was frightened, could not breathe for a little while. Similar attack two days later. The amount of cough and sputum has varied greatly but has never been entirely free from cough for eleven months and at times has raised as much as two cupfuls in twenty-four hours. Has slept well except for being disturbed by cough.

P. E. W. D. woman, with clear skin and mucous membranes of good color; pupils circular, equal, and react normally. Superficial lymph nodes negative. Tongue clean. Many teeth gone. No pyorrhea. Throat a little reddened. Heart, dullness from midsternum, 3 cm. to right, 12 cm. to left, 2 cm. outside nipple line. Apex impulse felt in fifth space, inside nipple line. Sounds rapid, regular, with a soft systolic murmur heard along lower sternal margin, best at second left interspace. P2 greater than A2 and plus. Pulses equal, good volume and tension. Artery walls not felt. Lung: left, in front there is a space bounded above by the first rib, internally by edge of sternum; below, by fourth rib, and externally by anterior axillary line. There is tympany, coarse gurgling râles, no coin sound, breathing harsh, prolonged expiration but not typically amphoric, cracked pot sound. Nothing abnormal heard in back. There is a small area in the region of the apex of the right lung of relative dulness, slightly increased fremitus and voice. Liver dullness sixth space to costal margin, edge not felt. Spleen not felt. Extremities normal. Knee-jerks present and equal; reports from City Board of Health, state no tubercle bacilli.

Sept. 18, whole right back slightly dull. Left back slightly tympanitic. Breath has a sickish odor, sputum not extremely foul. Tentative diagnosis, "lung abscess" following a foreign body,—an ether inhalation pneumonia or an infarct. Sept. 20, x-ray No. 21,474, a dense shadow occupies the whole of the [illegible] middle chest, base and apex clear; right lung negative. Shadow probably due to thickened pleura overlying some pathological process in lung. No foreign body seen. Sept. 22, second plate confirms above.

Sputum examination Sept. 17, slightly foul smelling, muco-purulent, with one blood streak, microscopically many bacteria, mainly cocci of various kinds, none overwhleming in predominance, no tubercle or influenza bacilli seen.

Sept. 20, muco-purulent sputum with two blood streaks, no tubercle or influenza bacilli seen.

Sept. 25, very rare elastic fibre found after boiling sputum with 10% NAOH and centrifugalizing.

Sept. 26, no change in physical condition or in symptoms. Evidence points to the presence of one or more abscesses in left lung at the level of third to fifth rib, probably near the anterior wall, probably pneumonitis about them and thickened pleura. Transferred to the surgical service:

While on the medical service the temperature varied from 98 to 99.2, pulse 90 to 100. Urine normal. Blood, Hgb. 70%; whites 12,200, red 4,264,000.

I operated on Sept. 27, 1912. Intratracheal ether. Patient placed on right side with left arm held high up, giving excellent exposure of left chest. A six-inch curved skin incision in anterior axillary line. Skin and muscle flap turned up. Third and fourth ribs exposed over an area of three inches and resected subperiosteally. Intercostal muscles divided at both ends and excised. Through the upper half of the exposed pleura normal lung was seen moving with respiration, but through the lower half of the exposed pleura, the lung did not move with respiration, was solid to the touch and seemed adherent to the pleura. Fifth rib exposed and resected as the others. Pleura stitched to this solid area of lung tissue. Trochar inserted into this lung tissue, inward and upward, thick blood, only result. Finger inserted along path of trochar and region corresponding to x-ray shadow explored. A cavity about just external to the heart was broken into from which escaped a little foul-smelling pus, mixed with [illegible] blood. This cavity drained with rubber tube.

Patient made a good recovery from the operation with T. and P. coming down from 101 to normal and remaining normal for nine days during which time she coughed very much less but still raised a little sputum, containing streptococci and pneumococci. The discharge from tube was at first, dark bloody fluid with some muco-purulent material, later becoming entirely muco-purulent. On the tenth and eleventh days following operation T. P. began to go up and during the following week patient

ran a temperature of 101-102 at night, down to nearly normal in the morning. The physical signs on Oct. 17 showed dullness in the left back half way up to scapula. Trochar inserted in eighth interspace, in posterior axillary line, and half a bottle of thick pus evacuated.

Oct. 17, second operation; one and one-half inches of eighth rib resected, subperiosteally pleura opened with escape of a considerable amount of pus. Large rubber tube fastened in.

Patient made an excellent recovery. The discharge gradually lessened so that on November 1, 1912, the tube was left out entirely and on Nov. 4, she was discharged from the hospital.

Dec. 15, patient's doctor reports that she has been gaining strength steadily and has had no pain or cough.

Feb. 10, 1913, patient reports, there is no discharge, both wounds entirely closed, no cough, no expectoration. Has gained twenty pounds since leaving the hospital.

Nov. 17, 1913, patient writes that cough is entirely gone, side is perfectly well and she considers herself cured.

CASE 2. Age 17, single; entered the hospital Aug. 15, 1913. Office-boy.

F. H. Father, mother two brothers and two sisters well.

P. H. Measles as a child. Occasional sore-throat and cold. Appetite good. Habits, no alcohol or tobacco.

P. I. On July 23, 1913, operation on nose under ether for deviated septum. Went home a few hours later.

July 25, began to have headache, frontal region, no nasal discharge.

July 27, pain in chest. Slight cough.

Aug. 1, pain in chest worse, cough and foul sputum. Not working but up and about. Occasionally felt feverish. Cough usually started on lying down. Paroxysms of about five minutes, raising about a drachm or two of yellow sputum. Pain localized under right scapula.

P. E. W. D. N. boy, short loose cough. Skin shows marks of counter-irritation over right chest. Sclera clear, mucous membrane of pale color. Pupils, equal, regular, react normally. No glands felt. Tongue, moderate white coat. Teeth fair. Throat red. Heart, apex in fifth space, 8 cm. to left of median line, just outside nipple line. Shifts 3 cm. in left lateral position in same space. Right border 2.5 cm. to right of midsternal line. Sounds regular, good quality, no murmurs. Pulses, equal, good volume. Lungs: right anterior region at second and third ribs, dull, diminished breathing; slight bronchophony. Right posterior, corresponding region, slight dulness. At the lower angle of the scapula there is dullness and high pitched voice, a few fine and medium moist râles at the base of both lungs. Abdomen: liver dullness fifth space, to costal margin; edge not felt. Spleen and kidneys not felt. No masses, tenderness or spasm. No costo-vertebral tenderness. Extremities negative. Genitals negative.

The next day breath not foul but sputum very foul. Heart slightly displaced to left; right chest fixed, generally tympanitic. Transitory bronchial breathing above right nipple; heart sounds heard well in right axilla. There is probably an area of consolidation surrounding an abscess near root of right lung. Sputum: about 2 c.c., moderately thick, muco-purulent. Not bloody, very foul. Microscopically much pus, occasionally large gram-positive diplococci. A few streptococci in long and short chains. Some bacilli, not characteristic, no tubercle bacilli. X-ray shows dullness at right upper chest as low as fourth rib in front. Lower border of shadow is much more dense than upper border: lung markings cannot be made out in upper part. This may be due to pleural thickening. Diagnosis, abscess of lung.

Aug. 20, the boy does not seem to be absorbing much from his abscess, fairly comfortable except when coughing. Lying on right side is only position which does not induce coughing. The physical signs change rapidly from minute to minute but there is an area of dullness in region of third and fourth ribs in front where at times pure bronchobreathing is heard. T. ranges from 99-101. Urine negative. Blood, hgb. 80%, whites 34,900.

Tranferred to the surgical service:

I operated on August 21, 1913. Intratracheal ether. Patient on left side with right arm elevated. A "V" shaped incision made in right axilla with base up, about five inches across. Skin and muscle flap turned back. Fourth, fifth and sixth ribs exposed and resected subperiosteally for about three inches. Intercostal muscles ligated at both ends and excised. Pleura now exposed. Three gauze sponges laid on it and flap sutured back into position.

Five days later on August 26th, under ether, stitches removed and flap turned back. Gauze removed and pleura found very adherent to lung. On exploring the area corresponding to the shadow in the x-ray, my finger broke into a mass of soft tissue in the upper lobe with the escape of extremely foul odor and a little bloody pus. Tube fastened into cavity.

Patient made a good recovery from the operation.

Aug. 29, discharged considerable foul-smelling pus from tube. Coughs a good deal but raises very little. Temperature 98 to 100.

Sept. 15, cough very much better; does not raise anything; wound draining less.

Sept. 17, tube removed.

Sept. 19, very little discharge from sinus.

Sept. 20, discharged from hospital.

Oct. 15, patient reports in the Out-patient Department, has no cough and does not raise anything. Wound entirely healed. Is troubled slightly with shortness of breath and transferred to the medical department.

Jan. 7, 1914, patient reports that he is feeling perfectly well, except for some shortness of breath.

PROSTATECTOMY WITHOUT IRRIGATION.

BY A. E. ROCKEY, M. D., PORTLAND, OREGON.

More than a year has now passed since I published the composite method of prostatectomy without irrigation[1]. It is five years since I have irrigated the bladder after prostatectomy either in connection with the operation or during the post-operative treatment, except as I shall presently describe. Year by year I am more firmly convinced that irrigation after prostatectomy

[1] North Pacific Surgical Association, Vancouver, B. C., Dec., 1912. Printed in *Surgery, Gynecology and Obstetrics*, April, 1913.

is an error without justification in the physiology of repair.

The first step in the process of wound healing is the formation of a blood clot. The clot has two important primary functions, the arrest of bleeding and the protection of the wound. These are both interfered with by irrigation. A normal blood clot is also more resistant to infection than is diluted blood. When a freshly cut surface is covered with a blood clot the healing process begins at once. Proliferation of the tissue cells readily proceeds under such kindly protection and with such normal food. Remove this by continuous irrigation and what takes place? The exposed cells are rapidly devitalized by the harsh contact with a fluid of lower specific gravity than the cell contents when water is used. By osmosis the cells become swollen, lose their plasm and die. Fortunately their dead bodies afford a measure of protection to the deeper tissues until the misdirected irrigaton has been discontinued. Like all devitalized tissue, however, this layer of dead cells is an easy prey the various saprophytic and pathogenic bacteria, whose toxines make further inroads on the reparative process. When repair is at last established by the formation of a layer of more resistant granulation tissue, its first task is to remove the enfeebled cells by phagocytosis, and cast off the dead layer as a slough. Then and not until then can repair begin in the same manner that would at once take place where the tissues are protected by a blood clot.

The purpose of the operation of prostatectomy is to remove the obstacle to urination with the least possible disturbance from the surgical procedure. Suprapubic enucleation with the finger, as it has been evolved from the methods of Fuller, Freyer and others, has at last come to be considered the method of choice by the majority of surgeons. This operation is essentially one done by the sense of touch. Between the bare index finger of the right hand, which bores into the capsule and conducts the various steps of the enucleation, and the two first fingers of the left hand, protected by the glove and supporting the gland through the rectum, there is such a complete recognition of texture, position, size and line of cleavage as would make an unobstructed view unnecessary. But vision at the bottom of a bloody bladder is obtained only at the expense of long incision, deep retractors and much sponging, and a necessarily prolonged operation. This statement is made only on general knowledge, and on my observation of a number of such operations by other surgeons. Not only is the view thus obtained troublesome, but retractors certainly interfere with enucleation. The common sequence of such operations is packing to control bleeding, or as recently proposed, suture of the margin of the prostatic cavity, and the use of very large drainage tubes, both of which necessarily prolong the convalescence. The sewing in of drainage tubes has recently been revived. This necessitates immediate and constant irrigation to keep the bladder clear of clots, which would otherwise stop up the tube. For years' I have insisted that long incision was not necessary for the reason that in making the enucleation the operator was to be guided entirely by the sense of touch, and that the elasticity of the bladder wall and the usual softness of the larger hypertrophy permitted the delivery of a very large gland through a small incision. An inch and a half incision is therefore all that is necessary in the usual case, and two inches for glands of very large size. While the delivery of the gland may be accomplished with a pair of sponge, tongue, goiter or placental forceps, I have found much satisfaction in the use of the forceps I have devised for this purpose

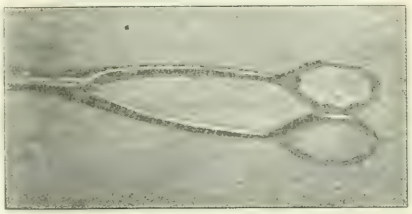
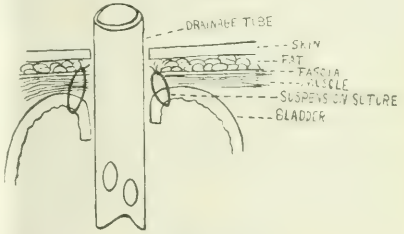


Fig. 1.—Rockey's prostatectomy forceps.

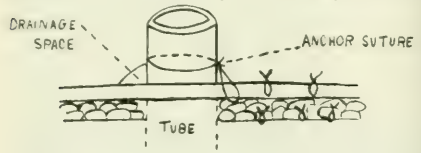
(Figure 1.) The outside of the oval fenestrum is smooth and the inside scalloped, thus ensuring a firm grasp of the enucleated gland without endangering the bladder wall. Bleeding is usually slight, but even if brisk at first, if left alone it usually stops quickly. In the rare exceptions in which bleeding is excessive, we get the advantage of the small incision; the unmolested clot soon gains support from the bladder wall and aids in the arrest of bleeding by pressure.

I have found the valvular suspension suture (Figures 2 and 3) to be of great value in supporting the bladder in an advantageous position for rapid closing, and in preventing the formaton of a pool of urine in the space of Retzius. It is introduced by passing a No. 3 plain catgut with a heavy round full curved needle through the fascia and muscle, and then through the bladder wall parallel to and about three fourths of an inch from the incised margin, which is held by a hemostat, and then back through the muscle



CROSS SECTION
Fig. 2.

and fascia. With a single suture of this kind on each side of the incision the bladder is held in a position of valvular suspension with the edges turned in Figure 2. This position of the bladder greatly increases the length of the granulation tissue tract and ensures firmness in the final healing. Two or three chromic cat gut sutures in the fascia, leaving, however, abundant room for a finger size drainage tube, will diminish the danger of hernia. Two silk worm sutures above and one below, anchoring the drainage tube by



VERTICAL SECTION
FIG 3

them, as shown in Figure 3 complete the operation. Care must be taken to leave sufficient room above and below the tube for drainage; a half inch is sufficient. It is through this space that the first drainage comes, as the tube itself is quickly filled with clot. The tube must be short, usually about three inches, so that it will not press on the bottom of the bladder. It should be cut off just above the anchor suture, so that the dressings may lie flat across it.

With the abandonment of irrigation the after care of these cases has been greatly simplified. An absorbent cotton pad covered by a single layer of gauze and held by a light muslin binder, and changed six or eight times in the twenty-four hours, is all that is necessary. The ward nurse is but little troubled with the care of these cases, and special training and experience, required when irrigation is used, is not necessary. The tube should remain in place for eight or ten days. Earlier removal of the tube may disturb the healing at the vesical neck. When the tube is removed I commonly insert a large catheter through the urethra and irrigate the bladder once, and while the water is flowing introduce a large direct vision cystoscope and inspect the base of the bladder and the cavity from which the prostate was removed. By this time it is usually a small cone lined with granulation tissue prepared to bridge the space between the upper end of the prostatic urethra and the vesical mucosa. There is but little tendency to contraction of the orifice in the ordinary case. If, however, the gland was of the hard adherent type without a good line of cleavage, and yet not too firm for finger enucleation, it will be well to pass a sound a few times during this stage of the healing process, and perhaps use an occasional irrigation if detritus be present. These cases are the exception. I should say about one in ten or fifteen of those that come to operation.

When, as frequently happens, the bladder has become infected through previous instrumentation and the urine is bloody and of bad odor, it is not possible by the most energetic irrigation to render the bladder sterile. When such cases come to the surgeon it sometimes happens that false passages have been produced and catheterization is difficult. Under these circumstances we make no effort to catheterize, and fill the bladder with water for the incision. If the condition of the patient is not favorable for enucleation local anesthesia is used, the bladder drained by a stab wound and tube, and the patient left to recuperate for operation later. When the condition of the patient is fair, the operation may be completed at once through a bladder containing this foul urine, then left without irrigating a single time, and the result will be better than with the most virgorous irrigation. With irrigation these cases commonly form large sloughs in the prostatic cavity and in the space of Retzius. Without irrigation the blood clot protects the tissues from infection, and the sloughs do not form.

We may well ask what becomes of the blood clot if it is not washed out. A portion of it may serve for the nourishment of the new granulation tissue. The remainder, after it has served it purpose as a protective and hemostat is dissolved by the urine. This dissolution keeps the urine blood-stained for a few days. It then clears up, the tube is open, the clots and bad odor are gone, and convalescence is established. The absence of irrigation apparatus permits the patient to be out of bed in a wheel chair on the second or third day, enjoying the rest and comfort that such freedom affords.

After a few days in the wheeled chair, we dress patients in painters' overalls of rather a large size, the bib making a good support for the pad of cotton which absorbs the escaping urine. This permits them to walk about the wards even while wearing the tube. The general well-being of the patient is improved by this absence of restraint. The final results are exceedingly satisfactory. The valvular suspension often closes the bladder immediately upon removal of the drainage tube, and voluntary urination in from twelve to sixteen days is not uncommon.

A NEW OPERATION FOR HIP CONTRACTURES IN POLIOMYELITIS.

BY ROBERT SOUTTER, M.D., F.A.C.S., BOSTON,

Assistant Surgeon, Children's Hospital, Boston; Instructor, Orthopedic Surgery, Harvard University.

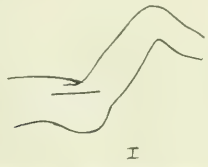
IN poliomyelitis the usual contractures of the soft tissues at the hip hold the thigh flexed and abducted and involve a shortening of more or less all the soft tissues on the outer and anterior aspect of the region of the hip. The deformity may be slight, considerable or extreme. It is

usually accompanied by a compensatory lumbar lordosis which on account of the flexibility of the spine here makes complete correction more difficult.

Contractures of the soft tissues at the hip due to the shortening or lack of growth of the soft tissues following paralysis or injuries are sometimes easily overcome by manipulation and stretching. When they are of long standing they may not yield to tenotomies of the tendons and of the tensor fascia femoris, and myotomies are necessary. The severe contractures that need myotomies require some surgical experience on account of the vascularity and the amount of muscle tissue that must be cut before the hip will come down.

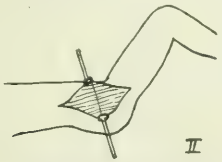
Often so many of the muscles on the anterior aspect of the thigh must be cut that finally the surgeon finds himself down on the hip joint. There are a good many difficulties and sometimes a great deal of hemorrhage, and the operation may seem very unsatisfactory, and is often imperfectly done. For these difficult cases and also some of the milder ones the following operation has been devised: First, a longitudinal incision is made three inches long, parallel with the long axis of the body, with its middle two inches posterior to the anterior superior spine. (Fig. 1.) It is carried down to the fascia. By retracting the subcutaneous tissue the fascia is exposed from the anterior superior spine back to the trochanter. (Fig. II.) Second, the fascia is incised at right angles to the skin incision, cutting all its fibres transversely from the anterior superior spine back to the great trochanter. Third, the skin incision is next retracted in such a way as to expose the anterior superior spine. (Fig. III.) By means of an osteotome, the attached muscles and fascia are removed from the anterior superior spine subperiosteally on the inside, on the outside and below; they are all pushed downward. (Fig. IV.) The hip is hyperextended backwards, pulling the tissues down with it. If the tension is great the soft tissues are pushed down by means of gauze or blunt dissector, clearing off the periosteum and soft tissues from that part of the pelvis below the anterior superior spine.

Following the operation a plaster of Paris bandage is applied to the whole leg (Fig. V.) (contractures of the knee and ankle may be corrected first). The hip is hyperextended in order to correct the lumbar lordosis usually present in these cases. It is also adducted slightly to stretch the lateral contractures. The plaster of Paris extends from the nipple line in front and from the lower waist behind to the toes of the foot operated upon. A window may be cut in the plaster over the abdomen. The patient is put on a Bradford frame elevated to allow the legs to drop to a lower level than the hips and shoulders. The advantages of this method of procedure are as follows: There is practically no bleeding, the operation does not require much surgical skill and the contracture is definitely relieved. The muscles are not cut across; their periosteal attachment is simply moved one and one-half or two inches downward. The anterior superior spine will be found to be practically moved downward.



I

Longitudinal incision two to three inches posterior to the anterior superior spine.



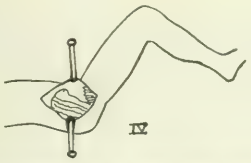
II

Subcutaneous tissues retracted, fascia lata exposed; the line between the retractors marks the incision transversing the fascia fibers.



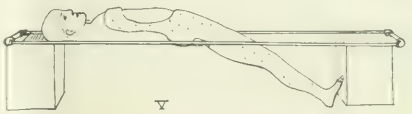
III

The anterior superior spine exposed. Attachment of muscles and fascia have been subperiosteally removed with an osteotome.



IV

Tissues formerly attached to the anterior superior spine have been pushed downward.



V

Post-operative plaster of Paris anteriorly from the nipple downward, posteriorly from the waist downward. Window in the plaster over the abdomen. Bradford frame raised on boxes to allow hyperextended position of the hip.

Clinical Department.

THE TREPHINE OPERATION IN GLAUCOMA*.

BY MYLES STANDISH, M. D., BOSTON.

Williams Professor of Ophthalmology, Harvard Medical School, etc.

THE unsatisfactory results of iridectomy in chronic cases of glaucoma have been acknowledged by all operators.

I wish to define chronic glaucoma, for the purposes of this paper, as those cases in which there is a continued, slowly increasing tension with steadily diminishing vision and field.

The progress of the disease can be stayed to a certain extent by the use of myotics, but as a rule, they lose their efficacy in the end, and the disease goes on to blindness.

When iridectomy was practically the only operation done for chronic glaucoma it was usually found that the vision diminished immediately after the operation and rarely returned to the condition just previous to the operation, and the ultimate result of many of these cases was that the progress of the disease was not stopped. This unsatisfactory state of affairs has led a number of operators in the last ten years, to devise operations by one means or another, to establish a corneal fistula at the sclero-corneal margin by which the aqueous would drain out beneath the conjunctiva, and thence be absorbed. Some of these operations have been deemed by their advocates, and by others to introduce into the case new dangers, and also to be, in some instances, difficult operations to perform. Several gentlemen, of whom Dr. Elliot of the East Indian Medical Service is the most prominent, have advocated the use of the corneal trephine to remove a disc at the sclero-corneal margin. As this method seems easier and safer than the other methods proposed, I have done nine operations following the method of Dr. Elliot with the exception that in all but two instances which will be noted, I have done a complete iridectomy through the opening made by the trephine, and am glad to accede to the request of the chairman of the committee on papers and present you with a brief resumé of these cases.

CASE 1. A woman, a Syrian, 48 years of age, first seen by me May 28, 1913.

The left eye had an attack of acute glaucoma three years before, but as far as I could determine there had been practically no local treatment, simply morphia for the pain.

At the time of this visit the right eye had good vision with normal disc.

In the left eye she had a tension of + 2, pupil 5 mm. in diameter, typical pathological depression of the disc, and great pain, which had been increasing for several weeks. Two per cent. pilocarpine only reduced the pupil to a diameter of 4½ mm. The tension was very doubtfully diminished, and the pain continued. There was no vision.

Operated on by me June 10 with Elliot's trephine. Good operative result, but after recovery she still complained of some pain and the tension was a little above normal. Pilocarpine controlled the pain.

The patient was seen by me September 13. There was some complaint of conjunctival irritation, but no pain. Over the trephine opening there existed a very large, translucent bleb, which had a base of 7 or 8 mm. in diameter, and an elevation of at least 5 mm. with conjunctival congestion in this neighborhood. Tension had not increased since June. She was using no myotic and had no severe pain. The result was a success in that otherwise we should have been obliged to have removed the eye on account of the unbearable pain.

[Later. The eye was subsequently enucleated for pain and increase of tension.]

CASE 2. Mrs. F., 48 years of age, first seen by me June 30, 1901.

There was slight increase of tension, marked depression in the disc in each eye, but not so much that one would feel sure it was pathological.

The field of the left eye was lost almost to the fixation point down and in. V.O.S. was 20/CC. Vision in the right eye was .7‡2. She was given pilocarpine and when next seen by me in September, vision in the left eye had risen to 20/C-1, and in the right eye it was .8-4. There was no shallowing of the anterior chamber, no history of rainbow halos. Tension was very doubtfully increased. Field in the right eye was slightly diminished in all directions. A collyrium of pilocarpine was prescribed and she was seen by me from time to time.

In March, 1903, vision in the right eye had risen to .9-3. The tension was normal under the myotic. The vision remained the same without lessening of the field or vision under continued use of pilocarpine, till May 6, 1908, when I found by my note that the entire nerve in the right eye was somewhat depressed, although the vessels did not cut under in any place. The vision was .9-5. May 3, 1909, the tension was slightly increased in each eye. Vision in the right eye had fallen to .7, and the field was more contracted than on previous occasions. The pilocarpine solution was increased in strength and the tension became normal, but the vision in the right eye did not again rise above .7. March 7, 1911, vision in the right eye still remained at .7. The field also never recovered its former size, though not markedly diminished.

In the left eye there was some congestion suggestive of chronic irido-cyclitis. Vision in the left eye by June 16, 1910, was diminished to 1/CC eccentrically.

In June, 1911, the field in the right eye had again diminished in size, but vision remained the same. The appearance of the disc was slightly more pathological in character.

In October, 1912, vision in the right eye had fallen to .5, the field had diminished, especially upward and inward, and I advised operation. The patient returned in February, 1913, and by focal light there was slight haziness of the cornea.

The trephine operation was done by me May 22, 1913. The removal of the disc left a small layer of sclera in the bottom of the trephine opening cover-

* Read before the New England Ophthalmological Society, Dec. 9, 1913.

ing the lower third. The iris was coaxed through the opening and a generous iridectomy done. There was considerable hemorrhage. Recovery was without incident. The bleb over the trephine opening was distinctly visible, though not nearly the size of the one previously described. Tension was normal.

September 13, 1913, tension was still normal and vision was 20/XL. The patient comfortable.

Case 3. Mr. Y., 54 years of age, first seen by me November 9, 1905.

Fifteen years before he had a von Grafe operation on the left eye for cataract, and three years before vision in the left eye had begun to fail. Previously he could read fairly well.

In March, 1904, he had had a secondary operation on that eye but without benefit. When I first saw him tension was +1—, he saw colored rings at times, especially blue and green. The ophthalmoscope showed a white nerve with deep depression of the temporal two-thirds of the disc. There was loss of field to the inner side. Vision in the right eye was 4/CC with a partially opaque lens and no tension.

I advised preliminary iridectomy and extraction in the right eye. The extraction was done under cocaine November 19, 1905, without incident. Subsequent vision in the right eye was 20/XL. A secondary operation was done December 6, 1907. There was no ophthalmoscope abnormality of the disc.

In March, 1908, he had a hemorrhage into the vitreous of that eye which left a floating membrane. There was increase of tension afterwards and vision in the right eye fell to 7/XL. Two per cent. pilocarpine kept the tension normal and vision remained the same till January, 1910, when pilocarpine failed to control the increase of tension and one-fifth per cent. eserine was added to the solution. He had a stronger solution of eserine which he used when rings around the lights returned, that stopped the phenomenon. Vision remained approximately the same until December, 1911, when there was distinct loss of vision and contraction of the field on the nasal side.

In June, 1912, there was some steaminess of the cornea of the right eye. He was given one-half per cent. eserine to use habitually, but vision and field continued to fail and haziness of the cornea to increase. In April, 1913, after the use of eserine twice, the tonometer gave a tension of 45 mm. Hg., and I advised trephine operation.

The operation was done April 24, 1913. There was a good-sized bleb over the trephine opening after recovery. Tension was normal. By May 21, steaminess of the cornea and the little stippling of the surface had entirely disappeared and the eye was comfortable.

In September vision, which before operation had diminished to perception of light had increased to 2/C. There was no pain, tension was normal and he was using no myotic.

Case 4. Miss R., age 59 years, first seen by me May 13, 1910.

Fifteen years before she had first symptoms of glaucoma in the right eye, *i.e.*, rainbow halos, etc Nine years later iridectomy was done. At the time of this visit, vision in the right eye was .7 and the patient said it had remained practically the same since the operation.

Six years before she first noticed rainbow halos in the left eye, and some irritation after long use. Vision in the left eye was .7 —. She was using a myotic and was very much opposed to another operation.

Ophthalmoscope showed depression of the disc in the left eye, well marked, though not typically pathological. Anterior chamber shallow, field approximately normal. She continued under my care and with the use of a myotic, examination from time to time showed little appreciable change.

In October, 1910, the patient stated that without the use of the myotic the eye got hard. Halos were seldom seen.

September 12, 1912, vision in the left eye was .7 and the patient reported that a sleepless night, or any physical or mental disturbance would make the pupil in that eye unusually wide and that on this occasion it still remained wide open with the myotic. It was wide and one-fifth per cent. eserine was added to the pilocarpine solution. She returned three days later with small pupil. Vision, however, in September, 1912, had fallen to .5 and the field was contracted to the inner side, the tension slightly raised. It was found necessary to increase the strength of the eserine to control the situation.

In June, 1913, the patient returned after having been absent from the city during the winter. Vision in the left eye had fallen to .4 + 1. Pupil was 3 mm. in diameter, anterior chamber very shallow and there was a number of adhesions of the iris to the lens capsule. No history that the eye had been red during the interval.

I advised trephine operation and the patient consented, although she had previously determined never to have an operation on the second eye.

The operation was done June 12, 1913. The iris was so tied down that an iridectomy could not be done through the trephine opening, but a large button-hole was obtained.

November 11, the field had returned to approximately normal size. Vision was .4. No pain. Patient said the eye reddened somewhat from continued use. She was using no myotic. Tension was normal.

Case 5. Mrs. L., 59 years of age, first seen by me September 2, 1913.

Vision had been distinctly failing for three months. Vision in each eye barely perception of light. No pain, headache or halos. Pupil not dilated, anterior somewhat shallow. Ophthalmoscope showed a large pathological depression of each disc. O. D. tension + 1 and O. S. + 1—.

The trephine operation was advised. This was done September 3d on the left eye and the 10th on the right eye.

A fair iridectomy was obtained through the trephine opening in each case and there was good drainage through the opening in each eye.

After recovery from the operation the patient returned to another city and subsequent history of the case is limited to a letter stating that the patient three months after operation could see large objects.

Case 6. Miss L., age 73, first seen by me December 7, 1912.

First had slight discomfort and pain in right eye eight years before, and at the end of a year vision in this eye had considerably diminished until at this time there was no perception of light. This had been about the same for five or six years.

Vision in the left eye had been diminishing for

three or four years, more rapidly the past six months. There had been considerable pain, but no halos. The anterior chamber was shallow, the pupil in the left eye 3½ mm., although she was using a myopic. Tension −1 and field lost to point of fixation inward and downward. Vision 20/XXX-2. There was a deep pathological depression in each optic disc. The patient's mother lost vision in one eye wholly. Mother's brother and sister were blind from glaucoma. The maternal grandfather had very poor vision. Except in the case of the uncle and aunt, the patient did not know the cause of the loss of vision.

The pupil contracted under a myotic, the slight congestion disappeared and the tension diminished. Advised operation.

On September 10, 1913, did a trephine operation under holocaine with large button-hole iridectomy through the trephine opening. There was good drainage after the operation.

CASE 7. Mr. A., an Armenian, age 55 years.

First seen by me May 21, 1913. For thirteen months vision in the left eye had been failing, said to have followed some accident. He had an iridectomy, but the vision continued to fall. At the time of the visit, vision in each eye was falling and tension in each eye was +1. 32 mm.: Hg. O. S. and 35 mm.: Hg. O. D. Patient counted fingers at six feet with each eye.

Advised operation. Patient went away and did not return till November, 1913, and then vision was reduced to perception of motion at three feet. There was a shallow anterior chamber, pupils dilated, and the field showed that in each eye it was reduced to a small rounded area extending from the point of fixation about 25° horizontally outward, much less vertically in the right eye, and in the left eye the field of vision covered only about 10° and was similarly placed to that of the right eye.

On November 18th, a trephine operation was done on the left eye, and on November 25th, on the right eye.

The operation on the left eye was done near the margin of the previous iridectomy, but I did not succeed in increasing the iridectomy. Upon recovery there were distinct blebs over each trephine opening. On January 4, 1914, vision in the right eye was 7/C. Tension was normal.

Any ophthalmologist who has followed these cases will recognize them as those which present the most unfavorable aspect for operative benefit, and the majority of them with the old method of iridectomy would probably go on to permanent and total loss of vision.

These operations I have done according to the method prescribed by Dr. Elliot in which a rather large flap of conjunctiva is dissected up to the margin of the cornea, thence the dissection is more carefully made so that the epithelial surface and perhaps the anterior layers of the cornea are elevated and the flap is then turned back over the cornea, the trephine blade is placed so that about half of its diameter overlaps the dark crescent of the cornea, the other half being over the opaque sclera.

The trephine button is removed as thoroughly as may be, although Dr. Elliot himself feels satisfied if the corneal half of the opening is left patent. The iris is then seized through the opening and a portion of it removed. In most of my cases I have done a complete iridectomy. The conjunctiva is replaced and sutured.

I have found the operation in my hands easy and safe. In none of these cases did I find it necessary to use a cutting instrument to dissect up my flap from the cornea, and I did not carry the cut in the conjunctiva absolutely to the sclero-corneal margin, but I left a space of one or two mm. on each side. I have found the horizontal handle which comes with the Elliot trephine to be a distinct aid in determining the direction in which the cutting instrument is acting, as the slightest tipping of the trephine is perceptible owing to the turning of the flat horizontal handle between the fingers of the other hand. The movable stop on the blade which comes with the Elliot instrument for the purpose of guarding against too deep incision I have found to increase the difficulties of the operation by obscuring the seat of operation. However, it is of considerable comfort to the novice in this operation.

I believe we have in this method a new and valuable procedure and that its use will probably be more and more extended to other varieties of glaucoma as our confidence increases. Whether constant leakage of the fluid will tend in time to impair the physiological functions of the eye only time can determine, but as far as we can see at the present time, the trephine opening effectually prevents any subsequent pathological increase of the intraocular tension.

A SIMPLIFICATION OF THE TECHNIC OF REPOSITION OF THE RETROVERTED UTERUS.

BY JOHN T. WILLIAMS, M.D., BOSTON.

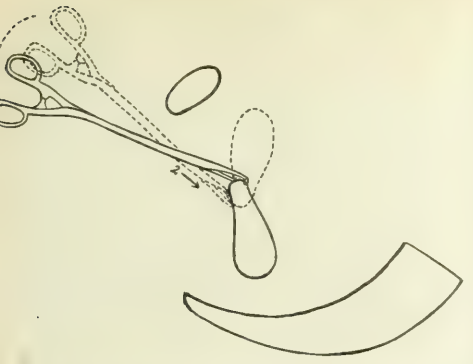
Third Assistant Visiting Surgeon for Diseases of Women, Boston City Hospital; Assistant to the Surgeons, Gynecological Department, Boston Dispensary.

THE technic usually described for the reposition of the retroverted uterus is as follows:

Grasp the cervix with volsellum forceps and draw down the uterus. With the finger in the posterior cul-de-sac, raise the fundus until it can be grasped by the fingers of the other hand on the outside of the abdomen. Then push the cervix back into the hollow of the sacrum.

This process is often very painful, and necessitates a certain amount of trauma. It has been my experience that only the first and last of these steps are necessary.

The method which I have used is as follows: Grasp the cervix with volsellum forceps, raise the handle as shown in the diagram (1), and push the cervix back into the hollow of the sacrum (2).



As the cervix is thus carried backward, if there are no adhesions, the fundus rotates forward into normal axis, upon the supravaginal attachments of the cervix as a pivot.

This procedure is more rapid and less painful than the older one and equally as effective. I have yet to succeed with the more complicated method when I have been unable to replace the uterus by the simplified procedure.

Where the uterus can be only partly raised toward normal position, not infrequently if a pessary be inserted, the uterus will be found in normal position at the end of forty-eight hours. This is contrary to the usual gynecological teaching that a pessary should never be inserted except with the uterus in normal position, but if intelligently used, the pessary can do no harm and often accomplishes what manipulation has failed to do. This use of the pessary has also been mentioned by Kelly (Medical Gynecology, New York, 1908, p. 308).

Medical Progress.

FIFTH REPORT OF PROGRESS IN ORTHOPAEDIC SURGERY.

By Robert B. Osgood, F.A.C.S.; Robert Soutter, F.A.C.S.; Hermann Bucholz, M.D.; Harry C. Low, M.D.; Murray S. Danforth, M.D.

TUBERCULOSIS.

Tubby,[1] writing in a broad general way concerning surgical tuberculosis in children and its rational method of treatment, contrasts the results obtained from the comparatively short stay of the children with bone, joint, gland, and skin tuberculosis in the city hospitals and the results obtained from their prolonged stay in the country hospitals. With the better air, the more generous sunlight, etc., the comparison leads to only one conclusion, that the treatment in the cities is not nearly as economical a method as the country method. He suggests registration and climatic treatment for all cases of surgical tuberculosis in children, outlining a broad administrative scheme and reckoning the financial needs and the approximate number of cases (one child in five thousand.) France with its large hospitals at Berck and Brevannes has shown the value of this method, and Tubby believes that the conditions in England and America demand the establishment of such hospitals in these countries also.

There has been, and will continue to be, much discussion concerning the rôle which trauma plays in the development of bone and joint tuberculosis. The study by Wilson and Rosenberger[2] therefore is of much value. They have attempted to collect the textbook and experimental evidence corroborated by cases and reach the conclusion that this evidence suggests that trauma plays an important part as a secondary cause of bone tuberculosis. There seems to be little evidence to indicate that trauma actually predisposes to bone tuberculosis in a healthy joint, but that in a joint in which there already exists disease trauma increases its activity very constantly.

Packard[3] points out the fact that the prevailing treatment of Pott's disease of the spine in jackets and braces is often unsatisfactory, and that the occasional cures without deformity are negatived by the larger number of cases which after years of disease show considerable deformity. He believes that the recumbent treatment in fresh air offers far greater advantages, and that the forces of gravity in ambulatory cases are dangerous and difficult to neutralize. The operative treatment he considers still "sub judice."

Green[4] reports ten cases of tuberculous osteomyelitis of the digits, the so-called spina ventosa. He apparently relies upon the clinical history and the x-rays for his diagnosis, and upon hygiene, local fixation, and x-rays for their treatment.

(Ed. Note: The Von Pirquet, luetin, and Wassermann reactions would doubtless help in clearing up the accurate diagnosis in this somewhat peculiar type of lesion, for the pathology of the so-called tuberculous osteomyelitis needs thorough study. It is probable that many of the cases represent mixed infections or are possibly caused by mildly pyogenic organisms in pure culture. Drainage of the bone when abscess presents has in our hands apparently been conservative of joint motion and tended toward recovery.)

De Quervain[5] believes that secondary infection is much less to be feared in tuberculous affection of the lymph nodes, tendon sheaths, muscles, or subcutaneous tissues, than in the bones and joints, and although he considers that in the former type of cases operative interference is likely to do less harm than in the latter. It is usually unnecessary when either

radio or heliotherapy can be employed. He states that 4-6 exposures to the x-rays, one every three or four weeks, each dose either a whole or a half a sabourand dose and filtered through an aluminum screen 1 mm. thick is frequently sufficient to effect a cure. He thinks that if the lesion is more than 4 cm. below the surface of the skin one can hope for little from the x-rays.

Tuberculin. We are seeing fewer favorable reports of the use of tuberculin in surgical tuberculosis. This may be because of the rather more positive results which some of the newer methods of treatment, such as heliotherapy, seem to obtain, but is also accounted for in some measure by the necessity for very careful administration which success in its use has seemed to demand.

Fenwick[6] believes strongly in its value in all surgical tuberculosis cases except those grave infections with a highly oscillating temperature. In the out-patient clinic he has administered dilutions in normal salt solution by mouth, each fluid ounce containing 1-1000, 1-100, or 1-10 mg. of tuberculin with ½% phenol. His initial dose is 1 drachm of the weakest solution or 1-8000 of a mg. and the next week he doubles the dose if there is no rise of temperature. He rarely gives above 1-100 mg. at a dose. He reports no bad results and a usual noticeable improvement in appetite, general condition, and local joint symptoms.

Cashman[7] has attempted to accurately determine the correct dosage of tuberculin. He believes that the benefit to be derived is due to the reaction of the body, not to the tolerance, and he thinks the best dose is one that produces the greatest local and focal reaction without constitutional symptoms. By using dilutions of Koch's O. T., he determines what solution is necessary to produce a skin reaction 4 mm. in diameter. This dosage used as a tuberculin injection should produce a swelling 2-5 cm. in diameter. He thus judges the proper dose for the individual case. Of 30 cases, 13 are reported well, 11 improved, and 6 doubtful.

Heliotherapy. Professor Estor[8] has described the technique of heliotherapy. The patients may with benefit rest in bed several days before beginning the treatment. As soon as the patient is acclimated the treatment may begin. At Leysin patients are placed in open galleries without glass, because the glass cuts off the violet and ultra violet rays. The sides of the terrace are shut in to protect the patient from draughts. At Arachion the sick lie flat in boats anchored near the shores or well out in the water. The head is protected with a straw hat and the eyes with smoked or colored glasses. When the temperature rises to 40° or 50° Centigrade, a light gauze is placed over the exposed parts to protect them from burns. At Leysin and on the borders of the Mediterranean all the rays of the spectrum are allowed to reach the exposed skin. On the other hand, Finsen is obliged to concentrate the northern light by means of lenses. When this is necessary it is important to eliminate the caloric rays by means of instruments constructed for the purpose. The sun bath at first should be very short. The first few days Dr. Rollier at Leysin limits the bath to five minutes, three times a day. After this the time is gradually increased so that at the end of a week it may last one or one and a half hours. At first the bath is local, only the affected part being exposed. Gradually more surface is exposed until the whole body receives the rays of the sun. Rollier considers this absolutely necessary in order to get the best benefits from the bath. This complete bath is given only after several weeks of treatment. When the patient is accustomed to the bath it is given four times a day for a period of three, four, or five hours as the time permits. Some cases are greatly benefited by five and seven hour exposures. The joints are fixed as the condition requires, and during the bath the apparatus modified to allow the greatest possible exposure. Often during the early treatment inflammatory symptoms are increased, probably by the caloric rays. This is, however, temporary. If the exposure is too prolonged there may be sun stroke and other general symptoms. The author lays stress on the fact that heliotherapy is a most valuable accessory treatment to the other well known methods.

Witek[9] reports four cases of surgical tuberculosis treated by heliotherapy with an ideal functional and anatomical result, and Alkan[10] has demonstrated that even in the city by placing the children on the roofs or high balconies much may be accomplished by the direct sunlight treatment.

D'Oelsnitz[11] also believes that we must place heliotherapy in the first rank of anti-tubercular measures, but mentions certain untoward effects which have been occasionally observed. For example, that there may be local aggravation of symptoms, usually temporary, but occasionally persisting, and accompanied by loss of weight. In lung cases and in visceral cases hemorrhages sometimes occur, and excessive heliotherapy has been followed by meningeal symptoms. Certain observers, as Vulpius,[12] consider the technique as still incompletely worked out, and are unconvinced that altitude is as important a matter as has been believed. It is remarkable, however, that there seems to be such a consensus of opinion as to the value of the method. Light therapy as well as fresh air and good food therapy would seem to have its individual permanent importance. Since natural sunlight cannot constantly be had and altitude and long days are not within the reach of all, many attempts have been made and are still being made, to artificially produce light rays exactly similar to the beneficial rays of the sun.

Hagemann[12] believes he has produced light

which may fairly be called artificial sunlight, and is superior to the ordinary artificial lights, such as those derived from the Friesen-Beyer, the mercury vapor, and the quartz lamps, which according to Rollier give only a local and an inefficient radiation. Hagemann's device is a quartz lamp surrounded by a corona of simple electric lights. He reports 52 cases treated by this method, with an unusual and satisfactory gain in weight, appetite, longer hours of sleep, and a disappearance of pain.

A very comprehensive volume dealing with the technique of application and the effects produced by the various medical quartz lamps has been written by Meuser,[14] bringing up to date this method of therapy, which is apparently winning many converts, especially in Europe.

ARTHRITIS.

More positive evidence of the infectious nature of rheumatism is furnished by the work of Beattie and Yates,[15] who seem to have been more fortunate than most investigators in establishing a causal relation between the streptococci which they isolate from knee joints and tonsils in rheumatic patients and the arthritis. They have isolated an organism in 129 cases and have inoculated 41 animals. In 9 cases where a definite arthritis existed they have produced a pure arthritis in rabbits in 8. In certain cases where there was no rheumatic history and in certain tonsillar cases the isolated organism produced a septicaemia in nearly every case, sometimes accompanied by an arthritis. The discovery of the organism in the blood is always difficult, but in 3 of 11 rheumatic cases they have succeeded in isolating an organism which produced a pure arthritis in rabbits. They believe that the focus of infection is in the throat or alimentary tract.

Gudzent[16] has examined the blood of 100 patients with "chronic articular rheumatism" with special reference to the number of lymphocytes. Normally the lymphocytes comprise about 20-25% of the white corpuscles, but in these cases the percentage was noticeably increased, being normal in only nine patients, 25-30% in 19, 30-40% in 42, 40-50% in 24, and over 50% in 8. The mononuclear and eosinophilic forms showed no change from the normal percentages and the number of red blood corpuscles and the amount of haemoglobin was normal. Gudzent offers no explanation, but calls attention to the fact that frequently a decrease in the number of lymphocytes has been observed in tuberculosis.

Bornstein and Plate[17] have noticed that a chronic arthritis not infrequently occurs in persons obliged to work under compressed air. They believe that this occupational disease may to some extent be guarded against by gradually accustoming the subject to the usual conditions of life and by insisting upon the slow passage from rooms where compressed air is breathed to the ordinary air.

Lipoma and Synovial Fringes of the Knee. Lefevre and Dubourg,[18] after a review of some seventy-seven articles reporting cases of hypertrophy of the synovial fringes of the knee, consider the main points of diagnosis to be the following. (a). The long duration of the affection and the remarkable contrast between the relative freedom of movement and the changes in the shape of the joint; (b) the contrast between the frequency and intensity of the pains when the knee is used and their rapid subsidence during repose; (c) the integrity of the bone and cartilage forming the joint and the peculiar palpation findings. In short, the first thing when one considers the possibility of lipoma is to appreciate the contrast between the appearance and palpation findings and the practically unimpaired functioning of the joint. They think that conservative measures are futile, and advise partial or total synovectomy, leaving the bones and cartilages intact. As a rule, the patients recover without impairment of function as soon as the excrescences have been removed from the synovial membrane. The authors believe that the three affections, arborescent lipomata, villous polyarthritis, and "Hoffa's disease" are merely three forms of a single lesion which may be termed chronic, polypiform, fibroadipose synovitis.

(Ed. Note: We agree that the large solitary lipomata which give rise to symptoms and the chronic fibrous villi, which are frequently pinched and give sensations of catching, should be removed by operation. Formerly we believed that most cases of villous arthritis should be operated upon, but a thorough trial of the more conservative measures of diet, strapping with adhesive plaster protection of the anterior capsule by apparatus, and the various thermo- and hydrotherapeutic measures, has demonstrated the fact that many of these cases apparently entirely recover without operation. We believe, therefore, that except in those conditions mentioned above, conservative measures should be given a fair trial before the synovectomies advised by these authors are undertaken. We have seen impaired joints and recurrence of symptoms after these radical operations.)

Lasserre[19] reports that the treatment of gonorrhoeal arthritus with anti-meningococcus serum has been very successful in France. It seems peculiarly effectual in the subacute form with a tendency to septicaemia and in the acute types with a tendency to ankylosis. The chronic forms rebellious to other measures have in his experience been favorably modified by it. Lasserre states that four or five injections in 0.2 or 0.3 mg. every four or five days are generally sufficient.

Wolf[20] has been impressed with the beneficial effect of early massage in even the acute gonorrhoeal joints. He believes that careful and in-

telligent massage may be begun about two weeks after the beginning of the disease and its effect is to relieve rather than increase the acute sensitiveness. He gives the credit for this procedure to Bauer of Bergmann's clinic, who considered this treatment safe because of the fact that gonococci in the tissues are very short lived and the chances of causing other infectious processes are very remote.

Handley and Ball[21] claim priority (Jan., 1913) for an operation on hypertrophic or osteoarthritic hip joints which they call "cheilotomy." This operation consists in removing the overgrowth of bone about the acetabulum and restoring free motion in rotation and abduction. Their two cases were in men aged 56 and 62, and they state that they were of traumatic origin. They used a posterior incision and chiselled off all of the "lip" but do not carefully describe this difficult procedure. The results were good four months later.

(Ed. Note: We mention this report because this is an operation which has been done in America in specially selected cases for many years. In the purely traumatic and seemingly quiescent hypertrophic arthritic cases after a trial of complete fixation, it has been useful in gaining more motion and relieving pain, but it should be borne in mind that in many of these cases the limitation of motion and the pain are not caused by the overgrowth of true bone evident in the x-ray, but by the osteoid tissue and general joint sensitiveness which may disappear under fixation. We have been able to relieve by plaster or leather spicas, certainly for years, several of these cases in which the x-ray showed a definite overgrowth, and in which the limitation of motion was marked. The freer motion has persisted after the removal of the fixation unless the underlying disease became active again or trauma again entered in. The operation in the elderly is not without shock, and to reach all the overgrowths may in unskilled hands easily result in greater crippling than the disease. These overgrowths about the hip joints are seen very frequently and we do not believe that this operation should in any sense be considered a routine procedure. It is fair to say that the authors themselves do not advise it in active cases or where other joints are involved.

POLIOMYELITIS.

An unusually severe epidemic of poliomyelitis in the Parish of Morehouse, in Southern California, has been reported by Patterson[22] in the *New Orleans Medical Journal*. There were 60 cases in six months, and there was a 25% mortality, most of the cases being very acute.

Fraser[23] has examined the cerebro spinal fluid in 126 cases of acute poliomyelitis with the purpose of determining the value of the examination as an aid to early diagnosis and as an indication of the severity of the disease and its probable course. He finds the fluid usually clear, colorless, and under little pressure. In most of the early cases there was some increase in the mononuclear cells, chiefly of the lymphocytic variety. He concludes that while the examination may be of value in the preparalytic and abortive cases for purposes of diagnosis, it has no value as a prognostic sign.

Rosenau[24] discusses the report of the work of the Massachusetts State Board of Health, which seems to indicate that the stable fly is the principal agent in the transmission of the disease. Sawyer and Herman[25] were able to transmit the disease from monkey to monkey in seven cases by means of the stable fly. They, however, doubt that this is the usual mode of transmission and maintain that every precaution against contact infection should be taken.

Allison[26] writing concerning the results obtained by the implantation of silk tendons, after much experimental work on dogs and clinical experience in human beings, reaches the conclusion that in the severer forms of poliomyelitis in children this is a valuable method and that the results are better than in operations where there is removal of bone.

Bartow and Plummer[27] also report excellent results from their later observations of the use of intra-articular silk ligaments in paralytic joints of poliomyelitis. These operations have been devised by them as well as performed, and they report 50 cases without any infection or any tendency for the Lange paraffined silk to cut out or act unfavorably as a foreign body. They consider that the developmental stage of the operation has been passed and that it should be more generally adopted.

(Ed. Note: The editors have observed a comparatively small number of cases treated by these intraarticular silk ligaments. These cases have been distinctly improved and the silk has remained in and performed its function.)

SPASTIC PARAPLEGIA.

Gaugele and Gumbel[28] have published a volume on Little's Disease, the main object of which is to answer the question as to whether Foerster's operation has fulfilled its expectations. They do not think it has. They base their conclusions on the examination of many children at the Home for Crippled Children in Zwickau, some of whom have had Foerster's operation performed upon them and some of whom have been treated by the simpler orthopaedic methods. They think the condition of the latter class compares favorably with the condition of the cases in which division of the posterior nerve roots has been done.

Biesalski[29] also discusses the theories of the causation and methods of treatment of spastic paralysis, and while reporting excellent results from Foerster's operation and the nerve resections of Stoffel, he considers that the thorough and correct application of exercise treatment

and muscle training is the most valuable method of treatment. (*To be continued.*)

Reports of Societies.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

THIRTIETH ANNUAL MEETING HELD AT WASHINGTON, D.C., MAY 6, 7, 8, 1913.

(*Concluded from page 359.*)

DR. E. FLETCHER INGALS, Chicago, read an article entitled.

WHAT RELATION, IF ANY, HAVE THE TONSILS TO PULMONARY TUBERCULOSIS?*

During the last fifteen years many articles have appeared in medical journals on the relations of the tonsils to pulmonary tuberculosis. At the early part of this period, it was frequently claimed that the tonsils were a common portal of infection for the pulmonary disease, but subsequent research demonstrated that the tubercle bacilli might penetrate the tonsils and pass through them to the lymphatic cervical glands, causing tuberculosis of the latter, without any involvement of the faucial tonsils. It was shown, however, that there was no connection between the cervical glands and the pulmonary lymphatics. In a small percentage of cases the tonsils appear to be primarily involved in cases of pulmonary tuberculosis, but usually tubercular changes in these glands are secondary and the bacilli appear to have been absorbed from the sputum. It has been shown that the tonsils are the portal of entrance for the tubercle bacilli in many cases of tubercular cervical adenitis, yet inflammation of the cervical glands, non-tubercular in character, appears to be much more frequently due to absorption of infection through the tonsils. The consensus of opinion now is that pulmonary tuberculosis is generally a systemic infection of aerogenous origin, and that when the tubercle bacilli are taken up by the lymphatics they are poured into the general circulation. In pulmonary tuberculosis the bronchial glands may be primarily involved, but this does not appear to be the usual course of the disease. In a recent statement one of the best known pathologists says that he does not think there is any relation between diseases of the tonsils and pulmonary tuberculosis.

DR. W. E. CASSELBERRY, Chicago: The accessory nasal sinuses are such exceedingly complex structures and so intricate of access that one or more small sinuses may escape our attention; even knowing where they may be involved we find our access at fault. Rhinologists have been preaching a nasal origin for asthma and the nasal cure for asthma, and it has never been accepted by the medical profession for the reason that its explanation was not lucid. That these swellings in the antrum which we used to say were congestions, are secondary to nasal accessory sinus suppuration, which in turn occasions the asthma through toxemia by absorption of pus.

* This article appears in full in the *Journal of the Amer. Med. Asso.*, July 12, 1913.

DR. BROWNING, Los Angeles: I recall one case where a patient had been operated on for chronic appendicitis and afterwards the asthma was much relieved. I have had two cases within the past three years of tuberculous glands, one in a child and the other in an adult, who were treated for the tuberculous condition by the administration of tuberculin, and the asthmatic condition has disappeared and so far has not returned.

DR. R. H. BABCOCK, Chicago: We cannot expect patients to be cured if the surgeon merely removed the polypi. One case I recall was a woman who had a local polypus in the nose. The mere removal of nasal polypi is not sufficient, and the reason why this procedure has been followed by only partial or temporary relief lies in the failure of the operator to recognize or remove the hyperplastic ethmoid responsible for the polypi. The effect, we all know, of whiskey on asthma. I think all the facts point to asthma as a phenomenon of anaphylaxis, and I think this view is going to lead to the cure of many cases since asthma has been a distinct reproach to the medical profession.

DR. THOMAS W. HASTINGS, of New York, presented a paper on,

THE RECIPROCAL RELATIONS OF THE CLINIC AND LABORATORY IN MEDICINE.

The author considered the indebtedness of the modern medical clinic to the medical sciences; most clinicians in the rank and file of practitioners deny that there are diseases in which laboratory knowledge counts for everything and that experience of thirty years develops not so much proficiency along certain lines on the first as the modern first grade medical school imparts to its latest graduates.

DR. HASTINGS took up the evolution of epidemiology, the discovery of "carriers"; the indifference to autopsies of most physicians; the complacency with which most diagnoses are made; the advancement of laboratory trained men to clinical positions. Professors in medical colleges should be men who know considerably more of the subject they teach than the clinically trained men in medical schools can ever hope to know on account of the little time the active clinical man can give to keeping pace with any medical science.

DR. E. K. BALDWIN, of Saranac Lake, read a paper on,

THE FRUITS OF LABORATORY WORK IN RELATION TO CLINICAL TUBERCULOSIS.

Much that has been learned empirically about the treatment has simply been confirmed by the laboratory, but it has given us more delicate indications, more definite means of control. Foolish or injurious therapy has been discarded in consequence of tests made in the laboratory. Theories have been born and have died in the laboratory. Too many bedside ideas have been born of criminal ignorance that tuberculosis is a deep-seated infection, that cannot be reached by medicaments as harmful to the tissues as to the bacillus. The public has been led to expect that all the ills of human flesh can be cured by some serum evolved out of a laboratory. Let us do our best to give them a saner view than this without discrediting the real good that comes from it.

DISCUSSION.

DR. CASSELBERRY: I must say it never occurred to me that the laboratory needed any defense. I think its justification can be summed up in two words, antitoxin and Wassermann.

DR. A. K. STONE, Boston: There is no laboratory procedure that cannot be called in question. Even the almost indisputable bacillus of tuberculosis may be disputed, for there are other acid-fast bacilli that come in at times. Nothing gives a man more pleasure than to have enough laboratory knowledge to be able to check up laboratory findings for himself; and even if he cannot go ahead and make new examinations and discoveries, he can have lots of fun in the laboratory.

DR. MINOR: It is an impossibility in these days for a man to be a laboratory man and a clinical worker in a very large practice. The demands of the laboratory upon his time are insistent and have to be met; the demands of the patient are insistent and have to be met, and the two cannot to any great extent be combined. My complaint is that, for reasons that cannot be easily explained, there is a distinct arrogance in the attitude of the modern laboratory man toward the clinical worker. He has done great things; it was the result of the laboratory work that gave us diphtheria antitoxin, and a great many things, and I would not belittle it for a moment; but I cannot admit their claim to the exalted position that they would arrogate to themselves. They must come second to the clinician. We all admit that the plain clinical worker has done in the past and can still do excellent work for sick people without the laboratory, while the laboratory man is perfectly unable to do anything without the clinician. Now my contention is that he thinks he is not secondary, but primary. It was for that reason that I asked a typical laboratory worker like Dr. Baldwin, who combines the clinical and laboratory methods in a happy way, to prepare this paper. I feel in the long run that a balance will be restored. The final effort in medicine is therapeutical, and medicine which does not result in therapeutics is useless, and the world would reject medicine tomorrow unless these resulted in the good of the patient.

DR. POTTENGER: The reason why a clinician, as a rule, cannot do efficient laboratory work is because these two lines of work are adapted to an entirely different type of mind. The clinician is essentially an optimist, and he should be. He sees the needs of his patients and furnishes them. The laboratory man is slow, patient, and ultra-critical in his work. I believe it is absolutely impossible for a clinician working hard all day to sit down and patiently work out a laboratory problem. I have observed that most men who undertake both clinical and laboratory work as a rule neglect one or the other.

The laboratory man is apt to believe that his work is exact. It is not. We clinicians know that our clinical work is not exact. He also is not exact: there is just as much error in the laboratory as there is in the clinic. Now if we learn this fact, if we learn that the laboratory is our greatest helpmate, if we use it right, and learn that it is not as exact as we have been thinking, then, and not till then, will the laboratory and the clinical man be on their proper basis.

DR. KINGHORN: Dr. Pottenger said that the two could not work together, that is to say, a man cannot work in the laboratory and in clinical medicine. Now the physician that I recognize today as being the first physician in the land for what he has done both clinically and in the laboratory, belongs to this society, Dr. Trudeau. As you know, he is a great clinician. There is no one, I think, who can equal him in his clinical knowledge of tuberculosis. No one also can question the rank that he has attained as a laboratory worker in tuberculosis. In other words, he has combined in himself a great clinician and a great laboratory worker. I can also refer to his first assistant, the vice dean of our school up in Saranac Lake, whom I have often thought of as the Elisha, and who is the writer of this paper; and Dr. Baldwin certainly has combined those two qualities. He is a clinician of world-wide renown, and he is also a laboratory worker of world-wide renown, so that I think it shows that these two qualities can be combined in one man. Now, of my observation of the trend of medicine in late years, it is that the physician has combined clinical study with laboratory study. For instance, the Rockefeller Institute was started primarily for investigation. What have they done? They have their Institute right alongside their hospital, so that the two can be combined right there. The whole trend of medicine today, I think, is to combine the two. Dr. Minor has said that a man with a large practice cannot do both. I say that in order to meet that condition, do not let a man have such a large practice. There are other men that are coming along that need the help, and let them share the practice. I am sure, because I have combined laboratory work with clinical work; and I know that you get great principles of treatment from the laboratory that you would not get by reading, and that you will only get them by the laboratory, and I say the whole trend of medicine today is to combine clinical and laboratory study.

DR. POTTENGER: I still maintain that these are the exceptions, and not the rule. I think we all recognize that Drs. Trudeau, Baldwin and Kinghorn are exceptions in their work, but that does not prove that it can be done generally. I could not do it.

DR. BALDWIN: You all agree with me that the well-rounded man has to know something about laboratory work, although he cannot do very much. As for Saranac Lake, this mutual admiration society which Dr. Kinghorn has started up leaves me no answer. In regard to the man who is doing so much practice that he cannot keep up with the laboratory work, I think Dr. Kinghorn's contention is correct. No man should feel himself so desirable to his patients that he cannot take help. He can turn his patients over to somebody else, and the only way that you can comprehend the field of medicine,—and I may say the field of tuberculosis today,—is to have plenty of help, and I mean by that, help in the practice of medicine; and if you are going to keep up even with the new things that are coming up all the time, a man has to be well-read. Then another thing, a little laboratory experience makes a man more self-critical. I do not say it makes him any better practitioner; I think sometimes it interferes with his being a good practitioner, simply because he does not give his patients so much hocus-pocus,—so much talk! But after all, the patients get more confidence if they live long enough with him. A man who is doing both ought to be theoretically better rounded. I have had plenty of experience in both ways, and I realize

my deficiencies in the laboratory work, and I also realize the tremendous advantage that it has given me, and I speak of it modestly because I realize so many mistakes that I have made in clinical work, too. Do not expect such accuracy in the laboratory that you need to consider that as the final word.

Dr. James M. Anders, Philadelphia, read a paper on,

THE RÔLE OF PHYSICAL EXERCISE IN THE OPEN AIR IN THE PROPHYLAXIS OF TUBERCULOSIS.

There is a disposition on the part of physicians to overlook the importance of muscular exercise in the prophylactic treatment of pulmonary tuberculosis, since the general acceptance of the principle of rest in the treatment of all cases of this disease in which fever is present. The object of this paper is not to attempt to underrate the great value of rest in the active stages of this disease, but rather to emphasize the first-rate importance of the systematic muscular exercise as a means of minimizing the number of susceptible persons.

The American race, as a whole, is undergoing muscular deterioration. On the other hand, the endurance or resistance of an individual is in direct relation to his muscular development. Muscular development was considered in relation to climate. The prevention of tuberculosis involves something more than physical exercise, but the commanding position of this measure is undoubted. The effect of systematic physical exercise, combined with deep breathing, upon the vital power and resistance of the lung texture was considered. Competitive athletics is not to be encouraged among the young. Increased respiratory exchange in muscular activity increases the nutrition and general health of the body. The details connected with the question of the regulation of muscular exercise must vary with the individual.

Dr. A. K. Stone, Boston: In the schools there has been a marked change for the better in the matter of fresh air. In Boston there is a general rule that between each lesson period the windows shall be opened while the class does gymnastic and breathing exercises and also again at recess and before the sessions. This rule is at present much modified by many ancient and thin-blooded teachers. At present in Boston we are preaching the open-air school room gospel by an illustrated lecture at the moving picture houses, thus reaching many thousands of mothers and children. The department stores are making provision for rest and exercise as well as for the proper feeding of employees,—all under the most favorable conditions of fresh air.

DISCUSSION.

Dr. E. O. Otis, Boston: In the stress and strain of life it is often difficult to persuade men to take time for physical exercise out of doors. The two classes of people who need it most are the students in school and college and the older men who are retiring from more active duties. Physical exercise should be followed by rest, and not taken when exhausted, but when a certain amount of vigor remains. If men cannot take time for outdoor exercise, carefully supervised and directed physical exercise of the gymnasium will accomplish excellent results. Where you have a limited time, the degree of efficiency by which the various exercises can be applied by a successful director in the gymnasium would accomplish a very great deal.

Dr. W. H. Swan: I was very glad to see the distinction drawn between the value of physical exercise, and the overtrained college athlete. I have seen a considerable number of men who in college had been on football teams and boat crews and had afterwards broken down with tuberculosis, and I have the distinct impression that they do badly. I am sure I have not seen one man who was on the college team, and was thoroughly trained, as I believe they are trained, who has afterwards done well when he had tuberculosis. In line with Dr. Otis' statement regarding rest after exercise, I think that is extremely important, and also the question of not exercising when the person is mentally fatigued. I believe that our tank of energy is all one and if we drain it by mental fatigue and nervous fatigue we have not any left for physical exercise. I think that if the person is very tired mentally he will get no good, but harm out of it.

Dr. C. H. Miner: We must also consider the value of rest and exercise in children. In trying to build up children of tuberculous parents in a dispensary where we take tubercular parents, we have the nurses bring all the children to the dispensary for examination. The children from 5 to 14 years of age are usually in perpetual motion when they are not asleep, and it is difficult to secure any improvement in them. The preliminary part of the treatment is physical rest; that is the most difficult part of the treatment to secure. Then, in later life, when the young adults and youths should be having physical exercise, they are in school and not taking necessary exercise that would develop their chest and keep them in good physical condition. We must not urge physical exercise on young children.

Dr. Alton: I want to make one brief comment on the matter of pulmonary exercise or pulmonary athletics. Lung expansion is an exceedingly important thing to consider in those cases that we call pre-tubercular, with no evidence but the diminished vitality of the patient to lead us to fear something to come. There is a large class of men, usually from 20 to 35, in stores as clerks. These men have a low resistance power. We take their chest measure and find a difference of perhaps only an inch and a half between expiration and inspiration. They do not know how to expand their lungs. There is one simple method that I have not infrequently advised in cases where I feared that the slight pulmonary expansion might lead to trouble later on, that is pulmonary gymnastics as an evening exercise. The patient starts out before going to bed, walks half a block, then stands and fills his lungs as full as possible, walks a little further, and then the air is expired. This is repeated several times. These are the cases we cannot send into the mountains to walk up hill to get the same result, but they can get it at home, late in the evening after they have rested from the fatigue of the day, and just before going to bed. I think if any one would follow this method in a given number of cases he would be surprised at the beneficial result.

Dr. Jay Perkins, Providence: I appreciate what Dr. Miner and Dr. Swan have said in regard to the rest of children from tuberculous parents, and those who are fatigued with mental work, and I agree fully with them. I think that in our fresh-air schools one of the advantages we have is the exercise that is given these children, and I believe in

all of our schools there should be a period of intermission and exercise. Part of the benefit is because the children are mentally fatigued. It does give their minds a rest; they can work better afterwards; they can do far better mental work after exercise, as I myself have experienced many times; and I think the most of us have felt better when we have taken a 15 or 20 minutes brisk walk after a hard afternoon in the office.

DR. ANDERS: As to what Dr. Otis has said with reference to the difficulties in carrying out physical exercise among the clerks, and business men as a class. On the other hand, it is possible to give them such direction as they can and will follow, and secure a fair amount of muscular exercise. My own method is to request such patients to walk to their work; if it be too far, then a portion of the distance only. I often tell them to leave the trolley car or other conveyance when within ten blocks or a mile of their offices, and to walk to their destinations very briskly; likewise again at the noon hour. Mornings and nights they must be taught to practice calisthenics for five minutes, and if carried on systematically, this proves most useful. Of course exercise must be alternated with rest. That this work should and eventually must begin among the children in our public schools is undoubted. As compared with the amount of attention given to mental training, surely that bestowed upon physical training is far, far, too little. We want, if possible, to create public sentiment in favor of more and better graded physical education; less pushing of the mind at the expense of the sinews and muscles.

DR. WM. CHARLES WHITE, Pittsburgh, read a paper on,

THE INFLUENCE OF HEAVY SMOKE ON ACUTE AND CHRONIC LUNG INFECTIONS.

Smoke as a problem of cities' health has its main influence upon the respiratory passages. As types of acute and chronic lung infections, on which smoke may have a varying influence, pneumonia and tuberculosis have been chosen. These diseases have been studied from a statistical standpoint for various cities scattered throughout the United States, and comparisons made with the city of Pittsburgh, which probably has the greatest number of smoky days in the year.

In considering the influence of smoke on acute and chronic fatal lung infections, the question of age of distribution, age of city, poverty on the basis of congestion; and topography of the city have been taken into account. The latter feature in such a city as Pittsburgh, with high hills and river valleys, allows a partial segregation of the city into areas of varying smoke density. In other cities, such as Indianapolis, the flat contour does not allow such divisions.

The chief tendency of the study seems to indicate that smoke has rather a severe influence on pneumonia, with a much less influence on tuberculosis.

DR. POTTENGER: Several years ago when traveling through Europe, a layman asked me the question, why it was that the coal miners in Westphalia did not have tuberculosis, and he said that it was true that there was very little of it.

According to Dr. White's chart, Los Angeles has a high death-rate and very little smoke, but everybody knows that the death-rate is high from the fact that a large per cent. of our tuberculosis patients die within the first year because they come into Los Angeles to die.

DR. CASSELBERRY: So many things contribute to the causation of tuberculosis, the density of population, housing and working conditions, sunshine, winds, and dust aside from the carbon of smoke, that it does not seem likely that a chart based alone on carbon contamination can be reliable. We ascribe some of the bad results of the associated gases and other vitiating substances, such as carburetted hydrogen and sulphuretted hydrogen.

DR. BROWNING: It would seem to me that in the open tuberculosis resorts, some effort should be made to segregate the persons who die in these resorts into those who have recently become residents and those who have been a longer resident. I think this would not be very difficult with reference to Los Angeles. What Dr. Pottenger has said may seem as a joke, but it is a fact. Not only about what he said about half of the patients dying within the first year of residence, but about one-fourth during the first month, so you see that the climatic condition of Los Angeles with reference to any local condition, has no effect upon that class of cases. I take the same to be true of any other open resort. It would be very little effort, I think, for the state board of health or the city health authorities to segregate them.

DR. LINSLY WILLIAMS: As to the death-rate from tuberculosis in the different cities, it always seemed to me quite necessary that the cities, if possible, should afford a corrected death-rate, but I do not see quite how they can figure it out if cases are reported as tuberculous, and then are lost track of by removal; and it is difficult to trace them. It may be that one of the reasons why the death-rate is diminished in the cities is because the patients are leaving the cities.

DR. ANDERS: I was much surprised to learn that the influence of smoke on the incidence of pneumonia was greater than on that of tuberculosis. It is quite possible that Dr. White's explanation of this discrepancy is entirely correct. I think it is almost an invariable rule that a person suffering from advanced anthracosis, coming from the coal regions of Pennsylvania to our hospitals in Philadelphia, finally develops pulmonary tuberculosis, which is apt to pursue the usual course of this disease. It is possible that the implantation and the progress of the disease may be retarded in the manner explained by Dr. White. Dr. White chose wisely when he selected pneumonia and pulmonary tuberculosis as types of diseases for comparison, and I think we must allow that his tentative conclusions have more than ordinary value in view of the fact that he has taken into account a great many interfering conditions, *e.g.* the topography, the local congestion of the population, etc. He said nothing about dust in his remarks. Not wishing to criticize his paper, I still think that this and other associated impurities might have been considered in this connection. Truly Pittsburgh, owing to its peculiar topography and the fact that it is the smoky city of our country, is a very fertile and appropriate field for investigating this subject, and I certainly trust that Dr. White will continue his work in this line because it will require observation over a long period of years to give us reliable results.

DR. HINSDALE: I have always understood that one of the deleterious influences of smoke was the fact that it contained so much sulphuric acid; and there are many interesting calculations about the

number of tons of sulphuric acid which are deposited each day in a large city like London from the various furnaces and fire-places in that city, so that the carbon particles being associated with free sulphuric acid, and being inhaled into the lungs is a very bad combination, of course. It would take a long time to convince me that carbon particles, even free from sulphuric acid, if such were the case, would not do the lungs any harm, or would not incite, probably, the infection of tuberculosis.

Dr. DeLancey Rochester, of Buffalo, read a paper on,

THE TWO MOST IMPORTANT FACTORS IN THE PREVENTION OF TUBERCULOSIS.

The detection and destruction of tuberculous cattle will, of course, eliminate the extension of the bovine form of tuberculosis to the human race and the passage and enforcement of laws to this effect should be persistently urged. In this way one of the two great factors in prevention will be made effective. The compulsory segregation of patients in advanced stages of pulmonary tuberculosis was urged. Every case should be investigated, and if unwilling or unable to properly care for himself at home, he should be committed to a sanatorium, for incipient or advanced cases, to stay there until cured or dead. Cremation was urged in case of all deaths from tuberculosis. Instruction in regard to destruction of sputum and feces, in regard to precaution as to personal contact with others and in regard to disinfection of apartments lately occupied by the tuberculous are all of value in checking the spread of the disease; but the author believes strongly in compulsory reports of cases and compulsory removal of suitable patients to their proper sanatoriums.

Dr. Miner: The criminal and ignorant poor are absolutely unable to handle in any way their own cases. The advanced tuberculous patients with bad habits are a great source of spread of the disease. It is hopeless to expect these criminal and ignorant poor to be benefited by the ordinary treatment. They will go home and repeat the same errors, and they will serve as sources of infection. I think we have just as much right to segregate them under police control as in smallpox and other contagious diseases. This is important, and until those patients are treated in that way a large part of our efforts toward eradication of tuberculosis is entirely wasted.

Dr. Otis: I want to ask if I am not correct that the human tubercle bacillus will live only at a temperature of 37° C.?

Dr. W. L. Dunn: I had an interesting experience recently that I think will perhaps be worth while relating even if it is out of order. Some years ago I had occasion to set aside some cultures. The culture was implanted in March, 1907. Four weeks ago I found that culture, and I thought I would simply see whether it was still alive or not, and that culture grows with facility; it is one of the most rapidly growing cultures.

Dr. Baldwin: I think these statements will only illustrate, as was said here previously, that laboratory results are sometimes fallacious. It has been proved that these earthworm bacilli are not true tubercle bacilli. It is known that they are saprophytic bacilli that grow at cold-blooded temperatures and the earthworms are not of any danger to the human being. The turtle bacillus is exactly the same kind.

Dr. Rochester: Dr. Otis asked why I said that the bodies of people who died with tuberculosis should be cremated. I feel that all bodies should be cremated any way, but that is another question. The reason I said this in regard to tuberculosis is that tubercle bacilli have been demonstrated in the bodies of earthworms, and it is possible that we may have a spreading of tuberculosis through plants, through lettuce or some other food which may be eaten. It is a mere possibility, but it is a possibility to consider. I thoroughly believe in cremation. There is one other view on which I wish to very decidedly express myself, in regard to the detention ward. I am very glad to hear that they have already established a detention ward in Cincinnati. We are about to try it in Buffalo. I have in mind just one case which illustrates the seriousness of letting patients out to go home to die. I treated a man in advanced tuberculosis some years ago, who finally went home to die. He had a wife and five children. Four of these children and the wife have since died of tuberculosis. He went home to die and they died too.

Dr. Cleaveland Floyd, of Boston, read a paper on,

ARTIFICIAL PNEUMOTHORAX IN THE TREATMENT OF CHRONIC INFECTIONS OF THE PLEURA AND LUNGS.

The author has treated during the past four years a fairly large number of cases of pulmonary tuberculosis by nitrogen compression. Some of these have been under treatment primarily for one or more symptoms, such as cough or hemoptysis; but in the majority the object was to arrest an advanced active process. In the larger number reduction in temperature, relief of cough, diminution of expectoration and increase in body weight have occurred. Improvement in circulation, gain in weight and increase in strength followed even where the extent of pneumothorax was limited. In cases of mixed pulmonary infection results have been fairly good only where collapse of the lung has been extensive. The compression of a portion of the lung tends merely to diminish the amount of sputum and reduce temperature. The action of pyogenic organisms is not checked and lung destruction slowly advances. In unilateral cases of active tuberculosis, not only relief of symptoms but arrest of the disease has been obtained. Occasionally it has been possible to arrest the disease in one half of the chest and later, after allowing this lung to re-expand, to compress the second, which has shown evidence of activity. Such cases are reported by German observers. Dr. Floyd exhibited the apparatus used for making the nitrogen injections and described the technic.

Dr. Harry Lee Barnes and Dr. Frank Taylor Fulton of Rhode Island read a report of

SEVENTEEN CASES OF PULMONARY TUBERCULOSIS TREATED BY ARTIFICIAL PNEUMOTHORAX.

(See the Journal, June 19, 1913.)

DISCUSSION.

Dr. E. O. Otis: Boston. I have had occasion to observe this operation recently in Europe. There is a diversity of opinion in regard to what the pleural shock really is. Many authorities attribute it to air embolism. This is a great danger, and to minimize this danger Prof. Deneke of St. George's Hospital, Hamburg, has devised an apparatus which is

the best for the purpose of all those I saw in Europe. Prof. Deneke's idea is that greater safety is insured in the first injection by using oxygen gas, which is more readily absorbed and is less likely to produce gas embolism should the needle enter a vessel. By simply turning a stopcock he turns to the nitrogen apparatus and injects nitrogen. At my suggestion one of the instrument makers in Boston has imported this apparatus. In every instance the operators in Europe insist upon a very careful x-ray. The Forlanini method was generally adopted, and only in one clinic I saw the open operation used.

DR. W. H. SWAN: Is there any advantage in the nitrogen gas as compared with air, other than it being absorbed less readily, and how much less readily is it absorbed?

DR. W. A. GRIFFIN, Sharon: We have had a series of cases, about as large a number as Dr. Barnes has reported, and we feel every confidence that the majority have been much benefited by the treatment and in perhaps two or three instances we feel that the patients have been brought back from a very perilous position. The most striking case was not, strictly speaking, advanced. The patient had slight signs of tuberculosis of the left lung, with a constant temperature, and it was because of this constant temperature that pneumothorax was finally induced. I think it is important to determine the indication for renewed injections in any case under treatment. What guides have we to go by? The cough is a very decided indication; if it commences to increase that is time to consider another injection; if the amount of sputum commences to increase that is another sign, and if the needle upon being introduced shows a marked negative pressure, that is, perhaps, the most sure and definite sign.

DR. JAMES ALEXANDER MILLER, New York: The experience which I have had in 25 cases convinces me that the percentage of far advanced cases in which you can get very marked results is limited certainly to not more than 10%; but we have had very good results in cases not advanced, but where they had hemorrhages, that frequently being the first symptom, and I have treated since such cases with remarkable success. In three of them they had been bleeding from a pint to a quart a day, and with rising temperature, with no evidence of ceasing of hemorrhage. After the injection of gas the hemorrhage stopped and prompt reduction of fever resulted. We have in such cases as that an indication for prompt pneumothorax treatment. Whether it should be continued or not after the hemorrhage is controlled should be decided for each individual case. In these chronic, advanced cases you get hung up and you are afraid to stop and really feel that it is not justifiable to keep on. We expect to use it in more acute cases with hemorrhage, and also the acute febrile cases with limited lesions.

DR. MILLER related a case in which the nitrogen was given after careful local anesthesia with novocaine up to 900 c.c. at the first injection; there was a minus 1 pressure, with absolutely no discomfort in the patient, when suddenly, just as he was withdrawing the needle the patient turned pale, the pupils dilated, the patient broke into a profuse perspiration and his heart action became weak, but he did not lose consciousness. The interesting thing about it is that this happened just at the end of about 15 minutes' injection of 900 c.c. of gas, and the pulse, instead of getting rapid and irregular, became slower and slower until it reached a minimum of 48, showing probably a reflex vagus action. There is a possibility of producing a small lesion either in another portion of the lung or in the opposite lung a focal tuberculin reaction, as Brauer and Spengler have reported.

DR. BALDWIN: Knowing that the depth of Drs. Floyd and Robinson's needle was sometimes a little hard to gauge, I had a special needle made to gauge the depth of insertion. One may not need it, but in re-fillings I have been obliged to work without any assistant, and I think that in using one hand on the needle and resting this on the chest, prevents the needle from going too deep, and in the primary operation it may serve a purpose in maintaining the needle at the right depth, not allowing it to come out before the nitrogen has begun to flow in. It is also an advantage not to allow the needle to pull back.

DR. POTTENGER: This operation is one particularly for the hopeless cases of tuberculosis. There is the difficulty, in knowing when a patient is hopeless. When the heart is able to do its work well and he is able to assimilate his food, there are some chances of recovery. I have been observing it in Brauer's Clinic in Europe, but have not done any of it. What is its actual value in arresting the disease, and also about what is the percentage of cases in which difficulty in performing it is found? I am intensely interested.

DR. C. L. MINER: I have performed this operation on some 20 odd patients. I feel that it is chiefly of value to us in cases otherwise hopeless, in which the chance of recovery is small. In this type of case, in which the mortality would be nearly 100%, I have saved 3 cases out of 21. They were otherwise certainly doomed. One danger is the danger of waking up the other lung. You cannot expect it to be perfectly healthy. My own rule would be that if there were anything wrong with more than one-third of the other lung you could not go ahead. I had a case of advanced cavity in one lung, with high fever. I gave her injections. The effects were phenomenal; the temperature dropped to normal, the pulse to normal, Her appetite increased and she felt like a new woman. Fortunately, at the end of three weeks, after the most remarkable improvement, the other lung waked up and I had to take out the gas, and in two months she was dead. I think it is extremely important to use the radiograph in these cases. It will enormously handicap your efforts to be without it.

Now, as regards cases to which I have done harm. I have hastened the death of one patient, though not in a case that could have recovered. It seems to me that it is a wonderful thing if it saves one case out of 100.

DR. J. E. ELLIOTT, Toronto: Dr. Floyd has become enthusiastic over some of the good results that he has seen. He said that some early cases recovered because of the injection. I wonder whether they would not have recovered without it. I would like to ask the question, where the fluid forms after a pneumothorax has been performed in a dry case does it show the characteristics of an exudate or of a transudate; is it inflammatory in its character or purely hydropic? May I ask where pneumothorax has resulted in the rupture of the lung, breaking through into a pus cavity, what pressure has been used in these cases? Has it occurred only in those cases where a high pressure has been used?

Dr. Floyd: In regard to Dr. Otis' statement that the Germans believe that pleural shock is due to embolus, I would say that no gas had been injected into this man, only the needle was introduced; therefore there was no chance of an embolus. Nitrogen was used in preference to air because it is less readily absorbed; probably it stays in the chest two-thirds longer than ordinary air. I agree with Dr. Miner in regard to the value of the x-ray in indicating when it is time to continue with the injections; but I also believe that when you find negative pressure you have waited too long instead of not long enough. I believe 50 or 60% of unilateral cases may be arrested by nitrogen. Dr. Elliott asks why I state that early cases were arrested by this process. The early cases that I have treated, arrest was brought about in a very few weeks, once or twice in two weeks. That is a much more rapid loss of moisture than can be obtained by other methods. As to effusions being inflammatory or transudates, I would say they are probably transudates.

Dr. Lawrason Brown of Saranac Lake, New York, read a paper entitled,

WHEN IS A TUBERCULOUS PATIENT CURED?

Dr. Brown reviewed early definitions of cured phthisis and stated his conception of the word "cure" as meaning a restoration of the body to a state in which no vestige whatsoever of that disease exists within the body, although in certain instances some scarring is left behind. That a well-defined cavity can ever fully heal without leaving at least a fistulous cicatrix, is highly improbable, but it is entirely possible that in such patients with long "ultra-chronic" disease, the tubercle bacilli may finally disappear. We hear of "apparent" cures, "relative," "economic," "practical," "working" cures, and so on. Those who use these terms confess their doubts. On the other hand are those who "for the good of the cause" (the eradication of tuberculosis) still believe that the general public needs pap and not strong meat, honied words and not real truth. They advance expediency to uphold their position and fear the loss of funds for sanatoriums. Dr. Brown referred to Dr. V. Y. Bowditch, who through long experience saw the light when many of us were still in darkness and for years never used the term "cure" and now uses it only under protest. Dr. Brown believes that pulmonary tuberculosis is curable; that spontaneous healing of tuberculous infection occurs frequently; that healing of clinical tuberculosis may, but rarely does, occur; that permanent arrest is the most frequent termination of the disease in those who are later able to follow their usual occupations; that temporary arrest, of longer or shorter duration, occurs in all except the acute cases and that continuously progressive disease follows only upon several temporary arrests.

Dr. C. C. Browning read a paper on,

A YEAR'S OBSERVATION OF SYMPTOMS IN CASES OF ADVANCED TUBERCULOSIS IN THE LOS ANGELES COUNTY HOSPITAL IN CONNECTION WITH WEATHER CONDITIONS.

The author had previously reported to the society the apparent influence on temperature and hemorrhage in tuberculous patients with reference to certain meteorological phenomena. Unseasonable or very sudden changes in temperature appeared to influence temperature in patients, while equal or greater changes occurring slowly did not. In the present report the patients were all in the advanced stages; 61 cases were charted and these embraced 21,968 patient-day observations. The charts covered the months August to March inclusive. Another chart showed the relation of temperature, humidity and rainfall to the number of deaths from tuberculosis in 1910. On a rising barometer with falling humidity with wind west of north and a clearing day the patients were pleased or jovial and optimistic; with reverse conditions they were pessimistic, cross, very irritable and some of them unreasonable in their demands. With the so-called "Northers" there is discomfort and increased nervous tension. This was noticed also in the lower animals.

Dr. John M. Swan, of Rochester, N. Y., read a paper giving the details of the differential leucocyte counts in eight cases in which tuberculin injections were made for diagnostic purposes, in order to determine, if possible, the influence of tuberculin on the eosinophile leucocytes.

Case 1. Eosinophile before the injection of tuberculin, 2.3%, 3.2%; after the injection of 5 milligrams of tuberculin, 7.8%. Tuberculin test positive.

Case 2. Eosinophiles before the injection of tuberculin, 0.4%, 0.2%; after the injection of 3 milligrams of tuberculin the eosinophiles disappeared from the peripheral blood and remained absent until the patient died. Reaction negative.

Case 3. Eosinophiles before the injection of tuberculin, 5.6%, 5.0% (Ascaris lumbricoides infection); after the injection of 5 milligrams of tuberculin, 10.8%. Reaction positive.

Case 4. Eosinophiles before the injection of tuberculin, 5.2%; after 3 milligrams of tuberculin were injected, 9.%; after 5 milligrams of tuberculin were injected the eosinophiles disappeared. Reaction positive.

Case 5. Eosinophiles before the injection of tuberculin, 4.2%; after the injection of 1 milligram of tuberculin, 8.4%. Reaction positive.

Case 6. Eosinophiles before the injection of tuberculin, 3.8%, 1.6%; after the injection of tuberculin no increase in the eosinophiles. Reaction negative.

Case 7. Eosinophiles before the injection of tuberculin, 6.4% and 1.2%; after the injection of 5 milligrams of tuberculin, 4.0%. Reaction negative.

Case 8. Eosinophiles before the injection of tuberculin, 4.0%; after the injection of 3 milligrams of tuberculin, 8.8%. Reaction positive.

In these eight cases eosinophilia was seen after the injection of tuberculin for diagnostic purposes, in five cases and was absent in three cases. In the five cases in which the eosinophilia was observed there was a positive reaction. In the three cases in which eosinophilia was not found, the reaction was negative. One might draw two conclusions from these results: First, that eosinophilia is due to the fever accompanying a positive reaction. Second, after the injection of five milligrams of tuberculin in a person who is not suffering from bacillus tuberculosis infection, not enough tuberculin is administered to produce the eosinophilia.

The first conclusion must be rejected because all elevations of temperature are not accompanied by eosinophilia. The second conclusion may or may

not be justified. I have no evidence to offer upon that point.

DR. WILL HOWARD SWAN, of Colorado Springs, reported.

SIX CASES OF TUMOR OF THE LUNGS AND MEDIASTINUM SIMULATING PULMONARY TUBERCULOSIS.

These patients had been sent to Colorado at much sacrifice. One was a lymphosarcoma of the mediastinum in a woman aged 30. At autopsy it was found to be of the size of a child's head. No macroscopic evidence of tuberculosis anywhere. The second case was a primary carcinoma of the lung, in a man aged 53. He had slight expectoration for four months; lost 28 pounds and had moderate fever; sputum blood-stained a few times, but had shown no bacilli on several examinations; positive skin tuberculin test. At autopsy the left lung was a tumor mass.

The third case was of persistent thymus, possibly Hodgkins' disease, in a woman of 40. The others were of malignant disease. The diagnosis and clinical symptoms in all these cases were detailed. The differential diagnosis was gone into fully, but this was acknowledged to be impossible early in the course of these cases.

Book Reviews.

The Modern Treatment of Nervous and Mental Diseases. By American and British authors. Edited by WILLIAM A. WHITE, M.D., and SMITH ELY JELLIFFE, A.M., M.D., Ph.D. Vol. II. 8vo. pp. viii, 816. With 50 plates and 85 illustrations in the text. Philadelphia: Lea and Febiger. 1913.

The second volume of this new work on treatment has appeared very soon after the first, and confirms the favorable verdict pronounced upon its predecessor. This volume deals almost entirely with the diseases of the nervous system, diseases of the mind and some nervous diseases having been discussed in the previous volume. The first chapter, on the treatment of the neuralgias and neuritides, by Dr. S. I. Schwab, is wholly inadequate, omits various types of disease from any consideration, and neglects many important factors in treatment. Mr. James Sherren's chapter on the injuries of nerves, on the other hand, is, as might be expected, an admirable essay on the subject from the surgical standpoint. Dr. I. Abrahamson writes on muscular atrophies and dystrophies, a chapter which contains considerable irrelevant matter, much overelaboration, and is rather unsatisfactory in its general aspect.

Dr. Jelliffe's chapter on the treatment of headaches is comprehensive and adequate. Dr. H. H. Hoppe sums up our knowledge of the treatment of spasmodic disorders satisfactorily. Dr. J. F. Munson's article on the treatment of the epilepsies is written from the asylum standpoint and is ill adapted for the general practitioner. He emphasizes the tendency to dementia, the inability to engage in productive labor, and the necessity of institutional treatment, and holds the New York prejudice against the use of bromides. The physician called upon to treat the epileptic with comparatively infrequent attacks, who shows slight tendency to mental deterioration, and who is out in the world earning his living and filling his place adequately in the community, will find little help in this pessimistic chapter. Dr. W. J. M. A. Maloney deals with the meningitides in an inadequate fashion, inserting a section on the meningeal form of poliomyelitis, and paying scant attention to otitic meningitis. The other cerebral complications of otitis, by the way, receive little attention. Dr. Jelliffe's long article on syphilis, supplemented by Dr. H. J. Nichols' chapter on salvarsan, is a very complete and exhaustive treatise on our present knowledge of all forms of syphilis of the nervous system, including the so-called "para-syphilitic" affections. It is very full and up to date and is the best chapter in the volume. Dr. Frederick Tilney contributes an over-elaborate but not especially complete chapter on the treatment of vascular lesions of the brain. Dr. S. A. Kinnier Wilson gives a clear and instructive account of the treatment of aphasia and apraxia. Dr. E. W. Scripture's article on stuttering is an excellent presentation of his own methods of instruction, which have proved so helpful in many cases. Dr. C. K. Russel discusses the treatment of the diseases of the cranial nerves and spinal cord in a somewhat incomplete manner. Dr. Gordon Holmes gives a clear account of diseases of the thalamus, mid-brain and cerebellum, with comparatively little to say, as might be expected, in regard to treatment. Dr. C. D. Camp's chapter on paralysis agitans and multiple sclerosis is of much value and presents the results of his own careful investigation of these diseases. Dr. Louis Casamajor sums up the treatment of the toxemias of dangerous trades and drugs. Drs. A. E. Halstead and R. T. Vaughan give an admirable summing up of the methods of surgical treatment of the brain and cord.

The editorial work in the present volume seems less thorough than it was in the previous volume. The selection of subjects is certainly open to criticism. We can see no satisfactory reason for assigning chapters on a purely anatomical basis, such as those assigned to Drs. Russel and Holmes, as if the location of a lesion had a special influence upon its treatment, except in regard to possible surgical interference. Furthermore, certain serious omissions are to be noted. Encephalitis, brain abscess and sinus thrombosis receive only cursory mention and tumors of the brain are considered very inadequately and in several different chapters. Nevertheless, in spite of these grave defects, and the other defects common to all composite works, there is much of value in this volume, which confirms the favorable opinion which we gave in the review of the first volume.

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A NEW LEPER HOSPITAL AT PENIKESE.

THE outcome of House Bill No. 136, providing for a hospital building at the leper colony on Penikese Island should be favorable, judging from all previous legislation regarding questions for the care and treatment of others of our Massachusetts population who are not more unfortunate. No one can question the imperative need of a modern building for the care and special treatment of the lepers. For a number of years Massachusetts has looked upon these unfortunates in any but a proper light. Deprived of their liberty, segregated on a most desolate island, and because of difficulties of administration, practically unprovided for from a medical point of view, these people have, until recently been allowed to exist and nothing more. It is undoubtedly the duty of the state to provide for them a hospital, baths and means for special medical treatment, as well as fire-proof living quarters. There should be no false economic reasons when it is a question of the duty of the state and of justice to persons in its care.

It was a matter for congratulation when the State Board of Charity, two years ago, began to insist forcefully that the unsatisfactory conditions at the Penikese institution must be supplanted by scientific medical treatment. Since then matters have improved, but are by no means to the credit of Massachusetts. Visitors to the island have had no difference of opinion as to the needs of the institution. The efforts of the State Board of Charity for a modern building with modern equipment is a step in the right direction.

Apart from the question of the care of the patients, it is well to pause and ask whether the state does not owe some protection to those individuals who are caring for the lepers. At the present time it is unlikely that the state can procure help with conditions such as they are; but there can be no reason why, with changes such as are planned, the state should not be able to attract and hold responsible and desirable persons to care for these unfortunate people.

We have had an opportunity of inspecting the hospital plans and approve of them most heartily. Every provision that a modern scientific institution should have has apparently been thought of, and when the legislature has provided funds for the erection of this building, we can afford to forget her past indifference and look with pride to the position which Massachusetts will take in the treatment and care of leprosy.

THE FEDERAL INCOME TAX AS IT AFFECTS THE PHYSICIAN.

To some of those whose income is derived mainly from fees for personal service of a professional kind, that provision of the income tax which requires that *debts* should be included as income seems unfair.

On the back of the blank form for income tax returns, there are two explanatory paragraphs which read as follows:

"13. Persons deriving fees or emoluments for professional or other services, as in the case of physicians or lawyers, should include *all actual receipts* for services rendered in the year for which return is made, *together with all unpaid accounts,* charges for services, or contingent income due for that year, if good and collectible."

"14. Debts which were contracted during the year for which return is made, but found in said year to be worthless, may be deducted from gross income for said year, but such *debts cannot be regarded as worthless until after legal proceedings to recover* the same have proved fruitless, *or it clearly appears that the debtor is insolvent.* If debts contracted prior to the year for which return is made were included as income in return for year in which said debts were contracted, and such debts shall subsequently prove to be worthless, they may be deducted under the head of losses in the return for the year in which debts were charged off as worthless."

It is inevitable, therefore, that many physicians have been confronted with the alternative

of paying the tax on a long list of debts or of placing the corresponding bills in the hands of a lawyer for collection.

The close personal relation between patient and physician, and the attitude of the conscientious practitioner who takes pride rather in the excellence of his work than in the return for the same combine to make it peculiarly embarrassing for him to resort to legal proceedings for the collection of bills. Rather than do this, we believe that some of our best physicians will pay the tax and fail to collect the money due them.

It seems pertinent to ask why the physician should be placed in this embarrassing position. Why was not the law so framed that the tax should be levied only on actual receipts of the year, exempting for this year income due before the law went into effect? This year's bills if not paid until next year could then have been included in next year's income and so on in succeeding years, and the individual would then be free from taxation on prospective income on the one hand, and on the other, he could, if he chose, dispense with legal means of collection without injustice to himself.

MEDICAL LEGISLATION. REGISTRATION OF NURSES.

THE members of the State Board of Nurse Examiners have found during the past three years that the benefit to be derived from the law which requires a nurse to take an examination before he or she can practice as a registered nurse, is more or less nullified by the fact that some nurses have in one way or another picked up enough knowledge to pass the required examinations, who, nevertheless, have not received thorough training. The board is unanimous in feeling that it should have the authority to send some suitable person to visit the schools that are undertaking to qualify nurses for state registration, in order to ascertain just what opportunity is given the pupils for practical and theoretical experience.

The Massachusetts State Nurses' Association is presenting a bill which embodies the recommendation that the board is making to the Public Health Committee. Dr. W. P. Bowers, secretary of the board, and president of the Massachusetts Medical Society, is going to present the nurses' bill at the same time the report is presented. Letters have been sent to superintendents of some of the largest hospitals and to several nurse superintendents of smaller hospitals in different parts of the state asking for endorsment or criticism of the bill which is to be presented. The replies have all been in favor of such an inspector. All honest schools are willing to be visited, and many are not only willing but are anxious to have some one to refer to who represents the State Board of Examiners. Such a person could be of great assistance in showing where schools are weak and in helping to remedy deficiencies if they exist.

It is believed that the Russell Sage Foundation will, in the not distant future, make an investigation of training schools similar to what has been done in connection with medical schools, and Massachusetts would be wise to authorize its state board, which consists of doctors and nurses, to prepare the way for this more disinterested investigation.

It is hoped that the medical profession will give its hearty support to this bill, House No. 1186.

AN UNFORTUNATE DECISION.

THE United States Supreme Court has recently ruled that in prosecutions under the pure food and drugs act, the government must hereafter "prove the presence of added poisonous or deleterious substance *in quantities sufficient to injure health.*" This is an unfortunate decision and will have the effect of greatly increasing the difficulty of enforcing this law, since it will remove from the reach of punishment such adulterations as, though perhaps harmless to health, are nevertheless frauds perpetrated upon an unsuspecting, unprotected, and defenceless public.

DEATH OF DR. ROTCH.

THE medical profession of Boston have suffered a great loss in the death, on Monday evening, March 9, of Dr. Thomas Morgan Rotch, professor of pediatrics in the Harvard Medical School. Dr. Rotch was not only of international eminence in his specialty, but was beloved in many families whose children he had cared for, and by many who gratefully remember, in their childhood, his always kind and pleasant personality as their physician.

MEDICAL NOTES.

A CASE OF SMALLPOX AT PITTSBURGH.—A case of smallpox was discovered on Feb. 28 among a

trainload of 300 immigrants at Pittsburgh, Pa. The patient was taken to the municipal hospital and all the passengers and train-crew were vaccinated.

Hospital Bequest.—The will of the late Wilson D. Kistler, of Lock Haven, Pa., it was announced on Feb. 25, contains a bequest of $30,000 to the local hospital.

BOSTON AND NEW ENGLAND.

Poliomyelitis in Massachusetts.—During the month of January, 1914, 14 cases of poliomyelitis were reported in Massachusetts, 4 of them being in Boston.

Tonsillitis in Wakefield.—During the past fortnight there has been prevalent in Wakefield, Mass., a local epidemic of streptococcus tonsillitis, similar to those which of recent years seem to have become increasingly prevalent in Eastern municipalities and smaller communities. In Wakefield there have been about 400 cases, without fatalities. The milk and the water supply have both been decided to be not the source of the infection, which in this case, as is probably usually the fact, is considered to have been air-borne.

Scarlet Fever in Bridgewater.—During the past three weeks scarlet fever has been epidemic at Bridgewater, Mass., where 25 cases of the disease have been reported. Local schools and places of public assembly have been ordered closed until March 17.

Instructive District Nursing Association.—At the annual meeting of the Boston Instructive District Nursing Association, held last week in this city, Miss Mary Beard, as director, presented her annual report in part as follows, describing the work of the Association for the previous year.

"For the year ending Jan. 31, the receipts for the general work of the Association were $72,180.47, and $61,718.58 was expended. Legacies amounting to $900 have been received for the permanent fund, together with donations amounting to $3,131.82. A legacy of $2500 was made to the reserve fund.

"Three new nurses were added to the staff Feb. 6, 1913. We have now 49 salaried nurses, 2 domestic educators (visiting housekeepers), 5 hospital pupils, and 20 students. Last year at this time there were 43 salaried nurses, 5 hospital pupils and 19 students.

"The greatest change in the staff has come through the gradual accomplishment of a plan adopted two years ago—that of acquiring a permanent staff rather than temporary nurses who changed from time to time. In this way 22 permanent staff nurses have been added since February, 1912, and 16 of the 22 since last February. This is the most important change which has occurred this year. All these nurses are graduates of one or the other of our courses in public health nursing, that is, they are women who want to do this sort of nursing more than any other work, are full of enthusiasm and have made sacrifices to obtain a special education for it. The supervisors have been longer in their positions and the machinery of the stations is running more smoothly—all of which means less fatigue and more efficiency.

"During the year we have had 10,536 new patients and made 120,597 visits, 600 more patients than a year ago and 10,000 more visits. One-half of these are free patients. Many of these 5000 free patients are 'free' patients only because illness in the family was the one last expense impossible to meet. Among them there have been a good many real 'problem cases,' known to many agencies and helped by them. Twenty per cent. were life insurance company patients, 2 1-3% paid 50 cents, 5 1-10% paid 25 cents, 17 1-10% paid less than 25 cents, 47 1-3% paid nothing. We nursed 3183 Boston Dispensary patients, or 30 1-5% of the whole."

Public Nurses Under Civil Service.—By a new ruling, made as a result of a movement initiated last fall by the Boston Milk and Baby Hygiene Association, all nurses employed by boards of health and school boards in Massachusetts have been placed under civil service rules, except in Boston, where they are governed by a special act of the legislature.

Medical Bequests.—The will of the late Rebecca Warren Brown, of Boston, which was filed recently for probate, contains a bequest of $10,000 to Harvard University, to be applied to the fund, created by Dr. Buckminster Brown, brother of the testatrix, for a professorship in orthopedic surgery. The residue of the estate is left in equal shares to the Perkins Institution for the Blind and the Industrial School for Crippled and Deformed Children.

NEW YORK.

Eugenic Marriage Bill.—Report from Albany states that on Feb. 26 a eugenic marriage bill was introduced before the State Assembly. The bill requires that to obtain a marriage license the applicant must present a physician's certificate that the former is "free from phys-

ical or mental disease likely to be contagious or hereditary."

REPORT OF NEW YORK MILK COMMITTEE.—The seventh annual report of the New York Milk Committee, published on Feb. 26, shows that during the seven years from 1907 to 1913, inclusive, 950,000 babies were born in New York City.

"If the infant death-rate of the five years previous had prevailed there would have been 150,000 infant deaths instead of the 109,000 which actually occurred. On the other hand, if New York's low death-rate of 1913, *i.e.*, 101.9 per 1000 births, had prevailed throughout the seven-year period, only 96,000 babies would have died out of the 950,000 born. The committee points out that this record is not due to favorable weather conditions nor to other general accidental causes. Returns from the larger cities throughout the country, for 1913, published in tabular form in this report, show that while New York made a further reduction in 1913 in the actual number of deaths over its low record of 1912, Chicago, Philadelphia, Cleveland, St. Louis, Pittsburgh, Detroit, Buffalo, New Orleans and Toledo all show an increase."

MENINGITIS ABOARD A GREEK STEAMER.—Four cases of cerebrospinal meningitis have recently developed on board the Greek steamer *Athenae*, which was detained on its arrival at this port on Feb. 28.

REPORT OF THE ST. LAWRENCE STATE HOSPITAL.—The recently published twenty-seventh annual report of the board of managers of the St. Lawrence State Hospital, at Ogdensburg, N. Y., to the State Hospital Commission, records the work of that institution for the year ended Sept. 30, 1913. During this period the total number of patients under treatment was 2294, of whom 1074 were men and 1220 women. There were 152 patients who died, upon 98 of whom autopsies were performed. The course in the training school has been lengthened to three years, on account of which no class was graduated this year.

NEW YORK DEATH-RATE.—There were 1812 deaths, or a death-rate of 16.93 per thousand of the population, reported during the week ending Feb. 28, 1914, against 1699 deaths, and a rate of 16.50, in the corresponding week of 1913, an absolute increase of 113 deaths and an increase of .43 of a point in the rate, equivalent to a relative increase of 46 deaths. The following causes showed a decreased mortality: Diarheal diseases, bronchitis, broncho-pneumonia, all other forms of tuberculosis, and Bright's disease of the kidneys. The mortality from measles, whooping cough and lobar pneumonia were approximately the same as that of the corresponding week of last year. The following causes showed material increases: Scarlet fever, diphtheria and croup, typhoid fever, cerebrospinal meningitis, influenza, diseases of the digestive system other than diarrheal diseases, diseases of the nervous system and organic heart diseases, the increased mortality of the last mentioned being more than that of the sum of all other causes.

The number of children dying under one year of age was exactly the same as that of last year; that of children under five years showed a slight decreasse; at all other age groups the mortality was greater, especially among the extremely aged.

The death-rate for the first nine weeks of 1914 was 15.90 per one thousand of the population as against the rate of 15.47 for the corresponding period of 1913, a decrease of .30 of a point.

Current Literature

MEDICAL RECORD.

FEBRUARY 21, 1914.

1. *CONNER, L. A. *Intravenous Injections of Sodium Salicylate in the Treatment of Rheumatic Affections.*
2. MCMURTRIE, D. C. *A Study of Prostitution in Europe.*
3. OPPENHEIMER, S. *The Surgical Anatomy, Diagnosis and Treatment of the Inflammatory Affections of the Nasal Accessory Sinuses in Children.*
4. SWIFT, G. M. *Carditis.*
5. HOLDING, A. F. *Technic in Radiotherapy, with Especial Reference to Deep Therapy as Practised at Freiburg by Krönig and Gauss.*
6. TANENBAUM, S. A. *A Consideration of Objections to Psychanalysis.*
7. OLMSTEAD, M. P. *The Value of Absorption Methods in the Wassermann Test.*

1. Conner discusses the merits of the intravenous method of administering salicylate of sodium in rheumatic infection. He says that the analgesic effect of the drug is more pronounced when given in this way, provided that the technic is correct and the preparation pure. The method is safe, painless and easy. Its application will probably be limited, but it offers something in cases where salicylate is not well borne by the stomach, where the ordinary method does not produce results, in cases with beginning heart involvement, and in rheumatic conditions of the eye. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

FEBRUARY 14, 1914.

1. COLE, L. G. *The Positive and Negative Diagnosis of Gastric Cancer by Means of Serial Roentgenography.*
2. KEILTY, R. A. *Note on Some Aneurysms.*
3. TUCK, R. C. *Intestinal Resection.*
4. WALTER, W. *Some Scientific Aspects of Inoculation Therapy.*
5. STEWART, F. E. *Besredka's Sensitized Vaccines.*
6. YEOMANS, F. C. *Amebic Dysentery.*
7. FREESE, E. M. *Magnesium Sulphate and Glucerine in the Treatment of Infections.*
8. WEISS, J. *Two Remarkable Cases of Obesity.*
9. WOODBURY, M. S. *The Technic of Outlining the Thyroid Gland.*
10. HEDIN, S. G. *Colloidal Reactions and Their Relations to Biology.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

FEBRUARY 14, 1914.

1. *VEDDER, E. B. *Origin and Present Status of the Emetin Treatment of Amebic Dysentery.*
2. *STURMDORF, A. *The Functional Metrorrhagias. Their Nature and Control.*
3. BEESON, B. B. *Neosalvarsan from the French Point of View.*
4. *NICHOLSON, S. T., JR., AND HOGAN, J. F. *Effect of Lactic Acid Bacilli on Diphtheria.*
5. KAPLAN, D. M., AND MCCLELLAND, J. E. *The Precipitation of Colloidal Gold. A Specific Reaction in the Spinal Fluid.*
6. ROBINSON, C. J., AND MUELLER, J. H. *An Improved Technic for the Doremus-Hinds Ureometer.*
7. BUNTING, C. H., AND YATES, J. L. *An Etiologic Study of Hodgkin's Disease. Second Note.*
8. WEISENBACH, R. R. D. *The Correction of the Fixed Structural Type of the Spinal Lateral Curvature.*
9. SMITH, O. C. *Hygroma Cysticum Colli and Hygroma Axillae.*
10. WACHT, D. T. *Action of the Nitrites on the Isolated Surviving Pulmonary Artery. Preliminary Note.*
11. BARACH, J. H. *The Energy Index. Cardiovascular Energy as Indicated by the Arterial Pressure per Minute.*
12. BERKOWITZ, M. E. *The Practical Side of Deratization with Flue-Gas, with Special Reference to the Port of Philadelphia.*
13. DONNELLY, W. H. *Basic Fuchsin in Surgery. Its Wide Range of Usefulness.*
14. FAUGHT, F. A. *Significance of Elevated Blood-Pressure in Pregnancy.*
15. MCNEIL, H. L. *Experiences with Noguchi's Luetin Test for Syphilis.*
16. WALKUP, J. O. *Hemorrhagic Hypernephritis, with Report of Case.*
17. VOGEL, K. B., AND LEE, O. I. *Detection of Mercury in the Excretions.*
18. MCCASKEY, G. W. *A Case of Amebic Dysentery of Thirteen Years' Duration Cured by Emetin Hydrochlorid.*
19. BEEKMAN, F. *A Case of Mercuric Chlorid Poisoning Due to Vaginal Douches.*
20. HOLMES, A. O. *Defaced Type of Addison's Disease.*

1. Vedder claims emetin is a true specific in amebic dysentery and hepatitis, and the results obtained compare favorably with those of salvarsan in syphilis. The hypodermic use of the hydrochlorid is the preferred method and McCaskey reports the cure of a case of thirteen years' standing in this way.

2. Sturmdorf condemns the use of ergot in the functional metrorrhagias and advises the use of vaso-dilators, such as aconite, nitroglycerin and atropin, under the guidance of a pressure apparatus, and with the aid of opium.

4. The authors find a spray of live lactic acid bacilli valuable in diphtheria. The course of the disease seems shortened and no ill effects result. [E. H. R.]

FEBRUARY 21, 1914.

1. VAUGHAN, V. C. *The Phenomena of Infection.*
2. RODMAN, W. L. *Gastric Tetany.*
3. POST, W. E. *The Effect of Tartrates on the Human Kidney.*
4. MILNE, L. S. *Chronic Arthritis.*
5. SCHMITTER, F. *Hydrophobia in a Wild Philippine Monkey.*
6. *BALL, C. F. *Abderhalden Serodiagnosis of Cancer, with a Tabulation of Results Obtained in Fifty Examinations.*
7. *LEWIS, D. D., AND DAVIS, C. B. *Repair of Tendons by Fascial Transplantation.*
8. CLIMENKO, H., AND FELBERBAUM, D. *The Diagnosis of Spinal Cord Tumors, with Report of Two Cases.*
9. *GAYLER, W. C. *The Dorsal Position During the Puerperium as a Cause of Retroversio Uteri.*
10. THOMAS, B. A., AND MOORHEAD, S. W. *Severe Cutaneous Eruption Following Neosalvarsan. Report of Two Cases.*
11. INGALS, E. F., AND FRIEDBERG, S. A. *Fluoroscopic Bronchoscopy. Report of Case.*
12. LESZYNSKY, W. M. *Traumatic Epilepsy. Report of a Case of Five Years' Duration Cured by Surgical Treatment.*
13. WELTY, C. F. *Anastomosis of the Facial and Hypoglossal Nerves for Facial Paralysis.*
14. LUND, F. B. *Comminuted Gunshot Fracture of the Femur, with Fixation by Bone-Plate and Wires.*

6. Ball's article is very thorough and gives in detail the steps of the technic.

7. This is an interesting bit of work on fascial transplants.

9. Gayler is firmly of the opinion that the dorsal position during the puerperium is a large factor in the causation of retroversion of the uterus. His argument is convincing. [E. H. R.]

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.

FEBRUARY, 1914.

1. *DAVIS, D. M. *Intestinal Obstruction: Formation and Absorption of Toxin.*
2. *DAVIS, D. M. *Natural Immunity of Animals Against Poison of Intestinal Obstruction.*
3. MILLER, W. S. *Niels Stensen.*
4. PEARCE, R. M. *A Brief Historical Sketch of Some of the Early Studies of the Finer Structure of Plant and Animal Tissues.*
5. MCMURTRIE, D. C. *Early History of the Care and Treatment of Cripples.*

1. Davis shows that the duodenal and upper jejunal mucosa, unaided by bacterial action, can produce a highly toxic substance, although the conditions may be not far removed from normal. He describes in detail the experiments which led to this conclusion.

2. This second paper by Davis describes the effects of inoculating animals with the highly toxic substance mentioned in the preceding article, and unsuccessful attempts to neutralize this poison. [J. B. H.]

THE LANCET.

JANUARY 24, 1914.

1. *EMERY, W. D'E. *The Pathology of Syphilis, Especially in Its Bearing on Treatment.*

2. HAWTHORNE, C. O. *Dosage: Some Suggested Amendments in the Manner of Stating the Doses of Medicines in the British Pharmacopœia.*
3. *WILLAN, R. J. *The Bismuth Ureteral Catheter. Collargol Solution and Barium Sulphate Suspension in the Diagnosis of Some Urinary Diseases.*
4. MANN, G. *Protein Metabolism During Starvation and after the Administration of Milk Protein.*
5. HARDINN, H. G. A. *The Toleration of Arsenic by the Human System.*

1. In this short paper Emery discusses the pathology of syphilis, the causative organism, the invasion of the blood by spirochaetes, the processes in the secondary period, the Wassermann reaction, the action of drugs and other points. He considers what is called parasyphilis and takes up the curability of the disease, syphilis, in its various stages.

3. In an article illustrated with some excellent plates, Willan describes the catheterization of the ureters with the bismuth ureteral catheter in which he uses collargol solution. [J. B. H.]

JANUARY 31, 1914.

1. *BOSANQUET, W. C. *Tuberculosis as an Infective Disease.*
2. *LETT, H. *The Present Position of Acute Appendicitis and Its Complications.*
3. HOWELL, C. M. H. *Trauma in Relation to Certain Aspects of Nervous Disease.*
4. *LECKIE, R. J. B. *The Percutaneous Tuberculin Reaction.*
5. PORTER, W. G. *A Case of Post-operative Osteomyelitis of the Frontal Bone. Recovery after Wide Removal of the Diseased Bone.*
6. NEGUS, V. E. *A Case of Acute Tetanus with Recovery.*
7. HORDER, T. J. *Vaccines from the Standpoint of the Physician.*

1. In this paper, Bosanquet discusses the organism of tuberculosis, bovine and human, the modes of infection, causes of disease in later life, the incidence of tuberculosis, the forms of disease, and the methods of resisting it, and the decline of tuberculosis mortality and its causes.

2. This is a clinical paper discussing appendicitis, forms and complications, mortality in regard to time of operation, when to operate, etc. It presents nothing new.

4. Leckie presents data to show that the percutaneous tuberculin reaction (Moro ointment test) is of little or no value. [J. B. H.]

BRITISH MEDICAL JOURNAL.

JANUARY 17, 1914.

1. *MITCHELL, A. P. *The Infection of Children with the Bovine Tubercle Bacillus.*
2. *ROBINSON, W. *Torn Semilunar Cartilages.*
3. MORT, S. *A Possible Fallacy in the Diagnosis of Internal Derangements of the Knee-joint.*
4. HUGHES, B. *The Treatment of Fractures about the Elbow-joint and Knee-joint.*
5. CONNELL, R. *The Use of Ionic Medication in the Treatment of Certain Venereal Diseases.*
6. JARDINE, R. *Rapid Delivery in Eclampsia.*

1. Mitchell in this paper discusses (*a*) technic, (*b*) relationship of clinical data and milk supply, (*c*) relation between channels of infection and groups of glands involved, and (*d*) channels of infection. Under technic he describes his methods of studying 72 consecutive cases of tuberculous cervical glands in children: this part of the paper is very technical, describing variations in growth of the different strains of bacilli, differences between human and bovine types, culture media, etc. In the next part of his paper he describes his results. Of these 72 cases, 65, 90%, were due to the bovine bacillus, and 7 cases, 10%, to the human organism. As to age incidence, he comes to the natural conclusion that the use of unsterilized cows' milk is responsible for the large number of cases due to bovine origin in the very young children, 84% of whom were bottle fed. He could not find that one type of child was liable to this disease. There was seldom any interference with general health, many being in robust health. In only 3 instances could family exposure or a family history be obtained. He goes on to show the very large amount of tuberculosis among cattle in and around Edinburgh and urges more efficient legislation on the subject. He then considers the channels of infection and describes the groups of glands involved. In his experience there are two types of glands involved, one those showing little or no tendency to break down; and the other, those in which caseonecrotic changes are the distinctive features. He believes the mouth and the naso-pharynx to be the avenues of infection. Out of 64 cases of tuberculous cervical adenitis, in 37.5% lesions of the tonsils were evident. His conclusions are sane and sound.

2. Robinson in a short paper discusses the anatomy, mode of production, diagnosis and treatment of torn semilunar cartilages, and describes 24 cases. [J. B. H.]

JANUARY 24, 1914.

ADDRESSES ON CHRONIC INTESTINAL STASIS.

1. ADAMI, J. G. *"Autointoxication" and Subinfection.*
2. *PRINGLE, S. S. *Anatomy and Treatment.*
3. GRAY, H. M. W. *Etiology and Treatment.*
4. CHAPPLE, H. *Effects on the Female Generative Organs.*

1. In this paper Adami combats strongly the well-known views of Arbuthnot Lane on auto-intoxication, etc., concluding that it is more rational to regard the evil effects of intestinal stasis as a low form of infection than as a chronic intoxication. He believes the term gastro-intestinal auto-intoxication to be a much abused one, which should be dropped. Many of the symptoms attributed by Lane to intestinal stasis may arise from other causes, and therefore, before recommending the operation of short circuiting fullest investigation should be made. Usually other causes will be found which will render this unnecessary. (This is a timely article and a much needed one.—J. B. H.)

2. Pringle considers the various anatomical abnormalities which may cause stasis, such as ptosis, bands, folds, membranes, etc. These he describes in some detail. He takes up the symptoms, toxic and obstructive. Under treatment he considers prophylaxis, medical and surgical measures. [J. B. H]

JANUARY 31, 1914.

1. BLAND-SUTTON, J. *Linitis Plastica, or Leather Bottle Stomach.*
2. O'CONNOR, J. *Two Years' Operating to the Clock.*
3. BARRATT, J. O. W., AND YORKE, W. *The Production of General Symptoms in Hemoglobinemia.*
4. ROLLESTON, H. D. *A Case of Eosinophile Arcitis; with Remarks.*
5. SAUNDLY, R. *Syphilitic Paresis of the Esophagus.*
6. ALDONS, G. F. *The Importance of a Leucocyte Count in Doubtful Cases of Appendicitis.*
7. DRUMMOND, H. *Observations on the Functions of the Colon, with Special Reference to the Movements of Enemata.*
8. COPE, V. C. *The Pre-Peritonitic Stage of Acute Appendicitis.*

9. HENDERSON, J. B. *Alternative Methods of Treating the Appendix Stump.*
10. HUGHES, B. *Appendicitis, with Symptoms Resembling Those of Renal Colic.*

EDINBURGH MEDICAL JOURNAL.

FEBRUARY, 1914.

1. *BÉRANECK, E. *Tuberculin: The Rationale of Its Use; Its Possibilities and Limitations.*
2. RITCHIE, J. *Neurasthenia.*
3. *WATSON, D. C. *Manifestations and Treatment of Intestinal Toxemia.*
4. GUTHRIE, D. J. *On the Neosalvarsan Treatment of Syphilis.*
5. CRESWELL, C. H. *The Royal College of Surgeons of Edinburgh; Anatomy in the Early Days.*
6. *MILLER, J. *The Prevalence of Living Tubercle in Edinburgh Milk.*

1. This article describes in considerable detail the complex subject of the rationale of tuberculin therapy. The writer devotes considerable space to the preparation of that form of tuberculin with which his name is connected and describes experiments to substantiate his claims. He is of the opinion that tuberculin should be regarded as *a curative*, and not an immunizing agent. He describes the methods of administering his tuberculin as to dosage, etc. He urges early tuberculin treatment as soon as the diagnosis is established, ruling out, of course, all acute advanced cases.

2. This is a short general clinical article on the prevention and cure of certain forms of nervous exhaustion coming under the general term neurasthenia. There is much sound common sense advice in this paper.

3. In a long paper Watson takes up the pathological basis for intestinal toxemia as shown by constipation, catarrh of the large bowel, dilatation, adhesions, kinks, etc. He considers the factors regulating normal intestinal functions and evidence of normal functioning as shown in the stools and urine. He devotes much space to the diagnosis of intestinal stasis, as shown by x-rays, and takes up briefly the clinical conditions induced by intestinal toxemia, such as those under the neurasthenic group, the rheumatoid group and the dyspeptic group. He describes briefly the so-called Lane's kink, Jackson's membrane, and various other kinks and malformations.

6. Miller confirms the work of Fraser and Mitchell, and explains the large amount of bovine tuberculosis in Edinburgh by analyzing samples of milk in that district, in 13% of which (104 samples) he found live tubercle bacilli. [J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 4. JANUARY 27, 1914.

1. ROLLY, F., AND DAVID, H. *Overproduction of Sugar in Relation to the Etiology of Human Diabetes.*
2. V. FUNK, F. *Retroduodenal or Transduodenal Choledochotomy.*
3. *JAFFÉ, R. *Autopsy Findings and Animal Experiments in Benzin Poisoning.*
4. *SIMMONDS, M. *Secondary Hypophyseal Tumors and Their Relation to Diabetes Insipidus.*
5. WEBER, F. *Tamponade in Pregnancy and Gynecology.*
6. FREY, E. K. *The Origin and Treatment of Fistula Ani.*
7. KLAUS, H. *"Narkophin" in Pregnancy.*
8. SCHOENLANK, W. *Experiments in Artificial Pneumothorax.*
9. LÖWENTHAL, S., AND PAGENSTECHER, A. *Intensive or Continuous Treatment by Rays?*
10. FUCHS, A. *Animal Experiments with "Tubural."*
11. KREUTER. *Perineal Enucleation of the Prostate.*
12. HOFFMANN. *Potassium Chloride in the Treatment of Hay Fever.*
13. GRUBER, K. *Thinking Animals.*
14. *Edwin Klebs.* (*To be concluded.*)
15. NEISSER, M. *The Murder Trial of Hopf.*

3. Jaffé reports the histological changes found in various cases of fatal benzin poisoning. These observations were confirmed by a series of experiments in which animals were killed with benzin introduced either intravenously or by mouth. The poisoning is either acute or chronic, depending on rapidity of absorption. In acute cases the drug is excreted through the lungs, producing characteristic minute hemorrhage; in cases of chronic poisoning it causes degenerative foci in the liver and kidneys. No chemical changes or evidences of hemolysis were found in the blood. The lesions in both man and animals were essentially similar.

The practical significance of this study is that since benzin is taken up from the intestines slowly, active purgation is always recommended as a therapeutic means.

4. Simmonds reports three examples of secondary tumors in the hypophysis which appeared to produce symptoms of diabetes insipidus. He has seen six other cases, however, with lesions through the entire hypophysis where there was no polyuria.

The literature on the subject points to the belief that hypophyseal destruction and diabetes insipidus are closely related. Despite his latter findings, Simmonds does not consider this disproven.

He concludes that hypophyseal metastases are relatively common in malignant disease and believes that polyuria may be an early symptom of this peculiar lesion. [R. F.]

Correspondence.

RECIPROCITY.

SAN FRANCISCO, Jan. 29, 1914.

Mr. Editor: I am enclosing a letter from Doctor Alderson who is a member of the California State Board of Medical Examiners, in reply to a letter I wrote to him asking why the medical license of Massachusetts was not accepted by the California State Board.

I thought perhaps it might be a weapon which you could use to effect a change in Massachusetts requirements, for you know that all the men coming out to California at least, cannot have reciprocity with Massachusetts. Fortunately I had an Ohio license which procured affiliation for me.

Hoping that this enclosure may be of some use, I am

Yours sincerely,

WILLIAM PALMER LUCAS, M.D.,
Professor of Pediatrics,
University of California.

[ENCLOSURE.]

SAN FRANCISCO, Jan. 6, 1914.

My dear Dr. Lucas: In reply to your inquiry regarding the status of Massachusetts State Medical licenses, I beg to state that the California State Board of Medical Examiners has refused to grant reciprocity licenses to applicants presenting Massachusetts State licenses. The reason for this unfortunate state of affairs is that Massachusetts does not

require an M.D. degree of applicants who come up for examinations for licenses.

Regretting very much that this is the case, I am

Cordially yours,

HARRY E. ALDERSON, M.D.

Miscellany.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING FEB. 28, 1914.

February 20, Medical Director C. F. Stokes, detached from Bureau of Medicine and Surgery, Navy Department, and ordered to command Naval Hospital, Philadelphia, Pa.

Medical Inspector G. A. Lung, detached from command of naval hospital, Philadelphia, Pa., and ordered to Naval Training Station, Newport, R. I.

Surgeon J. F. Leys, detached from Naval Training station, Newport, R. I., and ordered to duty in connection with the fitting out of the *New York* and to duty on board when that vessel is placed in commission.

Medical Inspector L. W. Spratling, detached from Naval Recruiting Station, Atlanta, Ga., and ordered to duty as fleet Surgeon of Atlantic Fleet, *Wyoming*.

P. A. Surgeon C. E. Strite, ordered to the Naval Recruiting Station, Atlanta, Ga.

Surgeon H. D. Wilson, detached from the Naval Recruiting Station, Boston, Mass, and ordered to the *New Jersey*.

Assist. Surgeon E. P. Halton, ordered to Naval Recruiting Station, Boston, Mass.

February 24, Surgeon R. F. Sheehan, detached from marine advance base brigade of Atlantic Fleet to home and wait orders.

P. A. Surgeon J. P. Haynes, ordered to the Naval Training Station, Great Lakes, Ill.

P. A. Surgeon E. L. Woods, detached from the Naval Proving Grounds, Indian Head, Md., directed to wait orders.

Feb. 26, P. A. Surgeon H. L. Dollard, detached from the *North Dakota* and ordered to the Naval Hospital, New York for treatment.

P. A. Surgeon P.R. Stalnaker, ordered to the *North Dakota*.

MASSACHUSETTS GENERAL HOSPITAL.

SURGICAL MEETING.

A surgical meeting open to the medical profession will be held at 8.15 p. m. on March 13, 1914, in the lower amphitheatre of the Out-patient Department. Entrance on either Blossom or Fruit Streets.

Dr. G. W. W. Brewster will present "Report on Cases of Pelvic Inflammation."

Dr. Lincoln Davis will present "Report on Cases of Renal Surgery."

FRANKLIN COUNTY DISTRICT MEDICAL SOCIETY.

The bi-monthly meeting of the society was held in Greenfield, January 13th. A letter was read with reference to a bill now before the legislature regarding the revelation of professional secrets in court on the part of physicians and nurses. The suggestion offered was that the words "not be urged" should be changed to "not be compelled." Dr. G. P. Twitchell of Greenfield read a paper on the Treatment of Gastric Ulcer. The paper was discussed by Drs. H. G. Stetson and Charles F. Canedy of Greenfield and by Dr. Philbrick of Northfield. Dr. Paul W. Goldsbury of Warwick read a paper on Observations on the Sense of Smell and gave a demonstration.

SOCIETY NOTICES.

THE HARVEY LECTURE.—The tenth lecture will be delivered on Saturday, March 14, at 8.30 p. m., at the New York Academy of Medicine, 17 West 43d Street, by Prof. W. T. Halsted, of Johns Hopkins University.

Subject: "The Significance of the Thymus Gland in Graves' Disease."

THE BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on Tuesday evening, March 17, 1914, in the amphitheatre of the Administration Building of the Harvard Medical School, at 8.15 o'clock.

Program:

Dr. Otto Folin and Dr. W. Dennis: "An Interpretation of Creatine and Creatinine in Relation to Animal Metabolism." (20 minutes.)

Dr. L. W. Hackett: "A New Air Filter." (20 minutes.)

Dr. H. T. Karsner, Mr. H. H. Amiral and Mr. A. V. Bock: "A Study of the Influence of Splenectomy on Hemoposonins in the Blood and in Various Organ Extracts." (15 minutes.)

THOMAS ORDWAY, *Secretary and Treasurer*,
Harvard Medical School.

BOSTON MEDICAL LIBRARY in conjunction with the SUFFOLK DISTRICT MEDICAL SOCIETY.—Surgical section meeting, John Ware Hall, Wednesday, March 18, 1914, at 8.15 p. m.

"Brain Tumors." Dr. E. H. Nichols. Discussion by Drs. P. C. Knapp, J. J. Thomas and L. W. Taylor.

Light refreshments after the meeting.

FRED B. LUND, M.D., *Chairman*.
HORACE BINNEY, M.D., *Secretary*.

RECENT DEATHS.

DR. LAZARUS SCHONEY, who died on Feb. 18 in Coney Island, N. Y., was born at Budapest, Hungary, in 1838. He studied medicine at Prague, and, after coming to the United States in 1860, at the University of Pennsylvania. He served during the Civil War as a surgeon in the Union army, and subsequently was pathologist for a time at the Lincoln General Hospital, Washington. In 1868 he settled in the practise of his profession at New York City. He became professor of pathology in the New York Medical College, and was the author of several works on pathology and biology. He is survived by his widow.

DR. JOHN FREDERICK WELCH, who died on Feb. 23 in Quincy, Mass., was born at Boston in 1854. He received the degree of M.D. in 1880 from Bellevue Hospital Medical School, New York. He immediately settled in the practise of his profession at Quincy, where he was for several years city physician and member of the local board of health. He was a Fellow of The Massachusetts Medical Society, a member of the Norfolk South Medical Society, and president of the Quincy Medical Club. He was consulting physician and secretary of the Quincy Hospital. He is survived by his widow, one daughter, and a son.

DR. IRA HOPKINS of Utica, N. Y., died on Feb. 23, at the age of 80 years. He was graduated from the medical department of the University of Buffalo in 1859.

DR. ANNA MARLIN CORNWALL, who died on March 1, at Brookline, Mass., received the degree of M.D. in 1906 from the Tufts Medical School. She was a Fellow of The Massachusetts Medical Society.

DR. FRANK SARGENT GRANT, of New York, a graduate of the College of Physicians and Surgeons in 1875, died on March 3.

DR. JOHN PRINGLE, of East Newark, N. J., died from pneumonia on February 25, at the age of 68. He was a native of Glasgow, Scotland, and was graduated from the University of Glasgow in 1875. Dr. Pringle had been president of the East Newark Board of Health since its organization a few years ago.

Original Articles.

NOTES ON THE NEW COOLIDGE X-RAY TUBE.

By H. W. Van Allen, M.D., Springfield, Mass.

The ability of any mechanical device to be useful is limited to the ability of the weakest part to withstand the strain put upon it. When we are dependent upon such a mechanical device for medical deduction it is self-evident that the medical information is limited in the same way. It has been a well known fact to Roentgenologists for some time that the weakest part in our equipment has been the tube. The exciting apparatus has been gradually increased in efficiency until in the interruptless machine, as now made, we have electrical output enough to destroy the ordinary tube in a few seconds. The tube makers have tried to take care of this electrical bombardment by backing up the platinum target by large quantities of copper to absorb the heat generated. Again a step forward was the substitution of tungsten in the target for platinum. This was a valuable addition as the melting point of tungsten is some 2,000 degrees, Fahrenheit, higher than platinum; therefore it withstands the impact of the cathode ray much better. Here seemed to come the limit, however. The various makers claimed certain points of superiority but the advantages were minor and all tubes had the same limitation.

It has been left for Dr. W. D. Coolidge to solve the problem in a most efficient way. For two years past experimental work has been carried on which has resulted in a new type of tube dependent upon entirely new principles. While Dr. Coolidge does not believe the tube is beyond improvement he feels clinical experience is now needed to obtain from the actual workers practical suggestions. To this end a half dozen of these tubes have been placed in the x-ray laboratories of physicians.

Besides Dr. Coolidge's original article in the *Physical Review* many of the scientific journals have published extensive papers on this new tube from which the daily press has printed more or less distorted reports. My object in presenting this short paper is that the readers of the Journal may know from a medical standpoint what those of us who are actually using the tube are expecting.

In all tubes the x-ray is produced by the cathode stream striking the anode, or target, from which is given off the wave energy called the x-ray. This cathode stream must be excited by bombardment of the cathode. In the old tube these were positive ions carried across by the small quantity of contained air in the tube. It was the variations in the quantity, character and position of this remaining air that made the character of the tube so unstable. The heavy target absorbed the air only to give it off in action, when heated by the bombardment of the cathode stream. Thus a tube would never be found of the same character at different times. When one realizes that only one condition of the tube fits a given requirement and the tube is constantly changing the problem has been not to get the best radiograph but to get as good as such varying conditions will allow.

With the Coolidge tube all this is changed. In general shape it is the same as the old style. The vacuum is as perfect as can be made, a thousand times greater than the old type. This being the condition not even the highest tension current will pass from cathode to anode. To overcome this a filament of tungsten has been placed in the cathode, connected by two low tension insulated wires through the cathode stem to a storage battery. The whole is so placed as to be insulated for high tension currents from the ground. The high tension current is connected to either of the low tension wires so it may be passed along to the cathode, while the anode is connected to the other high tension terminal. Until the battery current is completed and the filament lighted, no high tension current will pass. When the filament is lighted, however, current passes freely, the electrons coming from the heated filament. The penetration of the tube is dependent upon the rapidity of the electric discharge from the filament. This discharge is controlled by the heat in the wire which can be varied by a rheostat introduced into the battery circuit, so at will we can change to any penetration by merely moving a rheostat handle. Moreover, we have no particles of air to come out of the heated target and change the conditions of the tube. We have no secondary rays to heat the glass and decrease the clearness of the shadow. A tube of this kind can run continuously with a current that would ruin the ordinary tube in half a minute. Consider then the tremendous output of such a tube for treatment work. Filters placed in the path of the Roentgen ray will take the emanations not desired in a given case and still there is abundant capacity remaining. This together with the cross-fire technique makes therapy of internal diseases equally efficacious to that of the body surface. With such an instrument in our hands we have an opportunity for exactness never before thought possible by the Roentgenologist. Radiographs for stereoscopic work may have exactly the same character. Particularly brilliant plates may be exactly duplicated in future cases, because the various elements involved in the operation have become susceptible of exact measurements and control. The one thing we have needed so badly has arrived, and in a form that seems to me particularly free from objectionable characteristics.

SOME TRAGIC ASPECTS OF WHOOPING-COUGH.*

BY PHILIP H. SYLVESTER, M. D., NEWTON, MASS.

THE death of a child from any cause is a tragedy—but we are liable to lose sight of that fact in the sudden, unexpected, or dramatic death of an unusual case. Whooping-cough with a mortality of approximately 7 per cent., and a toll of ten thousand in the United States annually[1], presents an appalling contrast to the layman's, and the average physician's, conception of its harmlessness.

To you, as pediatricians, it is hardly necessary for me to speak in detail of the pathology of the disease; the causes of death in our usual experience are briefly, exhaustion, pneumonia, bronchopneumonia, cardiac, and terminal tuberculosis. The cases which I am about to describe are of interest owing to their unusual type and an argument for an efficient treatment of, as well as prophylaxis against, the disease. Inasmuch as six of the eight cases to be reported were much alike I will save your time by describing only one of these.

CASE 1. Marian R. Age 2 years.

F. H. Third child of well parents; two older children well except for last stage of whooping-cough.

P. H. Full term, transverse position, delivered by version. Received an intra-capsular fracture of the left humerus which healed with no deformity. Was breast fed for nine months, then various mixtures. Did perfectly well. Has always seemed a well, normal child.

P. I. Has been having whooping-cough for the last two weeks; has not been very sick. Last night about midnight had an unusually severe paroxysm, followed by a convulsion, seemed very feverish immediately after; has been delirious ever since and has had seven convulsions, has been stiff most of the time.

P. E. August 15, 1912, 10° after onset.

Well developed and nourished child, unconscious, rather cyanotic, breathing labored, much mucus in trachea; anterior fontanelle closed; pupils equal and do not react, are slightly dilated, occasional divergent strabismus; jaws are clenched; throat is clear except for large tonsils; there are a few large glands in the neck; the lungs are full of coarse rales and ronchi, no dullness or modified breath sounds; heart sounds regular, rapid, no murmurs, heart not enlarged; abdomen held rigidly; no tâche; genitals negative. Extremities, except the left arm, in moderate spasm all the time, occasionally becoming more rigid in extension. Left arm flaccid, but is moved occasionally with waving motion, no elbow jerk. Knee jerks not exaggerated. Koernig not tried. No Babinski. Temperature 106; pulse 160; respirations 40. Lumbar puncture 45 c. c. clear fluid, considerable pressure, no clot in 12 hours. Cells 12 per c. m. m., largely lymphocytes and endothelial. Culture, no organisms in 48 hours.

Diagnosis. Cerebral hemorrhage.

* Read at a meeting of the New England Pediatric Society, Dec. 12, 1913.

FURTHER NOTES ON THE CASE.

August 17. Temperature persists. Has had eighteen convulsions since last visit. Signs unchanged except for retraction of head and stiffness of neck. Lumbar puncture, 60 c. c. faintly cloudy fluid, clot in two hours. Noguchi +. Cell count 300, many endothelial, few mononuclear, many polynuclear; smear, no organisms seen. Culture sterile after 48 hours.

August 20. Acute symptoms persist. Had four convulsions yesterday, none today. Is still unconscious. Cries a great deal. Refuses all nourishment. Looks very badly. Stiffness and retraction of neck more marked. Pronounced tâche cérébrale. Left arm flaccid, no elbow jerk. Other extremities spastic but in more or less constant motion. Knee jerks not obtained. No Koernig. Babinski present both sides. Lumbar puncture, 65c.c. *turbid* fluid. Cell count not done. Clot in one hour, heavy. Tube clears on standing with about half an inch of sediment of polynuclears. Noguchi not done. Smear, no organisms seen. Culture, many staphylococci in 24 hours.

August 24. Seems a little stronger; still unconscious. Not so restless. Less rigidity. Temperature has gradually come down to 100, pulse 120. Swallows a little milk when put in mouth with spoon. Rigidity of other extremities and flaccidity of left arm persist. Babinski present on both sides. Lumbar puncture, 35 c. c. slightly turbid. Noguchi +. Clot in one hour. Cell count, 1,000 per c.m.m., all polynuclears. Culture, many staphylococci in 24 hours.

Child gradually got better but was still unconscious and presented moderate meningeal symptoms on September 15, 1912, when by lumbar puncture 15 c. c. clear fluid was obtained. Cell count 40, all mono-nuclears. Culture sterile.

Child remained unconscious for about five months from the onset, during which time it was fed by nasal tube; then gradually began to notice, to take food voluntarily and to have more or less coördinate actions.

It was seen again December 2, 1913, approximately a year and a half after the onset.

P. E. Poorly developed, fairly nourished. Seems fairly bright but is easily frightened. Mouth tends to remain open and the child drools constantly. Recognizes parents, brothers and neighbors and passing automobiles. Does not talk intelligibly, but indicates wants pretty clearly, and appears to understand when spoken to. It shows no paralysis although the left arm is soft, flabby, and a trifle smaller than the right; the elbow jerk is still absent and the child uses the arm very little but has all motions. Mother states that the child has eight to ten "contractions" in the arm daily; none noted during physical examination. Tries to walk when held up about as a child of ten or twelve months would do. Mentally is certainly not more advanced than the average child of two years.

CASE 2. Clarence E. Age 22 months.

F. H. Parents well. One brother has whooping-cough severely.

P. H. Full term, normal delivery, breast fed for three months, then various modifications of a proprietary food containing much starch and sugar. "Did fairly well." Has had frequent colds. Has

always been pale. Has been very slow in getting teeth. Does not walk. Talks very little.

P. I. Has been having whooping-cough (whooping) for two weeks; during the last week has had pretty severe paroxysms frequently; has vomited a good deal and has seemed a little feverish in the afternoons. Four days ago had a very severe paroxysm, followed by a convulsion lasting ten minutes, it is stated; has not seemed bright since.

Extremities have been stiff all the time but the left hand is frequently placed on the head. Has had a rectal temperature varying from 104 to 106 since shortly after the first convulsion. Yesterday and today the extremities have not been so stiff but have twitched a great deal. The child has looked badly and appears as if in pain, and has put the hand to left ear. Was seen by me to determine the question of otitis media.

P. E. Pale, under-sized child, fairly nourished, unconscious, a little cyanotic. Anterior fontanelle half an inch in diameter seems tense but not definitely bulging. Head is square. Ears negative. Eyes divergent, pupils widely dilated, do not react. Head retracted. Neck rigid. Throat clear. Six upper teeth, four lower, chalky.

Lungs full of coarse rales; much mucus in trachea; breathing is shallow and irregular.

Heart not enlarged; sounds very weak, very rapid, no murmurs made out.

Abdomen lax. Liver large, 2 cm. below costal border. Spleen not felt. No tenderness. Marked tâche cérébrale.

Knee jerks not obtained. Koernig on right, Babinski on both sides. Neck sign present. Extremities intermittently spastic with fingers and toes in position of tetany. Epiphyses of wrists and ankles much enlarged. Temperature 104°, pulse about 180, respirations 40.

Lumbar puncture, 40 cc. cloudy fluid under very much pressure. Clot in one-half hour. Cell count more than 1,000, all polynuclears. Smear shows occasional extra-cellular diplococcus resembling pneumococcus. Culture unfortunately thrown away. Child died five hours after lumbar puncture.

Case 3. Richard D. Age 6½ years.

F. H. Only child. Parents well.

P. H. Full term, normal delivery, breast fed one year. Always well and strong up to six months ago when he had scarlet fever mildly, no kidney involvement. Has been well since, although "nervous" at times.

P. I. Has had pertussis for five weeks; has vomited a great deal but has felt pretty well and has been up most of the time. Paroxysms have been growing more severe for the last two weeks. Yesterday afternoon, after a severe paroxysm fell down and stayed "blue." Has been unconscious since; has been very feverish and delirious; no voluntary motions except that he swallows a great deal. Temperature was 103 by axilla this morning.

P. E. 1 P. M. 20 hours after the initial convulsion.

Well developed. Cyanotic, spastic in all extremities. Left pupil dilated, neither react. Cheyne-Stokes respirations. Lungs full of large, rattling rales.

Heart not enlarged. Sounds very rapid; no murmurs made out. Marked tâche cérébrale.

Abdominal wall rigid; no masses or apparent tenderness.

Knee jerks very much increased. Babinski present on both sides. Koernig not tried. Rectal temperature 105°, pulse 160, respirations 30.

Lumbar puncture, 45 cc. clear fluid, no clot in 12 hours. Noguchi not increased. Cell count 10, all lymphocytes. Smear, no organisms. Culture, no organisms after 48 hours.

Following lumbar puncture the child relaxed greatly; breathing became more regular and color improved. Spasticity and convulsive movements began again after about eight hours and continued until the child's death on the following day.

The other five cases of this type were from 18 months to six years old. Within the second to the fifth week of the paroxysmal stage all had a convulsion, or something like it immediately following a severe paroxysm. All had a very high temperature,—spasticity rather than paralysis. All had an increased amount of normal, sterile spinal fluid, and all died in from 10 to 48 hours of the initial convulsion.

It may be fairly assumed that all of these 8 cases were dependent, at the start, on a similar lesion, in that all presented, at the start, evidence of a diffuse process or processes in the brain and meninges. It seems to me that these symptoms are best interpreted as meaning high intra-cranial pressure, due to oedema or hemorrhage. As to oedema,—it is inconceivable to me that such a train of symptoms can come without warning, practically out of a clear sky. As to hemorrhage,—on the other hand,— the explosive character of the onset, during or immediately after a violent paroxysm, seems particularly consistent with hemorrhage,—a hemorrhage so large and producing so much pressure, that most of the focal symptoms were obscured.

In the first case it seems reasonable to assume that the case was one of hemorrhage at the start, the clot later becoming infected and producing meningitis, possibly encephalitis as well.

In the second case,—of course all that I found was a meningitis, presumably due to the pneumococcus, but the history and onset were so suggestive that I have no doubt that a cerebral hemorrhage was at the bottom of it.

It would be interesting to see what proportion of these cases become infected and have meningitis, if they live long enough.

CONCLUSION.

Here, then, are eight tragedies; seven cases dying immediately, one living but requiring unremitting care for a year and a half, and even now presenting no great promise of physical or mental development. Let us remember, however, that these are only eight—that all of the ten thousand deaths from this disease last year were just as surely tragedies; that a percentage of them was preventable by prophylaxis, and that another percentage—for surely there must have been a great many cases similar to those reported here—could have been prevented by appropriate treatment.

SUMMARY.

1. Certain cases of whooping-cough have symptoms of intra-cranial pressure, best explained on the ground of a cerebral hemorrhage.
2. The hemorrhage appears to be dependent upon the stress of a severe paroxysm.
3. The symptoms of hemorrhage in these cases pionted to lesions other than middle meningeal and were surprisingly uniform in the
(a.) Initial convulsion.
(b.) Immediate rise in temperature to a high degree.
(c.) Cyanosis.
(d.) Spasticity rather than paralysis.
4. This type of cases emphasizes the importance of prophylaxis.
5. Treatment should be directed toward at least reducing the severity of the paroxysms.

NEUROLOGICAL SOCIAL SERVICE, MASSACHUSETTS GENERAL HOSPITAL

BY MARGHERITA RYTHER, BOSTON,

Social Service Worker, Neurological Department.

INTRODUCTORY STATEMENT.

FOR seven years, under the auspices of the Social Service Department of the Massachusetts General Hospital, a worker has had charge of such cases in the Neurological Department as needed attention. The general result of this work under the immediate charge of Miss Edith Burleigh so far justified itself that it was thought desirable about a year ago (Dec., 1912) to make the relation between the Neurological Department and the Social Service Department still more intimate and presumably more efficient by having a social worker actually in the clinic, instead of at a distance, as the previous arrangement has been. Miss Margherita Ryther, Miss Burleigh's successor and former assistant, was appointed to this position and since then has had her desk in one of the rooms of the neurological out-patient department. She has thereby been brought into the closest possible relation with the actual practical work of the clinic. This has unquestionably resulted in an increase of efficiency in the treatment of patients, which it is always desirable to remember is the main object for which the clinic exists.

The significance of such an apparently trifling step as placing a social worker in immediate relation to the actual routine of a clinic is far-reaching. Wherever it has been attempted, so far as I am aware, it has met with success. It is certainly correct in principle unless the whole social service idea is wrong and that even the original doubters will not now be likely to admit. The demand for broad-minded, rational and honest treatment which Dr. R. C. Cabot has done much to foster has necessitated a broadening of the therapeutic outlook which finds expression in various ways but in none more definitely than in the closer alliance between bodily and mental conditions. A neurological clinic naturally offers peculiar opportunities for the development of such study as I believe a reading of the accompanying report will show. The growing conviction that many of the so-called functional disorders of the nervous system, at times regarded lightly by the physician, are of the utmost significance to their victims and to society at large, is being met by an adequate coöperation between medicine as represented by the doctor and external conditions as represented by the social worker. The time is rapidly approaching, if not already here, when such coöperation will be regarded as having passed the experimental stage and become established as a necessity of a well-ordered clinic. E. W. TAYLOR, M.D.

REPORT.

It is now nearing the end of the year since the Social Service Department was asked to transfer the social worker from the general department into the Nerve Clinic, and the results of the experiment are both encouraging and instructive. Through the closer relationship of doctor and social worker there is being developed a broader knowledge of their respective fields and a consciousness of the interdependence of the medical and social problems. This mutual understanding has resulted in a more vital coöperation.

There have been assisted by social service 315 patients (not counting the "clinical cases"—those not having a social record.) One hundred and twenty-seven of these are "new" and 188 are "old"; the number of new cases, being materially larger than in previous years. These totals of cases show only a part of the work done, since it has been necessary to decline several new cases after preliminary investigation and consequently these cases do not appear in either group, the patients recorded as "new" being only those of whom records were made. These new cases, of which 87 were referred by the clinic physicians and 40 by outside social agencies, were selected because of their urgency and need for investigation and "follow-up" work, and may be grouped under the following six headings:

1. Social investigation before making plans for disposition and treatment.
2. Social investigation before diagnosis is made.
3. Social study to supplement physician's treatment.
4. To get work.
5. Free treatment.
6. Miscellaneous.
7. Steering.

While the social treatment for each of these groups is dependent upon the results of the so-

cial investigation, the type and extent of the investigation must necessarily be determined by the need of the individual case. In general, however, the social investigation and treatment of these various groups may be considered in the following ways:

1. *Social investigation before making plans for disposition and treatment.*—Arrangements made for institutional, hospital, convalescent, vacation and suitable home care; work secured; free treatment.

The majority of patients coming under this group are suffering from organic nerve disease, and need social assistance in arranging for their admissions to the various state institutions, including schools for the feeble-minded, the insane hospitals, the epileptic colony, the state infirmary, the city almshouse, private homes for chronic invalids, small private hospitals, etc. A number need social supervision in their homes: *i.e.* instruction in hygiene, and "follow-up" work—oversight in seeing that they return to the clinic for treatment. Frequently the patients need financial help and the local relief agencies or relatives are called upon. There were 46 cases coming under this heading. These were divided as follows:

A. Diagnoses.

(1) Neurosis		14
a. Epilepsy	7	
b. Chorea	4	
c. Occupational neurosis	2	
d. Gastric neurosis	1	
(2) Psychoneurosis*		4
(3) Organic cord disease		4
(4) Organic brain disease		2
(5) Psychosis and mental defect		14
a. Psychosis	6	
b. Mental defect	8	
(6) Unclassified (diseases other than nerve)		8
a. Arteriosclerosis	3	
b. Cephalalgia	1	
c. Debility	2	
d. Alcoholism	1	
e. Morphinism	1	
Total		46

B. According to Disposition.

(1) Institutional and hospital care	22
(2) Sanatorium and convalescent	5
(3) Vacations	1
(4) Work	1
(5) Transfer to other social agencies	4
(6) Supervision in the home	12
(7) Purpose not accomplished	1
Total	46

2. *Social investigation before diagnosis is made.*—An extensive social investigation of the patient's inheritance, environmental conditions and personal history, requiring interviews with members of the family, school teachers, family physicians, employers and patient (if he is responsible enough to talk coherently).

Of this group the patients referred are usually those who show mental symptoms during the clinical examination and the physicians wish a report of facts from the family or someone who knows the patient well enough to report upon his history and behavior. The disposition in these cases is similar to that of those under No. 1, according to diagnosis made, except that in these cases the family and relatives are instructed more in detail as to the nature of the patient's illness and how they may assist in his treatment. If the patient is not proven to be suffering from insanity the socio-therapy method of treatment is frequently used (See under group 3.) There were eight cases under this heading.

A. Diagnosis.

(1) Psychoneurosis		3
(2) Psychosis and mental defect		3
(3) Unclassified (diseases other than nerve)		2
a. Debility	1	
b. Alcoholism	1	
		8

B. Treatment

(1) Insane hospital	1
(2) Sanatorium	1
(3) Supervision in home	1
(4) Transfer to care of other social agencies	3
(5) Transfer to care of family	2
	8

3. *Social study to supplement physicians' treatment.*—Socio-therapy—an analysis of the patient's environmental conditions, hereditary influences and temperamental tendencies as; (1) a basis for treatment; (2) as a curative influence. In the study and treatment of the psychoneuroses the social histories and conditions play an important part.

(1) The physicians in the clinic have not the time to study the causal social conditions contributing to the nervous invalidism of these patients, and the information secured is of value to them in rounding out their clinical examinations and making it possible to advise the best treatment. The many cases demanding their attention makes it necessary, in general, for them to confine their efforts to the physiological disturbances of the nervous system. The doctor in his private practice in treating one of these cases knows that frequently the nervous disorders may be traced to emotional conflicts which are often the outcome of faulty environmental conditions. He would not advise treatment without a knowledge of the patient's resources, social, financial or otherwise, but it takes time to secure these facts, and it is just here that the social worker in the clinic is useful, since by getting from the patient the needed data she saves the physician

* The term "psychoneurosis" is used in this report as a general term, to indicate neurotic states, predominantly mental in character, but not reaching the point of irresponsibility.

much time and the foundation is laid for good medical and social team-work, which is of decidedly greater value to the patient than either alone.

(2) The analysis is used secondarily as a medium for social and psychological treatment, the benefit to the patient being a clearer understanding of what nervousness means, the many causes contributing to nervous breakdown, and the means available for readjustment. He is made to see himself and his environmental conditions from an objective point of view. He learns to understand himself and his relation to others; he is enabled to review his life's development; he is made to face his faulty traits of character and unfortunate inherited tendencies. He sees not only his weak but also his good qualities and through this increasing knowledge and release from former self-ignorance the means and opportunity to reëstablish himself is provided. This breaking down of old habits, false beliefs, etc., cannot be accomplished at once. Self-knowledge is only the first step towards gaining emotional poise, but the light thrown upon the patient's life through the unravelling of his social background is the foundation of ultimate recovery. Through the social study the patient is awakened to his responsibilities to himself and others. His confidence in the worker and doctor being established he is started upon a course of mental hygiene consisting sometimes of months of patient reiteration of the need for daily practice of healthful habits. The social worker continues to assist with the patient's treatment through interviews and home visits and gradually becomes the bond between the patient and the doctor. Furthermore she follows the case between visits to the hospital and is thus able to have ready for the physician at each visit of the patient much information of value to him in his conduct of the case.

Convalescent and sanatorium treatment is arranged for in some cases and work secured in others. Not infrequently the treatment of these patients includes all the above care. There were 19 patients referred under this category.

A. Diagnoses.

(1) Neurosis	5
a. ? Epilepsy	3
b. Occupational neurosis	2
(2) Psychoneurosis	13
(3) Debility	1

B. Treatment.

(1) Sociotherapy	19
(2) Sanatorium	3
(3) Convalescent	2
(4) Change of environment, care away from home	1
(5) Change of work	2
(6) Social oversight	10
(7) Assistance refused	1
	19

C. Results.

(1) Improved	15
(2) Poor results	3
(3) Unknown	1
	19

4. *To get work.*—Three patients were referred for work because of its therapeutic value. The nature of their illnesses and condition made it difficult for them to secure employment from an agency.

Diagnoses.

(1) Organic peripheral disease	1
(2) Organic brain disease	1
(3) Psychoneurosis	1
	3

5. *Free treatment.*—Free treatment may range from securing admission to the clinic to raising money for an expensive apparatus. Nine patients were referred in this group.

A. Diagnoses.

(1) Organic cord disease	3
(2) Organic brain disease	5
(3) Unclassified	1
	9

B. Treatment.

(1) Salvarsanized serum	4
This requires raising sometimes $10-$20 for course of treatment.	
(2) Salvarsan	1
(3) Medicine and admission	2
(4) Apparatus, costing $20	1
(5) Hydrotherapy	1
	9

6. *Miscellaneous.*—A patient, suffering from tabes, was referred because the physician felt the man had been unfairly deprived of his insurance policy. The investigation proved otherwise and the patient was finally convinced that he had been treated leniently under the circumstances.

Another patient, a young married woman, having epilepsy, was referred because she was greatly disturbed over her mother whom she felt was being neglected in a home for aged where her family had paid $500 for her maintenance for life. The conditions were investigated and the home found to be one of questionable reputation. As the patient's brother was satisfied with the care his mother was having and refused to take legal steps the matter was dropped. This case has required much social attention as the patient's environmental conditions were poor and in need of adjustment.

7. *Steering.*—Any outside social agency may send a patient to the Social Service Department and be assured that the patient will be properly

admitted to the hospital, steered to the right physician, examined, and that the agent will receive the doctor's report as to the diagnosis made and his advice as to treatment. This coöperation between the medical social worker and the outside agency is of mutual benefit. Before the patient is referred the outside agency forwards a brief social history of the patient, and this is given to the physician before the patient is examined, and while the outside agency carries the entire social responsibility of the case. The social service worker reports upon the condition of the patient from time to time—whether he is reporting to the clinic as advised, etc.; and secures free admission and medicines if required. In the cases passing through the Neurological Department there are many instances where the outside agency must be instructed as to the specific social information needed, particularly in cases where there is a question of the patient's mental condition. There were 40 cases coming under group 7.

A. Diagnoses.

(1) Organic peripheral disease		2
(2) Organic cord disease		10
a. Tabes	7	
b. Ataxia paraplegia	2	
c. Old poliomyelitis	1	
	8	
(4) Psychoses and mental defect		8
a. Psychoses	4	
b. Mental defects	4	
	8	
(5) Unclassified (other than nerve)		12
a. Alcoholism	6	
b. Debility	2	
c. Syphilis	1	
d. Arteriosclerosis	1	
e. Reserved	2	
	12	
(6) Psychoneuroses		2
(7) Neuroses		7
a. Epilepsy	3	
b. Chorea	2	
		40

B. Treatment.

(1) Free treatment		40
a. Admission	40	
b. Medicine	40	
c. Hydrotherapy	1	
(2) Arrangements for admissions to institutions		2
(3) Steering		40

The group designated as "old" embraces the patients who had been referred to us during previous years and with whom we are still in touch in consequence of their need of advice and help. These cases have required much attention, as their problems have frequently needed close observation and social supervision through periods extending into months. The social worker, once a friend, is called upon over and over again, for the intimate relation formed at the time of the patient's first urgent need is a tie not easily severed. The patients' knowledge of life and affairs is meagre and often confusing and their outlook is so narrow that not infrequently their future well-being depends upon their having intelligent advice on the many difficulties surrounding them, domestic and otherwise. Sometimes the solution is simple, as for instance: what may seem to them a complex family situation is in reality only the outcome of petty misunderstandings and can easily be solved by tactful measures. To expand the vision of these patients is the social worker's duty, and in her unique position and relation to them she has an unusual opportunity to teach the principles of a useful and simple philosophy of life. Her range of helpfulness extends from a smile of friendly good cheer to hours or days of extensive labor, often required before any adequate solution of the specific problem can be evolved.

IS SANATORIUM TREATMENT WORTH WHILE?

By Gertrude L. Farmer, Boston.

Social Service Department, Out-Patient Department, Massachusetts General Hospital, Boston.

[A study of 419 phthisical patients referred during a period of six years, from January 1, 1906, to January 1, 1912, to the Social Service Department of the Massachusetts General Hospital, and sent to the State Sanatoria.]

PURPOSE.

Pulmonary tuberculosis has been the medical diagnosis of the largest group of patients referred to this department. In the first annual report of our work, 1905-1906, I wrote: "There is no other place than Rutland in Massachusetts where a patient can get, for four dollars a week, a dry, clear climate, free from the damp and dust of the town, expert medical supervision, plenty of good food, the discipline and psychic contagion of a large institution where everyone in sight is following the treatment. . . so hard to carry out alone at home." This seems to me to be equally true today, and we continue to try and secure this treatment for our patients. We thought it was time to make some general test of its efficacy.

At a time when the effectiveness and economy of state sanatorium care is much under discussion, we have hoped to throw a little light on the subject. Massachusetts has committed her-

self to this policy by building three other institutions in addition to the one already in existence.

We make no claim to the possibility of drawing any general conclusions from our data. The numbers found to be available are too small. This is simply a limited study of 419 individuals. The principal end we have had in view is an answer to the questions: How many of these patients are now living normal lives? How many are dragging out an existence with one foot in the grave?

METHODS.

Tracing Patients. In beginning our study we sent a letter to each patient. When no reply was received we tried to trace through relatives, private agencies, and anti-tuberculosis societies, official agencies, chiefly boards of health and town clerks. The boards of health were valuable when they employed a visiting nurse. In the case of Boston patients the out-patient department of the Municipal Hospital for Consumption and the Bureau for the Confidential Exchange of Information were of great assistance.

Difficulties in Tracing. Where other resources failed, we visited the last address, and followed up clues, until some information was obtained, or the quest proved hopeless.

The attempt to get in touch with these patients involved a great deal of work. Many of them had been seen only once. Many of them, the majority, had not been heard of since they left the sanatorium. Almost all were poor working people, who change their residence frequently, and leave few clues behind. Some have married, and in the case of women this tends to cover their tracks. Some have left the country. Many have foreign names, the spelling of which in English is problematical. Our early records contain less information than the later ones. We have no regular system of follow-up work and no facilities for it, but since 1910 we have kept a card catalogue of sanatorium cases with this study in view.

That out of a total of 419, only 20 patients remain quite untraced is owing to the untiring efforts of the workers, both paid and unpaid, assisting in this study.

GENERAL PLAN OF STUDY.

Period Chosen.—The Social Service Department started in October, 1905. When we began this study we decided to consider those patients who were admitted to and discharged from one of the state sanatoria, during the years from Jan. 1, 1906, to Jan. 1, 1912, and only those to whose going our efforts had contributed.

Why the Number Available is Small. During the six years out of a total of 8224 patients referred to us, 2564, or 31.1+%, had a diagnosis of pulmonary tuberculosis. That of these we only succeeded in obtaining state sanatorium care for 419, or 16.3+%, is due to a variety of reasons. Up to September, 1909, Massachusetts had only one state sanatorium, that at Rutland. In attempting to get a patient admitted, more difficulty was experienced than is found today. Rutland has tried to give the preference to the incipient, favorable case. Citizenship was required, and the question of finances had to be gone into. Our older records show how often a patient was held up "for lack of funds." When a patient is now unable to pay, the matter may be left to the State Board of Charity. Since 1910 we have had four state sanatoria, all under a special board of trustees, and three of them admitting all types of cases. Questions of citizenship and settlement have been much modified, and are no longer bars against admission, except occasionally in the case of an unsettled alien with an obviously poor prognosis. In cases where admission was possible, we often failed to persuade patients to go. Lack of vacancies made the interval between application and admission long, patients became discouraged, lost ground, and so were unsuitable for admission, or made other plans. These last two reasons hold good today.

The 2145, or 83.7+%, who did not go to the sanatoria were referred to tuberculosis classes, chronic hospitals, homes for incurables, anti-tuberculosis societies, etc.

We have excluded from our regular tabulation 96 patients, grouped as follows: Not considered,* 50; died at sanatorium, 21; no phthisis, 5; untraced, 20. Separate tabulation has been made of the first three groups.

Plan of Tabulation. Taking the remaining 323 patients we have grouped them according to stage on admission, noting age, length of stay, condition on discharge, and present condition. A special effort has been made to get the stage on admission and condition on discharge from the sanatorium, as it differs somewhat from that found in the hospital records.

As this is an economic study we have not entered into any discussion as to medical terms and classifications. The sanatoria have made use of the classification of "incipient," "moderately advanced," and "advanced," as given by the National Association for the Study and Prevention of Tuberculosis. They classify the discharged patients more or less according to the same authorities, as "apparently cured," "arrested," "improved," "unimproved," "dead," with the occasional use of subheadings, such as "progressive." Within a few months they have discontinued the use of the term "apparently cured" and use the much broader one of "arrested." We have used the latter term to cover all cases discharged as "apparently cured" and "arrested."

Present Condition. We have directed our attention chiefly to finding out: (*a*) the number of years that these patients have lived since

* *i.e.* remained too short a time at the Sanatorium to be instructive from the point of view of results.

discharge, and (*b*) their present condition. In the majority of cases the period noted is the winter of 1912-1913. We have classified them as "well," "alive," "dead," making use of only three terms in order to simplify the tabulation, and making these cover the following points:—

"Well." Means also working or able to work, that is, the ability to lead a normal life. In the case of women we consider the occupation of housewife as a normal work condition.

"Alive." Includes those too ill to work; those working but ill; those readmitted to the sanatorium and there at the time of report; those in other institutions for the tubercular; those about whom we have been unable to get any other information except that they are alive. Some of the last may be "well," which would alter our percentages.

"Dead." In the case of those who have died, "present condition" means the date of death in whatever year since discharge it falls.

Medical Condition. We have not attempted to note the medical condition of these patients except as it is indicated by ability to work, and in the majority of cases this "ability" was their own opinion. To obtain an expert examination of the chest and a report on sputum would have involved great difficulties, and in many cases would have been impossible. Unless reliable it would not have been of any value. We got a few patients into the hospital for examination, but not in sufficient numbers to be of statistical benefit.

The "Not Considered" Patients.

The state sanatoria classify as "not considered" those patients who stay a month or less. Occasionally the period has been six weeks or less. We have included under this heading those who stayed a month or less, and also some who stayed a somewhat longer period, but were discharged without a definite report on their condition.

Of the 419 patients there were 50 "not considered," or 11.9+%. The stages on admission were: incipient, 23; moderately advanced, 13; advanced, 14.

Ages on Admission (all stages).

5-10 years	0 patients
11-20 years	8 patients
21-30 years	21 patients
31-40 years	16 patients
41-50 years	5 patients
51+ years	0 patients

Length of Stay.

12 stayed 1 week or less.
19 stayed 2-3 weeks.
19 stayed 4-7 weeks.

Of the 50 patients in this group, 9, or 18%, had some complication.

Stage I.

1 Alcoholic.	Well after 3 years.
1 Pregnancy.	Well after 6 years.
2 Neurasthenic.	1 well after 6 years. 1 alive after 5 years.
1 Old tuberculosis of knee.	Well after 6 years.

Stage II.

1 Syphilis, morphine habitué.	Well after 2 yrs.
1 Neurasthenic.	Well after 1 year.
1 Tubercular laryngitis.	Died after 1 year.

Stage III.

1 Tuberculosis of knee.	Died after 2 years.

Of the 23 in Stage I, 17 patients are well, 4 alive, 2 dead.

Of the 13 in Stage II, 7 patients are well, 3 alive, 3 dead.

Of the 14 in Stage III, 2 patients are well, 2 alive, 10 dead.

Totals (all stages) well, 26 patients, or 52%; alive, 9, or 18%; dead, 15, or 30%.

It will be seen that the "not considered" patients make a very good showing. Of the 23 patients admitted in the incipient stage 17 are well: 2 after 2 years, 3 after 3 years, 1 after 4 years, 1 after 5 years, 9 after 6 years, 1 after 7 years.

Present Condition and Time since Discharge of the 50 "Not Considered" Patients.

	Stage I.			Stage II.			Stage III.		
	Well.	Alive.	Dead.	Well.	Alive.	Dead.	Well.	Alive.	Dead.
6 mos. or less			1						3
1 year				2		2	1		1
2 years	2		1		3		1	1	4
3 years	3			3		1		1	2
4 years	1								
5 years	1	2		2					
6 years	9	2							
7 years	1								
	17	4	2	7	3	3	2	2	10

Of the 13 admitted in the moderately advanced stage, 7 are well: 2 after 1 year, 3 after 3 years, 2 after 5 years.

These results will appeal to those who believe that the most desirable function for a state sanatorium is that of an educative establishment. If this opinion is well founded, it is fair to assume that some of these short-stay patients carried away an object lesson of great value to them in after life.

Reasons for Discharge. We made a special effort to discover the reasons for the premature discharge of these patients as we felt it would be interesting to know what induced 50 people, out of a small group, to give up what might have been their one chance of recovery from a disabling sickness. In most cases we obtained the information from the sanatorium records. We have classified these reasons as the following:

1. Insufficient evidence of tuberculosis 3
2. Too far advanced 1
3. Pregnant 1
4. Misconduct 2
5. Lack of funds 1
6. Neurasthenic 3
7. Came for education 2
8. To follow treatment at home 3
9. Dissatisfied with sanatorium 8
10. Objected to treatment 4
11. Homesick 5
12. Home or business conditions 6
13. Discouraged 1
14. Left of own accord, no reason given 3

Out of the 50, therefore, we obtained some definite information in 43 cases.

In 7 cases we could obtain no information at all. The 2 patients under 2 and 5 would not be discharged today. The 5 under 7 and 8 might be classified together as "educative cases." Nos. 11 and 12 suggest that social work in connection with the patient's home environment might have induced these 11 patients to continue their treatment.

"NO PHTHISIS" PATIENTS.

Of the 419 patients who were admitted to the sanatorium, 5, or 1.4%, were discharged as having no phthisis. These patients were all admitted as in the incipient stage. Three had other complications as follows: Exophthalmic goitre, 1; sarcoma of lung, 1; iritis (tubercular), 1. In 2 no other diagnosis was noted.

Present Condition of the 5 "No Phthisis" Patients. One died at the sanatorium, 3 are well after 2-6 years, 1 is alive after 6 years (in an institution, with advanced phthisis).

"DIED AT THE SANATORIUM."

Out of the total of 419 patients admitted to the sanatoria 21, or 5%, died before discharge. Of these 5 went to Rutland, 11 to North Reading, 3 to Lakeville, 2 to Westfield.

Stage on Admission. Moderately advanced, 7; advanced, 14.

Length of Stay. Eleven stayed 3 months or less; 4, 3-6 months; 6, 6 months or 1 year.

Complications. Of the 21 patients in this group, 8, or 38+%, had some complication other than phthisis. These were as follows: Tuberculosis of larynx, 3; of tibia, 1; of wrist and epididymis, 1; of spine, 1; of genito-urinary tract, 1; heart disease, 1.

It is to be noted that 14 of the 21 patients were admitted in Stage III. All but one had tuberculosis in another part of the body. About one-half died three months or less after admission.

AN ANALYSIS OF 323 PATIENTS DISCHARGED ALIVE FROM THE STATE SANATORIA DURING THE YEARS 1906, 1907, 1908, 1909, 1910, 1911.

The 323 patients were divided as follows on admission: Incipient, 117, or 36.2+%; moderately advanced, 147, or 45.5+%; advanced, 59, or 18.2+%. As out of a total of 323, 308 went to Rutland, while North Reading had only 60, Lakeville 39 and Westfield 12, it might have been expected that this would prove to be a study of incipient cases. The fact, however, that there were nearly 10% more of the moderately advanced helps to bear out the claim, that of all those who apply for admission to Rutland, only 33% have been in the early stages of the disease.

Living and Dead. (Total of all stages, 1912-1913.) Living, 220, or 68.1+% (106, or 90%, incipient; 98, or 66.5+%, moderately advanced; 16, or 26.9+%, advanced.) Dead, 103, or 31.8+% (11, or 9.4+%, incipient; 49 or 33.3+%, moderately advanced; 43, or 72.8+%, advanced).

An analysis of the above is given in Charts I, II and III and in the text.

AGE ON ADMISSION OF THE 323 PATIENTS.

Incipient. Total, 117 patients. 5-10 years, 0 patients; 11-20 years, 39 patients, or 33.3%; 21-30 years, 46 patients, or 39.3%; 31-40 years, 23 patients, or 19.6% (11-40 years equals 92.2%); 41-50 years, 8 patients, or 6.8%; 50 and over, 1 patient, or .85%.

Moderately Advanced. Total, 147 patients. 5-10 years, 1 patient, or .68%; 11-20 years, 28 patients, or 19.0%; 21-30 years, 61 patients, or 41.4%; 31-40 years, 38 patients, or 25.8% (11-40

years equals 86.2%); 41-50 years, 17 patients, or 11.5%; 51 and over, 2 patients, or 1.3%.

Advanced. Total, 59 patients. 5-10 years, 0 patients; 11-20 years, 1 patient, or 1.6%; 21-30 years, 28 patients, or 47.4%; 31-40 years, 19 patients, or 32.2%; 41-50 years, 6 patients, or 10.1% (21-50 years equals 89.7%); 50 and over, 5 patients, or 8.4%.

The numbers studied are too small to render any general conclusions valuable. Certain points may be noted.

Of all stages we have had only one patient in the first decade. Up to a year or so ago there was no sanatorium in Massachusetts to which children could be sent, and care for these has always constituted one of our most difficult problems. Rutland has not admitted patients under fifteen years of age. At present such children can be sent to Westfield.

Taking the sixth decade we have in all stages only eight patients. Rutland did not encourage admission over forty-five years of age.

The greatest number in the incipient and moderately advanced falls within the second, third and fourth decades. In the incipient it is 92.2+%. In the moderately advanced, 86.2+%. The maximum in both stages is in the third decade. In the incipient this is 46 cases, or 39.3+%. In the moderately advanced, 61 cases, or 41.4+%. In the advanced 89.7+% falls within the third, fourth and fifth decades, while, as in the other stages, the maximum, 28 cases, or 47.4+% is in the third decade. But the whole number of the advanced is only 59.

It will be seen that the age incidence in the incipient and moderately advanced stages agrees with the accepted theory that active phthisis is most common in the young adult, but that mechanical reasons influenced the numbers in the first, fifth and sixth decades.

LENGTH OF STAY.

The 323 patients stayed at the sanatorium as follows:—

The Incipient; 117 patients stayed a total of 2477 weeks. Average stay for each patient, 5¼ months; 35 patients stayed 3 months or less; 54, 3-6 months; 22, 6 months to 1 year; 6, 1 year or more.

Moderately Advanced; 147 patients stayed a total of 4081 weeks. Average stay for each patient, 6¾ months; 28 patients stayed 3 months or less; 47, 3-6 months; 64, 6 months to 1 year; 8, 1 year or more.

Advanced; 59 patients stayed a total of 1552 weeks. Average stay for each patient, 6½ months; 16 patients stayed 3 months or less; 22, 3-6 months; 16, 6 months to 1 year; 5, 1 year or more.

The average length of stay for all patients was about 6 months; 35, or 29.9+%, of the incipient patients stayed 3 months or less; 54, or 46.1+%, stayed from 3 to 6 months; 28, or 19.+%, of the moderately advanced stayed 3 months or less; 47, or 31.9%, stayed 3 to 6 months.

It is evident that, according to the generally accepted theory as to the length of time necessary to arrest the disease, the length of stay of these patients was too short. The fact that, notwithstanding this brief period of treatment our ultimate results are so good may be due partly to the fact that in the majority of cases, and for reasons given above, we were dealing with fairly favorable cases. Our numbers also were small. Any other conclusion would be dangerous.

So far as I know, there is no fixed period of stay required at the Massachusetts state sanatoria. I have known a patient discharged "arrested," and "with advice," after two months; another discharged "improved," and "against advice," after a year.

EXPLANATION OF CHARTS.

To show the ultimate result of our study, we have grouped the 323 patients in charts.

Chart I gives the number discharged as "arrested," "improved," "not improved," arranged according to the three stages on admission.

Chart II gives the present condition under our classification of "well," "alive," "dead." It is arranged according to the three stages on admission, and showing the numbers under each classification at different periods since discharge varying from six months to seven years.

Chart III includes Charts I and II, giving present condition under "well," "alive," "dead," in relation to the condition of discharge, and showing the numbers in certain periods of time since discharge.

DETAILS OF CHART I.

In the incipient group the largest number, 84, or 71.7%, were discharged arrested. This is 57.5% of the entire number discharged arrested, which agrees with the accepted belief as to the desirability of admission in the incipient stage. It is all the more striking when we consider that the majority of these stayed an average of six months.

In the moderately advanced group the largest number, 75, or 51.+%, were discharged improved. This is also 51.+% of the entire number discharged improved. It would seem that a longer residence than the given average of six and three-fourths months might have put many of these under "arrested."

In the advanced group the largest number, 39, or 66.1%, is also discharged improved. The largest number of the entire number discharged not improved comes in this group, 17, or 53.1%.

DETAILS OF CHART II.

"*Present Condition*" is the time when the report of the patient was received. In most cases it was February, 1913, but reports were received from December, 1912, up to April, 1913, and in a few cases, difficult to trace, up to November, 1913. In case of death, "present condition" is the date of death.

Time Since Discharge. In reckoning the time since discharge any part of a year under six months was not counted. Over six months was counted as one year.

Re-admissions. In case patients were admitted more than once the stage of the first admission was taken and the condition on the last discharge, excluding any admissions or discharges which came outside of the given six-year period which the study covered.

Present Condition for total of all stages: Well, 150 patients, or 46.4%; alive, 70, or 21.6%; dead, 103, or 32.1%.

Incipient Group. Of the 117 patients, 82, or 70.%, are "well"; 24, or 20.5%, are "alive"; 11, or 9.4%, are "dead."

Of the 82 patients who are "well," 3 have been discharged 1 year; 21, 2 years; 10, 3 years; 10, 4 years; 19, 5 years; 18, 6 years; 1, 7 years.

The largest numbers have been discharged 2 years (21 patients) and 5 years (19 patients).

Of the 24 patients who are "alive," 3 have been discharged 1 year; 8, 2 years; 2, 3 years; 2, 4 years, 7, 5 years; 2, 6 years.

The largest numbers have been discharged 2 years (8 patients), and 5 years (7 patients), as in group "well." Of the "alive," 10 patients are working, 2 are in hospitals, 6 are known to be "alive" but no further information obtained.

Of the 11 patients who have died, 2 lived 6 months or less after discharge; 4, 1 year; 1, 2 years; 1, 3 years; 2, 4 years; 1, 5 years.

Moderately Advanced Group. Of the 147 patients, 61, or 41.4%, are "well"; 37, or 25.1%, are "alive"; 49, or 33.3%, are "dead."

Of the 61 patients who are "well," 7 have been discharged 1 year; 15, 2 years; 13, 3 years; 7, 4 years; 10, 5 years; 8, 6 years; 1, 7 years.

The largest numbers have been discharged 2 years (15 patients) and 3 years (13 patients), but almost as many (10 patients) have been discharged 5 years.

Of the 37 patients who are "alive," 8 have been discharged 1 year; 13, 2 years; 6, 3 years; 1, 4 years; 4, 5 years; 4, 6 years; 1, 7 years.

The largest number have been discharged 1 year (8 patients), and 2 years (13 patients). Of the "alive," 17 patients are working, 14 are in hospitals.

Of the 49 patients who are dead, 10 lived 6 months or less after discharge; 13, 1 year; 8, 2 years; 12, 3 years; 3, 4 years; 2, 5 years; 1, 6 years.

Advanced Group. Of the 59 patients, 7, or 11.8%, are "well"; 9, or 15.1%, are "alive"; 43, or 72.8%, are dead.

Of the 7 patients who are "well," 2 have been discharged 1 year; 2, 2 years; 1, 3 years; 2, 5 years.

Of the 9 patients who are "alive," 3 have been discharged 1 year; 4, 2 years; 1, 3 years; 1, 5 years. Of the "alive," 3 patients are working, 2 are in hospitals.

Of the 43 patients who have died, 17 lived 6 months or less after discharge; 15, 1 year; 6, 2 years; 2, 3 years; 1, 4 years; 2, 5 years.

DETAILS OF CHART III.

Incipient Group. Of the 117 patients, 84, or 71.7+%, were discharged arrested. Of these, 66, or 78.5+% are well; 17 have been discharged 2 years (or less); 17, 3-4 years; 32, 5-7 years.

Fifteen, or 17.8+%, are alive; 6 have been discharged 2 years (or less); 2, 3-4 years; 7, 5-7 years.

Three, or 2.5+%, are dead; 2 lived 2 years (or less) after discharge; 1, 3-4 years after discharge.

Thirty-one, or 26.4+%, were discharged improved. Of these, 16, or 51.6+%, are well; 8 have been discharged 2 years (or less); 1, 3-4 years; 7, 5-7 years.

Nine, or 29.0+%, are alive; 5 have been discharged 2 years (or less); 1, 3-4 years; 3, 5-7 years.

Six, or 19.3+%, are dead; 3 lived 2 years (or less) after discharge; 2, 3-4 years; 1, 5-7 years. Two, or 1.7+%, were discharged not improved. These both died 2 years or less after discharge.

Moderately Advanced Group. Of the 147 patients, 59, or 40.1+%, were discharged arrested. Of these, 33, or 55.9+%, are well; 13 have been discharged 2 years (or less); 12, 3-4 years; 8, 5-7 years.

Eighteen, or 30.5+%, are alive; 10 have been discharged 2 years (or less); 5, 3-4 years; 3, 5-7 years.

Eight, or 13.5+%, are dead; 2 lived 2 years (or less) after discharge; 5, 3-4 years; 1, 5-7 years.

Seventy-five, or 51.0+%, were discharged improved. Of these 29, or 38.6+%, are well; 9 have been discharged 2 years (or less); 8, 3-4 years; 12, 5-7 years.

Fifteen, or 20.%, are alive; 10 have been discharged 2 years (or less); 4, 3-4 years; 4, 5-7 years.

Thirty-one, or 41.3+%, are dead; 20 lived 2 years (or less) after discharge; 9, 3-4 years; 2, 5-7 years.

Thirteen, or 8.8+%, were discharged not improved. Of these 1, or 7.6+%, is well 5-7 years

after discharge. Two, or 15.3+%, are alive; 1 has been discharged 2 years (or less); 1, 3-4 years.

Ten, or 76.9+%, are dead; 9 lived 2 years (or less) after discharge; 1, 3-4 years.

Advanced Group. Of the 59 patients, 3, or 5%, were discharged arrested. Of these, 2, or 66.6+%, are well; 1 has been discharged 2 years (or less); 1, 5-7 years.

One, or 33.3+%, is alive 2 years (or less) after discharge.

Thirty-nine, or 66.1+%, were discharged improved. Of these, 5, or 12.8+%, are well; 3 have been discharged 2 years (or less); 1, 3-4 years; 1, 5-7 years.

Seven, or 18.3+%, are alive; 5 have been discharged 2 years (or less); 1, 3-4 years; 1, 5-7 years.

Twenty-seven, or 69.2+%, are dead; 22 lived 2 years (or less) after discharge; 4, 3-4 years; 1, 5-7 years.

Seventeen, or 28.8+%, were discharged not improved. Of these, 1 or 5.8+%, is alive 2 years (or less) after discharge. Sixteen, or 94.1+%, are dead, all 2 years (or less) after discharge.

It is of interest to note that in Chart I the per cent. of patients discharged "arrested" in the incipient group, 71.7+%, nearly agrees with the per cent. found to be "well" in Chart II, 70.0%. Whether or not these "arrested" patients are the same who are now "well" is shown in Chart III, where it is found that of the total discharged "arrested," 78.5+% are now "well." An "arrested" condition on discharge carries with it a good prognosis, and in our 323 patients this prognosis was realized. The per cent. of those discharged "improved," 26.4+%, coincides with those now "alive," 20.5+%. In Chart III it is found that of those discharged "improved" only 29.0+% are "alive." This indicates that of those discharged "improved," the larger number are in other groups; 51.6+% are found in "well," and 19.3+% are dead,—a very favorable result in "improved" cases. The per cent. of those discharged "not improved," 1.7%, and of those now "dead," 9.4%, is not similar, which is as we might expect, as a certain number of those discharged "arrested" or "improved" would be found to be "dead" either because they were not as well as was thought, or because they had not been able to have the care they still needed.

In the moderately advanced group there are 40.1+% discharged "arrested" and 41.4% now "well." Chart III shows that of the "arrested" 55.9+% are now "well"; a smaller per cent. than in the incipient group, as one might expect, since it is harder as the disease advances to predict the outcome. For the same reason the per cents. of those "improved" and "not improved" do not agree with the per cent. "alive" and "dead." An increased variance is found in the advanced patients.

CHART I.

CONDITION ON DISCHARGE OF THE 323 PATIENTS.

Stage on Admission.	Arrested	Improved.	Not Improved.
I	84 or 71.7+%	31 or 26.4+%	2 or 1.7+%
II	59 or 40.1+%	75 or 51.0+%	13 or 8.8+%
III	3 or 5.0+%	39 or 66.1+%	17 or 28.8+%
Total	146 or 45.2+%	145 or 44.8+%	32 or 9.9+%

CHART II.

PRESENT CONDITION OF THE 323 PATIENTS CLASSIFIED AS: WELL, ALIVE, DEAD, AND SHOWING THE TIME SINCE DISCHARGE.

Stage.		6 Mos. or Less.	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.	6 Yrs.	7 Yrs.	Total.
I	Well		3	21	10	10	19	18	1	82 or 70.0+%
	Alive		3	8	2	2	7	2		24 or 20.5+%
	Dead	2	4	1	1	2	1			11 or 9.4+%
II	Well		7	15	13	7	10	8	1	61 or 41.4+%
	Alive		8	13	6	1	4	4	1	37 or 25.1+%
	Dead	10	13	8	12	3	2	1		49 or 33.3+%
III	Well		2	2	1		2			7 or 11.8+%
	Alive		3	4	1		1			9 or 15.1+%
	Dead	17	15	6	2	1	2			43 or 72.8+%

CHART III.

PRESENT CONDITION OF 323 PATIENTS IN RELATION TO CONDITION ON DISCHARGE, AND THE PERIODS OF TIME WHICH HAVE ELAPSED SINCE DISCHARGED.

Incipient 117.

Present condition	Well									Alive									Dead								
Time since discharge	2 yrs. or less			3 to 4 yrs.			5 to 7 yrs.			2 yrs. or less			3 to 4 yrs.			5 to 7 yrs.			2 yrs. or less			3 to 4 yrs.			5 to 7 yrs.		
Condition on discharge	A[1]	I[2]	NI[3]	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI
Number of patients	17	8		17	1		32	7		6	5		2	1		7	3		2	3	2	1	2			1	

Moderately Advanced 147.

Present condition	Well									Alive									Dead								
Time since discharge	2 yrs. or less			3 to 4 yrs.			5 to 7 yrs.			2 yrs. or less			3 to 4 yrs.			5 to 7 yrs.			2 yrs. or less			3 to 4 yrs.			5 to 7 yrs.		
Condition on discharge	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI
Number of patients	13	9		12	8		8	12	1	10	10	1	5	1	1	3	4		2	20	9	5	9	1	1	2	

Far Advanced 59.

Present condition	Well									Alive									Dead								
Time since discharge	2 yrs. or less			3 to 4 yrs.			5 to 7 yrs.			2 yrs. or less			3 to 4 yrs.			5 to 7 yrs.			2 yrs. or less			3 to 4 yrs.			5 to 7 yrs.		
Condition on discharge	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI	A	I	NI
Number of patients	1	3			1		1	1		1	5	1		1			1			22	16		4			1	

[1] A—Arrested.
[2] I—Improved.
[3] NI—Not Improved.

SOME HUMAN DOCUMENTS.

Tabulations and percentages have some statistical value and furnish quotable material. They are rather dry reading. When obviously unstudied, and intelligent, letters from patients give the most valuable as well as the most interesting information. Here are some extracts from those received by us in answer to our enquiries. I give a few data on each case as they were when first seen by us and then the extracts in the writer's own words, changing names and places.

N. K., a married women, 39 years of age, six children. A moderately advanced case, at Rutland three months. Discharged, arrested 1907. Under observation in our tuberculosis class before and after going to the sanatorium. Lost sight of for three years. December, 1912, she writes, "I am in the best of health at present, I think I could not feel any better, my weight is 210 pounds at present." This patient was always heavy, 180 pounds when first seen.

A Good Student.—T. T., single, 18 years of age. An incipient case, at Rutland, 1907, four months. Discharged arrested. Lost trace of for nearly five years. December, 1912, he writes, " . . . from a slim, haggard-looking human skeleton I have been transformed at the Sanatorium to a ruddy, active citizen. Since leaving the sanatorium I have entered . . . University and graduated with the degree of LL.B. I did not think it expedient to let my high school education go to naught. I paid my tuition by giving private lessons in English, to men of foreign birth. . . . I have never been confined to bed on account of my physical condition. Have retained every ounce of the 20 pounds gained at Rutland. This is perhaps due to the fact that sleep 365 days a year in the open, do not smoke nor drink and lead a regular life. I do not cough, except a little when I rise. I sleep soundly, eat well. Of course I am not a strong man. I am rather short-winded. To remedy this I walk slow and do not over-exercise."

The Before and After Man.—N. E., single, 23 years of age. An incipient case, at Rutland about six and one-half months. Discharged arrested 1907. Not seen by us after admission. Six years after discharge he writes, " . . . was glad to know you people are interested in my health . . . am in the best of health at present, ... thanks to my dear wife I have been able to follow the rules of the Sanatorium, chest baths, etc. Four years after leaving the Sanatorium we came to Colorado. I work at my old trade of tailoring, have managed to keep up my weight . . . don't cough but do raise in the A.M. I send you a photo which I had taken in Rutland and one I had taken here in front of my house." The photographs show in the first a cadaverous, big eyed young man, the second a smiling, self confident fat man standing in front of a frame cottage.

A Persevering Worker.—T. D., single, 27 years old. An incipient case, at the Sanatorium about eight months. Discharged arrested. March, 1912, writes " . . . after leaving the Sanatorium in February I go back to my old work (in a factory) and I commence to lose weight again. So I go to Canada. I do not do much work that summer but I kept on with the treatment, sleeping out of doors and taking exercise. (sic) That winter I work in the woods, but don't forget the Sanatorium rules. Last spring (1912) I come to New Hampshire I get employment on large farm. I didn't have any idea I could hold my position. I stated my case to my employer, and he bought a tent for me. I work hard all summer and did not lose weight. I gain about 30 pounds when at the Sanatorium and I have 25 of that now. I must tell you I never work on a farm before. I had to learn to handle horses and operate the up-to-date machinery. I heard from one of my neighbors that my boss says I do as good work as any man he has. I tell you this to show you what the Sanatorium did for me. This is a fine country for T. B. We have three foot of snow at present and this morning at 6 A.M. it was 24 below zero. If more of the rested T. B. cases would come here instead of staying round the city it would do them more good."

F. P., single, 29 years old. A moderately advanced case. A student at college when first seen. Nine and one-half months at the Sanatorium, discharged arrested. Not seen again by us. January, 1913, writes " . . . After leaving the Sanatorium I went to Colorado for a year to find profitable employment, to get the benefit of the climate, and to make a home. But one had better be sure of some employment and not trust wholly to good fortune to land him in a job when he arrives there, for there are few industries . . . and more half-well people willing to work for next to nothing, than you can imagine . . . I found it difficult, impossible, to get employment of any kind immediately and I had no course open except to return East . . . I am living in . . . with my wife and child . . . They and I have been perfectly well. I, since I left the Sanatorium, have had nothing to remind me of my former trouble. Sleep always with open windows and have had no cause for calling in, or upon, a doctor." This patient wrote us an eight-page letter full of his experiences since leaving the Sanatorium.

A Temperance Lecture.—As a contrast to the above reports take the case of K. D., married, six living children, five dead children. First seen by us June, 1910. The record says, "drinking considerable, chewing five plugs of tobacco a day." Admitted to North Reading August 13, 1910. An advanced case. Discharged October 21, 1910, "improved, against advice." Patient told us he wanted to go to work. We expended much energy in the effort to reorganize the family situation. The burden of a drinking, consumptive father was too heavy. Admitted to Lakeville December 28, 1910. Not working in meantime. The wife reported that patient could always get something to drink. Discharged from Lakeville July 28, 1911, "improved, for misconduct." The patient was reported to have choked an orderly. The social service worker records "evidently an obstructionist." March, 1913, the wife reported to the visitor that the patient had been arrested for drunkenness and committed to the State Farm at Bridgewater. From there we found he had been sent on September 4, 1912, to the Prison Camp and Hospital at West Rutland, admitted as a moderately advanced case. Discharged arrested on August 16, 1913. Had been working

on the farm for sometime previously. This man has spent 21 months under State care; nine months and one week at a sanatorium, almost a year at the Tuberculosis Prison Hospital and Camp. I think the superintendents of the State Sanatoria would tell us that the alcoholics make the poorest patients, do the worst, and give the most trouble.

A BORN FIGHTER.—C. T., single, 41 years old. Admitted August 22, 1910. A moderately advanced case. Remained as a patient 14 months. After 13 months he writes: "It is strange to me I have never had a sick day or a temperature since I came, but still I don't seem able to shake the germs. It's a funny disease. But it's a long lane that has no turn." Discharged October 28, 1911, and remained at the Sanatorium to work. Worked there about 10 months when he left to try for work elsewhere. October 11, 1912, writes, "last August I left the Sanatorium to try for work in a mill, only just got a job. On going to work yesterday morning raised a little blood and last night had a sweat. Have worked just one day. I have no money and know no one that can give me any. Do you wonder that I am discouraged?"

This patient was later admitted to Westfield in the autumn of 1912. May, 1913, he writes from the sanatorium: "I went to work here May 24. I have charge of the boys' camp, 41 beds, half of them under 10. A boiler factory cannot boast of more noise. I like it first rate, the position, I mean, not the noise. I bathe about one-half the children, those under 10, take care of the laundry, make them keep tidy, get them to meals and to school."

LEARNT HER LESSON WELL.—W. T. is a good example of the use of the Sanatorium for the purpose of education. Married, 38 years old, five children. Under observation in our tuberculosis class both before and after going to the sanatorium. Was at Rutland about five weeks, an incipient case. Discharged "arrested" 1907. "Left because husband was tired of doing without her." Not seen for three to four years. December, 1912, she came to the hospital and reported. "My health is excellent. I have slept out of doors since leaving the Sanatorium and carried out the treatment."

FREQUENT RE-ADMISSIONS.—G. T., single, 22 years old, admitted first as incipient case, but with tuberculosis of the spine. Re-admitted five times. These are the dates of admission and discharge:

1. Ad. October 20, 1908, incipient.
   Dis. October 23, 1909, "arrested."
2. Ad. June 28, 1910, moderately advanced.
   Dis. October 17, 1910, "improved."
3. Ad. June 1, 1911, moderately advanced.
   Dis. November 1, 1911, "improved."
4. Ad. June 7, 1912, moderately advanced.
   Dis. October 1, 1912, "arrested."
5. Ad. June 11, 1913, incipient.
   Dis. October 1, 1913, "arrested."

The fourth and fifth admissions do not fall within our tabulations. I give them here to complete the illustration.

This patient spent 28 months at the Sanatorium in all. Was sent South in the winter by a philanthropic person interested in his welfare and returned to the Sanatorium as to a summer resort. The lung lesions were comparatively slight. It might be questioned whether it was wise to use a bed at the Sanatorium so long for such a case.

"DEMORALIZED."—X. C., married, 29 years of age. Was at Rutland between three and four months, an incipient case with a very good prognosis. Discharged, "arrested," in the summer of 1909. When he came to the hospital in answer to our request he reported that he had been afraid to work since discharge, except on part time occasionally. The physician said he was in excellent condition. He is a big stout man. This patient may be constitutionally lazy, but did not so impress us. He seemed relieved and cheered when the doctor prescribed work and plenty of it.

COMMENTS.

The number of cases of pulmonary tuberculosis throughout Massachusetts has been computed at 10,000-12,000 yearly. Up to 1909 there were 350 beds available at a state sanatorium. This number has been increased until now there are about 925, or provision for 9.2+% of the phthisis cases, taking the minimum number of 10,000. We secured state sanatorium care for 419, or 16.3+%, of the 2564 phthisis patients referred to us during the six-year period. It is apparent that the state sanatoria have, so far, played a relatively small part in caring for individuals. Their educative value cannot be computed. The discharged patients have carried the gospel of hygienic living to thousands. The day seems still distant when state care for the phthisical patient will be so organized that private societies can withdraw from the field. Only in few, if any, localities is municipal work able to fill the gap. The state should encourage and help to standardize all forms of private effort in order to secure the maximum of result with the minimum of duplication. Private dispensaries, tuberculosis classes, anti-tuberculosis societies, private sanatoria, day camps: we need them all. How else could we have even attempted the care of our 83.7+%?

We should like to make a study of a group of the patients put on the waiting lists for state sanatorium care and not admitted. They would offer about the same sort of material as our 419 patients. Many of them remained at home, some under the care of private physicians. A later study of patients discharged from the four state sanatoria would be valuable and should be done in two or three years. It would be a fairer test, as the cases would be less selected than our 419.

I regret that we did not attempt to obtain more data about the 419 patients. For example: What proportion of these patients had a family history of tuberculosis? How many returned to their former environment, both as to home and occupation? With the exception of the dangerous trades, there is a growing tendency to encourage patients to return to their former work, and to concentrate social effort on the regulation of the other sixteen hours a day. There is not much statistical evidence as to the comparative merits of these plans.

We thought it would be of interest to find out how many of the 323 patients had some other disease, or tuberculosis elsewhere than in the lungs. We disregarded certain illnesses, as chronic rhinitis and chronic laryngitis, also "debility" and pleurisy. In only 50 patients, or 18.5+%, could we find any evidence of serious complication, although we searched both the sanatorium and the hospital records. As the autopsy table furnishes proof that the great majority of cases of phthisis have tuberculosis elsewhere in the body, it is fair to assume that these 419 patients did not receive a thorough physical examination.

In attempting a study like this, one naturally turns to work along similar lines both for inspiration as to methods and comparison of results.

The difference of the methods employed and the numbers and class of patients dealt with makes any real comparison difficult and misleading. We found the work of Dr. Noel Bardswell,[1] Dr. H. M. King,[2] and Dr. A. P. Francine,[3] especially helpful, and I take this opportunity of acknowledging our obligation to these gentlemen.

Dr. King and Dr. Bardswell, for the most part, did not deal with indigent patients, and they all had the great advantage of a yearly report in compiling their statistics. Their analysis was based, in great part, upon medical findings, and so is more valuable. Our ultimate results, however, are somewhat similar. Dr. Bardswell says his statistics show that 50% of his patients will be in good health 4-9 years after discharge. Dr. King that 28.33% were in a satisfactory condition of health 6-9 years after discharge; only 25% of these were indigent patients. Dr. Francine shows that 51.85% were in good health 4 years after discharge; these were all indigent patients. We found 46.4+% of our indigent patients leading normal lives from 6 months to 7 years after discharge, and 23.5+% 4-7 years after discharge.

Many others have been engaged on this study besides myself. I want particularly to acknowledge my indebtedness to the following: Dr. R. C. Cabot, without whose encouragement and financial aid the work could not have been undertaken; Mrs. W. A. Hinton, and the unpaid workers who did most of the visiting; Miss Ethel Chase, to whom I owe a particular debt of gratitude. She has freely given much time to compiling and arranging the statistics, and in helping me to present the results of our study. I could not have carried the work to completion without her assistance.

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Clinical Department.

ILEAL STASIS.

REPORT OF THIRTY-THREE CASES.

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FROM the great amount of bismuth x-ray work done on the gastro-intestinal tract during the last few years, in normal cases as well as in those showing symptoms, certain standards have been established which are now generally accepted. It is found that the small intestine normally empties itself of bismuth in less than nine hours after the taking of bismuth by mouth. The presence of bismuth in the ileum more than nine hours after ingestion indicates a delay in the passage of the intestinal contents which is called ileal stasis. This is a functional disorder and may appear as the only abnormal condition present in the case. As a rule, however, it is a symptom or sign of some underlying pathological change, *e.g.* adhesions, inflammation or obstruction.

Analysis of the first 33 cases which showed an ileal stasis of nine hours or more by bismuth x-ray examination at the Massachusetts General Hospital gives results which seem of sufficient interest to warrant publication. As will be seen, the cases were subjected to examination for a variety of conditions—the diagnosis in those cases not operated upon being that given at discharge from the hospital after careful study in the wards. It should be borne in mind that in the great majority of the cases ileal stasis was but one of many abnormal conditions found at x-ray examination. Diagnosis made in this series of 33 cases was as follows:

Adhesions, 8,—

with intermittent hydronephrosis	1
with enteroptosis	1
with cerebral syphilis	1
with congenital syphilis	1
question of adhesions	1
with chronic appendicitis	1*
adhesions	2

Appendicitis (chronic), 4,—

with lead poisoning	1
with gastric neurosis	1
with adhesions around gall bladder	1*
chronic appendicitis	1*

Cholelithiasis, 2,—

with question of chronic appendicitis	1
cholelithiasis	1*

* Operated.

Constipation, 3,—	
with gastric ulcer	1
constipation	2
Chronic hepatitis with pigmentation	1
Debility, 1,—	
with gastric neurosis	1
Duodenal ulcer, 1,*—	
Neurosis, 2,—	
with menopause,	1
neurosis	1
Neurasthenia.	1
Ptosis, 4,—	
visceroptosis	2
with cystitis and senility	1
gastroptosis and debility	1
Epigastric and inguinal hernia	1*
Renal calculus and pyelitis	1*
Stricture Tb. of ileum	1*
Tabes dorsalis	1
Tb. peritonitis	1*
Stricture descending colon	1

Five of the above cases had been operated upon in the past for appendicitis as follows:

Adhesions.
Adhesions and intermittent hydronephrosis.
Cholelithiasis.
Pelvic adhesions with congenital syphilis.
Renal calculus and pyelitis.

Five of the cases showed ileal stasis of twenty-four hours or more as follows:

Man, aged 53—diagnosed chronic appendix and adhesions around gall-bladder.*
Woman, aged 21—constipation.
Woman, aged 24—gallstones. Question of appendix.
Woman, aged 29—gastric ulcer.
Woman, aged 42—neurosis.

This last case showed a stasis of 72 hours. The symptoms were not marked, however, and operation was not considered advisable.

Thirteen of the cases (40%) were in men; the ages ranging between 20 and 53, of which 6 or 48% were between the ages of 20 and 30.

Twenty of the cases (60%) were in women; the ages ranging between 21 and 63, of which 7 or 35% were between the ages of 20 and 30.

The series of cases divides itself naturally into certain groups which may be described as follows:

Group 1. Those cases in which ileal stasis is the only abnormal condition found. (Diag. constipation, 2 cases.)

Group 2. Those cases in which there is obstruction or inflammation at or beyond the lower end of the ileum: a group in which the condition of ileal stasis is due to obvious mechanical causes. (Diag., adhesions, 8; appendicitis, 4; tb. peritonitis, 1; tb. strict. ileum, 1; stricture descending colon, 1,—15 cases.)

Group 3. Those cases in which there is loss of nerve or muscle tone in the small intestine, together with the cases of ptosis which are largely due to lack of tone in certain structures or to faults in posture. (Diag., ptosis, 4; neurosis, 2; neurasthenia, 1; tabes dorsalis, 1; debility, 1.—9 cases.)

Group 4. Those cases in which there is delay in emptying the stomach with an accompanying delay in the passage of contents from the small intestine. (Diag., duodenal ulcer, 1; gastric ulcer with constipation, 1.—2 cases.

Group 5. Those cases in which the primary pathological condition seems distinct from the condition of ileal stasis; in which he may consider ileal stasis merely coincident. (Diag., cholelithiasis, 2; chr. hepatitis, 1; epigast. and inguinal hernia, 1; renal calcu. and pyelitis, 1,—5 cases.)

Groups 2 and 3 require no comment, the condition itself being sufficient to cause ileal stasis.

Group 4 suggests the type of case written about extensively by certain observers, notably Lane and Jordan in England, who believe that the pull exerted by the sagging loaded terminal loop of the ileum on the root of the mesentery causes a partial obstruction of the duodenum and resulting delay in the passage of food from the stomach together with gastric symptoms. It is noticeable in the cases of pure ileal stasis that the symptoms resemble closely those of certain stomach disorders—notably hypersecretion and hyposecretion. I have included in this group, however, only cases which appear to have a definite pathological lesion in the stomach or duodenum so that it seems fair to assume that the stomach condition is the important factor and the ileal stasis shown is a result of delay in the passage of contents from the stomach. This cannot, however, be conclusively demonstrated by the small number of cases reported in this series; and the fact that ileal stasis *per se* offers similar gastric symptoms makes the consideration of the type of case worthy of closer analysis when a large number of results is available.

What relation, if any, there is between the primary pathological condition in Group 5 and the accompanying ileal stasis is not clear. Certain of these cases would possibly come under Group 3 if careful analysis were made into the question of loss of nerve or muscle tone—ptosis—etc. The others show no probable relationship and are probably examples of a comparatively large group in which ileal stasis is not a prominent cause of symptoms and is merely coincident.

The symptoms of the two cases of simple ileal stasis were chiefly referred to the stomach—the most marked symptom being distress in epigastrium within one hour after meals. There was moderate constipation in both cases.

A brief review of the commoner symptoms found in the cases is of interest:

* Operated.

	Cases	%
Constipation	19	57
Constipation alternating with diarrhea	3	9
Gas (in epigast. within one hour p. c.)	16	48
Pain	26	78
Epigastric pain	19	57
Pain, rt. iliac fossa	4	12
Pain in left lower quad.	2	6
Pain in both flanks	1	3
Nausea	6	18
Vomiting	15	45
Stomach contents High acidity	8	24
Normal acidity	8	15
Low acidity	6	18
Diarrhea	1	3

Of gastric contents analysis only one was markedly high and one markedly low. The others were within what may fairly be called high normal and low normal limits. No case showed food residue in the fasting stomach.

The two most common symptoms found in this series of cases were constipation and epigastric pain or distress shortly after meals. Constipation is a natural cause or sequel of the condition of stasis. The relative frequency of the epigastric pain immediately after meals may be accounted for either by the constipation or the theory that ileal stasis produces some degree of obstruction in the duodenum by the pull of the loaded sagging ileum on the root of the mesentery. The nausea and vomiting are probably in relation to the amount of obstruction thus caused and subsequent change in the stomach function. It is fair to say that the degree of variation in the results of analysis of the gastric contents is scarcely proportionate to the severity of the gastric symptoms.

Noticeable is the relatively small number of cases showing alternating constipation and diarrhea which might be expected to occur where there is much fermentation of food residue in the small intestine.

TREATMENT.

Medical. The medical treatment resolves itself into an attempt to restore the inefficient bowel to its normal function. Relief of constipation over a long period of time may of itself be a curative measure, and this has been best accomplished by the use of some of the mechanical agents for moving the bowels, preferably, Russian oil in ½ oz. doses two or three times a day, or Agar Agar in 2 dram, doses T.i.d. or both together, with a diet aimed at relief of constipation and general hygienic and tonic measures to strengthen the weakened tissues.

Mechanical. It is noticeable in x-ray examinations of these cases that the last loop of the small intestine, as a rule, runs up from the pelvis and joins the large intestine at an acute angle rather than at a right angle. Some form of abdominal support is therefore often desirable to aid in holding the small bowel more nearly up in normal position. A webbing belt or swathe passing around the body between the crests of the ilia and greater trochanters of the femurs has been found to be of value. Faults in posture should be corrected by appropriate exercise and apparatus. Rest in a recumbent position after meals is of value as aiding the stomach and intestine to empty themselves, and such exercise as is indicated to strengthen the abdominal muscle and make a firm abdominal wall will aid in holding the small intestine in place.

Surgical. Should these methods prove inefficient and the nerve element be not considered too great a factor operative interference is advisable in the individual case. Where the condition is an aggravated one—where a band or kink is obvious—or where there is obstruction from other causes not to be remedied by non-surgical measures an operation should be done and at as early a date as possible. In the cases of long standing where no obvious obstruction is present but where the symptoms are marked and do not respond to medical or mechanical treatment the resort to surgical interference—short circuiting the large intestine, etc., will often establish efficient drainage of the small bowel and effect relief of the underlying condition.

CONCLUSION.

In this series of 33 cases the following facts are noticeable.

1. Ileal stasis is found,—(1) as a pathological entity; (2) as a symptom of other pathological conditions; (3) as a coincident condition in other diseases to which it is not apparently related.

2. Constipation and epigastric pain soon after meals are the commoner symptoms.

3. The stomach contents analysis is of little or no value in making a diagnosis.

4. Two cases only were of the typical primary ileal stasis type—those diagnosed constipation—although the cases of neurosis and debility (five in number) might be considered as possibly belonging to this type.

5. No case of Lane's kink was found.

6. The treatment is by choice relief of constipation by Russian oil or Agar Agar or both, together with hygienic and tonic treatment, mechanical support of ptosed structures and correction of faulty posture, surgical operation.

7. Diagnosis of the condition is made by bismuth x-ray examination.

I am indebted to Drs. Edsall, Cabot, Smith, Lord, Lee, Hewes, Williams, Codman and Whittemore for permission to use the clinical records of their cases; and to Drs. Dodd and Holmes for permission to use the x-ray records and assistance in the observation of cases.

Medical Progress.

FIFTH REPORT OF PROGRESS IN ORTHOPAEDIC SURGERY.

By ROBERT B. OSGOOD, F.A.C.S.; ROBERT SOUTTER, F.A.C.S.; HERMANN BUCHOLZ, M.D.; HARRY C. LOW, M.D.; MURRAY S. DANFORTH, M.D.

BONE AND JOINT SURGERY.

Experimental. Cotton and Loder[30] have undertaken careful animal experimentation in order to determine which of the two prevailing theories as to the fate of bone grafts is correct. The first theory is that the bone graft is retained without essential change and that it becomes an active centre of growth. The second theory is that the transplanted bone is replaced by a newly formed bone and that the graft is merely a trellis, taking no active part in the repair. They have found that the transplanted bone becomes rapidly fixed by adhesions and that there is a change in every portion of the bony tissue. The bone trabeculae disappear and new bone substance is laid down in the centre as well as in the periphery.

Haas[31] has studied the regeneration of bone from periosteum (rabbits, dogs, and cats), taking his experimental tissue from the ribs. He concludes that the periosteum has the power of regenerating bone and that blood clot enhances this power. He has found that regeneration may occur in the absence of pre-existing bone. He has never in his experiments found bone regeneration in the absence of periosteum.

Axhausen's[32] experiments with the transplantability of joint tissues are interesting and seem to agree with the work of Cotton and Loder as far as the bone portion of the transplant is concerned. He used the lower end of the femur in rats and the patella or pieces of the epiphysis of the femur in rabbits, transplanting these into the subcutaneous tissue of the back of the same animal, making his subsequent examination at periods varying from 3 to 100 days. He believes that in these animals his researches have shown (1st) that bone tissue is not transplantable in a histological sense, and that it undergoes an aseptic necrosis; 2nd) that medullary tissue is transplantable and that joint cartilage is transplantable both histologically and practically; (3rd) that epiphyseal cartilage is transplantable in a histological sense but not enough for practical purposes.

(Ed. Note: The experiments of Soutter at the Harvard Medical School confirm Axhausen's finding in relation to the transplantation of cartilage in dogs.)

Henle[33] reports six cases in which he has employed a method somewhat similar to the Lange method of local splinting of the diseased area in tubercular caries of the spine, except that he employs two grafts of bone removed from the tibia instead of the tinned metal wire splints of Lange. These grafts are placed one on either side of the freshened spinous processes or, where there is a considerable kyphos, on to the laminae. The bone is sutured in place by fixing it to the inter or supra spinal ligaments. He keeps his cases in plaster from two to six months.

Two remarkable cases of joint transplantation are reported by Tuffier,[34] one in a man of 23 who had had an ankylosed elbow for two years. The ankylosed joint was resected and a tibio tarsal joint removed from an amputation in a woman was sutured in place. This case is now 18 months old and the arm is said to functionate well. The x-ray of the transplanted joint seems to show no change in its contours or structure. His second case was that of a man with advanced tuberculosis of the elbow, and the same type of graft was used in this case, having been recovered from a leg amputated five days previously and kept in cold storage. He reports that this joint also has shown no change since transplantation and that the function has been excellent for fourteen months.

Taylor[35] still employs his yellow wax, (one part with 5-10 parts lanoline, melting at 130° F., and sterilized in an autoclave thirty minutes), in the treatment of ankylosed joints, reporting seven cases of fibrous ankylosis in which he has regained motion. We have not seen reports of the use of this original method by other surgeons.

Murphy's[36] report of some 16 cases of arthroplasty by his method of pedunculated and occasionally free fascia flaps includes nearly all the joints of the body except the shoulder, and the results appear surprisingly good.

(Ed. Note: Not the least valuable portion of the article is a plea for the prevention of ankylosis in these infected joints by rational methods of preventive treatment. Far too many acute non-tubercular joints are fixed by splints or plaster bandages and allowed to remain fixed until firm fibrous ankylosis has occurred. We wish again to state our conviction that acute joints which do not rapidly quiet down under rest should be opened, washed out, and sewed up, and that passive motion in all should be begun at the very earliest moment. The results by and large in the most important joints of the hip and knee from arthroplastic operations are still too uncertain for any neglect of these preventive measures.)

The accurate pathology of "snapping hip" has been so often doubtful that a case reported by Binnie[37] represents an important contribution to the subject. Binnie's patient, when carrying a heavy weight or leaning to the right, felt a rubbing over the right iliac crest and on

jumping or suddenly twisting his body he often felt a sharp audible click as if the hip was dislocated. At operation a rolled up fold of fascia along the anterior border of the gluteus maximus was found, which fold slipped over the greater trochanter. By suturing this to the vastus externus the symptoms were relieved.

Magunson[38] has continued his experiments on dogs in relation to the lengthening of shortened bones of the leg by operation, employing carefully devised ivory screws. In the dog the femur can be lengthened ⅜ to ½ an inch without injury to vessels or nerves, and in man he believes 2 to 3 inches might be safely gained. He finds the ivory screws are later absorbed.

SCOLIOSIS.

Perhaps no question in orthopaedic surgery is more important at present than the question of how much may be expected in the way of immediate and permanent correction of the fixed scoliotic curves, by the newer methods of applying plaster jackets in flexion devised by Abbott and Forbes. It may be of interest, therefore, for us to report the opinion of men who have had experience with the method.

Vulpius,[39] in April, had used Abbott's method in 25 cases, and came to the conclusion that with the use of Abbott's table and a correct technique, over-correction is possible in certain cases, and a degree of correction may be obtained which heretofore was impossible. He considers that pressure sores are dangerous and warns against a too early giving up of the plaster cast. He believes that it is still impossible to offer a conclusive judgment as to the permanence of the method.

Joachimsthal[40] has tried the Abbott method in thirty-six patients, varying in age from 8 to 20 years. All of them had fixed curves and had been treated previously without marked results. He finds the total curvatures and those in which the dorsal curve predominates as most amenable. He considers the immediate results surprisingly good in regard to the shape of the thorax, but they are to be explained to some extent, he thinks, by the making of a compensatory curve of the lumbar spine. He still feels somewhat sceptical concerning the final results.

Kleinberg[41] in America has had a very large number of cases (85) under treatment by the Abbott method. He has followed some 40 of these closely and reports 31. He considers the method severe, necessarily prolonged, but capable of giving good results, especially in the milder cases. Of these 31 cases, 10 gave up the treatment after two months. He believes certain cases may be overcorrected, but is not sure that relapses will not occur. He thinks that many can be put in a better attitude, perhaps by the development of compensatory curves.

Whitman[42] believes that Abbott has shown a new surgical principle of treatment that will lead to a great advance in correcting the deformity of scoliosis. He considers that Abbott himself is rather optimistic and he appreciates the limitations of the method, yet he thinks it will be effective in certain cases.

Stern[43] from his experience with a few cases considers Abbott's method the best we have at present.

"*Sciatic Scoliosis.*" Bucholz has made a very thorough study of the phenomenon called sciatic scoliosis. There has been much literature on the subject, especially in Europe, but comparatively little light has been thrown on the etiology or the treatment. Bucholz has selected 174 cases showing deviations of the spine from 761 lesions of the sacro lumbar and sacro iliac regions and has carefully analyzed them. He concludes that not one peculiar, but many, lesions may cause a deviation of the spine, sometimes to the right, sometimes to the left, sometimes total, sometimes with compensatory curves, sometimes changeable by manipulation from one side to the other. He has demonstrated cures in certain obstinate cases by a special method of recumbency with traction and hyperextension of the affected leg. In other cases massage, exercises, and manipulation are indicated, and in others fixation.

(Ed. Note. The anatomical study of the region of the fifth lumbar and sacrum is of utmost importance in these severe back cases and the correct interpretation of the x-rays in the light of clinical signs is being, we believe, gradually attained. While these so-called scolioses do not belong at all in the same class as the structural curves of adolescence, yet their cause may lie in the same region as the numerical variations which Böhm found associated so frequently in the structural cases. Goldthwait has demonstrated the prevalence of these varying articular and transverse process shapes and explained their bearing on back strain, and Adams is finding that the vast majority of the cases of scoliosis under treatment by him in the Orthopædic Clinic of the Massachusetts General Hospital have some abnormality of shape or articulation, the significance of which is gradually being learned.)

FRACTURES AND DISLOCATIONS OF THE SPINE.

Malkwitz[45] reports nine cases from Hoeftmann's clinic of total dislocation of the cervical spine without symptoms of injury to the spinal cord. Clinical and x-ray observations as well as experiments on the cadaver show that a total dislocation of the cervical spine does not necessarily produce a lesion of the spinal cord. Frequently the posterior roots and the spinal ganglia are injured and cause lasting symptoms. The spinal cord in these cases may show an S-like curve. The author believes that the reason why an injury of the spinal cord does not always take place is to be seen in the marked

tilting of the posterior part of the displaced vertebra in anterior dislocations, and vice versa in posterior dislocations. In two of his cases a simultaneous fracture of the arch of the vertebra occurred also, which may be another reason for the absence of cord compression.

Ed Note. Corner[46] and Mixter and Osgood[47] have reported series of cases of fracture and subluxation of the upper cervical vertebrae without immediate symptoms of cord compression, but the danger in these cases where there are no immediate symptoms is the gradual development of a myelitis from irritation and late bony proliferation. These late and sometimes fatal symptoms have ensued months and even years after the injury and indicate the necessity of exact diagnosis, exact replacement and freedom from irritation accomplished by fixation for a long period after the accident.

Lewandowsky[48] emphasizes the importance of a careful consideration of the clinical symptoms after a back injury in which x-ray picture may reveal nothing absolutely positive. He believes that compression fractures, especially of the lumbar vertebrae, are not uncommon and can only be surely diagnosed by clinical symptoms, but can be frequently confirmed by very careful x-ray examination. On the other hand Rhys[49] cites six cases of what in the x-ray plates appear to be definite fractures of the transverse processes, a distinct gap appearing between the "fragment" and the base. Three of these cases showed a displacement of the outer end up or down. Two cases showed thickened edges of the "line of fracture," suggesting a callous or a joint. These six cases he considers to be only pseudo fractures and to represent imperfect ossification or epiphyseal displacements due to the pull of an attached muscle. Only two of his cases had any history of injury and these injuries were slight. These epiphyses may not ossify until the twenty-fifth year and incomplete ossification may account for the gap.

(Ed. Note: Any large series of good x-rays of the lumbar spine is likely to show gaps of incomplete ossification of the transverse processes and occasionally of several of the transverse processes and on both sides. While we believe true fractures of the transverse process may and do occur, the importance of discriminating between these rare fractures and the commoner abnormalities of ossification is at once apparent in relation to workmen's compensation laws and possible operative treatment.)

MISCELLANEOUS.

Hawley[50] has invented an orthopaedic table which is most easy of operation and most skillfully devised. It meets the various requirements for the treatment of fractures and various orthopaedic conditions demanding fixation, traction, and the application of plaster to the trunk and lower limbs better than any table with which we are familiar.

Newton[51] has conducted an experimental investigation on concussions of the spinal cord. The spinal cord was exposed by laminectomy in the mid dorsal region in three monkeys, 8 dogs, and 39 cats. He has been impressed by the extreme sensitiveness of the cord to slight degrees of compression and concussion and by the considerable disturbance of function with very slight anatomical changes. As a result of his work he has come to believe that there are organic reasons for the symptoms of "railway" and "traumatic" spines, and that very slight effusions or hemorrhages from moderate trauma often cause marked disturbances.

There has been much discussion as to the most advantageous position in which to apply fixative treatment to the spine. Allison and O'Reilly[52] by means of x-rays taken in a special frame for the purpose of accurate comparison have studied the effect of various methods of traction and hyperextension in a case of old Pott's disease with considerable deformity and in the normal child. They conclude that vertical traction with hyperextension gives the best position of the vertebral bodies.

Goldthwait[53] believes that orthopaedic principles should be applied to the treatment of abdominal visceroptosis and chronic intestinal sepsis. It is evident that associated with these conditions are constantly found most extreme cases of faulty posture and frequently the chronic arthritides. He is convinced that by the remodelling of the body by means of positional bed treatment, apparatus, and exercises the faulty posture may be corrected, the ptosis improved, and what is more important, the general health of body and mind immensely changed for the better. Frequently the chronic joint symptoms disappear, and while congenital abnormalities may still condition to some extent the patients' complete return to robust health, these individuals may still be enabled to lead active and useful lives.

The importance of attacking these problems early is emphasized by Vorechelli[54] in a study of the etiology and therapy of dorsal curves. An observation of 906 pupils of elementary schools for girls and boys showed only 37% who were considered normal; over 27% who had varying degrees of what he calls flaccid dorsal curves or "respiratory dorsal curves" with asthenic thoraxes, and over 14% showed some degree of real scoliosis. It was of interest also that the flaccid dorsal curve is most frequent among the little children of the elementary classes, while the scoliotic deviations occur in the older classes, the inference being that the flaccid dorsal curve frequently changes into the scoliotic. Exercise in the open air he believes

to be the rational treatment and the benefit of this he has demonstrated.

Less has been written concerning the "congenital flat-foot" than concerning the congenital club-foot, and it is not rare to find neglected cases of the former condition. Legg[55] believes that a foot which by the third or fourth year has not developed a longitudinal arch, and whose scaphoid bone is not raised from the level of the sole, will gradually develop bony changes in the tarsus and remain flat permanently. He recommends the transplantation of the tibialis anticus to give a more correct pull. He reports ten cases with good results.

Kuelm[56] calls attention to the benefit attained in the case of a man of 68 suffering from intermittent claudication by the use of the faradic current applied while the legs were immersed in warm water. The case is interesting since the relief had lasted for six years at the time of reporting, and the pulse, imperceptible at first, became palpable again after twelve sittings.

(Ed. Note: The relief of this condition in our experience hs been most difficult and the condition is distressing. In two instances lasting relief has been obtained in our hands after the use of light electric vibration and with the report of Kuelm's case we should certainly attempt to stimulate the circulation by gentle methods of hyperaemia.

Drs. Dufour and Bertin-Mouret[57] report a case of Paget's disease in a woman eighty years old. The age of onset was unusual, beginning in her sixty-eighth year. The extreme pain in the extremities was sufficient to make her apply for admission to the hospital. After a positive Wassermann reaction three doses of neosalvarsan were cautiously given with intervals of twelve and thirty days. The pains disappeared and the case improved. The case is noteworthy on account of the treatment and improvement and also on account of the age at which the neosalvarsan was used.

M. Gangolphe[58] reports a case of pretabetic osteoarthropathy in a syphilitic fifty-seven years old, who had a partial absorption of the astragalus and bony proliferation around the lower ends of the tibia and fibula, following a fall. There were no medullary symptoms present, except impotence.

Mintz[59] has treated four cases of lesions of the tibial tubercle of the type of the so-called Osgood-Schlatter disease. He believes that the cause is not a partial avulsion of the tubercle, but that some unknown cause produces atypical bone formation. With the end of the growing period the disease stops. He operated upon two of his cases and the microscopical examination showed rarefaction, osteoclasis, and new formation of osteoid tissue and bone. He calls attention to the fact that similar lesions are found in other places as well, for example, at the epiphyses of the base of the fifth metatarsal bone and at the olecranon.

(Ed. Note: We admit that the exact cause of these lesions is not apparent, but it is a significant fact that they usually occur in active athletic adolescents or pre-adolescents, and only as far as we are aware at the points where powerful muscles are attached. We have a case under observation at present who presents these lesions at one tibial tubercle, the base of one fifth metatarsal, and at the apophysis of one os calcis. We are therefore inclined to believe that strong muscle pulls on appropriately formed growing bone centres, plus perhaps some not understood individual peculiarity in the structure of the epiphyses are the chief factors.)

Musgrave, Sison, and Crowell[60] have made x-ray and microscopical studies of twelve cases of bone lesions following smallpox. The long bones and their joints are most commonly affected and the lesions are always found in persons who have had the disease in early life, in none of their cases after 14 years of age. The diaphysis is shortened and the epiphyseal region distorted. The condition is evidently due to some change at the epiphyseal line which prevents the growth of the shaft. The contour of the shaft and its structure are unaltered. No microscopical changes were found.

Symmes and Wallace[61] have found pathologic changes in the thyroid glands in the cretinistic variety of chondrodystrophia foetalis and they recognize in these cases a type of chondrodystrophia in which the modifications in the soft tissues are comparable with those generally admitted to be due to defects of the thyroid gland.

(Ed. Note: Certain of the dwarf characteristics of the achondroplastic individual may be roughly compared to the peculiarities of the cretin. It seems most probable that there are some of these abnormal human variations that are deficient at the same time in many ways and we should expect dyspituitarism to be associated with disturbed secretion in other ductless glands. If we recognize achondroplasia as caused by a restriction of the activity of the hypophysis due to early ossification of the tribasilaris we may expect that in these cases various abnormalities may co-exist. Changes in the thyroid may be one of those concomitant abnormalities.)

Matts[62] has studied the changes in the bones of young dogs after excisions of the thymus gland. After complete excision there were distinctly progressive changes in the skeleton consisting of softening and bowing of the bones. This went hand in hand with a very marked weakness of the muscles and resulted in complete cachexia with impossibility of locomotion. Under the microscope a distinct similarity to rachitic changes was observed, evidenced by the

occurrence of limeless bone tissue of very large extent. This change was caused by resorption of calcified bone and extensive new formation of osteoid tissue. From this morphological similarity of the processes after thymus excision to the changes in human rickets, it is not conclusively proved that both processes are of the same nature, but the similarity is at least suggestive.

(Ed. Note: An interesting case in this connection has been observed by the editors which seems also possibly suggestive. An operation was performed for the correction of a disabling coxa vara in a case of marked adolescent rickets. A septic infection at first mild but uncontrolled by free drainage occurred, to which the boy succumbed. At autopsy a very large thymus gland and a status lymphaticus was found.

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Reports of Societies.

NEW ENGLAND PEDIATRIC SOCIETY.

Twenty-eighth meeting held at the Boston Medical Library, December 12, 1913.

FRITZ B. TALBOT, M. D., SECRETARY.

DR. THEODORE W. ELY read a paper entitled

ALCOHOLIC CIRRHOSIS OF THE LIVER IN CHILDHOOD WITH REPORT OF TWO CASES.

Abstract: The paper contained a brief review of the literature on the subject with a resumé of the general symptomatology. Two probable cases in twin boys of four years, and the post-mortem findings in one of these cases were reported.

DISCUSSION.

DR. HOWARD T. KARSNER: Unfortunately, it was not possible to give Dr. Ely the description of histological material in the autopsy report. Grossly, the liver is not the "hob-nail" liver commonly seen in alcoholic cirrhosis and microscopically there is nothing in the nature of hyalin or other change to indicate a typical alcoholic form. To the contrary, the histological picture is that of cicatrization and attempted repair following an extensive acute destructive lesion similar if not identical with acute yellow atrophy. That alcohol can produce such a destructive change has not been demonstrated and therefore the etiological agent in this case must remain in doubt.

DR. ELY: I have nothing to add except to say that cirrhosis of the liver due to other cause was ruled out from the fact that the evidences of liver impairment were present before the attack of measles. Aside from this acute infection, I think all the more common causes of cirrhosis in childhood were ruled out by the history, physical findings and clinical tests.

DR. W. E. LADD read a paper on

THE TREATMENT OF TUBERCULAR CERVICAL ADENITIS IN CHILDREN.

Abstract: The various forms of treatment in vogue at the present time reviewed. He reported 83% of cures in a series of forty cases by thorough extirpation of all infected glands with the primary focus and recommended this form of treatment as it apparently yields 30 to 40% more cures than any other yet devised. Active tubercular lesions in the tonsil were found to be more common than had been previously reported.

DISCUSSION.

DR. CLEAVELAND FLOYD: I think something ought to be said on the other side of this subject. In each of the three series of cases which have been quoted, showing such a large percentage of cures, there has been one death following operation. Two of these deaths were due to acute general tuberculosis. In other words following the operation of tubercular cervical adenitis death does occur and it is not very uncommon that the local process becomes a general one. I know of several such results. No

one will deny that good hygiene is a part of any treatment of tuberculosis no matter where the disease is located.

The point made by Dr. Ladd in regard to removal of the tonsils is an excellent one. The tonsil is commonly the primary focus of the disease and should be removed in all cases. After this has been done however, the glands will take care of themselves and should be let alone.

The men in charge of surgical clinics speak of the poor results they have seen as the result of the use of tuberculin. The same thing is true of the work of the surgical clinic, in that the men using tuberculin are often called on to treat a case of tubercular adenitis after two or three operations have failed to give relief and the scars themselves have become infected. The time required to get good results with tuberculin has been urged as a point against it. In every case of localized tuberculosis prolonged observation is an excellent thing for the patient in order that his mode of living may be supervised. This far outweighs the value of the loss of time borne by the patients. If the tonsil, as the primary focus of tubercular adenitis is removed and such glands as have broken down are drained, then I believe that surgery has done all that is required. Palliative surgery with tuberculin and prolonged observation, will give more lasting results without complications, than can be obtained by surgery alone.

Dr. H. I. Bowditch: I am glad the question of tubercular adenitis has been brought up because I think it is good to thrash it out. Some years ago, when tuberculin was first started here in Boston, I was interested in the tubercular glands of the neck at the Out Patient Clinic of the Children's Hospital, and I tried in a very small way the tuberculin injection, choosing children who had a sinus. As I remember it, they were very few in number, but they seemed to me to clear up very rapidly with the tuberculin treatment. I agree with Dr. Floyd and Dr. Ladd in having the tonsils out where they seem to be the cause of the infection, but I am not quite sure yet where surgical treatment comes in to the best advantage of the child. However, I think that the tuberculin treatment is of advantage. In other words, if you put me to the test, I should give tuberculin before I should do an extensive operation on the neck. There is another point which must be considered *i. e.*, that it is possible that some of these cases of cervical adenitis are not of tubercular origin.

Dr. Charles G. Mixter: The surgeon does not object to tuberculin as a medical procedure but what he believes in is that when tuberculin has been tried and the glands do not subside that the case should be considered a surgical one, and not wait for one abscess after another to appear. Then you can hope for a radical cure, for in this way you get rid of the glands.

Dr. Cleaveland Floyd: I was much interested in listening to Dr. Mixter's experience in having seen one abscess after another. It is rather an unusual thing with the use of tuberculin. Tuberculin is useful in the bilateral cases also, and in cases which have broken down it cleans up the sinus and we do not see a succession of abscesses. Some difficulty is experienced in a few of the cases, for it is not an uncommon thing for them to receive one or two doses of tuberculin and then disappear for two or three months, having in the meantime gone the round of the hospitals.

Dr. J. S. Stone: There is one point upon which we are all agreed. The tonsils must be removed. I think if we do that, and do it early enough, the end results, no matter what other treatment is added, are going to be much better.

Dr. Ladd: I think Dr. Floyd has brought up a question of surgical accident which has always been a drawback to surgery. We all have to admit that we do occasionally lose cases through surgical accident but I do not think that the results with tuberculin are convincing enough for us to give up surgical measures in these cases. The question of abscesses not following one after another in his experience I think is rather unique. I have seen a good many cases treated with tuberculin, and I have been in a position where I have had to dress them for the medical men, and have had not a few dressings to do in some instances. With regard to the question of stirring up a general infection, I think this is a very good one but it is uncommon. The tuberculosis of the neck is, in a large percentage of cases, a local thing, and the number of cases in which there is involvement of the lung or of other parts of the body is comparatively small. There are some cases in which there are involvements of the bones or joints besides the glands, or glands in other parts of the body than the neck. The few cases that I have seen that had other parts of the body affected have usually been benefited by the dissection of the neck and the removal of the tonsils.

Dr. J. J. Thomas of Boston, read a paper on

OBSTETRICAL PARALYSIS, WITH ESPECIAL RELATION TO TREATMENT.

Abstract: In obstetrical paralysis we have an injury of peripheral nerves, in the plexus, and the paralysis and atrophy are never as intense as in cases of poliomyelitis, because of partial recovery. The treatment is surgical by resection of the injured nerves by transplantation of muscles. The most effective treatment in milder cases is that by educational exercises devised to train the child to use the weaker muscles and so develop them instead of substituting the action of the stronger muscles which produces awkward roundabout ways of achieving the purpose aimed at.

DISCUSSION.

Dr. Walter B. Swift: I should like to ask how Dr. Thomas would account for the recovery in these cases of obstetrical paralysis. Is it a regeneration of neurones or a resumption of function where fibers have been temporarily merely functionally involved, or is the recovery a muscle change?

Dr. J. S. Stone: Anything which causes muscular relaxation, whether it be the etherization of the child through etherization of the mother or whether it be the relaxation of muscles from asphyxia or other cause plays a very important part in the etiology. Early support to the paralyzed muscles to prevent their being over-stretched is of extreme importance. While they are paralyzed they must be supported, because recovery is much better if they are supported. The lesion is mechanical. The problem would be purely surgical if the injury was a knife-cut. The difficulties of surgical interference are that in every case some of the fibres are torn, some of the fibres are stretched and some of the fibres are pressed on by the exudation into

the surrounding tissues. If we could only tell how extensive the tearing is then the problem would be more frequently a surgical one. There is a further difficulty that in many cases the injury is in a location which cannot be reached, that is, close to or even within the foramena. Personally I hope to see more and more progress along surgical lines. The problem is a mechanical one. The difficulties in surgical treatment are now very great.

DR. THOMAS, in closing: Of course training of muscles does not cure the condition in the nerve fibres. What I think is that stretched fibres recover in time by the natural regeneration when they have not been actually torn. This recovery is proved by the regaining of some power of voluntary contraction which is practically always seen to some extent. What a system of muscle training does is to teach the child to use these weak muscles, instead of substituting awkward movements to accomplish its object, by using the stronger muscles, and in this way we develop the weak muscles. Such a method, as I have said, to be successful, should begin early, before permanent changes in the affected muscles have taken place, and they require the treatment over quite a long time.

DR. PHILIP H. SYLVESTER read a paper on

SOME TRAGIC ASPECTS OF WHOOPING COUGH.*

DISCUSSION.

DR. CLEAVELAND FLOYD: I think the first case was one of considerable interest from a bacteriological standpoint, with the appearance of a large number of cells in the spinal fluid, then the appearance of staphylococci, the case going on to be a chronic one pointing towards recovery. It is quite an unusual thing to have staphylococcus meningitis, in the first place, and to have recovery in the second. I should like to ask Dr. Sylvester if he will give us a clear idea of what we ought to do in the prophylaxis and treatment of whooping cough.

DR. L. W. GILBERT: I think that something can be done regarding prophylaxis of whooping cough in the schools. The medical examiners who go to the different schools see a great many cases of children with cough without any definite whoop. One year when I was inspecting the schools in Brookline I made it a rule that a child who coughed for three or four days should be sent home, and the result was that instead of having a severe epidemic of whooping cough in a school which generally had one, I think there were something like twenty cases that year where they ordinarily had one hundred to one hundred thirty.

DR. SYLVESTER, in closing: In regard to prophylaxis, of course we all know that it is very difficult to tell at first whether a child is going to have whooping cough or not, but when we have a cold in a child with a cough, after exposure, we are justified in isolating that child to see how it will turn out. It seems to me that the regulations regarding whooping cough should be a great deal more stringent because, as statistics show, ten thousand or more children die annually with this disease in the United States. I think our Boards of Health should adopt more stringent measures regarding the control of this disease, and have the power to isolate all cases. As far as treatment is concerned, I suppose anything that helps is treatment. I do not know of any one thing which will give results in any one case. We have to try them all out, vaccines, bands and vaccination, and when a case is severe at all, I put most of my faith in sedatives to keep down the intensity of the paroxysms and to reduce their number.

* See page 406.

Book Reviews.

Die Störngen der Männlichen Geschlectsfunctionen und ihre Behandlung, VON DR. EMIL KANTOROWICZ. Berlin, Wiener: Urban and Schwarzenberg. 1913..

In this small handbook of 118 pages the author presents in concise and readable form under clear headings many facts regarding the sexual life, both in its normal and pathological aspects. Its practical value is increased by a discussion of the treatment of various sexual conditions. It is illustrated by eleven cuts, and in general is a useful book of its kind, brevity being not the least of its virtues.

A Manual of Venereal Diseases. Introduction by SIR ALFRED KEOGH, K.C.B.; History, Statistics, Invaliding, etc., BREVET COL. C. H. MELVILLE, R.A.M.C.; Clinical Pathology and Bacteriology, BREVET COL. SIR WILLIAM LEISHMAN, K.H.P., F.R.S., R.A.M.C.; Clinical Course and Treatment, MAJOR C. E. POLLOCK, R.A.M.C. Second edition, revised and largely rewritten, with new matter by L. W. HARRISON, R.A.M.C. Oxford Medical Publications. London: Henry Frowde, Hodder and Stoughton. 1913.

This is an admirable book, written by officers of the British Army Medical Service, on the practical problems of venereal disease. Considerable space is given the the history of syphilis, leading up to the discovery of its causative organism, and to a discussion of the Wassermann reaction, which followed. Several chapters are devoted to treatment by salvarsan and neosalvarsan, and a detailed description given of the various methods of administering mercury, with their relative advantages. Gonorrhea and the less important venereal disorders are given due space. In spite of the great number of books on the general subject of which this manual treats, we are not surprised that a second edition has been demanded. Although the modest statement was made in the preface to the first edition, that the book was "intended merely to act as a convenient manual, for the use primarily of the army medical officer, to assist him in his daily work in the prevention and treatment of venereal disease," we foresee for it a field of much wider usefulness. It will be of interest to sociologists that Sir Alfred Keogh, in his introduction, asserts with assurance that the legislative control of prostitution has certainly limited the spread of venereal disease in armies.

THE BOSTON
Medical and Surgical Journal

THURSDAY, MARCH 19, 1914.

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THE COOLIDGE TUBE.

In the issue of the Journal for Jan. 8, 1914, (Vol. clxx, p. 64), we made preliminary editorial comment on the new form of Roentgen tube invented by Dr. William David Coolidge, of New York, and first demonstrated by him before a meeting of physicians, physicists, and radiographers on Dec. 27, 1913.

In another column of the present issue of the Journal, we publish an article by Dr. Van Allen, of Springfield, describing in more technical detail the Coolidge tube and its scientific and clinical advantages. The early anticipations of the great value of this instrument seem to be fully realized in practise, and its employment should mark the opening of a new period in Roentgen work.

To the roentgenologists who have worked with the Roentgen tube from its earliest form up to the present wonderfully developed transformer tube with its tungsten target, the Coolidge tube is a revelation far beyond what was ever hoped for. To have at one's command an instrument which makes it possible to give absolutely accurate exposures for roentgenographic work, roentgenoscopic observations, and also to be able to give a positively accurate dose when used as a therapeutic agent, reduces roentgenology almost to an exact science.

When Dr. Coolidge's invention is used in connection with a transformer which will give practically an unfluctuating, non-impulsive, unidirectional current, with which it is possible to use a volt meter in the tube circuit giving the absolute penetration of the tube indicated by kilovolts (thus eliminating the other somewhat inaccurate methods of penetration), then conditions of perfect accuracy are realized.

We already owe much to Dr. Coolidge for his development of the tungsten anodes, used in the present transformer tubes. His latest development leaves nothing to be desired as far as the Roentgen tube is concerned. With the Coolidge tubes, the operator can now get not only homogenetic Roentgen rays, but complete accuracy of dosage. This is of the utmost importance in all branches of this field, but particularly in roentgenotherapy. In this branch of the work, much more can now be accomplished than has ever before been thought possible.

In regard to the dangers from the use of the Coolidge tube, there seems no reason to believe that they are greater than from the previous type when used by those who appreciate the fact that every Roentgen tube is a source of danger when carelessly or ignorantly operated. The amount of energy that can be obtained from this tube is almost unlimited, but is absolutely under control. The penetrating power is still dependent upon the voltage impressed on the terminal of the tube, as in the older types. But the fact that its operation is no longer dependent on the presence of vapor in the tube, that simply by heating the cathode by means of a low voltage current, the tube can be operated at any desired penetration (such penetration being dependent upon the voltage delivered to the terminals of the tube and the amount of current being dependent upon the degree of heat applied to the cathode from the low voltage current), puts into the hand of the expert an instrument of precision in which there is no danger, providing he realizes its limitations.

For a more complete technical description of the tube and its methods of use, our readers are referred to the original article by Dr. Coolidge in the January (1914) number of the *American Journal of Roentgenology.*

MEDICAL LEGISLATION. REGISTRATION OF VITAL STATISTICS.

In the issue of the Journal for Feb. 26 (Vol. clxx, p. 325), we commented editorially on the proposed bill (House No. 1348) to amend the laws of this state in relation to vital statistics.

The essential provisions of this bill are embodied in three sections, as follows:—

"Section 1. The State Board of Health shall have charge of the compilation and tabulation of births, marriages, deaths, divorce returns and medical examiner returns, shall prepare for the Secretary of State the official report on these subjects to the General Court, including therein tables and analyses of morbidity returns, and shall from time to time recommend any additional legislation that may be necessary in relation to such statistics.

Section 2. This statistical work shall be under the management of a competent physician who shall be known as the State Registrar of Vital Statistics. He shall be appointed by the Governor with the advice and consent of the Council upon nomination by the State Board of Health.

"Section 3. All copies of births, marriages, deaths, divorce returns and returns from the medical examiners, called for by law shall be sent by city clerks and other officials to the State Board of Health. These copies and returns shall be used for statistical purposes by the State Registrar of Vital Statistics and then transmitted to the Secretary of the Commonwealth for permanent custody."

At present the death certificates are analyzed, tabulated and published by the Secretary of State. The medical department of health of the state, *i.e.* the State Board of Health, has nothing whatever to do with them. Under these circumstances it is not to be wondered that the statistics do not command the respect that they did when supervised by the secretary of the State Board of Health, as they were for half a century previous to 1890. Massachusetts was the first state in the country to have vital statistics, about 1843, and the death returns then ranked first in accuracy and efficiency. It is the restoration of these conditions which is intended by the present measure quoted above.

A hearing in favor of the proposed bill was held on March 5 before the committee on public health, and at this hearing the bill was advocated by various medical organizations.

The proposed legislation on vital statistics has been approved by The Massachusetts Medical Society—through its committee on state and national legislation—by the American Statistical Association and by the Massachusetts Association of Boards of Health.

The resolutions unanimously approved by the latter association are given below:—

"Whereas, One of the most important functions of boards of health is the prompt return of reliable vital statistics, and

"Whereas, the chief factors of vital statistics, the births and deaths, are medical matters and hence necessarily in charge of physicians, and

"Whereas, By reason of the character of the data involved, their supervision and tabulation can be much better done by a physician, who has been properly trained and educated for this work, and

"Whereas, The vital statistics of Massachusetts are in charge of the Secretary of State, instead of the medical department of the State, now, be it

"Resolved, By the Massachusetts Association of Boards of Health, in annual meeting assembled that it would be for the distinct advantage of the public welfare to have the vital statistics placed in charge of the State Board of Health for their proper arrangement and tabulation previous to their being given in charge of the Secretary of State for permanent custody. By this means the vital statistics would remain in the hands of the medical profession, where they naturally belong, until they have been put in proper shape for permanent record.

"Resolved, That appreciating the importance of the desired change and of the efforts now being made to bring it about, this Association most earnestly approves of House Bill, No. 1348, which simply directs that the vital statistics of this state on their way to the office of the secretary of state shall pass through the office of the State Board of Health for the purpose of permanent arrangement and tabulation."

THE REPORTING OF INDUSTRIAL DISEASES.

AMONG the acts of the Massachusetts General Court of 1913 was one (Section 6 of Chapter 813) which provided as follows:—

"The joint board (of labor and industries, and industrial accidents) may require every physician treating a patient whom he believes to be suffering from any ailment or disease contracted as a result of the nature, circumstances or conditions of the patient's employment to report such information relating thereto as it may require, within such time as it may fix, to the state board of labor and industries, and may issue a list of such diseases which shall be regularly reported upon by physicians and may add to or change such list at any time."

Under the provisions of this section, the board passed the following regulation:—

"Under authority of Section 6 of Chapter 813 of the Acts of 1913 the Joint State Board of Labor and Industries and Industrial Accidents hereby requires that every physician treating a patient whom he believes to be suffering from

poisoning from lead, brass, phosphorus, arsenic or mercury or their compounds, or wood alcohol, or from anthrax, or from compressed air illness, to report within 48 hours to the State Board of Labor and Industries, the information relating thereto called for by the reporting blanks issued by the said Board. Every such physician is hereby requested to make reports on the said blanks to the State Board of Labor and Industries of any patient whom he treats that is suffering from any other ailment or disease which the physician believes to have been contracted as a result of the nature, circumstances or conditions of the patient's employment."

This regulation became effective on March 1, and appropriate blanks for making reports have been distributed by the board to physicians throughout the state. The attention of all is called to this new piece of medical legislation and to their duty of compliance therewith.

MEDICAL NOTES.

London Death-Rates in January.—Statistics recently published show that the total death-rate of London in January was 18.4 per 1000 inhabitants living. Among the several districts and boroughs, the highest rate was 23.4 in Finsbury, a crowded central slum, and the lowest was 12.3, in Lewisham, an open southern suburb.

Xiphopagotomy.—In the issues of the Journal for Jan. 8 and Feb. 12 we commented on the recent birth of a pair of xiphopagi in France. Report from Paris states that they were surgically severed on March 4, and are both doing well. They were born on Nov. 28, 1913, and at that time weighed 10 pounds. Later report states that one of the infants has died.

Bubonic Plague in Havana.—Recent report from Havana states that a case of bubonic plague was discovered in that city on March 5, and a second case on March 10. The patients were isolated, and every precaution taken to prevent further spread of the infection. The first patient has already died, but no further cases have as yet been reported.

Injunction Against Iowa Sterilization Law.—Report from Council Bluffs, Iowa, states that on March 11 the United States district court granted a temporary writ of injunction against the enforcement of the Iowa sterilization law in a case filed at Keokuk.

Jordan Memorial Sanatorium.—The recently published first annual report of the Jordan Memorial Sanatorium at River Glade, N. B., records the work of that institution for the year ended Oct. 31, 1913. During this period 36 tuberculous patients were under treatment. The institution was created by legislative act in 1911, and the site and buildings were given by Mrs. James C. Jordan, of San Francisco. It is situated in Westmoreland County, seventy miles from St. John and twenty miles from Moncton. The first patient was admitted on March 17, 1913. Only cases in the early stages of phthisis are considered suitable for admission.

Typhoid Fever Near Montreal.—Report from Montreal on March 3 states that typhoid fever was then epidemic along the valley of the Richelieu river. A total of 400 cases has been reported. In the little town of St. John, 200 cases and 4 deaths have occurred. The infection has been traced to a polluted water-supply.

Investigation of Chinese Sanitation.—Report from Chicago on March 5 states that Dr. Harry Pratt Judson, president of the University of Chicago, has been appointed chairman of a commission of the Rockefeller Foundation to investigate medical and sanitary conditions in China. The commission will sail from New York on March 21. It will visit Paris, Berlin, St. Petersburg and Moscow on the way, and is due to reach Pekin on April 18.

Scarlet Fever in New Jersey.—Report from Florence, N. J., on Mar. 10 states that scarlet fever is epidemic in that town of 2000 inhabitants. There have been 35 cases since Dec. 1, 1913; there have been 11 deaths since Feb. 27; and 23 cases are now under observation. The local churches have been closed.

BOSTON AND NEW ENGLAND.

A Case of Smallpox in Dorchester.—A case of smallpox was recently discovered at Dorchester, Mass. The patient was removed to Galloupe's Island, and all ascertainable contacts were vaccinated.

TONSILLITIS IN WAKEFIELD.—The epidemic of tonsillitis in Wakefield and Stoneham, Mass., to which we referred in last week's issue of the JOURNAL, is reported as at an end. There was a total of about 400 cases.

MEASLES AT EXETER.—Report from Exeter, N. H., on March 6, states that measles was then epidemic among students in the local Phillips Academy. Twenty-eight cases of the disease had been reported on that date.

FIRE AT MILLET SANATORIUM.—Report from East Bridgewater, Mass., states that on March 8, five of the nine one-room houses of the Millet Tuberculosis Sanatorium were destroyed by fire, with an estimated damage of $2000. The patients were all removed to the main building.

REPORT OF THE BUTLER HOSPITAL.—The recently published seventieth annual report of the Butler Hospital of Providence, R. I., records the work of that institution for the calendar year 1913. During this period 249 patients were under treatment, over 40% of whom entered on voluntary application. A new operating room and dispensary have been established, and the new Potter Home for Nurses has proved useful and beneficial. On June 13, 19 nurses were graduated from the training-school.

BOSTON ASSOCIATION FOR THE RELIEF AND CONTROL OF TUBERCULOSIS.—The recently published tenth annual report of the Boston Association for the Relief and Control of Tuberculosis records the activities of that organization for the year ended Oct. 31, 1913. Of the eight legislative measures advocated by the Association during this period, six were enacted into law. Lectures and exhibits have been held, 171,000 pieces of literature distributed and 1,353,969 red cross seals sold. A domestic science visitor has been employed and follow-up work maintained. The Prendergast Camp has continued its work, and during the year was used by 61 patients.

THREE CENTENARIANS.—Mrs. Columbia Parris, of Paris, Me., who is said to have been born in March, 1814, celebrated recently her supposed centennial anniversary.

Mrs. Patrick Bowe, who died recently in Woburn, Mass., is said to have been born at Dublin, Ireland, in 1810. She migrated to the United States in 1844. Her husband died in 1912, at the alleged age of 101.

Mrs. Catherine O'Neill, who died recently at Hartford, Conn., is said to have been born in 1808. She had been a widow since 1854, but always enjoyed excellent health. She is survived by an aged son.

HOSPITAL BEQUEST.—The will of the late Annie Louise Cummings, of Portland, Me., which was filed on March 5, contains a bequest of $5000 to the Maine General Hospital.

NEW YORK.

BETH ISRAEL HOSPITAL ASSOCIATION.—The annual meeting of the Beth Israel Hospital Association was held on Feb. 26, when it was reported that 46,959 cases were treated at the hospital during the year. The total expenditures were $126,522 and the receipts, $114,171, the deficit of $12,351 being made up by the board of directors. The president announced that plans had been made for the construction of a new hospital on a site a little north of the present building (on the lower east side), which is to be 14 stories in height, with provision for 500 beds. The estimated cost is $1,000,000, and of this amount nearly $300,000 has already been subscribed.

TOMBS CITY PRISON.—Many abuses having been brought to light in an investigation of conditions at the Tombs city prison, Deputy Commissioner Lewis of the Department of Correction has recommended a number of important changes in the administration of the institution. Among his recommendations is that steps be taken to establish hospital wards on the top floor of the main building, which will permit the segregation in separate wards of those suffering from tuberculosis, venereal diseases, or the use of norcotic drugs, and which will secure to all inmates decent medical service, which is now made impossible because of the lack of facilities. Another of the recommendations is that a single story building should be erected in the yard space, where visitors may see inmates without congesting the main prison, as at present, and without coming in personal contact with the inmates. This will obviate the present dangerous possibility of escapes through substitution, and also obviate all searches of visitors, which are necessarily more or less obnoxious to them. The commissioner is convinced that drugs will

be smuggled into the prison as long as visitors can come in contact with inmates, and as long as food and beverages may be purchased outside and brought in.

The Milk Situation.—The New York Milk Committee has sent to Governor Glynn a protest against the personnel of the State Milk Commission recently appointed by him, asserting that in the commission, as it now stands, seven of its eleven members really represent the interests, not of the producer or of the consumer, but of the reactionary group of milk dealers and ice cream manufacturers who resent increasing demands of the public and such organizations as the New York Milk Committee for more rigid regulations to safeguard the consumer against impure and disease-laden milk With the exception of Health Commissioner Biggs and Nathan Straus, no member of the commission, it is stated, is qualified to represent in a disinterested way the best interests of the state from a public health standpoint. The New York Milk Committee has advocated uniform state regulations requiring the pasteurization of all milk except that which is certified and the grading of milk according to bacterial standards and methods of production. It may be recalled that, in order to secure pure milk at a reasonable price for use at the infant milk stations in New York City, the committee organized an experimental company, which for two years conducted a plant at Homer, N. Y., and demonstrated that milk equal in quality to regularly certified milk could be produced and sold at a fair profit for 9 cents a quart.

Registration of Nurses.—A hearing was recently held in Albany upon the two bills, in the senate and assembly respectively, known as the Seeley and Hoff bills, which are identical in their provisions and have the title, "An act to amend the public health law, in relation to the practice of nursing." They are in every respect similar to bills which were killed in the last legislature, having for their object the creation of a high-priced nursing monopoly, for the benefit of a few at the expense of the many. They would debar, under heavy penalties, all persons except "registered nurses" from calling themselves nurses, and are strongly opposed to the public interest, since no provision whatever is made for nurses for persons of moderate means, who comprise over 90% of the population; while instruction for low-priced nurses, which for nearly ten years past has been provided by an admirable and successful institution for the purpose at Albany, is forbidden under penalty of the law. At the hearing, among those who opposed the bills were representatives of no less than thirty-eight large hospitals in New York City, including such institutions as the Roosevelt and St. Luke's Hospitals, and from Albany the superintendent of the large City Hospital.

Current Literature

Medical Record.

February 28, 1914.

1. Stedman, H. R. *The Extradition of Insane Persons.*
2. Clark, L. P. *A Further Study upon Mental Torticollis as a Psychoneurosis.*
3. Mears, J. E. *The Evolution of the Study of Anatomy and Its Important Relation to the Development of Surgical Knowledge.*
4. Balfour, D. C. *The Care of Surgical Patients.*
5. Wallace, R. *The Traumatic Neuroses, Due to Alleged or Actual Injury, from the Medico-legal Standpoint.*
6. Austin, C. K. *Eclampsia, with Total Absence of Albumin but Generalized Hard Edema (Pure Chloride Retention?).*
7. Rahmet, H. *The Causation of Dreams.*
8. Wise, F. *Lichen Planus of the Glans Penis. Its Treatment with Roentgen Rays.*
9. Coburn, R. C. *A Standard Educational Qualification for the Anesthetist.*

New York Medical Journal.

February 21, 1914.

1. Reber, W. *Glaucoma.*
2. Leszynsky, W. M. *Glioma of the Cauda Equina.*
3. Talmey, B. S. *Transvestism.*
4. Baetz, W. G. *Primary Pernicious Anemia.*
5. McMurtrie, D. C. *The Care of Crippled Children in Germany.*
6. LeFever, C. W. *The Eyes of the Neurotic.*
7. Bachmann, R. A. *The Morality of Venereal Prophylaxis.*
8. Sutter, C. C. *Natural Defenses of the Body against Disease.*
9. Macleod, J. J. R. *Recent Work on the Physiological Pathology of Glycosuria.*

February 28, 1914.

1. Duane, A. *Motor Anomalies of the Eye.*
2. Ware, M. W. *The Futility of Phenolsulphonephthalein as an Indicator of Renal Function.*
3. Harbower, H. R. *The Properties of Parathyroid Extracts.*
4. Roddy, J. A. *The Ross-Jolly Film Method in the Diagnosis of Syphilis.*
5. Todd, J. B. *A New Method of Determining the Dust in Air, and Fresh Air Schoolrooms.*
6. Leavitt, E. J. *Diagnosis of the More Common Diseases of the Rectum and Anus.*
7. Stolaff, V. A. *Suture to Gastr.*
8. Friedmann, J. *Roentgen Diagnosis.*

9 SEELYE, H. H. *Carbon Disulphide as a Therapeutic Agent.*

2. Ware endeavors to refute the claims made for phenolsulphonephthalein as a functional renal test. He says that the efficiency claimed for the drug because of its complete rapid elimination and its reappearance in an unaltered form cannot bespeak any elaboration in the sense of work done on the part of the kidney, for efficiency means the ratio of useful work to energy expended. The phenolsulphonephthalein test is an acidometric test, but the degree of acidity and kidney function are not necessarily parallel. The information obtained by this test is not precise. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

FEBRUARY 28, 1914.

1. *PEARCE, R. M. *The Charge of "Human Vivisection" as Presented in Antivivisection Literature.*
2. *PATTERSON, J. *An Economic View of Venereal Infections.*
3. HUNT, J. R. *The Ischemic Lumbago, a Further Contribution to the Lumbar Type of Intermittent Claudication.*
4. TODD, H. C. *The Snare Versus the Sluder Operation in Tonsillectomy.*
5. MACE, L. S. *Chronic Tuberculous Diaphragmatic Pleurisy with Symptoms Resembling Gastric Ulcer.*
6. *PIERSON, R. H. *Epidemic Poliomyelitis and Distemper of Dogs.*
7. VAN COTT, J. M., AND LENTZ, W. *Trichinosis.*
8. COOK, H. W. *Prognostic Value of Slight or Transient Albuminuria, with Special Reference to Life Insurance Examinations.*
9. SINKLER, F. W. *Interlobar Empyema.*
10. *BREITSTEIN, L. I. *Rupture of the Uterus Following Cesarean Section, with a Study of the Uterine Scar.*
11. MCGLANNAN, A. *The Conservative Treatment of Undescended Testicle.*
12. GIBBON, R. L. *Acute Intestinal Obstruction Due to Gall-Stone. Report of Case.*
13. HAZEN, H. H. *Severe Erythema Multiforme with Anaphylaxis Due to Oyster Protein.*
14. CURTIS, A. H. *Vomiting of Pregnancy Treated by Injections of Blood of Normal Pregnant Women.*
15. ALLISON, L. P. *Strangulated Hernia with Gangrene.*
16. O'NEILL, B. J. *A Case of Traumatic Rupture of the Heart.*
17. HANSON, H. B. *Fuchsin Ointment in Tinea Sycosis.*

1. Pearce's paper is a very carefully prepared answer to the popular cry of "Human Vivisection." He shows how utterly unfounded and blind are most of the press or antivivisection journal statements. The paper is one that the laity should have recourse to in order to straighten out their misdirected ideas on this important subject.

2. Patterson's paper on the economic loss due to venereal disease is extremely convincing and should form a base for further efforts towards its control.

6. Pierson finds marked similarity between distemper in dogs and poliomyelitis in children, and writes a very suggestive paper. The subject seems worthy of further careful investigation.

10. Breitstein believes that a Cesareanized woman who gives a history of an infection with a purulent vaginal discharge in the puerperium is a good candidate for rupture of the uterus in one of her subsequent pregnancies. Rupture of a Cesarean scar generally takes place in a scar resulting from improper wound healing because of infection. [E. H. R.]

THE LANCET.

FEBRUARY 7, 1914.

1. *WHITE, W. H. *Glycosuria.*
2. BLAND-SUTTON, J. *On the Treatment of Fractures of the External Malleolus.*
3. *JONES, H. L. *Diathermy, or the Electric Warming of the Tissues of the Body.*
4. ROLLESTON, H. D. *Vaccines from the Standpoint of the Physician.*
5. BASHFORD, E. F. *Fresh Alarms on the Increase of Cancer.*
6. HARMAN, N. B. *An Operation to Improve the Effect of an Artificial Eye.*
7. WHYTE, G. D. *Note on the Fragility of the Red Cells in Conditions Associated with Jaundice.*

1. In this clinical lecture White first considers those diseases which may be accompanied by glycosuria, such as exophthalmic goitre, diseases of the pituitary body, of the adrenals, pancreas, parthyroids, organs of generation, of the nervous system and liver. He then takes up the causation of hyperglycemia and acidosis. Under treatment he considers mild and severe cases as to the use of drugs, diet, etc. The article is full of practical points of value.

3. Jones explains the technic of diathermy, which he calls "the electric warming of the tissues of the body," theorizes as to the method of activity and describes its use and value in such conditions as arterial hypertension, joint affections, sciatica and neuralgia. [J. B. H.]

FEBRUARY 14, 1914.

1. *GRAVES, E. W. H. *Hunterian Lecture on the Experimental Principles of the Operative Treatment of Fractures and Their Clinical Application.*
2. *LUFF, A. D. *Some Common Errors in the Diagnosis and Treatment of Diseases of the Joints.*
3. SYMES-THOMPSON, H. E. *Mitral Stenosis, Cardiac Thrombosis, Aortic Embolism and Gangrene of Both Legs.*
4. RUSS, C. A *New Method of Treating Chronic Cholecystitis and Other Bacterial Infections.*
5. PERCIVAL, A. S. *Errors of Refraction in School Children.*
6. GOMPERTZ, R. A *Case of "Spastic" Constipation.*
7. MACDONALD, W. *Extra-articular Ankylosis of the Inferior Maxilla Due to Foreign Bodies in the Scalp for Ten Years.*
8. GAUNTLETT, E. G. *A Case of Intussusception Treated by Enterectomy.*
9. MORT, S. *Multiple Mesenteric Lipomata Causing Obstruction.*

1. In this first Hunterian lecture, Graves describes certain experimental work in animals on insecure and incomplete as well as efficient fixation of fractures by mechanical means and the problems of sepsis, delayed union, etc., he has met with. He discusses the use of wire, plates, etc.

2. This article is largely based on the discussion of the differential diagnosis of various joint disorders. As such it is of value although presenting nothing new. [J. B. H.]

BRITISH MEDICAL JOURNAL.

FEBRUARY 7, 1914.

1 *PRICE, J. D., AND ROGERS, L. *The Uniform Success of Segregation Measures in Eradicating Kala-azar from Arsam Tea Gardens; Its Bearing on the Probable Mode of Infection.*
2 *DUKE, H. L. *Wild Game as a Reservoir for Human Trypanosomes. An Analysis of the Available Evidence from the Northern Shores of Lake Victoria Nyanza.*

3. *Prentice, G. *Sleeping Sickness, Tsetse, and Big Game.*
4. *Bahr, P. H. *A Study of Epidemic Dysentery in the Fiji Islands, with Special Reference to Its Epidemiology and Treatment.*
5. *Archibald, R. G. *Intestinal Schistosomiasis in the Sudan, with Notes on the Treatment of Two Cases by Means of Autogenous Vaccines of Coli-like Organisms.*
6. *Arnold, W. J. J. *The Etiology of Beri-beri.*
7. *Nightingale, P. A. *Zeism or Pellagra.*
8. Wheeler, W. I. dec. *Anastomosis of the Vas Deferens.*
9. Cheatle, G. L. *The Spread of Cancer in the Lower Part of the Large Intestine.*

1-7. These articles deal exclusively with various phases of tropical medicine with special reference to the prevention of the spread of such diseases as kala-azar, sleeping sickness, etc., how the diseases are carried from animals and insects to humans, etc. They are of value to all interested in this branch of medicine. [J. B. H.]

February 14, 1914.

1. *Ballantyne, J. W. *The Nature of Pregnancy and Its Practical Bearings.*
2. *Routh, A. *Ante-natal Hygiene, Its Influence upon Infantile Mortality.*
3. Penfold, W. J. *A Method of Producing Rapid and Fatal Intoxication with Bacterial Products.*
4. Mamourian, M. *The Radical Cure of Procidentia Uteri in Elderly Women.*

1. In an interesting article, but one which hardly lends itself to review, Ballantyne discusses pregnancy from various points of view. He speaks of the three theories in regard to it: First, that the embryo is a parasite living on the mother and making certain definite demands of the maternal organism; second, the pathological concept that pregnancy is a nine-months' disease from which the mother is suffering; and third, the view of those who regard pregnancy as a harmonious symbiosis, that the child is a part of the mother and that there is a certain amount of give and take on each side. He discusses the maternal response to pregnancy; that pregnancy is physiology at high pressure. He considers pregnancy and life insurance, the biological test for pregnancy, the etiology of the various maladies of pregnancy, its place in the medical curriculum, pre-maternity wards and ante-natal pathology. He briefly takes up pregnancy and its relation to legislation, eugenic feminism and politics.

2. Routh discusses the causes of ante-natal disease and death. Among the paternal causes he mentions syphilis and tuberculosis; among the maternal causes he includes: (*a*) pathological, such as malnutrition, acute and chronic diseases, tropical diseases and toxemias, (*b*) mechanical causes, and (*c*) miscellaneous causes, such as hemorrhage, etc. Among the fetal causes he includes: (*a*) developmental, (*b*) pathological, (*c*) mechanical. To meet and relieve these causes he discusses remedies under three heads: (1) philanthropic, (2) legislative, and (3) medical. He dwells at length on these headings. The article is of great interest and value. [J. B. H.]

Münchener Medizinische Wochenschrift.

No. 5. February 3, 1914.

1. *Döderlein, A., and V. Seuffert, E. *The Mesothorium Treatment of Cancer.*
2. Henkel, M. *The Treatment of Cancer of the Uterus by Rays.*
3. *Schottmüller. *Jaundice in Pregnancy and Extra-uterine Pregnancy.*
4. Abderhalden, E. *The Dialysis Method in Clinical and Biological Problems.*
5. Plaut, F. *Absorption in Abderhalden's Dialysis Method.*
6. Peiti, L. *Precipitation of Blood Serum by Lipoids from the Tubercle Bacillus.*
7. Mayer, M. *The Emetin Treatment of Dysentery.*
8. *Mayer. *Pathogenic and Non-pathogenic Organisms of the Intestinal Tract.*
9. Philip, C. *How Many Syphilities are Sufficiently Treated?*
10. Spoorl. *Inguinal Pain in Young Men.*
11. Hirschfeld, L., and Klinger, R. *Endemic Goitre.*
12. Weber, F. *Tamponade in Obstetrics and Gynecology. (Conclusion.)*
13. Schröder, H. *Second Sight.*
14. Ernst, P. *Edwin Klebs.*

1. To be reviewed in the next number.

3. Schottmüller recognizes that jaundice is a not infrequent complication of pregnancy. It may be of catarrhal nature, or due to pressure on the bile passages by the enlarging uterus or may be infectious or hemolytic. In extra-uterine pregnancy with bleeding into the peritoneal cavity, there occurs another kind of jaundice which is not hepatogenic. This is due to the absorption of blood elements from the peritoneum. It is recognized by spectroscopic examination of the blood, which shows the presence of hematin. Schottmüller therefore believes that the presence of hematin in blood is a valuable clinical sign of extra-uterine pregnancy and that jaundice from this cause is an important clinical symptom.

8. Mayer has cultured the stools from 5719 soldiers. In only three cases were pathogenic bacteria found. He concludes that healthy individuals in healthy communities are rarely the carriers of infection. To prevent diseases acquired through the intestinal canal, he advises the avoidance of foods which may contain germs, and insists on clean streets, drinking water, clean houses and clean hands as the best kinds of general prophylactic measures. [R. F.]

No. 6. February 10, 1914.

1. Curschmann, H. *"Bronchotetanu" of Adults and Its Treatment with Calcium.*
2. Sehrt, E. *The Thyroid Treatment of Hemorrhagic Metropathies.*
3. Tiuneck, C. *Pulsation in the Clavicular Arteries as a Sign of Sclerosis of the Thoracic Aorta.*
4. Wermel, S. *Changes in Blood or Serum after X-ray Exposure.*
5. Veragruth, O., and Seyderhelm, R. *The Effect of a New Procedure on an Abnormal Leucocyte Picture. (Third communication.)*
6. *Schneider, W. *The Blood in Whooping Cough.*
7. Jaenisch, H. *The Recognition of Anthrax.*
8. Gilbert, W. *Intra-ocular Tuberculosis.*
9. Fuchs, A., and Feemd, A. *Proteolytic Protective Ferments in the Serum of Psychiatrical Patients.*
10. Richter, G. *Movements of the Chest and Intercostal Spaces in Diseases of the Pleura.*
11. *Döderlein, A., and V. Seuffert, E. *The Mesothorium Treatment of Cancer. (Conclusion.)*

6. Schneider has made blood counts in 30 cases of whooping cough occurring in children of different ages. As a rule, up to the third week of the disease there is a leucocytosis of at least 27,000, becoming as high as 86,000 in complicated cases. During the first four weeks a relative lymphocytosis is found, varying between 58.63% of the white cells, while large mononuclear cells and transitional cells are only slightly increased. This blood picture is characteristic for whooping cough. The degree of leucocytosis, however, affords no prognostic information.

11. Döderlein and V. Seuffert have treated 180 cases of malignant disease with mesothorium. In this paper they give a careful analysis of their methods and results. They believe that mesothorium is a

good therapeutic agent in certain kinds of disease, and feel that further progress in its use can be made only by more confirmation by others. [R. F.]

Berliner Klinische Wochenschrift.

No. 1. January 5, 1914.

1. Goldschneider. *Kidney Lesions Resulting from Accidents.*
2. Chiari. *Perforation of the Aorta by Foreign Bodies in the Esophagus.*
3. *v. Hausemann. *A Working Hypothesis for the Investigation of Leukemia.*
4. *Klose. *Progress and Changes in the Surgical Treatment of Exophthalmic Goitre.*
5. Dreyer. *Exploratory Trephining of the Skull in Several Places at One Operation.*
6. Heimann. *Mesothorium and the Roentgen-ray in Carcinoma of the Uterus.*
7. Pfeffenhofen. *An Unusual Case of Hip Dislocation in a Mongolian Idiot.*
8. Stadler. *The Treatment of Tetanus with Magnesium Sulphate.*
9. Sieber. *A Case of Primary Formation of Gallstones in the Liver.*
10. Heller. *Acute Inflammation of the Paradidymis.*
11. Ury. *The Use of Arsenic Triferrol in Diseases of the Stomach.*
12. von Oy. *Experiences with the Albuminate of Tricalciumphosphate ("Tricalcol").*

3. The author advances the theory that leukemia may be a secondary or tertiary manifestation of some antecedent disease, just as there are secondary and tertiary lesions of syphilis. He has no data or proofs, but merely suggests that all cases of leukemia be subjected to an exhaustive questioning on the past history, to see if any one pathological process appears consistently in these histories. He thinks that possibly valuable light may be thrown on the subject in this way.

4. Klose in this article takes up the importance which the thymus has come to assume in Basedow's disease, and the definitely recognized deaths which have occurred after operation as a result of either pressure or intoxication from a pathological thymus. He classes all cases of Basedow's disease into: (1) those showing primary involvement of the thyroid with slight or no involvement of the thymus, (2) those in which the two glands are similarly diseased, and (3) the rare cases where the thymus alone is accountable for the symptoms. Correct diagnosis in the last two groups is difficult even with the best hospital facilities—indeed it is often impossible. During the last two years at the Frankfort clinic they have removed the thymus wholly or in part in every case in which it was suspected of being involved in the process, with startling results. Up to 1911 there were 130 operations with 8 "thymus deaths"—in 1912 and 1913 there were 200 operations with no deaths. The removal of the thymus was in addition to the thyroidectomy. The operation was always done under local anesthesia if possible, and the thymus was removed by enucleation within its capsule. [R. H. M.]

No. 2. January 12, 1914.

1. Cenner. *Traumatic Cortical Epilepsy from a Bullet Wound. Cure by Fascia Transplantation.*
2. Nuaen. *Air-ship Catastrophies and Injuries.*
3. *Wechowski. *The Radium Treatment of Malignant Tumors.*
4. Simon. *The Treatment of Inoperable Tumors.*
5. *Kuznitzky. *Mesothorium in Carcinoma of the Skin and Other Organs.*
6. Cenmann. *The Rôle of Contact Infection in the Spread of Cholera in Servia in 1913.*
7. Cederberg. *On the Theory of Scarlet Fever.*
8. Wolf and Gutmann. *The Influence of Diet on the Sugar Content of the Blood in Diabetics.*
9. Benda. *A Case of Feminine External Hermaphroditism.*
10. Bruhns. *On the Diagnostic Value of the Gonococcus Vaccine.*
11. Rados. *Experimental Results in the Causation of Choked Disc.*
12. Bucky. *The Technic of the Application of Diathermic Treatment.*
13. Görges. *Observations on Soluble Aspirin (Aspirin-Löslich).*

3. Werkowski has studied this subject exhaustively; he reports several cases, and concludes: (1) that radium and mesothorium have a marked destructive influence on carcinomatous tissue, different from any other substance yet discovered; (2) that growths which are resistant to the Roentgen ray are often influenced by radium; (3) that the most important factors for success are the amount of the radio-active substance used, the filtration, and the proper regulation of the distance between the radium and the carcinoma.

5. The author reports 74 cases of carcinoma of the skin treated with mesothorium, with the following results:—

Thirty-three cases were clinically cured, showing, at the time of the report, clean scars at the site of the disease, with no evidence of malignant infiltration.

Three cases which had recurrences after treatment were subjected again to the mesothorium and were clinically cured.

Four cases were refractory and showed no improvement.

Twenty cases were still undergoing treatment and no definite report could be given.

Fourteen cases were lost sight of, and were not available for this report.

The results with deep-seated inoperable tumors were much less satisfactory. [R. H. M.]

Archiv für Klinische Chirurgie.

Vol. 103. Part 1.

1. Härtel, F., and Keppler, W. *Experiences with Kulenkampff's Brachial Plexus Anesthesia, Particularly as Regards the Appearances During and Afterwards.*
2. *Wossidlo, E. *Experimental Studies in the Use of Collargol in the Renal Pelvis.*
3. Eden, R. *The Surgical Treatment of Pulmonary Tuberculosis, Especially That Obtained by Collapse.*
4. Jankowski, J. *Operative Treatment of Peritonitis Due to Perforation of Gastric or Duodenal Ulcer.*
5. Takano, W. *Carcinoma Sarcomatodes of the Breast.*
6. Calley, F. *The Question of the Hereditary Nature of Inflammation of the Appendix.*
7. Beresuegowsky, N. *Intravenous Hedonal Narcosis.*
8. Matti, H. *Normal Method of Operating upon Goitre of the Base of the Tongue.*
9. Magnus, G. *Answer to the Article by Christen upon "The Mechanics of Nail Extension."*

2. Wossidlo made numerous experiments upon dogs for the sake of determining the amount of damage done to kidneys by the injection of collargol, as it is used in pyelography. He found that when collargol is injected into the normal, uninjured pelvis in amounts no greater than the capacity of the pelvis, none of the silver enters the kidney proper or the tissues about the pelvis. If the amount injected is in-

creased beyond the normal capacity of the pelvis, collargol escapes into the peripelvic tissues and spreads over the surface of the kidney beneath the capsule. If the lining of the pelvis is injured, as by the ureteral catheter, the collargol, if under pressure, escapes into the interstitial tissues beside the blood-vessels and between the tubules, and by way of these interstitial spaces may pass into the spaces of Bowman's capsule in the glomeruli. In hydronephrosis, the collargol passes into the collecting tubules much more than in the normal kidney. Infarcted kidneys take up the collargol when it is under pressure, but only in their healthy portions. The infarcted area remains free. From these experiments Wossidlo advises never distending the pelvis beyond its capacity; in hydronephrosis, put in only as much collargol as there is residual urine. If there is primary bleeding, as is often found with stone, tuberculosis or tumor, do not use collargol; if there is secondary bleeding due to injury from catheterization, be careful to underdistend rather than overdistend the pelvis. He concludes by saying that his experiments were not very satisfactory, but he hopes to present a more complete study in the near future. [G. C. S.]

Annales De L'Institut Pasteur.

November 25, 1913.

1. *Metchnikoff, E. *Studies upon Intestinal Flora.*
2. Lina, and Luzzani, N. *Diagnosis of Rabies by Demonstration of the Specific Parasite.*
3. Levaditi, C., and Mutermilch, St. *Antibodies and Animal Species.*
4. Leger, M., and Bouilliez, M. *Experimental Study of the Plasmodium Enui of Halberstädter and Prowazek in a Macacus Cynomalgus.*
5. Pettit, A. *Observations upon the Ichthyosporidium and upon the Malady Which It Provokes in the Trout.*
6. *Besredka, A., and Jupille, F. *Egg Bouillon.*
7. Bujwid, O. *Employment of Virus Regenerated by Transmission in the Treatment of Rabies.*

1. In this article Metchinkoff reports the results of further experiments with the products of intestinal putrefaction. In former work his associates have claimed that indol and paracresol have produced sclerotic lesions in organs and vessels of animals. In this report he shows that the potassium sulphate of these bodies has a toxic action for animals and then he claims that in addition to producing sclerotic lesions these substances are toxic even after combination with body salts. He simply states that therefore another proof is added to the claim that bacterial action against the organisms which produce these substances is justifiable.

6. In a medium which Besredka and Jupille prepared during their studies on anaphylaxis they have had excellent results in growing practically all the organisms, which they have tried out. They have grown better than on the usual media employed for such purposes the pneumococcus, meningococcus, streptococcus, gonococcus, typhoid bacillus, paratyphoid, colon, melitensis, cholera vibrios, diphtheria bacillus, cholera in chicken bacillus, tetanus bacillus and bacillus prodigiosus. The organisms grow more rapidly and preserve their vitality longer. The medium is made as follows:

Egg white (diluted 1:10)	4 parts
Egg yolk (diluted 1:10)	1 part
Ordinary bouillon	5 parts

[C. F., Jr.]

December 25, 1913.

1. Javillier, M. *Investigations upon the Substitution for Zinc of Different Chemical Elements for the Culture of Aspergillus Niger.*
2. *Luzzani, L. N. *Diagnosis of Rabies by the Demonstration of the Specific Parasite, Based upon Ten Years' Experience.*
3. Wollman, E. *Investigations upon the Origin of Alexine and Its Presence in the Circulating Blood.*
4. Rubinsten, M. *Investigations upon the Antipeptic Power of Serum.*
5. Mazé. *Investigations upon Vegetable Physiology.*

2. In reviewing her work, and that of other investigators during the past ten years, Dr. Luzzani reports as follows in regard to her feelings concerning the value of making a diagnosis of rabies by demonstration of the specific parasite, namely the negri bodies:—

The demonstration of the specific parasite discovered by Dr. A. Negri furnishes the surest and quickest method for making a diagnosis of rabies, not only in the dog, but in all other animals susceptible to the disease. The hippocampus major is that part of the brain in which the parasites are most numerous. At this point the forms are more developed and appear earlier in the disease. However, if this part of the brain cannot be obtained, a diagnosis is possible from examination of the other parts of the central nervous system. The author favors the examination in the fresh state after breaking up the tissue. If this fails, the staining method of Mann upon Zenhu fixed material is the best. A positive finding of negri bodies settles the diagnosis, but if the histological study is negative, an experimental inoculation is advisable.

[C. F., Jr.]

Bullettino delle Scienze Mediche.

May, 1913.

1. *Longo, C. *The Action of Sodium Chloride on Normal and Pathologic Kidneys. (Conclusion.)*

1. In this exhaustive continued article, Longo reports clinical observations on two cases of hemorrhagic, one of chronic interstitial, and one of chronic parenchymatous nephritis, and laboratory results from four series of animal experiments with uranium nephritis, from which he reaches the following conclusions relative to the importance of sodium chloride in the dietetic regimen of nephritics.

(*a*) The moderate and protracted use of sodium chloride has an irritating action on normal kidneys.

(*b*) This action is greater in nephritic kidneys.

(*c*) A systematic, properly watched, and regularly applied dechloridized regimen for nephritics is the most rational and presents no inconveniences or special contra-indications.

(*d*) The ordinary regimen, containing the ordinary quantity of supplementary salt cannot be tolerated by any nephritic, acute or chronic.

(*e*) In chronic nephritides with chloremic syndromes the sodium chloride exchange is notably altered.

(*f*) There is a parallelism between retention of chlorides and appearance of edema in nephritics.

(*g*) The milk regimen cannot be given to all nephritics, with impunity.

(*h*) Demineralization of food in the uranium nephritides has notable advantages.

(*i*) Clinically and experimentally, the subtraction of chlorides from the food, even if prolonged, does not cause in nephritics any disturbance of the nitrogen exchange.

(*j*) Only on the guide of the balance of chlorides, meeting the special eliminating function of the kidneys for these salts, can be fixed the opportune grade of the hypochloridized regimen.

[R. M. G.]

Miscellany.

NOTICES

The Cutter Lectures on Preventive Medicine and Hygiene. I. By Charles V. Chapin, M.D., Superintendent of Health, Providence, R. I., on "Municipal Sanitation."

Friday, March 20, "Science and Sanitation."

Friday, March 27, "Efficiency of Public Health Measures."

Thursday, April 2, "Organization of the Health Department."

Thursday, April 9, "Research and Publicity."

Thursday, April 16, "Nuisance Problems."

Thursday, April 30, "Contagious Disease Problems."

II. By Cressy L. Wilbur, M.D., Chief Statistician, Bureau of the Census, Department of Commerce on "Vital Statistics in Massachusetts and the United States," Wednesday, March 25, and Thursday, March 26.

Harvard Medical School, Amphitheatre Building A, at 5 p. m.

These lectures are given annually under the terms of a bequest from John Clarence Cutter, whose will provided that the lectures so given should be styled the Cutter Lectures on Preventive Medicine, and that they should be delivered in Boston, and be free to the medical profession and the press.

The members of all classes in the Medical School, the medical profession, the press, and others interested are cordially invited to attend.

Massachusetts General Hospital.—A surgical meeting open to the medical profession will be held at 8.15 p. m., on March 27, in the lower amphitheatre of the Out-patient Department. Entrance on either Blossom or Fruit Streets.

Dr. W. J. Mixter will present a "Report on Cranial Surgery at the Hospital since 1901."

Dr. E. P. Richardson will present a "Report on Operation for Hemorrhoids at the Hospital since 1901."

Dr. T. W. Harmer will present a paper on "Mixed Toxins (Coley) in Certain Cases of Sarcoma."

UNITED STATES CIVIL-SERVICE EXAMINATION.

Medical Interne.

Government Hospital for the Insane.

April 8 1914.

The United States Civil Service Commission announces that senior students of reputable medical colleges will be admitted to the open competitive examination for medical interne in the Government Hospital for the Insane, to be held on April 8, 1914, upon filing applications showing them to be otherwise eligible; but in the event they attain an eligible average in the examination their names will not be entered upon the eligible register until they have furnished proof of actual graduation from such colleges.

SOCIETY NOTICES.

Boston Society for Medical Improvement.—A meeting of the Society will be held in Sprague Hall, Medical Library Building, on Monday, March 23, 1914, at 8.15 p. m.

Addresses:

"Horse Asthma in its Relation to the Administration of Diphtheria Antitoxin," Dr. Joseph L. Goodale.

"Remarks on the Work and Theories of Dr. S. Weir Mitchell," Dr. James J. Putnam.

After the addresses there will be an informal discussion of the activities and future of the Society, in order to obtain an expression of opinion as to its policy. A full attendance of members is therefore earnestly desired.

E. W. Taylor, M.D., *President.*
Robert M. Green, M.D., *Secretary.*

American Society for the Control of Cancer.—The American Society for the Control of Cancer has made arrangements for a special meeting on cancer to the held at the New York Academy of Medicine, 17 West 43d Street, on Friday evening, April 10, 1914, at 8.30 p. m. This date has been selected in order that physicians and surgeons attending the Congress of the American Surgical Association may conveniently be present. The public is also invited.

Dr. William J. Mayo, of Rochester, Minnesota, President of the American Surgical Association and Frederick L. Hoffman, LL.D., statistician of the Prudential Insurance Company will discuss the problem of cancer and its control. Dr. Francis Carter Wood, Director of the George Crocker Research Laboratory will describe the investigation of cancer which has been undertaken there under the auspices of Columbia University. Dr. J. Collins Warren of Boston, Professor Emeritus of Harvard University, and President of the Harvard Cancer Commission, will give an account of the estblishment of that commission and the research work which it is directing at the Collis P. Huntington Memorial Hospital, and the Harvard Medical School.

The Boston Society of Medical Sciences.—The next meeting will be held on Tuesday evening, March 24, 1914, in the Out-patient amphitheatre of the Massachusetts General Hospital, at 8.15 o'clock.

The meeting will be conducted by the Staff of the Massachusetts General Hospital.

Papers will be presented as follows:

Dr. Otto Folin and Dr. W. Denis: "Some New Chemical Methods for the Clinical Examination of Urine." (15 minutes.)

Dr. J. H. Means: "Study of Blood Acidity by the Method of Barcroft." (15 minutes.)

Dr. J. H. Pratt: "State of the Vaso-motor Mechanism in Diphtheria Intoxication." (10 minutes.)

Dr. L. H. Newburgh: "State of the Vaso-motor Mechanism in Pneumonia." (15 minutes.)

Thomas Ordway, *Secretary and Treasurer,*
Harvard Medical School.

RECENT DEATHS.

Dr. Emily H. Sawyer, who died recently in West Somerville, Mass., was born at Girard, Pa. She studied at the Boston College of Physicians and Surgeons, and for thirty years had practised her profession in Somerville. She was a widow.

Dr. Francis M. Burke, of Brooklyn, N. Y., a graduate of the medical department of New York University in 1890, died on March 3, at the age of 53.

Dr. Hubert Nichols, of Brooklyn, N. Y., a graduate of Bellevue Hospital Medical College in 1891, died on March 9, at the age of 49.

Dr. William C. Monroe, who died on March 11, at Woonsocket, R. I., was born in 1849. He received the degree of M.D. in 1876 from Bellevue Medical College. He was chief of staff and chairman of the medical board of the Woonsocket Hospital, a member of the Rhode Island Medical Society and first president of the Woonsocket District Medical Association.

Dr. John Laing Leal, who died on March 14 in Paterson, N. J., was born in Andes, N.Y., in 1858. He received the degree of A.B. in 1880 from Princeton, and in 1884 that of M.D. from the College of Physicians and Surgeons of New York. In 1888 he settled in the practise of his profession at Paterson, where he became an expert on sanitation, and was for many years president of the local board of health. He was consulting surgeon for the Paterson General Hospital and examiner in the School of Hygiene of Rutgers College, and president of the New Jersey State Sanitary Association.

Original Articles.

THE TREATMENT OF SYPHILITIC DISEASES OF THE CENTRAL NERVOUS SYSTEM BY INTRAVENOUS INJECTIONS OF SALVARSAN.*

By Lesley H. Spooner, M.D., Boston.

[From the Department of Neurology of the Massachusetts General Hospital.]

This work, started in August, 1911, has been conducted exclusively in the ambulatory neurological clinic of the Massachusetts Genral Hospital. It has been impossible to utilize the wards owing to the limited accommodation of this department, except for the recovery from lumbar punctures, which were performed as a control to treatment. This rendered the investigation more difficult; but the results fully justify this means of treatment and may show others, situated in the same position, that ideal hospital facilities are not absolutely indispensible. An added objection to the "outpatient treatment" lies in the personnel of the clinic, which is composed to a large degree of people of more or less shiftless character. Because of this fact, a large percentage of our patients have disappeared. The fact that it has been impossible to trace such individuals is not only a waste of effort, but injures the value of such statistics by limiting the number of cases.

Appreciation is due to Dr. E. W. Taylor, Chief of Service of the Neurological Department, for stimulating advice and encouragement and to Drs. Henry C. Baldwin and Walter E. Paul, Neurologists of the Massachusetts General Hospital for valuable help in conducting this investigation. The complement fixation reactions, without which the work would have been of little value, have been performed by the Pathological Department under the guidance of Dr. James H. Wright, Director of the Pathological Laboratory.

This paper is in no wise a neurological treatise, but consists of a review of the definite results of a specific form of treatment upon diseases of the nervous system, the syphilitic character of which has been established in the light of our present knowledge. Erb[1] in 1881 suggested the connection existing in a vast majority of cases between tabes dorsalis and syphilis. But it was not until the discovery of the Spirochete pallida by Schaudinn and Hoffmann[2] in 1905 and that of the specific serum reaction by Wassermann[3] in 1906 that the definite connection between these diseases became an established fact.

* Read before the Medical Section of the Suffolk District Medical Society, Dec. 17, 1913.

It is not within the scope of this paper to discuss the varied forms of treatment for syphilitic diseases of the nervous system. The consideration is limited to the effect of salvarsan.

The results of treatment have been most varied. Leredde,[4] Ljass,[5] Collins and Armour,[6] Wechselmann,[7] and others have reported most favorable results. But as Jadassohn[8] points out, optimistic findings must be reviewed with great scepticism for two reasons. In the first place natural remissions are not infrequent in such diseases, especially in general paresis. Secondly, the enthusiasm resulting from the use of a new and much lauded drug is bound to have a beneficial result when employed in a chronic disease of long standing. Moreover, it is very common to see improvement in such cases from the use of any form of therapy which is attempted for the first time.

The benefits which have been witnessed in this group of cases is, however, of long standing and is maintained during a prolonged period during which the patient has received no treatment. As a further control, the serum and spinal fluid have been examined before and after treatment and, in as many cases as possible, at a period of at least six months after the last injection. These facts will be enumerated in detail in their proper order.

TABLE I.

CASES UNDER OBSERVATION IN THE NEUROLOGICAL CLINIC OF THE MASSACHUSETTS GENERAL HOSPITAL, AUGUST, 1911, TO DECEMBER, 1913.

Group.	Cases.	Treatments.	Lumbar Punctures.	Serum Tests.
Class A	24	107	42	63
Class B	6	27	4	14
"Spinous Cases" before spinous treatment	7	25	11	8
Lost cases	14	36	11	16
One injection only (lost)	9	9	6	9
Non-syphilitic	4	15	3	6
Total	64	219	87	116

The table shows the work performed in the clinic during the year and a half that new cases were received for this work. The lumbar punctures were performed to a large extent by Dr. James B. Ayer. In every instance he has enumerated the cell-content of the fluid and in some doubtful cases has carried out the Proteid Reaction. The technique of the "Wassermann reactions" has been uniform. The sheep corpuscle-rabbit-haemolytic system with a beef heart antigen has been employed.

The statistics are drawn from Class A, which consists of 24 patients who, having been followed for from 12 to 28 months, have reported within the last two weeks; Class B, consisting

of 6 patients, observed from the start, who have reported not later than June 1st, 1912, and lastly, a group of private patients as follows:

TABLE II.

PRIVATE PATIENTS.

	Cases.	Treatments.
Followed	19	62
Lost	8	9
Total	27	71

The entire group shows an aggregate of 91 patients, who have received 290 treatments. Attention is limited, however, to the three above mentioned groups with a total of 49 patients, with especial attention to Class A which has been controlled with much greater care and has been followed for a longer period than the others.

ETIOLOGY.

The syphilitic etiology has been demonstrated in 28 of the 30 cases of classes A and B, by means of history, complement fixation reactions in blood or spinal fluid, and by proteid reaction or cell-count in the latter. In one of the remaining an error in technique prevented an absolute conclusion, although the results throw much more than a suspicion on syphilis as a causal factor. The last case alone was absolutely unproved. For the sake of simplicity, the cases are divided into the following three classes: Tabes, General Paresis and Syphilis of the Central Nervous System.

TECHNIQUE.

Owing to the fact that our patients were forced to return to their homes following their injections, it was thought wise to administer small doses of salvarsan. With only rare exception 0.3g. salvarsan, in neutral solution, in 125 cc. of freshly distilled salt solution was introduced through the Schreiber needle, by means of rubber tubing attached to a 25 cc. Burroughs and Wellcome glass syringe, into the median vein. The ordinary means of asepsis were preserved. Care was taken not to introduce the fluid too rapidly and not to allow any of the drug to escape into the subcutaneous tissues. The use of such a small dose is considered inadvisable by Swift and Ellis,[9] but seems perfectly justified under the existing conditions.

CLINICAL RESULTS.

The accompanying table illustrates the clinical results in the simplest terms possible.

TABLE III.

Tabes Dorsalis:

	Class A	Class B.	Class C.	Total.
Improved	12	2	8	22
Moderately improved	1	0	0	1
Slightly improved	1	1	2	4
Not improved	3	0	2	5
Total cases	17	3	13*	32

* One case at present under treatment.

General Paresis:

	Class A	Class C.	Total.
Improved	1?	1	2
Not improved	2?	1	3
	3	2	5

Syphilis of the Central Nervous System:

	Class A	Class B.	Class C.	Total.
Improved	6	3	5	14
Slightly improved	1	0	0	1
Not improved	0	0	0	0
Total	7	3	5	15

Under the heading of tabes are classified three cases in whom there is a question of the existence of general paresis. Of these three, one alone has shown improvement. The other two, V and XIV, are suffering from disturbed mental states which have shown no change under treatment. The latter represent two of the three unimproved tabetic cases in Class A. The remaining individual (XI) is one with a long standing degenerative process in whom no good results from treatment could be demonstrated. The two unimproved cases in Class C (Nos. 384 and 558) fall into the same category as that just mentioned. The final results in tabes in this group show improvement in 27 cases or 84% and no improvement in 5 or 16%. Of the five unimproved cases of tabes, four have remained stationary and one has advanced. These figures include the two cases of questioned general paresis above mentioned. In no instance was any change in mental state noted in the latter disease. In one (VI), where that diagnosis was considered as possible, there has been a marked amelioration of distressing tabetic symptoms and in another (No. 445) there was decided improvement in strength on the side which had suffered paralysis. On the whole, the results from this small number of cases of general paresis are anything but encouraging. The reverse is true in cases of syphilis of the central nervous system. There, one hundred per cent. of improvement was shown in this group; and in only one instance (XVIII) could the change be called slight. The latter, a spastic paraplegic, complained simply of difficulty in locomotion. That a relief from this could not be considerable is not very surprising.

In addition to the failures in these tables and reviews, six cases have failed to show as much improvement as desired. Of these one had received two intra-venous injections, one three, three five, and one six. Two of these showed

moderate, but insufficient improvement; four showed not much of any change. All six were placed upon serum treatment. The results of this work are reported by Dr. Ayer.

The improvement in symptoms is a matter of considerable interest.

TABLE IV.

	Tabes.	Syphilis of C. N. S.	Total.
General Health and Strength:			
Marked improvement	17	10	27
Slight improvement	4	1	5
	21	11	32
Lancinating Pains:			
Improved	17		17
Apparently dispelled	8		8
	25		25
Ataxia improved (apparently from added strength)	8		8
Eyesight improved (diplopia, etc.)	4	4	8
Headache relieved	3	5	8
Vertigo relieved	3	2	5
Paralysis relieved	0	9	9
Gastric crises relieved	2		2
Urinary Control:			
Improved	1	0	1
Apparently recovered	0	1	1
	1	1	2
Anesthesiae improved		4	4

It will be seen from the accompanying table that improvement in general condition and strength and gain in weight is nearly a constant result in all improved cases. The relief of lancination pains is also a most common and striking result of a thorough course of treatment. In many instances, the entire disappearance of such symptoms has been noted—in all eight in number. The relief of ataxia and improvement in gait is no doubt in most instances due to increased physical strength. Headache in syphilis of the central nervous system is almost always dispelled by the use of salvarsan. It might not be out of place to give a very brief review of a few striking examples of the relief of symptoms.

Case 1. Helpless woman, suffering from syphilitic ataxie paraplegia of five years' duration. Urinary incontinence and lancinating pains for the last six months. Following treatment she has improved steadily. She is now doing all her own housework and never uses the cane when in-doors. She has gained 28 pounds and has no pain and no urinary incontinence. Her improvement has lasted for over a year.

Case 3. Tabes, of five years' duration. Patient had severe lancinating pains and described himself as a cripple. Now he has no pains and "gets about without his cane." His improvement has been maintained for over six months.

Case 8. Tabes, of nine years' duration. Patient suffered from lancinating pains, gastric crises and urinary incontinence. Following treatment, all of these symptoms disappeared and have not returned during the last year. For the last eight months she has worked (dressmaking) for eight to nine hours daily.

Case 16. Syphilis of the central nervous system (basal). Patient had suffered for a year from diplopia, headache and vertigo, nausea and ataxia. Two months following the last injection, *i.e.* March, 1912, she was perfectly well. There has been no return of symptoms. She is now working five hours daily.

Case 19. Syphilis of the central nervous system (spinal). Patient was suffering from an acute, advancing paraplegia. There was well-marked paralysis and pain in the right leg. The left was becoming weak. Urinary incontinence. Nine months after his last treatment the right leg is much stronger and free from pain. The left leg is absolutely normal. Bladder incontinence remains the same, however. Marked improvement in general condition.

CLASS C.

No. 213. Syphilis of the central nervous system. Right-sided hemiplegia with difficulty of speech. Headache. Duration of symptoms two weeks. Following treatment all the signs and symptoms began to clear. Now, two years later, he is "as well as ever."

No. 517. Syphilis of the central nervous system. Cerebral thrombosis. Complete left-sided paralysis. This had persisted for a week without much improvement. Following treatment he began to improve at once and now (six months after his seizure) he is as strong as before.

It is, of course, impossible to state what would have been the progress of cases 213 and 517 without treatment. The results are very suggestive, however.

No. 326. Syphilis of the central nervous system. Headache, diplopia and numbness of legs of a year's duration. Patient was such a sufferer that she was incapacitated. Following the last injection all symptoms disappeared and for the last ten months she has done all her own housework.

No. 511. Syphilis of the central nervous system. Headache and transient diplopia for three years. Hemianesthesia and hemiparesis for six months. His strength and sensation returned gradually during his course of treatment. Before his last injection he reported that he had just "chopped down a tree one foot in diameter." His improvement has been sustained for the last six months.

No. 334. Tabes, of one to two years' duration. Lancinating pains, gastric crises and bladder disturbances. Pains and gastric symptoms responded almost immediately to treatment. Now, seventeen months after his last treatment, he feels perfectly well. No return of old symptoms, no new symptoms developed.

This brief case review presents simply the most striking clinical results. Not all symptoms are relieved in every patient and in the five noted in Table III no improvement of any note could be found. The six cases placed on serum treatment should also be considered as unsuccessful. In spite of the extensive improvement in symptoms not a single change in physical signs has been discovered, save in regard to

biological and cytological changes about which mention will be made at once.

BIOLOGICAL AND CYTOLOGICAL CHANGES.

The accompanying table, based upon Class A, shows the changes that have taken place in the complement fixation reactions upon blood and spinal fluid and in spinal lymphocytosis. In many intances, patients have refused to be submitted to lumbar puncture, after suffering enough reaction from their first to incapacitate them for work 24 to 48 hours.

Seventeen of the 24 cases of Class A show changes in the serum or spinal fluid fixation reactions or cells counts. Spinal fluids show changes in 10 or 42%; blood in 9 or 38%. Both are altered in two cases. This shows a high percentage of physical alteration due very evidently to the treatment and persisting in many cases for months after the last injection. The most striking conclusion from these figures is obtained from a comparison of these biological and cytological changes with the clinical results already referred to. See table VI.

TABLE V.

	Before Treatment.			After Treatment.			9 to 15 Months After.			
	Blood.	Sp. Fl.	Cells.	Blood.	Sp. Fl.	Cells.	Blood.	Sp. Fl.	Cells.	Improvement.
I	++++	++++	25	—	0	14	—	—	3	Sp. Fl. ++++ 25 to 0 — 14, later 3 cells
II	++++	++++	90	++++	—	—	+++	++	36	Sp. Fl. ++++ 90 to ++ 36 cells
VI	0	++?	110	—	+++	110	0	—	18	Sp. Fl. ++++ 110 to 18 cells
VIII	++++	—	—	+	0	1	++	—	0	Blood ++++ to ++
IX	++	—	—	—	—	—	+	—	—	Blood ++ to +
X	0	0	310	—	0	5	0	—	—	Sp. Fl. 0 — 310 cells to 0 — 5 cells
XII	0?	++?	60	0	+++	35	0	0	29	Sp. Fl. ++++ 60 and 35 to 29 cells
XIII	0	0	120	—	0	15	—	—	—	Sp. Fl. 0 — 120 cells to 0 — 15 cells
XIV	++	—	—	0	—	—	±	—	—	Blood ++ to 0 and ±
XV	++++	—	—	±	—	—	—	—	—	Blood ++++ to +
XVI	±	0	30	—	0	6	0	—	—	Blood ± to 0; Sp. Fl. 0 — 30 cells to 0 — 6 cells
XVII	0	++++?	30	—	0	3	0	—	—	Sp. Fl. ± ++? 30 cells to 0 — 3 cells
XIX	0	—	27	0		2	0	0	4	Sp. Fl. 27 cells to 0 — 4 cells
XX	++++	++	110	—	—	—	0	—	—	Blood ++++ to 0
XXI	++	—	—	++	0	1	0	—	—	Blood ++ to 0
XXII	++++	++++?	360	0	—	—	0	0	123	Blood ++++ to 0; Sp. Fl. ++++? 360 cells to 0 — 123 cells
XXIII	++++	+	7	0	—	—	—	—	—	Blood ++++ to 0

Abbreviations: +++ = positive. ++ = moderately positive. ++++ = strongly positive. + = weakly or slightly positive. ± = suggestive. 0 = negative. — = test not performed.

TABLE VI.

Case.	Blood Imp.	Sp. Fl. Imp.	Clinical Result.
I	0	+	Improvement
II	0	+	Improvement
III	0* (neg.)	—	Improvement
IV	0 (neg.)	0	Moderately imp.
VI	0 (neg.)	+	Improvement
VII	0 (neg.)	—	Improvement
VIII	±	—	Improvement
IX	±	—	Slight imp.
X	0 (neg.)	+	Improvement
XI	0	—	No improvement
XII	0 (neg.)	±	Improvement
XIII	0 (neg.)	+	Improvement
XIV	+	—	No improvement
XV	+	—	Improvement
XVI	+	±	Improvement
XVII	0 (neg.)	+	Improvement
XVIII	0	0	Slight imp.
XIX	0 (neg.)	+	Improvement
XX	+	—	Improvement
XXI	+	—	Improvement
XXII	+	+	Improvement
XXIII	+	—	Improvement
XXIV	0	—	Improvement

Note: 0 = No change (Improvement).
+ = Change (Improvement).
— = No observation.

* Negative examinations before treatment. No. V thrown out through error in technic.

Six cases failed to show any biological or cytological improvement following treatment. It will be noted that cases II and VII had blood reactions only performed; and in both instances the primary results were negative. These might well be excluded from consideration. Of the remaining four which alone failed to show expected change, one presented only moderate improvement clinically, one slight change for the better and one no alteration in his condition. Hence in only one case which was clinically improved was there no change reported from laboratory examination. This patient (XXIV) showed no diminution in the intensity of his serum reaction. It was impossible to get consent for a second spinal puncture. In none did an improvement in reaction or cellular content of the spinal fluid occur without betterment of the clinical condition of the patient. In only one case (XIV) was there a change in serum reaction in a patient showing no physical improvement, hence, from this series, it appears that as an indication of clinical improvement the diminution in intensity of the serum reaction is of considerable value, but that that of the spinal fluid and especially that of lymphocytosis is in every instance a correct index.

DURATION OF IMPROVEMENT.

The accompanying table (No. VII) shows a detailed study of the improved cases of Class A in relation to the length of time that they have maintained their gains since receiving their last treatment.

TABLE VII.

TABES.

Months.	Cases.	
22	1	
20	2	
19	1	4 cases over 18 months
17	1	
13	1	2 cases from 12 to 18 months
11	2	
10	2	
9	1	5 cases from 9 to 12 months
4	2	
3	1	3 cases from 3 to 9 months
	14	

SYPHILIS OF THE CENTRAL NERVOUS SYSTEM.

Months.	Cases.
24	1
23	2
11	2
9	2
	7

The Table may convey an erroneous conclusion since in many instances patients have returned for further treatment without any relapse from their improved state. As a matter of fact, it is of great advantage for the patient to return at intervals even though in improved health to receive further treatment. If the somatic disease syphilis requires years of treatment for its eradication, it is rational to suppose that its elimination from such deep-seated structures as the cord, brain or meninges would require quite as long, if not a longer time.

All cases were received with care January 1, 1913. At that time one case was reported as improved (V), who now seems to show no change from his original condition. One case reported at that time as unimproved is now moderately benefited. These facts further emphasize the necessity of proper control through laboratory observations. In no other instance has there been a sufficient alteration in the patient's condition during the 11 months to warrant any change in classification.

TABLE VIII.

IMPROVEMENT IN TABES IN RELATION TO DURATION OF NERVOUS PROCESS.

Improved Cases.

Duration of Tabes.	Cases.
9 years	1
7 years	1
5 years	2
4 years	3
3 years	1
2 years	1
1 year	2
6 months	1
Total	12

Moderately Improved.

1 year	1 case

Slightly Improved.

1 year	1 case

Cases Showing no Improvement.

Duration of Tabes.	Cases.
9 years	1
5 years	2
Total	3

These figures show the unimproved cases to be of long duration. But on the other hand, many of the cases which showed the most striking benefit from salvarsan had been in progress five years or over. But one fact remains, that all the cases in this group, except those presenting paretic mental symptoms, which have shown slight or no improvement, have been those in whom advanced degenerative lesions existed before treatment. The cases of syphilis of the central nervous system, which have been benefited the most, have harbored the disease the longest. It is difficult to explain the reason for this peculiar fact.

A review of the tables fails to show any relation between the degree and speed of improvement and the date of initial syphilitic infection. Those who have harbored syphilis in the body for the longest periods seem to be as susceptible to improvement as those more freshly infected.

Persistence in treatment is essential for its success. Two injections are seldom of any lasting service. Although the greatest improvement is generally noted after the first or second administration, yet in the improved cases continuous progress is as a rule the result of repeated treatments. It seems wise to advise injections at one to two week intervals until six or eight are taken. Then it might be well to carry out series of two or three injections at six to eight week intervals, as Leredde advises.

Two of the unimproved cases were persistent in seeking relief, one receiving six and the other eight injections. Many showed improvement after only three or four doses, rarely one after only two. But the majority of those who adhered closely to the treatment have shown improvement. As is the case with syphilis elsewhere, treatment should not cease upon alleviation of symptoms. It has been impossible, however, to impress this fact forcibly enough upon the minds of most of this class. It is undoubtedly true that the results of this work would have been more satisfactory, had patients been willing to return for further treatment although for the present relieved.

TABLE XII. CLASS A.

CASE NUMBER	AGE	DIAGNOSIS.	SYPHILITIC INFECTION.	DURATION OF SYMPTOMS.	CHIEF SIGNS AND SYMPTOMS.	WASSERMANN REACTION. BLOOD.	WASSERMANN REACTION. SPINAL FLUID.	CELL COUNT.
I	54	Ataxic Paraplegia Syphilitic	—	5 years	Spastic gait Urinary incontinence (6 months) Pain in legs (lancinating) Increased reflexes A.-R. pupil	9 viii 12 ++++	13 viii 12 - + + +	13 viii 12 25
II	51	Tabes	+ 1887	4 years	Ataxia Lancinating pains Vertigo Bladder incontinence Difficulty in starting urine A.-R. pupil	16 xii 12 ++++	16 xii 12 ++++	16 xii 12 90
III	37	Tabes	+ ?	5 years	Blindness and diplopia Ataxia Paresthesia Lancinating pains Gastric crises Absent reflexes Hypotonia A.-R. pupil			
IV	46	Tabes	+ 1897	1 year	Ataxia Lancinating pains Paralysis of the larynx A.-R. pupil	24 viii 12 o	24 viii 12 o	24 viii 12 50
V	48	Tabes General paresis?	Denies	5 years	Ataxia Headache Mental changes Reflexes lost A.-R. pupil	28 ix 11 + ?	26 viii 11 ++++?	26 viii 11 "Normal"
VI	50	Tabes General paresis?	+ 1880	3-5 years	Ataxia Mental sypmtoms (viii 11) Lancinating pains Weakness	9 i 12 o	29 viii 11 ++?	29 viii 11 110
VII	37	Tabes	Denies	3-4 years	Ataxia Lancinating pains Gastric crises Lumbar pain	8 vii 12 o		
VIII	49	Tabes	—	9 years	Lancinating pains Gastric crises Urinary incontinence Poor eyesight A.-R. pupil	7 vii 12 - - - +		
IX	37	Tabes	Denies	1 year	Lancinating pains Ataxia Urinary incontinence	19 xii 11 ++ 11 i 12 +		
X	37	Tabes	Denies	6 months	Slight ataxia Headache Gastric crises Lancinating pains Vertigo	25 i 12 o	25 i 12 o	25 i 12 310
XI	42	Tabes	+ 1887	5 years	Lancinating pains Ataxia Profound weakness Paresthesia (left side) A-R pupil	28 ix 11 ++?	?	22 viii 11 83
XII	49	Tabes	+ 1903	6-12 months	Ataxia Vertigo Girdle pain Lancinating pains	2 xi 11 o?	26 x 11 ++?	26 x 11 60
XIII	45	Tabes (Acute)	+ 1906	1 year	Ataxia Lancinating pains Gastric crises	10 i 13 o	10 i 13 o	10 i 13 120

CASES FOLLOWED TO DATE (DECEMBER, 1913).

TREATMENT.	WASSERMANN REACTION FOLLOWING TREATMENT. BLOOD.	SPINAL FLUID.	SUBSEQUENT CELL COUNT.	ILL EFFECTS OF TREATMENT.	RESULTS.
22 viii 12, 0.3 g. Salvarsan 12 ix 12, 0.3 g. Salvarsan	29 xi 13 - - - -	7 xii 13 0	7 xii 13 14 Proteid + 1 xii 13 3	Forced to expose vein in both instances	26 xi 13, walks much better, uses no cane about house. Doing all her house work. No pain. No bladder incontinence. Has gained 28 pounds. Improved general condition. Reflexes and pupils unchanged. 4 xii 13, Luetin test negative.
19 xii 12, 0.3 g. Salvarsan 9 i 13, 0.3 g. Sarvarsan 23 i 13, 0.3 g. Salvarsan 13 vi 13, 0.3 g. Salvarsan 26 vi 13, 0.3 g. Salvarsan 11 vii 13, 0.3 g. Salvarsan	13 vi 13 + + + + 26 xi 13 + + - -	1 xii 13 - -	1 xii 13 36	None	26 xi 13, lancinating pains much less frequent, of shorter duration and less severe. Bladder incontinence less pronounced. No vertigo. Has gained 26 pounds. Improved general condition. Reflexes and pupils unchanged.
28 v 12, 0.3 g. Salvarsan 25 vi 12, 0.3 g. Salvarsan 9 vi 13, 0.3 g. Salvarsan 23 vi 13, 0.2 g. Salvarsan 17 vii 13, 0.3 g. Salvarsan 31 vii 13, 0.3 g. Salvarsan 14 viii 13, 0.3 g. Salvarsan 28 viii 13, 0.1 g. Salvarsan	9 vi 12 0 28 xi 13 0		22 i 13 60	Chill and general pains two days after first injection	28 v 13, pains and headache much relieved. General condition improved. 28 xi 13, formerly a cripple. Now gets about reasonably well without a cane. No lancinating pains. Good eyesight.
5 ix 12, 0.3 g. Salvarsan 3 x 12, 0.3 g. Salvarsan 22 i 13, 0.3 g. Salvarsan 23 i 13 serum into spinal canal	24 xi 13 ± 9 xi 11 0?		22 i 13 60	Marked reaction to spinal treatment	24 xi 13, diplopia and paralysis of larynx unchanged. Less pain. Gait better. Stronger generally. A.-R. pupil and reflexes unchanged.
28 ix 11, 0.3 g. Salvarsan 19 x 11, 0.3 g. Salvarsan 12 vi 12, 0.3 g. Salvarsan	12 iv 12 0 25 xi 13 0	8 ii 13 0 1 xii 13 0	8 ii 13 3 1 xii 13 10	None	26 xi 13 headache entirely relieved. No change in mental state. 4 xii 13, Luetin test negative.
9 i 13, 0.3 g. Salvarsan 15 ii 12, 0.3 g. Salvarsan 18 iv 12, 0.3 g. Salvarsan	25 xi 13 0	16 i 13 - - - - - 13 xii 13 0	16 i 13 110 25 xi 13 18	None	6 i 13, walking now without care. Working short hours. 29 x 13, 60 to 70 per cent. better. 25 xi 13, complete recovery from pain. Working 7 to 8 hrs. daily. Marked general improvement. 4 xii 13, Luetin test negative.
17 x 12, 0.3 g. Salvarsan 21 xi 12, 0.3 g. Salvarsan 2 i 13, 0.3 g. Salvarsan	12 xii 12 0			None	3 xii 13, reported by letter. No pain. Gait fair. Improved general condition.
1 viii 12, 0.3 g. Salvarsan 29 viii 12, 0.3 g. Salvarsan 1 ix 12, 0.3 g. Salvarsan 7 xi 12, 0.3 g. Salvarsan 2 i 13, 0.3 g. Salvarsan	26 viii 13 + 24 xi 13 ++	5 ii 13 0 13 xii 13 0	5 ii 13 1 1 xii 13 0 13 xii 13 0	None	19 v 13 and 24 xi 13. No pain or urinary incontinence. No gastric crises. Eyesight better. Marked general improvement. For last 8 months has worked (dressmaking) 8 to 9 hrs. daily. Reflexes unchanged. 4 xii 13, Luetin test negative.
11 i 12, 0.3 g. Salvarsan 8 ii 12, 0.3 g. Salvarsan 7 iii 12, 0.3 g. Salvarsan	24 xi 13 -			24 hrs. after second injection vomiting and severe lancinating pains	24 xi 13, pains not so severe or lasting. Rather stronger. Bladder symptoms unchanged. Reflexes unchanged.
25 i 12, 0.3 g. Salvarsan 29 ii 12, 0.3 g. Salvarsan 11 iv 12, 0.3 g. Salvarsan 2 v 12, 0.3 g. Salvarsan	28 xi 13 0	23 i 13 0	23 i 13 5	None	28 xi 13, no headache. Rare lancinating pain. No vertigo. General condition improved. Reflexes unchanged.
28 ix 11, 0.3 g. Salvarsan 9 x 11, 0.3 g. Salvarsan 4 i 12, 0.3 g. Salvarsan 8 ii 12, 0.3 g. Salvarsan 21 iii 12, 0.3 g. Salvarsan 18 vii 12, 0.3 g. Salvarsan	9 xi 11 ? 24 xi 13 - -			None	18 i 12, no change. 28 xii 12, no change. 24 xi 13 lancinating pains a little less severe, otherwise no change. General condition same or worse.
2 xi 11, 0.3 g. Salvarsan 15 xii 11, 0.3 g. Salvarsan 30 i 13, 0.3 g. Salvarsan 24 ii 13, 0.3 g. Salvarsan 26 vi 13, 0.3 g. Salvarsan 11 vii 13, 0.3 g. Salvarsan 22 vii 13, 0.3 g. Salvarsan 7 viii 13, 0.3 g. Salvarsan 21 viii 13, 0.3 g. Salvarsan 4 ix 13, 0.3 g. Salvarsan	14 vi 13 0 16 x 13 0 26 xi 13 0	21 i 13 ++++ 16 ix 13 0 1 xii 13 0	21 i 13 35 16 ix 13 29 1 xii 13 1	None	21 i 13, much less pain. Gait better. 28 v 13, general condition better. 1 xii 13, general condition much improved. Walking much better. No vertigo. Less girdle pain. No lancinating pain. 4 xii 13, Luetin test negative.
10 i 13, 0.3 g. Salvarsan 16 i 13, 0.3 g. Salvarsan 24 i 13, 0.3 g. Salvarsan 6 ii 13, 0.3 g. Salvarsan		11 ii 13 0	11 ii 13 15	None	28 v 13, pains and gait much better. General condition better. 1 xii 13, pains and gait continue improved. Gastric attacks persistent. (Reports by letter.)

TABLE XII. CLASS A.

CASE NUMBER	AGE.	DIAGNOSIS.	SYPHILITIC INFECTION.	DURATION OF SYMPTOMS.	CHIEF SIGNS AND SYMPTOMS.	WASSERMANN REACTION. BLOOD.	WASSERMANN REACTION. SPINAL FLUID.	CELL COUNT.
XIV	49	Tabes General Paresis?	+ 1885	9 years	Ataxia Irrational No mental control Lancinating pains A.-R. pupil	17 x 11 ++		
XV	32	Tabes	Denies	4 years	Ataxia Lancinating pains	1 viii 12 ++++		
XVI	35	Syphilis of central nervous system. (Basal)	+ 1911 Pharynx	1 year	Ataxia Diplopia Nausea Headache Vertigo	1 i 12 -	1 i 12 o	1 i 12 30
XVII	50	Syphilis of central nervous system. (Thrombosis of post. inf. cerebellar artery)	+ 1881	2 years	Weakness Vertigo Hemianesthesia	2 xi 11 o	2 xi 11 ++++?	2 xi 11 40
XVIII	30	Syphilis of central nervous system. (Spinal)	+ 1908	1 year	Spastic paraplegia (legs) Urinary incontinence Deafness Increased reflexes	27 v 12 o	9 viii 12 o	9 viii 12 20
XIX	26	Spinal Syphilis. (Acute)	+ 1908	6 months	Ataxia Paralysis and pain in right leg Urinary incontinence	27 xi 12 o		27 xi 12 27
XX	27	Spinal syphilis	+ 1908	3 years	Pain in left arm	28 x 12 ++++	14 xi 12 ++	14 xi 12 110
XXI	43	Cerebral syphilis Optic atrophy Facial paralysis	Denies	4 years	Loss of sight (left) Failing vision (right) Facial paralysis (5 weeks)	26 vii 12 ++		
XXII	37	Tabes	?	3 years	Ataxia Lancinating pains Gastric crises	31 xi 11 ++++	16 xi 11 ++++?	16 xi 11 360
XXIII	52	Tabes	+ 1884	7 years	Lancinating pains Paresthesia Bladder incontinence	16 xi 11 +++-	16 xi 11 +	16 xi 11 7
XXIV	45	Tabes	+ 1891	2 years	Ptosis, right eye Failing eye sight Lancinating pains Abdominal pain Frequent micturition Gastric crises	26 x 11 ++++?	19 x 11 ++++?	19 x 11 50

CASES FOLLOWED TO DATE (DECEMBER, 1913).

TREATMENT.	WASSERMANN REACTION FOLLOWING TREATMENT. BLOOD.	SPINAL FLUID.	SUBSEQUENT CELL COUNT.	ILL EFFECTS OF TREATMENT.	RESULTS.
31 viii 11, 0.3 g. Salvarsan 18 ix 11, 0.3 g. Salvarsan 13 vi 13, 0.3 g. Salvarsan 26 vi 13, 0.3 g. Salvarsan 10 vii 13, 0.3 g. Salvarsan 24 vii 13, 0.3 g. Salvarsan 7 viii 13, 0.3 g. Salvarsan 21 viii 13, 0.3 g. Salarsan	10 vi 13 o 29 xi 13 ±			None	18 i 13 mental state unchanged. 29 xi 13, mental state same. Still has no control. Pains better. Little general improvement.
1 viii 12, 0.3 g. Salvarsan 21 xii 12, 0.3 g. Salvarsan 11 i 13, 0.3 g. Salvarsan 26 vi 13, 0.3 g. Salvarsan 24 vii 13, 0.3 g. Salvarsan 21 viii 13, 0.3 g. Salvarsan	10 vi 13 +			None	28 v 13, walking better. Moderate improvement in pain. General condition improved. 3 xii 13, reports by letter. No change from 28 v 13.
3 i 12, 0.3 g. Salvarsan 25 i 12, 0.3 g. Salvarsan	6 xii 13 o	23 i 13 o	23 i 13 6	Nausea all day after second injection	23 i 13, marked improvement in all symptoms. 4 vi 13, improvement continues. 6 xii 13, two months after last injection perfectly well. No return of old symptoms. Works five hours daily. No disturbance of cranial nerves.
2 xi 11, 0.3 g. Salvarsan 15 xii 11, 0.3 g. Salvarsan	12 xii 12 o 4 xii 13 o	16 i 13 o	16 i 13 3	None	16 i 13, much less vertigo and stiffness of legs. 4 xii 13, no vertigo Walking much better. Gait steady. More alert mentally. General condition improved. No disturbance of sensation.
29 viii 12, 0.3 g. Salvarsan 3 x 12, 03. g. Salvarsan 31 x 12, 0.3 g. Salvarsan 5 xii 12, 0.3 g. Salvarsan	4 xii 13 o	3 i 13 o 4 xii 13 o	3 i 13 7 4 xii 13 19	None	30 i 13, motor trouble continues. 4 xii 13, same trouble, but is a little stronger. General health now excellent. 4 xii 13, Luetin test negative.
5 xii 12, 0.3 g. Salvarsan 19 xii 12, 0.3 g. Salvarsan 10 i 13, 0.3 g. Salvarsan 23 i 13, 0.3 g. Salvarsan 30 i 13, 0.275 g. Salvarsan 13 iii 13, 0.3 g. Salvarsan	12 vi 13 o 28 xi 13 o	16 vi 13 ± 3 xii 13 o	16 iv 13 2 3 xii 13 4	None (Proteid slight)	30 i 13, legs stronger. More sensation. 10 iv 13, pains better. 28 xi 13, legs much stronger. Has worked the last four months. Urinary incontinence unchanged. Left leg, which was becoming involved, has remained strong.
14 xi 12, 0.3 g. Salvarsan 12 xii 12, 0.3 g. Salvarsan 1 i 13, 0.3 g. Salvarsan	28 xi 13 0			Increased pain in arm, nausea etc., following first injection; considerable after other two	12 xii 12, pains much better. 30 i 13, much better. 28 v 13, pain has returned (without treatment). 28 xi 13, somewhat better.
8 viii 12, 0.3 g. Salvarsan 5 ix 12, 0.3 g. Salvarsan 17 x 12, 0.3 g. Salvarsan 5 xii 12, 0.3 g. Salvarsan 26 xii 12, 0.3 g. Salvarsan 16 i 13, 0.3 g. Salvarsan 20 iii 13, 0.3 g. Salvarsan	23 ix 12 ± 8 xi 12 + + 3 iv 13 ± 26 xi 13 o	30 iv 13 o	30 iv 13 1	8 viii 12 extensive hematoma after injection, lasting 10 days	After first injection facial paralysis began to clear. 16 i 13, eye sight better. During xi 12 loss of orientation (3 wks.). 3 iv 13, mind clear. No vertigo. 26 xi 13, facial paralysis gone. Left eye, sight loss; right eye, sight good. (2 v 13, E. and E. Inf. report corr.) Has gained 23 pounds.
28 xii 11, 0.3 g. Salvarsan 25 i 12, 0.3 g. Salvarsan 13 v 12, 0.3 g. Salvarsan 19 xi 12, 0.3 g. Salvarsan	25 i 12 ± 13 v 12 o 19 xi 12 + 29 vi 13 o	7 x 13 o Proteid +	7 x 13 123	Vomiting and headache for 12 hrs. following one injection	27 v 13, lancinating pains rare. General condition much improved. 8 xii 13. Letter. Improvement has continued to date.
16 xi 11, 0.3 g. Salvarsan 21 xii 11, 0.3 g. Salvarsan 3 v 12, 0.3 g. Salvarsan	3 v 12 o			None	17 vi 13, bladder about the same. Marked improvement in pains and general condition. 12 xii 13. Letter. No pain. General health very good.
26 x 11, 0.3 g. Salvarsan 4 iv 12, 0.3 g. Salvarsan	23 i 13 + + + +			Venous thrombosis at end of administration. Considerable pain.	4 vi 13, pains; gait; sight and general condition improved. xii 13, no pains of any kind. General health improved. Letter.

CLASS B.

CASE NUMBER	AGE	DIAGNOSIS	SYPHILITIC INFECTION	DURATION OF SYMPTOMS	CHIEF SIGNS AND SYMPTOMS	WASSERMANN REACTION. BLOOD.	SPINAL FLUID.	CELL COUNT.
XXV	32	Tabes	—	4 years	Ataxia Severe lancinating pains	14 v 12 o		
XXVI	33	Tabes	Denies	2-3 years	Ataxia Lancinating pains Paresthesia	28 xii 11	24 i 12 +	24 i 12 50
XXVII	31	Tabes	—	2 years	Ataxia Lancinating pains and weakness of legs Gastric crises	2 xii 12 +		10 xii 12 410
XXVIII	51	Syphilis of central nervous system	+ 1882	6 months	Old hemiplegia Headache Vertigo	26 ii 12 o	26 ii 12 ++++	26 ii 12 33
XXIX	32	Syphilis of central nervous system	Denies	3 years	Spastic paraplegia Paresthesia of feet	19 xi 12 +	19 xi 12 ++	19 xi 12 170 Proteid ++
XXX	26	Cerebral tumor	Denies	10 months	Irritative phenomena of right side. Speech Headache Dimness of vision Old double iritis Right facial paralysis	19 v 11 +		

REACTIONS.

To the thirty members of Classes A and B, 134 intravenous injections of Salvarsan have been administered. Reactions, consisting of chills, nausea, vomiting and fever followed five injections. All reactions followed either the first or the second injection and lasted from 24 to 48 hours. In a few instances the reaction was delayed from 24 to 48 hours, as is not unusual in cases of this variety.

An extensive hematoma developed after one injection (XXI, which lasted for ten days. In two instances (XXIV and XXVII) a thrombosis followed one of the injections. Both attempts to introduce the needle directly in Case 1 failed and the vein was exposed. This is a fault to be avoided if possible, first because of the added complexity of the operation, secondly because the scar acts as tell-tale evidence, and, finally, because the vein exposed is necessarily unfit for subsequent use. This is a matter of considerable importance when frequent injections are contemplated. There were no other ill effects and no other difficulties in administration than those mentioned.

One man, who had been lost from observation, has been reported dead—cause unknown and not determinable.

HERXHEIMER REACTION.

The exaggeration of symptoms provoked by the administration of salvarsan is considered to be a modification of the so-called Herxheimer reaction. It is the opinion of Erlich and others that the parasiticidal action of the drug serves to liberate imprisoned spirillae or their toxines situated at the focus of infection. Whatever the cause, it is true that lancinating pains and gastric crises in tabes and headache in cerebral syphilis are very prone to be accentuated by the first treatments, when those symptoms are at all prominent. This reaction lasts for 24 to 48 hours or even as long as a week in some instances, but eventually passes away. Cases IX and XX suffered pronounced reaction of such a sort, the latter following all three injections, but being most pronounced after the first. The presence of such a modified Herxheimer reaction should be looked upon as a relatively hopeful sign, since in those cases the particular symptom which is so accentuated is often eventually relieved.

PROGNOSIS.

It is extremely difficult to foretell the result of this treatment. As has been shown, it is more than reasonable to hope for a consider-

CASES FOLLOWED TO JUNE, 1913. SUBSEQUENTLY UNTRACED.

TREATMENT.	WASSERMANN REACTION FOLLOWING TREATMENT. BLOOD.		ILL EFFECTS OF TREATMENT.	RESULTS.
14 v 12, 0.3 g. Salvarsan 13 vi 12, 0.3 g. Salvarsan 29 viii 12, 0.3 g. Salvarsan	4 vi 12 – 16 vii 12 o		None	19 ix 12, pain in left leg better. Has gained weight. Encouraged. 28 v 13. Last report, pains much better. Walks better. General condition improved.
14 ii 12, 0.3 g. Salvarsan 4 iv 12, 0.3 g. Salvarsan 2 iv 13, 0.3 g. Salvarsan 7 v 13, 0.3 g. Salvarsan			None	7 v 13. Last report, pains and general condition slightly improved.
10 xii 12, 0.3 g. Salvarsan 2 i 13, 0.3 g. Salvarsan 22 i 13, 0.3 g. Salvarsan 12 ii 13, 0.3 g. Salvarsan 8 iv 13, 0.3 g. Salvarsan 23 iv 13, 0.3 g. Salvarsan 7 v 13, 0.3 g. Salvarsan 22 v 13, 0.3 g. Salvarsan	12 ii 13 + 22 v 13 o		22 i 13, venous thrombosis following first injection	12 ii 13, scarcely any pain in legs. 22 v 13, pain distinctly better. Legs stronger. 6 vi 13, walking better.
29 ii 12, 0.3 g. Salvarsan 21 iii 12, 0.3 g. Salvarsan 25 vii 12, 0.3 g. Salvarsan 21 xii 12, 0.3 g. Salvarsan	25 vii 12 o 21 xii 12 o		None	21 iii 12, complete relief of headache, until three days before second injection. 25 vii 12, headache returned two days ago. 28 v 13. Last report, letter. Absolutely no headache or vertigo. Improved in every respect.
19 xi 12, 0.3 g. Salvarsan 21 xii 12, 0.3 g. Salvarsan 14 iv 13, 0.3 g. Salvarsan 8 v 13, 0.3 g. Salvarsan	8 v 13 o		None	21 xii 12, considerable improvement. 8 v 13, improvement continues. Better in every way.
18 i 12, 03 g. Salvarsan 21 ii 12, 0.3 g. Salvarsan 14 iii 12, 0.3 g. Salvarsan	23 i 13 Spinal Fluid 9 vi 13 Blood 0	Wass. 0 Cells 9	7 iii 12, nausea and vomiting following second injection. In bed a week. Arm stiff and lame	21 ii 12, arm became stronger after first injection. 14 iii 12, speech, gait and headache much improved. 28 v 13, headache, vertigo, gait and sight remain improved. General condition improved.

able degree of symptomatic relief. It is also evident that in many instances the course of the disease is for the time being, at least, checked. Many of the cases which showed negative fixation reactions in serum and spinal fluid prior to treatment have shown symptomatic relief. The cases as a rule in whom there was slight or no improvement, on the other hand, have shown primary reactions of only moderate intensity. The most striking fact is the marked improvement in cases, in whom biological and cytological examinations revealed intense syphilitic reactions. As might be expected, the results of anti-syphilitic treatment are more pronounced in those cases in whom the syphilitic element is most intense.

CONTRA-INDICATIONS.

Advanced cardiac disease, especially of myocardial origin, has been cited as a warning against salvarsan treatment. One case in Class A (V) falls into this category. He received three injections, however, without ill effect. That the heart became decompensated six months following his last injection shows the severity of the cardiac lesion and the apparent safety of salvarsan in this particular instance.

Two cases (Class C, 240 and 416) suggest a contra-indication which has received scant attention in the literature. Neither patient presented symptoms or signs of pulmonary tuberculosis prior to injection. Both developed active processes after their first and only treatment. In one, cough and fever appeared and tubercle bacilli were found in the sputum. The other had an haemoptysis. At the present time it is impossible to locate either patient. What may be a coincidence deserves consideration in the future.

CONCLUSIONS.

The following conclusions seem warranted:

(1.) The syphilitic character of the process was proved, with one exception, in all the cases upon which this work is based.

(2.) It is possible to treat in a satisfactory manner syphilitic diseases of the central nervous system by intravenous salvarsan in an ambulatory clinic.

(3.) Small doses of the drug are necessary for this purpose, but such dosage yields results.

(4.) With the exception of the six cases placed subsequently on serum treatment and excluded from this paper, symptomatic improvement has resulted from thorough treatment in a high percentage of cases of Tabes and in all cases of Syphilis of the Central

Nervous System. No distinct improvement has resulted from treatment of the few cases of General Paresis under observation.

(5.) Improvement in strength and gain in weight is the rule in those who receive benefit. The relief of lancinating pains in Tabes, and Headache in Cerebral Syphilis is most striking.

(6) Biological and Cytological Changes (in blood and spinal fluid) indicate that there is an organic basis to this symptomatic improvement. It is regrettable that those observations were of necessity so limited.

(7.) Improvement has been maintained over a long period of time—in many instances for from one to two years. The results of laboratory investigation when obtainable and the amelioration of symptoms correspond.

(8.) Whereas the failures have been in old-standing cases, it is impossible to show any constant relationship between the degree of improvement and the duration of the nervous lesion.

(9.) The most striking improvement follows the first or second injection. Treatment must, however, be persistent and prolonged and should be continued even if all symptoms and laboratory findings have long disappeared.

(10.) Reactions are infrequent with small doses of the drug. Accidents are rare.

(11.) Focal accentuations of symptoms (Herxheimer) disagreeable, but of short duration. These are often a hopeful sign.

(12.) The most pronounced successes are in those who show evidence in blood or spinal fluid of intense syphilitic infection. The failures have occurred in those showing feeble reactions.

13. Phthisis seems worthy of consideration as a contra-indication.

(14.) This treatment might well be advised in all cases of syphilitic disease of the central nervous system and abandoned for the serum treatment when conscientious effort in this simple and safe procedure has failed.

NOTE: Hearty thanks are extended to Dr. F. B. M. Cady for assistance in the administration of salvarsan and to Dr. A. R. Kilgore for the performance of the luetin test.

[illegible]
[illegible]
[illegible]

V.S. 54 yrs. TABES.

Symptoms. Pains in legs and feet. Incontinence of bladder. Gait unsteady
Exam. Kn-jks and A-jks absent. Argyll-Rob. pupils. Romberg ++.
No previous treatment.

	SALVARSAN	SERUM	HG	K	BLOOD Wassermann	CEREBRO-SPINAL FLUID Wassermann	Cells	Protein	
1913 Jan. 30					+++	+++	130		
Feb. 5	.3gm.								
19	.3 "								
Mar. 5	.3 "								
19	.3 "								
Apr. 4	.3 "								
23	.3 "								
May 7	.3 "		↓						
22	.3 "				+				
June 26	.3 "								
July 11	.3 "								
21	.3 "								Pain a little less.
29						+++	23		
Aug. 12	.3 "	30cc				—	3		
27	.3 "								
Sept. 23	.3 "	30 "				+++	26	+	
Oct. 9	.3 "	30 "				+++	21	+	
30	.3 "	25 "				+	8	+	
Nov. 20	.3 "	25 "				+	9	+	Has intervals of 4 days at times without pain. Gait better. Bladder improved.
Dec. 4	.3 "	30 "				—	11		
31	.3 "	35 "			—		9		
1914 Jan. 22	.3	30 "			Gold +	+			
Feb. 5	.3	35 "			+	+	9	+	Improvement continues.
Mar.									

R J O'N 48 yrs TABES 2 yrs Nº 2.

Lancinating pains 2 yrs Difficulty in walking 1 yr Denies syphilis
Exam. Romberg ++ K.J. absent Pupils react to light.

	SALVARSAN	SERUM	HG	K	BLOOD Wassermann	CEREBROSPINAL FLUID Wassermann	Cells	Protein	
1912 Aug. 24					—	+	70		
Sept. 5	.3gm.								
Oct. 10	.3 "								
Nov. 7	.3 "								
Dec. 12	.3 "								Pains continue
1913 Jan. 1	.3 gm.								
16									
Feb. 17	.3 "	30cc			—	+++	70		
							50		
Mar.									Severe gastric crises.
Apr.									
28	.3 "	30 "				+++	8		
May 7	.3 "	30 "				+++	4		Pain now absent except
26	.3 "	35 "					13		for 24-48 hrs after medicine
June 9	.3 "	30 "				+++	5		
July 23	.3 "	30 "				+	1	+	
Aug. 30	.3 "	36 "				+++	0	+	
Sept. 10	.3 "	30 "				+	1	+	Better in every way
Oct.									
27	.3 "	30 "				+	1		++++ new antigen
Nov.									
Dec. 11	.3 "	35 "			—	+			Very little pain now
1914 Jan.									
Feb. 5	.3 "	35 "				+	5	+	More pain lately

beginning, and an absolutely bad prognosis made in his case. With the advent of salvarsan a new hope appeared, and in many cases has been realized in the treatment of these affections, as Dr. Spooner's article clearly shows; but along with salvarsan therapy has come the frequent use of laboratory means of testing our patients until it has become only too clear to anybody working with these cases that there is a vast difference in relief of an individual symptom and a cure of the disease. Salvarsan given intravenously has done much good, it almost always does as much good as the older treatment, frequently does more, but in the light of modern methods of control, rarely can be said to cure.

It was with a view to reaching the cases refractory to other forms of treatment and if possible to cure syphilis of the central nervous system that Swift and Ellis commenced, two years ago, their method of subdural injection of salvarsanized serum [1], [2], [3]. Their method presupposes living spirochaetes as the infecting agent, harbored in the lymphatic system and interstitial substance of brain and cord, and supposedly cut off from the blood stream, and therefore not to be reached by drugs which cannot pass into the spinal fluid. It is not only a means of putting salvarsan into this isolated region, but salvarsan in its most effective form, namely, in combination with serum, for it has been clearly pointed out by Ehrlich[4] that salvarsan without the presence of serum is not anti-spirochaeticidal. As a matter of fact the quantity of salvarsan that reaches the spinal canal by this method must be so minute that it is logical to trace benefit from the treatment to the serum which has been acted upon by the salvarsan in vivo than to the drug itself.

The technique which the originators have recommended and to which we have adhered in all essentials is as follows:—one hour after an intravenous administration of salvarsan about 40 c. c. of blood are drawn under aseptic conditions and allowed to clot; the following day the serum is taken off and mixed with normal salt solution to make 30 c. c. of a 40% strength of serum, this heated at 56° C. for ½ hour and put into the spinal canal, replacing spinal fluid withdrawn.† It will readily be seen that in the carrying out of this technique frequent opportunity is given for laboratory control of the progress of treatment, so that in every case dealt with we have a double standard to guide us, the clinical symptoms and signs and the laboratory findings in blood and spinal fluid.‡ To bring about symptomatic improvement and even a seeming cure is frequently an easy matter, but to also reduce the spinal fluid to a normal appearance is always a more difficult task, yet necessary before we can claim a bona fide "cure."

The following 18 cases represent the experience of 13 months with serum therapy, although the cases for the most part have been observed for a much longer time. Generally the patients under discussion were placed upon serum treatment because refractory by one or both of the standards above considered, to other forms of therapy. Improvement in them should therefore be fairly attributed to salvarsanized serum; failure to improve, on the other hand, cannot be laid solely to this form of treatment, but must be shared with the others.

† See page 461 for Tests. ‡ See page 461 for Methods.

THE GROUP OF TABES.

PATIENT No. 1, V. S. is a tabetic with the usual symptoms and signs of this disease. He was benefited somewhat by intravenous salvarsan, but we thought to hasten this improvement by intraspinous injections, of which he has received nine with benefit as regards pain, bladder and general condition and to a less extent his walking. Symptomatic improvement has unquestionably proceeded more rapidly in the last 6 months under serum injections than in the previous 6 months under intravenous salvarsan alone.

The laboratory findings, however, have not varied greatly in the past three months, and we have been so far unable to reduce his spinal fluid to normal according to any test.

No. 2. R. J. O'N. had typical symptoms and signs of advancing tabes, pains and difficulty in walking, rendering him useless. He received five intravenous salvarsan injections without benefit either symptomatic or from a laboratory point of view. He was then given serum injections, eleven in number, throughout this year with marked benefit. His pain is now almost confined to a period 48 hours following injections and there is coincident improvement in his spinal fluid.

No. 3. A. F. Y. suffers principally from gastric crises, the intervening time between which was lessened by intravenous treatment from two week intervals to two month intervals. We are now seeking to still further better his condition by the use of serum, of which he has received five injections with no material change in condition.

CASE No. 4. J. J. C. is a motorman with symptoms and signs of tabes, the former extending over a period of 17 years. Salvarsan given by vein did not help him either from symptomatic or laboratory point of view; but a year's course of serum therapy, including 7 injections, has at last made him pain free, and tests normal, even using the strongest antigen on the spinal fluid. He will be carefully watched for evidence of relapse.

These four cases are of the hopeful type, showing primarily evidence of lower spinal cord involvement in an active stage as demonstrated by positive laboratory tests. The three treated for sufficient length of time to judge show improvement, and two of these have responded promptly and well to spinal injections after all other methods had failed.

L W.B. GENERAL PARESIS? 1129

Chancre 1898 Feby 1912. Memory disturbances, hallucinations, delusions. Westboro'.
Feby 1913. Compl of mouth, and inability to do his work satisfactorily.
Exam. negative. except for slight speech defect.

	SALVARSAN	SERUM	HG	KI	BLOOD WASSERM.	CEREBROSPINAL FLUID Wasserm.	Cells	Protein	
1912 Feb. 1913 Jan.	.6 gm (Dec)				++	++	+		
Feb. 8					+++	+++	44		Came under care of writer
14	.3 -								
Mar. 15	.3 -								
29	.3 -								
Apr. 12	.3 -								
27							44		
May 13	.3 -	25 c.c.				+++	71		
8	.3	35 -				+++	6		
22	.3 -	35 -				+++	22		
June 11	.3 -	32 -				+++	9	+	
July 25	.3 -								Passed C S exam "Physically sound"
Aug. 4	.3 "	34 -				-	2		Wife says he is much better than for long time.
Sept. 30				↓					
Oct.									
Nov.									
Dec 9									Lost his job, because too slow.
26	.3 "	30 -			+	+++	42		

J. J. C. 48 yrs TABES. (17 yrs) No 4.

1st Visit. 1908 Compl pains in legs and arms, incontinence bladder and unsteadiness.
Exam. A.-j. and K.-j. absent. Romberg and ataxia + Pupils react
1912. Symptoms and signs unchanged. Denies syphilis

	SALVARSAN	SERUM	HG	KI	BLOOD WASSERM.	CEREBROSPINAL FLUID Wasserm.	Cells	Protein	
1912 Apr.	+ } B.B.								
May	+ }								
June 14	.3 gm.				+				Symptoms same.
July 18	.3 -								Pain less for short time after injection
Aug. 7						+	60		
Sept.									
Oct.									
Nov. 5	+ } B.B.		↓						
Dec. 5	+ }								
1913 Jan. 21						+++	55		
22	3 gm.	30 c.c.							Much pain for 6 weeks. Discouraged.
Feb. 10	.3 -	30 -			-		54		
Mar. 18	.3 -	30 -				+++			
28	.3 -	30 -			+?	-	15		
Apr. 12	.3 -	30 -			-	+++	13		No pain for 1 month
May 12									
June									
July									
Aug. 27	3 "	35 -				-	1		
Sept.									
Oct.									
Nov. 19	.3 -	30 -				-*	2		Has not lost a days work since August. Gain in weight.
Dec.									
									*New cat gut

W E N. 20yrs CEREBRAL SYPHILIS (Neuro-relapse) No 16

Chancre. Dec. 1912. Onset of cerebral syphilis in insurc. in spite of adequate treatment.

	SALVERSAN		HG	K	BLOOD WASSER'N	CEREBROSPINAL FLUID Albumin	Cells	Positive
Dec 3 1912	5 treat-							chancre secondary symptoms.
Feb	ments in							
Mar.	6 P D							Headache
Apr. 25					–	+++	320	"Typhoidal temp".
May 13	Two treatments						150	
23	House.					+++	144	
27							160	
June 4						+	68	June 20. Left hemiparesis
23	.3 gm	30cc				+	68	+
July 8	.3 -	30 -				–	60	+
Aug. 30	.3 -	24 -				–	3	–
26						–	4	+
Sept.								Paresis gone, rec slt facial. Headache again.
Oct. 6	.3 -	30 -			+++	+	3	
28	.3 "							
Nov. 6	.3 -							
20	.3 "							
Dec. 4	.3 "	30cc				+	1	Feels quite well.
Jan 20	.3	30 -			+x	–x		

A C 25 yrs. CEREBRAL SYPHILIS. No 14.

Syphilis 1911 July 1912, unconscious attack lasting 6 hrs, no paralysis

Dec. 30/12 Complaint: Transitory weakness arms + legs Transitory diplopia Vision.

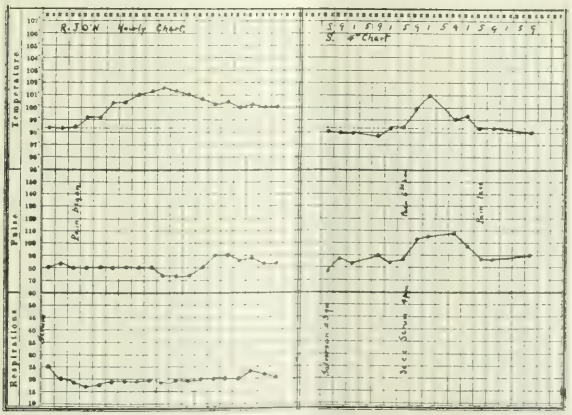
Exam. Choked discs, both eyes. Reflexes + pupils normal.

	SALVERSAN	SERUM	HG	K	BLOOD WASSER'N	CEREBROSPINAL FLUID Albumin	Cells	Positive
1912 Aug.	+ (Dr Y N)							
Sept.								
Oct.								
Nov.								under charge of writer.
Dec.							+	
20					+	antig	110	
1913 Jan 10	.3 gm							
22	.3 "							
Feb 5	.3 -							Better Eye movements perfect. No choking.
Mar. 20						–	20	
Apr 26	.3 -	30/20cc				+++	140	Jaundice ?
May								
June								
July 11	3 -	30 -				+	23	
Aug 3	.3 -	30 -				–	8	Vision normal Fundi nor'l
27	3 -	30 -				–	4	+
Sept.								
Oct 9	3	30 -				–	5	+ Feels quite well.
Nov.								
Dec 24								Vision almost perfect.
Jan 14	.3 -	30 -		Gold +		–x	0	– Neurolog Exam negative.

J. D 23 yrs. SYPHILIS C.N.S. № 18

Syphilis 3 years ago, inadequate treatment.
For 5 weeks constant headache, no other symptoms.
Exam. negative.

		SALVARSAN	SERUM	HG			CEREBROSPINAL FLUID Wass.	C.	Prot.	
1913	Sept. 11	.3 gm				—				
	21					—				
	Oct. 23						+++	578		
	Nov. 7	.3 "								Well. Headache gone.
	Dec. 19	.3 "								
1913	Jan. 10	.3 gm								
	23	.3 "								
	Feb. 17						+++	340		
	Mar. 6	.3 "	30 cc							
	27	.3 "	30 "				+	82		
	Apr. 16	.3 "								
	May 23	.3 "	35 "				+	51		
	7	.3 "	30 "				+?	36		
	June 22	.3 "	30 "				—	19		
	4	.3 "	30 "				+	40		Feels perfectly well.
	July									
	Aug.									
	Sept.									
	Oct. 1					—	+++	475		No symptoms.
	6	.3 "	30 "							
	Nov. 27	.3 "	30 "				+++*	66		
	18	.3 "	30 "					50	+	
	Dec. 2	.3 "								
	Jan. 8	.3 "	25 "			—*	+++*	45	+	
	Feb. 22	.3 "	30 "		Gold+		+++*	15		



TYPES OF REACTION.

W. E. N. 20 yrs. CEREBRAL SYPHILIS (Neuro-relapse) No 16

Chancre. Dec. 1912. Onset of cerebral syphilis in March in spite of adequate treatment.

	SALVARSAN	SERUM	H.G.	K.	BLOOD WASSERM.	CEREBRO-SPINAL FLUID Ap.	Cells	Prot.	
Dec									Chancre
1913 Jan.	5 treat-								Secondary symptoms.
Feb.	ments in								
Mar.	O P D								Headache
Apr. 25					−	+++	320		"Typhoidal temp".
May 13	Two treatments						150		
23	House.					+++	144		
27							160		
June 4						+	68		June 20. Left hemiparesis
23	.3 gm	30cc				+	68	+	
July 8	.3 -	30 -				−	60	+	
Aug. 30	.3 -	24 -				−	3	−	Paresis gone, rec slt facial.
26									
Sept.						−	4	+	Headache again.
Oct. 6	.3 -	30 -			+++	+	3		
Nov. 28	.3 -								
6	.3 -								
Dec. 20	.3 -								
4	.3 -	30cc				+	1		Feels quite well.
Jan 20	.3	30 -			+±	−±			

AC 25 yrs. CEREBRAL SYPHILIS. No 14.

Syphilis 1911 July 1912, unconscious attack lasting 6 hrs, no paralysis

Dec. 30/12 Complaint: Transitory weakness arms + legs Transitory diplopia Vision.

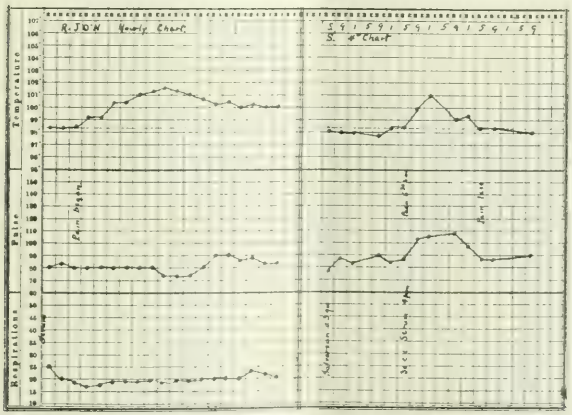
Exam. Choked discs, both eyes. Reflexes + pupils normal.

	SALVARSAN	SERUM	H.G.	K.	BLOOD WASSERM.	CEREBRO-SPINAL FLUID Ap.	Cells	Prot.	
1912 Aug.	+ (Dr V N)								
Sept.									
Oct.									
Nov.									under charge of writer.
Dec.							+		
Dec					+	antig	110		
1913 Jan 10	.3 gm								
22	.3 -								
Feb 5	.3 -								Better. Eye movements
Mar. 20						−	20		perfect. No choking.
Apr 26	.3 -	30/20cc				+++	140		Jaundice ?
May									
June									
July 11	.3 -	30 -				+	23		
Aug. 31	.3 -	30.				−	8		Vision normal. Fundi nor'l
27									
Sept. 7	3 -	30 -				−	4	+	
Oct 9	3	30 -				−	5	+	Feels quite well.
Nov									
Dec 24									
Jan 14	.3	30 -			Gold +	−±	0	−	Vision almost perfect. Neurolog Exam negative.

J. D 23 yrs. SYPHILIS C.N.S. № 18

Syphilis 3 years ago, inadequate treatment.
For 5 weeks constant headache, no other symptoms.
Exam. negative.

		SALVARSAN	SERUM	HG			CEREBRO-SPINAL FLUID		
1912	Sept. 11	.3 gm				—			
	21					—			
	Oct. 23						+++	578	
	Nov. 7	.3 "							Will. Headache gone
	Dec. 19	.3 "							
1913	Jan. 10	.3 gm							
	23	.3 "							
	Feb. 17						+++	540	
	Mar. 6	.3 "	30 cc.						
	27	.3 "	30 "				+	82	
	Apr. 16	.3 "							
	23	.3 "	35 "				+	51	
	May 7	.3 "	30 "				+?	36	
	22	.3 "	30 "				—	19	
	June 4	.3 "	30 "				+	40	Feels perfectly well.
	July								
	Aug.								
	Sept.								
	Oct. 1					—	+++	475	No symptoms.
	6	.3 "	30 "						
	Nov. 27	.3 "	30 "				+++*	66	
	18	.3 "	30 "					50	+
	Dec. 2	.3 "							
	Jan. 8	.3 "	25 "			—*	+++*	45	+
	Feb. 22	.3 "	30 "		Gold +		+++*	15	



TYPES OF REACTION.

months following he was perfectly well, but on October 1st. to our astonishment the fluid had returned to nearly its original state. Again the condition and possibilities of future trouble were explained to him and again he has submitted himself to our attempts to eradicate a condition which bothers him not at all, but which, we feel, is a constant source of danger to him. This case more clearly than any other shows the efficiency of salvarsanized serum in attacking the pathological process, where salvarsan alone had failed; again laboratory relapse when treatment was discontinued is followed by improvement again with treatment resumed.

SUMMARY.

Summary of these five cases of active cerebrospinal syphilis shows improvement according to all the standards we have set up, symptoms, signs and laboratory tests. The critic, however, will rightly suggest that this group usually does very nicely with other treatment. He will also admit that some do not, and, as a matter of fact 4 of these 5 cases were chosen for serum therapy because resistant to other forms of treatment. Thus No. 15 showed symptomatic improvement from salvarsan administered by vein, but the use of serum treatment was promptly followed also by laboratory changes for the better. Again two cases of "neurorelapse" occurred while the patients were under intravenous salvarsan, mercurial or iodide therapy; and serum treatment alone seemed efficient to stop the process. Patient No. 18 showed no laboratory improvement from intravenous salvarsan and KI, but when placed upon serum treatment improvement commenced; in spite of mercury (which was poorly tolerated) this improvement could not be maintained, a "laboratory relapse" setting in, which seems, however, to be again controlled by salvarsanized serum.

DISCUSSION.

The cases under discussion form a small number from which to generalize, as to the efficiency of a given treatment; still, more can be argued from these than from a hap-hazard group of 18 cases in that they are for the most part selected cases; they were largely chosen because of unsatisfactory results from other forms of therapy. Of these 18 cases then, representing a variety of types of syphilis of the nervous system, more or less refractory to other treatment, we find 14 distinctly improved, one unchanged, and three continuing on their course essentially unchanged. Of the four not benefited, two fall into the category of general paresis, two of tabes. Of the latter one showed a rapidly advancing optic atrophy, taken when sight was already far gone, the other was a long-standing case of the "atrophic type."

Of those benefited, the improvement for the most part has been striking, but seldom rapid. Improvement has for the most part been slow, but steady; those who have been persistent in treatment are those who have almost always obtained the most benefit; it has been striking and often gratifying to see patients return again and again for injections, without any urging; even those who underwent the most severe reactions were unremitting in their attendance, and this alone testifies to the good they felt they derived.

The above charts represent 219 venous injections of salvarsan or neo-salvarsan, and 126 serum injections. Of all these we have seen no harmful effects, other than the "reaction," below considered. True, we have persistently used small doses, .3 gm. of salvarsan and 30 c. c. of a 40-60% strength serum; we should have preferred to use larger doses, but as the patients were necessarily mostly ambulatory as far as the venous injections were concerned we could hardly do otherwise.

The reactions obtained are interesting. Tabetics almost always have severe pain, sometimes confined to the legs, frequently over the entire body. Two tabetics in particular would commence their reactions at a set time, one 3 hours the other 1½ hours after the serum injection, and with each pain the muscle bundle in the region affected would quiver as if stimulated by an electrode, first in one part, then another. These reactions last from 24 to 36 hours, and frequently are accompanied by rise of temperature, and less frequently of pulse also, there being no increase of the blood leucocytes (see charts.) Reactions in the other cases, one of superior tabes, the other a paretic, were quite different; these did not complain of pain, but on several occasions became hallucinated. One said "I see the trees looking short and the room all out of proportion. I hear voices speaking to me and yet I know it is not right." Again this same patient had bad dreams the night after an injection. Some patients on the other hand had no reaction at all. One, No. 18, a chauffeur, would take his car out three hours after an injection time and again, and never would feel any effects from the treatment. Naturally, some hesitation was felt concerning the use of foreign serum in the case of patient No. 12, but the only ill effects noted from this procedure was an urticarial eruption on one occasion similar to that obtained from the use of antitoxin.

Our *conclusions* then from the use of salvarsanized serum, a procedure so ably elaborated by Swift and Ellis, are these:

The method is safe.

It is effective in many cases where other treatment has failed.

It undoubtedly attacks syphilis from the etiological point of view, thus tending to cure the disease as well as relieve symptoms.

Its greatest effect is in the group of cerebrospinal syphilis, in which a cure may confidently be looked for in some cases with persistent treat-

ment; second, in tabes, in which arrest of disease process is often possible by this means; least effective in general paresis, when well developed, though here if taken in the pre-paretic stage encouraging results may be obtained.

With the originators of the method, we agree that persistence in its use is the key-note to success in the use of salvarsanized serum; consequently an estimate from the injection of one or two doses is a judgment more of the "reaction" which in some cases is severe, than of the therapeutic effect of the serum.

With the technique of administration and necessary control examinations as laborious as at present, we do not expect to see this form of treatment in general use, but believe it should be employed by those especially trained when other treatment fails in whole or in part, or in cases where haste is required in order to save vital tissue.

I wish to express my thanks to Dr. E. W. Taylor, chief of the neurological clinic at the Massachusetts General Hospital, through whose cooperation this work was possible; also to Drs. H. C. Baldwin, W. E. Paul and G. A. Waterman for encouragement and cases both in hospital and private; also to Drs. Swift and Ellis of the Rockefeller Institute for going over technic and protocols with me.

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[7] Hough, W. H.: Intraspinous Injection of Salvarsanized Serum in the Treatment of Syphilis of the Nervous System, Including Tabes and Paresis, Jour. Am. Med. Asso., Jan. 17, 1914, vol. lxii, p. 183.

[8] McCaskey, G. W.: The Autoserosalvarsan Treatment of Syphilis of the Central Nervous System, *Idem*, p. 187.

[9] Ferrier in an address before the International Congress, London, 1913, speaks of this method as a great advance in the treatment of these disorders.

† LABORATORY TESTS.—The following technic in carrying out laboratory tests was employed in the spinal fluid: Cell count by means of the Zeiss cell counting chamber, using Zappert's ruling. A stain (methyl violet 0.1, acetic acid 2.0, water 50.0), drawn to mark 1 of the "white counter," and spinal fluid to fill *immediately* after withdrawal of fluid from body; 1 cmm. counted on two slides and correction made for dilution. An accurate differential count is not possible by this means, but a rough index of the kind of cells present is possible, and these are almost invariably mostly lymphocytes. Proteid tests: (1) ethyl alcohol precipitation gives a rough index of the amount of coagulable proteid present, though normally there is some clouding. (2) Noguchi globulin reaction; 0.2 cc. of fluid + 0.5 cc. of a 10% boracic acid solution in normal saline boiled, and 0.1 cc. of a normal NaOH solution added and again boiled; a precipitate indicates a pathological condition of the spinal fluid. (3) Nonne's Phase I reaction; equal parts of fluid and saturated solution of ammonium sulphate to form a ring of precipitated proteid at their junction in a pathological condition. These tests have not all been performed on a given fluid; in fact it is only recently that I have begun to use the last-named as a routine procedure. Wassermann reaction performed at the Havard Medical School under direction of Dr. W. A. Hinton, and the Massachusetts General Hospital, under direction of Dr. Homer Wright until three months ago using the following antigens: (1) heart, (2) syphilitic liver of foetus; more recently a heart antigen reënforced with cholesterin; 0.5 cc. fluid used in each instance. Blood. Wassermann as above, using 0.2 cc. serum.

‡ METHODS OF ADMINISTRATION OF SALVARSAN AND SERUM.—First, salvarsan, rarely neosalvarsan, given in the usual manner intravenously. It is quite necessary that the salvarsan be given without cutting to expose the vein, inasmuch as many injections are required. Second, blood withdrawn either by means of a syringe and transferred to a sterile test tube, or [illegible] by means of a sterile [illegible] next day, mixed with serum [illegible] the case allowed and heated [illegible] hour.

Fourth, lumbar puncture under cocaine anesthesia with the apparatus shown in cut. By means of a 3-way stop-cock the normal pressure is obtained, fluid [illegible] cock until the pressure has been reduced to about 40 mm. or until 20 cc. have been obtained, the serum is then allowed to flow in by gravity from a height [illegible] as originally determined. By simply turning the stop-cock and thus connecting manometer with [illegible] any time during the flow be measured, and the rapidity of flow be controlled so that the pressure may be very gradually re-established. It is usually found that 30 cc. of serum may be injected to replace about 15 cc. of fluid withdrawn if plenty of time, 5 to 10 minutes, is taken at this step, which will leave the pressure the same as at the beginning. If done properly this whole procedure is of no inconvenience at all to the patient after the first puncture of the cocaine needle. The after-effects are either (1) reaction to the medicine, or (2) some headache and nausea, which frequently follow any lumbar puncture, no matter how carefully carried out.

EPICONDYLITIS (FRANKE) OR TENNIS-ELBOW.

BY WILLIAM PEARCE COLES, M. D., BOSTON.

This interesting affection first described by Bähr[1] in 1900 and later by Clado[2] and Franke[3], though known by some physicians, has not been described or studied in America to any great extent. Many diagnoses have been made of the condition such as "bursitis of the elbow," "neuritis," sprain, and functional disability from over-use. The injury leading to the disability is not uncommon in those who take much physical exercise, particularly lawn-tennis, whence the name: "tennis elbow." As will be shown later, however, athletic sports in which strenuous and exact movements of the arm play an important part, are not the only causes of the trouble. The history of the affection in those in whom it occurs in the course of their favorite exercise is almost invariably as follows: Immediately after a stroke, or occasionally some few hours or days afterwards, pain is noted in the elbow, usually the right, in the neighborhood of the external condyle. This pain may be so severe and sudden as to seem to paralyze the arm temporarily, so that all movements are performed with the greatest difficulty or not at all. This pain is usually markedly increased by extension of the forearm, not so much by flexion and may be intermittent or constant, and returns immediately the exercise is taken up again. Lesser degrees of pain and disability are noted in many cases. The pain is most sharply limited to the neighborhood of the external epicondyle of the humerus.

Examination soon after the injury usually shows no marked swelling of the elbow and no ecchymosis. The motion of the elbow is not as a rule limited in flexion or extension; but there may be great pain on forced extension in the neighborhood of the external condyle. The radial head is found to rotate perfectly. Pronation and supination are usually performed without pain. In short, the examination would seem to certainly rule without any marked bony lesion

or fracture. On pressure, an exquisitely painful spot the size of a dime, is found directly over the external epicondyle. Much pain is felt in this spot on full extension of the forearm, which radiates down the arm to the fingers. The pain is increased when the fingers are closed over a round hard object, as a crystal globe. It is also brought on or increased by such motions as reaching a book from a library shelf and particularly in putting on a coat. After such movements, the arm may feel weak and useless for a considerable time. Sometimes, there may be a suggestion of slight thickening felt over the external epicondyle; but this is never marked. Crepitus or abnormal mobility of the epicondyle is never noted.

After a period of weeks or months, with or without treatment, the pain and the tender spot gradually disappear. The patient may again take up the favorite sport, with, however, a possibility of a speedy recurrence of the trouble. A considerable disability and discomfort may result from the injury,—much more than that only necessitating giving up the chosen exercise. Exactly the same trouble occurs from hard manual labor, as will be seen later.

From such a definite localization of the pain and tenderness with other suggestive symptoms of this injury, we may justly presuppose some characteristic and constant lesion of the tissues immediately adjoining the external condyle of the humerus. Tears of the fascia or some muscular bundle have been suspected in a general way, as well as nerve implication. Whatever the lesion is, it seems generally limited to that part of the external epicondyle affording attachment to the supinator brevis, extensor communis, extensor minimi digiti and anconeus muscles. Besides this particular region the humero-radial part of the joint capsule to which some of these muscles are attached has been suspected. Regarding the mechanism of the injury, it seems probable that it occurs during partial extension of the whole arm, the elbow slightly flexed at a time when the forearm is midway between pronation and supination, and that some of the muscles exerting a powerful pull, tear off their attachments to the external epicondyle, perhaps tearing off small pieces of bone with them. In cases where the exercise is repeatedly attempted after the initial injury, this process may be repeated in a lesser degree again and again; thus giving rise perhaps in some cases to a localized periostitis of the external epicondyle. This also may be kept up by the ordinary movements of the arm in daily life. It is established that simple rest of the elbow for a short time does not cure the condition. It may become quiescent and the patient might think it entirely cured, when the first stroke of his racket will bring back all the pain and disability. That numerous theories of the etiology of this condition have been put forth other than the above will be seen later. Certainly some of them do not seem to be compatible with the findings of the typical cases. Some authors even assert that the condition is noted without any traumatism at all and is the result of a bacterial infection at some time. It may be said that a careful examination of the cases seen gave no sign of a neuritis. The lesion is too sharply localized to be due to any involvement of the elbow joint as a whole. Exquisite tenderness on palpation of the epicondyle over a spot the size of a dime is pathognomonic of the trouble.

Brief anatomical considerations are now in order before taking up the various authors' views.

The external epicondyle, the radio-humeral part of the joint capsule and the supinator brevis muscle are the structures suspected of involvement by those who have made a study of this condition. According to Sobatta[4], "the centres of the epicondyle appear between ten and twelve years. But complete ossification of all parts of the bone and disappearance between synchrondroses between epiphyses and diaphyses do not occur until between the twentieth and twenty-second year. From the external epicondyle arise the superficial extensor muscles of the forearm. The external lateral ligament of the elbow, otherwise known as the radial, arises from the external epicondyle, and passes as to fassiculi to the annular ligament, with which a portion of its fibres are continuous. The humero-radial joint does not act as an independent joint. From a practical standpoint the elbow may be regarded as a hinged joint whose axis of movement passes through the two epicondyles. The humero-radial joint does not take part in this movement as the ends of the bones are hardly in contact in flexion. The humero-radial articulation is only passively involved in the pivot movement of the proximo radio ulna joint, since the radius rotates in the socket about its long axis, and the actual pivot movement takes place in the proximo and distal radio ulna articulation." According to McAllster[5], "the outer epicondyle is short and convex behind and its extremity inclines forward. Its upper part affords attachment to the extensor carpi radialis brevior. Below this from above downwards and backwards come the extensor digitorum communis, extensor minimi digiti, extensor carpi ulnaris, anconeus, and close to the supinator brevis the capsular ligament. The origin of the extensors of the hand area extends behind the capitellum as far as the outer lip of the trochlear." The supinator brevis, the muscle supposed to be most concerned in epicondylitis, or tennis-elbow, is a deep and short muscle under the above-named extensors. "It arises from the back of part of the epicondyle, external lateral ligament, orbicular ligament of radius and from a rough ridge on the ulna below the lesser sigmoid cavity. It is inserted in the outer third of the radius." If this muscle is injured in the movements of the arm which cause tennis-elbow, it is difficult to see how injury of the external lateral and orbicular liga-

ments and joint capsule can be avoided, they are so intimately connected. The orbicular ligament, moreover, is said to limit to some extent pronation and supination so that its injury in tennis-elbow would seem very probable.

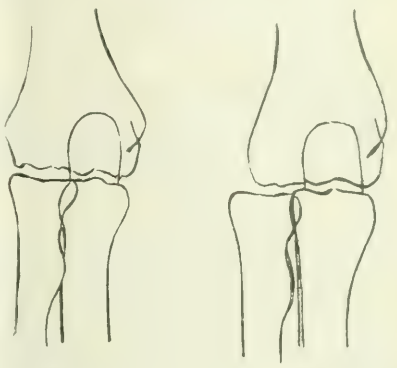
Franke[5] named the affection epicondylitis. He speaks of its being due to injury in sports, particularly tennis, and also of its arising without trauma. He did not observe it in children but in men and women of the leisure class. He speaks of the classic pain with localized tenderness and believes that at times the process is due to a localizing of the inflammation due to the influenza bacillus. He cites his own case in this regard. He never saw it in those having gonorrhea, syphilis, diabetes, nephritis or tuberculosis. He is inclined to believe that a nerve disturbance of some sort and rheumatism may cause the trouble at times. He never noted pain in the radius or ulna in these cases. In two of them there were swelling of the skin over the epicondyle. Other pains and aches in the neighborhood of joints and bones were noted by him in some of his cases, especially the internal condyle of the femur, the tarsal and metatarsal bones.

Anti-rheumatics and Preissnitz compresses were used. Fixation of the elbow gave the best results. He chiseled off the epicondyle in some cases, but does not state the result of this procedure.

Bernhardt[6] considers that over-extension of the muscles attached to the external condyle is the cause of the trouble. He states that it has been named: "Epikondylagie" by Féré.

Momburg[7] reviews Franke's article and cites briefly 14 cases of what he terms periostitis from "epicondylitis humeri." Almost all his cases were in the laboring class and the injuries were contracted during manual labor in a number of cases. Lifting a heavy weight was given for the causes of some. The complaint in all his cases was the same:—pain in the elbow in the region of the external condyle so severe that work had to be stopped. This pain often extended from the epicondyle to the forearm and fingers; also at times to the upper arm and shoulder. (He is the only author who speaks of this.) Pronation, supination, flexion and extension of the hand and fingers, (not of the forearm,) was particularly painful. Objectively pain on pressure over the epicondyle was the symptom. No changes were noted in the skin over the epicondyle. Sometimes what seemed to be slight doughy swelling of the periosteum was detected. However, the Roentgen pictures show no bony changes. He can not agree with Franke that a nerve or rheumatic trouble is the cause of the pain and tenderness about the epicondyle. He believes it is a periostitis of the epicondyle, and that it is caused by muscular pull, and likens it to the periostitis of the tibia of soldiers, from constant marching. The trouble was seldom noted by him in the internal condyle, and he gives the reason as due to the different muscular attachments.

Preiser[8] refers to Franke's, Momburg's, Clado's and Bernhardt's articles and says he has seen the trouble many times. He thinks it gives a typical Roentgen picture and that this means a static trouble with the head of the radius. He shows by a diagram that in his cases the radial head is outside of a line drawn down as a continuation of the external epicondyle.



Elbow.

The radial "inkongruenz" of Preiser.

Sketch A. Normal.

Sketch B. The radial head is outside of a line drawn down as a continuation of the epicondyle. This Preiser believes obtains in cases of "Tennis Elbow."

He thinks that the condition is predisposing to and often really signifies arthritis deformans cubiti. He believes that only in an elbow already deformed in the periostitic shadow visible. He does not consider the name "epicondylitis" or "periostitis" as appropriate; and instead proposes the term: "static deformity." His explanation of the trouble is as follows: that the supinator longus and supinator brevis muscles, at least the fibres of each that reach the anterior joint capsule, are antagonistic at the moment of simultaneous contraction of both muscles. Said simultaneous contraction of both muscles occurs only in one movement, when the hand is snapped strongly and quickly from volar flexion into strong adduction.

He finds, moreover, that the radio-humeral joint capsule is always very tender to pressure. No sign of periostitis is shown in these cases. He does not think influenza infection has caused the trouble. He says he had two cases in tennis-players. The onset of the pain in both cases was sudden. The pain was localized in the external condyle region and there was slight swelling. Perfect extension was possible in these cases, ruling out bony blocking of the joint by any gross fragment. The Roentgen picture showed normal bones in both cases. There was a collection of fluid at the side of the capsule

and he believed the lesion to be a humero-radial joint capsule tear, with chronic capsular inflammation. He cites the case of a smith who had exactly the same lesion as the two tennis players. This man was obliged to strike an iron kettle in a certain way while soldering it. He was obliged to have his hand round his body midway between pronation and supination with the elbow flexed and the whole arm adducted. Preiser does not think that rupture of the supinator brevis muscle can account for the lesion. He advocates massage, friction and hot-water bandages every other day.

Clado, writing in 1902, says that no one had studied this affection previously, but he could not have seen Bähr's article. It is, according to him, a well marked pathologic entity involving muscular rupture. He was able, owing to the courtesy of 12 of the best tennis-players of France, to study the subject thoroughly. He agrees with those authors quoted who wrote after him, that sudden pain in the external part of the elbow leading to inability to use the arm for certain movements is the classic symptom. Violent muscular contraction seems to him responsible for the trouble. Rarely, the trouble may come on without sudden pain, after hard play, he states. Good or expert players are the only ones affected. He did not observe it in women players. The symptoms are (1) pain, (2) "impotence functionel," (3) swelling, (not always noted.) The arm may fall as if paralyzed and the player can not continue playing. Other cases less severe were noted by him as well as by others, but the pain came on again at the first attempt to play. This pain was localized to the external epicondyle in the region of the supinator brevis. There was exquisite pain on pressure of the examining finger. There was no constant swelling in his case, and the skin was always intact. Passive movements of the forearm were not painful. Causing the supinator brevis to act immediately produced great pain. The movements of the elbow joint in flexion and extension were perfect; and gave no pain. Clado does not think that the external lateral ligament and synovial membrane can enter into the trouble from the nature of the symptoms; but the rupture and tears of the supinator brevis muscle account for all the symptoms. He admits that there is not enough swelling for total rupture of the muscle to have occurred. He never found a hernia of the muscle and ecchymosis was noted only once. To give a stroke which causes tennis-elbow, Clado says, the arm is transformed into a rigid lever, nearly horizontal, the elbow slightly flexed, the forearm and hand being midway between pronation and supination, the radial border directed upward, the racket prolonging this lever. He thinks the slight flexion of the elbow is maintained in this position by balance between the flexors and extensors; and the short supinator enters alone into action against the strong pronators and alone maintains the arm in equilibrium against its antagonizing muscles. He says that, in America, the expert players have a different style of game and that the muscles of the abdominal wall are torn and that one does not see tennis-arm in America. This, we know, is not so, if tennis-elbow and tennis-arm are used synonymously.

Consideration of Personal Cases.

I have had opportunity to study three cases of tennis-elbow, all in athletic men. None of them ever had had any previous trouble with his elbow.

Case 1. On Oct. 16, 1913, while riding in an automobile, the right elbow was struck by a jolting of the car, but did not give any trouble until a week later, when, after playing lawn tennis, it felt somewhat stiff. On the following day, after half an hour's hard play, a sharp pain was felt in the outer side of the elbow and forearm on making back hand strokes, which require a fixed position of the arm half way between pronation and supination, and almost complete inability to make such strokes. At the same time, forehand strokes, requiring simple flexion only, were made with very little discomfort. On examination, an exquisitely painful point was found on the epicondyle. Otherwise the joint seemed normal.

Heat and rest seemed to make little change in the condition. The arm felt weak at times, especially after grasping any object firmly and lifting it or in putting on a coat. Disability has continued for three months and at present the patient is still unable to use the arm for exercise. Examination shows no atrophy; the radius rotates perfectly; no thickening is detected over the epicondyle. There is still marked pain on pressure over the epicondyle; the x-ray shows no gross bony abnormality. There is a question of a very slight thickening of the periosteum over the epicondyle. The radiograph, though fairly good, was not perfect enough to make this diagnosis positively.

Case 2. Vigorous athletic man, seven years ago, after constantly playing tennis, noted gradually increasing pain in the right epicondyle. There was local tenderness in the spot complained of by all these patients. There was six month's disability. Examination seven years after this time, still showed tenderness over the epicondyle but no other abnormality. This patient was much inconvenienced by the trouble and played at squash rackets with his left hand at this time for six months. The x-ray in this case showed two little spicules of bone torn off presumably from the inner posterior surface of the condyle or epicondyle. An x-ray of the left arm, which had been used constantly at the time of disability, showed also a small spicule of bone apparently torn off from the internal condyle.

Case 3. Athletic man, played squash rackets, tennis and golf. While playing golf, July, 1913, the patient noticed immediate pain in the right elbow just after a stroke. Patient was left-handed. The pain was not severe enough to make the patient drop his club, but there was a distinct sensation of something tearing in the neighborhood of the external epicondyle of the right arm. The injury was not severe enough to cause the patient to stop play that summer. An exquisitely painful spot

appeared over the external epicondyle. Flexion and extension of the fingers caused marked pain in this spot. There was considerable pain and disability for six months and the arm is not well at the present time of writing, January, 1914. There is aching at times over the region of the external condyle; considerable discomfort when carrying a bag or putting on a coat is experienced. Flexion and extension of the forearm is performed fully; but forced extension causes considerable pain in the region of the external epicondyle. An x-ray of this case showed what seemed to be a small spicule of bone in the neighborhood of the joint surface between the ulna and the humerus.

TREATMENT.

Patients with this trouble are naturally most interested in what steps can be taken to cut short their disability, and it must be admitted that treatment of the condition is very unsatisfactory. Most authors who have written on this subject agree that heat and fixation seem to be the best methods with massage as a supplementary measure. It is an affection which seems to be particularly stubborn and often takes its own time to get well in spite of any treatment; six months of disability or at least of foregoing the chosen exercise must be looked for in most cases.

CONCLUSIONS.

It would seem from a study of the trouble based on those cases in the literature and of the personal ones that there might be perfectly well two lesions causing the symptom complex known as tennis-elbow or epicondylitis.

First, a partial tearing of some of the muscular attachments from the external epicondyle, giving rise to the separation of the bony spicules as in Cases 2 and 3, with the possibility of a periostitis from such tearing, which need not necessarily be marked enough to show in a radiograph.

Second: Injury to the radio-humeral joint capsule from antagonistic muscular contraction of the supinator brevis and supinator longus, as believed by Preiser. It does not seem as if Preiser's theory of predisposition to arthritis deformans of the radial head could be accepted in all cases.

I thank Dr. W. E. Faulkner and Dr. John W. Cummin for valuable suggestions in the preparation of this paper.

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Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY IN CONJUNCTION WITH THE BOSTON MEDICAL LIBRARY.

MEETING OF THE MEDICAL SECTION, DECEMBER 17, 1913.

LESLEY H. SPOONER, M.D., Secretary.

Dr. Lesley H. Spooner and Dr. James B. Ayer read papers on,

RECENT ADVANCES IN THE TREATMENT OF SYPHILITIC DISEASE OF THE NERVOUS SYSTEM.*

DISCUSSION.

DR. G. O. SANBORN: As discussion of these excellent papers, my own experience in the use of Swift's intradural method may be of interest. At the Boston City Hospital and in private practice, I have given 92 intradural injections of salvarsanized serum to 31 cases of syphilis of the central nervous system during the last eleven months.

The final test of efficiency of antisyphilitic treatment is the permanent disappearance of a positive Wassermann reaction. In syphilis of the central nervous system, pleocytosin, and globulin, both of them signs of syphilitic irritation, also must give way to normal conditions. It has been shown tonight that repeated doses of salvarsan intravenously produce improvement in these objective signs of syphilis of the nervous system. Nevertheless, this method, alone, has seemed to be inadequate and the reason appears to be that the blood borne salvarsan does not reach the spinal fluid or the chronic, walled off lesions in relation to it, in sufficient concentration to be spirochaeticidal. Swift's method is calculated to supply this need, in that salvarsan charged serum is injected within the dura and thus directly fortifies the spinal fluid. He showed that the serum injected is spirochaeticidal; that immediate improvement in pathologic conditions of the spinal fluid is due to the serum injected and not in great measure due to the salvarsan given intravenously; that clinical improvement accompanies serologic changes; that improvement may be lasting. The conception and development of this method is a notable scientific achievement.

I have studied the effect of this method in producing changes in the pathologic conditions of the spinal fluid in tabes, paresis, and in some other types of chronic nerve syphilis. The clinical course of these cases has been followed closely by Dr. Coriat. I will mention only these cases in which the diagnosis is clear clinically, and whose spinal fluids gave consistent abnormal findings, pleocytosis, positive globulin and positive Wassermann tests.

The technic is essentially that demonstrated to me by Dr. Swift at the Rockefeller Hospital, in November, 1912. In these cases, maximum doses of neo-salvarsan have been used. In one case having

* See pp. 441 and 452.

had 8 doses, the interval between was 8 to 10 days; in others the interval has been two or three weeks to three months. All have received treatment in a hospital, and have remained in bed at least 24 hours. There have been no deaths and no serious results of any kind. The reaction during the 24 hours after injection, in the tabetics, has consisted of pain, sometimes severe. Slight temperature also has occurred in a few cases.

The tabetics have received from 2 to 6 injections of serum. In none of these has a positive Wassermann become negative (1 c.c. of spinal fluid used). Positive globulin has become negative in two cases. The cell count has been affected strikingly by treatment. The average cell count in 11 cases before treatment, was 56. In the same cases, two weeks to two months later, with no intervening treatment, the cell count was 18, a diminution of 70% from one combined treatment. Ten of these cases, after 3 to 5 serum injections, each, gave a final average cell count of 9. The average of the total drop in cell count was 84%. Clinical improvement has been noted in all cases, as follows: general condition; gain of weight; all but two, less ataxic; pains ceased save in three cases, and in the latter are no longer severe; three had lost control of bladder sphincter, and have regained it. In three undoubted cases of paresis, cell counts of 100, 60 and 40, respectively, have dropped to normal, after 4 to 6 intradural injections. There has been definite and maintained clinical improvement in all. It is my intention to continue treatment of this group of cases until normal spinal fluids have been attained, or until I am convinced that this is impossible.

DR. A. MYERSON: My experience with Swift-Ellis treatment has been mostly limited to its use in general paresis. I have had two cases of cerebral spinal syphilis, both of which did very well treated by salvarsanized serum. I have treated eight cases of paresis for periods varying from three to seven months. Injections were given every two weeks in the majority of cases and the procedure was essentially as that advised by Swift-Ellis. As the results have been tabulated elsewhere (BOSTON MEDICAL AND SURGICAL JOURNAL), I shall not trouble you with a detailed report. Suffice to say that the most striking change was in the biological reactions. In the majority of cases, the Wassermann reaction was for at least a short time, negative in blood or spinal fluid, or both. The cellular count diminished and the globulin reaction became less intense. In none of the cases was this a permanent result, although in some, the biological improvement lasted for months. One case died, one other became markedly worse, these changes being in no wise related to the treatment since the patients were not selected from any stage of the disease. Clinically, change for better was not so obvious as serologically. One man had a complete remission, but as he was on the road to this before treatment commenced, credit cannot be taken by the treatment for this. Three of the patients remained stationary, two of the cases made some clinical improvement.

As for the rationâle of the treatment, I believe that the change is based on a fallacy which does not affect its use and value in cerebral syphilis and tabes, but which in a case of paresis is fatal to the success of the treatment. The treatment presupposes a local effect of the salvarsanized serum, but I wish to point out that the cerebral spinal fluid does not reach the lesions of paresis except those in the meninges. The cerebral spinal fluid is not a route on the way *towards* the nervous system, it is a route on the way *from* the nervous system. It is not an *afferent* current, it is an *efferent* current. That is to say, no matter where it is manufactured, whether in the choroid plexus or by the blood vessels, whether it is transudate, exudate, dialyzed fluid or true secretion it does not enter into intimate relations with the nerve cells, nor does any fluid injected into it reach the nerve cell or touch the paper tissues of the nervous system. The lesion of general paresis is essentially arterial, chronic inflammatory and degenerate, and the bulk of the change takes place away from the influence of the cerebral spinal fluid; moreover, the spirochaetes have not been found superficially, but deep in the tissues of the brain, so that there seems to be no rational basis for the belief that the Swift-Ellis treatment, which has for its new feature the use of salvarsanized serum, will cure paresis.

Moreover paresis is a disease essentially characterized by remission. This is true of the biology of syphilis in general, and the state hospitals can present numerous cases where individuals have enjoyed such remissions from the effects of paresis as to enable them to go home, in some cases for long periods of time; further, no one knows the biological variations in paresis because no one has performed repeated lumbar punctures and serological examinations up to the time this treatment may be necessary.

In two of my cases, the Wassermann was negative the first examination, but positive at a later one without treatment and without any change in the clinical symptoms, and the reverse has been true in one case.

Reliance upon the cell counts as a quantitative measure is based, it seems to me, upon the belief that the counting chamber method can be accurate. I do not believe that such is the case. I believe the range of error to be as much as ten or fifteen cells per cubic millimeter in any case where there is a distinct cell increase. The most that one can really say in any case is that there is a small cell increase, a large cell increase, or very large increase, and approximate the figures rather than give them with a pretence of exactness.

Dr. Ayer has well called our attention to the fact that there is a preparetic stage, in which treatment is hopeful. With this I cordially agree and, moreover, I believe that this is a recognizable stage. In the period before the outbreak of paresis, there are symptoms. In this connection I want to call your attention to a paper by Dr. Wm. W. Graves of St. Louis which appeared on August, 1912, in the *New York Medical Report*. The title of this paper was "Syphilitic Syndrome," and Graves here points out that the chronic or latent syphilitic has physical signs of a nature to have a diagnosis made. These are pigmentation, pallor, small changes in the pupils, small changes in the reflexes, such as the dropping out of one or the other of the skin reflexes, exaggeration, inequality and arterio changes. To this I wish to add that on the laboratory side we can obtain evidence. First, the Wassermann reaction of the blood on repeated examination; second, the chemical changes in the spinal fluid, and especially of the increase in albumen, which I believe occurs before globulin reaction or the increased cell count of the Wassermann reaction. Taken at this stage, I feel we could cope, perhaps successfully,

with the disease, and perhaps by the Swift-Ellis method; but at the present time, and in the average paretic, treatment by this method influences the course of disease but does not stay it.

Dr. Isador H. Coriat: Dr. Sanborn and I have been closely associated in this combined neurological and serological work, and we have treated in all about 30 cases by the intraspinous method. The types of syphilitic diseases of the central nervous system which have come under treatment have been combined system disease of the spinal cord, specific meningo myelitis, cerebral syphilis, cerebrospinal syphilis, dementia paralytica, tabes and juvenile paresis. No bad results have followed the treatment. In nearly all cases there was serological improvement even if the cases showed no changes clinically. The clinical improvement could be grouped under two headings, viz:—improvement in the subjective complaints and improvements in the objective signs of the disease. As would naturally be the case, the subjective improvement was always more marked than the objective, although the latter was noted to a certain extent in a few cases. Varying according to the diagnosis, the subjective improvement was as follows: In tabes, a lessening of the lightening pains and of the gastric crises and an improvement in general strength; in cerebral syphilis, a diminution of the headache and even in some cases a complete freedom from headache; in spinal syphilis, increased strength in the legs and in paresis, some improvement in the mental condition. Of course in this latter disease, the question of fluctuation in the disease process and of remissions must be considered. Objective improvement has likewise been noted in a few cases, but in these cases only certain isolated objective signs have improved. In specific meningo myelitis, the gait has improved; in tabes, improvement of the urinary incontinence, of gait and ataxia, and improvement in certain reflexes, such as the light reaction of the pupils. In one case the knee jerks became brisk, whereas formerly they were only obtained on reinforcement. The significance of these changes in the reflexes, it is impossible to determine at present. The clinical improvement usually ran parallel with the serological improvement, although we have noted serological relapses without clinical relapses, and vice versa. The problem of treatment of syphilis of the nervous system is the problem of accessibility of the spirochetae. In specific endarteritis, of course, beneficial results are to be expected from intravenous injections of salvarsan. But in the meningeal forms, in paresis, tabes and system diseases where the causative agent lies at a distance from the blood vessels in the perivascular and perineuronal spaces, the best results are to be obtained by the intraspinous method of treatment, thus bringing both the drug and the syphilitic anti-bodies into direct communication with spirochetae. Since the cerebrospinal fluid does not come from the blood current, but is a true secretion from the choroid plexus and the direction of flow is from the fluid to the blood, it follows that the best treatment for syphilis of the nervous system is by introduction of the causative agent directly into the cerbrospinal fluid.

Dr. J. C. Walker: I am in sympathy with the remarks made by Dr. Coriat in regard to the cell count in the spinal fluid, and I do not agree with what I understood Doctor Myerson to state, namely, that the cell count in the spinal fluid varies from day to day, and is not to be depended on as an index of active disease of the meninges. At the Peter Bent Brigham Hospital we perform lumbar puncture on every case of syphilis and in forty or fifty cases in various stages, excepting cases of central nervous system syphilis, the highest spinal fluid cell count has been four, usually two and often none or one.

In regard to the Wassermann reaction, I believe that when done by an intelligent person who understands the reaction, and when conscientiously and carefully controlled, it is more than a symptom, and it is indispensable in the diagnosis of syphilis.

It is too late in the evening to enumerate the cases of syphilis which we have treated intraspinally, but our results agree with those of Doctors Ayer, Sanborn, and others, and I feel that this new method introduced by Swift and Ellis, is of great value as a treatment, especially in cerebro-spinal syphilis and of help in tabes. I would like to mention one case of cerebral syphilis with primary optic atrophy, which was given four intraspinal treatments alone without intravenous salvarsan treatments. This salvarsanized serum introduced into the spinal canal had no injurious effects upon the optic nerve, in fact before treatment there was a steady gradual decline in his sight. Since the treatment, although the patient thinks it has improved his sight very slightly, his sight surely has gotten no worse, and the decrease of the spinal cell count from forty-three to seven indicates improvement. A second case of tabes got no improvement from six salvarsan treatments alone, but four intravenous salvarsan and intraspinal treatments relieved his incontinence of urine, and whereas previously the patient had to get up four or five times at night to urinate, now he has to get up only once. In this case the pains in the lower extremities have disappeared, the gait has improved so much that the patient walks much daily for exercise, and the cell count has dropped from forty-four to two.

Book Reviews.

The Midwife in England. Being a Study of the Working of the English Midwives Act of 1902. By Caroline Conant Van Blarcom, executive secretary. New York: Committee for the Prevention of Blindness (No. 13). December, 1913.

This very readable pamphlet begins with an enthusiastic introduction by Prof. Edgar, who endorses all that the author has written. The aim of the writer is evidently to convince the general public of the necessity of the trained, licensed, and regulated midwife in America, basing her arguments on the success of the operation of the English Midwives Act of 1902. She was in England only six weeks observing midwives in the making at their recitations, lectures, and examinations; she followed the midwife on her rounds in practice, and she followed the inspectors in their work of checking up. She gives an accurate account of the history of the midwife in England down to the passage of the Midwives' Bill of 1902, and also a minute description of this bill and its operative machinery. The work concludes with four exhaustive appendices, making it a valuable book of reference.

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THE HARVARD MEDICAL SCHOOL OF CHINA.

A CIRCULAR letter of information and appeal (reprinted in another column of this issue of the JOURNAL) has recently been sent by Dr. Martin R. Edwards to all graduates of the Harvard Medical School relative to the present status and needs of the Harvard Medical School of China. This school was founded at Shanghai in 1909 and inaugurated two years later.



THE HARVARD MEDICAL SCHOOL OF CHINA.

"The inauguration of the Harvard Medical School of China occurred precisely at the moment of the outbreak of the Revolution of 1911; but this, instead of hindering the development of the School, worked to its advantage. Along with the remarkable readjustment of government, there was a widespread awakening on the part of the Chinese to the necessity of a hygienic regeneration, if China is to take her rightful place among the nations. This realization, however, had really begun during the fight against the recent outbreak of pneumonic plague in Manchuria, which marked a new era in medicine throughout China's four hundred millions of people.

"The point of location, at Shanghai, offers exceptional opportunities for extended researches into the diseases of the Orient and the tropics. This is of importance to us due to the rapidly increasing intercourse, commercial and otherwise, of the United States with the peoples of the Orient and tropical countries. The approaching opening of the Panama Canal emphasizes this need.

"The course of study at the Harvard Medical School of China covers a five-year period, the teaching all being done in English. Although the school is primarily for Chinese, it is open to all who meet the entrance requirements. It is the aim of the school to give a high class of instruction to a limited number of well-qualified students who give promise of becoming leaders in China's medical advance, rather than to turn out large numbers of moderately trained doctors.

"The above buildings are furnished to the Harvard Medical School, free of rent, by the Chinese Red Cross Society. The larger building now provides facilities for the hospital, the lecture and laboratory rooms for instruction purposes, and the laboratories for research. The whole of this building, however, is needed for purposes of instruction and research, and will be so used upon the completion of the much-needed new hospital. The smaller building is used as a dormitory. The grounds afford ample space for tennis and other sports enjoyed by the students.

"The purchase of a tract of land near the school building on which to erect the new hospital is of vital importance. The money for the hospital building has already been promised. The carrying on of satisfactory instruction work for the students further demands the immediate establishment of an out-patient department in the heart of the city.

"The school has before it exceptional opportunities for usefulness; and, in the words of President Eliot, 'is one of undoubted worthiness and sure fruitfulness.'"

The need for trained physicians in China is great. The country has a population of 400,000,000, with only 650 doctors having a knowledge of modern scientific medicine. At this rate there would be but one physician in Boston and three in Chicago. Yet physicians are needed in China, for there is a large amount of endemic and epidemic disease.

"The Harvard Medical School of China aims to meet this need, to train carefully selected Chinese students of medicine, so that they later may

become the teachers, in native institutions, where the vast number of Chinese practitioners needed may receive their training. The aim is to help the Chinese to solve their own medical problem."

There is also a great need for hospitals in China. There are at present 250 hospitals averaging 30 beds each in that country. At this rate, Boston would have one hospital of 12 beds and New York one of 90 beds. The Harvard Medical School Hospital, soon to be built at Shanghai, is not solely an attempt to contribute towards meeting this need, but a means for providing more adequate opportunity for clinical instruction under favorable conditions.

The need of this hospital, both from the humanitarian and from the educational standpoint, is obvious. It is earnestly to be hoped that not only graduates of the Harvard Medical School, but physicians and patrons of medicine generally, may generously give the means to make possible this enlargement of the work and service of the institution in the Orient.

THE MIDWIFE IN ENGLAND AND IN AMERICA.

In another column of this issue of the Journal is published a review of a pamphlet which has recently come to hand. Its title is "The Midwife in England"; its object is the midwife in and for America. It is important to consider briefly the motive behind these written pages.

Miss Van Blarcom, the secretary of the Committee for the Prevention of Blindness, is a well-trained obstetric nurse; no one could be more familiar with this side of obstetric work than she. She was sent to England to investigate the midwife situation in that country; her time for study was but six weeks. There can be no doubt that she did her work thoroughly and well. She became in spirit an English midwife and writes with the loyalty of a proselyte. She honestly feels that the one and only solution of the obstetrical situation in America is some such system as England has adopted. She considers no alternative and bravely sweeps away all the barriers. We cannot but admire her enthusiasm and pardon her inconsistencies; but it is hard to see how obstetricians of wide training and influence can advocate her plans for America.

In the first place, the English system is far from being the unqualified success she would have us believe. In a lecture on "Ante-Natal Hygiene," by Dr. Armand Routh, consulting obstetric physician to Charing Cross Hospital, given on behalf of the National Association for the Prevention of Infant Mortality on January 13, 1914, one of the first principles advocated is for "arrangements by which every poor woman shall have medical supervision during pregnancy." In this long and exhaustive paper there is no mention made of even the most highly trained midwife as a factor in his plans for obstetric care of the poor; it is always the medical practitioner who is to give the service. The obstetricians in England know that the system they originally advocated, when they backed the Midwife Bill, is wrong, and that it cannot furnish adequate care for the poor of England in their obstetric experiences.

The crying need in America is not for trained midwives, but for higher standards of obstetric teaching in our medical schools and for the widespread introduction of obstetric dispensaries. A recent newspaper article written, not by a superficial reformer, nor by a biased obstetric specialist, but by a public health expert, Dr. W. A. Evans, of Chicago, concludes:

"It does no good to abuse midwives or poor doctors or poor nurses. It does no good to try to legislate midwives into trained women, or, following the other trend, to legislate them out of existence. The latter plan has not succeeded anywhere in this country, and the former plan has not succeeded anywhere in Europe. The reason is plain to anyone who gives it thought. I will not develop it.

"No plan ever will succeed except one of substitution. The thing substituted must not only save the eyes and the lives, but it must conform to other requirements.

"The lying-in hospital, dispensary, and mothers' aid movement constitute the best substitute to date. As a preventive of blindness, it is perfect. As a saver of lives of mothers and babies, it is almost perfect."

MEDICAL LEGISLATION. STATE REGISTRATION IN MEDICINE.

On Thursday, March 5, a hearing was held at the State House before the committee on public health relative to the proposed bill providing for the registration of physicians in this Commonwealth. The principal contention was made by the Christian Scientists. The proposed

bill contains ten sections, the ninth of which read originally as follows:

"Nothing in this act shall be held to restrict the practice of Christian Scientists, so called, who are communicants in good and regular standing in any Christian Science church in this Commonwealth, or to registered pharmacists or registered dentists, or to clairvoyants, or to persons practising hypnotism, mind cure or massage, provided they do not violate any of the preceding provisions of this act."

To the last clause of this paragraph the Christian Scientists objected, claiming that it in effect nullified all the rest of the section. After some conference between their representatives and those of the State Board of Registration in Medicine, the latter agreed to substitute for this section the following:

"Nothing in this act shall be held to apply to registered pharmacists, registered dentists, or registered optometrists, or to restrain the practice of clairvoyance, hypnotism or mind cure, or to apply to any person who ministers to or treats the sick or suffering by mental or spiritual means without the use of drugs or material remedy."

Upon this compromise, the Scientists withdrew their objections, and the latter section was therefore substituted as an amendment to the bill.

The last section of the bill is also of importance as defining the practise of medicine.

"Section 10. The word medicine, as used in this act, shall be regarded as referring only to that branch of science which relates to the prevention, cure or alleviation of the diseases of the human body, and any person shall be regarded as practising medicine within the meaning of section 8 of this chapter who shall publicly assume or advertise any title or designation which shall show or tend to show that the person publicly assuming or advertising the same is a practitioner of medicine in one or more of its branches; or who shall investigate or diagnosticate physical ailments, defects or conditions of any person, with a view to treat or modify the same, or does treat or modify the same, by use of instruments or external appliances or manipulations, or by the application or administration of any remedial agent or substance for either internal or external effect, except in so far as the provisions of this section do not conflict with the provisions of exemption in section nine."

Hitherto there has been no statutory definition of the practise of medicine, and the term has been variously interpreted by different judges. This new definition, it is said, will be of value to the courts as an aid in the adjudication of certain medical cases.

MEDICAL EXAMINERS FOR GREATER NEW YORK.

The bill recently introduced into the New York Legislature abolishing the office of coroner in New York City and substituting for it that of medical examiner is a reform measure deserving of a most widespread interest. It is now nearly forty years since the General Court of Massachusetts without a dissenting voice voted to abolish the coroner system and to substitute for it the method of medico-legal inquiry at present operative in this Commonwealth.

The office of coroner, an ancient English institution, in these days is an anachronism. Notwithstanding this fact, in but a few states of the Union has it been replaced by other systems of medico-legal inquiry. Massachusetts, the pioneer, has been followed by Rhode Island, and in a measure by Connecticut, New Hampshire and Maine. New York now seeks to follow suit, and in so far as the City of Greater New York is concerned to rid herself of the antiquated, cumbersome and in a measure corrupt method of inquiry which up to the present time has persisted in spite of all effort to abolish it.

The people of Massachusetts may well take pride in the fact that the promoters of the New York bill before drafting the measure made careful inquiry into the Massachusetts medical examiner system and its workings as exemplified in Suffolk County, where conditions are favorable to its most effective operation.

The friends of the bill include organizations representing a wide variety of interests united in vigorous effort to secure its passage. Should the bill become a law, New York will set a powerful example in the direction of a reform, the need of which in this country is universally conceded.

MEDICAL NOTES.

Synthetic Milk.—A press report from London on March 17 announces the discovery there of a method of making synthetic milk from the soya bean.

A Centenarian Countess.—Elizabeth Ruth, Countess of Devon, who died at Cheltenham, England, on March 17, is said to have been born on March 12, 1814. She was widow of the tenth Earl of Devon.

The Plague in Java.—The total number of cases of bubonic plague notified in East Java during the calendar year 1913, was 11,218, with 10,556 fatalities.

Mississippi Valley Medical Society.—The twenty-sixth semi-annual meeting of the Mississippi Valley Medical Society was held at Lincoln, Neb., on March 26 and 27.

Insanity in Wars.—During the Franco-Prussian War, the percentage of insanity among troops engaged was 0.73 per 1000. During the British South African War it was 2.5; in the Russo-Japanese War 2., and in the recent Balkan War only 0.35.

A Long Retained Lithopedion.—In the issue of the Journal for Jan. 15 we quoted a case of a lithopedion retained in the abdomen for 42 years and during four succeeding pregnancies. In a letter published in the issue of the *Lancet* for Feb. 28, Dr. W. S. Lamb notes that there is in the Army Medical Museum, at Washington, D. C., a lithopedion removed at autopsy, which was retained in the abdomen 55 years and during five succeeding pregnancies.

BOSTON AND NEW ENGLAND.

New Evening Clinic at the Dispensary.—On March 16 a new evening genito-urinary clinic was opened at the Boston Dispensary. This clinic will be held on Monday, Wednesday, and Friday, at 7.30 p.m., and a fee of 50 cents will be required of each patient. The clinic will be in charge of Dr. Arthur H. Crosbie and Dr. Augustus Riley.

Scarlet Fever at Bridgewater.—It is announced by the local board of health that the epidemic of scarlet fever, recently prevalent in Bridgewater, Mass., is now abating. On March 13, there remained only 32 cases of the disease under treatment.

Hospital Bequests.—The will of the late Francis J. Cotting, of Boston, which was filed on March 18, contains bequests of $10,000 to the Children's Hospital, Boston, and $75,000 to the Industrial School for Crippled and Deformed Children.

By the death, on March 15, of Mrs. Abram H. Cushman, of Peabody, Mass., a trust fund of $40,000, of which she enjoyed the income, under the will of the late J. B. Thomas, now reverts to the J. B. Thomas Hospital.

The will of the late Laura Wolcott Lowndes, of Washington, D. C., which was filed in that city on March 14, contains a bequest of $10,000 to Harvard College to provide free beds for needy students in the Stillman Infirmary.

The will of the late Dr. Thomas Morgan Rotch, of Boston, after providing for the endowment of a professorship of pediatrics in the Harvard Medical School, makes the Infants' Hospital his sole ultimate reversionary legatee.

The will of the late Martha B. Webb, of Brookline, Mass., which was filed last week at the Norfolk probate court in Dedham, Mass., contains a provisional residuary bequest to the Beverly, Mass.) Hospital.

Infectious Diseases.—Cases of Infectious diseases reported to the Boston Board of Health for the week ending March 17, 1914: Diphtheria, 59, of which 5 were non-residents; scarlatina, 144, of which 11 were non-residents; typhoid fever, 3; measles, 57, of which 1 was non-resident; tuberculosis, 42, of which 1 was non-resident.

The death-rate of the reported deaths for the week was 16.32.

NEW YORK.

Abolition of Coroner's Office.—On March 11 the Assembly Committee on Cities gave a hearing at Albany on the Brennan bill abolishing the office of coroner in New York City. Under this bill the bulk of the work now done by the coroners would be taken over by a chief medical examiner appointed by the mayor and a number of deputies appointed by the chief examiner, while the rest of the work would be performed by the city magistrates. Dr. George B. Magrath, medical examiner in Boston, explained the economical and satisfactory working of the medical examiner system in Massachusetts, and among those who appeared in favor of the bill were Dr. A. Jacobi and Prof. James Ewing of Cornell University Medical College.

Hospital Bequest.—By the will of the late Mrs. Elizabeth N. Andreas of Brooklyn, N. Y., $4,000 each is left to the Stony Wold Sanatorium for Incipient Tuberculosis, in the Adirondacks, St. Rose's Free Home for Incurable Cancer, New York, and the Seaside Home of the Brooklyn Children's Aid Society.

Manhattan State Hospital.—After several years of negotiations, an agreement has been

approved by the state and the city of New York giving to the state a lease of Ward's Island for fifty years for the Manhattan State Hospital for the Insane and transferring to the state the property in Brooklyn occupied by the Long Island State Hospital. The transactions were made possible through the enactment of two bills by the Legislature last year, upon the recommendation of the attorney general and the State Hospital Commission. The Manhattan hospital has been located for many years on Ward's Island without definite legal right, and during its occupancy the state has expended some $1,238,500 for improvement and repairs of existing buildings and the erection of new buildings.

New State Hospitals.—Among the recommendations in the annual report of the State Board of Charities is the establishment of two new institutions for the delinquent feebleminded, one for each sex, with observation stations in New York, Buffalo and other cities. Another recommendation is the establishment of at least three state hospitals for incipient tuberculosis, similar to the one at Raybrook, in the Adirondacks, together with increased hospital provision for the care of advanced cases of the disease.

Reënactment of Workmen's Compensation.—The constitutionality of the workmen's compensation act passed in December last having been questioned, the present legislature, at the request of Governor Glynn, reënacted it, with slight changes, and on March 16 the governor signed the bill and appointed four of the five commissioners whose function it is to administer the law. One of these is Dr. Thomas Darlington, the former head of the New York City Health Department.

Truth and Anti-Vivisectionists.—The general public has long realized that many of the charges made by anti-vivisectionists against the medical profession are utterly silly. How much credence can be placed in their recent charges that children treated in hospitals of this city were inoculated with "loathsome diseases," even though such charges are apparently fully supported by a statement giving names and addresses of the children alleged to have been so infected, is well shown in some correspondence which Commissioner Goldwater has recently had with Dr. William H. Maxwell, City Superintendent of Schools. Not only were the children found not to be suffering from the "loathsome diseases," but it was also shown that there was absolutely no experimental work with such diseases carried on in any of these hospitals of the Department of Health.

The charge was also made that many of the children attending the public schools in the Bronx were suffering from venereal diseases and it was plainly intimated that these were due to experimentation and infection in city hospitals. In particular, B. S. Deutsch addressed a letter to the District Attorney of Bronx County, stating that forty-eight children residing in Bronx County, many of whom were now attending the public schools, were suffering from a very grave venereal disease, namely, syphilis. Mr. Deutsch's statement goes on to say that the alleged infections of these children were the result of "inoculation which occurs without the consent of either the children or their parents, or else as the result of gross negligence or carelessness within the hospitals."

Commissioner Goldwater's investigators visited forty families named in the Deutsch list. Of this number, fifteen could not be found at the given addresses. Interviews were obtained with twenty-five families in which there were thirty-four children. Among these, not a single case of syphilis or of suspected syphilis was found. There was no evidence of the inoculation of any of those children with serum or vaccine.

Restriction of Corrosive Sublimate Sales.—Report from Albany states that on March 5 the Senate committee reported favorably the Blauvelt bill, which restricts the sale of corrosive sublimate tablets by providing that they shall be colored green, placed in a bottle of distinctive shape, and dispensed only on a physician's prescription.

Another Case of Typhus Fever.—On March 9 a case of typhus fever was discovered aboard the French steamer *La Savoie,* which reached this port on the previous day from Havre. All her steerage passengers were detained at the quarantine station.

Meningitis from Greece.—A number of cases of cerebro-spinal meningitis have recently been discovered among immigrants from Greece, and

among Greek soldiers returning to this city after serving in the Balkan War. The disease is endemic in Greece, and there is probably a considerable risk of its introduction as an epidemic into this country. The vigilance of quarantine officials should be doubly strict at this time to prevent such a catastrophe.

City Health Department.—The officials of the City Health Department have expressed themselves as much gratified by the cordial support promised the department by the present municipal administration at a recent meeting arranged by the Charity Organization to celebrate the 31st anniversary. Three of the speakers on that occasion were Mayor Mitchel, Comptroller Prendergast, and Mr. McAneny, president of the board of aldermen, and looking to the commissioner of health to bring the machinery of his department to the highest degree of efficiency, they pledged themselves to give the heartiest support in their power to all efforts to improve the health and welfare of the community. Some of the activities commended by them were: Health centres, organized public health education, improvement in hospital and dispensary conditions, better supervision of foods, broadening of the work of the infant milk stations, and better supervision of and increased accommodations for the care of the tuberculous.

Treatment of Venereal Diseases.—The Health Department believes that Wassermann tests should be made upon all cases of syphilis, that there should be facilities for making microscopical examination for treponema, and that complement fixation tests and microscopical examinations for gonococci should be made in all cases of gonorrheal infection prior to discharging the patient. It has published a list of college, hospital and dispensary clinics which have taken special pains to come up to this standard, and expresses the hope that the example set by these will soon be followed by other clinics, and that in the near future the clinic treatment of the venereal diseases will be on a thoroughly scientific and satisfactory basis.

Medical Economic Leagues.—The Federation of Medical Economic Leagues, the object of which is the furtherance of the economic interests of the profession, and in which there are now seven organizations, with a membership of 2800, was incorporated at Albany on March 6. The president is Dr. Thomas Dixon of Brooklyn, and among the other incorporators and directors are Drs. A. C. Geyser and Oscar Potter of the Borough of Manhattan and Drs. M. L. Volk and Samuel Gitlow of the Borough of the Bronx. The chief aim of the central organization at this time is stated to be to induce the Legislature to prohibit hospitals and dispensaries from exacting fees from charity patients.

Award of Nicolls Medal.—On March 6 the Chemists' Club of New York presented the Williams H. Nicolls medal to Dr. M. Gomberg, professor of organic chemistry in the University of Michigan awarded for his researches in triphenylmethyl. On the same occasion friends of the late Dr. Morris Loeb presented to the club a bronze bust of Professor Loeb.

Current Literature

Medical Record.

March 7, 1914.

1. Case, J. T. *X-ray Observations on Colonic Peristalsis and Antiperistalsis with Special Reference to the Ileocolic Valve.*
2. Abbe, R. *A Simple Subcutaneous Cut to Cure "Trigger Finger" or "Snap Finger."*
3. Bassler, A. *A Cause of Peritoneal "Adhesions in a New Bacillus; the Bacillus Adhaesiformis.*
4. Wilensky, A. O. *Fracture of the Os Calcis.*
5. Einhorn, M. *An Appliance for the Introduction of Instruments into the Stomach.*
6. Kellogg, J. H. *The First Observed Cases of Friedreich's Ataxia in America.*
7. Weiss, R. *Quantitative Calorimetric Analysis in Aid of Clinical Diagnosis.*
8. Rueck, G. A. *Pathology, Etiology and Diagnosis of Typhoid Fever.*

New York Medical Journal.

March 7, 1914.

1. Smith, A. J. *Erosion of Tissues by Aneurysms.*
2. *Trimble, W. B. *Lingual Tuberculosis—Primary.*
3. May, C. H. *Soap and Water and Opticians.*
4. Cornwall, E. E. *Low Blood-Pressure.*
5. Willson, R. N. *Food Toxemia or American Gout.*
6. Diner, J. *Serum Diagnosis.*
7. Moss, M. I. *Heredity in Exophthalmic Goitre.*
8. Mahr, H. W. *A Special Burette for Use in the Rideal-Walker Test.*

2. Trimble reports two cases of primary lingual tuberculosis. In any case of tongue ulceration, he says, tuberculosis must be considered. Most tuberculous ulcers of this organ are secondary. The diagnosis of this condition is very difficult, as it is impossible to demonstrate the bacilli in the ulcer and histologic examination alone is practically useless as a means of distinguishing it from syphilis.

[L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

MARCH 7, 1914.

1. KNOX, H. A. *A Scale, Based on the Work at Ellis Island, for Estimating Mental Defect.*
2. *EASTMAN, J. R. *An Anatomic and Physiologic Method of Short-Circuiting the Colon.*
3. GRIFFITH, J. D. *Progress of Orthopedic Surgery.*
4. DERCUM, F. X. *An Evaluation of the Psychogenic Factors in the Etiology of Mental Disease, Including a Review of Psychanalysis.*
5. KAHN, M. *Rupture of the Intestine, with Special Reference to Its Early Diagnosis.*
6. *KANAVEL, A. B. *Duodenal Toxemia Following Rupture of the Duodenum, with Remarks on Extraperitoneal Rupture and a Report of Two Cases.*
7. *VERHOEFF, F. H. *Ultraviolet Light as a Germicidal Agent. Experimental Investigation of Its Possible Therapeutic Value.*
8. *LIBMAN, E., AND OTTENBURY, R. *A Practical Method for Determining the Amount of Blood Passing Out During Direct Transfusion.*
9. FRANCINE, A. P. *The Underlying Factors in the Spread of Tuberculosis.*
10. HEED, C. R., AND PRICE, G. E. *Binasal Hemianopsia Occurring in the Course of Tabetic Optic Atrophy.*
11. EUSTACE, A. B., AND MCNEALY, R. W. *Case of Strangulated Tubo-Ovarian Hernia in an Infant.*
12. ZIGLER, M. *Gonorrheal Involvement of the Skin of the Prepuce Cured by Unusual Therapeusis.*
13. REED, E. N. *Idiosuncrasy to Aspirin (Acetylsalicylic Acid).*
14. POMEROY, J. L. *A New Sign in Pneumothorax, Particularly Artificial Pneumothorax.*
15. FENNELL, R. F. *Care of the Heart in Pneumonia.*
16. MCJUNKIN, F. A. *A Tube for Collecting Blood for Cultures.*
17. DAVID, V. C., AND CURTIS, A. H. *Recent Experiences with Blood Transfusion.*
18. HIRSCHFELDER, J. O. *A New Culture-Medium for the Gonococcus.*

2. Eastman suggests the anastamosis of the caput coli with the upper rectum as a new method of short-circuiting the colon and getting certain and efficient drainage.

6. Kanavel is convinced that a toxemia other than bacterial is a factor in the mortality of extraperitoneal rupture of the duodenum. He refers to the well-known work of Maury and to two illustrative cases.

7. Verhoeff proves experimentally that ultraviolet light cannot under any conditions destroy bacteria within the cornea, even when the latter is perfectly transparent, without at the same time severely injuring the corneal tissue.

8. The authors have worked out a formula which involves body weight before and after transfusion, and hemoglobin per cent., whereby the exact amount of blood transfused can be measured. They claim it is always safe to take one-fourth of the donor's blood and often safe to take a third, provided the transfusion is not done too quickly. The patient's blood-weight is estimated as one-nineteenth of the body weight. [E. H. R.]

THE ARCHIVES OF INTERNAL MEDICINE.

JANUARY, 1914.

1. *STEWART, G. N. *Studies on the Circulation in Man. The Blood-Flow in the Hands in Diseases of the Heart.*
2. *BASS, M. H., AND WESSLER, H. *A Study of the Blood-Pressure in Children Showing Orthostatic Albuminura.*
3. SATTERLEE, H. S., AND HOOKER, R. S. *Experiments to Develop a More Widely Useful Method of Blood Transfusion.*
4. *HOWELL, W. H. *The Condition of the Blood in Hemophilia, Thrombosis, and Purpura.*
5. *GEYELIN, H. R. *A Clinical Study of Amylase in the Urine, with Special Reference to the Phenolsulphonephthalein Test.*
6. SCHMIDT, H. B. *The Clinical Study of Hypercholesterinemia.*
7. *SOPER, W. E., AND GRANAT, S. *The Urea Content of the Spinal Fluid with Special Reference to Its Diagnostic and Prognostic Significance. A Series of Ninety-Seven Cases.*
8. *THOMAS, R. A., AND IVY, R. *The Gonococcus Complement Fixation Test and Analysis of Results from Its Use.*
9. PLAGGEMEYER, H. W., AND MARSHALL, E. K. *A Comparison of the Excretory Power of the Skin with That of the Kidney Through a Study of Human Sweat.*
10. EMERSON, H. *Status Lymphaticus in Adults. Its Clinical Diagnosis and Importance.*

1. Stewart reports on a clinical study of the circulation in the hands in cases of heart disease. He finds that the hand flow is more apt to be markedly deficient where there is evidence of serious impairment of the myocardium with disturbance of force and rhythm, than in cases with gross valvular lesions where the heart action is strong and steady. This is true even when in valvular disease clinical signs of broken compensation are present. In aortic insufficiency the hand flow is less easily maintained at the normal level than in mitral insufficiency. Even where there is considerable venous engorgement in cardiac cases the flow in the hands may be little if at all diminished, provided the myocardium is not impaired, and a diminution of the flow in the course of such cases is often an indication of impending myocardial failure.

2. Bass and Wessler studied the blood-pressure in children, showing orthostatic albuminuria. They found that blood pressure in these cases varied very little from that of normal children.

4. Howell reports on a clinical study of the blood in hemophilia, thrombosis and purpura. In hemophilia, he says, the blood is deficient in prothrombin, and there is a relative excess of antithrombin. The detection of a hemophilic condition of the blood is facilitated by first oxalating the blood and then recalcifying with an optimum amount of calcium. Under these conditions the coagulation time of normal plasma is very constant (9 to 12 minutes), while that of hemophilic blood is greatly delayed. In spontaneous venous thrombosis there is evidence of a diminution in the antithrombin of the blood, with normal prothrombin. In purpura no evidence was found of any variation from normal in either the antithrombin or prothrombin.

5. Geyelin reports on a clinical study of amylase (diastase) in the urine. The amount of this enzyme in the twenty-four-hour specimen of a normal individual (estimated by the Wohlgemuth starch-iodine method) varies within very narrow limits, and for a given case is almost a constant factor. In the vast majority of cases of acute or chronic nephritis the diastatic value of the urine is subnormal or totally absent. In cases with marked albuminuria it may be normal, indicating that the presence of albumin increases enzyme activity. Allowance must always be made for this factor in estimating the diastatic value in nephritic urine. As a test for renal function in nephritis, this method gives results agreeing remarkably well with those of the phenolsulphonephthalein test.

7. Soper and Granat studied the urea-content of the spinal fluid and its diagnostic and prognostic

significance. They find that a urea content higher than 0.2% indicates a severe uremia and a rapidly fatal termination. A content between 0.1% and 0.2% means a rapidly fatal termination in the majority of cases of nephritis. A content between 0.05% and 0.1% suggests severe urea retention.

8. Thomas and Ivy made a careful clinical study of the gonococcus complement-fixation test. They believe that a positive reaction is invariably reliable and always denotes the presence of a focus of gonococcic infection. The reaction is often negative in acute and subacute urethritis, especially if the inflammation is limited to the anterior urethra. In chronic posterior urethritis, in epididymitis, and in arthritis the reaction is practically always positive; in stricture about two-thirds, in chronic prostatitis about one-half of the reactions are positive. In women reactions are negative unless the infection ascends to the level of the uterus. A positive reaction is present in about 20% of patients clinically cured. [L. D. C.]

THE PRACTITIONER.

FEBRUARY, 1914.

1. *HUNTER, W. *Oral Sepsis in Relationship to "Septic Anemia."*
2. *GUTHRIE, L., ET AL. *The State Registration of Venereal Diseases.*
3. NITCH, C. A. R. *Some Important Points in the Symptoms, Diagnosis and Treatment of Haemic Infections of the Kidney.*
4. MORLEY, A. S. *Injuries of the Back.*
5. *RIVIÈRE, J. *Diabetes and Its Treatment by Means of Physical Agents.*
6. BLAKEWAY, H. *The Treatment of Harelip and Cleft Palate.*
7. THOMSON, H. C. *Recent Work on Diseases of the Nervous System.*
8. FINZI, N. S. *Recent Work on Radio-Therapeutics and Electro-Therapeutics.*
9. BUNCH, J. L. *Some Continental Methods of Treating Syphilis.*
10. BRUCE-POTTER, H. E. B. *Intravenous Injections in Blackwater Fever.*
11. LOVELL, A. G. H. *Hay-Fever.*
12. *HUSSY, J. B. *Pulmonary Tuberculosis and Its Vicious Circles.*
13. DOUGLAS, A. *Further Notes on Mental Suggestion by Transference.*

1. Hunter believes that many of the anemias are due to a septic process going on somewhere in the body, producing poisons which cause the anemia. These, and their relationship to oral sepsis, he proceeds to discuss. Much of the paper dwells upon the author's own work, and the justification and importance of this. It is picturesquely written and presents many important points in a novel way, though presenting little that was not already known. He presents his conclusions in an elaborate and overcomplex table.

2. Guthrie and six others discuss the registration of syphilis and gonorrhea. With one exception they are agreed that such registration under conditions as they now exist in England will not produce any good results.

5. Rivière urges further use of physical agents in treating diabetes. Among others he considers hydro-, mechano- and electro-therapy. These should, of course, go along with the regular dietetic regime.

12. Hussy, in an interesting paper, presents and discusses many of the problems arising in the course of pulmonary tuberculosis as vicious circles. He points out how, for instance, social misery, poor housing, etc., gives rise to tuberculosis, which in turn causes more social misery; the disease causes a cough, which in turn spreads the disease; fever makes the patient chilly so that he stays indoors, which in turn is bad for the tuberculosis and causes more fever. Likewise in regard to emaciation, hemoptysis, dyspepsia, anemia, night sweats, neurasthenia, pleurisy, cardiac failure and others he points out how a vicious circle may be formed and then discusses how it may be broken. [J. B. H.]

THE INDIAN MEDICAL GAZETTE.

FEBRUARY, 1914.

1. *ROGERS, L. *Gleanings from the Calcutta Post-Mortem records. No. VIII.*
2. HEHIR, P. *Venereal Disease in the Army of Our Indian Empire.*
3. HOSSACK, W. C. *Preliminary Note on Asino-Vaccine.*
4. BOORSMA, W. G. *The Kernels of "Canarium Commune" as an Addition to Milk in Infant Feeding.*
5. GREEN-ARMYTAGE, V. B. *The Use and Abuse of Pessaries. A Clinical Lecture.*
6. CHITALE, P. K. *Night-Blindness; Its Causes, Signs, Symptoms, and Treatment.*
7. MURISON, C. C. *How to Keep Flies Off Edible Articles for Sale.*
8. NEWMAN, E. A. R. *A Portable High Pressure Steriliser.*
9. PANDALAI, K. G. *A Case of Salvarsan Poisoning.*
10. FINK, L. *Case of Transient Hemiplegia.*

1. In this concluding paper of his series, Rogers discusses the primary causes of death and the most frequent errors of diagnosis in 1000 medical autopsies. Over one-third of the deaths was due to tropic diseases. [R. M. G.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 7. FEBRUARY 17, 1914.

1. HEILBRONNER, K. *Introspection as a Symptom of Pathological Conditions.*
2. *VOELKEL, E. *The Diagnosis of Infectious Diseases by Abderhalden's Method.*
3. SINGER, H. *The Specificity of Abderhalden's Dialysis Method.*
4. SCHWENBECHER, A. *Lead Poisoning from Drinking Water.*
5. RIMPAU. *A Milk-Borne Typhoid Epidemic in Munich During August, 1913.*
6. BITTROLFF, R. *The Treatment of Tuberculosis of the Ribs and Sternum by X-rays.*
7. WEGENER, W. *The Feeding of Infants with Larosan.*
8. FINGERHUT, L., AND WINTZ, H. *A Method for Determining Coagulation Time.*
9. DE WAELE, H. *The Technic of Abderhalden's Dialysis Test.*
10. KROH, F. *The Treatment of Peritoneal Adhesions.*
11. *SCHMIDT, W. *The Lack of Susceptibility to Adrenalin on the Part of Dementia Precox Patients.*
12. KOHRS, T. *A Fatal Case of Acute Encephalitis Following the Injection of Salvarsan.*
13. V. ZEZSCHWITZ. *A Case of Hemorrhagic Pancreatitis.*
14. KRAEMER, F. *An Aseptic Bandage for Surgical Emergencies.*
15. EMMERICH, R., AND LOEW, O. *The Treatment of Hay-Fever by Continued Doses of Potassium Chloride.*

2. Voelkel, according to Abderhalden's theory, made peptone-free extracts from diphtheria, anthrax, and typhoid bacilli, from certain trypanosomes and from the spirocheta pallida. He tested the serum of animals or patients infected with these organisms

against their extracts to discover the presence of specific proteolytic ferments.

The sera of animals and patients infected with typhoid were capable of splitting the typhoid bacillus albumin. Negative results were obtained in anthrax, diphtheria and trypanosomiasis. In a few syphilitic patients the serum split the albumin of the spirocheta pallida. In these cases the Wassermann reaction was strongly positive. Thus Voelkel concludes that in certain infections, the diseased serum has the power of forming peptone from an extract of the infecting agent.

11. In psychiatry, during recent years, considerable attention has been paid to the glands of internal secretion as having an influence on the symptoms encountered. Schmidt conducted the following investigations on 34 cases of dementia precox, and on 36 normal individuals or patients suffering from other psychoses. Blood-pressure determinations were made before, and at intervals after, the intramuscular injection of .4-.5 of a milligram of adrenalin. Schmidt found that the control cases reacted to this dose by a rise in blood-pressure of from 40-80 millimeters of mercury. None of the dementia precox patients showed an increase of more than 20 millimeters of blood-pressure, while the severer and acuter cases showed no change. Schmidt concludes that lack of susceptibility to adrenalin is a means of differential diagnosis between circulatory and catatonic stupors. He does not attempt to explain his findings. [R. F.]

No. 8. FEBRUARY 24, 1914.

1. ABDERHALDEN, E. *Further Studies in the Specific Action of the So-called Protective Ferments.*
2. HILNER, E., AND POENSGEN, F. *The Occurrence of Albumin Splitting Ferments in the Blood of Starving Animals During the Increased Nitrogen Excretion from Fat Destruction.*
3. *JACOB, L. *Clinical Signs of Staphylococcus Sepsis.*
4. SEHRT, E. *The Relation of Thyroid Insufficiency to Nervous Symptoms and Spastic Obstipation in Women.*
5. *WELZ, A. *Erysipelas as an Etiological Factor in Diabetes Mellitus.*
6. JUNGMANN, P. *The Anemia of Pregnancy.*
7. HABERMANN, R. *Intravenous Injections of Arthigonin in the Diagnosis and Treatment of Gonorrhea.*
8. SCHWARZ, A. *A Quick and Certain Remedy for Toothache and Earache.*
9. VOERNER. *Isapogen.*
10. STRAUCH, A. *Cough Produced by a Persistent Ductus Lingualis.*
11. PÜRCKHAUER, R., AND MAUSS, T. *A Case of Polyneuritis with Korsakow's Psychosis Ending Fatally and Following Neosalvarsan.*
12. BENDER, G. *Grape juice as a Food and Medicine.*
13. OELLER, H., AND STEPHAN R. *The Value of the Dialysis Method in Clinical and Serological Studies.*

3. Jacob reviews the literature on staphylococcus septicemia and reports eight cases of his own. Of these, three were due to primary osteomyelitis or paranephritic abscess, and ran a typical clinical course. The portal of entry in the other cases was unusual, arising from infected tonsils, from the intestinal canal, or from bronchiectatic cavities in the lung. Jacob reports this series to emphasize the importance of bacteriological investigation of blood and urine for the diagnosis and prognosis of all fevers of obscure origin. According to his observations, blood or urine cultures were positive in every instance, and the number of colonies which were recovered were in a general way parallel to the clinical severity of the disease.

5. It is recognized that various infections have seemed to be an etiological factor in diabetes mellitus. Welz reports two cases of erysipelas which developed typical diabetes a short while after recovery. One case came to autopsy and was found to have cirrhosis of the liver and degeneration of the islands of Langerhans in the pancreas.

In his discussion Welz admits that it is difficult to prove that the erysipelas was related definitely to the production of the diabetes. Nevertheless, he considers that the infection in his patients was the exogenous cause of the constitutional disease, according to Naunyn's theory that the majority of diabetics show a congenital defect in carbohydrate metabolism which leads to a true insufficiency upon the imposition of a variety of other factors. [R. F.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 3. JANUARY 19, 1914.

1. BESREDKA. *Vaccination with Sensitized Virus.*
2. BRIEGER AND KRAUSE. *Further Communication on "Tryposafrol" and "Novotryposafrol."*
3. *BRÜCKNER. *The Cure of a Case of Tuberculous Peritonitis by the Injection of Nitrogen Gas into the Abdominal Cavity.*
4. PARTSCH. *Temporary Resection of the Palate, to Gain Access to the Naso-pharynx.*
5. LUDLOFF. *Experiences and Results with Open Reduction of Congenital Dislocation of the Hip.*
6. SIMON. *The Development of Sarcoma Following Photo-therapeutic Measures (Quartz-lamp).*
7. STODLER. *The Magnesium Sulphate Treatment of Tetanus.*
8. BARTSCH. *Accidents in Sports.*
9. LISSAUER. *Experimental Cirrhosis of the Liver.*

3. The author reports a striking cure by this means, which has also been tried and reported by Mosetig-Moorhof, Nolen, Folet, and Schmidt and Meyer. The patient was a young man of 16, who in spite of two laparotomies with the evacuation of respectively 6 liters and 2 liters of ascitic fluid, and in spite also of hygienic treatment, was becoming consistently worse. There was marked thickening of the peritoneum and omentum, and stubborn ascites. Between March 6, 1913, and May 17, 1913, he had four injections of the nitrogen gas varying from 500 c.c. to 800 c.c. in amount. On Nov. 13, 1913, he presented himself as symptomatically cured, and feeling perfectly well. The physical examination was negative save that in one area the now slightly thickened omentum could be felt. The abdomen was soft. This case seems like an authentic cure, especially as the amelioration in the symptoms and signs began immediately after the first injection.

[R. H. M.]

No. 4. JANUARY 26, 1914.

1. *KÜTTNER. *Intestinal Colic—The So-called Umbilical Colic of Children (E. Moro).*
2. STADLER AND LEHMANN. *Animal Experimentation in the Treatment of Tetanus with Magnesium Sulphate.*
3. CASSEL. *Staphylococcus Pyemia Following Furunculosis.*
4. MÜLLER. *A Case of Torticollis Due to Bony Deformity.*
5. *ABNETH, *Thorium-X in Pernicious Anemia.*
6. BRIEGER. *The Treatment of Sciatica by a Combination of Physico- and Hydrotherapeutic Measures.*
7. GHIRON. *The Kidney Function in Reflex Anuria.*
8. LISSAUER. *Experimental Cirrhosis of the Liver (Concluded).*

1. Moro of Heidelberg has described a condition of periodic recurrent colic in the region of the umbilicus, in children over four, which he calls "recurrent umbilical colic." The pain is sharp comes on very suddenly lasts only a few hours and may or may not be accompanied by vomiting. The pain is always confined to the region of the umbilicus. Moro says that these cases are usually entirely functional and due to a neuropathic disposition, though occasionally there is an objective finding, such as diastasis of the recti, or chronic obstipation. Küttner disputes these remarks, and reports six of these cases entirely cured by appendectomy. In his opinion Moro is wrong in saying that the condition is commonly a neurosis, and he claims that the majority of cases can be cured by removal of the appendix.

5. Arneth reports a case of pernicious anemia in a woman of 67 treated with thorium-x at frequent intervals for a period of a little over two months, with the following results: The red cells went from 1,904,000 to 3,064,000, the leucocytes from 1000 to 4200, and the hemoglobin from 42% to 70%. The subjective symptoms were improved. [R. H. M.]

Miscellany.

MEMORIALS.

The Fellows of the Norfolk District of the Massachusetts Medical Society in the recent decease of our respected member, Roderick McLennan, M.D., adopted for record the following memorials:

Roderick McLennan, M.D.

Dr. Roderick McLennan came to Quincy in 1887, in his early manhood, gave to its people his entire professional life and was removed from their midst at the age of man's maturest judgment and safest and most valuable action.

Modest and retiring in manner, he was without fear in action, ever thoughtful and respectful of the welfare of the society and its members.

Never striving for external show, yet ever ready to advise and suggest where his wisdom and opinion were required. Never aspiring to public office, he was a valuable member of the medical and surgical staff of the Quincy City Hospital from its inception; also giving his valuable time and services to offices in our local society.

Of deep and broad training, with a store of wisdom and good judgment gleaned therefrom. Ever ready to give assistance to colleague and patient.

His presence will be missed at our meetings, at our hospital and in the sick room. His cordial salute, the hearty grasp of hand has gone, but the memory of the good physician will remain in the hearts of his colleagues whom he honored in life.

The members of the society extend to his bereaved family their heartfelt sympathy in their great affliction. To those to whom he gave unstintingly and unselfishly of his services as the good Samaritan, condolence is extended at this time.

Resolved, That this memorial be spread on the records of the society and a copy be sent to the bereaved family.

John H. Ash, M.D.,
E. H. Bushnell, M.D.,
D. A. Bruce, M.D.,
Committee on Resolutions.

At a meeting of the Norfolk South District Medical Society the following memorial was adopted:

John Frederick Welsh, M.D.

Deeply sensible of its loss by the death of Dr. John Frederick Welch of Quincy, the Norfolk South District Medical Society desires to record the great respect and high esteem in which he was held.

Graduating in 1880 from Bellevue Hospital Medical College, his career is an example of a self-made man of the best type. Frank and outspoken in manner and ever loyal to his friends, he has always stood for honorable conduct and high ideals in the medical profession and in the community.

As a member of the society, for many years its secretary, and its president in 1905 and 1906, he has been active in its support, and his wise conservatism and good judgment have been invaluable. For more than a generation he has practised his profession with unceasing devotion, attaining a high reputation by his skill, and enlisting the love of his patients to a marked degree. Although no longer with us, his memory is an inspiration and his example forms a perpetual ideal for his associates.

John A. Gordon, M.D.,
Nathaniel S. Hunting, M.D.,
Oliver H. Howe, M.D.,
Committee on Resolutions.

Correspondence.

RELATIVE TO THE REGISTRATION OF NURSES.

Natick, Mass., March 17, 1914.

Mr. Editor: I have read with interest your editorials on House Bill 1186 in the Journal for March 5 and 12, and would like to comment on two or three points:

1. The objection made by the opponents last year "that it would place too much power in the hands of the board."

2. "That similar training school inspection has proved of value and success in New York and Illinois, where it has already been adopted. Such examples are important arguments in its favor."

Last year's bill and also the one this year contain this provision: "Applicants for registration—must

have received a certificate of graduation from a training school—*considered reputable by the board.*" (Italics are mine.) These bills were submitted to persons who have accurate knowledge as to the results of inspection elsewhere, and decided exceptions were taken to the clause italicised. One reply says: "I should seriously object to this clause because it places too much power in the hands of any board with absolutely no limitations. It is just such a clause which has caused much trouble in Illinois."

Another, who has had experience as hospital superintendent writes:

"I think there ought to be a clause somewhere that prescribes just how far the investigation may go. It will not be conceded that investigators of training schools will have any powers of regulation of the hospital administration, or equipment or architecture, and unless there is something specific put in your law, and unless the registration officers are an exceedingly high class group of people, there is likely to come disagreements about the scope of this investigation. In the case of a nurse inspector who had impressed herself on the members of the board, the board would relegate its duties to her and this would be hazardous. It is a good deal easier to safeguard the situation in the law itself than to presume on the personal factor in the enforcement of the law. Obviously, legislation must be taken independent of the personal equation."

It is evident that the opposition has very good company

The argument that any abuse of power by the board could be rendered nugatory by changing the personnel of the board, since it is appointive, is really an admission that such opportunity for abuse of power does exist in the proposed law. Would it not seem the part of wisdom to safeguard by law any abuse of power rather than to depend on changing the membership of the board?

One would hardly expect New York and Illinois physicians and hospital superintendents would oppose and criticise a training school inspection that "has proved of value and success in New York and Illinois, where it has been adopted." What are the facts?

I quote from a paper entitled "Some Problems in Relation to Nurses' Training Schools," read at an annual meeting of the New York State Medical Society by Dr. Charles Stover, as follows:

"We may not inaptly call this the era of control by the New York State Nurses' Association. . . . One of the tendencies in the United States is to plan the course of instruction for the evolution of hospital administrators, ignoring the public demand for ordinary and domestic nurses. . . . Only ten per cent. of the nursing outside of the hospital is done by them." (Meaning graduate nurses.) "Is this the best return that the hospitals can give the public that supports them? What has the nurse organization done to meet the crying needs of the poor and middle classes for nursing at a moderate cost? . . . Why should not this society of 6,762 members have a voice in the evolution of a more ideal nurses' training school?"

At this meeting a committee was appointed, consisting of Drs. Stover, ex-president of the society, Egbert LeFevre, dean of the University and Bellevue Medical College, Alexander Lambert, professor in Cornell Medical College, and Roswell Park, of Buffalo, the famous surgeon. In its report the committee says: "It is a fair conclusion that the standard for entrance in New York is too high for practical results. . . . It is more important that the people have small hospitals than that a few highly trained nurses obtain the thus-far little coveted title of R.N. . . . Meanwhile your committee is of the opinion that the State should recognize the nurse problem as an experimental one, to be regulated at present by wise adminstration rather than by legislation."

In 1912 the Executive Committee of the Hospital Conference of the City of New York appointed a special Committee on the Training of Nurses to act with the President to secure either such modifications, or interpretations of the existing regulations "as shall render it possible for the hospitals of the city to continue the training of nurses in sufficient numbers to meet the demands for trained nursing service." This committee consisted of the superintendents of the Presbyterian, the Post-Graduate, the St. Luke's, the Roosevelt, the New York, the Methodist-Episcopal, the Bellevue and Allied, and the Mt. Sinai Hospitals. Space will not permit the report in full but it says, in part:

"The strict enforcement . . . governing the admission of probationers to registered training schools for nurses is impracticable. . . . It creates a dearth of pupils and hence of New York graduates. . . . We urge upon the Education Department such amendments as will give the authorities a freer hand in the selection of probationers."

It may properly be asked why do these physicians, and superintendents of hospitals representing 3000 beds, make such strong protests, if "the New York law is the best one in the United States"?

Emerson is reported to have said that "Justice is the fairest thing all around." The criticisms of the New York law would seem to show that it does not conform to Emerson's idea of justice.

The foregoing quotations are only a few of the many criticisms which I have, some of them personal letters, but these will suffice for now.

One might infer from your editorial of the 12th inst., that the State Board of Nurse Examiners is unanimous in its support of House Bill 1186, but that is not so. At the hearing, held on the 5th inst., one member of the board appeared in opposition.

All will agree that "The public needs protection against incompetent nurses as well as against incompetent physicians." But it is every year becoming more evident that registration of nurses protects only about one-tenth of the public, while the nine-tenths are left unprotected. It is self-evident that if any are entitled to legal protection those who are not able to pay the high fees of registered and trained nurses should receive at least equal consideration with those of abundant means. Today every state where nurses are registered virtually says to its inhabitants: "You who can pay the price can have the protection afforded by registration but you who can not pay the price must take your chances."

The time is nearing when "the public," which includes *all* the citizens, should demand legal protection against incompetency in any and all who nurse for hire, and this protection should embrace the poor as well as the rich.

In New York the standards which a training school must measure up to in order that its graduates may be allowed to take the examination for registration are so rigid that they debar the graduates of one of the best training schools in this state, yet those in authority acknowledge that the school in question gives an exceptionally fine training, and say to the school: "If you will promise to give two 'consecutive' years in the hospital instead of two years not necessarily consecutive, we will register your graduates, both past, present and future." This reminds one of John, the disciple, when he said to Jesus: "Teacher, we saw one casting out demons in thy name, and we forbade him, because he followed not us." Casting out demons, but not "following us." Training nurses successfully, but not "following us."

In the *Journal of the American Medical Association* for March 14 is a paper read at Chicago February 24, 1914, before the Tenth Annual Conference of the Council on Medical Education, by President Lowell of Harvard University on "The Danger to the Maintenance of High Standards from Excessive Formalism." President Lowell describes the present tendency in the training of nurses and the inspection of training schools so aptly that I quote at some length:

"My concern is the rules adopted at the joint meeting last March of the Association of American Colleges and the Council of the American Medical Association about the courses to be taken in college." . . . "We

are to ask not what a man knows, but whether the man has taken a course with a fixed number of lectures and laboratory work." . . . "You are using a rough mechanical test which is inaccurate on both sides, instead of a personal test which would be far more accurate." . . . "Americans are a mechanical people who trust to machinery to do their work, maintain standards and save labor. But mechanical devices as applied to human beings are apt to be defective, and in education they present, at the present time, a real danger. This runs from the top to the bottom of the educational scale." . . . "Our processes of education are inelastic, and if adapted to the ordinary person are hampering to the unusual mind. Is not this because we fix our attention too exclusively on the process, instead of on the result produced?"

It is to be hoped that the physicians of Massachusetts will post themselves thoroughly as to the present tendencies in the registration of nurses, that they will consider the needs of all of their patients rather than the needs of the well-to-do simply, and will join hands in an effort to provide reasonably safe nursing for the sick and suffering of all classes. Meanwhile, let us wait.

Very truly,

CHAS. H. COOK, M.D.

THE HARVARD MEDICAL SCHOOL OF CHINA.

PHILLIPS BROOKS HOUSE,

CAMBRIDGE, MASS., March 11, 1914.

Mr. Editor: This letter is intended to put the graduates of the Harvard Medical School in touch with the medical work recently inaugurated in Shanghai, China, by a group of graduates of the School.

The "Harvard Medical School of China" was established in Shanghai China, in 1913; and now has twenty-three students, a faculty of ten instructors, and occupies an excellent group of buildings, supplied free of rent for a period of years by the Chinese Red Cross Society. It is already a "going concern," and the opportunities before it for "service," which is its underlying motive, are great.

The purposes of the school are: (1) To teach modern medicine and surgery to Chinese students, and to assist in training leaders in the progress of modern medicine throughout China; (2) To coöperate with the Chinese government in inaugurating a greatly needed hygienic reform, in order to prevent epidemics spreading from there to other parts of the world; and (3) To study the diseases found in the Orient that threaten periodically the health of Occidental peoples, such as Bubonic Plague, Cholera, Leprosy, Filariasis, etc.

The work has advanced to its present stage on an annual budget of $25,000. We now face the necessity of the erection of our new hospital, and the establishment of an out-patient department. The money is already promised for the hospital building, but we need $30,000 for the purchase of the land. For the establishment of the out-patient department we are needing $5,000. An increase of $20,000 annually to our budget is also imperative.

We are now seeking for single subscribers to the above needs, and for others who will agree to become annual supporters for a period of five years. Checks for any sum will be gratefully acknowledged. It should be stated that it is expected that the work of the institution will ultimately be taken over entirely by the Chinese. We are pioneering, and helping to set standards that will govern in the great medical advance, of world-wide importance, to take place throughout the Orient.

It is believed that, as a work of Relief, of Education, of Research, and of Prevention, it calls for the deep interest and support of Harvard men. We will with pleasure forward reports of the work to those who, at this time, are unable to take an active part, as well as to any other persons whose names you may suggest.

Very truly yours,

MARTIN R. EDWARDS, M.D.

A CORRECTION—TONSILLITIS NOT AN AIR-BORNE DISEASE.

State Board of Health, Boston, March 21, 1914.

Mr. Editor: In the issue of your JOURNAL for March 12, page 399, it is stated, concerning the recent tonsillitis epidemic in Wakefield, that "the milk and water supply have both been decided not to be the source of infection, which in this case, as is probably usually the fact, is considered to be air-borne."

This statement is erroneous, inasmuch as investigation by Dr. Frank L. Morse, State Inspector of Health, has shown that this epidemic was, with practical certainty, due to an infected milk supply, pasteurization of which was followed almost immediately by a cessation of the epidemic. Furthermore, I should question seriously any statement that the disease is probably "air-borne." In fact, all the evidence goes to show that the original infection in these epidemics arises either in some abnormal condition in the cows, or, what is more probable, in a severe tonsillitis affecting some person engaged in handling the milk.

Yours very truly,

MARK W. RICHARDSON, M.D.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING MARCH 14, 1914.

March 4, P. A. Surgeon D. G. Allen, from Newport Hospital to Training Station, Newport, R. I.

March 5, P. A. Surgeon F. M. Munson, to Mare Island Hospital.

March 9, P. A. Surgeon R. W. McDowell, detached Naval Academy, Annapolis, Md., to wait orders at Annapolis, Md.

March 10, Surgeon A. W. Dunbar, from Washington Hospital to Fleet Surgeon, Atlantic Fleet.

P. A. Surgeon E. L. Woods, Naval Hospital, Washington, D. C.

Assist. Surgeon A. R. Barrow, to Training Station, Newport, R. I.

Surgeon Edgar Thompson, from Guantanamo Station, to Washington Hospital.

Assist. Surgeon N. McClelland, from Charleston Yard to *Hartford*.

March 12, Surgeon E. M. Shipp, from Yokohama Hospital to Puget Sound Hospital.

P. A. Surgeon F. E. Porters, from *Rainbow* to Yokohama Hospital.

Assist. Surgeon J. G. Omelvena, from Cavite Station, to home, wait orders.

Assist. Surgeon J. V. Howard, from Canacao Hospital, P. I., to home and wait orders.

Assist. Surgeon L. L. Pratt, from Olongapo Hospital, P. I., to home and wait orders.

NOTICES.

UNITED STATES CIVIL-SERVICE EXAMINATION. MEDICAL INTERNE. GOVERNMENT HOSPITAL FOR THE INSANE.

The United States Civil Service Commission announces an open competitive examination for medical interne, for both men and women, on April 8, 1914. From the register of eligibles resulting from this examination certification will be made to fill vacancies in this position in the Government Hospital for the Insane, Washington, D. C., at $900 per annum, with maintenance, and vacancies as they may occur in positions requiring similar qualifications, unless it is

found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

Graduation from a reputable medical college is a prerequisite for consideration for this position.

Both men and women will be admitted to this examination. Applicants must be unmarried.

Age, 20 years or over on the date of the examination.

Persons who meet the requirements and desire this examination should at once apply to the United States Civil Service Commission, Washington, D. C.

NEW YORK SKIN AND CANCER HOSPITAL

The governors of the hospital announce a course of Clinical Lectures and Demonstrations in the Out-Patient hall of the hospital on the following afternoons, at 4.15 o'clock.

"Syphilis," by Dr. Bulkley.

April 1. Primary lesions, genital and extra-genital—Innocent syphilis.

April 8. Early manifestations of syphilis.

April 15. Late manifestations of syphilis.

April 22. Marital and hereditary syphilis.

April 29. Treatment of syphilis.

"Cancer," by Dr. William Seaman Bainbridge.

April 30. Some practical phases of the cancer problem.

The lectures will be illustrated by cases, models colored plates, photographs, etc The course will be free to the Medical Profession, on the presentation of their professional cards.

F. HAAS, *Chairman of Executive Committee.*

SOCIETY NOTICES.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held at the Psychopathic Hospital, 74 Fenwood Road, Tuesday, March 31, at 8 p.m., sharp. Telephone, Brookline 4900.

Business.

Program:—

1. Presentation of Patients.
2. Demonstration of Charts.
3. "Remarks on Mania," Dr. E. E. Southard.
4. "Analysis of the Second Hundred Recoveries at the Psychopathic Hospital," Dr. T. H. Haines.
5. "The Incidence and Type of Hallucinations in Five Hundred Cases of Mental Disease, with Remarks on Their Differential Diagnostic Value in Dementia Precox and Manic-Depressive Insanity," Dr. A. W. Stearns.
6. "On the Influencility of the Will in Voluntary Admission," Dr. G. E. Eversole.
7. "Blood and Cerebrospinal Fluid Examinations at the Psychopathic Hospital," Dr. H. M. Adler.

BRADFORD KENT, M.D., *Secretary,*
798 Blue Hill Avenue, Dorchester.

BOSTON MEDICAL LIBRARY in conjunction with the SUFFOLK DISTRICT MEDICAL SOCIETY.—Medical section, meeting, April 1, 1913, at 8.15, at the Boston Medical Library.

PSYCHOTHERAPY.

Dr. J. J. Putnam, "The Present Status of Psychoanalysis."

Dr. L. Pierce Clark, New York, "Personal Experience in Psychotherapy."

Discussion opened by L. E. Emerson, Ph.D.; Richard C. Cabot, M.D.

E. W. Taylor, Chairman.

LESLEY H. SPOONER, *Secretary.*
260 Clarendon Street, Boston.

APPOINTMENT.

MR. ROBERT N. HOYT, '09, has just been appointed by the Corporation of the Massachusetts Institute of Technology to the position of special lecturer on Public Health Administration.

RECENT DEATHS.

DR. CHARLES BULLOCK, who died on March 16, at Arlington, Mass., was born in Providence, R. I., on March 16, 1836. He studied dentistry at Hartford, Conn., and began the practice of his profession in that city. In 1859 he removed to Cambridge, Mass., where he practised until his retirement in 1896. He is survived by his widow.

DR. JAMES N. BUTLER, who died recently in New York City, was born in 1861. After graduating from St. Francis Xavier College, he obtained the degree of M.D. from the Bellevue Medical School. Later he became a founder of the medical school of Fordham University, and its first dean. He was attending physician at St. Francis' Hospital and the Mission of the Immaculate Conception.

DR. MARCUS M. JOHNSON, who died on March 15 at Hartford, Conn., was born in 1843. He received the degree of M.D. in 1877 from New York University. He is survived by his widow and by one daughter.

DR. THEODORE R. WAUGH, who died on March 17 at Burlington, Vt., was born in 1847. He is survived by his widow and by one son.

DR. GEORGE MCNAUGHTON of Brooklyn, N. Y., died from cardiac disease on March 17, at the age of 57. He was born at Mumford, N. Y., and was graduated from Bellevue Hospital Medical College in 1878. He had practised in Brooklyn since 1881, and for five terms served as president of the Kings County Medical Society. Dr. McNaughton was a prominent specialist in diseases of women, and at the time of his death was visiting gynecologist to the Long Island College and Kings County Hospitals and consulting gynecologist to the Brooklyn, Jewish and Long Island State Hospitals.

DR. THOMAS W. MCMANUS of New York died from pneumonia on March 12, at the age of 48. He was a native of Brooklyn and was graduated from the College of Physicians and Surgeons, New York, in 1895.

DR. GEORGE O. WELSHMAN of Newark, N. J., a graduate of the College of Physicians and Surgeons, New York, in 1895, was instantly killed at East Orange on March 17 by a railroad train striking his automobile.

DR. TIMOTHEUS TAMINOSIAN, who died of pneumonia on March 13 in Boston, was born at Antioch, Turkey, in 1861. After graduating from the Central Turkey in 1884, and in 1895 received the degree of M.D. from the Jefferson Medical College. Since that time he had practised his profession in Boston.

BOOKS AND PAMPHLETS RECEIVED.

Diseases of Children. A Manual for Students and Practitioners, by John McCaw, M.D., etc. William Wood & Co. 1914.

The Sensory and Motor Disorders of the Heart, Their Nature and Treatment, by Alexander Morison, M.D. William Wood & Co. 1914.

Transactions of the American Climatological Association for the Year 1913. Vol. xxix. Philadelphia. 1913.

Über Brüche des knöchernen Trommelfellrandes, ein Beitrag zur Unfall-Lehre von Prof. Dr. Heinrich Walb. Bonn, 1914. A. Marcus & E. Webers Verlag.

Organic Chemistry for Students of Medicine, by James Walker, LL.D., F.R.S. Gurney and Jackson. 1913.





CHILDREN'S HOSPITAL OF BOSTON.

Children's Hospital of Boston, 1869-1914

THE HISTORY AND PROGRESS OF FORTY-FIVE YEARS.

I. The Architecture of the Children's Hospital. Charles A. Coolidge, A.M.

II. The Development of the Hospital with Especial Reference to the Medical Service. Thomas Morgan Rotch, M.D.

III. The History of the Children's Hospital, with Especial Reference to the Orthopedic Department. R. W. Lovett, M.D.

IV. The Work of the Children's Hospital in 1913. John Lovett Morse, A.M., M.D.

V. Orthopedic Surgery at the Boston Children's Hospital. A Review of Thirty Years of Continuous Service. E. H. Bradford, M.D.

VI. Infantile Scorbutus. John Lovett Morse, A.M., M.D.

VII. Inguinal Hernia in Children. James S. Stone, M.D.

VIII. A Case of Chondro-Osteo-Sarcoma. Amputation at the Hip. Robert W. Lovett, M.D.

IX. Obstetrical Paralysis, with Especial Reference to Treatment. John Jenks Thomas, A.M., M.D.

X. Round Shoulders with Short Clavicles. Augustus Thorndike, M.D.

XI. Removal of Foreign Bodies from the Esophagus and Lower Air Passages by the Aid of Endoscopy in Children. D. Crosby Greene, M.D., and F. E. Garland, M.D.

XII. The Influence of Alkalies upon Gastric Motility. Maynard Ladd, M.D.

XIII. A Study of the Etiology in One Hundred and Seventy-five Epileptic Children. Arthur Willard Fairbanks, M.D.

XIV. Hemorrhage Following Tonsillectomy. F. E. Garland, M.D., and D. Crosby Greene, M.D.

XV. Poliomyelitis. Operative Treatment. Robert Soutter, M.D.

XVI. The Importance of the Early Recognition of Acute Arthritis of the Hip-joint in Infants. Arthur T. Legg, M.D.

XVII. The Diagnosis of Enlarged Thymus and the Symptomatology of Hyper-Thymatism. Philip H. Sylvester, M.D.

XVIII. The Treatment of Cervical Adenitis in Children. W. E. Ladd, M.D.

XIX. A Case of Lymph Cyst of the Mesentery. Charles G. Mixter, M.D.

XX. Flat-foot in Children. Albert Ehrenfried, M.D.

XXI. Pyelitis in Infancy and Childhood. Edwin T. Wyman, M.D.

XXII. Two Cases of Cirrhosis of the Liver in Childhood. Theodore Ely, M.D.

XXIII. The Report of a Case of Multiple Bone Tuberculosis Atypical in Its Distribution and X-ray Appearances. Henry J. FitzSimmons, M.D.

XXIV. The Significance of the Von Pirquet Reaction in Surgical Tuberculosis in Children. L. Bruce Robertson, M.D.

I.

The Architecture of the Children's Hospital.

By Charles A. Coolidge, A. M.

The Children's Hospital as an architectural problem was quite an unusual one. There were three separate gifts which required to be individualized and yet it was evident for the sake of convenience of administration and economy that three separate buildings should not be built. After several studies it was finally decided to build the present arrangement, which consists of an Administration Building which occupies the centre of the Main Building, from the money left in memory of Mrs. Robert Hooper, the Dispensary Building which is the portion of the Main Building to the west of the Administration Building, from the gift of Mr. F. W. Hunnewell, and the Nurses' Home, the portion of the Main Building to the east of the Administration Building, from the money left by Anne White Vose for a Nurses' Home. These different portions are separated by fire walls and are practically separate in their uses as well as in construction. These main buildings are fireproof throughout and the exteriors are built of a concrete conglomerate which consists of crushed trap rock, sand and Portland cement, without any coloring matter, which has a tendency to weaken the concrete. No attempt has been made to make it an artificial stone, but simply to have the most durable material, and to make the mass a uniform color which gives a more solid appearance to the structure than brick with stone trimmings, especially as there are a great many windows and quite large ones.

In the Administration Building are the offices, reception rooms, examining rooms, kitchen and serving rooms, storage rooms superintendent's suite, X-ray department, house doctor's quarters, ladies' aid rooms and servants' quarters.

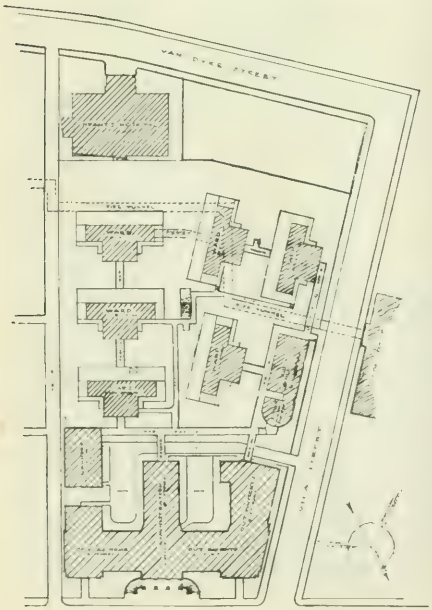
In the Dispensary Building are the receiving room, isolation suite for immediate isolation of possibly contagious cases, separate waiting rooms, examining rooms, treatment rooms, etc. for all departments, operating rooms and recovery rooms for minor surgical cases, plaster rooms, gymnasium, etc.

The Nurses' Home is built for seventy nurses with five rooms for the sisters who have charge of the hospital.

At the request of the medical staff the top floor of the Dispensary has a ward and arrange-



Ward Building.



Block Plan of Buildings.



Ward Buildings.



Key to Plan.

1. Lobby.
2. Ward-room.
3. Solarium.
4. Isolation Room.
5. Isolation Piazza.
6. Kitchen.
7, 8. Corridors.
9, 10. Connecting Corridors.
11. Bath-room.
12. Corridor.
13. Laboratory.
14. Piazza.
15. Piazza.
16. Shelter.

ments for dispensary cases so that when necessary a dispensary patient can be kept there, and not taken into the regular hospital. This ward and rooms are isolated. On the top floor are also a limited number of rooms for private patients. Except the above, all the patients are in ward buildings on the pavilion plan, entirely outside the Main Building on Longwood Avenue, and connected with it by a circulating corridor which has three levels, the lower one for pipes and heat, the second which is enclosed and half above grade, for food, etc., and the upper one which is on the level of the main floor, for general circulation. The latter is screened with glass sash where necessary, and has a flat roof which can be used as an emergency fire escape.

These wards are not of fireproof construction as the lower floors are practically on the ground level and the upper floors have large balconies on three sides connected with the roofs of the corridors. It was the intention to keep the shells of these ward buildings as inexpensive as possible, so that in the future as the treatment of hospital wards changes, the trustees would not be hampered with too expensive permanent wards. This does not mean that the arrangements for the comfort of the patients, or the plumbing or sanitary arrangements are not the best, but that the wards are of rough cast instead of stone or brick. A plan and section of the double wards is shown so that it is not necessary to go into the details, but merely to call attention to certain particulars.

There are at present two two-story double wards and two one-story double wards, and locations left for two additional double wards in the future. By double wards is meant a ward on each side of the corridor on the same level. These single wards contain ten beds each with an observation room separated, making twenty-two beds in a single story building and forty-four in a two-story building.

In planning for the future increase in the number of the beds, it is the intention to place another story on the one-story wards, making them two-story wards as shown in the accompanying section.

The wards have been carefully placed so that this can be done without cutting out the sunlight from the other wards. The wings of the Main Building on Longwood Avenue have also not been carried out to their full capacity to the south, so that when the number of beds in the wards is increased, which they can be to double the present number, the corresponding departments such as the Nurses' Home, etc., can be increased in the proper proportion in the Main Building.

The method of ventilation in the wards is by a monitor top in the ceiling as well as the windows on the sides. Those toward the south are large sliding doors with metal plates attached to the doors fitting tight into a deep slot in the bottom and sides. These doors make practically an open ward in summer, and allow the beds to be easily pushed out on to the piazza to the south, which is fifteen feet wide. This piazza treatment with a narrow roof on the outside away from the building is new, and has the advantage of allowing the sunlight to enter the ward and yet protecting the patient from the direct rays of the sun and the rain. In placing the second story ward above the first story ward, the monitor form is retained in both upper and lower wards, there is no damage done to the lower ward as far as ventilation or light is concerned, as the outer wall in front of the first-story monitor is merely open lattice, so that the air has perfectly free access to the windows in the monitor top; also the balconies on the second story, which are wide, are so far above the windows in the lower ward as not to interfere with the sunlight. Each separate ward can be entered from out of doors and access cut off entirely from the main corridor, and as each ward is complete in itself, if desired there can be perfect isolation.

The main operating rooms are in a building by themselves. There is an amphitheatre seating 83, with a separate entrance for the students from the outside. This amphitheatre will probably be used for lectures rather than for ordinary surgical demonstration, which will be given in the regular operating rooms of which there are three. In the usual large amphitheatre it is very difficult for the students to see much of an operation and an endeavor has been made in the smaller rooms to place twenty-four students within five or six feet of the patient while being operated upon. This has been done by placing low galleries at six feet four inches from the floor and as nearly over the operating table as good light will permit. There is a gallery on each side of the table, on which six students sit and six stand up, with a rest, and look over the shoulders of those sitting. Thus the operating table being three feet from the floor, they are as near as possible without interfering with the surgeon and his assistants. There is a large plate glass screen between the students and the operating room proper, and a heavy iron rail prevents them from leaning on the glass

II.

The Development of the Hospital, with Especial Reference to the Medical Service.

By Thomas Morgan Rotch, M. D.

Report of the Board of Managers written by the Rev. Chandler Robbins, D. D. and presented to the Corporation in December, 1869, states that the original plans together with the by-laws for the Children's Hospital were laid before a few gentlemen on the 9th day of Decem-

ber 1868. An association for the establishment of a Children's Hospital in Boston was formed on the 23rd day of January, 1869, and the act of incorporation granted by the legislature in February of the same year was accepted, and the corporation duly organized on the 22nd day of March, 1869.

With the limited means at the disposal of the managers the hospital was begun in a small way. A house at No. 9 Rutland Street was bought and the Hospital was opened on the 19th day of July, 1869, and was dedicated with appropriate services on the 3rd day of August in the same year. Its capacity was 20 beds. The first patient was received on July 20th. In this house the hospital continued for one year.

In July, 1870, the managers secured by lease the estate at No. 1583 Washington Street with a capacity of 27 beds and this was occupied until 1882. In 1880 a lot of land, measuring about 31,000 square feet, was purchased on Huntington Avenue and the present building erected. It was dedicated on December 20, 1882. The medical staff was composed of a consulting board—Drs. F. H. Brown, John Homans, and William Ingalls; of physicians—Drs. A. M. Sumner, F. Gordon Morrill and J. P. Oliver; and of surgeons—Drs. S. W. Langmaid, E. H. Bradford and A. T. Cabot. Dr. H. C. Haven was Assistant Physician and Dr. Abner Post, Assistant Surgeon. Dr. W. H. Whitney was pathologist and Dr. N. O. B. Wingate was physician to the Convalescent Home. During the year the medical staff was increased by the addition of Dr. Thomas Morgan Rotch as assistant physician, and the managers, at the suggestion of the staff, appointed as resident house officers H. S. Otis and G. Haven with N. J. Knowles, Jr. as externe.

In the report presented by the managers to the corporation in 1885 and again in the reports of 1886-87 attention was called to the importance of the Out-Patient Department, a branch of the Hospital which, for some years had been doing a large amount of work in an admirable manner but in restricted quarters. In the latter part of 1886 the managers purchased a lot adjoining the former site, containing about 5000 square feet, and a thoroughly arranged and commodious building for outpatients was opened in September, 1888. The foundation of the east wing was also laid at this time.

One distinctive feature of the plan of the Children's Hospital was that it should be under the voluntary charge of the Evangelical Sisterhoods. Early in 1869 the Ladies' Aid Association was formed by the late Mrs. Chandler Robbins who gathered about her a band of devoted women and they and their successors have since constantly labored for the welfare of the institution. To them also is due the organization and support of the Convalescent Home at Wellesley.

At a meeting of the managers in 1881 it was voted to permit the establishment of memorial beds by those who desired to connect with the hospital the names of deceased children or friends.

On the 22nd of October, 1889, the east wing was opened for inspection and the capacity of the institution was increased to 96 beds. The new wing was intended mostly for medical cases, the two wards of the west wing being given up to surgical cases.

At the suggestion of the medical staff, Dr. Oliver F. Wadsworth was appointed Ophthalmic Surgeon; Dr. C. J. Blake, Aural Surgeon; Dr. H. L. Morse, Assistant Aural Surgeon; and Dr. Algernon Coolidge, Jr., Assistant in Diseases of the Throat.

Another object which the founders of the Hospital had in view was the establishment of a training school for nurses. During the year 1891 the managers carried out this plan and young women were received as pupils, the course of instruction lasting two years.

In accordance with the request made by the authorities of the World's Fair held in Chicago in 1893, it was deemed advisable to prepare an exhibit consisting of plans and views of the Hospital and Convalescent Home, reports, schedules of work performed, illustrations of treatment of patients and appliances, all of which might be of service to those interested in similar work. The plan was carried out and the exhibit shown in the anthropological department of the Fair.

It is well at this point to call attention to the reputation for excellent work which the institution has deservedly earned throughout the country among the laity as well as the medical profession. That this reputation is recognized is evidenced by the fact that during the year 1890 patients came for treatment from all parts of the United States as well as from New Brunswick, Nova Scotia, and Aberdeen, Scotland. Another evidence of the superior advantages offered by the institution is the number of physicians who come from afar to avail themselves of the clinical teaching and abundant material to be found in the wards. Interested students esteem it a high favor to be able to work under the physicians and surgeons in charge.

While it is well known that the hospital at no time had received contagious diseases, it has always been willing to bear its burden of responsibility and care for the cases which have arisen within its walls. Great precautions have always been employed to avoid such conditions. Diphtheria has always been one of the diseases to which children are more particularly liable and in 1895 much attention was given to the improving of the hygienic condition of the hospital building to guard not only against diphtheria but other contagious diseases. These investigations have been carefully followed up and in 1896 we find the bacteriology, etiology,

and the diagnosis and treatment of infectious diseases being scientifically pursued. The work on diphtheria is especially commendable and an article on the subject by Dr. F. Gordon Morrill in the Boston Medical and Surgical Journal drew wide and favorable comment. It is interesting to note that at this time every patient that entered the hospital was given an immunizing dose of diphtheria antitoxin, this being the first instance on record where such a procedure had been rigidly carried out in any institution. Since this measure has been adopted diphtheria has been practically eliminated from the hospital.

An incident of importance in the history of the hospital was the publication in 1895 of a volume called "The Medical and Surgical Report." This volume was highly commended by competent critics both here and in Europe.

In 1883, when one wing of the present building was occupied, we note that there was a daily average of 37 patients. In 1892, the year after the whole of the building was occupied the daily average of patients in the wards was 64. In 1890 the number of patients treated in the wards was 442, and in 1900 it was 1394.

In 1890 new cases in the out-patient department numbered 1,712 while in 1900 there were 2,586. In 1890 the visits to the Out-Patient department were 7,291, in 1900, 21,436, Up to 1900 there were no visits made for outdoor relief but in that year the value of this department of the hospital was fully proven and there were 1,828 house visits made by members of the hospital staff and nurses. In 1890 the number of nurses in the hospital was only 10 while in 1900 the average number was 35.

In 1902 the Board of Managers purchased three acres of land, adjoining the Medical School, from Harvard University, and it is here that the new building has been erected.

In 1904 the managers adopted the plan of including in their annual reports brief statements from the members of the Staff, giving information as to work done by the Hospital, the idea being to give a more accurate as well as a more adequate record. These records, as planned, were not to be scientific contributions of interest only to the profession, but practical statements for the information of laymen as well. This plan has been carried out and exhaustive reports in reference to work done, medical contributions, changes from time to time in the medical staff, additional departments, and various other measures by which the efficiency of the institution would be increased have been recorded.

The Hospital was the first in the country to establish at its Wellesley Convalescent Home a country branch giving to sick children the therapeutic benefits to be derived from fresh air. The Hospital has educated and trained a large group of skilled practitioners who have formed an alumni association.

In addition to its remarkable pioneer work on the immunization of diphtheria the medical staff has done much original work. To be mentioned are the modern methods of feeding, extensive Roentgen work on development and on studies connected with the time of emptying the stomach. The work in connection with the treatment of cerebrospinal meningitis is especially to be noted. Long periods of treatment of this disease by the administration of diphtheria antitoxin in one series of cases and lumbar puncture in another prepared the way for the serum treatment which has been and is so thoroughly and intelligently carried out in its wards. Lumbar puncture was first done on a series of patients in 1897 but the Flexner serum was first used in 1907.

In connection with the remarkably efficient corps of pediatricians forming the Pediatric Department of Harvard University the Hospital has rendered great aid to the complete and noted organization of this department and has opened its wards for a free study of Pediatrics to both students and practitioners. More continuous teaching is probably done in its wards than in any other hospital in the country.

The successful work of the Hospital has justified the efforts of the founders and those who have so willingly contributed to its maintenance and warrants an appeal for generous support in the future.

The writer wishes to state that he has been greatly assisted in writing this report by Dr. A. G. Helmick of Columbus, Ohio, senior house officer during his service. He is much indebted to Dr. Helmick for the large amount of work which was necessary to bring these facts, connected with the hospital, together.

III.

The History of the Children's Hospital with Especial Reference to the Orthopedic Department.

By R. W. Lovett, M. D.

The Children's Hospital was founded in July, 1869, and began in a very small way, treating only 12 medical and 18 orthopedic and surgical patients in the five months of the first year's activity. The staff consisted of three physicians and three surgeons, the latter being Drs. Francis H. Brown, S. W. Langmaid and John Homans. In the year 1870, however, it may be seen that the work was still very light, for only 30 medical and 39 orthopedic and surgical patients were treated in that year. In 1874 an out-patient department was opened.

In 1877 Dr. Francis H. Brown retired as surgeon, and was replaced by Dr. William Ingalls, who had been up to this time one of the

physicians. In 1876 Dr. Homans retired from the staff, and his place was taken by Dr. E. H. Bradford, who began then a service as surgeon which terminated only with his retirement in June, 1912. In this service of nearly thirty-five years he saw the hospital rise from its very small beginnings to an institution of national reputation, and in this progress he was one of the important factors. No one else has had so long a connection with the staff.

In 1879 Dr. Arthur T. Cabot was appointed assistant surgeon, and he became surgeon in 1882, a position which he held until his resignation in 1889. Dr. Brown and Dr. John Homans were made consulting surgeons in 1879, and Dr. Ingalls in 1880. Dr. Abner Post was appointed assistant surgeon in the same year.

In 1883 the hospital moved to the building on Huntington Avenue, at that time a modern, capacious and up-to-date hospital, which has now become so wholly inadequate to the present demands on it. In the first year in the new building, however, only 178 orthopedic and surgical cases were treated. In this year Drs. F. S. Watson and H. L. Burrell were appointed assistants in the surgical out-patient department.

With the move to Huntington Avenue there began what one might call the modern history of the hospital, that is, a rapid expansion in its work and usefulness. For example, in 1883 there were treated in the wards 299 patients and there were 1488 out-patients, while in 1903, twenty years later, there were treated in the wards 1505 patients and in the out-patient department there were 6341 new patients.

Dr. Langmaid resigned as surgeon in 1885, and was made surgeon to the throat department in the following year. Dr. Post became surgeon in 1886, and Dr. Watson resigned, while Dr. Burrell was made assistant surgeon. Dr. H. W. Cushing was in this year made an out-patient assistant. In the year 1887 Dr. Post resigned, Dr. Burrell took his place as surgeon, Dr. Cushing became assistant surgeon, and Dr. R. W. Lovett became out-patient assistant.

In 1889 Dr. Cabot resigned as surgeon, and his place was not filled. Dr. Burrell remained as surgeon till his death in 1910, and his place as surgeon was filled by Dr. James S. Stone in 1912. Dr. Bradford resigned in 1912, and was succeeded by Dr. R. W. Lovett. Other members of the present orthopedic or surgical staff are as follows: Associate surgeon, Dr. Augustus Thorndike, connected with the department since 1897; assistant surgeon, Dr. Robert Soutter, becoming a member of the assistant staff in 1903; junior assistant surgeons, Dr. Albert Ehrenfried, appointed in 1910, Dr. Arthur T. Legg, appointed in 1908, and Dr. James Warren Sever, appointed in 1908. In the department of general surgery the junior assistant surgeons are Dr. Charles G. Mixter, connected with the hospital since 1911, and Dr. William E. Ladd, appointed in the same year.

In the intervening years the roll of other names connected at some time with the orthopedic or surgical work of the hospital as members of the assistant staff is a brilliant one. These names are Dr. E. G. Brackett, Dr. J. E. Goldthwait, Dr. John Dane, Dr. E. H. Nichols Dr. R. B. Osgood and Dr. Z. B. Adams.

In 1903, by an arrangement made between Drs. Bradford and Burrell, the surgical service, which up to that time had been indiscriminately orthopedic, and general surgical, was divided into two divisions, one orthopedic and the other general surgical, Dr. Bradford taking the former and Dr. Burrell the latter. This division proving eminently an advance, it has been continued as a permanent division of the work.

The orthopedic service has shown the benefit of this division and the consequent better specialization in its own work by an increase in the volume of its work, and in the productiveness of the service. In the six years ending in 1912 this department contributed to literature three text-books and 91 articles in periodical literature. It gives 300 hours of clinical teaching to the students of the Harvard Medical, beside eight courses to graduates.

The orthopedic service is an active one, and in the year 1913 each orthopedic bed was occupied on the average 23 times in the year. Compared with a similar hospital in another city devoted largely to orthopedic cases, each bed in that institution was occupied five times in the year 1911. This efficiency of service is made possible only by the use of the Convalescent Home at Wellesley, opened in 1875, which has been maintained since then by the Ladies' Aid Association of the hospital, who have thus for some thirty years contributed so greatly to the advance of the hospital.

The growth of the orthopedic service may be shown by the fact that in 1913 the orthopedic operations numbered 423, an increase of 60 per cent. over the number in 1906, and in 1913 the orthopedic admission showed an increase of 41 per cent. over similar admissions in 1910, the figures of which happened to be available for comparison.

If the progress of the past offers any basis for judging, we may look forward to a great institution. In 1870, the first full year of the hospital, there were six medical men on the staff, no out-patient department, and 83 patients were treated. The running expenses were about $6,000. In the year 1912, thirty-two years later, the members of the consulting, visiting and assistant staff numbered 46, the visits to the out-patient departments numbered 26,500. 1,729 cases were admitted to the wards, and the expenses were $54,800. With the financial support of the public in maintaining the new hospital we may well see that a more rapid rate of enlargement and usefulness lies ahead of us in every department in an institution so admirably equipped as the one to which we are soon to move.

IV.

The Work of the Children's Hospital in 1913.

By John Lovett Morse, M.D.

The work of the Children's Hospital has increased steadily from year to year in spite of the fact that the accommodations for the treatment of patients have remained the same during recent years. During the year 1913, 1,750 patients were admitted to the wards. These were distributed as follows:

Medical	569
Surgical	522
Orthopedic	569

The daily average of patients in the hospital during the year was 70. The large number of patients admittted compared with the number of beds was rendered possible by discharging the patients as soon as it could be done without injury to them and by sending them to the Convalescent Home in Wellesley to regain their strength.

One thousand six hundred and forty-one operations were performed during the year. These were divided among the various operating services as follows:—

Surgical	483
Orthopedic	422
Throat Department	736

The operations, both on the surgical and orthopedic services were, of course, of the greatest variety. Those of the throat department were largely the removal of adenoids and tonsils, although many more serious and difficult operations were performed by them also.

The medical out-patient department is open daily, in the morning. The surgical and orthopedic out-patient clinics are held four times a week, in the afternoon. The clinic for nervous diseases is held twice a week, in the afternoon, and that for diseases of the throat, three times a week, in the afternoon. There is also a special clinic for the treatment of lateral curvature four times a week. A special clinic for the treatment by muscle training of neurological cases and of orthopedic cases suffering from paralysis has also recently been established conjointly by the orthopedic and neurological departments. This clinic is held four times a week, in the afternoon. The number of patients treated in the out-patient department was as follows:——

New patients in out-patient department	6059
Medical	2416
Surgical	1193
Orthopedic	957
Lateral curvature	64
Nerve	327
Throat	1102
	6059

Whole number of visits made	27,153
Medical	8006
Surgical	4319
Orthopedic	6893
Lateral curvature	2896
Nerve	3038
Throat	2001
	27,153

A very important department of the hospital, and one which is absolutely indispensable to the orthopedic and surgical services, is the surgical appliance shop. This department manufactures all the apparatus which is used in the treatment of orthopedic and surgical cases both in the wards and in the out-patient department, and also does a certain amount of work for other hospitals and outside physicians. It has eight employees and during the year did a business aggregating nearly eleven thousand dollars. The shop supplies the apparatus at very nearly cost, thus saving the patients considerable amounts of money.

The social service department has been even more active during the last year than ever before; 696 new cases were referred to the department during the year. These, added to the number carried over from 1912, make a total of 1500 families with which the hospital has been kept more or less closely in touch. The number of visits made was 3075.

The school of nursing is of very high grade. The course is for three years. The school is of the first rank, meeting the requirements of the Board of Regents of New York state. Its graduates are eligible for membership in the Massachusetts State Association and in the National Association of Trained Nurses.

The amount of instruction given by all the departments both to physicians and undergraduates in medicine has steadily increased. Physicians come to the hospital for instruction from all parts of the United States and Canada, as well as many from foreign countries. The students in the third and fourth years of the Harvard Medical School are in the wards almost daily. The value of the instruction given in this way can hardly be overestimated, since it extends the usefulness of the hospital far beyond its walls and to many children who have never seen or heard of it. A special series of lectures was given by the orthopedic department to

physicians at a minimum fee during the year, and a series of free clinical lectures by all the departments of the hospital to the Boston school nurses and the nurses of the Instructive District Nursing Association.

V.

Orthopedic Surgery at the Boston Children's Hospital. A Review of Thirty Years of Continuous Service.

By E. H. Bradford, M. D.

The progress in the development of the science and art of orthopedic surgery in the past thirty years has been reflected in the work in that department of surgery at the Boston Children's Hospital.

In addition to this, valuable experience has been collected from the work of the many trained observers at the hospital, and as a result deductions have been made and methods of treatment tried, rejected or accepted.

A complete review of the work would be unnecessarily detailed but a condensed statement of conclusions which seem justified may be of service.

TUBERCULOUS AFFECTIONS.

One of the most gratifying changes in the last 35 years in connection with the Hospital is that shown in the great improvement in the results obtained in the treatment of the tuberculous bone and joint affections.

Anyone who can recall the pitiful condition of the cases brought for hospital care in the early days, and their unsatisfactory state when discharged, will view with much satisfaction the results of treatment observed at present. It cannot be claimed that the ultimate goal has been reached, and much greater benefit will undoubtedly be recorded in the next generation, when more thorough measures of combating the invading disease, or strengthening the patient's resistance, have been discovered, but a more surprising improvement is to be recorded now than that formerly possible.

This is due to several factors, viz., greater skill in the early diagnosis of cases; more systematic and thorough treatment carried on continuously for as long a period as is necessary, and greater care in the stage of convalescence.

TUBERCULOSIS OF THE SPINE.

Dr. Sayre's boast, that there will be no more hump-backs, appears to have been justified by the results obtained when careful treatment is feasible. Certainly the cases brought to the in-service at the Hospital do not now show the distressing deformities which were the rule 30 years ago. There appear also to be fewer resulting abscesses than was the case formerly.

Improved methods of fixation on recumbency frames permitting rest without imprisonment, and locomotion with protection from jar, including head and trunk fixation by plaster and leather jackets, efficient appliances which increase the cures within the control of the surgeon. It may be said now to be a demonstrated fact that no case of caries of the spine where an early diagnosis is made and proper treatment furnished for a sufficient length of time need develop a noticeable deformity; but for such a thorough treatment and such satisfactory results not only a mastery of details is needed, but also a control over the care of patients for a relatively long period. Such a course of treatment does not necessitate hospital detention or even special skill in nursing but the care of a mother or nurse capable of carrying out the required directions. In fact, the care by an intelligent mother may be superior for these cases to that of an overworked nurse whose ward duties may interfere with detailed oversight and attention to important details.

For a choice between ambulatory treatment and recumbency, or locomotion with protection by plaster of Paris jacket fixation, braces with or without head supports, as well as for a selection of the form of brace or the method of application of plaster jackets, the surgeon is guided by the means at his command and the circumstances of the case, as well as by nursing and environment at command. The employment of brace without adequate skill in their design or application does not lead to the best results. Recumbent treatment without fresh air is objectionable. Plaster jackets improperly applied or used without judgment are both untidy and inadequate.

The following suggestions are to be kept in mind. The purpose of all treatment being to keep the diseased bodies from being bruised together by the superimposed weight, recumbent treatment is the best method, unless the disease is situated in such a part of the spine that it is possible to throw the superimposed weight more upon the firm and undiseased portion of the spine, *i.e.* the articular processes, and to prevent all motion forward at the diseased portion of the spine, or at least to limit it to such a degree that no injurious bruising occurs.

Manifestly, rigid recumbent treatment is more needed in a case when a large region, including many bodies is attacked than where only a small focus or an area surrounded by firm bone is diseased. In recumbency it is necessary to arch the spinal column forward and for this a firm pad (sawdust bags are the most serviceable) on a firm but not too hard surface is needed. This is adjusted to the back at the level of the disease and can be made to serve well if the recumbent

frame holds the patient in place. A plaster of Paris posterior shell, applied when the patient's spine is pressed forward at the diseased point, gives a back support to which the patient can be well secured. In children it is well to place them upon the usual bed frame in addition, to prevent the twisting of the spine by leg kicking.

In cervical caries, head traction, and in psoas contraction, leg traction, is needed, but the amount of pull should not be great when an increasing abscess is to be feared.

Details as to the various methods of applying jackets, or of the braces used must be left to the judgment of the surgeon. Certain common errors are to be avoided, viz., in plaster jackets, the omission of a head or neck support; neglect to carry the jacket down far enough in front; the application of a jacket which holds the patient forward rather than throws him back; or which does not throw the spine back at the point of disease; the application of braces, which do not exert adequate forward pressure at the point of disease, or do not hold the spine firmly enough either because of too light material, or from improperly applied straps.

In the question as to the length of time when recumbency or protective treatment is needed the surgeon has no guide but his own judgment. The presence of muscular spasm, the guarded movements of the patients when free from support are indicative of the instinctive need of support or protection. This differs from the feeble movements of a child just released from recumbency, or from a jacket or brace.

The X-Ray shadow is not an absolutely reliable guide in directing the treatment of spinal caries and the possible release from protection, even where satisfactory pictures can be taken.

New, firm bone may be present although penetrable by the rays, as in the case of the patella, which is often not shown in a front view of the normal knee joint.

That excellent results can be obtained with permanent cures without deformity, with recession of deformity, has been abundantly proved by the Hospital records. The subsequent history of cases severely attacked in childhood have in some instances been known in adult and married life, with the birth and growth of healthy children.

The operative treatment in Pott's Disease consists in opening the abscess and, recently, in the attempt at spinal fixation by bone graft and periosteal flaps.

In regard to the treatment of abscess, it can be said that sound practice seems to consist in abstention from incision as long as the abscess does not increase, or occasions no harm. Complete absorption of some large abscesses has been observed in many instances. But this conservatism is to be supplemented by radical treatment where incision is necessary. This should not only be free, but carried out so as to allow free discharge as near the original source as possible. To aid in this the surgeon will find a large steel uretheral sound of use in finding, and as a guide to the proper points of incision. Multiple incisions in the back, side, and front are often needed to drain a psoas and lumbar region properly. In some instances, costo-transversectomy is needed to drain an abscess in the post mediastinal region, which caused distressing and alarming attacks of dyspnoea. The operation is not difficult, though it is sometimes not easy to palpate and tap the abscess after the opening through the thoracic wall has been made, if the abscess is well forward on the front of the vertebrae.

The injection of germicides into abscesses in Pott's Disease without provision for drainage has not found favor in the Children's Hospital wards. A few unfavorable cases may have prejudiced the observers.

The attempt to ankylose the back of the spinal column by bone transplantation, or by causing ankylosis of the spine, is so recent a procedure that sufficient clinical evidence has not yet been secured to justify a critical estimate of the permanent value of a method. It certainly seems to promise much in shortening the period of treatment.

TUBERCULOUS DISEASE OF THE HIP.

What has been said as to the results now obtained in tuberculosis of the spine can be repeated with equal truth in regard to tuberculosis of the hip.

There is less deformity, fewer abscesses, and less bone destruction in the cases sent into the in-service of the Hospital for treatment, than was formerly the case. Much better results are obtained now than formerly.

This has been shown in the statistics of the results in cases treated in the Children's Hospital, five or ten years after the end of treatment as compared with the former results, and there is reason to believe that at present even better results can be expected.

The problem, however, of the treatment of hip disease is not a simple one, but requires more thought than the treatment of caries of the spine with modifications to fit the varying conditions. Operative interference, attacking the bone in caries of the spine is admittedly impracticable, but in the hip, the natural inclination of the surgeon is to shorten the difficulty by radically eliminating the disease by excision, erosion, removing tubercular foci. The experience of the Children's Hospital in the past 30 years, after a careful trial of both operative and conservative methods, coincides with the experience in many other clinics, in the opinion that where conservative methods can be systematically carried out, which, with proper organization of Hospital, out-patient department, out-door relief, convalescent country homes, are entirely possible —much better results follow than if the eradica-

tion of diseased foci is attempted by operative measures. Surgical Tuberculosis of bone is a constitutional disease with local manifestation. Surgical intervention should be directed to meet the local indications, preventing bone bruising, pain, deformity,—promoting drainage of detritus, and the reparative bony healing, almost sure to occur if fresh air and as much activity as the lesions permit. To cage children in beds, in hospital wards, in heavy plaster bandages preventing locomotion, are measures which may be necessary for a time, but the time should be as brief as possible and, fortunately, in a large majority of cases in children, unless the disease has reached an advanced stage, the time of imprisonment need be short. The surgical indications for prevention of deformity, bone trauma can be met while the patient enjoys comparative freedom in locomotion.

The tuberculous bone process as has been abundantly shown in pathological specimens, not being rapid in its progress, permits and stimulates a conservative bone reaction in the adjacent tissue which if conditions are given, eventually heals. This healing is delayed by injury to bone tissue, as is inevitable in operative surgical interference involving bone destruction. Such interference may be at times necessary when the carious detritus can not escape and acting as an irritant, promotes progress of the disease, where the amount of detritus is too great for absorption, and where no escape is possible. The true *vis medicatrix* in hip disease, as in tuberculosis elsewhere, is the antidote which Nature furnishes in an improved environment. Naturally more can be expected in the way of recovery in children than in adults, both because the reparative power is greater in the former, and a longer period is needed for repairs, and because it is more easy to control favorable conditions of environment for children than for adults.

Early excision; excision of the acetabulum; partial excisions; channeling for foci; are not procedures which are to be recommended for tubercular disease of the hip in children, according to the experience of the Children's Hospital

As a life saving measure in neglected cases amputation at the hip, in extensive pelvic disease, has been done 4 times in the early period of the Hospital, when more neglected cases were brought for treatment. In one, the patient was known to live to manhood, enjoying excellent health. In two others, death from amyloid disease followed several months after recovery from the operation. In a fourth, the ultimate result was not known.

Operative dislocation of the hip, to relieve interarticular pressure in advanced acetabular disease, was performed three times with benefit and in one instance, the case was followed to adult life, a complete cure resulting with deformity not yet corrected, but perfectly correctable by osteotomy.

The present routine treatment at the Children's Hospital consists of a bed frame, and traction during the acutest stage, the early application of the abduction traction splint which furnishes better fixation, allows more locomotion, and less bone atrophy than a plaster spica bandage; the use of this with crutches during the florid stage of hip disease followed by a perineal crutch, and weight bearing gradually permitted, according to the progress of the disease toward recovery.

Increasing abscesses are incised, existing deformity corrected either under an anaesthetic or by pull; osteotomy being reserved for healed cases with deformity.

Under such treatment subluxation should be prevented, abduction and flexion also, though in rapidly growing children the prevention of these, especially a flexion deformity, demands protection and limitation of weight bearing for a long period until the epiphyseal bone has regained the required firmness.

TUBERCULOSIS OF KNEE, ANKLE, SHOULDER AND ELBOW.

The conservative treatment of these cases in children seems justified in preference to the operative removal of bone, other than sequestra or detritus. Plaster and leather fixation, with a Thomas knee splint for the knee and ankle, with fixation for the elbow, eventually give as satisfactory results as can be obtained. The course of treatment is, however, regrettably slow, and the use of some methods of early constitutional cure, besides that which comes from protection from trauma and the natural power of repair of the individual, is much to be desired.

These affections are treated successfully on the same principles mentioned in regard to treatment of caries of the spine and hip disease, but the treatment is modified by the varying anatomical and physiological conditions. In the upper extremity the problem of weight bearing being removed, the treatment is simplified, in the shoulder, the drag of the weight of the arm prevents bone crowding, but the spasm of the strong pectoral muscles draws the arm to the side, and furnishes the indication in fixation for an angular axilla pad.

KNEE—ANKLE.

In the lower extremity Thomas' well-known splint, with its modifications is of recognized service, but it should, in the acuter stage, be supplemented by plaster of Paris or leather fixation.

Radical operative excision should never be resorted to in tuberculous disease of the knee in growing children.

In disease of the ankle, subperiosteal removal of an extensively diseased astragalus sometimes shortens the course of the affection but statistics have appeared to show the best results following



—Abduction traction splint
padded. (Bradford.)

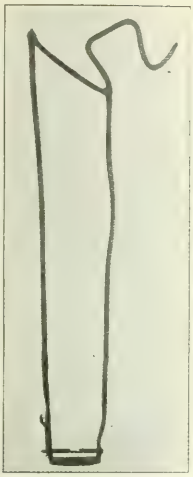


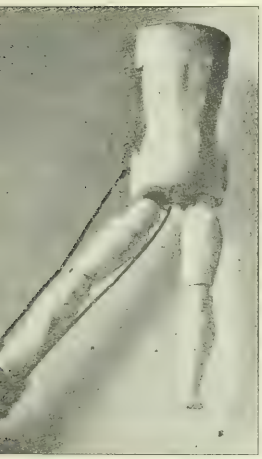
FIG. B. Abduction traction splint without padding or straps. (Bradford.)



FIG. C.—Child wearing the abduction traction hip splint. (Bradford.)



FIG. 10. Rear view of the abd
traction splint applied. (Bra



E.—Model showing trunk fixation by
traction applied.



FIG. F.—Model showing fixation of hyation when traction is not applied.



FIG. G. Model showing traction fixation of hip joint by plaster spica from the necessary looseness at the pelvis and trunk.

conservative protective treatment, *i. e.*, plaster bandage fixation and a Thomas splint to prevent the injury from weight bearing in locomotion.

FRESH AIR TREATMENT.

In all tuberculous affections of the joints the chief reliance for cure must, at present, be placed on the tonic of absolutely fresh air whatever may in the future come from vaccine or serum therapy.

The statistics of the Convalescent Home of the Children's Hospital have demonstrated clearly not only that fresh air is beneficial in tuberculous bone cases as in tuberculous affections of the lungs, but that it has a tonic value. Hospital cases removed to fresh air shacks increase in weight, appetite and color; while the physiology of this is not clear, the fact can be regarded as demonstrated.

It would appear that sea air is not superior to that of the fields. It is important that the air should be fresh during the night as well as the day.

OSTEOMYELITIS FROM PUS-MAKING GERMS.

Thirty years ago the distinction between the different forms of caries of the bone were not known and as the relation between osteomyelitis and certain germs had not been studied, the fact that the pathological history of the affection caused by the invasion of the tubercle bacillus differed from that caused by the irritation of the several forms of cocci, or that the latter differed was not understood. While the matter is as yet one which demands much more investigation, enough is known as to the two groups of bone infection to base different policies in treatment.

The fact that as a rule osteomyelitis from the pus causing cocci attacks the diaphysis, and that from the tubercle bacillus involves the region of more rapidly growing bones; the epiphysis or juxta epiphysis, *i. e.*, the diaphysis at its junction with the epiphysis is sufficiently established to be accepted as a rule, with exceptions, and indicates that in the slower developing tuberculins more attention needs to be paid to the prevention of deformity than where the marrow of the shaft is attacked, with its stronger and less rapidly growing and less rapidly cicatrizing bone. In the cocci group of osteomyelitis the indication for drainage is the chief one, whereas, in the tuberculous osteomyelitis the chief purpose of the surgeon is to put the tissues into such a condition that the reparative process may obliterate the destructive otitis.

In fulminating cases of osteomyelitis the indications are clear, viz. the region of invaded bone should be found, incised, and the bone drilled. High temperature and blood count are to be observed with marked constitutional symptoms and usual local oedema, or swelling at the point attacked.

In the arthritis of infancy, so called, an acute affection, the pathology is not well understood, except that joint destruction, especially of the hip occurs rapidly and suppuration takes place and the invading germ is not the tubercle bacillus, but of the pus-causing group of cocci.

Speedy operative interference is demanded in these cases with the early use of a traction appliance to prevent deformity where the hip is involved.

The form of caries following typhoid fever or pneumonia offers an interesting field for investigation, but at present the clinical course of these cases has not been adequately studied, nor has an allied, distressing ailment where several of the joints become ankylosed and distorted after an attack of acute severity, marked by pain, prolonged fever, but without suppuration. The cases presented at the Children's Hospital have brought records of a prolonged sickness resembling in some of its clinical features typhoid fever, but lacking the distinctive intestinal symptoms.

Cases of multiple bone tuberculosis, cases of mixed infections, *i. e.*, where an original tuberculous bone lesion has been invaded by the pus-forming cocci, and suppurating osteomyelitis has resulted, with such sequelae as to make the original nature of the affection uncertain, have naturally been not infrequent, indicating the need in the future of carefully recorded details of the initial condition of the patient.

It may be said that the prognosis of these cases in children is surprisingly good, when favorable nursing conditions can be furnished.

RACHITIC DEFORMITIES.

As the Children's Hospital has been for many years the chief clinic here for the treatment of rachitic deformities it is to be expected that marked progress has been made in the different methods of treatment in this most common affection.

Formerly, operations upon bone were regarded as a dangerous undertaking, and children were subjected to a tedious treatment with heavy and cumbersome apparatus, with but little prospect of substantial improvement in resistant cases.

The introduction of aseptic measures has made osteotomy safe; osteoclasis is easily performed, and simple appliances adapted to younger and less resistant cases are of service. The X-Ray enables the surgeon to determine the character of the deformed bone, and a more careful and extended knowledge of the clinical history of cases, made possible by large and well organized hospital clinics, have taught that in a large majority of cases the tendency is to a rectification of the deformity in growing children if the conditions favoring help are given. All this com-

bined makes the treatment of these deformities a matter of no great difficulty.

Modifications of the Thomas knee splint can be made for use at night for such young children as require correcting pressure; light walking, correcting appliances can be used where necessary in deformities not suitable for operation and with threatening increase of curves, as a rule cases older than 4, with marked curves should be operated on. Osteoclasis by means of an osteoclast is more precise than manual osteoclasis, and osteoclasis is a simpler operation than osteotomy and therefore preferable in bow-legs. Osteotomy is preferable where correction near the knee or hip is required as in knock-knee and coxa vara. Subcutaneous osteotomy in skilled hands can be made as precise as through a skin incision and is preferable as being simpler. Linear osteotomy, and no further injury of the periosteum makes blood clot healing certain, and if the bone is divided three-fourths through the shaft and the rest broken, the interlacing fibres of the periosteum secure speedy bone healing and allow proper rectification of deformity. Perfect alignment is not necessary, but correction permitting weight bearing in an improved position is followed by further rectification through normal growth.

Anterior tibial curves can be treated without wedge-shaped bone exsections by linear osteotomy of half of the bone and strainghtening, with blood clot healing of the resulting gap, with or without tenotomy of the tendo Achillis to overcome the bow-string tension on the curve.

Experiments have shown that linear section of a part of the bone is made by osteoclasis. The bone cracks cleanly on the side opposite to the pressure with slight tearing on the proximal side; there is no danger of splintering or shearing in long bone. In osteotomy properly done the clean section is at the point of attack by the osteotome, and any irregularity in the division occurs where the section is completed by manipulative correction. Danger to the arteries and nerves is reduced to a minimum in osteotomy if the osteotome is driven directly through the nearest point to the bone cortex and by manipulating the osteotome the bone undermined from the inside until complete fracture is possible by manual force. A small osteotome will be found preferable over a large one by a surgeon used to the procedure.

In some instances manual correction of rhachitic curves will be found more easy if the limb has been bandaged by a plaster bandage, worn for a month. Bone atrophy takes place. There is, however, no advantage in this method of procedure over osteotomy.

Of the various forms of osteoclast the well known Rizzoli's appliance has been found reliable and practicable in the clinic. Simple and effective also is a modification of Little's osteoclast.

After correction, the limb, protected by cotton wadding, or a soft bandage, is held in plaster of Paris fixation for a few weeks, after which as a rule the bone is firm. It is advisable that the plaster bandage be bivalved so that the front of the limb may be inspected at will by the surgeon without disturbing the position. If the plaster bandage is a broken one this can be done without weakening the fixation of the fragments and the surgeon may reassure himself as to the position of the fragments and the proper correction of the deformity.

PARALYTIC DEFORMITIES.

In no branch of orthopedic surgery has there been so surprising an improvement as in the treatment of the deformities of anterior poliomyelitis.

The former treatment consisted simply in the endless and unbeneficial application of Faradic electricity and massage, and awkward and, in the main, useless appliances with the aid of tenotomy of the tendo Achillis in a few instances.

Improvements in appliances have enabled the surgeon, through purely muscular treatment, to secure improvement in the weakened but not paralyzed muscles by the exercise given in locomotion with light appliances permitting, as far as possible, motion in all directions except in the direction of deformity. The essential in paralytic affections of the lower extremity is to place the child on its feet with frame, crutches, or other appliances giving it the sense of locomotion and activity. Deformities are easily corrected by tenotomy, aided by osteotomy in extreme cases, with forcible corrections, and in some cases open incision.

POLIOMYELITIS.

It is an interesting fact in the history of medicine that an interest in the study of poliomyelitis should have been developed acutely and suddenly all over the medical world in the last five years although the ravages of the disease itself have been common always, and there is no reason to think that the affection is more prevalent now than heretofore. It is to be hoped that renewed investigations will bring forth remedial measures which will control our surgery of deformities. It is also singular that this affection was almost ignored in the medical instruction of fifty years ago, except a mention of what was classed as teething palsy, or infantile paralysis.

The treatment of the deformities of poliomyelitis if described in detail would demand a volume in itself for adequate presentation, as the manifestations vary greatly, and much persistency and some ingenuity are needed to furnish the substantial practical relief which may often be given by the surgeon in the correction, the prevention of deformities, and in the utilization of damaged limbs.

A brief statement of the principles involved in the measures to be selected may serve to illustrate the advance made in the last 30 years in combating this affection.

The disease itself displays in most instances at first a marked effort for recovery, for 6 months or a year, and later a tendency to develop deformity from the enforced misuse of the damaged limb. The position in which a dangling limb is held, from constant or gravity position, strains certain weakened muscles and permits contraction of unopposed muscular groups. The superimposed weight falls faultily upon the damaged foot and makes a distortion which becomes permanent with growth. Although at the outset only certain muscular groups are permanently paralysed, many muscles being weakened, and others impaired in their strength by a lack of use, the principles of treatment demand, when it becomes evident that no recovery is to be expected in the muscular groups inevitably damaged, giving such freedom to the limb as may approach the normal and develop strength in supplementary muscles to make up for deficient function.

In the correction of deformity the measures needed are simple: gradual or forced stretching of the contracted muscles, aided or not by tenotomy, myotomy, ar even osteotomy, as may be necessary, in order to give the most favorable, useful bearing alignment of the bony structure possible.

Apparatus of the simplest character which is effective is to be furnished to aid proper weight bearing and to check contraction of an unopposed group of muscles.

For the partial restoration of functional activity the employment of muscle transference is of great value and the use of artificial ligaments to check the flail joints has proved of great value.

In cases where no muscles are left unparalyzed and muscle transference is impossible, stiffening the joints by partial excision of the cartilaginous surface, or in paralytic calcaneus, the removal of the os calcis and slipping the foot back, thus checking heel drop are successful procedures.

The details of these measures would form a chapter in themselves. Here can be recorded the fact that few cases of infantile paralysis of a lower extremity need remain unrelieved. Complete restoration of function is not possible, but the children can be freed from imprisonment, to a wheel chair.

SPASTIC PARALYSIS.

Little's Disease was formerly treated by massage and appliances as it was regarded as a central nervous affection, cerebral paralysis with a lesion in the cortex. The neurologists considered surgical treatment irrational and absurd, but empirically orthopedic surgeons proved the contrary. Dr. Gibney of New York and the surgeons at the Boston Children's Hospital being among the first.

It is now known that tenotomy and myotomy, or muscle paralysis surgically induced, followed by muscle training, presents a feasible method of treatment followed by benefit.

The affection being one of disturbed muscular balance the temporary paralysis of the muscles with exaggerated muscular spasm and the development of the overpowered muscles, accompanied by appliances making locomotion possible and correcting a tendency to a relapse of the deformity, is always followed by improvement, in cases that are not mentally defective. Experience has shown that there is a tendency to a gain of muscular control in all these cases if a stimulus to muscular effort is furnished. The removal of deformity removes an impediment to muscular exertion.

Correcting appliances without tenotomy are of little use in these cases. A long after-treatment, muscle training, is to be expected.

Alcohol injections paralyzing the nerve, bringing an exaggerated impulse in addition to the measures correcting the deformity, has appeared to be of advantage, but the exact value of the procedure is still *sub judice*.

Cutting the posterior roots in children who can be helped by milder measures is with our present experience not justified. The mortality of the procedure in children, cannot be disregarded except in the severest cases

ANKYLOSING ARTHRITIS. ARTHRITIS NODOSA.

While degenerative arthritis, the degenerative changes of middle life or old age, the spavin of animals is not seen in children, an affection often confounded with it though pathologically different is occasionally seen in a distressing form in children. It is polyarticular and in this differs from joint tuberculosis. There is usually a painful stage, there is disability and distortion.

While a scientific method of treatment of ankylosing arthritis has not yet been developed many cases at this hospital has shown improvement and in some of the milder cases recovery after a system of treatment directed to the correction of the deformity, steadying the limbs if in the painful stage by plaster of Paris bandages, using apparatus, there is recurring deformity and apparatus, with treatment stimulating the circulation locally; greater improvement in methods of treatment may be hoped for if advances in bio-chemistry succeed in throwing more light upon the nature.

Although this affection has been much studied under different names and has been supposed to be of a tonic nature, the exact nature of the toxin has not yet been established, nor in fact that it was not due to some defect in metabolism, *i. e.*, an anti-intoxication.

While it is more frequently seen in adults

(in the writer's experience in women) some of the most pitiable cases occur among children, even in infancy.

In other instances the affection appears in children in a much milder form and is followed by gradual recovery, apparently aided by the treatment.

After it became established that certain joint tissue change affections and disabilities result from a degenerative process in contrast to the destructive inflammatory carious processes caused by the entrance of definite germs, it appeared that the treatment needed was to stimulate the tissues rather than to promote tissue atrophy from rest and fixation.

Where active inflammation is not present, the amount of use should be all that is practicable within the limits of discomfort and violence or the trauma of strain. Gradual use under proper proportions is beneficial, aided by such measures as stimulate the circulation, *i. e.*, massage, especially vibratory massage, dry heat, electricity, static, the intermitent current, hydrotherapy, passive exercises, but especially active exercises, weight bearing, carefully directed.

An unexpected amount of improvement will often follow these methods of treatment persistently carried out, accompanied by proper attention to metabolism.

This combined with corrective or prevention of deformities and the protected use of the limbs guided from strain if necessary by crutches or light apparatus, form a practicable system of treatment which must serve until increasing knowledge may furnish a most positive method of cure.

CLUB FOOT.

The treatment of congenital talipes equino varus 40 years ago was successful in many instances, but the methods were clumsy and the need of thorough after-treatment was not recognized. Relapse and incomplete correction was too commonly the result.

The morbid anatomy was not well understood. The Scarpa shoe formerly much used may be taken as an appliance imperfect for correction and impossible as a walking shoe in after-treatment. Removal of the cuboid, astragalus, and wedge-shaped excision of the tarsus, all mutilating procedures, had been occasionally employed and even amputation performed in resistant cases.

At present all cases of club foot from infancy to adult age are to be regarded as curable without mutilation and with the restoration of normal function. It is, however, necessary to meet certain definite indications fully and thoroughly.

The affection is a congenital displacement of the bones of the foot chiefly at the mid-tarsal articulation, with adapted alteration in the soft tissues, ligaments, tendons, and in the shape of the cartilage and bone in the joint surfaces of the astragalus and os calcis. Roughly, the deformity may be regarded as a congenital inward subluxation at the mid-tarsal articulation.

Treatment in brief consists in the gradual or forcible correction of the misplaced bones with retention in an overcorrected position for a sufficient length of time for the cartilage, ligaments and muscles to adapt themselves to the normal positions so that the correction becomes permanent.

In infancy under three months, repeated plaster of Paris correction without tenotomy, and in children in arms with tenotomy of the tendo Achillis, and in older children with tenotomy of the tendinous insertion of the tibials, plantar fascia as well, enables over-correction of the deformity. This over-correction should be maintained for several months, and should be followed by some apparatus to ensure normal walking, for in young children a turn in gait leads necessarily to relapse.

Proper walking braces worn inside the shoe, holding the foot in an exaggerated valgus position are often needed. On the sole of the boot a high wedge pressing up the cuboid will correct intoeing in walking if the varus has been fully corrected.

In resistant cases it is sometimes necessary to remove a wedge-shaped piece of bone from the neck of the os calcis and of the astragalus, sparing the articulation to secure proper overcorrection. It is especially important that the cuboid be placed in a normal position, otherwise relapse is sure to follow even if apparent correction has taken place. A club-foot wrench will be found of great assistance in the more resistant cases.

TORTICOLLIS.

The improvement in the treatment of wry neck, *i. e.*, the deformity due to contraction of the sternomastoid, is the result of the aseptic method in surgery. In the preaseptic days the surgeons dreaded the danger of pus in the deeper fascia and subcutaneous tenotomy was the operative procedure employed to divide the contracted muscle. This division was not easily performed thoroughly on account of the neighboring large vessels. Contracted muscles partially divided do not permit satisfactory results; much was left by the surgeon to after-treatment and heavy appliances were used in these half cured cases. When open incisions became safe cures of torticollis were more readily accomplished. The contracted muscle is to be thoroughly divided, the distortion, forcibly over corrected, the head held in an overcorrected position for three months by a plaster of Paris bandage, or by this followed by a light but efficient correcting appliance. There are several methods for the division of the contracted muscle. The one preferred by the writer is an incision carefully made parallel to the clavicle, a few lines above it, with complete division of the sternal and clavi-

cular insertions, a director having been inserted under the tendon to protect the vessels which lie deeper. It is rarely necessary to divide the scaleni for even when contracted they may be forcibly stretched sufficiently.

A complete permanent cure should result.

CONGENITAL DISLOCATION OF THE HIP.

IN the investigation of methods of care of an affection hitherto regarded as incurable, the Children's Hospital has been active for thirty years, from the time of the premature announcement of a cure, afterwards followed by a relapse, by Buckminster Brown by the means of traction applied continuously for a long period, and the first attempt, apparently but not actually successful, by Post of Boston at manipulative reduction. Subsequently the reduction by open incision was performed with a fair percentage of success in a number of cases. Hoffa, of Berlin, operating upon one, and later the method of manual forcible reduction, the Paci Lorenz method, was employed, (several operations being performed here by Lorenz.) The first thoroughly efficient mechanical appliance for reduction introduced by Mr. Bartlett, was employed in a large number of difficult cases with success and finally a careful study of the pathological anatomy of two children dying of contagious disease, before and after operation, made the pathology of the affection clear and the methods of treatment and their indications precise and definite.

At present it may be said that the deformity is an eminently curable one.

These cases can be divided into two classes: dislocated hips with an open, and with a narrow capsule. Originally in infantile cases, as is shown by pathological specimens, the capsule is open and loose, the head can be easily placed in or pushed out of the acetabulum. The defect consists in the absence or relaxed condition of the cotyloid ligament and zona orbicularis, which even in a full term foetus is strong enough to hold the femoral head in the socket.

After the child has walked upon the limb, as the body weight falls upon the capsular ligaments and not on the bone structure of the socket, the capsular ligaments become altered in shape and structure, the capsule extending to the upward displaced head is stretched across the acetabulum. In the older cases the capsule tissue becomes firm and resistant and the head can not be replaced in the acetabulum but is pressed against the drum-head-like tissue consisting of the capsule stretched across the acetabulum. The replacement consists in forcible widening of the narrowed capsular opening between the head and the acetabulum and stretching any obstacle which may oppose and pushing the femoral head into the bottom of the socket without folding the capsule in front of the head. To avoid the latter, the lower part of the capsule should be put under tension when replacement is attempted and to facilitate the reduction the head should be manipulated so as to press in the lowest portion of the acetabular rim (*i. e.*, behind and at the middle.) Shortened muscles can be stretched or relaxed by placing the limb in a flexed and adducted position. Forcibly abducting the flexed limb with pressure on the trochanter presses the femoral head against the tightened capsule and if favorably placed forces it into the socket.

In the cases with an open loose capsule little or no difficulty is encountered in the reduction; in tough, tense, and distorted capsule some force is needed. When the capsule is too firm and narrow to be entered by force, reduction by incision is necessary as the capsular contraction needs to be divided as in the reduction of an incarcerated hernia.

Reduction by incision is rarely needed in young cases, but in the more resistant cases, the procedure has resulted most satisfactorily. Forcible reduction can ordinarily be performed by manual manipulation under an anaesthesia, but in the more resistant cases, when much force is needed to stretch the capsule contraction, mechanical force is an important aid; first, to hold the pelvis firmly, second, to exert traction to stretch the capsule, and third, to apply forcible pressure, driving the head of the femur through the contracted capsule opening.

After the reduction the head should be held in place for a sufficient time for the capsule to form firmly about the femoral neck, that the head may be held in place. Plaster of Paris fixation for several months after a thorough reduction ordinarily ensures a cure which is permanent, as the Hospital statistics at the Children's Hospital have shown.

COSTUME DEFORMITIES.

The fact that growing bone could be altered in shape by pressure constantly applied was not unknown 40 years ago, but that the slight pressure of clothing could alter the shape of growing children was not realized. As is well known now definite faults in shape can be traced as a result of clothing. Round shoulders, weakened neck muscles, prominent clavicles, hollow chest, result from an overgreat drag upon the shoulders caused by the pull of elastic side garters attached to children's waists. Undue abdominal pressure from tight waists, corsets, weakens the abdominal, back and loin muscles. Growing girls should wear loose garments with no shoulder drag or abdominal constraint.

SHOE DEFORMITIES.

The extent of the deformities of the foot from shoe wearing is not generally realized, but a comparison of the baby's foot and that of an adult who has never worn shoes with the foot

of any individual who has worn even ordinary footwear since infancy will demonstrate the fact that the habitual compression of the foot, even only to the extent of the amount of pressure of what are termed comfortable shoes, causes muscular atrophy and the loss of normal muscular foot power. When "stylish" shoes are worn, compressing the front of the foot, or simply checking its proper spread when full weight and the exertion of the back drive of the foot comes upon it, the foot becomes in time distorted.

The foot placed firmly upon the ground, if a heel is worn on the shoe, tends to slide forward and this tendency is increased in the speed of walking. The front of the shoe is always narrower than the spread foot and the toes are necessarily crowded into this narrower space. The stiffness of the sole prevents normal toe flexion, and the fact that the upper is always fitted snugly to the dorsum of the foot to diminish wrinkling of the leather as the shoe is worn, hampers normal play of the foot and checks toe flexion. The stiff shank adds to the crumpling of the foot, and an unstretchable seam across the dorsum of the foot, pressing with a strong pressure on the dorsum of the foot, checking the sliding of the foot forward at each step, exerts a cramping pressure.

The result is that the foot which, as an implement of locomotion admirably adapted by the varying movement at its different articulations to the different conditions and activities of locomotion, is cramped for the greater part of the day in a firm and partially stiffened box.

The part of the foot which is the first to suffer is what may be termed the thumb action of the 1st metatarsal which is lost early. The flexion clutch of the toes, the spread of the front of the foot, muscular strength of the muscles of the sole of the foot and the adductor and flexor muscles of the toes all are impaired, crowding and crumpling of the smaller toes and hallux valgus, a flattening of the transverse arch are frequently developed and by the friction of shoes, bunions, corns, and exostoses. The development of static pes plano valgus usually known as flat foot is the most common result of shoe deformity and it may range from a slight functional weakness to a fixed deformity.

For the full details of treatment for the correction of these deformities and affections more space is required than can be furnished in this publication. That all these ailments, little understood thirty years ago, are entirely curable is well established. The most important element in treatment and in prevention is the removal or avoidance of the cause, viz., faulty foot wear. This indication is clear when it is known that these affections are not known among moccasin-wearing or bare-footed people, while extremely common among urban people with the more snugly fitting shoes. Young children, when it is not possible for them to be barefooted, should wear as much of the time as is possible moccasins or sandals and at all other times should be furnished with broad toed, loose shoes. Adults, when clumsy shaped, loose shoes are not feasible, should wear as much as possible as a rest to the foot, loose, flexible foot-wear. When walking, or using the feet a great deal, broad toe shoes should be used and conventional shoes only when the feet are not to be used actively.

Measures to strengthen the foot muscles, muscles of the sole and the correction of existing deformity are essential for a cure.

Stiff shoes, flat foot supports are to be regarded as temporary measures to prevent ligament strains. Faulty attitudes in standing and faulty use of the foot in walking are to be avoided by training.

STATIC AND ACQUIRED DEFORMITIES OF THE FEET.

A Children's Hospital does not offer adequate clinical material for a complete study of those acquired deformities of the feet which are more commonly seen in adults than in children. For a thorough understanding of the subject, however, a knowledge of the varieties of human gait and the normal action of the feet is of assistance. This is more readily studied in infants and children than in adults, as continued shoe wearing develops a more or less pathological condition.

An observation of a large number of children's feet shows that in the feet of even comparatively young shoe-wearing children a definite amount of loss of muscular strength is often produced in a majority of cases, together with toe crowding. Toe crumpling may be developed in stocking and shoe wearing children even when not more than three years of age. Investigation has shown that most acquired and static foot deformities (in cases not complicated by trauma, congenital defects or paralysis) are in reality shoe deformities. Investigation has also shown that the normal foot in infancy varies in shape (except as to the length of the second toe) according to race and is true to a type which it would appear has not changed since the prehistoric man.

Although these acquired deformities are much more common in adults than in children, no one can master the subject who has not familiarized himself with the shape and functional activity of the feet, both in shoe-wearing and barefooted children.

TREATMENT OF SCOLIOSIS.

The treatment of scoliosis forty years ago was both unscientific and clumsy to a degree that it could hardly claim a place in the proper domain of rational surgery characterized as it should be by knowledge, judgment, and good sense.

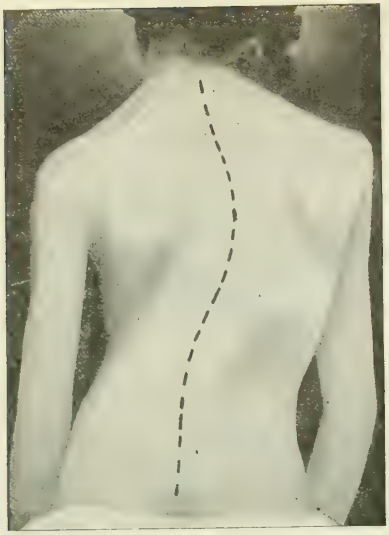


FIG. X.—Resistant lateral curvature in a girl of fourteen before treatment with plaster jackets.

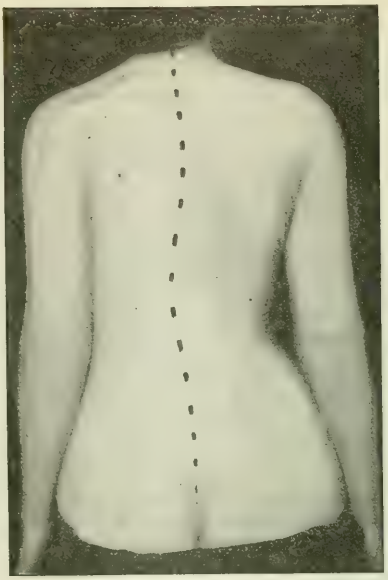


FIG. Y. Case of scoliosis before application of brace.

The subject was clouded by ignorance as to the true nature of the affection, lack of thoroughness in the methods employed and a lack of definite purpose as to the result sought.

Much satisfactory earnest work has of late been devoted to the subject and it may be added that at present the treatment of scoliosis and spinal curves presents one of the most interesting and satisfactory problems in the field of surgery but one which differs from most surgical questions in that the cure can in no way be hastened by the use of the knife and the course of the affection before a definite cure is established is tediously chronic, involving months and years of observation, beside such time as is necessary for treatment. The affection being a vice in growth, a tendency to relapse exists in many cases during growing years and these years the spine may assume different degrees of variations of distortions according to the amount of resistance of the patient and the varying determining conditions. The resulting spinal curves may be classed as those presented by the weak backs, the curved backs and the twisted backs. The former is characterized by a constant drooping of the spinal column with exaggerated physiological or abnormal curves, which may be voluntarily corrected by the patient, with a tendency to relapse if the patient is tired or remains for any length of time in a sitting or standing position. In the curved backs this condition is complicated by some structural change in the tissue to such a degree that the patient cannot by voluntary effort correct the abnormal curve although in the milder cases these curves can be straightened by pressure of the surgeon's hands.

In the twisted backs the curves are complicated by a twist of the column due partly to the rotation of the individual vertebrae because the superimposed weight forces the vertebrae to twist to the side, as the spine is twisted sideways and partly because the strained ligaments become stretched and offer less resistance to the superimposed weights in one direction than in another, and partly because the muscles pulling on the ribs, the patient being in a curved attitude, twist the column abnormally.

The treatment must necessarily vary according to varying circumstances. Formerly, as it was difficult to control conditions for a sufficient length of time, the satisfactory results were not obtained and many surgeons frankly relegated treatment to gymnastic teachers as the only practical method to be advised.

As the conditions developing these deformities are constantly in the erect position, and as gymnastic exercise could only be practiced for a limited period, the benefit to be derived from gymnastics treatment was limited to the milder cases perhaps capable of improvement under better health conditions or freedom from constricting clothing or faulty school seating.

A step in the study of the disease, was a more rational comprehension of the pathology of the curves and twists. When it became clear that the curves result from changes in a spinal column unable to bear the body weight without yielding with the structural changes resulting

from this inability due to lack of general muscular tone or local weakness and lack of resistance of tissue, a more definite system of treatment became possible. The introduction of plaster jackets did away with the belief that treatment necessarily consisted in general spinal couches and heavy steel corsets, and induced energetic surgeons to turn their attention to the subject of correcting the distorted trunks. But before determining the best method of applying mechanical means to untwist the spine, it was necessary to demonstrate that a pressure upon the projecting ribs acted not simply on the costo-vertebral articulation but the vertebrae itself so that if the pressure were properly applied it could tend to correct an abnormal twist. This has been clearly proved by Dr. Soutter and Dr. Keene.

The effects of abnormal muscle and fascia pull has been carefully studied. Experiments in Germany and here have demonstrated that spinal curves could be developed in growing puppies if fixed for a few months by plaster of Paris bandages in a twisted position. Experiments here also showed the effect of superimposed weight in developing a spinal twist with vertebral rotation and rib prominence. The pathological changes in bones of curved spines has been thoroughly studied. Much study has also been devoted to the normal movement of the spinal column with the result that the informed surgeon is in a position to apply principles deduced from a series of well observed facts to the rational treatment of cases of spinal curve.

Whatever different theories may be presented as to the best methods in treating lateral curvature, all will agree that the whole treatment of structural scoliosis does not consist of or end in the correction of the curve.

Many surgeons have suffered the disappointment of finding a relapsed deformity after a complete correction or over-correction of congenital equinovarus and the probability of recurrence in a corrected curve and twist is even greater in lateral curves than in corrected deformities of the foot, for it is more easy to control the deforming conditions in the latter than in the former class of distortions.

Spinal curves dependent upon vices of growth due to static causes, faulty weight distribution, distorted muscular, or anatomical defect, will tend to recur during the growing years, until the tissues have gained in strength of structure sufficient firmness to prevent yielding to the ever-present force of superimposed weight.

There should therefore not only be vigilance in the inspection of such cases with accurate methods of recording observations at stated times, enabling the surgeon to recognize a threatened relapse, but also measures for the counteraction of such a tendency in an early and more manageable stage.

To apply corrective jackets for a few months or a few years, remove these and leave the patient to take chances of future normal growth, with only as protection from relapse a reliance upon occasional gymnastics and waist bindings, removable braces or jackets, can not be regarded as thoroughly scientific surgery.

Of the various ways of recording scoliosis, there are advantages in selecting one which can be accurately and quickly made, requiring no more skill than that furnished by an office attendant.

The glass plate tracing method offers the advantages of simplicity and accuracy, and can be obtained if a proper diopter is used, and the patient suitably fixed.

A transparent celluloid sheet set in a frame has the advantage of lightness over the glass plate; an ordinary, four post iron piping frame with side pelvis clamps furnished fixation with an inexpensive apparatus. An inexpensive diopter can be made by using a small wooden block, properly squared and of a size to be held in the hand, with a piece of tubing attached at one end. The surgeon looking through the tube of the diopter placed upon the upright transparent celluloid plate, close to which the patient's bared back rests, can carefully follow lines and contours without the error of change in the position of the eye, from a line vertical to the plane of record. If a pencil which can mark on glass is so placed in the block of the diopter that its marking point would strike the recording plate in the center of the inspection tube, an accurate record can be traced on the celluloid plate, from which it can be traced on tracing paper, and kept as a permanent record of contour lines of shoulder hips, the position of the points of the scapulae, and the line of the marked spines. A record of flexibility can be made if the patient with the shoulders are kept flat to the plate and the body bent sideways to either side, and the line of the marked spines traced.

The value of this flexibility test is greater than might at first be supposed.

An examination of a number of these indicates considerable variations in the flexibility of different parts of the column and enables the surgeon to determine the local increase or diminution of spinal flexibility under exercising treatment and hence beginning relapse, and the urgency of a need for the employment of measures to prevent stiffening at any special part of the spine.

Antero posterio curves need for this record a special means of tracing, for diopter tracing fails on account of the projection of the scapulae. This is obviated by using for the tracing of the back the method recommended by Wollenburg, by which the shape of the trunk as seen from the side can be noted.

The accuracy of these tracings by diopter has been abundantly demonstrated as well as the ease with which they can be taken.

It would appear that this method of testing the lateral flexibility of the spinal column is of use, enabling the surgeon to determine func-

tional defects in the spinal column not recognizable by the unaided eye, by the X-ray, or by photograph. An examination of a number of these records show a marked difference in lateral spinal mobility, which when not due to changes in bone structure, as is probable in many cases, though recognized with difficulty, indicates structural changes in the ligamentous and muscular tissue in different parts of the column, changes which can, in favorable cases, be overcome by treatment.

For recording rotation, various methods are offered for the surgeon's selection. The angle record, indicated in the accompanying illustration, is simple and the angle of rotation more easily noted than in the one more commonly used.

Photographs, pantagraphic records of cross sections of the thorax, are all of assistance, but the method mentioned has been found simpler and of satisfactory accuracy.

A record of the strength can be simply made without the employment of elaborate strength test apparatus. A record is kept of the number of times certain prescribed exercises (using dumb-bells of a certain weight) can be performed. This record can serve as a table and an index of increasing strength; multiplying the weight of the dumb-bell by the number of the exercising movements, a strength index can be noted. The exercises to be noted in such a record will vary with the spinal curve, and its muscular weakness. Recumbent dumb-bell exercises, using the movements frequently prescribed for the correction of scoliosis, will serve as a basis for a strength record as well as for systematic muscular development needed in the after-treatment of lateral curves.

The great difficulty in rational treatment encountered in cases of structural scoliosis,—is in the application of such means, as, after correction of the deformity, will prevent the assumption by the patient of faulty attitudes, without at the same time causing muscular weakness of the trunk muscles, and without being so unsightly or cumbersome as to prevent constant use for the long period needed in growing children. A rigid leather or celluloid jacket, or the ordinary back brace does not meet the complex stature conditions involved in faulty attitudes, where the surgeon with a moderate pressure of his hand can rectify a deformity, and yet hesitates to encase the trunk in a stiff corset binding the waist, necessarily weakening the muscles and inefficient in correcting rotation.

This difficulty is usually side stepped, the surgeon prescribing daily exercises, relying upon these for preventing relapse.

Exercises, however, can only be rigidly enforced for a comparatively short period each day, while the need of measures to counteract the static influences causing relapse, is in many instances constant when the patient is erect.

Various appliances have been devised, and none are entirely satisfactory,—an indication that the subject needs further investigation.

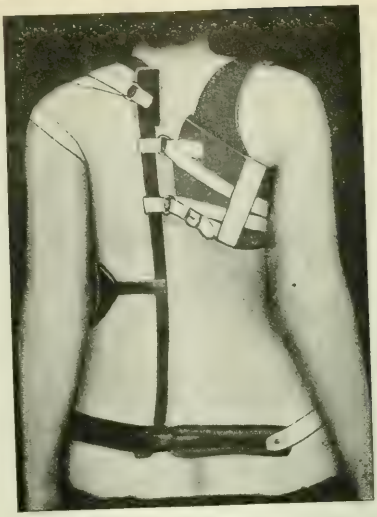


Fig. M.—Brace applied.

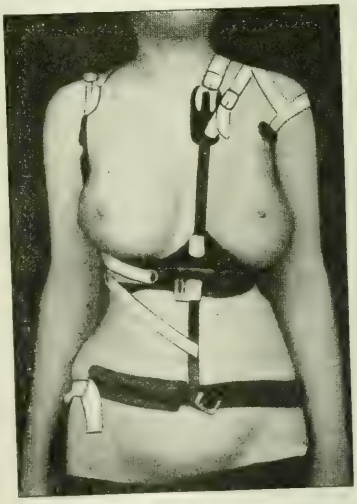


Fig. N. Brace applied. Front view.

It is manifest that there is need of pressure and counterpressure in various directions, and that this pressure be as effective as possible it should be applied exactly where the curve extends toward the upper part of the spinal column. It is mechanically absurd to apply

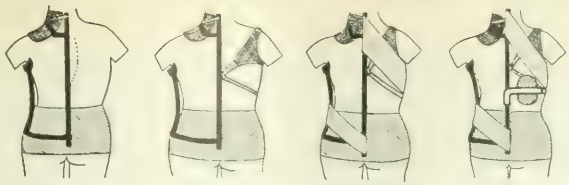


Fig. O.—Diagram illustrating check brace. 1. Showing steel upright side, crutch pelvic, and neck leather. 2. Same with shoulder strap. 3. Same with side correcting bands. 4. Same with rotation pressure pad.

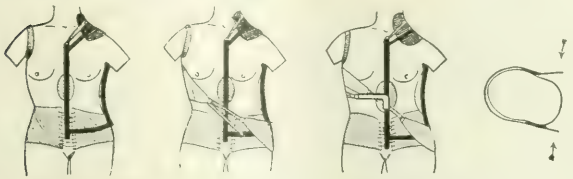


Fig. P.—Diagram of brace as seen in front with out-line showing points for rotation correction.

correcting pressure only or chiefly on the lower part of the trunk and where the column twists and it is desirous to check this. Any corset which twists with or around the trunk is inefficient.

It is better to frankly leave the patient to the correcting forces of nature than to use inefficient measures, which cause discomfort and even injure. But if the surgeon leaves scoliotic curves to chance, he must expect relapses in many cases.

It is of the first importance in a reliable check brace, meaning by this an appliance which will check a slump to faulty attitudes, that it should fit the pelvis at the hips, in order that it should not twist. This can be satisfactorily furnished if a cast is taken, and leather is stretched around such a cast. A base for counter-pressure, both lateral and diagonal, is in this way furnished, and the tendency to slip around the trunk checked.

A leather collar can be moulded at the neck for the upper point of counter-pressure, extending down to the shoulder, but, as this has a tendency to project with the patient's movement, it is better to rely upon a strap for counter-pressure, where it is important to avoid unsightliness or a conspicuous brace. A steel rod connecting the upper and the lower points of counter-pressure serves to furnish a line for lateral pressure. This should be secured to a cross-band attached to the leather around the pelvis, and should be stiff enough not to twist.

A light steel crutch, reaching from the pelvis to the axilla on one side, prevents the riding upward of the brace, and checks the patient's tendency to drop a shoulder.

Points for counter-pressure being furnished at the neck and pelvis, side correcting pressure is needed upon the ribs at the region of greatest deformity. This can be arranged by a broad strap fastened to the steel upright at a desired point; can if secured by a strap to the pelvis leather be made to exert any desired amount of counter-pressure.

Where one shoulder is held high with projection of the scapulae, this can be checked by means of a shoulder strap, which passing around the back uprights is secured in front, pulling the shoulder back and down.

In front the neck and the pelvis leather should also be connected by a steel upright to give steadiness, and, if furnished with a leather pad, can be made to exert pressure upon the front projecting ribs.

In a majority of such cases, it is also necessary to check rotation of the ribs. This must be done by pressure, exerted in such a way that it will not also compress the flattened parts of the chest.

Cross steel straps attached to the uprights and furnished with pads can be arranged like a clamp to press upon the projecting ribs without crowding the depressed portion of the trunk.

An appliance of this character needs careful adjustment at first, but can be regulated by the patient or nurse, and does not interfere with activity, and is not noticeably disfiguring. It will prevent the patient's tendency to slump into a faulty attitude. As it is removable, it can be worn only for such a portion of the day as is necessary to correct the greatest tendency to slump, or it can be used constantly, removed only during the gymnastic period. It furnished the maximum amount of pressure with the minimum amount of injurious muscular constriction.

As there is comparatively little objection on the part of the patient to a light apparatus of this character, correction can be employed as

long as may be required in the child growing period.

Little need be said here as to special muscular exercises needed in these cases as so much has already been written upon the subject. It is sufficient to say that bumb-bell exercises, if properly directed, can serve excellently for special muscular development by daily home exercises; they can be simple and suited for home direction.

Something more than muscular exercises and check braces are needed in the more obstinate of these cases.

A constant tendency of certain ligaments to lose elasticity exists when faulty attitudes are constantly assumed. This danger of adaptive change in ligament and fascia is to be counteracted by daily correction or over-correction of a faulty curve.

This can only partly be effected, and in some instances not at all, by muscular exercises, and should be made when the muscles are relaxed in order to overcome muscular resistance. Correction of this sort must be accurately applied, and should be of such a character that it may be made a part of the daily home routine.

An arrangement indicated in the accompanying illustration will be found to have certain advantages for home correcting exercises.

It consists of an oblong piping frame with cross cloth straps for head, shoulder and pelvic rests for the patient, who kneels head downward in the frame; side straps with weight pulls to keep pelvis and trunk in a correcting direction, and by means of a lever with pressure attachment the twisted thorax can be over-corrected at any desired section. The amount of correcting pressure can be easily regulated.

This arrangement for daily correction can be used also in the application of corrective plaster jackets, and it will be found of advantage for this purpose in many cases, especially in the higher curves.

The avoidance of conditions favoring faulty attitudes is advisable in the after treatment of spinal curves, corrected, or in the earlier stage of development.

The avoidance of sitting for long periods without the interruption of a period of active play, the enforcement of a period of flat recumbency or the prone position to rest the back muscles, serve as an aid to prevent a habit of faulty attitudes. Lounging in large, or deep, or broad seated chairs, is to be avoided, as it favors a twisted attitude. Expensive, especially made chairs, are not necessary. A narrow seated stool or chair with proper attention to the length of the legs can answer for study or any occupation requiring a seated position for some time.

Night corrective appliances are as a rule not necessary for cases of structural scoliosis after the stage of plaster-of-Paris correction, nor in the slighter flexible cases. If this is not the case, the appliances mentioned can be worn as a night appliance with but slight alteration and padding to protect the night clothing. It is not more uncomfortable than a plaster jacket.

Certain facts are to be held in mind by those treating cases of fixed spinal curves.

The best method of correction is by properly applied plaster jackets. But correction of the curve is not curing the patient and gymnastics are adjuvants in treatment, but not to be relied upon exclusively when a relapse is threatened.

Check braces are of assistance if they prevent slumping and faulty attitude. Such braces should be efficient and prevent slumping of the spinal column and the assumption of faulty attitude and not be waist or thorax compressing corsets.

As there is a tendency to relapse during growth, inspection and treatment may be needed for a long period. As the patient has rights, ugly, heavy disfiguring appliances should not be applied for an indefinitely long period.

To be honest with himself the surgeon should in watching the most chronic of surgical ailments keep accurate records and measurements of contour, flexibility, curve and rotation to enable him to detect relapse definitely and to note gain positively.

PLASTER OF PARIS JACKET CORRECTION.

Sayre's plaster of Paris jacket proved of unestimable value in the treatment of caries of the spine, but the benefit obtained in scoliosis from head suspension and plaster jackets applied in this position was not so marked; but it has been abundantly demonstrated that a steady pressure correcting and constantly applied will correct curves in scoliosis and that a properly applied plaster jacket furnishes a suitable means for such pressure.

Various methods have been suggested for the suitable application of jackets, and as the curves vary considerably, difficult methods of application will be needed.

Manifestly the maximum of endurable pressure should be exerted upon the convexities in the trunk while no pressure should be placed upon the hollows, which will gradually expand in respiration if freed from pressure while the rest of the chest is compressed.

The best method of application of plaster jackets are those giving the patient the least discomfort, the surgeon the greatest convenience, while placing the patient in such a position that correction will not present unnecessary obstacles, *i. e.*, the patient should be recumbent rather than standing, that the superimposed body weight should be eliminated as a factor. Whether the best position is with the patient upon the back, face or side, depends largely upon the seat of the curve, high dorsal, low dorsal; lumbar; in the higher curves a position upon the face seems preferable and in the lower upon the back, in the higher curves the jacket

should reach above the shoulder on the side of the dropping shoulder.

The writer has found the kneeling position of service, the shoulders and pelvis being fixed with side pressure correcting curves and strong pressure upon the most prominent part of the deformity with counter-pressure arranged as needed.

No difficulty is met with in providing any amount of correcting pressure; the patient's endurance is the limit of feasible application.

Removal jackets are much less effective than permanent ones as means of correction, but they become necessary where the maximum amount of correction has been reached to prevent muscle weakening by daily exercise.

Removable leather jackets exerting constant correcting pressure, and light supporting braces are effective but not disfiguring, and worn for a long time make with proper gymnastics a systematic treatment possible, continued through the growing years if necessary. The nature of the treatment will depend upon the progress of the case which can be determined by careful records. It is to be remembered that while the bones of the spinal column are lacking in resisting structure and bear the superimposed weight of the body and while faulty attitude persists either from an anatomical defect or from habit or muscle weakness, after correction of curves, recurrence must be guarded against.

A KNOWLEDGE OF THE USE OF APPARATUS.

An obstacle to the more general study of the special branch known as orthopedic surgery has been the need of readiness and skill in the prescribing and applying suitable apparatus. This is not absolutely necessary in practice.

The surgeon can correct deformities by operative measures or by the use of plaster of Paris bandages, and be entirely independent of the instrument maker. At the same time in a large number of cases better results can be obtained as in other branches of surgery if the orthopedic surgeon is thoroughly familiar with the best implements for the readiest accomplishment of certain desired results.

The first essential in an apparatus is that it should be efficient, *i. e.*, that it should meet the mechanical indications in the most direct and thorough way.

The second requirement is that it should be as comfortable to the patient as possible.

A third, that it should be simple and readily applied by the attendant, nurse, or mother.

Great improvement has in the last 30 years been wrought in the simplification of appliances and at present the experience in our hospital clinic, where the orthopedic appliances used are made under the surgeon's direction, will give the necessary knowledge.

A surgeon, however, who has not mastered the details is as poorly equipped in his art as an artist who has not mastered his palette. The surgeon needs to be able to adapt apparatus to the need of the individual case.

In practice there is a natural tendency at a large clinic to neglect the careful use of appliances, which require some experience and skill, and to rely on the use of plaster of Paris bandages, the application of which are often relegated to a subordinate, or are more easily applied than is the case with apparatus. There is to the mind of the surgeon, as ordinarily trained, a prejudice against the use of apparatus with joints, straps, and buckles. This prejudice is not only unfounded but based largely on the supposition that a knowledge of the use of appliances is something which is with difficulty acquired. Although plaster of Paris bandages have many advantages they are not without marked disadvantages, and no one undertaking the practice of orthopedic surgery should fail to familiarize himself with the careful use of appliances.

The early establishment of a shop in direct connection with the Hospital with workmen under the control of the surgeon proved of great advantage in the treatment of deformed children at the Children's Hospital.



No. 44.—Torticollis, right.

Driscoll, age 5. Date of admission, Aug. 28, 1896. Date of discharge, Sept. 3, 1896. Duration, 3 years. Since birth. Operation, Aug. 28, 1896. Incision, myotomy, plaster. Result 10 years later.

A retrospect like this would be incomplete without a few words as to the probable future of orthopedic surgery as a specialty. It was certainly justified itself in the past by its record of advance in the care and better treatment of a considerable number of affections previously regarded as practically incurable or treated with great difficulty. But the question is pertinent whether in the future the prevention and

cure of deformities will not form a part of the work of the general surgeon. Specialization is to be condemned unless justified by definite reasons; surgery is surgery-healing by means of the skilled hand. But there is a great difference in the skill needed by the operator who attempts to overcome a disease by a surgical feat and that required in the management of cases where special treatment is needed, for months or even years, before, after or in place of an operation. It is doubtful if any surgeon can become a leader in both fields at once. Orthopedic surgery will, it would seem, retain its place as the surgery of chronic cases.

Ambroise Paré is right in his famous saying,—that the surgeon was but a dresser, as healing was in the hand of the Deity; but in correcting deformity, the surgeon must often match his skill against an errant nature, using the laws of growth against the faults of growth.

VI.

Infantile Scorbutus.

By John Lovett Morse, A.M., M.D.

There has been a rapid and progressive increase in the number of cases of scurvy coming to the Medical Out-Patient Department of the Children's Hospital during the last four years. This increase has been not only absolute but also relative to the total number of cases, as is shown by the following table:—

TABLE I.

Year.	Number of New Cases.	Number of Cases of Scurvy.	Percent.
1904	2,579	3	0.11%
1905	2,533	11	0.43%
1906	2,288	4	0.17%
1907	2,075	7	0.33%
1908	2,407	6	0.24%
1909	2,062	5	0.24%
1910	2,311	11	0.47%
1911	1,967	12	0.61%
1912	1,932	13	0.67%
1913	2,416	21	0.87%

An analysis of the foods taken by the babies suffering from scurvy during the last ten years was then undertaken to determine, if possible, the cause of this increase. The data in the records were, unfortunately, in many instances, incomplete. The food taken by these babies at the time of the appearance of the first symptoms of scurvy is shown in the following table. No data as to the food was given in the others.

TABLE II.

Condensed milk mixed with water or gruel	4
Proprietary foods mixed with water	14
Proprietary foods mixed with milk—raw	1
pasteurized	1
boiled	7
no data as to heating	7
Proprietary foods, no data as to milk or heating	10
Milk, plain, diluted with water or cereal diluents, or modified—pasteurized	5
boiled or scalded	23
no data as to heating	14
Breast-fed	3
Total	89

A summary of the above figures shows that 18, or 20%, were fed on "stale" foods, that is, condensed milk or proprietary foods mixed with water. 44, or 50%, were fed on either proprietary foods or condensed milk. In the 37 cases in which milk was used either with or without proprietary foods and data given as to whether it was heated or not, the mixture was given raw in one, or 3%; pasteurized in six, or 16%; boiled, scalded or sterilized in 30, or 81%. It is probable that the milk was boiled in at least one-half of the other cases in which milk was used with proprietary foods, because the directions on the can containing the food used in these cases call for boiling. It is also probable that in a considerable proportion of the cases on modified milk prepared at milk laboratories the mixture was pasteurized.

It would appear from these figures that proprietary foods, "stale" foods and the heating of milk to the temperature of pasteurization or higher, may all play a part in the etiology of scurvy. The fact that three cases developed in babies taking only breast-milk shows, however, not only that no one of these can be the exclusive cause, but also that there must be some other cause. The most striking fact in these figures is, however, that 54 of the 58 cases, or 93%, in which there are data as to the "freshness" of the food, were fed on foods which were not fresh, that is, containing either no milk or cooked milk.

It was thought that a comparison of the feeding of the individual infants in a year at the beginning of the investigation and in the last year might show something as to the cause of the increase in the frequency of the disease. The following table shows the foods taken by these babies in 1905 and 1913.

TABLE III.

1905.

1. Mellin's Food. No data as to milk or heat.
2. Modified milk. No data as to heat.
3. Modified milk. No data as to heat.
4. Malted milk. No data as to milk or heat.
5. Mellin's Food mixed with condensed milk and water.
6. Sterilized milk, shredded wheat, oatmeal, barley.
7. Condensed milk and oatmeal gruel.

8. Malted milk and barley gruel.
9. Malted milk and water.
10. Mellin's Food with milk and water. No data as to heat.
11. Breast.

1913.

1. Modified milk. Boiled.
2. Modified milk. Boiled.
3. Modified milk. Heated. Temperature not given.
4. Milk and water. Boiled.
5. Milk. Boiled.
6. Nestle's Food. No data as to milk or heat.
7. Modified milk. No data as to heat.
8. Milk and barley water. Sterilized.
9. Mellin's Food, milk and water. Made with pasteurized milk.
10. Condensed milk.
11. Eskay's Food, milk and water. Boiled.
12. Milk and water. Boiled.
13. Eskay's Food, milk and water. Boiled.
14. Breast.
15. Modified milk. No data as to heat.
16. Milk and water. Boiled.
17. Modified milk. 155° F.
18. Mellin's Food, milk and water. Boiled.
19. Milk and barley water. Mixed hot.
20. Modified milk. Made from pasteurized milk and boiled.
21. Milk and water. Scalded.

It appears from these figures that the proportion of babies fed on the proprietary foods in 1913 was much smaller than in 1905. It hardly seems reasonable, however, to draw the conclusion from this fact that babies fed on milk are more likely to develop scurvy than those fed on the proprietary foods. It seems more reasonable to suppose that something was done to the milk in 1913 that was not done in 1905. It is striking that boiling of the milk was very common in 1913. Unfortunately, the data as to the heating of the milk in 1905 are very incomplete, so that a comparison is impossible. The number of cases is, moreover, too small to justify any conclusion.

The disproportion between the number of cases fed on raw milk and heated milk and the great preponderance of cases fed on heated milk in 1913 suggested strongly that the heating of milk might play an important part in the etiology of scurvy. It also raised the question whether the large number of cases on heated milk in 1913 was simply a coincidence or whether there was some general factor of heating present in 1913 and not existent in 1905. It was thought that such a factor might be found in the more general pasteurization of the milk supply of Boston in recent years. There has been a rapid increase in the amount of pasteurized milk used in Boston during the last few years, as is shown by the following table:—

TABLE IV.

Year.	Percentage of Milk Pasteurized.	
1908	33.58	
1909	30.68	Approximate; probably too low.
1910	63.50	
1911	73.02	
1912	70.59	Approximate; probably too low.
1913	80.00	Estimated.

A comparison of the percentage of milk pasteurized in Boston and of the percentage of cases of scurvy to the total number of cases coming to the Medical Department of the Children's Hospital during the last ten years is instructive and suggestive.

TABLE V.

Year.	Percentage of Cases.	Percentage of Pasteurized Milk.
1904	0.11	
1905	0.43	
1906	0.17	
1907	0.33	
1908	0.24	33.58
1909	0.24	30.68
1910	0.47	63.50
1911	0.61	73.02
1912	0.67	70.59
1913	0.87	80.00

The figures given in this table do not, of course, prove positively that there really has been an increase in the number of cases of scurvy in the community during recent years or that, if there has been such an increase, it is due to the introduction and progressive increase of the commercial pasteurization of milk. Neither do they prove that the heating of milk, whether to the temperature of pasteurization or boiling, has anything to do with the etiology of scurvy. They do suggest, however, that there may be some such connection and justify further study of the subject on a larger scale.

Symptomatology. An analysis of the symptomatology of these cases was undertaken, but was not very satisfactory because of the meagerness of the records in many instances. The results of this analysis are given, however, for what they are worth.

The first symptom noted was:

Crying on handling	69
Paresis	11
Swelling of legs	5
Abnormality of gums	2
Ecchymoses	1
Bloody urine	2
"Failing"	1
Condition discovered at Hospital	2
Total	93

The following symptoms were noted at the examination, or were given in the history of the patient. They are undoubtedly incomplete, but presumably show something as to the relative frequency of the different symptoms.

Tenderness of the legs and crying on being handled	93
Swelling of legs (thighs 10, lower legs, 15)	25
Swelling of the arms	3
Loss of power in legs	20
Rigidity of legs	15
Inflammation of gums	37
Discoloration of urine or staining of diapers	6
Swelling of eyelids	1
Ecchymosis of eyelids	1
Ecchymoses	9

Errors in Diagnosis. The diagnosis of inflammation of the joints had been made in one of these cases, of fracture of the thigh in another, and of tuberculosis of the spine in still another. These figures do not give a correct impression, however, as to the frequency with which this disease is overlooked or mistaken for some other condition. This disease was recognized by the attending physician in but four of thirty-seven cases seen by the writer in consultation or at his office in the last five years. It was overlooked entirely in twelve, while the following diagnoses were made in the other cases:—

Rickets	1
Rheumatism	4
Injury to spine	1
Disease of spine	1
Diphtheritic paralysis	1
Infantile paralysis	3
Acute nephritis	5
Tuberculosis	1
Teething	1
Injury to leg	2
Inguinal hernia	1

It is evident, therefore, that in spite of all that has been written and said about infantile scorbutus during the past fifteen years, there are still many physicians who are not familiar with the disease or who, if they know of it, are unable to recognize it. A campaign of education is, therefore, necessary, especially in view of the fact that the disease is apparently on the increase.

VII.

Inguinal Hernia in Children.

By James S. Stone, M. D.

In the Children's Hospital since the establishment of the Surgical Service, 1019 cases of inguinal hernia have been operated upon.

This paper is based upon a study of these cases; the purpose being to present broad conclusions. Details of cases and details of treatment are given solely with the purpose of making the conclusions clear and of emphasizing points more commonly seen in children than in adults.

Etiology. It is today generally recognized that certainly in children the existence from birth of a patent sac is the common cause of hernia. The evidence of this congenital origin of inguinal hernia rests mainly upon the anatomical conditions which are practically invariably present. The structures of the cord, the vas and vessels, lie spread out upon the posterior surface of the sac and most intimately connected with it. In girls the anatomical conditions are practically always analogous to those found in boys. The round ligaments and the vessels lie spread out upon the posterior surface of the hernial sac.

The frequency with which a small hernial sac is found in association with a hydrocele of the cord is also evidence of the congenital origin of hernia. Instead of a sac patent from the peritoneal cavity to the tip there has been an obliteration of the sac at one or more spots. Very frequently indeed there is at one or more places in the sac a partial obliteration with the formation of a fibrous ring, often very adherent to the surrounding structures of the cord. Such conditions could not possibly be produced by the pushing out of a sac by any intra-abdominal force.

Confirmatory evidence of the congenital origin of hernia is found in other facts.

First. A very large majority of all cases occur on the right side. The left testis descends first and farther than the right. Thus there is a longer time and better opportunity for obliteration of the funicular process on the left. The patent sac is more common on the right.

Second. The sudden appearance of a hernia without adequate cause unless there existed a sac ready to receive the hernia. This condition is very common in both children and adults.

Third. The readiness with which a hernia at times develops the moment that for any reason fluid accumulates in the peritoneal cavity, while in other cases fluid can be present for months without the development of a hernia. In the one instance the fluid finds its way into and distends an existing sac. In the other instance the pressure of the fluid is not sufficient, although acting like a hydraulic press, to cause any yielding of the canal.

Fourth. The finding at autopsy or at operation for other conditions of a patent but empty sac.

If hernia is due to the existence from birth of a patent sac, the obvious question is why does the sac frequently remain empty so long. It may be so for months or years, even to adult life. In order to have anything enter the sac three conditions must exist simultaneously. First, there must be a relaxation of the muscles which naturally guard the entrance to the sac. Second, the other muscles of the abdomen must be tense in order to push anything into the sac. In the third place there must be something opposite the entrance to the sac able to pass into it.

It is most unusual to have some of the abdominal muscles tense and others relaxed. Hence the first two conditions seldom coexist. The third condition is more readily obtained, but is still important. A distended loop of bowel would not enter the sac readily. Neither would a flat portion of the omentum. A tab of omentum might easily enter. Fluid always enters readily. Much of the intestine has a mesentery

so short as to prevent it from entering a hernial sac.

Though almost all cases of hernia in children are due to the existence from birth of a patent sac it seems probable that other factors must be recognized, which apply both to children and adults. In infantile atrophy and frequently in old age there is an absorption of the fat which normally fills up the inter-spaces between the surrounding muscles and the tissues passing through the inguinal canal. There is at the same time an associated weakening of all the muscles, including those which guard the entrance to the inguinal canal. Any straining will under these conditions gradually push down a hernia. A hernia may occasionally be seen to develop in an atrophic baby, and the same thing may be seen in old age. The loss of the fat has given a point of vantage for the development of a hernia.

There remain some cases in which a hernia may develop gradually in strong individuals as a result of hard muscular work; the yielding of a weak point. There have been no cases seen in children in which this seems probable. It may explain the frequency with which men lifting and handling heavy and bulky objects have hernia.

In reviewing the histories of patients no special diseases seem to have any influence in causing hernia.

Diagnosis. In adults the existence of the tumor is the usual basis for the diagnosis. When not present the impulse on coughing, especially when the finger is inserted within the inguinal canal by invaginating the scrotum, is the common basis for diagnosis.

In children conditions are wholly different. Often the tumor makes the diagnosis perfectly obvious. Frequently, however, the mother has seen a tumor which at the time of examination is not present. In making the diagnosis of hernia one must first make sure that the testes have descended. If they are normal and the hernia is not down the diagnosis then must rest absolutely on the detection of the hernial sac. If it is present there is a potential hernia, and presumably the tumor noticed by the mother was a hernia.

In children little can be learned by invaginating the scrotum to get the finger into the canal. The testis frequently retracts above the finger. The canal is usually small unless the hernia has descended frequently and thus stretched it. The presence of the sac is to be determined by touch. On each side the structures of the cord are to be felt; the vas and the vessels. On each side they are ordinarily of approximately the same size. In cases of hernia the empty sac must be felt. The sac adds little to the size of the cord, but materially alters the feeling of the cord.

If the middle finger is held flat directly over the external ring parallel with Poupart's ligament, and the skin is then gently slid from side to side toward Poupart's ligament and away from it, the cord, including the vas and vessels, and the structures which enclose them, may readily be felt rolling under the finger. If there is no hernia the cords feel alike on each side. If there is a hernia on either side the sac is to be felt in addition to the cord. The feel of the sac rolling under the finger is to be compared to that of a small thin wet rubber finger cot. Something smooth and slippery rolls under the finger in addition to the vas and the vessels. The feel of the mass of veins of the cord is somewhat similar to that of the sac, but practice readily enables one to differentiate the two. One should feel in this way for the sac with the patient standing in case it cannot be felt while lying down. Standing frequently allows a little fluid to enter and distend the sac. In trying to feel the sac in this way the position of the finger held constantly flat against the abdominal wall is important.

Differential Diagnosis. In adults variocele and hydrocele are the tumors which must be differentiated from hernia. In children variocele is almost unknown. In one case the diagnosis of variocele was made. The mass was an adherent omental hernia. Variocele may follow a too tight operative closure of the canal. Hydrocele of the tunica vaginalis is not at all uncommon in infancy. It often exists at birth, frequently disappearing within a few months without special treatment. There is no reason for a mistake in diagnosis. As in adults the tumor is translucent. It is painless unless due to injury or infection or unless the tension is extreme. But the essential diagnostic feature is the absence of any direct connection other than the normal cord between the swelling in the scrotum and the peritoneal cavity. Encysted hydrocele of the cord is, however, very common indeed in children. It is in differentiating hydrocele of the cord from hernia that the greatest difficulty arises. While the difference is often of relatively slight practical importance, yet mistakes made are often very annoying.

Hydrocele of the cord may be unilocular or multilocular. It is usually associated with a hernial sac, frequently very small. The more carefully the cases are observed, both clinically and at operation, the more often does one find that the hydroceles are multilocular and that there exists also a hernial sac.

The most reliable means of distinguishing hydrocele of the cord is the ability to grasp it and move it up and down and from side to side without the restraint which would be inevitable were there anything beside the cord and vessels which connected the mass with the abdominal cavity.

A hydrocele of the cord which has retracted within the canal cannot be differentiated from a hernia unless it is drawn downward suffici-

ently to get a finger above it and find no abnormal contents of the canal.

There have been a few instances of suppurating hydroceles of the cord. The tumor in such cases resembles closely an abscess originating in a lymph node. On the other hand the location of the tumor is distinctly along the inguinal canal rather than just outside it along the course of the lymph nodes. The history of such a tumor is different from that of a bubo. The mass may have been noticed along or outside the inguinal canal for some time, giving no particular trouble until inflamed.

The differentiation between such a mass and a gangrenous strangulated hernia must be made on general grounds. The absence of the intestinal obstruction and of the profound shock which accompany such a hernia are sufficient.

On the other hand, in these cases there is a distinct danger from the suppurating hydroceles of the cord. Very often the partition between the hydrocele and a hernial sac above it or between the hydrocele and the peritoneal cavity is an extremely thin membrance. The risk under such circumstances from rupture internally and peritonitis is obvious.

It would seem at first sight as though hydrocele of the cord which was suppurating would heal completely if drained and packed. Obviously no other treatment is wise at the time. On the other hand, the hydroceles are often multilocular and often associated with hernial sacs. It is therefore wise as soon as the inflammation has subsided to examine carefully to determine the presence or absence of other hydrocele sacs or of a hernial sac. Then the choice may be made of a radical operation or of waiting for symptoms to arise.

Undescended Testis. In children, especially in those under eight or ten years of age, it is necessary to define exactly what is meant by undescended testis. The extreme mobility of the testes in infancy and early childhood must be recognized.

In a great many instances children are brought for an operation because the mothers, never the fathers, think they are not quite properly developed. In many the testes are of normal size and may be either just within or just outside the external ring. The scrotum is empty. If search for the testis is made from below upward it recedes out of reach within the inguinal canal. In such cases, and whenever there is any doubt, the examiner must always begin by making firm pressure at a point over the inguinal canal just above the external ring. In this manner the testis if in the canal is felt, and if outside the canal is held there by the pressure of the finger so that it may be grasped from below with the other hand. If the testis is felt in the canal it may frequently be pushed downward with the finger and then grasped from below. No testicle which can be drawn or pushed down into the scrotum is to be regarded as undescended. No such testis requires treatment unless under most exceptional circumstances.

Occasionally if extremely retracted the testis may become more or less pinched. Thus there may be sufficient irritation to cause continued spasm of the cremaster muscle and long continued retention of the testis high up toward if not within the inguinal canal. Considerable pain in the inguinal region may result. The testis thus held tight within the canal may become slightly tender. Rest in bed for a few days relieves such a condition. A testis thus strongly retracted may be drawn within the abdomen. In the same manner a normal testis may be pushed back into the abdomen in childhood. In one instance a normal testis so pushed back by the patient never descended again.

Treatment. It has become the rule of the hospital to advise operation in practically every case. Palliative treatment holds back a hernia. It does not effect a cure.

The obliteration or the excision of the hernial sac is the essential factor in a cure. On this fact are based the dangerous and uncertain methods of treatment by the injection of chemical irritants.

In many instances after prolonged use of a truss the hernia does not again appear. But the longer these patients are followed and the more carefully they are studied the fewer become the cases in which one finds that the hernial sac has become obliterated. While the sac remains patent there is always a potential hernia. The risk of such a potential hernia depends upon the proximity to skilled surgical aid in case of need.

As the children are brought to the hospital the practical question which arises is whether there is any contra-indication to operation. If any exists some form of truss is advised. If there is no contra-indication operation is advised. Largely on account of the lack of beds for infants operation is usually performed after the child is two years old. But entirely independent of that consideration unless special reason arises operation is not usually advised until after the babies are weaned and have a good start in life. The risks from operation, slight as they are, seem less in the older children.

Palliative Treatment. In patients waiting for operation or in whom operation is inadvisable the worsted truss is ordinarily advised unless the child is over three years old.

The advantages of the worsted truss are that while almost always efficient it cannot exert injurious pressure. It can be washed. The baby can be put in the bath with the truss on. When the baby is dry and quiet the wet truss may be replaced by a dry one and the one removed may be cleaned and dried for use again.

The method of application is of considerable importance. The skein of yarn is so placed that one end of the loop comes directly over the ex-

ternal ring. The other end is then carried outward around the affected side, brought behind the back above the buttocks and then forward across the abdomen to be passed through the loop placed over the external ring. The free end is then carried under the tuberosity of the ischium of the affected side and brought upward to be tied at a point over the sacro-iliac joint to the skein as it crosses the back. The location at which this tie is made is important. If too far out flexion of the thigh loosens the truss. If too near the median line the worsted slips between the buttocks, irritates the parts and becomes dirty. At the sides the worsted passes above the great trochanter and below the crest of the ilium.

Usually one skein of the white Germantown yarn is used. Less is seldom sufficient. More may be needed in a hernia hard to hold back. A skein may be applied to each side in cases of double hernia.

Operative Technique. The incision, seldom over an inch and a half long and often less, is made parallel with Poupart's ligament, and with the center directly over the upper angle of the external ring. The position of the external ring should always be located by touch just before the cut is made.

The first possibility for error lies in confusing the deep fascia and the aponeurosis of the external oblique muscle. They are always separated by a distinct layer of fat. The fascia, owing to the fat beneath it, is much more readily lifted up with forceps than is the aponeurosis, which is intimately connected with the underlying muscles. After the surface of the external oblique is cleared there is no difficulty in recognizing the external ring—if in no other way, by the intercolumnar fibres running across the upper outer end.

If, however, the incision is a little too near the median line, the hole in the aponeurosis through which the ilio-hypogastric nerve passes is exposed, and if large may be mistaken by an inexperienced operator for the external ring. Thus misled, the search for the sac may be carried down near the lower end of the semilunar line. In one patient whose hernia had not been cured at first, a second operation showed the inguinal canal untouched, while the scar was found in the region mentioned.

The anterior surface of the aponeurosis should be neatly cleaned of fat and cellular tissue. Then the canal is exposed thoroughly by slitting the aponeurosis of the external oblique upward and outward in the line of the fibres as far as the place where the edge of the internal oblique and transversalis muscles spring away from Poupart's ligaments. Care is necessary to avoid cutting the ilio-inguinal nerve, which usually lies directly beneath the line of the incision in front of the cord and its coverings. The nerve is not to be confused with the vas, which practically invariably lies among the vessels on the posterior surface of the sac.

Before more is done the under surface of the split aponeurosis is separated on the inner side from the underlying internal oblique muscle and on the outer side from the cremaster muscle and cellular tissue down to Poupart's ligament. The cremaster muscle lies exposed in the bottom of the wound. It should be seized with two pairs of forceps at the lower central part of the canal and drawn downward and inward. The fibres are thus put upon the stretch, and may readily be split down to the sac or the fibrous tissue surrounding it. Thus the most readily isolated upper middle part of the sac is exposed first.

In dissecting the sac free from the surrounding tissues one should invariably get down to the peritoneum before attempting to separate the surrounding tissues. When the peritoneal layer is reached it has a definite blueish color. If fibrous tissue still remains the color is more white. If the peritoneal layer of the sac is reached the other structures of the cord are readily separated. If dissection with gauze is used great care is necessary not to put any tension on the delicate vas deferens. It may be torn if stretched by careless dissection.

If the dissection is kept close to the peritoneum no blood vessels need be injured. The vas should not be touched directly. Extreme care is necessary to avoid any handling of either testis or epididymis. Ecchymosis or oedema of the scrotum does not occur in cases in which care is taken to keep absolutely to the peritoneal layer in dissecting free the sac.

Swelling of the testis or epididymis does not occur unless these structures or the vas have been roughly handled, or unless gauze or something rough has come in contact with the serous surface of the testis.

The chief hindrance to easy dissection of the sac lies in the frequent occurrence of fibrous rings adherent to the surrounding tissues; places at which there has been a partial closure of the funicular process. The sac is to be freed until it becomes somewhat fibrous in the region of the internal ring, which usually is an imaginary structure, and until the extra peritoneal fat is reached. The empty sac, drawn strongly out, is perforated at the neck, tied in each direction and cut away. The stitch, still attached to the stump of the sac, is then drawn out into view. With this as a guide the needle on the stitch follows the stump of the sac as it is allowed to recede behind the internal oblique and transversalis muscles. The needle is then brought out through these muscles and through the aponeurosis of the external oblique at a point slightly above and to the inner side of the upper end of the slit in the last structure. Thus the puckered peritoneum at the neck of the sac is drawn up behind solid muscle, while smooth peritoneum is stretched across

the region of the canal. The stitch is temporarily laid aside.

Usually three interrupted stitches are then placed to unite the borders of the internal oblique and transversalis muscles to Poupart's ligament. They are all placed in front of the cord. Thus the length and breadth of the canal are decidedly decreased. The angle between Poupart's ligament and the edge of the muscles at the inner side of the canal is frequently wide, especially in a hernia of long standing. This angle is of course at once closed by the operation.

For many years the cord has not been transplanted unless for some special reason. In the Bassini operation, with transfer of the cord and vessels, relapse was rare, but when it did occur it was always at the upper angle of the old inguinal canal, the point at which the cord and vessels were brought forward through the deeper part of the abdominal wall. Those who still transfer the cord usually guard against relapse by passing one stitch above the cord and vessels. They do not carry the lesson taught by relapses to its logical conclusion.

Operative Complications. Certain complications have arisen during operation. In girls with ovaries which have descended into the canal the ovarian vessels must first be separated from the sac, as in an ordinary hernia, and then after excision of the sac the ovary and its vessels must be either sufficiently freed to permit their replacement en masse within the abdomen, or in case the vessels are too intricately connected with the walls of the canal they must be rolled back into the abdomen.

There have been a very few cases in which mesenteric vessels required similar treatment. In one instance a portion of the bladder pushed into the canal. In treating these conditions the object sought has always been a complete removal of the peritoneal sac and a replacement of the other structures uninjured within the abdomen.

One exception has been made to this rule, in a case already repeated in the *Annals of Surgery*. A patient with absolutely normal female external genitalia had an inguinal hernia first on one side and then on the other. On each side a normal testicle was found and removed.

Many cases have been complicated by incomplete descent of the testes. No children have been operated upon in whom the testis had not at least entered the inguinal canal. In general, with incomplete descent of the testis operation has been postponed till well toward puberty, provided the hernia was not giving trouble and provided the position of the testis did not subject it to injury. The object sought by operation has been the separation of enough of the sac to form a tunica vaginalis, the closure of the peritoneum at the neck of the sac, the displacement of the testis downward into the scrotum as far as possible. In securing freedom of the testis it has not been found that the vessels alone were short. Usually all the structures of the cord, including vas and vessels, were deficient.

It is essential for the proper development of the testis that the vascular supply should not be materially injured. The testis should not be roughly handled—if possible it should always be kept covered by peritoneum. Touching the uncovered testis with dry gauze commonly causes much more inflammatory reaction than much squeezing and traction on the protected testis. Retention of the testis in its new position has usually been secured by suture of the tissues about the vas, as it emerges from the abdomen, to Poupart's ligament.

After Care. Various methods of dressing the wound are used according to circumstances. Usually a cocoon made up of a few layers of sterile gauze, is fastened over the wound with flexible collodion. This practically protects the wound from being wet with urine, while at the same time the small amount of gauze is enough to absorb the few drops of blood which may come from the incision. Ordinarily a gauze pad and a spica bandage are applied outside of the collodion dressing. In older children no special precautions are needed to prevent wetting of this dressing. In the younger children various methods to prevent this are used. A thin rubber finger cot may be fastened about the penis with adhesive plaster. The closed end of the cot is slit and fastened to a rubber tube, which conducts away the urine. Of course the cot must be changed before the skin becomes irritated by any urine retained within it.

In some instances the penis may be placed directly in a wide necked bottle tied in place. A piece of thin rubber dam with a small hole cut in it may be placed around the penis. In infants by far the simplest method is that of Stiles—no special dressing. The baby is held on its back by loosely fastening the arms and legs to the sides of the bed. Thus the child is kept from scratching the wound. When a boy passes urine when lying on his back the stream practically always shoots upward and toward the foot of the bed. Any absorbent material stretched below the baby's feet catches the urine, and may be changed as is necessary. The bed clothes must be held up by means of some form of bed cradle.

In girls the dressing may be modified by substituting a pad of absorbent cotton placed between the thighs for the absorbent sheet placed below the feet for boys. In most cases treated in this way a small cocoon is first placed directly over the wound.

In the earlier cases the children were kept in bed for about eighteen days and were discharged at the end of three weeks after operation. Gradually this length of time has been

cut down. At the present time the children are usually kept in bed about ten to twelve days, and are discharged at the end of a fortnight. A spica bandage is usually continued for a fortnight or so after the child is discharged. Some restraint of violent exercise is generally advised for a couple of months after operation.

VIII.

A Case of Chondro-osteo-sarcoma. Amputation at the Hip.

By Robert W. Lovett, M.D.

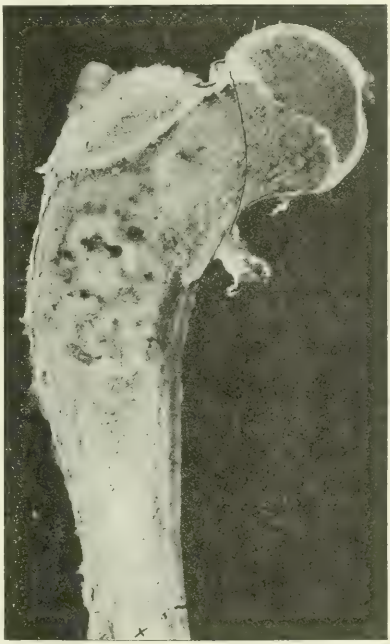
[From the Orthopedic Clinic of the Children's Hospital.]

C. P., a boy 11½ years old, was admitted to the hospital on February 24, 1913. The family history was good, and the personal history showed measles, pertussis and diphtheria seven and six years previously. There had been no known exposure to tuberculosis. In the fall of 1911, that is, about eighteen months prior to admission, while playing football his right leg had been hurt near the hip. Off and on since then he had limped. He had never had any acute pain, he had eaten and slept well, and there had been no loss of weight. The parents had noticed that the upper part of the right thigh was larger than the left.



Chondro-osteo-sarcoma of Femur.

Physical examination showed that the boy was well developed and nourished, the pupils were equal and reacted to light and distance, the throat was normal, the heart and lungs were normal, the abdomen was soft with no masses or tenderness, the inguinal glands on the right side were enlarged, and a few glands felt in the left inguinal region. Just below and anterior to the right trochanter there was a swelling about three inches in diameter, not reddened but hard and apparently connected with the bone. There was some slight tenderness on pressure over the middle of the tumor. The legs were of equal length, and there was no difference in the circumference of the calves. The thigh was 1¾ inches more in circumference over the tumorous mass than at a corresponding point on the other thigh. There was no distinct limitation of motion of either hip, although the movements in the right hip were perhaps a little less free than those in the other. Examination of the urine showed that it was acid, with little sediment, no albumin, sugar or acetone. Microscopic examination showed no casts, blood, white blood corpuscles, but a few mucous shreds. The von Pirquet skin test was positive, the leucocyte count was 6,500, the Wassermann reaction was negative. The x-ray showed a thickening of the upper



Chondro-osteo-sarcoma.

four inches of the shaft of the femur, and a rounded curve from the neck to the shaft on the outside replaced the normal angle of the trochanter. In the interior of the bone the normal structure was replaced by a somewhat globular homogeneous area both in the cortex and in the medulla. It appeared to be fairly sharply limited, and the suggestion was of a more or less encysted tumor about 2½ inches in length from above downward.

The diagnosis was a troublesome one, and we considered a malignant growth, bone cyst and syphi-

lis. Tuberculosis was suggested by the positive von Pirquet test, but the character of the lesion was not in any way characteristic, and it was regarded as unlikely. The expansion of bone present in this case was not characteristic of bone cysts, and had not existed in those of the same region that I had seen. I therefore regarded that as unlikely. The lesion was also not characteristic of syphilis. The Wassermann test was negative, and the family history negative. Although I felt that no one of these possibilities could be excluded, theoretically I was inclined to the diagnosis of a malignant tumor involving the upper part of the femur. The boy was kept in the ward for study until March 7, when it seemed wise to remove a sufficient amount of the growth for examination in order that the diagnosis might be perfectly sure, because if a malignant tumor existed amputation at the hip joint seemed the only means of cure.

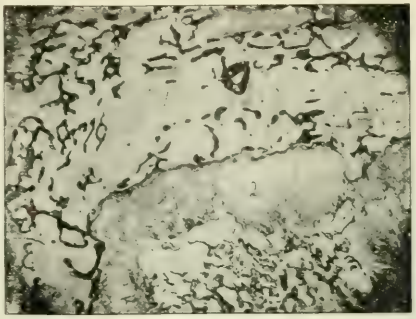
On March 7 I made an incision over the tumor growth, and with a bone gouge removed a piece of bone ¾ inch long and ½ inch thick. Periosteum was sewed over the bone removed, and the operative material sent to Dr. Councilman for examination. Dr. Councilman reported on the 10th of March as follows:

> "The tumor contains some cartilage and small areas of imperfectly formed bone. The general mass is composed of spindle cells. Nuclear figures indicative of rapid growth are few. The cells are few and compactly welded. The tumor seems to originate from periosteum. It is undoubtedly malignant, but whether it has reached the stage of generalization cannot be said."

The boy made a perfectly good recovery from the operation of March 7, and the parents were advised that amputation at the hip joint seemed to be the only treatment worth pursuing. They accepted the situation, and on March 13, 1913, the boy was etherized by Dr. Freeman Allen, who was good enough to serve on account of the character of the operation. Dr. James S. Stone was also good enough to assist me in the amputation. The Wyeth skewers were passed to hold the tourniquet, and there was very little bleeding during the operation. The only difficulty was that on account of the possible involvement of the skin on the outer surface of the femur where I had made the exploratory operation, I was anxious to remove all that material, and, to do this it was necessary to do most of the work at the inside of the femur, leaving the outer surface as far as possible intact and using the inner flap, consequently the dissection was carried on on the inside of the femur and the head disarticulated from the inside, thus removing the tissue positively infected with the tumor.

The patient suffered little or no shock, and had little temperature reaction. The father was told that the specimen carefully examined might be of use, and requested that it should be done. It was therefore sent to Dr. Councilman for examination, who reported on March 17, 1913, as follows:

> "I enclose you a photograph of the cross section of the upper third of the femur which you sent. As you see, the bone is greatly enlarged, and the interior of the bone is filled with a tumor mass that extends up toward the head of the bone at the line just beneath the epiphysis, which I have marked out in ink. Beyond that line the bone seems to be normal. I have also examined a section of the bone taken from the lower part of the medulla (at a point about six inches below the trochanter). I did not go lower down. The whole bone between the two ink lines on the photograph is to a greater or less extent infiltrated by the tumor. On the outer aspect of the thigh the entire bone is involved out to the edge of the periosteum, which you see is somewhat elevated. The pale, homogeneous masses in the centre are chiefly composed of cartilage in which there is some hemorrhage. I do not see what you could have done save amputate as you did. I think that the tumor started in the medulla of the bone in the cartilage, that it is essentially a chrondo-osteosarcoma, and it did not start from the periosteum, which is elevated and involved secondarily. There would have been, as you see, no question of shelling out the tumor or doing anything more than you did. I do not think that there is any probability of there being now or at any time in the future a metastasis from this tumor."



Chondro-osteo-sarcoma.

On April 9, 1913, Dr. Councilman wrote me again with regard to the case as follows:

> "I have been a good deal interested in the tumor of the leg, and I send you some further studies upon it. Figure 1 shows the myxomatous part of the tumor. As you will see, the cells are typically stellate, inter-communicating, and lie in a homogeneous stroma. It is an unusually fine specimen of the myxoma. The large specimen, No. 2, comes from the sharp limit of the tumor which is marked on the colored photograph of the thigh which I enclose. As you will see, the line of junction between the tumor and the cancerous tissue of the bone is perfectly sharp. The tumor is marked on the photograph 1, the normal bone 2. It is very interesting to see that the tumor here is not as sharp as it seems to be. You will notice a little island in the midst of the marrow, which is marked 3. This denotes an extension of the tumor, showing as a small island in the marrow.

You will also note on the edge of the tumor the gradual replacement of the marrow tissue. The tumor, as I conceive it, started mainly as an enchondroma, but with elements of the connective tissues superadded. This was probably congenital. As it began to grow, elements other than the cartilage gained the upper hand, and it became essentially myxoma fibroma. In the growth of this tissue both bone and cartilage disappeared. The large photograph (3) is a very low power through a portion of the cartilage and the bone. The very black masses in the upper portion of the specimen marked 1 show the remains of the bone



Chondro-osteo-sarcoma. Right Femur.

which is being absorbed, with the tumor tissue in between. The lower portion of the specimen marked 2 shows the cartilage undergoing the same sort of absorption. The specimen marked 4 is from the shaft of the bone, and it shows the growing tumor, and the bone absorption. The pale areas here represent the bone, and about these you find growing tissue of the tumor, and along the edges of the bone the absorbing giant cells or osteoclasts. The specimen 5 shows the same thing happening at the edge of the cartilage. The homogeneous areas in this represent the cartilage, which is at this point almost entirely replaced by the growing tissue. I think that your operation was a timely one, and there should be no return of metastasis from tumor, although the single point which I have called your attention to in the marrow renders this just a little doubtful."

The boy remained in the hospital until April 10, 1913, making perfectly good progress. There had been a certain amount of fat necrosis in the flap, but union occurred perfectly well, and when he was discharged there was a slight area about the size of the thumb nail which was granulating. His general condition was excellent, and he was discharged home.

IX.

Obstetrical Paralysis with Especial Reference to Treatment.

By John Jenks Thomas, A.M., M.D.

A little over eight years ago there was published in the Boston Medical and Surgical Journal an article written by me in which I reported two cases of bilateral paralysis of the lower-arm type resulting from injuries at birth. It is not my intention to say anything further at this time in regard to this rather rare form of obstetrical paralysis in the child, of which in twenty years' work at the Children's Hospital I have not seen more than a dozen cases, but I wish simply to allude to the conclusion then stated in regard to the etiology of these birth injuries of the child. As I then stated, the weight of opinion of the more recent writers, Fieux, Duval and Guillain, Schoemaker, Stolper, and Walton, and Stone here in Boston, was inclined to the view that the injury is due to stretching of the plexus in head presentations from the shoulder at the pubes being held back. Confirmation of this theory is also obtained by what has been found at operation in these cases, as in the cases reported in the excellent article of Clark, Prout and Taylor, published after my former paper was written. Dr. Stone, who has kindly operated on some of my cases, once found the plexus entirely lost in a mass of scar tissue lying at Erb's point, so that the nerve resection which we had planned had to be given up as the gap was too great to be bridged.

We may assume then that the paralyses of one arm occurring in infants during delivery are due to injuries of the plexus from stretching. In severe cases hemorrhage takes place about the plexus, or the plexus may at times be ruptured, while in milder cases there is a hemorrhage within the connective tissue sheath of the cord of the plexus with the resulting fusiform fibrous swellings described by Clark, Prout and Taylor, while probably in the mildest cases we have merely a stretching of the nerve bundle with consequent exudation within the sheath. A case illustrating this was one sent to me about nine years ago by Dr. Hunting of Quincy, where a boy of fourteen at a summer camp for boys was punished for some infraction of the rules by being made to carry a number of buckets of wet sand, which he did by placing the bucket on his shoulder, thus press-

ing the shoulder down and the head to one side, and producing a paralysis of the obstetrical type. That the severity of the injury varies in some such way as I have suggested is indicated by the varying severity and duration of the symptoms. No doubt many of the cases where the arm hangs limp by the side recover within a period of time in the neighborhood of a couple of months. If this were not so we should hardly have such varying ideas as to the seriousness of such birth injuries as we find among physicians. As a rule, I think general practitioners and obstetricians regard these cases as quickly curable. The neurologist and orthopedic surgeon to whom the severer cases come later for treatment, on the other hand, probably regard them too seriously, as extremely obstinate paralyses for which little can be done. The pediatrician probably occupies a position about midway between these two extremes.

The grouping of the muscles affected in this form of paralysis is well known as they are the muscles represented in the plexus at Erb's point, where the fifth and sixth cervical nerve roots unite to form the upper cord of the plexus, just before the supra-scapular nerve is given off. These comprise the deltoid, supra- and infraspinatus, brachialis anticus, biceps, supinator longus, and probably the supinator brevis also. The resulting paralysis leaves an arm which cannot be abducted, and hangs by the side with the elbow extended and with marked pronation and internal rotation of both the upper arm and the forearm. As time passes, even with untreated cases, a partial recovery is seen. The flexion of the forearm at the elbow is practically always regained, and also abduction of the arm from the trunk, but in even moderate cases supination of the forearm always remains poor, and the external rotation of the humerus improves least of all, which accounts for the elevation of the elbow in attempting to bring the hand to the mouth, a fact that can be easily verified by anyone by attempting to put the thumb in the mouth while the humerus is strongly rotated inward. In the older cases with this trouble we find a lack of development of both muscles and bones of the affected extremity, and indeed of the whole shoulder girdle, which is evidently secondary to the paralysis and lack of use. One fact, however, is most striking in all cases that have persisted over some three years or more, and that is the notable lack of flaccidity, hypotonia and atrophy in the affected muscles. This is very striking if one compares one of these cases with weakness of the deltoid and spinati with a case where the same muscles have been left paralysed from an attack of poliomyelitis. In the latter the flaccid, atrophied condition of the deltoid allows one to see very clearly even at a distance the bony prominences about the shoulder, and the head of the humerus, while often there is a distinct space between the head of the humerus and the acromion due to the dropping of the whole arm, while in cases of obstetrical paralysis even though the muscles are much smaller than those of the unaffected shoulder there is almost never the extreme atrophy with prominence of the bony structures so striking in the cases of poliomyelitis.

The treatment of these cases may be divided into the operative and the non-operative. Of the first I shall speak very briefly. Two procedures in general have proved useful. The operations on joints to relieve limitation of motion from ligamentous contracture, and the transplantation of strong muscles to supplement the action of weak ones, the best results being from transplanting the pectoral, or the trapezius into the deltoid; and the excision of a portion of the brachial plexus at Erb's point, and the suture of the nerve trunks, as first practised, so far as I have been able to learn, by Kennedy of Glasgow, and later by Taylor of New York. Briefly this method should not be used too early, certainly not under a year, and probably not under two and a half or three years of age, and after seven or eight years of age it probably offers very little hope of improvement. It should be reserved for the severe cases which show little tendency to improvement, or which have not been treated. Probably in a good many of these severer cases it will be found impossible to trace and excise the injured portion of the plexus because of the surrounding scar tissue as in the case operated upon by Dr. Stone of which I have spoken. In cases where resection and suture of the plexus has been done it is important to remember that the operation must be followed by exercises and training of the muscles.

The second method of treatment of which I wish to speak which we have used at the Neurological Clinic at the Children's Hospital for a number of years, may be called that by massage and educational gymnastics. This method is based upon the belief that in most cases the affected muscles in time recover some slight power over which there is voluntary control, and that the awkward movements are due to the child using the stronger muscles, and accomplishing its object by using the arm in a different way from the natural movement. That this is so I think is proved by the very moderate atrophy of the affected muscles, and the very evident contraction that can be felt in them when the child attempts to use them. Thus abduction of the arm returns in part, some of the motion being due to movement of the scapula, but also from action of the deltoid, which serves at least to fix the humerus on the scapula. With some returning power in the affected muscles the arm is still used awkwardly, because the child learns to substitute the action of stronger muscles for those of weak ones, in order to execute the desired movement. For example when the forearm is flexed in order to bring the hand to the mouth, in case there is internal rotation of the humerus, the elbow must be abducted to compensate for this internal rotation. By a system of ingeniously devised plays the very small infant can be

taught to execute desired movements in a surprising way. To be successful this method of treatment should be started when the child is very young, preferably under one month, and must be persisted in for a number of years, with gradually lengthened vacations from treatment, till the child uses the arm naturally from habit. To these educational gymnastics we add passive movements, and also massage, to prevent the formation of deformities, and to aid in the growth of the limb.

We may divide the treatment into three parts:

1. Passive movements of the joints, shoulder, elbow, wrist and fingers, best done by someone who knows the anatomical possibilities and limitations of these joint movements. These movements need to be continued until the arm has entirely recovered.

2. Massage, of the gentle kneading form, to stimulate growth, which may be discontinued when the arm keeps up in growth with the unaffected one.

3. Exercises, to induce the child to use the arm, voluntarily, which vary with the age of the child.

(a) Under the age of two months one uses gentle irregular movements, carried out by the operator, and by the mother between treatments, such as moving the baby's hand and arm in various directions in imitation of voluntary movements made by the other arm.

(b) After two months when the baby begins to notice its hands and fingers more definite exercises are employed such as bending, stretching, or spreading the baby's fingers while the operator moves her own in a similar way. Very soon, especially if these movements are accompanied by some nursery rhyme the child will begin to imitate the movement and perform it without assistance. Besides the finger movements various others are used. The hand is flexed and extended at the wrist, and then carried to the neck thus flexing the forearm; the forearm is abducted and adducted with the hand supinated and the elbow bent and held at the side; arm extension in supination, where with the elbow bent and at the side the forearm is rotated outward, but within the limits of comfort, the hand in supination, the arm is extended by the operator in the direction of the line of the forearm. The next exercise consists in the operator lifting the arm to as near a vertical position as possible, from a position of extension in supination; then from the vertical position the elbow is lowered to the side bringing the hand to the shoulder or neck. From the position with the elbow bent and at the side the arm is stretched out and returned; and the arm in the horizontally stretched-out position is swung to describe a cone. These exercises are repeated a definite number of times, from two to eight each. Then come the exercises for the two arms together. The arms are stretched sideways three or four times and then the hands carried to the head; the arms are extended upward, and then returned to the bent position; the arms form a circle in front of the body the fingers touching and then the arms are carried upward until the hands are over the head and then separated and lowered to the sides. There are numerous variations of these exercises which are used while the child needs assistance in performing them, that is till ten or twelve months of age.

(c) At this age the child begins to rebel at interference and shows plainly a desire to act independently. From that time till about two years of age it is greatly absorbed in blocks, and it can be induced to reach in all of the directions given in the previous exercises in order to get the block which it wishes for building purposes provided it cannot get it otherwise. It can also be tempted to put blocks into a box held at various points calling for the muscular action desired. A box of blocks kept especially for the lesson is found to work well in keeping the interest of the child.

(d) At about eighteen months of age the child can be induced to return to the first exercises with the rhymes, but now done voluntarily, and dumb-bells, wands, balls, bean-bags and such things can be utilized, the same movements being carried out with these objects. At two and a half or three years the child will swing on a bar, walk into the corner with arms spread out, creep up the wall with the fingers and other exercises devised to use the desired movements. The last muscles to develop are usually the outward rotators of the humerus, and the supinators. These often need attention after the arm is apparently well. The special exercise for this stage is, with the elbow bent at the side, and the forearm in supination and abducted, with a small iron dumb-bell in the hand, the arm is extended in the direction of the line of the forearm.

We have obtained such excellent results at the Children's Hospital from such a system of what I have called educational gymnastics that we have entirely given up the use of electricity in cases of obstetrical paralysis, partly because it is much less effective, and partly because the muscles which need exercises and electrical stimulation the most, namely the spinati, practically cannot be stimulated by electricity because of the overlying fibres of the latissimus and trapezius.

As illustrations of some of our results with this treatment I wish to cite three cases:

Case 1. Grace G. was first seen when three months of age. The labor had been hard and forceps were used. It was noticed very soon after birth that the left arm was not moved, but she always moved the fingers and hand, though the thumb was held in the palm most of the time. She was first seen in April, 1907. In July she could lift the arm

to the level of the mouth, but only flexed the elbow slightly, and there was still considerable pronation of the humerus and marked pronation of the forearm. In November she could flex more at the elbow, but supinated very little. By March, 1908, she could supinate about twenty degrees beyond the mid point, put the hand behind the head, and elevate fully. In September of that year she could elevate the arm to the perpendicular, put the hand behind the head, and the hand to the mouth without elevating the elbow, and supination, while the most affected movement, was two-thirds normal. In January, 1909, I have noted that supination seems to be to the full extent if the humerus is held in external rotation, and the whole trouble seems to consist in a partial loss of this external rotation. In December, 1912, when the arm was hanging by the side there was a little internal rotation of the humerus, but actively it could be rotated outward as well as the unaffected one, and all movements were normal, though at times the elbow was elevated. The left arm was half a centimeter shorter than the right, and the forearm six-tenths smaller while the circumference of the upper arms was the same.

CASE 2. Ellen P. was first seen on July 21, 1909, at the age of two weeks. The delivery had been by the breech, with no especial difficulty in the delivery of either the head or body. Immediately after birth it was noted that neither arm was moved, and that the right one was pronated but the left was not. When first seen the child had begun to move the left arm freely, but not the right one. This arm was held at the side and could not be abducted nor flexed, and was strongly pronated, while the movements of the wrist and fingers were freely made. By November the arm could be abducted to the level of the shoulder, flexion of the forearm was good, and there was some power of supination. In April, 1910, flexion of the forearm was normal, she could raise the hand to the level of the top of the head, supination was fair, and there was some external rotation possible of the humerus, though the pectoral was more tense than normal. In July, 1910, she could elevate the arm fully, and supinate the forearm completely, and the only distinct sign of the paralysis was a moderate internal rotation of the humerus, and that the child occasionally raised the elbow in putting the hand up. At the present time there is no difference in the length or circumference of the two arms, and all movements are normal.

CASE 3. Mary L. was seen first on October 11, 1905, at the age of eight weeks. There had been great difficulty in the delivery of the shoulders, and since birth the left arm had been motionless at the side except for some movements of the fingers. It could not be flexed at the elbow, was strongly rotated inward, and pronated, and there was no power of abduction. This case is mentioned because it was treated by the exercises alone, with no massage, and by April, 1909, she could make all movements well with the affected arm, and could supinate quite well, but there was considerable hanging behind in growth of the arm, though I have unfortunately been unable to find the measurements, but the difference was much more than in the cases which also received massage during the treatment, thus showing the importance of this in preventing the lagging behind in growth.

X.

ROUND SHOULDERS WITH SHORT CLAVICLES.

BY AUGUSTUS THORNDIKE, M.D.

The following is published because of peculiar features:—

Annie M., aged nine years, first came to the Children's Hospital in January, 1912. Her mother had noticed stooping shoulders since the age of four years, a condition which steadily grew worse. She had always been thin and puny. There was no lateral curvature, but the shoulders were very sloping and drooped far forward, producing a hollow chested appearance. The tips of the shoulders seemed very close to the nipples, and by measurement were less than two inches from them, while the scapulae projected like angel wings.

She began treatment at the hospital with two months of exercises. She had previously had them at home under direction of her physician without benefit. Entirely at the parents' request she entered the hospital wards to see if an operation could be done. The position of her shoulders and her general attitude is shown in the photographs. The muscles of the upper back were very little developed, while the great pectoral muscles were so stout and short that they effectually prevented throwing the shoulders back. The collar bone seemed short and the upper part of the body of the shoulderblade could be felt curving forward at a right angle to the plane of the lower portion.

Were the clavicles really short or did they seem so? I was unable to find any data relating to variations in the size of clavicles during the period of growth. We know that the size and shape are affected by rickets, osteomalacia, and that shortening occurs from fractures; in rare instances the bone or a large part of it may be absent at birth. No other assistance was obtained from the literature.

Certain definite proportions exist between the total height of the human body and that of parts, like the head, trunk, arms, legs. Painters and sculptors make use of these proportions. Why not extend this rule to other bones in the body? Why not apply it as a test to children's clavicles, and find out what relative proportion exists between the length of the clavicle and the height of the child? I accordingly measured these on three different occasions in the hospital wards. Twenty children were measured at one time, thirteen at another and six at another time, a total of thirty-nine children between the ages of two and twelve years. The ratio between the length of the clavicle and the height of the child averaged 9.97%. That is to say, the average of thirty-nine children showed the length of the clavicle to be 10% of the child's height. Individual measurements varied, the shortest was 8.8%, the longest 11.2%.

Annie M's. clavicles measured 4⅛ inches, her height 52 inches, the ratio 7.9%. In other

words, her collar bones were relatively 1% shorter than the shortest, and in order to attain average proportions, each bone should be an inch longer.



Annie M. Round sloping shoulders, short collar bones.

This was explained to the parents, and at their request on March 18th, under ether, the clavicles were divided by an oblique osteotomy, and the great pectoral muscles cut near the insertion. Less than a half inch could be gained before cutting the pectorals. Much more than an inch afterwards. The blade of the osteotome was a quarter of an inch wide; it was made to enter the clavicle just outside the centre, and was directed toward the outer posterior corner of the bone. As the outer half of the clavicle is very thin, vertically, but in an antero-posterior direction widens greatly at the outward end, the cut surfaces of the bone were still in contact over a large area even when the outer fragment had uncovered an inch of the inner fragment. There was little tendency to displacement. Catgut sutures were used, one over the clavicle, two over the pectoral incisions on each side; small sterilized gause dressings were applied with adhesive plaster strips, and a short light plaster of Paris jacket applied, carefully modelled over the shoulders, the upper chest and the back. She was allowed free use of the arms below the elbow; in two days she could sit up and feed herself; and in three days she was partially dressed, walking about the ward. The discomfort was very little, the wounds healed by first intention; when the plaster was removed in three weeks the right clavicle measured 5⅛ inches, the left 5¼ inches, a gain of ⅞ and of one inch respectively.

Three months after operation the gain was slight, but she was broader across the shoulders, and her parents were pleased. The back muscles were still very thin and weak; she was exercising them and slowly developing them.

Since then another year has passed. Her attitude is really much improved; she can assume a fairly normal position and the chest expansion is much greater, but it may still be necessary to straighten the scapulae by an operation. The writer hoped that if she could hold her shoulders in a fairly normal position for a year, the body of the scapula would straighten itself.

This is the only instance I have recognized of short clavicles. Was the condition due to an early arrest of growth in the bone during fetal life, or did it result from the unusual forces acting upon the clavicle from the over-powerful pectoral muscles opposed by very weak trapezii and rhomboid muscles and serratus.

Oblique osteotomy for lengthening a clavicle had been already performed by Dr. F. E. Peckham of Providence for a patient with considerable shortening from a healed fracture and scoliosis. This I did not know at the time I operated.

XI.

Removal of Foreign Bodies From the Oesophagus and Lower Air Passages in Children.

By D. Crosby Greene, M.D.,

and

F. E. Garland, M.D.

During the past five years of our service at the Children's Hospital, we have removed foreign bodies obstructing the oesophagus or lower air passages in twenty cases, by means of endoscopy. Ten of these foreign bodies were located in the oesophagus, three in the larynx, three in the trachea, and four in the bronchi.[1] Prompt recovery followed in all but two of the cases. In one of these, a piece of fig in the left primary bronchus was not completely removed, and later caused a pulmonary abscess which resulted fatally several weeks after bronchoscopy. The other case was brought into the hospital in a state of prostration, having been mistakenly treated for a week for diphtheria, by successive intubations and several doses of antitoxin. The child was almost moribund at the time, and removal of a peanut from the left bronchus was followed by death in a few hours.

For obvious reasons the majority of foreign bodies lodged in the oesophagus or lower air passages are found in young children.

The problem of their removal in children as contrasted with that in adults presents two main differences: the first has to do with the anesthesia,[2] and the second with the smaller calibre of the passages. Whereas in adults with a moderate degree of self control local

anesthesia may be successfully employed, we are convinced that in children peroral endoscopy can be performed more successfully, with less trauma, and with less shock to the patient under a carefully conducted general anesthesia combined with local anesthesia. An exception is made in those cases in which the foreign body is of sufficient size to produce marked obstruction of the larynx or trachea. In such cases we have done tracheotomy under local anesthesia. In most cases we have used ether preceded one hour by a subcutaneous injection of atropine in the dose appropriate to the age of the child and enough to produce a distinct physiological effect. Ether is administered slowly by the open method, and when the child is deeply narcotized, the larynx and trachea are swabbed with a solution of cocain (10%) and adrenalin (1 to 1000.)[3]

If these preliminaries are carried out, the patient is brought up to the stage of operation with the larynx, trachea, and bronchi comparatively free of mucous, and conditions are most favorable for rapid discovery and extraction of the foreign body. The importance of these preliminaries can only be realized by one who has tried to work in the trachea and bronchi of a patient in whom they have been omitted. The presence of copious mucus and the irritability of the mucous membrane, made worse by the constant swabbing which is necessary in order to clear the field, combine to enhance many times the difficulties of the procedure.

The smaller calibre of the air passages in children naturally necessitates the use of smaller tubes in bronchoscopy and oesophagoscopy. We have found in practice that a tube 7 m. m. in diameter is small enough to permit exploration of the main bronchi in the smallest children. The bronchoscopes used are all of Jackson's pattern. For laryngeal work we have used both Jackson's and Mosher's small specula. The latter has proved to have a distinct advantage over the former in operative work by reason of its open construction which permits a better view of the field when instruments are being introduced and used. In oesophageal work we give the preference to Mosher's oval oesophagoscopes, because the oval shape in a lumen of a given circumference again gives better opportunity for operative work. Altogether the best forceps which we have used is Coolidge's. It combines admirably two essential mechanical features: (1) it is operated by a handle and trigger entirely outside the line of vision; (2) closure of the forceps is accomplished without any movement of the blades in the line of direction toward or away from the object to be grasped. The same handle may be used for long or short distance work, by fitting to it the tips of appropriate length.

The anesthetized patient is put in the dorsal recumbent position with the head hanging over the end of the operating table and supported by an assistant. The laryngeal speculum is then introduced and inspection made of the hypopharynx and larynx. If the oesophagus is to be explored, the laryngeal speculum is now withdrawn and an oesophagoscope with mandrin guide is then manipulated into the oesophagus. As soon as the upper constriction of the oesophagus is passed, the mandrin is withdrawn and the oesophagoscope slowly passed downwards, the lumen being always kept in view for inspection.

If the trachea or bronchi are to be explored, the laryngeal speculum is not withdrawn until, after cocainization of the larynx and trachea, a bronchoscope has been passed through the glottis into the trachea. The speculum is then withdrawn and the bronchoscope passed downward through the trachea into the bronchi.

Peroral endoscopy is not indicated for recovery of a foreign body of considerable size obstructing the trachea, such as a peanut or a bean. Such objects are likely to slip out of the grasp of the forceps in the attempt at extraction, and an emergency tracheotomy under difficult conditions may be required. It seems to us much better to open the trachea at the start, under local anesthesia if the dyspnea is severe, and carry on endoscopy through the tracheal opening.

REFERENCES.

[1] The objects recovered from the esophagus were: 1 collar button, 1 medal, 1 Canadian two-cent piece, 2 one-cent pieces, 1 orange pulp, 1 piece of bent wire, 2 twenty-five cent. pieces, 1 cherry stone, 1 piece of beef; from the larynx: 1 piece of egg shell, 1 piece of peanut shell, 1 piece of tin; from the trachea: 1 peanut, 1 piece of glass, 1 broken tracheal cannula; from the bronchi: 1 piece of fig, and fragments of peanuts in three cases.

[2] Jackson has recently advocated doing peroral endoscopy in children without any anesthesia. We believe that our record indicates the safety of general anesthesia under proper precautions—while its advantages are obvious.

[3] When the oesophagus only is to be examined, local anesthetization is omitted.

XII.

THE INFLUENCE OF ALKALIES UPON GASTRIC MOTILITY.

BY MAYNARD LADD, M.D.

THE purpose of the work which forms the basis of this preliminary study has been to determine the effects of alkalies upon gastric motility in infants so far as they can be demonstrated by serial radiographs taken after the administration of milk-mixtures containing bismuth.

The use of alkalies, such as lime water and bicarbonate of soda, has been a common practice in infant feeding. Recently considerable doubt has been expressed, both as to the desirability of their use and as to whether their action is that which is theoretically claimed for them. When lime water or sodium bicarbonate is added to cow's milk, a basic calcium or sodi-

um-casein is formed which is not acted upon by rennet and will not form a curd even in the presence of soluble calcium salts. It would seem, therefore, that a considerable degree of alkalinity in a milk mixture would suspend gastric digestion by its inhibitory action upon rennet coagulation and, therefore, by allowing rapid emptying of the stomach throw the burden of digestion upon the duodenum. Whether this action really occurs ought to be demonstrable by means of serial radiographs of the infant's stomach. The other reasons for or against the use of alkalies in infant feeding do not enter into the scope of this investigation.

There are certain facts in regard to gastric motility observed in infants by this method which may be briefly stated in review, as bearing upon this subject. In two previous papers I have drawn inferences which my subsequent work has strengthened.* The cases studied to date represent 15 different infants, 36 series of experiments and about 275 radiographs. This is a comparatively small number, but allows us to make certain observations which are probably correct.

First of all, irrespective of the age of the child, or of the composition of the food, the gastric contents begin to pass into the duodenum at once and with considerable rapidity, until at the end of two hours, in the majority of cases, by far the greater part of the feeding has been expelled. The rate of discharge into the duodenum then becomes much slower and under certain conditions the emptying time may be greatly prolonged before it is complete. A new feeding tends to stimulate peristalsis and to push out ahead of it the residue of the previous feeding. If no new feeding is introduced, the emptying time depends partly upon the character of the food and partly upon the individual equation of the infant, or upon conditions of digestion which can not be determined by serial radiography.

As examples of this personal equation in gastric motility, I may mention three infants of approximately the same age and taking the same formula and the same amount at a feeding, who required one 2½, one 3¾ and one 4½ hours to empty the stomach.

The same three infants on another fomula required one 7½, one 4½ and one 6 hours for complete emptying of the stomach.

Moreover, in the same infants, we see marked differences in the rate at which the food leaves the stomach, which depend upon variations in the composition of the mixture. One infant of 7 months, for instance, required on different occasions, 2½, 4½, 7½ and 6 hours for complete emptying of the stomach, according to the character of the food given. The details of the experiments upon which these statements are made may be found in the articles to which I have referred.

I have not been able to show that the emptying time is always uniform in the same baby for a given formula. In fact, it is very evident that certain states of digestion occur which influence decidedly the gastric motility even when there has been no change in the food. This fact makes it difficult to draw definite conclusions as to the influence of variations in the composition of the food upon molitiy. It would appear that under certain conditions, not easily explained, stasis results and food remains in the stomach for many hours, unless its expulsion is encouraged by giving a new feeding.

So far as I have been able to determine, neither the percentage of sugar (up to the limit of 7 per cent.), nor its variety (lactose or maltose), has any influence upon gastric motility.

If the proteins are kept low, even the fats fail to show any constant tendency to prolong the emptying time, which, in several of my experiments, was the same whether the mixture was fat free or contained an amount of fat as high as four per cent. If the percentage of fat influences the motility at all, the effect is not striking.

In regard to the casein, however, we do see a marked effect upon motility, depending upon whether the percentage of casein is very low or very high and more particularly according to the form in which it is given. I have found generally that the full protein of milk (3.50%) considerably prolongs the emptying time, but that this effect is much more marked in some instances than in others. For example, in one child, the difference in the emptying time between a whey protein mixture of .90/.60 and one of 3.50 total protein (the fat and sugar being the same), was 2½ hours and 6½ hours. On the other hand, another child accustomed to high proteins from birth, took 4½ hours to empty its stomach on this same mixture containing 3.50 per cent. casein.

When the casein is converted into a non-coagulable form either by precipitation, or by the action of lactic acid cultures, forming the lactate of casein, the emptying time is much accelerated —varying from 2½ to 3 and 3½ hours. This is the most constant effect of variation in the composition of the food elements which I have been able to observe.

Whether the amount of energy involved in the digestion of food is influenced by the time it stays in the stomach is a point which seems to me of some importance in metabolism experiments upon infants. For example, in one experiment, an infant on a 0.00 fat, 6.6 sugar, and 3.50 protein required 6 hours to empty its stomach; the same infant on the same percentage formula but with the casein precipitated, discharged its contents into the duodenum in 2½ hours. The caloric value of the food was the same in each case, but the difference in the form in which the casein was given made a difference of 3½ hours in the emptying time. It would seem as if a greater amount of work was done in one case

* "Gastric Motility in Infants as Shown by the Roentgen Ray." *Am. Jour. Dis. Children*, May, 1913, vol. 5, pp. 345-358; and "Influence of Variations of Diet Upon Gastric Motility in Infants," *Arch. Ped.*, October, 1913.

than in another. Whether or not this is a point of importance in metabolism experiments, it is certainly one which must always be considered when we are taking serial radiographs for the purpose of determining gastric stasis in infants.

The following experiments to determine the influence of considerable quantities of alkalies on gastric motility, must always be judged in reference to the foregoing facts. There have been three infants studied. The results in each series may be briefly summarized as follows:

FIRST SERIES.

1. McGINNIS, Nov 18. A breast fed infant of three and a half months. Two level teaspoonfuls of bismuth subcarbonate were given in one ounce of water and the baby was allowed to nurse until the amount of the feeding was four ounces in weight. Feeding began at 9.30 a.m. Radiographs at 10 a. m., 12, 1, 1.30. Breast feeding without bismuth at 1 p. m. Plates show considerable residue at the end of 3½ hours. The last plate shows very clearly how the new feeding pushes the residue of the old feeding into the pyloric end of the stomach without mixing intimately with it.

2. McGINNIS, Dec. 1. The same procedure was carried out in the second series, except that one ounce of lime water was given in place of the plain water, making the lime water 25% of the total mixture of breast milk. Feeding begun at 9.30 a. m. Radiographs at 10 a.m., 12, 1.15. The last plate shows the stomach practically emptied in 3¾ hours in contrast to the large residue after 3½ hours in the previous experiment in which no lime water was given. Considerable difference is shown in the amount of stomach contents in the two plates at the end of the two hours; after the feeding with lime water the residue is considerably less, but the most striking feature is the rapid discharge in the last 1¾ hours.

SECOND SERIES.

1. POMMETT, Nov. 17. Three and one-half months. The food in this series was: Fat .0.00, Lactose 6.50, Protein 1.75. No alkalinity. Amount 3½ ounces. Tube feeding at 9 a. m. Radiographs at 9, 11, 12, 2. Stomach practically empty in five hours. This series represents very typically the normal discharge of the gastric contents on such a mixture. Notice the very slight change in the condition during the third hour of digestion.

2. Nov. 9. Same formula. Lime water, 25% of the total mixture. Tube feeding at 12.15 M. Radiographs at 12.15, 2.15, 3.15 and 4.10. Stomach practically empty in four hours (one hour less than in the series without lime water.) Notice the rapid discharge of the contents during the third hour of digestion.

3. Nov. 24. Same formula. Lime water 50% of the total mixture. Tube feeding at 11 a. m. Radiographs at 11, 1, 2.15. Stomach practically empty in 3¼ hours. The discharge of the contents in the third hour is still more rapid than in the series of Nov. 19.

The presence of lime water in this series apparently hastened the discharge of food into the duodenum, by 1 hour and 1¾ hours, respectively.

4. Nov. 26. Same formula, protein in form of precipitated casein. No alkalinity. Tube feeding at 11. Radiographs at 11, 1, 2.30. Stomach practically empty in 3½ hours. That is, when the casein was previously precipitated, the discharge of the contents was practically as rapid as in the series of Nov. 24, when 50% of the total mixture was lime water.

5. Nov. 29. Same formula. Protein in form of precipitated casein. Lime water 25% of total mixture. Tube feeding at 11.30 a. m. Radiographs at 11.30, 1.30. Stomach empty in two hours.

This experiment loses some of its significance in view of the fact that much of the casein became clogged in the tube so that the stomach contents were largely a sugar solution and bismuth. It is interesting, however, to note the rapid disposal of the bismuth, in the absence of any considerable amount of casein.

6. Dec. 2 Repetition of experiment of Nov. 29. Tube feeding at 9.30 a. m. Radiographs at 9.30, 11.30, 12.30, 1.15. Stomach practically empty in 3¾ hours.

Experiments 4 and 6, apparently indicate that when the casein is already precipated before administration, the lime water has no marked effect upon gastric motility, the discharge of the food into the duodenum being hastened by the subdivided condition of the casein, the lime water itself exerting no influence.

7. Dec. 4. Same formula. Protein in form of precipitated casein. Lime water 50% of the total mixture. Tube feeding at 10.30. Radiographs at 10.45, 12.30, 1.30, 2.30, 3.30. Stomach practically empty in five hours.

In this series, with lime 50% of the total mixture, considerable stasis is seen to exist during the third hour of digestion and the emptying time as a whole is prolonged. A similar, and even more pronounced state of stasis is seen in the third series, Dec. 15 (below).

THIRD SERIES.

CUNNINGHAM. 8½ months. The food in this series was: Fat 2.00, Lactose 7.00, Protein 2.25. Amount seven ounces.

1. Dec. 13. No lime water. Tube feeding at 9 a. m. Radiographs at 9. 11.45, 1.15, 2. Stomach practically empty in five hours. Compare with Pommett, Nov. 17. The normal emptying time was the same for an infant of 8½ months, taking seven ounces, as for one of 3½ months taking 3½ ounces.

First Series.

McGinnis. Nov. 18.

10 A. M. 12 M. 1 P. M. 1.30 P. M.



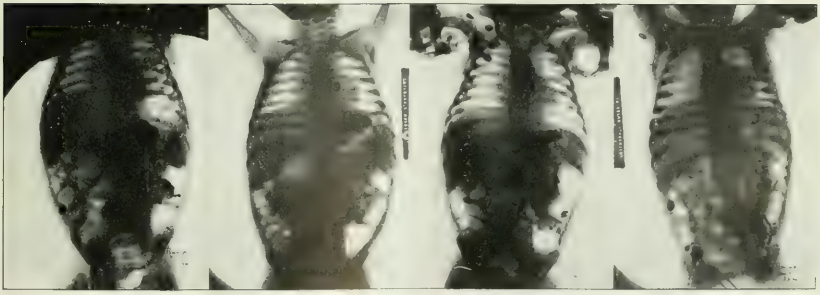
10 A. M. 12 M. 1.15 P. M.

McGinnis. Dec. 1.

Second Series.

Pommett. Nov. 17.

9 A. M. 11 A. M. 12 M. 2 P. M.



Pemmett. Nov. 19.

12 15 P. M. 2 15 P. M. 3 15 P. M. 4 10 P. M.



11 A. M. 1 P. M. 2 15 P. M.

Pemmett. Nov. 24.

Pemmett. Nov. 26.

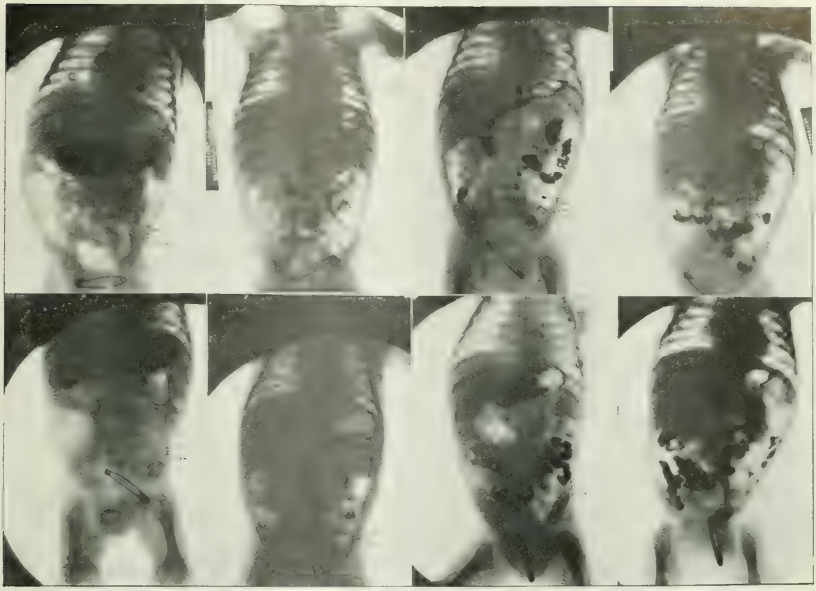
11 A. M. 1 P. M. 1 30 P. M.



11.30 A. M. 1.30 P. M.

[illegible] Dec. 2.

9.30 A. M. [illegible] A. M. 12.30 P. M. [illegible] P. M.



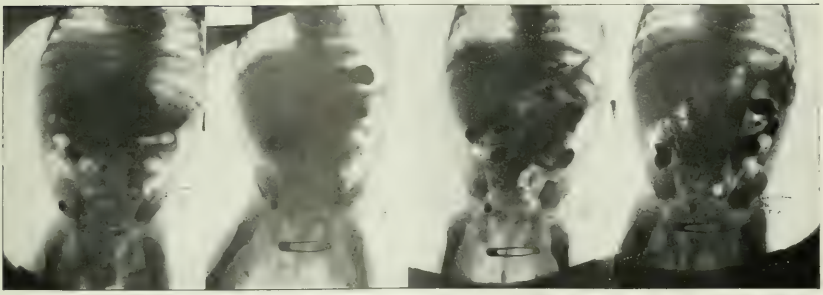
10.45 A. M. [illegible] P. M. 1.30 P. M. 3.30 P. M.

[illegible] Dec. 4.

Third Series.

Cunningham. Dec. 13.

9. A. M. 11.45 A. M. 1.15 P. M. 2 P. M.



2A. Dec. 15. Same formula. Lime water 25% of total mixture. Tube feeding at 9 a. m. Radiographs at 9.30, 11.30, 1, 2, 3, and 4 p. m. Stomach still contains food at seven hours.

This case illustrates the occasional condition of stasis one sees when the food is high in casein.

2B. Dec. 29. Repetition of 2A. Tube feeding at 9.30 a. m. Radiographs at 9.30, 11.15, 12.30, 1.30. Stomach practically empty in three hours.

The experiment 2 B. is similar in result to that in the McGinnis and Pommett series, the emptying time being diminished by 2 hours, when the feeding was strongly alkaline. The anomalous condition of stasis in 2 A. is difficult to explain with any degree of certainty.

3A. Dec. 19. Same formula. Sodium citrate, 14 grains. Tube feeding at 7.30. Radiographs at 9.30 lying down, 9.35 sitting up, 11.30 and 1 p. m. Stomach practically empty in 5½ hours. The difference in position when the body is erect, causes the pyloric end of the stomach to be slightly lowered, the cardiac portion remaining unaffected.

3B. Dec. 31. Repetition of 3A. Tube feeding at 9.45 a. m. Radiographs at 9.45, 11.45, 12.45 and 2.10. Stomach practically empty in 4½ hours.

The influence of sodium citrate in this series would, therefore, seem to be very little as far as gastric motility is concerned. It is certainly less marked than in the series in which lime water and sodium bicarbonate (see below) were use.

4A. Dec. 22. Same formula. Sodium bicarbonate 14 grains. Tube feeding 9.30. Radiographs at 9.30 lying down, 9.35 sitting up, 11.30, 12. Stomach practically empty in 2½ hours.

4B. Jan. 2. Repetition of 4A. Tube feeding at 9.30 a. m. Radiographs at 9.30, 11.30, 12.30, and 2. Stomach practically empty in four hours.

The action of sodium bicarbonate is, on the whole, even more striking than that of lime water, but the difference may not be borne out in a larger series of cases.

In this preliminary work, I have made no effort to attempt to judge of the effects of anything but large amounts of alkalies. Lime water and bicarbonate of soda unquestionably tend to hasten the discharge of the gastric contents into the duodenum. This effect is sometimes seen in the more rapid discharge of the contents in the first two hours of digestion, but that difference is not as striking as one would expect from the theories in regard to the use of alkalies which have previously been held. The most important point brought out by these experiments is the, shortening of the latter half or the digestive period by the use of alkalies. The effect on gastric motility is, therefore, probably due almost wholly to the action of alkalies, upon the casein curd.

XIII.

A Study of the Etiology in One Hundred and Seventy-Five Epileptic Children.

By Arthur Willard Fairbanks, M.D.

Notwithstanding the fact that epilepsy is one of the oldest of diseases its causation still remains a matter of uncertainty and contention, although a vast mass of literature exists concerning this particular phase of the subject.

I believe that this is due in great part to two facts. In the first place the conditions embraced in the term "Epilepsy" was for many generations regarded as a disease, *sui generi* and even at the present time this view seems to still persist, if one may judge by the argument employed by many writers, especially those who advocate the hereditary theory of the affection. In the second place, and this seems to me the more important of the two facts, the great majority of published statistics deal with cases studied in adults, or present data obtained from clinical material of all ages.

It is the main purpose of this paper to show that the truth concerning the cause of the majority of epileptic cases cannot be determined by the exclusive study of adult material, while the inclusion of the incomplete data obtained from such cases, with the more accurate data obtainable from the parents in the case of the child, cannot fail to lessen the value of the latter, and lead to erroneous conclusions as to the real incidence of acquired epilepsy as compared with the inherited affection. To return however for the moment to the first proposition. It would seem trite to say that epilepsy is a condition not a disease, were it not for the evidence that the old conception continues to prevail. Epilepsy cannot be regarded as a disease in the sense in which the term should be strictly employed. The longer one studies the cases that come under his observation the more he will find it impossible to give a concise and unqualified definition of any clinical entity, or in other words a disease that as such may be termed "Epilepsy," and the stronger will become his conviction that the state so designated is merely an instability of the central nervous organization; an inability of the nerve centres to maintain their equilibrium in the presence of either ordinary or extraordinary stimulation from without. The frequency, the persistency, and the degree of this instability of the central nervous system furnish us with a convenient basis of classification, which is however merely a convenience, and in no respect a justification for arbitrary nosological differentiation.

The real question of moment in any single case is not "Is this epilepsy or is it not?" but "Why does this individual's central nervous

system respond in this manner to these stimuli, wherever they may arise or whatever their nature may happen to be, when the central nervous system of other individuals does not so react?''

From this point of view all of the innumerable exciting factors of the individual attacks, so often emphasized as of importance in the etiology of epilepsy, become immaterial in so-far as the solution of the real cause of the unstable state of the individual is concerned. They are merely the immediately exciting factors that for the moment overthrow the poorly balanced nervous system. Over-emphasis of these exciting factors of individual epileptic or eclamptic attack serves rather to cloud than to clarify our understanding of the fundamental cause of the condition. Innumerable articles have appeared, and are constantly appearing, in medical literature, the sole purport of which is the attempt to prove this or that exciting factor the real or fundamental causation of epilepsy. This tendency, persisting even at the present time, is to be deplored, for it only delays the recognition of the fact that every conceivable external stimulus may be sufficient to overthrow the static balance of the central nervous mechanism when its static balance is below the normal average of stability, and only then. What are the conditions that are responsible for this defective equilibrium? We must first consider the conditions that make the normal development of stability impossible. In the first place the parent cells may not be endowed with those inherent qualities that permit the ultimate attainment of relative stability in the developed organism. In such instances the instability is inherited. It is of course impossible to assert the existence of this inherited instability unless there exists in the history of the ascendents of the individual positive evidence of similar instability.

Second, given parent cells with normal inherent stable qualities, some influence such as trauma or disease in the mother, (or in the placenta, after the third month) may be brought to bear on the embryo in utero to impair the development of the central nervous system, and consequently to prevent the evolution of stability. Such injuries to the embryonic development, if they occur during the first three months of pregnancy, may be evident otherwise in the form of anatomical defects or malformations, and, even later, abnormalities in the pregnancy, especially those associated with insufficient room in utero for the proper developments of the foetus, (as in the case of twins) may produce marked anatomical defects, particularly microcephalus. In the absence of such gross defects, only the history of some disturbance of the normal course of pregnancy will suggest the possible injury of the embryo. Any condition however that has retarded the cerebral development of the foetus at any time during the first eight months, is extremely likely to produce some degree of microcephalus, evident at birth. When present it is extremely suggestive of some disturbance of the normal conditions of pregnancy. It may be relative to the otherwise normal physical development of the child or it may be but a part of a general defective physical development. Its importance as far as antenatal origin is concerned lies in its being present at birth. Premature termination of the pregnancy, by sending the child into the world in an immature and therefore unstable state, is also occasionally an undoubted factor.

Third, with the embryo normally developed, there still remains, as a possible factor in impairment of stability, the incidence of trauma and disease. The period of birth is the time in the life of every child when the brain is exposed to the greatest danger. It is at this period, therefore that we would expect to find the origin of structural damage of the brain, and in fact do find frequent evidence of such structural damage, with a history of some abnormality of birth as a probable cause of the injury.

Let us consider some of the incidents of birth that may cause injury to the cerebral structure. An unusually large head passing through a pelvic strait of normal diameter may require so much compression of the cranial bones that injury to the cranial contents is unavoidable, or a normal head of average diameter passing through a pelvic canal of minor diameters may entail similar damage. Then also a normal head may be forced through a normal pelvis with such rapidity by unusually forceful contractions of the uterus that there is no time for gradual accommodation of the cranial bones to the passage through which they must pass and rapid cranial compression occurs without consideration for the safety of the underlying brain and serious damage results. This I am confident is not rarely a cause of injury. It is however usually overlooked because the labor is described by the mother as ''an easy one'' and this is accepted as evidence that it has also been an easy one for the child, which is by no means necessarily the fact. I have had reason for years to regard those labors in which the child is born after a few short strong pains, often before the accoucheur's arrival, as by no means favorable for the child. The greatest care must be observed in taking the birth history of a child not to too readily accept the mother's assurance that the labor ''was normal.'' She is referring to her own experience rather than to that of the child. Not infrequently, when we have received assurance that the birth was normal, it will be found by careful enquiry that, as a matter of fact, the child was more or less asphyxiated, and that some effort was necessary to induce respiration. Such a fact must be given full value as a possible source of cerebral injury. Also in labors in which the baby is born before the physician's arrival the

possibility of a twisted cord with its secondary effect on the cerebral circulation always should be borne in mind. In other instances owing to inertia or to minor pelvis in the mother, or to a large head, etc., it may become necessary to apply forceps, which may produce cerebral damage directly, or indirectly by rapid extraction of the head before it has an opportunity to adapt itself to the passage through the pelvis.

In breech presentations with rapid delivery of the after-coming head there may be resultant injury either directly by compression or through venous engorgement consequent on the delayed delivery of the head. Long delay of an otherwise normal labor by premature rupture of the membranes may also be attended by cerebral trauma. Often when we do not obtain any positive history of abnormal labor from the mother we may see positive evidence of it in the child in the shape of gross cranial deformity, or by the presence of cranial scars, or spastic paralysis, convulsions during the first few days or weeks subsequent to birth, or by marked delay in the early development of the infant. The numerous contingencies, above referred to, indicate how great is the danger to which the child's brain is exposed during birth.

After birth there exists throughout the years of childhood the incidence of trauma and disease as cause of cerebral injury. The permanent structural damage produced by diseases that directly affect the brain, as meningitis, encephalitis and hydrocephalus, is a matter of common clinical observation, while it is by no means a rare clinical experience to observe the serious injury done to the central nervous structure by the infectious diseases, either directly by the action of their toxin or indirectly through vascular lesions. All of these many sources of acquired cerebral damage must be considered when we are searching for the etiology of chronic cerebral disturbance or defect.

We find that they are the most common factor in the production of spastic paralysis and of mental deficiency in childhood, and we shall find that they are the largest single positive feature of the histories we obtain in the study of epileptic children.

I have selected 175 cases of epileptic children in which accurate data in reference to the family and personal history were obtained, and careful examinations were made for objective evidence of cerebral injury or physical defects. These cases were chosen solely on account of the completeness of the historic and clinical data. Otherwise they were taken consecutively in the order of their first visit to the hospital. They comprise children up to the fourteenth year inclusive.

In a critical study of these cases with reference to the etiology we find that the most careful enquiry revealed, in only 12 instances, any trace of convulsive attacks or of petit mal in the ancestors or in other members of the family.

In all of these cases however the hereditary taint was pronounced and in striking contrast to all of the rest of the series. Two fathers were epileptic; one mother had petit mal in childhood and another convulsions in childhood and two of her children, brothers of my patient, died in convulsions in early childhood. In another instance the parents were unaffected but another of their children died in convulsions and two cousins were epileptic. In the case of a child of 3, a maternal cousin, a boy of 10 was epileptic and a paternal aunt insane. The rest of these cases presented an equally marked familial taint. It is an interesting fact that only two of these children presented other evidence than the epilepsy of cerebral defect, namely, mental deficiency, and one of them born prematurely and the other by the use of instruments. They were the only instances of this series in which there was anything abnormal about the birth. The familial taint was definite however in both cases. In none of this series was spastic paralysis present

One case I am unable to classify, but it should perhaps be mentioned here and may belong to the hereditary series. This was a child of 8 years, whose paternal uncle was epileptic. The boy presented marked degenerative stigmata, in the form of web fingers, supernumerary toes, cryptorchism and hypospadias. In addition he was hydrocephalic and had Hutchinsonian teeth. He was born after severe prolonged labor with the cord twisted about his neck, and he was idiotic and diplegic. The convulsions appeared immediately after birth lasting all night, and recurred for twenty-one months with great frequency, and thereafter infrequently to the eighth year. There can be no doubt that this child was injured at birth but there is equally little doubt that there was a syphilitic as well as a familial degenerative taint.

I do not find among my cases any that can be ascribed to disease during pregnancy, with the exception possibly of some of the syphilitic cases which will be considered in a class by themselves later.

Two cases were exposed to trauma during pregnancy by the attempt to induce miscarriage which had been successful several times previously. Both cases were born at term. Both of these children showed other indications of cerebral injury. One was feeble-minded, and had strabismus, the other increase of the deep reflexes and unsteady gait. In two cases trauma was undoubtedly the cause of premature birth. These will be considered under that classification.

In four instances the children were the product of twin pregnancies. All were born at term. Two presented other signs of organic brain defect. One was a light case of mental deficiency and showed a hemiparesis, the other

was mentally defective. In both of these cases, and in one of the others the other twin died in early infancy.

In only one case was it possible to ascertain whether the patient was the first or second delivered. That one was the first born, the other child dying at 7 months of "weakness."

In six instances the children were born prematurely, 2 at 7 months, the others at 8 months. In two of these instances the mothers suffered falls in the fifth month of pregnancy (one 7 months child) and in the seventh month of pregnancy (an 8 months child) respectively. Both of these children were feeble minded, and one was also blind. The others presented no cerebral defects except the convulsive attacks. One child however presented anatomical degenerative stigmata, in the teeth, face, palate, and ears. Beyond the statement that the mother and her family were "nervous" there was an entirely negative family history in this case.

In 43 cases there were conditions during the birth of the children that exposed the brain to extraordinary danger. Of these, 14 were born after severe or prolonged labor, by the aid of forceps, but not asphyxiated. Of these, 8 were feeble minded, 3 were hemiplegic, 1 was diplegic, and 2 showed marks of cranial trauma at birth. Both of the latter were feeble minded, as were also the diplegic and one hemiplegic, and are included among the 8 mentioned as mentally defective. Ten were born by the use of forceps and were asphyxiated. Of these, 4 were feeble minded, 3 were hemiplegic, one paraplegic, and 3 showed definite marks of cranial trauma at birth. Two of the hemiplegics and the paraplegic were mentally defective, as were also 2 of those presenting evidence at birth of cranial trauma. One case was not only feeble minded and hemiplegic but also showed marks of cranial injury. One of the series was one of twins, the other child being still-born, and this may also have been a factor.

Six were born after severe labor but without the use of forceps and as far as known not asphyxiated. Of these 4 were feeble minded. None of them were paralytic.

Four were born after severe labor, without forceps, and were asphyxiated. Of these, 2 were feeble minded and one of these was also paraplegic.

Two were large children born, after severe labor, with forceps. These presented no cerebral defect other than the epilepsy.

Two were born after prolonged dry labor, and one was asphyxiated. The other child was feeble minded. Two were born quickly before the doctor's arrival. One was feeble minded and the other was hemiplegic. Of the remaining cases of this series 1 was a brow presentation with forceps delivery; another a footling, born after severe labor and asphyxiated, and the other was a placenta praevia case. These cases were the only cases in the series that did not show some evidence of cerebral abnormality, other than the epilepsy itself. Thus of these epileptic children, whose birth was in some one or more respects abnormal, 70% presented other evidence of cerebral defect than the epilepsy, and 23% presented objective evidence of structural damage of the brain in the form of spastic paralysis, and 14% presented evidence of cranial injury, two of these being spastic.

The high percentage of cerebral defects in these children, even exclusive of the epilepsy, indicates how frequent is the incidence of cerebral trauma during birth. When we consider how many births, considered normal by the mother and by the physician, may not really be so for the child, but may be attended by slight injury not producing gross evidence of its presence, we may understand how this slight structural injury may later make its existence evident in the form of epilepsy or mental defect.

Eight cases were probably syphilitic in origin. In all but two the effect of the disease was very evident in the many miscarriages and early infant mortality shown by the history. In one of the two exceptions the father acquired syphilis 7 years before the child's birth and one of his children died in convulsions 2 to 3 months old. The father of the other child died of "softening of the brain" while the case was under observation. Five of the 8 cases were mentally defective. One child of 3 years who had had innumerable attacks of all degrees of severity from its earliest infancy promptly responded to iodide of potassium, improved markedly in intelligence and no recurrence of the epilepsy occurred although the child was under observation for a year afterwards. These cases do not respond to bromide to any material degree.

Fifteen of the series had suffered cranial injury after birth and antecedent to the appearance of the epilepsy. Many of these injuries were accompanied by immediately serious symptoms; unconsciousness from half an hour to thirty-six hours, vomiting, hemiparesis, facial paresis, and in one case blindness and deafness for four weeks, while others did not seem at the time seriously hurt, but soon showed mental deterioration. One case will suffice to illustrate this. This child developed normally to the beginning of the second year when she had a fall, and three months later another, striking her right side. Mental progress ceased and when examined she showed a left hemiparesis. The epilepsy appeared shortly after the fall and was at first concentrated on the left. These cases are of very instructive character, but it is not possible within the limits of this paper to cite their details. Two of the children however might have been classed otherwise for one was premature and the other a forceps delivery, but as neither had any convulsion until after the blow on the head, and the initial attack occurred in unquestionable relationship to the trauma, they

seem properly to belong here. A greater susceptibility to cerebral trauma may have existed however in these two cases.

Twenty-two of the children were perfectly well until the onset of meningitis or encephalitis, during the convalescence, or following the recovery from which epilepsy appeared. Six of these children were feeble minded and 6 were hemiplegic.

Five cases could be traced to an attack of pertussis, in two instances at the age of a few weeks, in one at sixteen months, and in two at two years. One was hemiplegic and one had strabismus. If these cases owe their origin to pertussis as seems probable, the damage to the brain was undoubtedly circulatory not toxic. In a somewhat different class are the next four cases which originated from infections, two during dysentery, the others following diphtheria and measles. It is somewhat difficult to determine the manner in which the cerebral trauma was caused. In one of the dysentery cases the severity of the symptoms indicate meningo-encephalitis, the 2½ year old child having lain for eight days unconscious, with retracted head. None of these children were spastic, one had deteriorated mentally since the measles, was under observation seven years, and finally committed to an institution.

In 53 cases no definite etiology could be determined. 23 presented evidence of cerebral defect other than the epilepsy, 14 feeble minded, (several showed cranial deformity) 7 hemiplegic, 1 paraplegic and 1 hydrocephalic. Thus a considerable number of these otherwise unexplained cases presented objective evidence of cerebral defect or deficiency, the result of trauma or disease.

The study of these 175 cases confirms an opinion I have held for many years, as the result of the observation of many hundred epileptic children, that heredity is a minor factor in the etiology of epilepsy, whenever the disease is studied at such an age that the true details of the past and family history of the victim can be obtained. These data are obtainable in the case of children to an infinitely greater extent than when the disease is investigated only in adults. Both the data and physical examination of epileptic children indicate that the affection in the majority of instances is the result of acquired cerebral injury from trauma or disease.

XIV.

Hemorrhage Following Tonsillectomy.

By F. E. Garland, M.D.,

and

D. Crosby Greene, M.D.

There is a wide variance of opinion among medical men in regard to the frequency of hemorrhage after tonsillectomy. Some men of large experience report but one or two cases of hemorrhage in a thousand cases operated upon. Others, who have done an equal amount of work put the number much higher,—one hemorrhage to very hundred, or even fifty, tonsil operations.

There are several ways of explaining this diversity of opinion. In the first place, those who operate mainly on adults, will have more bleeding cases than those whose work is confined chiefly to children. Secondly, what by one man would be considered an alarming bleeding, would be regarded by another operator as a necessary incident of the operation. Thirdly, hemorrhage cases are not by any means always fatal, and often escape the notice of the operator. He perhaps notes that the patient is very pale for several weeks following the operation, but the true cause is not suspected.

Why one case bleeds and another does not is a perplexing question. One thing is certain, however, and that is that the bleeding is not necessarily due to excessive trauma or careless cutting of the constrictor muscle. In practically all of the cases we have seen, which number about one hundred, the bleeding has occurred following easy operations where the tonsillar fossae and pillars of the palate remained entirely intact. A possible explanation, which we have been unable to verify, is this: there is often noted in the fossa after removing a tonsil, a plexus of small veins due possibly to chronic inflammation. It is possible to conceive of the knife or snare splitting open one of these veins longitudinally so that in the movements of the throat, the forming clot is continuously expelled from the remaining part of the vein, and bleeding is produced.

Be this as it may, it seems to us that the bleeding is more often venous than arterial. Small arteries which are seen pumping in a throat just after removing the tonsil, usually cease bleeding in a few minutes and do not require ligating.

The dangerous type of bleeding, the kind which goes on to exsanguination and death, may be described as an ooze. This continues for hours without giving any of the test-book symptoms of hemorrhage. The blood may be expelled by coughing, but the half-conscious patient more often swallows it. Accordingly, unless vomiting occurs, hemorrhage may continue without the slightest evidence. We have recently seen such a case in which the nurse, of more than average experience, did not detect bleeding until ten hours after operation. She noticed that the patient, a child, swallowed frequently, but not until a large quantity of blood was expelled from the stomach did she realize the danger.

This, then, is an alarming situation. If we wait for the marked symptoms of hemorrhage, our patient's condition is very serious, and we should occasionally have a fatality. Such a condition is absolutely unwarranted. Death from hemorrhage ought never to occur. We believe that safety from this danger lies in a careful

inspection of the patient's throat at intervals after operation. Although such inspection may not disclose the actual bleeding point, owing, in the first place to the obvious difficulties in the way of obtaining a good view of a semi-conscious patient's throat, and secondly, the fact that the bleeding may be low in the fossa and thus escape detection, there is one sign which is unfailing in these cases, and that is a clot which forms in the fossa above the bleeding point. This clot is always present, and its presence is sufficient evidence of bleeding. When removed it quickly reforms. This danger signal appears at the beginning of the bleeding, and not as most signs do, when death is near. By careful observation of the throat and an early detection of the clot, we are enabled to deal immediately with the situation. We do not wait for other signs, but at once reapply our ether, and suture the pillars. This process takes about three minutes, and as but little blood is lost, the patient's recovery proceeds in the usual manner.

XV.

POLIOMYELITIS. OPERATIVE TREATMENT.

BY ROBERT SOUTTER, M.D.

Most of the cases of poliomyelitis fortunately can be helped by simple means such as active and passive exercises and massage, muscle training, temporary braces, mechanical stretching etc. The many cases that require operation form but a small group when compared to the total number of cases treated by other methods. Where simple methods of treatment are not sufficient muscle and tendon transplantation are often of great value.

Nicolodoni was the first to introduce this method in the treatment of poliomyelitis. Since then many operations have been devised to supplant and improve muscle and tendon transference so that today the cripple can not only be relieved of his deformity but many useful operations have been originated and developed which aid in his locomotion.

The relief of deformity is important and must not be lost sight of. Operations for the increase of function should next be considered. These operations are applicable to all cases of misdirected muscular action, whether due to trauma, to cerebral paralysis, to paraplegia, to poliomyelitis or to congenital deformities. Some of these operations of temporary value are done to allow the weak or partially paralyzed muscle to regain its strength or to prevent deformity and contractures during the process. Skin flap and silk ligaments are operations of this class. The value of an operation in poliomyelitis may be better understood if we group the types of cases according to the paralysis remaining. Omiting those cases that recover completely from their temporary paralysis we have five classes; Those that may obtain a return of function by muscle training; those where a restoration of joint balance requires a redistribution of the muscles by a tendon or muscle transference; Those where the balance is so upset that a transference, while it may take up the lacking motion and lacking antagonism, is not sufficient to keep a lateral balance. In this type silk ligaments, astragaectomies, arthrodesis or other operations may be used. Again we have a class in which there are muscles not paralyzed but not of sufficient number or strength to allow a division and transfer. In this type the joint may be balanced by silk ligaments and the remaining muscles become useful in part or the whole of their arc of motion. Today even when the paralysis is complete about a joint much may be done by skin flap, periosteal flap, silk ligaments or some other plastic operation such as arthrodesis or in the case of an ankle, astragalectomy.

The material we work with in poliomyelitis is often so poor that it is really remarkable to get the results we do. The trophic disturbance is often such that healing and firm union of the soft tissues takes much longer; resistance to infection is less, the slightest pressure during healing affects the result, poor approximation of the tissues is paid for by very slow, granulating wounds, the latter may remain granulating for weeks and then heal, all the time inviting infection. While infection is not common, the most scrupulous care in detail is required of these cases and more precautions are necessary than in the usual operation. The incision should be as small and vertical as possible and made with care, both as to the manner of penetrating the skin layer and as to the direction of the vessels.

In the early years of transplantation there were many failures and some that seemed good at first later were not satisfactory. This was accounted for by the fact that a tendon to tendon transfer was the rule. The good tendon stretched out the weak insertion and the power of motion became lost. Tendinous insertion is preferable where it may be done. This method is advocated by Vulpius. Periosteal insertion obviates many of our difficulties. Since the introduction of silk as a tendon by Lange in 1902 this method of tendon elongation with its periosteal, sub-periosteal and even bone attachment has relieved the cause of many of the previous failures. The silk acts as a good tendon and about it a firm cylinder of fibrous tissue forms which re-enforces the silk and acts as a tendon in itself. There are few operations where technique is of more importance than in tendon or muscle transference and silk ligaments. The action of the muscles must be well understood and carefully tested; the operation

studied and laid out for each individual case, the line of pull made as direct as the desired motion requires. With care the belly of a muscle may be transferred some distance. The muscle selected should be strong. Weak, degenerated muscles ought not to be transferred as they simply bring discredit to a procedure that is good and helpful. The attachment should be firm, not likely to slip or pull out. The silk itself should be tested before use and in situ, the limb put in such a position and the transferred muscles so placed that there will be no slack to mar the results. Muscles too weak to take up fully the desired motion may be transferred exceptionally for locking a joint. For instance, the tranfer of two weak hamstrings, although not sufficiently strong to extend the lower leg, may be sufficient to lock the knee in walking and standing and allow a certain amount of flexion in sitting. Paralyzed muscles should not be used for this purpose on account of their almost endless tendency to stretch out. Beside the many and varied muscles that may be transferred the following muscles, when large and vigorous, give pretty uniform success when transplanted, the pronator-radii-teres. the flexors and extensors of the fingers, the hamstrings forward, the peronei, the sartorius, the long flexors and extensors of the toes, the tibialis posticus and anticus.

The opponents of the muscle to be transferred should be carefully considered and balanced. In other words, a small, weak, transferred muscle should not be expected to be of value when opposed to a strong, healthy group. Enough must be transferred to give good balance.

The tranfer is more successful when the lateral stability of the joint is maintained by good muscles or by natural or artificial ligaments. The individual not interested in mechanics to a minute degree should not transfer muscles or endeavor to place silk ligaments but once the technique of the operation is well mastered a prolonged study of the single strong muscle in various extensively paralyzed cases will help more toward successful transplantation than any one other thing.

Since the introduction of astragalectomy the lateral stability of the ankle joint can always be obtained without stiffening the joint. This gives us one of the most valuable operations known in the treatment of paralyzed ankle muscles. It also gives us a method of obtaining the lateral stability where a transplantation is desired but otherwise impossible on account of lateral weakness. The cripple must be given a limb on which he can trust his weight. Misdirected muscular activity may be advantageously corrected by transplantation, which gives the desired motion; more should be done if alone this does not give a stable limb well balanced for weight bearing. In a child the calculation should be made for the probable future weight, both from natural growth and lack of activity. Silk ligaments may be used early to maintain position of the joint, later to maintain antagonism to existing muscles that unopposed would contract and cause deformity and themselves become useless. They may be used as an aid to stability of the joints as in toe drop combined with a lateral lack of stability. They are also of use to stiffen the joint. These ligaments should not be used to prevent a varus or valgus due to bony deformity where the weight is over balanced and out of line nor where the varus or valgus is due to the strong contracture of muscles. Except in these instances with proper technique silk ligaments give the greatest satisfaction to the patient and surgeon. Wherever silk is used crescentic incisions should be made and care taken to have several layers of tissue overlapping the silk insertion, the latter being placed under the flap some distance from the line of incision.

The after care of these cases is quite as important as the consideration before operation. Motion may be encouraged early under observation but strain in the early weeks must be prevented for two months by plaster and for six or eight more by suitable braces. After this, braces are used that allow motion but limit its arc. Silk ligaments and muscle and tendon transplantations, followed by careful after treatment and muscle training give us a most effective means of aiding the extensively paralyzed and deformed cripple. We can correct deformity, make up for loss of function, maintain corrected contractures and displacements and overcome much of the atrophy and do away with many braces. In all the severe cases a benefit can be expected and in many of the light cases a practical restoration of functional usefulness.

XVI.

The Importance of the Early Recognition of Acute Arthritis of the Hip-Joint in Infants.

By Arthur T. Legg, M.D.

The recognition of the presence of an acute septic process in the hip-joint in infants would seem to give very little difficulty, but the number of cases seen in which the condition during the acute stage was not recognized, shows that the importance of its early recognition cannot be too strongly emphasized.

The condition, as is well known, follows any of the acute infectious diseases, such as pneumonia, measles and scarlet fever, intestinal autoinfection or from a septic process elsewhere, and starts as an infectious synovitis or an epiphysitis which breaks through into the joint; and, as

in all acute infections of the joints, is characterized by limitation of motion, tenderness, thickening of the joint, and fever, with high white count.

The great difficulty in the early diagnosis comes from the fact that infants unable to express themselves can show only in a general way the location of any trouble, and the general intoxication, especially at this age, is so great that the local condition is often entirely masked.

Cases in which the condition has not been recognized are usually brought for advice on account of a limp noticed when the child began to walk, with a history of having had an acute abscess of the upper thigh accompanied by more or less prostration and high temperature, when an infant, the condition at the time having been considered a superficial abscess of the soft parts, which was simply incised or allowed to rupture spontaneously.

Examination of these cases will show a limp identical to that of a congenital dislocation, with a half inch to an inch shortening of one leg, and a cicatrix of the upper thigh, usually about the trochanter, where the abscess pointed or was incised.

Roentgenological examination of these cases will show dislocation of the affected hip with absence of the head and a portion if not the entire neck of the femur, showing that during the acute process, the head and a portion of the neck were destroyed by the septic process, and the abscess breaking through the capsule allowed the remaining upper end of the femur to dislocate; the abscess, after rupturing the capsule, pointing in the upper thigh.

In those cases seen soon after the onset, a common history given is that the apparently well infant became suddenly irritable, cried constantly when bathed, and had considerable prostration and fever; or if the condition comes on more acutely, the first symptom noticed may be a convulsion followed by symptoms typical to an acute meningitis.

Given these histories and symptoms, it is quite natural that a local condition in the hip is not at first considered, and these general symptoms may continue to predominate the local symptoms for some days and a diagnosis of a beginning acute infectious disease or an anterior poliomyelitis is often made.

It is not until after careful watching and a very complete physical examination is made that the true condition is recognized; and even this at times is most difficult in an irritable infant where all attempts at examination are resisted.

The classical symptoms as already mentioned, of local tenderness, limitation of motion, and thickening of the joint, are often masked by the general condition of the infant. As regards local tenderness, the infant may seem to be in pain when any part of the affected leg is touched, and no one region can be made to show more tenderness than another. While the affected hip usually shows more or less limitation of motion from spasm, motions of the unaffected hip may be equally resisted. To palpate joint thickening is at times very difficult, especially in an infant where there is much fat about the pelvis; but this can generally be made out if both trochanters are grasped and a careful comparison of the thickness is made. In some cases, the recognition of this joint thickening is the only positive means of recognizing the condition except by the roentgenogram. Examination by this method will show in the very early cases a markedly dilated joint capsule, with the head of the femur usually thrown out to the brim of the acetabulum; or, in cases which have gone on for some time, the head will be seen free in the joint or entirely disintegrated.

Just how soon the head will be freed from the neck of the femur or entirely destroyed by the septic process depends upon the severity of the infection and the mode of invasion. That is, those infections starting at the epiphyseal line will free the head more readily than those starting as an infectious synovitis; but that it may be freed very early is evidenced by the fact that in one case operated upon by the writer, the head was found free in the joint four days after the onset.

It is on account, therefore, of this early separation of the head from the shaft, followed by destruction and dislocation, that the early recognition of this condition is of the greatest importance, that immediate surgical interference may be instituted; for early incision and evacuation of the pus in the joint will in many cases save the femoral head, or if the head has already been freed or destroyed, dislocation of the remaining neck, by maintaining it in its normal position, may be prevented.

XVII.

The Diagnosis of Enlarged Thymus and the Symptomatology of Hyper-Thymatism.

By Philip H. Sylvester, M.D.

The diagnosis of enlarged thymus lies in finding it. The greatest difficulty in its diagnosis lies in not being on the lookout for it. The following cases are illustrative:—

Case 1. W. B. C. Male, 14 months old; only child of well parents.

Past History. Full term, normal delivery, breast fed for six months, then on various mixtures. Always did well but has had a lot of colds. Has had no serious diseases.

Present Illness. Child had been "choking to death" for ten minutes after a cent, with which it had been playing, had disappeared.

Physical Examination. Well developed and nourished child in rather urgent dyspnea, cyanotic, inspiration slow, retraction of interspaces, supraclavicular and sub-sternal, expiration difficult as well. Ten teeth in good condition. Tonsils a little large, not inflamed, no particular enlargement of adenoids. Epiglottis altogether too small to have admitted a cent. Lungs full of coarse râles, some piping. Expiration a little prolonged. Heart not enlarged, sounds regular, good quality, rather rapid. Spleen not enlarged. No superficial glandular enlargement. Examination not otherwise notable.

The dyspnea being evidently of tracheal origin and not so urgent as to demand intubation or tracheotomy, a Roentgen photograph was taken with the idea that the cent had probably lodged in the esophagus in such a way as to press on the trachea. A large thymus was shown, but no cent.

(Photograph.)

The cent was found under the corner of the rug. A more careful physical examination showed a shield-shaped area of dullness to threshold percussion just below the clavicles and continuous with that of the heart, approximately 4 cm. to the left of the median line and 3 cm. to the right.

The child's mother, on further questioning, stated that the child had been having bronchitis for three or four weeks, during which time it had "choked up" on several occasions.

The child's dyspnea became more urgent that evening and on the following day he was admitted to a local hospital, where he received six Roentgen treatments of five minutes each at intervals of one week. In the first two weeks he was intubed twice for collapse in dyspnea. He was discharged, well, with no lung, tracheal, or thymic signs at the end of eight weeks.

This case taught me two lessons that have been valuable since:

1. To think of thymus in cases of infantile dyspnea suggesting laryngeal stenosis or obstruction.

2. To take more pains with the history even when in a great hurry.

Case 2. M. S. Female, 9 months, younger of two children. Parents well.

Past History. Full term, normal delivery, breast-fed for 5 months, then various mixtures; now getting about a 4.50—7—1.50—6 feedings 8 ounces. Is satisfied, never vomits. One movement is usually obtained daily by suppository or milk of magnesia; it is usually hard, brittle, very light colored and "smells very strong." The child has looked pasty since a short time after bottle feedings were begun.

Present Illness. Has been having bronchitis for six weeks, is better some days, worse others. Has had some rattling in chest all the time. Does not sit up much and does not try to talk. (Mother is also anxious about the teeth, as the persistence of the bronchitis has been ascribed by the family physician to teething.)

Physical Examination. A fairly developed, well nourished appearing but flabby child. Pasty color. Anterior fontanelle 1 inch by 1 inch, level. No teeth. Tonsils about the average, a little red. No snuffling or nasal obstruction. Ears negative. Lungs, good resonance throughout in back and front except that over upper portion of sternum and extending laterally is an area of dullness to threshold percussion 3½ cm. to the left of median line, 2½ cm. to right and connected by a fairly wide isthmus (vessels) with cardiac dullness below. Pressure on the inner ends of the clavicle, or over the manubrium causes an abnormal amount of tracheal compression. Lungs full of fine râles, mostly on expiration, which is prolonged as in ordinary asthma. Heart not enlarged, no murmurs, sounds good quality. Abdomen soft, contains a little more gas than usual. Liver not enlarged. Spleen not felt. No superficial glandular enlargement. Moderate rosary and slight enlargement of epiphyses of wrists and ankles. Physical examination otherwise not notable.

Diagnosis. Enlarged thymus, thymic asthma, rhachitis, fat over-feeding.

Subsequent History. Roentgenogram showed a shadow a trifle larger than the area of dullness, but corresponding so closely with it there could be no question as to the diagnosis.

The child received seven exposures of 5 minutes, at intervals of four days. After the fourth treatment I went away for two weeks and on my return the lungs were clear and there was no dullness other than that attributable to the large vessels. The mother stated that the child's breathing steadily improved after the second treatment. The child's appearance also improved greatly, but I am inclined to blame the correction of the food (to 2—6—2.50) for that as much as the involution of the thymus. There has been no recurrence of any symptoms referable to the thymus in two years.

Case 3. Clara M. Female, 22 months, youngest of five children. Parents well. No recent contagious diseases.

Past History. Full term, normal delivery, breast fed for 2 days only, then various modifications. Always did well as far as digestion and nutrition are concerned, but has been a little slow in mental development. Had measles very lightly at 14 months. Seems cold most of the time and gets blue when exposed to cold. Has had asthma most of the time for about a year. Attacks last some times over three or four weeks, during which the child gets quite blue. Has never had any "choking spells." Is seldom free from asthma for more than a few days at a time. Has not had many colds.

Present Illness. Has been having asthma for about two weeks with less remission than usual. Has become obviously tired. At times pulls on a chair or bed clothes to get her breath. Is losing weight. Has no appetite. Has not seemed feverish.

Physical Examination. Well developed, fairly nourished. Skin shows many fine wrinkles. Anterior fontanelle closed. Ears negative. Child in rather urgent asthma with prolonged expiration accompanied by wheezing. Twelve teeth. Tongue clear. Tonsils small, ragged, not inflamed; no apparent adenoid enlargement. Lungs, good resonance everywhere except that over upper sternum is an area of dullness to threshold percussion about the shape of the palm of the hand, extending 3 cm. to the right of mid-sternum and 3½ cm. to the left,

and about 5 cm. down, distinctly separated from the cardiac dullness. No D'Espigne's sign. Lungs everywhere full of bubbling râles on inspiration, which is short and gasping, and of piping as well as of bubbling râles during expiration, which is much prolonged. Heart not enlarged; action very rapid, no murmurs made out, quality good. Abdomen examination difficult as child refuses to relax. No enlargement of liver or spleen to percussion. No superficial glandular enlargement. Examination otherwise not notable.

Diagnosis. Thymic asthma.

Roentgenograph showed shadow about as on percussion, but apparently a little larger.

Child received five daily treatments of five minutes, then three of five minutes at intervals of four days. Was distinctly worse after first treatment, but began to improve after the second and continued to improve until the fifth treatment, when the asthma completely cleared up. Has had no further symptoms for nine months. Two weeks after the last treatment no thymus was noted by percussion. No plate was made at the last treatment, and the first plate is not now available for this paper.

Case 4. T. T. Male, 19 months, only child, no miscarriages. Parents well.

Past History. "Eight months' baby," birth weight, 8 pounds. Breast fed for nine months, then whole milk and infant diet. Has had frequent colds. Tonsillitis several times. Otitis media on both sides at one year. Has looked pasty for about a year and does not seem as lively and bright as other children of same age in the neighborhood.

Present Illness. Cough and cold for about two weeks. Parents wish to have determined the cause of child's poor appearance; think his diet ought to be regulated.

Physical Examination. Well developed and nourished. Color, bluish white as in excessive fat feeding. (Later examination of stools showed nothing abnormal.) Anterior fontanelle admits tip of finger. Tongue clean. Throat red. Tonsils large and ragged, not inflamed. Pharyngeal wall studded with "warts." Adenoid visible when palate is raised. Ear drums wrinkled. No light reflex, no retraction, no fluid. Ten teeth. Lungs, uniformly good resonance except over sternum where to threshold percussion is a fat sausage-shaped area of dullness extending from mid-sternum to 4 cm. on the left and 3 cm. on the right, joining the cardiac dullness below. On crying, during expiration, a soft mass impinges on a finger tip hooked into supra-sternal notch. Inspiration short and easy; expiration prolonged with many râles just short of wheezing. Heart not enlarged, upper border not made out on account of thymic dullness. Sounds clear, no murmurs. Abdomen soft. Lower edge of liver just felt. Spleen 2 cm. below costal border, no notch felt. Genitals, phimosis, testicles undescended. Glands, lentil size in axillae, neck, and groins. Glands on right side of neck are larger than the rest, presumably due to infected tonsils. No abnormality of nervous reactions. Blood and urine not examined.

Diagnosis. Status lymphaticus; +thymic asthma seemed here unquestionable.

Unfortunately there was no Roentgen-ray apparatus within twenty miles, and the parents refused to send the child to the Children's Hospital for Roentgen diagnosis and treatment, in spite of my warnings as to the dangers of the condition. Six months later I learned that the child died without apparent cause while playing in his sand pile, previous to which he had coughed and wheezed a great deal.

Case 5. E. T. Female. Five months old, youngest of three children. Family well. No contagious diseases.

Past History. Full term, normal delivery. Birth weight, 9¼ pounds. Is breast fed. Has had no digestive disturbance except for difficulty in nursing owing to the rapid breathing. Has gained slowly but consistently. Tends to be constipated; has always "breathed hard."

Present Illness. Comes for examination. Mother thinks child has growth in throat which has caused this hard breathing since birth. When nursing, the child cannot breathe through the nose, but sucks once or twice, then gasps for breath, breathes rapidly three or four times, then sucks once or twice, and so on. Has never been blue, but has wheezed of late.

Physical Examination. Well developed and nourished. Weight, 14 pounds, 4 ounces. Breathes quietly when undisturbed, but with distinctly more expiratory sound than is usually heard. When handled or disturbed breathes much more rapidly and noisily, especially during expiration. No wheeze noted. Anterior fontanelle three-fourths by one-half inch, level. Ears negative. No teeth. Throat not red. Tonsils not unusually large. Small adenoid felt. (No obstruction.) Lungs, good resonance throughout except in region of upper sternum, where there is a shield-shaped area of dullness to percussion (ordinary) extending 3 cm. to the right of mid-sternum and 2½ to left, and continuing down into area of cardiac dullness.

Pressure over supra-sternal notch and over manubrium increases the harsh sound of breathing. Lungs have few râles. Expiration is harsh, prolonged and high pitched with coarse moist râles, no piping râles and no wheezing, but type of breathing is asthmatic without the wheeze. Heart not enlarged. Sounds rapid, good quality, no murmurs. Abdomen, liver edge just felt. Spleen not felt. No general superficial glandular enlargement. Genitals negative. Physical examination otherwise not notable.

Roentgenogram showed enlarged thymus corresponding closely to area of dullness but more rectangular, relations pretty much the same.

Subsequent History. Received four exposures of 5 minutes on succeeding days. Seemed much worse after the first treatment, but symptoms were practically clear after the fourth exposure. Two weeks later no enlargement could be made out by threshold percussion. Child remained free of symptoms and gained well for four months, when breathing became again asthmatic in type, but not bad. Parents then, without consulting me, had given three treatments of 10 minutes each, three days apart. Two weeks after that I saw the child during a slight digestive upset and could find no trace of thymus or suggestion of asthmatic breathing. The child has remained well since.

The following case kindly reported to me by a colleague I add as an illustration of how easy it is to overlook an enlarged thymus, probably because we do not think of it, in the presence of dyspnea with symptoms of tracheal stenosis, and (as we usually do) make a diagnosis of laryngeal diphtheria. In this case an early diagnosis and Roentgen ray treatment might have saved the child.

Case 6. C. L. Male, 3 years, American.

Family History and Past History. Negative.

Present Illness. Past two weeks abscess in left cervical region; abscess opened by doctor and child getting well. Seen this evening at 6 p.m. and child had a hearty supper, seemed perfectly well and happy. At 7 p.m. child vomited and began to breathe hard and exude froth from mouth. About 9 p.m. child became worse, breathing very difficult. At 11 p.m. child seen by doctor and sent to diphtheria ward of hospital with diagnosis of laryngeal diphtheria. Admitted to ward at 12, midnight.

Physical Examination. A well developed and nourished child, quiet and apathetic, preferring to lie on the side; somewhat cyanotic; breathing labored with gurgling noise on respiration, no crowing sound. Child talks clearly. Marked retraction, on inspiration, of the intercostal and supraclavicular spaces. Reflexes normal. Pupils equal and react. Skin clear. Slight enlargement of the cervical glands. Discharging sinus on left side of neck just below the tip of the mastoid. Throat shows a large pair of tonsils. Large amount of bloody foam comes up the pharynx on smallest instigation. No membrane.

Heart very rapid, sounds weak and stopping. Apex unable to make out. P_2 greater than A_2. No murmurs. Pulse rapid, easily compressible.

Lungs, dullness at both bases with diminished breathing, above the dullness there are coarse, bubbling râles.

Abdomen, liver large, 3 cm. below costal margin. Spleen not felt. Soft, tympanitic. Temperature 99(?). Respirations 50, pulse(?). Antitoxin ordered, 12,000.

Patient had just received an initial dose of antitoxin of 4000 units when he stopped breathing without warning. Artificial respiration done at once and 1-40 gr. strychnia s.c. given, but without avail. The child proceeded to throw out a lot of mucus from mouth and bloody fluid from nostrils and after three inspirations at long intervals, the child died, the heart having stopped long before the breathing at 12.45.

Autopsy performed the next day shows the following salient points:

1. Excessive free yellow fluid in both pleural cavities.

2. Both lungs congested, dark, and hard to the feel. On section it exudes bloody fluid and froth. Peribronchial and root of lungs lymph nodes much hypertrophied.

3. Heart normal.

4. Thymus large, extending from thyroid cartilage down along and covering the deep structures of the neck; both lobes completely cover both auricles of heart, the length and width of the thymus gland being approximately 12 x 5 respectively.

5. Liver larger than ordinary size, dark and congested. On cut section shows markings obliterated by much fluid, very edematous. Gall bladder large, engorged with gall.

6. Spleen good size, also dark and congested.

Perhaps I ought to describe what I speak of as "threshold percussion" in the above cases. It is performed as follows: The mother, or the nurse, sits in a chair backed up into a corner of a small, quiet room (the bathroom serves very well), holding the child in her lap, the child's head hanging over either thigh. The physician starts percussion well out on the chest with such light strokes that when the ear is within a few inches of the area under percussion only the faintest possible resonance is heard. As the finger is moved care is taken to keep the percussion stroke uniform. When sound disappears dullness begins. Unless done in a quiet room and upon a quiet child this method is valueless. I have found it particularly satisfactory in determining the right border of the heart in small children.

The above cases are too few to admit of any hard and fast conclusions, nevertheless it seems fair to assum that—

1. We should be more on the lookout for enlarged thymus in cases of asthma, persistent bronchitis, and laryngeal or tracheal stenosis.

2. Inasmuch as the percussion outlines corresponded so closely with those shown by the Roentgenograms, the enlarged thymus should be found on examination by the ordinary methods of physical diagnosis, of which threshold percussion is apparently accurate and satisfactory in the hands of one familiar with children.

3. Children showing enlarged thymus present two fairly uniform sets of respiratory symptoms:

a. Those due to pressure on the trachea, as shown by cyanosis, slow, labored breathing and supra-clavicular and sub-sternum retraction.

b. Those presumably due to toxemia or hyper-secretion of the thymus, namely, breathing of the asthmatic type characterized by fairly easy inspiration and long, difficult expiration, accompanied by râles.

4. Inasmuch as in all the cases treated the symptoms for which treatment was instituted disappeared when the physical evidences of enlarged thymus disappeared, there is a causal relationship between—

a. The enlarged thymus and the pressure symptoms.

b. The enlarged thymus and the asthmatic symptoms which were obviously not due to pressure, therefore probably due to hyper-secretion.

5. Pressure symptoms and toxic symptoms may be combined in the same case, but those of the toxic type are more constant.

XVIII.

The Treatment of Cervical Adenitis in Children.

By W. E. Ladd, M.D.

At the present time there is no uniform method of treatment of tubercular vervical adenitis adopted by the profession at large. I am writing this paper with the hope that by provoking discussion and adding my experience to that of others we may help to establish more uniformity of treatment of this disease in the future.

The methods of treatment which demand our attention at present are: Open air and hygiene alone, hygiene combined with tuberculin and palliative surgery, with X-ray therapy, with heliotherapy, with palliative surgery and with radical surgery. It will be seen that in this list of treatments, hygiene by which is meant open air, nourishing food, etc., is agreed to almost universally, and there are undoubtedly a certain number of patients who get well under this form of treatment alone. But they will not all recover under this therapy and we must consider what form of treatment added to hygiene will give us the best results.

The merits of tuberculin combined with palliative surgery, by which is meant the opening and drainage of abscesses as they occur, has been talked of a good deal during the last few years and recommended by many. Among quite a large number of cases that I have seen during the past five or six years I have been able to observe several patients treated in this way for varying lengths of time. I have always been disappointed in the results and the persistence of sinuses and the continued necessity of frequent dressings. Nor has the improvement in general condition of the patient ever been very striking to me. Of course the patients that I have seen under tuberculin treatment are only those requiring surgical care so that I may get a false impression of its efficacy. However in reviewing an article written in January, 1912, by John B. Hawes, 2nd, who is certainly an ardent advocate of tuberculin and hygiene, I find he reports twenty-one cases of tubercular cervical adenitis in children with ten apparent cures after treatment averaging eleven months in duration. He includes in his apparent cures patients in whom most of the glands disappear and whose general condition has improved. Also I note that in these apparent cures, three patients had a few small glands and two had one broken down gland. It has been my experience that such cases usually get well with treatment of the portal of entry and hygiene and incision and drainage of the single broken down gland. But even if he has made ten cures by his system of treatment, out of twenty-one patients who would not have got well otherwise that is an average of less than 50%. With this small percentage in favorable cases the position of advocating such treatment in place of good surgery appears to me untenable as I shall try to show later. These results of Dr. Hawes have interested me particularly because he is dealing with presumably about the same class of patient that we see at the Children's Hospital and in the same climate and also because I have confidence in his knowledge of the tuberculin treatment.

With X-ray therapy my experience has been limited. I have never seen a case of extensive adenitis cured by this means. It seems to me that the principle upon which it is based is irrational: namely the stimulation of periglandular tissue which prevents the gland from breaking down, encroaches on it and eventually causes its calcification. It seems to me more logical to remove the tubercular glands than to shut them up within the body. In superficial broken down glands that are slow to heal I have occasionally found the X-ray of great value, three or four exposures sufficing to cause healing. Likewise a few treatments with the X-ray will sometimes cause healing of a sinus and make possible a clean dissection of the underlying glands. In the few cases in which I have done this though the dissection has been clean it has been difficult on account of the denseness of the periglandular connective tissue. My observations on X-ray therapy though limited have coincided more or less closely in the cases with superficial infections with those of men who have used this form of treatment extensively. Thus Tousey[2] states that the Roentgen ray hastens the healing of sinuses and of tubercular abscesses which have been opened. Iselin[3] considers extirpation of tubercular glands the best form of treatment when the glands are not broken down; when they are, however, he feels that he has had very good results with the X-ray in over two hundred cases.

Heliotherapy has its advocates and apparently has yielded many good results, but is available only for those patients in this community who have sufficient means to enable them to go to high altitudes. That is the value of the sun's rays as a direct therapeutic agent is largely lost at sea level.

With palliative surgery I regret to state, owing to force of circumstances, I have had more experience than with any other form of treatment. The cases which get well under this treatment are those with single superficial broken down glands and these sometimes promptly and sometimes only after long periods of time with comparatively frequent dressings irksome to both the surgeon and the patient. In patients who have more than one gland involved which is of course far more commonly the case, palliative surgery has nothing to recommend it so far as I have ever been able to observe. In

* Read at the annual meeting of the New England Pediatric Society, December 12, 1913.

such cases the most superficial gland breaks down first, this is opened and about the time it begins to heal the next gland deeper in becomes fluctuant and requires incision. This succession of events continues until all the glands have broken down and been drained. Though the patient may eventually recover it is only after a period of months or even years and then with a neck presenting numerous and extremely unsightly and irregular scars.

What is the logical treatment for tuberculous infection of the cervical lymph nodes? We know from animal experimentation and perhaps more forcibly from the clever clinical experiments of Goodale[4], who injected coloring matter into the crypts of the tonsil and recovered it in the cervical glands, that we have to do with a descending infection. This infection has for its common portal of entry the tonsil, though we know from the experiments and observations of Stark[5] and Cornet that carious teeth may be the site of the primary focus. From other observers we find that the adenoid, the ear and the nose may though more rarely be guilty of harboring the primary infection. With these numerous sites through which the tubercle bacilli may gain entrance to the cervical glands it is not always easy to find which one is the portal of entry, but our knowledge of the distribution of lymph vessels makes it possible to avoid making many mistakes. Thus we know, for example, that the glands under the angle of the jaw drain the tonsil, the submental group the teeth and the anterior chamber of the nose etc.

Fortunately the glands most commonly infected are those in the superior carotid triangle under the angle of the jaw, and these are the glands which drain the tonsil. In these cases the tonsils should always be removed regardless of their appearance. I was surprised to find in an article by Judd[6] reporting several hundred cases from the Mayo clinic that he was able to trace the portal of entry in very few cases. He found that less than one per cent. of the tonsils examined had tubercular lesions. In my own series of forty dissections of the neck I have had the tonsils examined in sixteen cases. I am indebted to Dr. H. W. Karsner of the Pathological department of the Harvard Medical School for examining these with much care and for his report which now follows.

Histologically, unquestionable tuberculosis was found in ten of the 16 cases examined, or in 62.5%.

Grossly, the tuberculous tonsils with one exception failed to show any evidence of tuberculosis; the one exception (H. 13-233) showing in cross section numerous small yellow apparently necrotic areas, but nothing on the outer surface. The tubercles found histologically in this case were very distinctly caseous. Throughout the series the tubercles were either miliary or very small conglomerations, three cases showing no noticeable caseation, five only very slight caseation and two well marked caseation. Of the last, as indicated, one was sufficiently marked to be seen grossly in cross section, the other was not noticeable to the naked eye. The number of tubercles was either great or small, the tonsils being divided in this respect, five showing only a small number, five a great number. This point is of little significance for the results represent the picture as seen in only a few slides of each case; serial section might easily have produced a different picture. The same source of error is found in an attempt to group the cases according to situation of the lesions. From the examination of the slides, however, it was found that four cases showed a deep situation of the tubercles, *i.e.*, near the deep capsule, three showed a distinctly superficial position, *i. e.*, near the surface epithelium, and three cases showed wide spread diffusion of the tubercles. Giant cells, for the most part were frequent and typical, although in three cases they were in relatively small numbers, but, nevertheless, quite typical in morphology. The following table indicates the results:—

TABLE I.

FINDINGS IN REFERENCE TO TUBERCULOSIS.

	Position of Tubercles.			Number.		Giant Cells.		Caseation.*	Gross Evidence of Tuberculosis
Case.	Deep.	Superficial.	Widespread.	Few.	Many.	Few.	Many.		
11-1230			+		+		+	+	—
12-20		+		+			+	—	—
12-829			+		+	+		—	—
12-913		+		+			+	v. s.	—
13-103	+			+			+	v. s.	—
13-233	+				+		+	+	+
13-147	+			+		+		—	—
13-250		+			+		+	v. s.	—
13-289	+			+		+		v. s.	—
13-399			+		+		+	v. s.	—

* V. S. indicates a very small amount of caseation, — indicates a practically negligible amount of caseation, and + indicates well-marked caseation.

The tuberculous tonsils showed pathological changes in addition to the presence of the tuberculosis. Histologically, there was well marked retention in the crypts in four cases, slight retention in four cases and practically normal crypts in two cases. The follicles, particularly

germinal centres, showed slight hyperplasia in six cases, marked hyperplasia in two cases and were normal in three cases. There was moderate or well marked hyperplasia of the connective tissue in four cases, slight hyperplasia in two cases and a normal connective tissue in four cases. A review of the following table will show that of the ten cases, only one was normal aside from its tuberculous condition (13-399), two were only slightly diseased (13-829, 13-233) and the rest would have been considered distinctly pathological tonsils even had there been no tuberculosis present. Of the three only slightly diseased generally, two (13-399, 13-829) showed wide-spread tuberculosis and the third very well marked tuberculous involvement. It can not be said that there is any parallel between the degree of tuberculosis and accessory involvement. The table follows:—

TABLE II.

NON-TUBERCULOUS CHANGES IN TUBERCULOUS TONSILS.

Case.	Consistence.	Follicular Hyperplasia.	Retention in Crypts.	Connective Tissue Hyperplasia
11-1230	Soft	Slight	Slight	Moderate
12-20	Soft	Slight	Marked	Moderate
13-829	Firm	—	—	Slight
12-913	Normal	—	Slight	Slight
13-103	Soft	Marked	Moderate	—
13-233	Soft	Slight	Slight	—
13-147	Soft	Slight	Marked	Well marked
13-250	Normal	Slight	Marked	—
13-289	Normal	Slight	Slight	Well marked
13-399	Normal	—	—	—

The so-called non-tuberculous cases include those in which the few sections made failed to demonstrate histological tubercles. It is possible that serial sections might have shown tubercles and it is further possible that injections into guinea-pigs might have revealed the presence of tubercle bacilli in the tonsils. Of these cases, however, only one showed tonsils that were normal. The others showed various alterations, which singly or collectively stamped the organs as pathological. These changes are indicated in the following table. One case (13-193) was thought on gross examination to be tuberculous because the cross section of the enlarged organ showed numerous small yellow neurotic areas, but histologically these were found to be markedly distended and cystic crypts. The table follows:

TABLE III.

HISTOLOGICALLY NON-TUBERCULOUS TONSILS.

Case.	Consistence.	Follicular Hyperplasia.	Retention in Crypts.	Connective Tissue Hyperplasia
12-451	No Note	—	—	—
12-570	" "	Moderate	—	Marked
12-60	" "	Marked	Marked	Marked
13-135	" "	Moderate	Marked	—
13-215	" "	Moderate	Marked	Moderate
13-193	" "	Slight	Very marked	Slight

To summarize, it may be said that of the sixteen cases studied, only one (12-451) presented normal tonsils. Of five others, which were tuberculous, four showed sufficient retention of necrotic material in the crypts to regard them as seriously diseased tonsils. Of the ten tuberculous tonsils, all were regarded as seriously diseased because of the presence of tuberculosis and of these, seven were sufficiently diseased otherwise to justify removal.

The gross examination of the tuberculous tonsils showed nothing characteristic except in one case and the gross appearance of this case (13-233) was not sufficiently distinctive to differentiate it grossly from the appearance of a non-tuberculous tonsil (13-193) in which distention of the crypts produced yellow caseous areas in the cross section.

The tuberculous process in the involved tonsils was active and in no case was there found any attempt at encapsulation, although in two cases (12-829, 13-147) the large number of epithelioid cells and almost complete absence of necrosis gave rise to the belief that the tubercles were growing in a somewhat resistant tissue.

As far as can be concluded from the limited number of cases studied, 62.5% of cases of tuberculous cervical lymphadenitis show active tuberculosis of the tonsils. Of the remaining 37.5%, or six cases, five, or 83.3% of the non-tuberculous cases, showed pathological alteration, sufficient to justify removal, especially when it is considered that the presence of a low grade chronic inflammation may favor infection. Hence, had these tonsils remained they might have been a serious menace to the patient because of the danger of subsequent infection by a variety of organisms, including the tubercle bacillus. That these patients might be consid-

ered immune to tuberculous infection because of the attack of tuberculous cervical lymphadenitis, successfully combated by surgical removal, is not borne out by immunological studies of the disease.

These findings bring out two facts very clearly to my mind. First that there are many tubercular tonsils, which can not be diagnosed by inspection of the throat, and consequently the recommendation we hear so often made that in cases of cervical adenitis the throat be only examined is not to be commended. The tonsils should be removed as a matter of routine. Second that if anyone is still so misguided as to recommend a guillotine operation without the removal of the capsule he will probably leave the primary focus of tuberculosis in the throat. It will be seen from these facts that the first step in the treatment is the removal of the primary focus. After this has been done the question arises of how extensive a dissection of the neck is required. I feel that there has been a good deal of misunderstanding by the use of the term radical. A radical operation in the neck means to many physicians an enormous incision extending from the tip of the mastoid down to the middle of the clavicle and across to the sternal notch with the removal of all glands and gland-bearing structures underneath. I have seen such dissections dexterously performed without the removal of the tonsils followed by recurrence of the glands within three months. I do not consider such an operation radical in the true sense of the word which really means the destruction of the disease with its root. Any operation which omits the primary focus is not radical no matter how extensive. A radical operation can be performed through a small incision leaving an inconspicuous scar in the majority of cases. The incision of choice is a transverse one made in one of the natural creases of the neck as recommended by Dowd[7]. Through such an incision the whole of the superior carotid triangle can be reached easily and a part of the inferior and occipital triangles. Where the glandular involvement is very extensive the large incision is essential. This however is not very often required.

With a logical operation what results can we offer the sufferers of this form of tuberculosis? Dowd reports statistics on two hundred and seventy-five cases of which number fifty-four observed for from five to thirteen and a half years 98% were apparently cured. Forty-two observed for from three to five years 88% apparently cured. Eighty-seven patients observed for from one to three years 83.8% apparently cured. Ninety-two patients observed less than one year 85.8% were apparently cured. Of the total two hundred and seventy-five patients approximately 88% were apparently cured. He reports one death from a secondary hemorrhage from the internal jugular vein. Judd reports six hundred and forty-nine cases without any direct mortality but with one patient dying a few weeks after operation from general tuberculosis and one three months later from diffuse sepsis. Mitchell[8] reports similiar good results.

In my own small series of forty cases one patient died a few days after operation with symptoms suggesting meningitis. Of the remaining thirty-nine, thirty have been followed for periods of time from three months to two years. The other nine have been operated on too recently to suggest the probability of their cure. Of the thirty patients followed twenty-five are apparently cured by which I mean they show no signs of recurrence, no palpable glands and are in good general condition. These patients as a rule have improved very promptly in their general condition following operation. That is in a matter of about three weeks they begin to have a better appetite, put on flesh and improve in color, and do not need medical attention other than instructions about their mode of living. Of the other five not apparently cured, one shows no palpable glands but is in poor general condition though no site of disease has been discovered. Two patients had recurrences on the opposite side of the neck; one has a few small glands along the posterior border of the sterno-mastoid muscle, one has a small swelling in the scar. This gives in my series approximately 83% of apparent cures. I expect that some of these patients who are apparently cured now may have recurrences later and I expect to cure some permanently who now have recurrences so that the average will not be altered much. Of this series of cases of mine, only eleven have been operated on at a favorable time for operation, by which I mean before the glands had broken down or before sinuses had occurred. Of these eleven all the wounds healed by first intention. Nine have no recurrence. One has a few small glands along the posterior border of the sterno-mastoid and one has not had time to have recurrence.

With these facts in view I feel justified in drawing the following conclusions. That thorough extirpation of all infected glands with the primary focus yields by far the highest percentage of cures of any form of treatment yet devised.

That active tuberculosis of the tonsils in cases with cervical adenitis is probably far more common than has been supposed.

That to accomplish a cure by radical surgery requires far less time than by other means. This I believe to be a point of practical importance for although a child's time may be of small value, the time of the parent who brings the child may be of considerable value. To advocate the head of a family losing half a day a week for six months or more should be avoided when possible.

That to avoid unsightly scars and to insure first intention wounds the patients should be

operated on early before the glands have broken down.

That hygiene has a very important place in the after treatment and that the surgeon needs the cooperation of his medical brethren to help carry this out and to refer cases early.

The small size of the Children's Hospital has handicapped us considerably in the past by preventing our taking cases in promptly when the patients are in a favorable condition for operation. I hope that the new hospital will remedy this situation in part and I expect two years from now to report far better results than at present.

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XIX.

A Case of Lymph Cyst of the Mesentery.

By Charles G. Mixter, M. D.

The rarity with which cysts of the mesentery are met with at operation and the scarcity of accurate reports in the literature, with a careful analysis of the contents of the cyst and a microscopic examination of its wall, indicate the importance of reporting individual cases of this disease.

Catherine Donovan. Age, 4½ years. Jan 15, 1913.

Complaint. Swelling of abdomen for one month.

Family History. Father died three years ago of apoplexy. Mother and four brothers living and well.

Past History. Full term, normal delivery, breast fed 9 months. No known exposure to tuberculosis. Measles at one year. Otherwise well. Appetite good, bowels normal.

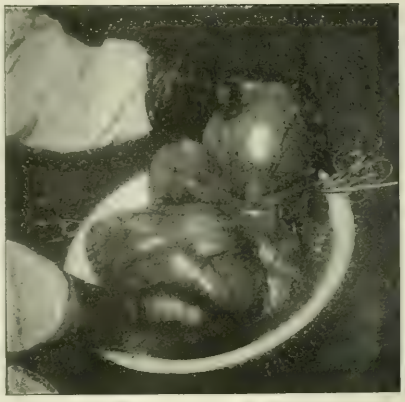
Present Illness. Three weeks ago mother noticed that abdomen was swollen and patient complained of discomfort. Given castor oil and diet was restricted without relief. Patient began to lose appetite. Child did not want to play. Abdomen gradually increased in size. No fever, no cough, no night sweats, no edema of face or legs, no vomiting or headache.

Personal Examination. Fairly developed and nourished girl, showing considerable loss of weight and pallor, breathing somewhat shallow. No glandular enlargement. Reflexes normal. Tonsils hypertrophied. Heart normal with the exception of somewhat rapid pulse, 110. Lungs showed signs of compressions at both bases, with slight dullness and with a few moist râles. Abdomen, tremendously large, symmetrical, dull throughout except for a small tympanitic area in epigastrium; 72 cm. in greatest circumference. No masses felt. Superficial abdominal veins distended. Blood examination: Hgb. 85%, white count 14,000. Von Pirquet reaction negative. Urine negative.

In spite of the fact that the Von Pirquet reaction was negative, a diagnosis of tubercular peritonitis was made and operation advised.

ETHER OPERATION.

Jan. 18, 1913. Two-inch right rectus incision near median line, peritoneal cavity opened with the escape of a small amount of free, straw colored, slightly cloudy fluid. The peritoneum was not thickened, no tubercles seen. On exploration of the abdomen a large, very thin walled, non-adherent lobulated cyst was found extending from the pelvis to the ensiform and filling the whole of the abdominal cavity. As the point of origin of the cyst could not be found on account of its size, the cyst was tapped and the greater portion of the fluid was withdrawn. Three quarts of fluid were saved, another quart or more being lost. Fluid was greenish yellow with a large amount of flocculent material and a number of clots which appeared to be fibrin, greenish yellow in color, the largest being the size of an English walnut. The wound was then enlarged and the cyst wall delivered, and it was found to arise from the mesentery beneath the first portion of the jejunum. The cyst grew laterally from either side of the mesentery and formed three lobes, two on the superior side of the mesentery and one on the inferior, the latter being the larger. The lobes of the cyst when distended with fluid lay closely approximated and the loop of jejunum beneath which the tumor arose, lay flattened out at the bottom of the sulcus. The intestine lay directly on the cyst wall, from which it could not be separated, and the only method deemed advisable was resection of the overlying loop of jejunum. Intestinal clamps were placed on the intestine on either side of the cyst, the mesentery beneath and on either side of the cyst was tied off in sections, and the cyst together with about eight inches of the adherent jejunum, was resected. A lateral anastamosis was done between the proximal and distal ends of the jejunum. The V-shaped gap in the mesentery was closed with catgut. A num-



* Read at the meeting of the New England Pediatric Society.

ber of enlarged glands were found in the mesentery, one of which was excised for microscopical examination. The abdominal wound was closed in layers without drainage and the child was put to bed in fair condition.

The patient recovered well from the operation but for six days was unable to retain any nourishment. Small amounts of liquids given by mouth might be retained for a number of hours and then the whole amount of nourishment given would be vomited in an explosive manner. No relief was obtained from gastric lavage. Bile was noticed in the vomitus. During this time she was given nutrient enemata every three hours, consisting of three ounces of peptonized milk and one dram of brandy, which were retained and absorbed remarkably well. X-rays were taken of bismuth given by stomach tube, and a dilated stomach and duodenum was found, with an apparently complete obstruction at the lower end of the duodenum, no food passing this point 48 hours after the meal was given. The temperature remained nearly normal. The pulse ranged about 90 until the fifth day after operation, when it rose to 120 and became intermittent. On Jan. 24 a further operation was deemed necessary to relieve the obstruction at the lateral anastomosis.

ETHER OPERATION.

Jan 24. Four-inch left rectus incision near the median line from the costal margin downward was made. No free fluid or indication of peritonitis was found. The omentum and transverse colon were lifted up, after freeing a small tag from the first operative wound. On investigation, the small intestine was found to have been rotated on its mesentery so that the body of the small intestine was found to lie chiefly in the upper right quadrant of the abdomen with a torsion of the mesentery to the right. The iliocecal valve was found on the left side of the abdomen just below the umbilicus. The pull on the superior vessels of the mesentery was sufficient to cause considerable obstruction to the circulation and tension on the anastomosis which had been made at the previous operation. The intestine at this point was thickened, plum colored, and the stitches, which had so far held without leakage, were beginning to pull through the coats of the intestine and on manipulation of the anastomosis the sutures gave way, leaving a large opening into the lumen of the intestine. The anastomosis was protected with gauze and the small intestine replaced in its normal position. An attempt was made to close the wound in the anastomosis but the stitches tore through the friable intestinal coats. Clamps were then applied, and the anastomosis and about one inch of intestine on either side was resected and an end-to-end anastomosis done, as it was found that the upper end of the jejunum was too short to permit of a lateral. As there was some doubt of the patency of the opening on account of the infolding of a large amount of tissue at the point of anastomosis, the small intestine was opened below the point of suture and a half length forceps passed upward through the anastomosis, which was found to be patent. The opening in the intestinal wall was then closed. The intestine in the region of the union was of normal color, showing that the circulation was no longer impeded. The abdominal wound was then closed in layers, without drainage.

Following operation there was some vomiting for four days, but at no time did the quantity of vomitus equal the total of liquids ingested. Bile no longer appeared in the vomitus. Nutrient enemata were continued at increasing intervals for one week, at which time they were omitted. Soft solid diet was given at the end of a week. House diet with care after the tenth day. There was some superficial suppuration in both wounds. A series of bismuth x-rays were taken three and one-half weeks after the second operation and showed the bismuth remaining in the stomach for an abnormally long time, apparently due to spasm at the pylorus, as there was none in the duodenum after nine and one-half hours. The bismuth was then expelled rapidly from the stomach and met with no obstruction in the small intestine. The patient made a rapid convalescence with steady increase in weight and was discharged to Wellesley convalescent home, Feb. 19.

She remained at Wellesley until April 9, and during this time only vomited once, on March 14, a small amount of thin yellowish fluid. Her weight increased from 27 pounds on March 7 to 35 pounds on April 9.

On Jan. 10, 1914, a report received from the mother of the child states that the patient is in excellent general health, has gained normally in weight and plays actively with other children; no digestive disturbances or trouble with the bowels were mentioned.

The following pathological report was made by Dr. W. F. Whitney, Harvard Medical School.

The specimen consisted of a cyst from the mesentery. It contained a large amount of fluid of a slightly yellowish opalescent color, specific gravity 1017, with spontaneous coagulum of fibrin.

Microscopical examination showed an occasional round cell. The wall was smooth externally, and internally it was trabeculated and smooth. The cyst was divided by an adherent piece of intestine into an hour-glass shaped sac, the two parts communicating by a small opening.

Microscopic examination showed in the wall numerous dilated passages, some with a fibrinous coagulum and others empty. The wall was composed of fibrous tissues, here and there with a little fat and lymphoid tissue interspersed.

The points of especial interest in this case were: First—the rapid increase in size of the cyst to its really enormous proportions; second—the absence of symptoms with the exception of those of pressure upward upon the diaphram; third—the transposition of the small intestine which had apparently been caused by the downward growth of the large inferior lobe of the cyst causing a torsion of the mesentery and rotation of the small intestine pulling the cecum across to the left side of the abdomen.

Mesenteric cysts were first noted at necropsy in the 17th century. The work of Arekion in 1891, Moynihan in 1897 and Dowd in 1900 was of importance in collecting the cases scattered throughout the literature and classifying them.

Moynihan classifies mesenteric cysts as—1. Dermoid, 2. Serous, 3. Chylous, 4. Sanguinous, 5. Hydatid, 6. Cysts of Adjoining Organs, 7. Cystic Malignant disease. He believes in the retention theory of their origin suggested by Virchow and supported by Rokitanski, that the

lymphathics are occluded, and dilatation and cyst formations gradually take place. Chylous cysts occur by the occlusion of the chyle vessels or their rupture into pre-existing lymph or serous cyst. The sanguinous cysts arise in a similar manner. In a later paper he gives his opinion that many of these cysts develop from embryonic remains of the Wolffian bodies.

Dowd, on the other hand, believes that with the exception of hydatid and malignant cysts, all the cystic tumors of the mesentery arise from embryonic rests, derived from the Wolffian bodies. The doubt as to their origin is increased by the varied microscopical findings, for in the same specimen different loculi of a multiple cyst may be lined with different sorts of epithelium. A few cysts have been reported with endothelial linings and many, as in this case, present a wall composed simply of fibrous tissue.

The latest classification advanced by Child endeavors to clear up the meaning of the word mesenteric cyst. He contends that a dermoid should be classified as such whether it occurs in the ovary or mesentery or elsewhere. He excludes all forms of cysts from his classification except entero-cystomata which he believes are derived from Meckel's diverticuli and contain smooth muscle fibers in their walls; and cysts arising from the lymphatic system which may be lymphangiomata, simple, cystic, or cavernous, or chylous which are derived from the chyle vessels. It is probable that with the exception of hydatid and malignant cysts, mesenteric cysts, including dermoids, are of congenital origin. The latter arise from ectodermal inclusions. Others arise from embryonic rests of the Wolffian body or primary genital gland; another group are derived from Meckel's diverticuli; while still another class, of which this case is an example, take their origin from a congenital occlusion in the lymphatic system.

It is interesting to note that most of the serous cysts occur in the omentum, the intestinal edge of the mesentery, the mesocolon, and in the retroperitoneal region; while cysts which occur in the mesentery, except at the intestinal border, usually contain chyle.

Mesenteric cysts may be quiescent, to be revealed only at necropsy, or they may give rise to digestive disturbances of an acute or chronic obstructive nature. In their growth they fix the intestine and encroach upon its lumen by appropriating the mesentery to themselves, the bowel becoming flat and ribbon-like where it runs across the surface of the tumor. Pain may be caused by pressure on neighboring viscera or by secondary inflammatory changes.

In the early stage, the tumor lies near the median line in the upper abdomen and is more freely movable than other tumors in this region. Rapid increase in size may be caused by hemorrhages from the vessels of the wall into the cyst; or trauma without hemorrhage may produce a rapid enlargement.

There are four methods of procedure in the treatment of mesenteric cysts—1. Aspiration, which has been practically discarded on account of the large percentage of recurrence; 2. Enucleation, which can only be applied in a limited number of cases owing to the interference with the circulation of the intestine on removal of the cyst; 3. Marsupialization, or drainage of the cyst by stitching its wall to the anterior abdominal parietes; 4. Extirpation of the cyst with resection of the adherent intestine. The latter is the method of choice and though the statement made by Coley three years ago was a mortality of forty per cent., it is undoubtedly lower at the present time. Drainage of the cyst by connecting it with the abdominal wall is useful in cases where a radical removal is impossible or where there is severe infection. Treatment of cysts by this method does not lead to the establishment of permanent fistulae.

XX.

Flat Foot in Children.

By Albert Ehrenfried, M.D.

A study of the records of 1000 children under 12 years of age applying consecutively for treatment at the out-patient department of the Children's Hospital, in 1912, showed 440 having some static disability of the feet. These cases could readily be divided into three classes: congenital (18), idiopathic (95), and secondary (327.)

The 18 congenital cases, being the result of mechanical influences acting in utero, may be more properly classified with club foot. They belong to the type which I have described elsewhere[1] as potential calcaneo-valgus. In this condition the foot is not held fixed in the position of deformity, but it hangs flaccid in the normal position, assuming the position of extreme deformity on the application of very slight force, or even under the influence of gravity. This is the most frequent cause of delayed walking in children otherwise normal, which is explained by the fact that in this condition the child loses its ability to balance upon its feet. It is seen soon after birth and later; it is likely to lead to the most aggravated type of flat foot, and it sometimes requires operative treatment.

The secondary cases, which are by far the most numerous (327), include all those in which some primary causal factor is evident: rickets, represented by bow-legs, knock-knees, coxa vara, was present in approximately 200 cases, infantile paralysis in 107 cases, and tuberculosis of the knee, hemiplegia, lead, post-diphtheritic

[1] Ehrenfried: The Occurrence and Etiology of Club-foot, Jour. Amer. Med. Asso., vol. lix, p. 1940.

or spastic paralysis in 20 cases. In many of these the foot symptoms were of minor importance. In a considerable number, however, the diagnosis was not simple and the case was considered one of idiopathic flat foot until continued observation revealed the causal condition. In this inquiry no consideration was given to the type of flat foot, sometimes called traumatic, which arises as the result of wearing a plaster cast for a considerable time, or which occurs in a foot which is bearing the entire weight of the body, on account of disability of the other leg.

The third division, which may be called *idiopathic,* includes all the cases of weak, pronated, or flat feet for which no cause could be assigned, to the number of 95. Of these 52 were boys, of an average age of 6½ years, and 43 were girls, of an average age of 7 years. An examination of the history of these cases showed certain points in common. The condition was evidently due to insufficiency of the muscles supporting the arch of the foot, and was usually part of a general physical debility or lack of muscle tone. Some of the children were well nourished and otherwise in apparently good physical condition. A few were considerably over-weight, but it does not seem to me probable that weight alone, unless it be excessive, can be held responsible in these cases, for in a normal child increase in weight is met by a corresponding increase in power in the muscles of the leg. Bad shoeing must be ruled out in the majority of these cases, as the average child was too young to present marked symptoms from this cause. A considerable number showed evidence of other static disabilities, such as relaxed knees, round shoulders, functional scoliosis, protuberant abdomen, and gastroptosis.

Examination of the histories of 55 cases in which the records were full enough to be of value demonstrated that these 55 children, at an average age of 7 years, had had 147 diseases, including measles 30 times, whooping cough 24 times, chicken pox 11 times, tonsils or adenoid operation 10 times, pneumonia 8 times, scarlet fever, mumps, and glandular abscess each 7 times, bronchitis 5 times, chronic indigestion 4 times, otitis media 4 times, malaria, operation for hernia and appendicitis each 2 times, diphtheria, typhoid, phthisis, meningitis each once, and other conditions 20 times. One is at once struck by the multiplicity of the disorders from which these children suffered, and particularly by the frequency of the occurrence on this list of the infectious diseases, probably much above the average incidence in children at this age. Evidently these conditions are predisposing factors, and the obvious assumption is, that the child, being in poor physical condition as a result of repeated or long continued illness, suffers from a muscular insufficiency which is responsible for the static disability. Poor nutrition, without evidence of any definite illness, also accounts for a certain number of cases.

Attention may profitably be given to the *prophylaxis* of this condition. In the first place this requires regulation of the feeding in infancy and early childhood. Proprietary foods and other substitutes which may predispose to rickets should be carefully avoided in infancy, and later the diet should be well balanced, avoiding an excess of carbohydrates, and supplying plenty of proteids and fresh vegetables or fruit juices. In the second place the spread of infectious diseases and particularly of infantile paralysis, should be controlled so far as possible. This is a matter largely in the hands of boards of health and school and district physicians. Corrective shoeing and proper exercises will go far to prevent disability in children who are delicate, or weakened as the result of illness.

It is probably true that many cases of flat foot in adults have their inception in some condition of the foot which has been overlooked in childhood. *Treatment* should of course be started early, and the outlook for ultimate restoration of function is considerably better than in adult flat foot. Methods depend on the type.

The cases of potential calcaneo-valgus are brought in soon after birth, on account of the evident deformity, or not until 18 to 24 months, on account of delayed walking. Cases seen within the first few weeks respond as a rule very well to treatment by over-correction and retention in plaster of Paris for a few months. The older children are frequently difficult to treat. Mild cases get well with a tilted shoe and instep pad, worn for about two years. Bad cases need a brace, and may have to be operated. The brace I use is just the reverse of the one I have employed in the treatment of equino-varus,—it is a laced shoe which fits the foot, elevated on its inner border, with a jointed external upright, stopped to prevent dorsiflexion, and a T-strap on the inner side.

The treatment of foot disabilities secondary to other conditions, such as rickets and infantile paralysis, is the treatment of the underlying condition. When this has cleared up or is under control, or if the foot symptoms are the chief element, attention should be directed to their relief. In the paralytic foot muscle training is of great benefit, but operation by muscle transplantation or insertion of a silk ligament frequently becomes a necessity.

The cases of idiopathic flat foot as a rule are of a mild or moderate degree, and respond well to treatment, if carried out for a sufficient length of time. Metal plates should be avoided. Massage of the lower legs, exercises carried out persistently under supervision, the leather instep pad and the tilted shoe are usually adequate. Severe cases may require temporarily the brace which I have already described. The rigid feet and the exostoses of the adult are

not seen. Acute cases need rest in bed or fixation in plaster of Paris.

CONCLUSIONS.

First, the diagnosis of weak, pronated or flat foot should not be made inconsiderately. In 327 of the 440 cases the foot symptoms were secondary to some other condition, which required treatment. Continued observation in many apparently simple cases showed mild rickets or unsuspected infantile paralysis as a cause, and less frequently such conditions as tuberculosis of the knee, hemiplegia, or lead, post-diphtheritic or spastic paralysis.

Second, 18 of the primary cases were congenital. These, the result of mechanical influences prior to birth, are more properly classified with club foot; they belong to the type to which I have given the name of potential calcaneo-valgus.

Third, a study of the other primary cases, 95 in number, shows evidence of muscular insufficiency resulting from physical debility as the leading factor in causation. This debility, as shown by the records, is frequently the sequel of an infectious disease, and is particularly apparent when the child has been the victim of a series of infections in close succession. Other static disabilities, such as relaxed knees, functional scoliosis, and gastroptosis are likely to be present.

Fourth, the secondary cases, which were in the majority, were the result of rickets or of rhachitic deformities in approximately 200 cases, of infantile paralysis in 107, and of other conditions in approximately 20 cases. In many of these the foot disability was a minor incident.

Fifth, prophylaxis of foot disabilities consists in combating the two important causes therefor, rickets and the infectious diseases of childhood. Both of these should yield to hygiene. Measures to lessen substitute nursing of infants by means of proprietary foods or improper milk mixtures, and to control the spread of contagious diseases through schools, which, at the present time, are probably the chief agents in the dissemination of infections among children, will result in an important diminution in the incidence of these conditions.

Sixth, treatment is usually effective.

XXI.

Pyelitis in Infancy and Childhood.

By Edwin T. Wyman, M.D.

Pyelitis is not a rare disease in infancy and childhood, but it is a disease which may be easily overlooked without an examination of the urine in cases of obscure fever.

In the majority of cases there is nothing whatever in the symptomatology to call attention to the urinary tract, the symptoms being merely an elevation of temperature and those common to all febrile disturbances in infancy, such as restlessness, fretfulness and signs of indefinite discomfort. Anorexia is the rule and vomiting is not unusual. The temperature is relapsing in type, often reaching 105°F.

In infants, the physical examination is usually negative, except that pallor is characteristically present. There may be tenderness in the lower abdomen, and in some instances the kidney is palpable, more often on the right than on the left. The spleen may be palpable at the onset of the disease.

In the vast majority of cases the diagnosis can only be made by examination of the urine. Consequently the urine should be examined in all diseased conditions in infancy with indefinite symptoms, especially if febrile, and no physical examination should be considered complete or diagnosis satisfactory in obscure conditions in infancy unless the urine has been examined. Not infrequently these cases of pyelitis are treated for other diseases and as spontaneous cure occurs in many of the acute cases, the presence of pyelitis is never recognized.

Pyelitis in infancy is often associated with more or less intestinal indigestion, and the infant is treated for this condition when the indigestion is really secondary to the pyelitis.

Sometimes the patients object to being handled; are very irritable, and have tenderness of the extremities resembling that in scorbutus. Other cases may have pain and tenderness in the abdomen and have even been operated on for appendicitis. The irregular temperature may suggest malaria or typhoid fever. Some cases may have marked symptoms resembling those in meningitis.

The following are two typical cases in which the diagnosis was overlooked:

Case 1. Frank N. Age, 3 weeks. The family history was negative. He was a full term baby, and the delivery was normal. He weiged 10 pounds at birth, and at the age of 2 weeks he weighed 11 pounds. He was breast fed, and was a normal, healthy baby up to his present illness. One week before he was seen, he did not take his feedings as well as usual. The following day his temperature was normal in the morning and 100.2° F. in the evening. The next day he did not seem quite as well and his afternoon temperature was 104° F. He was thought to have indigestion and was given two teaspoonfuls of castor oil and an enema, with good result. During the next three days his condition grew worse. He was very irritable and his pallor increased. His temperature was irregular, 103° F. to 104° F. in the evening, and 101° F. to 102° F. in the morning. The temperature had never been normal since the onset. The bowels were constipated, the movements greenish, and contained a considerable number of small soft curds. There had been no vomiting and no convulsions. It had been noticed that the urine was "white like milk

and water." The breast milk was discontinued the day before he was seen and whey was given, with no improvement in symptoms.

Physical Examination. He was a well developed and nourished infant. The skin was clear but pale, and the muscles were flabby. The anterior fontanelle was 4 x 5 cm. and level. The ear drums were normal. The throat, mouth, heart, lungs, and abdomen showed nothing abnormal. The liver was palpable 2 cm. below the costal margin. The spleen and kidneys were not palpable. The extremities were normal.

Case 2. Mildred T. Age, 13 months. The family history was negative. She was born at full term, after an instrumental delivery. Her birth weight was 8 pounds. She had been breast fed up to the time she was seen and had always been a well, normal baby.

Ten days before she was seen she was taken suddenly sick with fever and chills, and she had a slight cough. The temperature had never been normal since the onset and had been irregular, sometimes reaching 105° F. She had grown more fretful and irritable every day and had lost considerable weight and a good deal of color. Her bowels had been regular and the movements were normal.

It had been noticed that the micturition had been frequent and painful. For two days before she was seen she vomited nearly every feeding, and for 24 hours before she was seen the vomiting seemed to be of a projectile type. The head had been retracted, and there had been rigor and slight twitching of the arms and legs. There had been no convulsions. She was thought to have meningitis.

Physical Examination. She was a well-developed and nourished, very sick looking little infant. She was very pale and flabby. She had evidently lost considerable weight. She was conscious, but very irritable. The head was held slightly retracted, but it could be easily flexed.

The anterior fontanelle was 2 x 3 cm. and level. The pupils were equal and reacted to light. The ears, mouth and throat were normal. The lips and tongue were dry and parched. There were eight teeth. There was no enlargement of the peripheral lymph nodes. The heart, lungs, abdomen and extremities were normal. There was no spasm or paralysis and no neck sign. The knee jerks were present and equal. There was no Kernig or contralateral reflex.

The urine in both these cases was acid and contained slight trace of albumen. The sediment showed many pus cells, free and in clumps, and many motile bacteria. The symptoms and fever in both these cases disappeared within two weeks, with the alkaline treatment, and the urine was nearly free from pus at the end of three weeks.

In a series of 65 cases of pyelitis in infants and children at The Children's Hospital, Boston, 54% were in infants under two years, and 46% were in children beyond two years. Of these cases 63% of the infants were females and 90% of the children were females. Vomiting was noted in 39% of the cases; painful micturition in 36%; and frequency of micturition in 40%. Chills were noted in 15%; and abdominal pain in 16% of the cases. The average leucocyte count in the uncomplicated cases was 19,000; the lowest leucocyte count was 8,000 in a chronic case; and the highest leucocyte count was 62,000 in a very acute case. The temperature varied from normal, in the chronic cases, to 105.5°F. in the acute cases. There was anorexia, anemia, fretfulness and loss of weight in all the cases.

Pyelitis occurred as a complication with other diseases in these 65 cases as follows:—Otitis media, eight times; pneumonia, seven times; infectious diarrhea, four times; bronchitis, twice; intestinal indigestion, twice; measles, twice; typhoid fever, twice; and tubercular peritonitis once.

Some of these cases yielded readily to treatment, the urine clearing up in two weeks; while other cases were more resistant and were only improved at the end of six weeks.

The organisms responsible for the infection in pyelitis, in a large proportion of the cases are the colon bacilli, although staphylococci, streptococci, and pneumococci are sometimes found.

The urine in pyelitis is pale, uniformly cloudy or turbid; the turbidity is due in part to the bacteriuria, and in part to the presence of large numbers of pus cells; chiefly to the latter. The reaction is almost invariably acid, not infrequently highly so, and there is a slight trace of albumen.

Microscopically the sediment is composed of many pus cells, free and in clumps, many motile bacteria and usually a few caudate, small round and squamous cells.

There are three possible modes of infection.

(1) *The Ascending Theory*: The chief arguments in favor of an ascending infection from the urethra are the much greater frequency of this condition in females, most common in diaper age, and the short wide urethra which makes infection easy when the external genitals are soiled by feces.

(2) *The Hematogenous Theory*: That the bacteria are borne to the kidney by the blood stream.

(3) *The Transparietal Theory:* That the bacteria are transmitted directly from the intestines to the kidney.

Morse writes[1] that in the majority of cases in girls, the infection is through the urethra, while this route is very unusual in boys, and then only when there is some evident lesion, such as phimosis causing stasis, severe balanitis, or an infected wound from circumcision. In most cases in boys and in a fair proportion of those in girls, the infection is probably transparietal, while in both sexes it is occasionally hematogenous[2].

PROGNOSIS.

There is practically no danger as to life. With treatment recovery usually occurs in a few weeks, but the condition may persist with intermissions for many months. In some instances

the urine contains bacteria and at times pus for years, although there is no constitutional disturbance. There is very little danger of the process extending to the kidney, or that it will involve anything more than the superficial layers of the pelvis and bladder.

The pathology shows simply a catarrhal condition of the bladder and pelvis of the kidney. Very few autopsies have been made, because the condition is rarely fatal.

TREATMENT.

The alkaline method of treatment will often suffice to cure the disease. Potassium citrate is given well diluted with water, grains X, three times a day for an infant one year old. If the dose is not sufficient to make the urine highly alkaline, larger doses must be given. Another line of treatment is to change the reaction of the urine every three or four days by first making the urine alkaline with potassium citrate, then acid, with sodium benzoate or benzoic acid in doses of grains iii, three times a day for an infant one year old. This changes the reaction of the media and discourages the growth of the bacteria.

If the urine does not clear up under this treatment, hexamethylenamin in doses of from one to three grains should be used. If the urine is alkaline, it should be made acid with sodium benzoate or benzoic acid. The urine should be tested for formaldehyde by Berman's[2] test and the hexamethlyenamin increased until the urine shows the presence of formaldehyde; the urine being carefully watched for irritation of the kidney.

If the trouble still continues, large doses of hexamethylenamin, aided by autogenous vaccines may be used as Freeman[3] advises, gradually increasing the hexamethylenamin to gr. 25 daily for an infant of six months and grains 25-45 a day for an infant of nine to 12 months. Vaccine should be given every three or four days, beginning with a dose of 25,000,000 and increasing to 160,000,000. The large doses of hexamethylenamin should not be continued for more than a week at a time, and then after several days without any treatment, or with alkaline treatment, the hexamethylenamin should be started again at the same maximum dose given before[4]. The urine should be carefully watched for irritation of the kidney.

Local treatment of the bladder is of comparatively no value, because the infection is not localized in the bladder but involves the whole urinary tract.

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[1] Morse: Am. Jour. Med. Sci., 1909, vol. cxxviii, p. 313.
[2] Janness: Jour. Amer. Med. Asso., 1913, vol. lx, no. 9, p. 662.
[3] Freeman: Am. Jour. Dis. of Children. 1913, vol. vi, no. 2, p. 117.
[4] Freeman: Am. Jour. Dis. of Children, 1913, vol. vi, no. 2, p. 117.

XXII.

Two Cases of Cirrhosis of the Liver in Childhood.

By Theodore Ely, M.D.

While cirrhosis of the liver in children is no longer regarded as an exceedingly rare condition, it is by no means a common one, and that type of cirrhosis which is due to alcohol may still be said to be a most unusual affliction in childhood.

The first case of this kind of which we have a record was reported by Wilks in 1863 before the Pathological Society of London (Pathological Society of London 1863, Vol. XIV.) In succeeding years occasional cases were reported from England, America and the Continent. Among a total of sixty-three reported cases of hepatic cirrhosis of various types R. Palmer Howard in 1887 found ten cases whose cause could be traced to the abuse of alcohol. (R. Palmer Howard in *American Journal of Medical Science*, Oct., 1887) *Haushalter and Richon in 1899 collected twenty cases from the literature. Of these only fourteen came to autopsy and the alcoholic cause of at least one seems very doubtful. In 1907 Bolton of London (Cirrhosis of the Liver in Children—*Clinical Journal*, London, 1907-08) reports that at the time seventy-four cases had been described in the literature. This would scarcely seem a sufficient number to agree with his further statements, that hepatic cirrhosis of some type is found in .2% of all autopsies on children under 12 years of age in England, and that England is noted for its frequency in alcoholic cirrhosis, or with the statistics of various authorities quoted by Rapin (These de Nancy, 1899, Contribution a L'Etude de la Cirrhoe Alcolique) among whom Hebrad traced the origin of seven out of fifty-one cases of hepatic cirrhosis and D'Epine and Picot seventeen out of one hundred to the abuse of alcohol, or with the opinion of Morse (Boston Medical and Surgical Journal, Sept. 11, 1902) that alcohol is responsible for from ten to twenty-five per cent. of all cases in children. In a brief but fairly comprehensive review of the English literature since 1907 I have found only two cases reported in this country and but one of these was proved by autopsy to be of the alcoholic type. (Blakely, Boston Medical and Surgical Journal, 1910) (Davis—Cirrhosis in a Boy of Two Years—*West Virginia Med-Journal* 1912—12.)

The disease seems to be more common in boys than in girls. The youngest case on record I believe is about sixteen months of age. The average seems to be between eight and eleven years.

The symptoms differ somewhat from those found in the adult. Jaundice is a fairly common symptom in children. Epistaxis is as fre-

* Revue Mensuelle des Maladies de L'Enfance, Mar., 1899.

quent and diarrhoea and vomiting more so than in the adult. Haematamesis is less frequent in children but several cases where this was the immediate cause of death have been recorded. Enlargement of the spleen is practically constant in children as is the hypertrophy of the liver in the earlier stages of the disease. The enlargements of the liver is not only more constant in the early stages in children but often persists until death. Dilatation of the superficial abdominal veins is perhaps less common and slight elevation of temperature more common. Ascites and oedema are about as common but seem to appear relatively later in the course of the disease.

The nervous symptoms in children are confined to marked drowsiness and sometimes loss of speech. Peripheral neuritis, delirium tremens, etc., are practically never seen.

The course of the disease is much shorter than in adults. Complications aside from the embarrassed heart action seem rare and the children usually die of the progressive asthenia.

The pathological changes found at autopsy due to the disease *per se* are practically identical with those found in the adult cases except for the constant splenic enlargement.

The two instances of hepatic cirrhosis in children which I have the privilege of reporting to you were observed in a pair of twins, four years of age, first seen in the medical out-patient department of the Children's Hospital on Oct. 6, 1913, and subsequently observed in the medical wards there.

Case History, G. O.

Family History. Father and Mother living and (always have been well) well. Two sisters living and well. Another pair of twins, boys, at 2½ years, living and well. First child died from cholera infantum. Second pregnancy resulted in miscarriage at 3½ months. Fourth pregnancy which followed the birth of first living child also resulted in miscarriage at 3½ months. Neither father nor mother has had sore throat or rash. Both deny specific infection or constant use of alcohol.

Past History. Born instrumentally at full term. Has always been about 4 lbs. heavier than the other twin. His mother says that the infant was black for 24 hours after delivery but then regained normal color and had no paralysis. He was breast fed for 14 months. Had no acute infection until after onset of present illness. Ever since the breast feeding was stopped the mother has been in the habit of giving both children small amounts of brandy at frequent intervals. She started giving three drops every hour, but as the children have grown the dose has been increased until sometimes they have been given a half teacupful at a time. The mother estimates that the children have each had a quart of brandy on an average of at least 16 drops a day since fourteen months old. The father, who confesses to a "moderate" use of alcohol, tells of having found both boys drinking whiskey by the half-cupful when one morning he came unexpectedly into the dining room, where he had been entertaining a friend on the previous evening and had carelessly left a partly filled quart bottle of whiskey on the table. The mother states that the brandy which was first given in small doses because the infants "seemed puny and had no appetite" was later given in larger doses when the children had a toothache or a pain.

Present Illness. In January 1913 patient developed painful swelling on penis. One week later mother noticed yellowish tinge in sclera. Child developed a voracious appetite with constant desire to drink water. Skin gradually turned yellow and has been more or less so ever since. There was no vomiting at the onset. About two months after onset mother noticed the dark smoky red color of the urine and that it left a red stain on clothes. The stools since onset have averaged from 4 to 5 a day and have generally been clay colored and very foul smelling. For a while under medical treatment they became darker. In July last had a severe attack of measles, and for about a month the jaundiced color of skin disappeared, but the urine and stools retained the characteristics noted. For the past two months the abdomen has been growing larger and the rest of the body thinner and the skin has itched. In that period the gums and buccal mucosa have grown tender and bleed easily. Two weeks ago the mother found the patient's pillow and bed clothes covered with blood. No blood has ever been noticed in urine or stools. Two months ago swelling of fingers at the distal joints was noticed. He is now drowsy and sleeps all the time; no headache, digestion seems good, and he never vomits. Since attack of measles has lost considerable weight. Has never had any convulsions, fever, cough or sore throat. For a month before admission was kept on—fat and sugar—restricted diet without improvement. Child looks and acts drowsy.

Physical Examination. Patient is poorly nourished with little subcutaneous fat. Skin is dry and lax and uniformly jaundiced, rough and in spots excoriated from scratching. Petechial spots on arms and legs. Eyes show marked yellow sclera with reddened conjunctivae. Buccal and nasal mucosa reddened and congested and beneath the buccal and palatal mucosa small punctate hemorrhages are visible. The lips are excoriated and cracked. There is a general glandular enlargement. Heart: Boundaries on percussion are 2½ cm. from the right and 7 cm. from the left of the M. S. L. No abnormality of sounds. Lungs negative. Abdomen distended, convex. There is slight shifting dullness but no distinct fluid wave could be demonstrated. The superficial veins are prominent and somewhat distended. Liver dullness begins above at lower edge of 5th rib in nipple line on the right. The lower edge is distinctly palpable 5 cm. below the free costal border in the nipple line and 5 cm. below the tip of the xyphoid in the median line. The edge is smooth and not very tender. Spleen is much enlarged, the lower pole being palpable 7 cm. below the costal border and 4 cm. from the median line. No other abnormal masses palpable. Extremities show no edema. There is marked clubbing of the distal joints of the toes and fingers. Genitals show no edema. Urine was red, smoky, acid and con-

tained bile but no albumin or sugar. Stools were grayish yellow in color, contained bile, no blood, pus or mucous. Blood count showed nothing remarkable in numbers or character of white or red cells. The hemoglobin was 70% by Tallquist. Wassermann's complement fixation test and Von Pirquet skin test were both negative.

Ten days later on Oct. 16th the physical condition showed little change. Jaundice persisted. The boundaries of the heart, liver and spleen showed no appreciable change by percussion and palpation. The urine and stools both contained bile.

At the request of the parents he was discharged home from the hospital on Nov. 4th, four weeks after entrance. The jaundice was much less marked, as was yellowing of the sclera. The petechial spots on the arms and legs were fewer and the child was scratching much less. The area of cardiac dullness was unchanged. The spleen was felt in the same situation as before. The lower edge of the liver was palpable 3¼ cm. from the costal border in the right nipple line. The urine still contained bile but the reaction was less marked. During the child's stay in the hospital the pulse and respiratory rate ranged within normal limits. His evening temperature during twenty-nine days of observation reached 100 on eight evenings and his maximum was 101.6 reached on one evening. For the rest of the time the daily variations were within normal limits.

The patient was last seen alive on Dec. 9th. After leaving the hospital his condition showed little change until December 6th. The urine remained of reddish color. The stools were described as having grown more normal in character and no blood had been seen in them. Dec. 6th he began to vomit and retained practically no food after this. He coughed up and vomited blood at frequent intervals. The mother noticed that his breathing became more rapid and difficult. He complained of pain in the upper right quadrant of the abdomen which was somewhat relieved by rubbing. On examination his respirations were grunting and labored, rate was about 52 per min. The pulse was too rapid for count, poor volume and tension. The physical signs in lungs were those of consolidation of the right lung extending from the base upward in back to the upper angle of the scapula and in front to the third interspace. In the lower left axilla the breath sounds were much diminished and moist rales were numerous throughout. The left border of the heart was 8 cm. to the left and the right 4½ cm. to the right of the M. S. L. Because of the lung consolidation on the right it was impossible to make out the character of the cardio-hepatic angle or the upper limit of hepatic dullness. The heart action was very rapid but regular and no abnormality of sounds aside from their generally weak character was detected. The abdomen was enormously distended and showed the usual signs of free fluid. Superficial veins were very prominent on both abdomen and thorax. The liver was tender and its lower edge was indefinitely felt 2 cm. below the costal border in the nipple line. The lower pole of the spleen was distinctly felt 5½ cm. below the free costal border in the anterior axillary line. There was marked edema of the genitalia and slight edema of the extremities. Emaciation was more marked and the condition of the mouth worse than on leaving the hospital. The patient died at two o'clock the following morning.

Case History. C. O.

Family History. The same as the other child.

Past History. Was delivered normally at full term. Except for having always been the smaller of the twins his past history is not important.

Present History. Began two weeks after the brother's. The first symptom noticed in January, 1913, was the yellowish discoloration of the sclera. The story of his present illness was exactly identical with his brother's except that his attack of measles last July was less severe than his brother's and jaundice has never disappeared. The character of stools and urine, jaundiced and itching skin, painful, easily bleeding gums and buccal mucosa, epistaxis and clubbing of fingers have all been the same as his brother's, and the last four symptoms have appeared at about the same time as the brother's. His abdomen has never grown so large as the brother's. He has never had convulsions or fever, cough or sore throat except with the measles.

Physical Examination. Much the same in its important points as the brother's. Sclera of the eyes is markedly yellow. The buccal mucosa shows punctate hemorrhages underneath, most numerous over the palate. Tonsils are large and fibrous. There is general glandular enlargement. The lungs give no abnormal physical signs. Cardiac dullness extends from 3 cm. to the right to 6 cm. to the left of the M. S. L. The sounds are somewhat irregular in rate and rhythm, the second pulmonic is much accentuated, no murmurs or friction sounds detected. The abdomen is distended, convex, and above the level of the thorax. The upper limit of hepatic dullness is in the 5th inter-space. The lower edge of the liver is smooth, firm, and easily palpable 5 cm. below the costal border in the nipple line and 4 cm. below the xyphoid. The lower pole of the spleen is palpable 7½ cm. below the costal border and 7 cm. from the median line. No free abdominal fluid detected. The superficial abdominal veins are prominent. The genitals show a moderate hydrocele of the right testicle and slight phimosis. The clubbing of the fingers and toes is marked, no edema of extremities, the reflexes are all normal.

The urine was slightly acid and contained bile but no albumin or sugar.

Stools yellow, formed and smooth, contained bile and no blood or pus.

The blood examination showed 5,500,000 red cells and 6,500 white cells per cubic mil. Of the white cells 55% were polynuclears and 45% of the mononuclear type. Hemoglobin was 70% by Tallquist. The Von Pirquet skin reaction was negative. No Wassermann test was made, as it was deemed unnecessary in both cases.

Fragility of the red blood corpuscles in both cases was tested by the Senior House Officer, Dr. A. E. Myers, with the assistance of Dr. Karsner, using hypotonic salt solution in the percentages running from .2% to .8% in steps .05%. In the case of G. O. hemolysis began at 45%, was incomplete at .2%. In case of C. O. hemolysis began at .4%, was incomplete at .2%. In the normal control hemolysis began at 45%, was complete at .25%. This would indicate that the resistance of the corpuscles of both patients is slightly increased. This is shown more markedly in the

point of complete hemolysis which occurred at less than .2%, as compared with complete hymolysis which in the normal control occurred at .25%. The value of the experiment lies in the fact that it served to indicate a decreased fragility of the red blood corpuscles in our two patients, whereas in familial jaundice the fragility is said to be increased.

On Oct. 22nd, sixteen days after admission, the general condition showed little change. The jaundice and condition of the mouth were the same, the boundaries of the heart, liver and spleen showed no change. No free abdominal fluid could be detected. The urine contained bile in slightly decreased amount.

He left the hospital on Nov. 4th., four weeks after admission, with condition unchanged except for a decrease in the depth of the jaundice.

During his stay of twenty-nine days in the hospital his evening temperature reached 100 on only seven evenings, and only twice attained the maximum of 101° Farh. During the rest of the time the daily temperature variations were within normal limits. The pulse rate and respirations varied only within normal limits.

While in the hospital both boys on questioning would express a most enthusiastic desire for brandy.

He was last seen on December 9th, approximately two months after coming into the hospital. Since his discharge the urine is said to have become fairly normal in color. The stools have remained hard and white. Recently he has grown more apathetic and drowsy, and if undisturbed sleeps at least half of the day. On examination pulse and respiratory rate were normal. Jaundice and the yellowish discoloration of the sclera were somewhat less marked. The heart area was within normal limits. At the apex a slight systolic murmur faintly transmitted to the anterior axilla was heard, second pulmonic sound much accentuated, action slightly irregular. The abdomen was only moderately distended and no free abdominal fluid was detected. The superficial abdominal veins were fairly prominent, the liver edge was distinctly palpable 7 cm. below the costal margin in the nipple line and 7½ cm. below the xyphoid. The tip of the spleen was felt on a line with the umbilicus and 7½ cm. to the left of it. The condition of buccal and nasal mucosa was practically the same as on discharge.

For the performance of the autopsy on the first case and the subsequent pathological and histological work I am indebted to Dr. Howard T. Karsner of the Pathological department, Harvard Medical School. The autopsy was performed thirty-six hours post-mortem. In brief the anatomical diagnosis is as follows: Acute fibrinous pericarditis with effusion. Chronic interstitial myocarditis. Passive congestion of lungs and conglomerate tuberculosis of left lung. Miliary tuberculosis of right lung. Lobar pneumonia of right lung. Atrophic cirrhosis of liver with regeneration. Miliary tuberculosis of liver. Chronic passive congestion of spleen with follicular hyperplasia and miliary tuberculosis. Passive congestion of intestines. Ascites. Slight arteriosclerosis. Miliary tuberculosis of left peri-bronchial, superior mediastinal, mesenteric, retroperitoneal and subhepatic lymph nodes.

The more detailed report of the gross pathological findings is as follows:

Body. That of a poorly nourished, white male child showing moderate jaundice, no rigor, marked liver mortis and green discoloration over the distended belly. The lower extremities and the forearms show numerous punctate hemorrhages.

Primary Incision. Shows a thin panniculous adiposis and dark red musculature, no bleeding.

Peritoneal Cavity. Contains an unmeasured but large amount of slightly cloudy yellowish-brown, limpid fluid. Peritoneum smooth and glistening throughout. Omentum is very much congested and the organs are all in normal position, spleen reaching about 4 cm. below the costal margin, the liver not being visible.

Thoracic Cavity. Shows a markedly distended pericardium filled with slightly cloudy blood-stained fluid containing flakes of fibrin. Thymus not visible.

Pleural Cavity. Left pleural cavity is smooth and glistening throughout. Right cavity throughout its entirety shows easily broken up fibrinous adhesions and the sac contains a slight excess of slightly cloudy blood-stained limpid fluid containing flakes of fibrin.

Lungs. Left lung is of moderate volume, crepitant throughout except for a very small area in the apex anteriorly and of generally dark red color. Organ cuts with normal resistance and shows a dark red, bleeding, soft moist cut surface. The point of consolidation in the apex anteriorly is found to be near a yellow bulging caseous mass measuring 1 cm. in diameter, fairly well encapsulated, but showing in the immediate neighborhood several small slightly projecting gray tubercles. The pulmonary vessels are normal. Peribronchial lymph nodes are enlarged, adherent to one another uniformly caseous and continuing into the superior mediastinal lymph nodes. Similar involvement is found around the bifurcation of the trachea and the left side of the trachea above the bifurcation. Bronchi show slight congestion, but otherwise normal. The right lung is voluminous and solid, weighs 320 grams in contrast to a weight of 140 grams for the opposite lung. The organ is covered by thin loosely attached, blood-stained fibrinous exudate. The organ is completely consolidated, cuts with normal resistance and above throughout all three lobes dark red, firm, finely granular cut surface which on scraping appears to be dry. Throughout this cut surface, however, a relatively small number of minute, non-projecting, vaguely defined, gray and yellowish-gray masses are found which have the gross appearance of miliary tubercles. They are not closely associated, however, never confluent and in a single section do not number more than 10 to a lobe. The pulmonary vessels of this side are normal, the bronchi are the same as on the other side and the lymph nodes are somewhat enlarged, soft and pink and do not show any caseation.

Pericardium. As noted above contains a great excess of fluid.

Heart. Of about normal size and weighs 120 grams. The epicardium is covered throughout by a blood-stained, loosely adherent, fairly thick fibrinous exudate, thicker over the left ventricle anteriorly than elsewhere and giving rise to a typical shaggy appearance. The hemoglobin staining, however, is extreme. The muscle cuts with normal resistance and shows a retracted, firm, reddish-gray cut surface in which there appears to be an increase of connective tissues. The mitral,

aortic, pulmonic and tricuspid valves show nothing abnormal. The endocardium throughout is thin and transparent and the columnae carnae and papillary muscles normally rotund.

Liver. Weighs 400 grams, measures 16.5 x 9.5 x 3.5 cm. The organ is extremely firm and shows a slightly thickened, smooth capsule with numerous areas in which the sub-capsular veins are considerably distended. The edges are rounded. In several places there are points of nodular bulging immediately under the capsule. These nodules are spherical yellow-white, very well defined and bulge in the cut surface. Their diameters range between one and three millimetres and they have more the appearance of tubercles than of liver substance. Organ cuts with leathery resistance and shows a non-bulging, firm, gray cut surface throughout. Projecting into the cut surface and not clearly visible from the outer surface except in the Spigelian lobe are areas fairly definitely defined, ranging from 2 to 4 mm. in transverse diameter, yellow in color with slightly depressed red centres, generally soft consistence and much more numerous in the right lobe than in the left lobe. In fact, the left lobe is almost a solid mass of this dense leathery, gray, very nearly homogeneous connective tissue. The gall bladder and bile ducts are normal.

In the small intestines at about the middle of the ileum is a small, slightly depressed irregular ulcer generally circular, measuring about 2 mm. in transverse diameter with slightly undermined edges and yellow nodular masses in the elevated margin. A similar ulcer is found at the region of the splenic flexure in the large intestine.

Spleen. Weighs 140 grams, measures 14 x 7.5 x 2.5 cm. It is large, shows a thickened, opaque capsule and is distinctly softened. It cuts with slightly increased resistance and shows a slightly bulging cut surface in which both follicles and trabeculae are distinctly more prominent than normal. In addition there is found in the cut surface a number of slightly projecting well defined, spherical, yellow nodules which grossly appear to be tubercles.

Adrenals. Show post-mortem congestion.

Kidneys. Weigh together 220 grams. They appear to be slightly enlarged and are extremely soft, capsule strips with ease, leaving a smooth, marked congested outer surface. Organs cut with slightly diminished resistance and show a bulging, soft, dark red, slightly bleeding cut surface. The cortex is thickened and bulging; pyramids sharply defined and purple. Peripelvic fat normal. Ureters and bladder normal.

Lymph-Nodes. Mesenteric, retro-peritoneal and sub-hepatic lymph nodes all show enlargement and are soft. Several of them in transverse section show a bulging cut surface in which are several nodules projecting above the cut surface, fairly well defined, yellow and of the gross character of miliary or small conglomerate tubercles.

Aorta. Shows throughout its length similar fine streaks of thickening and yellowing of the intima to that described in the ascending part.

"On microscopic examination, the right lobe of the liver shows very marked thickening of the capsule of Glisson with marked proliferation of bile ducts and moderate infiltration focally of lymphocytes. The parenchyma shows cloudy swelling, fatty degeneration and central necrosis. Bile pigmentation is found peripherally in many of the lobules. The sections from the left lobe fail to show any remaining parenchymatous tissue; but the central vein, much fibrosed, can be made out and the capsule of Glisson can be distinguished. In the position of the parenchyma, however, there is a marked overgrowth of connective tissue and proliferation of bile ducts. These ducts show low cuboidal epithelial, occasionally show clubbed extremities and in a few cases contain bile, but no transformation into liver cells can be seen. The diagnosis is a cicatricial atrophic cirrhosis, following some acute general destructive lesion. Miliary tuberculosis is also present."

Neither the pathological nor histological findings in this case lend much support to the diagnosis of an alcoholic cirrhosis in the pathologists' opinion. On the other hand, they do not completely discredit this diagnosis and the pathologist can suggest no other more probable cause than alcohol for the changes found in the liver. The histological picture suggests most strongly an acute destructive process such as is seen in acute yellow atrophy or acute atrophy due to phosphorus poisoning. The history, symptomatology, especially the absence of acute gastroenteric symptoms, the comparatively long course all tend to discredit this diagnosis. Furthermore, both children apparently were attacked within a period of three weeks by a disease that in both has presented one at a time symptoms compatible with the diagnosis of an alcoholic cirrhosis, and in both was presumably due to the same cause. It seems most improbable that an acute atrophic process of the idiopathic type or due to poisoning or even to intestinal toxemia could originate in both children at almost the same time and then present in both the same symptomatology and protracted course. The other more common causes of hepatic cirrhosis are fairly conclusively ruled out, I think, as follows:—

1. Congenital lues, by the personal history, negative Wassermann test, the symptomatology, and so far as I now know by the pathological and histological findings.

2. Cardio tubercular cirrhosis, of the type described by Hutinel (quoted by Morse, *ibid*), by the absence of any definite signs or symptoms of cardiac or pericardial origin, by the failure of the Roentgen ray to indicate any pericarditis or mediastinitis, and by the fact that the pericarditis found at autopsy was evidently an acute process of recent origin, and there were no old adhesions, and also no valvular lesions found in the heart.

3. Cirrhosis due to acute infections seems fairly satisfactorily ruled out by the negative history of any acute infection except measles and the fact that the symptoms of liver impairment had been present at least for six months before the attack of measles.

In conclusion from all the evidence now at hand and with full appreciation of the rarity of the condition I am inclined to believe that in both children the initial process was a cirrhosis

of the liver due to abuse of alcohol. I am not sufficiently familiar with the pathological changes in the livers of children dying from acute liver degeneration as a sequel to one of the acute infections to advance the idea as anything more than an hypothesis, but it would seem at least possible that in the one case which has come to autopsy the pathological picture might be accounted for by an initial alcoholic cirrhosis complicated by an acute destructive process as a sequel of the measles infection, and later followed by attempts at regeneration of the liver tissue. The whole picture of course being further complicated by an acute general miliary tuberculosis and terminated by the attack of lobar pneumonia.

For the privilege of reporting both cases I am indebted to Dr. Thomas Morgan Rotch, visiting physician at the Children's Hospital.

XXIII.

The Report of a Case of Multiple Bone Tuberculosis Atypical in its Distribution and X-Ray Appearances.

By Henry J. Fitz Simmons, M.D.

Believing that the report of cases which are unusual and which have been studied by the best methods of the present day may lead to a wider dissemination of knowledge and subsequent more accurate diagnosis I report the following case.

This patient J. R., a boy of sixteen months, came to the Out Patient clinic of The Boston Children's Hospital May 3rd, 1913. The child was born in Boston of healthy parents who are still well and strong and show no signs of organic disease. He was breast fed five months and has always had good care.

Four months before entrance the mother noticed a lump in the child's abdomen which has gradually grown smaller. She brought the child to the clinic for diagnosis and treatment of lumps upon the head.

On entrance the child appeared well developed and well nourished. The skin upon his face was clean and of good color. His hair and nails appeared to be normal. His head was of normal size. Both pupils were equal and reacted to light and distance. The right external auditory meatus contained a foul smelling discharge. The left ear appeared normal. Over the right parietal portion of the skull were three tumor masses, each about ¾ inch in diameter. Two appeared hard and definitely connected with the bone, the other was fluctuant, neither was reddened nor was there any increase in the surface temperature. The posterior cervical and posterior auricular glands were somewhat enlarged but not tender. At the outer canthus of each eye there was a small



Fig. 1.—Showing tumor mass beneath eyes and tumors over the right parietal region of the skull.

fluctuant reddened area about the size of a green pea. Along the descending ramus and angle of the lower jaw on the left side was a nodular thickening which was neither tender nor reddened. The child's mouth was practically negative. No increase in the adenoid tissue was discernible. Teeth were in good condition and the mucous membranes of good color.

The examination of the chest revealed good development with no signs of rickets. No nodulation could be made out along the course of the ribs. The heart percussed within normal limits and its action was regular as to rate and rhythm. The sounds were of good quality and no murmurs were heard. The lungs showed no areas of dullness, no rales nor adventitious sounds.

The abdomen was soft, easily palpated and no masses nor tenderness was found. The liver and spleen percussed within normal limits but the edge of the liver could not be felt.

There was no enlargement of the iliac or inguinal lymph glands.

On the surface of the right thigh are a few small areas that are covered with dark crusts and are surrounded with an area of induration. The right femoral region appeared normal save for these skin lesions and a general thickness about the lower end. This thickness is above and outside the knee joint.

In the region of the upper third of the right tibia on its anterior aspect one could feel an area of thickening about 2 inches long by 1 inch wide.

Beneath the external malleolus and extending towards the cuboid and over the region of the astragalus is a large, tense area of swelling.

The right upper arm appears normal save for some thickness at the lower end of the humerus.

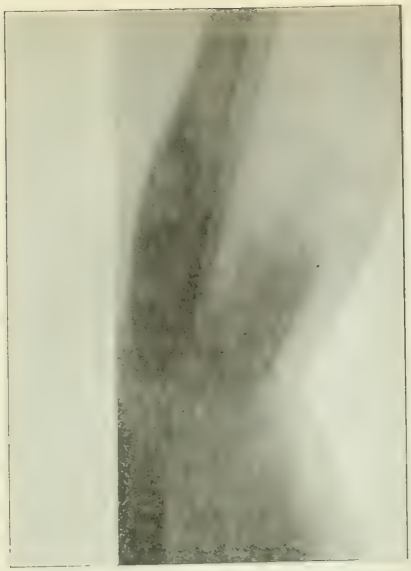


FIG. 3.—Showing lesion on right tibia before operation.

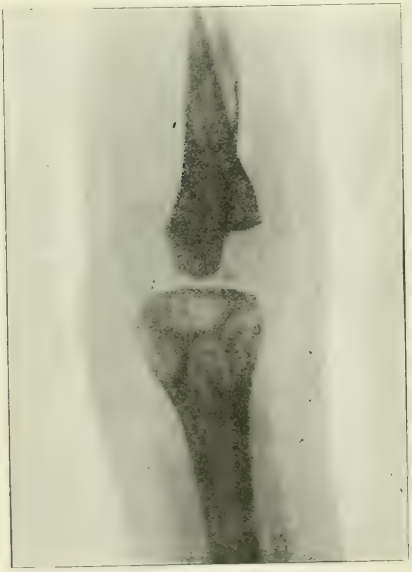


FIG. 6.—Showing lesions about right elbow.

This thickness does not interfere with any movement of the elbow joint. Over the right radial epiphysis is a swelling which is smooth and not attached to the skin, but which is slightly tender. This tumor is apparently connected with the bone beneath. The right hand shows at the end of the fourth metacarpal a pustular lesion covered with a dry scab. The lesion is surrounded with an area of induration $\frac{1}{4}$ inch in thickness

The left upper leg appeared normal except that two inches below the trochanter is a small indurated dark colored lesion which appeared very superficial. This lesion is about $\frac{1}{4}$ inch in diameter. Just below the knee and on its outer aspect is a similar skin lesion which appeared to be fluctuant.

The left lower leg presented nothing abnormal except a few scattered skin lesions. Over the first metatarsal of the left foot on the inner side was an area of swelling somewhat reddened but free from fluctuation. This swelling extended from the toes to the ankle joint. The left humeral region presented nothing abnormal. On the extensor surface of the upper third of the left ulnar was a tumor mass which appeared to be connected with the bone but did not involve the skin. This mass was not tender, reddened nor fluctuant.

The left hand presented a fusiform enlargement of the first two phalangeals of the first finger, upon which are dark crusts which were dry and showed no evidence of recent discharge. There was motion in all joints of this hand.

The Wassermann reaction taken at this time was negative. The Luetin test was negative. The Von Pirquet reaction was strongly positive. His blood examination showed leucocytosis 15,600; polyneuclear forms 60%; lymphocytes 40%. There was at this time no myelocytosis present. His urine examination was negative. No Bence-Jones bodies could be recovered from his urine.

Oct. 3, 1913. While the child was under ether a section containing skin and cavity of the two superficial lesions in the left thigh was removed. These were placed in sterile tubes and sent to the pathologist for diagnosis. Both of the cavities contained thick yellowish pus similar to that removed from tubercular cavities. In addition a typical pyogenic membrane was found and easily removed from each. The child made a good recovery and five days after the operation the areas on this leg were discharging moderately and healing in gradually. Twelve days after the operation these lesions had entirely healed without induration or secondary infection.

Oct. 21, 1913. Under ether the small fluctuant mass over the right parietal region was entered but the content of the cavity was too thick to allow aspiration. The needle was withdrawn and sufficient sero-purulent material squeezed out to afford material for culture. A three inch incision was made over the crest of the right tibia immediately below the tibial tubercle. Dissection was carried down without bleeding to the periosteum which was incised over the swelling observed in the bone. A piece of cortex one inch long and one quarter inch wide was removed with a chisel. On the removal of this piece of cortex there escaped some yellow thick purulent material from what appeared to be a well defined abscess cavity. This cavity was lined with a definite membrane which was easily removed. The cavity was wiped out with gauze and the wound closed loosely with interrupted sutures with a small wet wick left protruding between two sutures. The child made a perfectly good recovery from the operation and the wick which had been inserted was removed

after twenty-four hours. The wound at that time was clean and free from induration.

Since the operation the open areas on the left thigh were dressed and were healed solidly in two weeks. The operative wound on the tibia healed by first intention. The child seemed to be doing well except that the swelling which had been noticed on the lower lid and at the outer canthus of each eye increased considerably in size until at this date (Nov. 10th) each was as large as a cherry. The skin over these masses was very much thickened and reddened. Fluctuation was very easily obtained. The three tumor masses over the right parietal region of the skull were still present. The tumor mass which was aspirated is now reddened and showed signs of having become secondarily infected.

Nov. 11, 1913. A small incision about ¼ inch long was made in the dependent portion of each tumor mass located in the cellular tissues under the eyelids. The contents of these abscesses were gently expressed and the opening closed with collodion and cotton. The abscess located over the external malleolus of the right foot was incised, its contents expressed and the wound closed tightly.

Nov. 18, 1913. The right arm was given the usual iodine preparation and under ether an incision was made over the cavity as outlined by the x-ray, two inches below the elbow joint. Considerable induration about the bone at this point was demonstrated. The cortex was then chiselled through and the cavity opened. From this cavity a large amount of yellow caseous material was removed. This cavity was lined with a definite membrane and was about 1 inch in length by one half inch in width. It was swabbed out with iodine and the wound was closed with interrupted sutures without drainage. One of the tumor masses in the right parietal region was opened with the removal of a small amount of yellow purulent material and a small bone sequestrum. The lining wall of the cavity was definite and easily removable. This wound was closed tightly with the exception of a small rubber drain which was left in for twenty-four hours.

Dec. 10th, 1913. The general condition of the child to-day is much worse than it was one month ago, notwithstanding the fact that the child has had the benefit of out-door treatment at the Convalescent Home at Wellesley. The two areas on the parietal region, which were operated upon still show some nodulation. The one that was operated on as a clean wound has completely closed, but the one which was aspirated is still discharging and seems to have become a sinus. The tumors under the lids of both eyes have disappeared but in their place are two ulcerative surfaces ¼ inch in diameter from which exudes purulent material. The area which was incised on the left ulnar is still tender and shows signs of thickness to the same degree that it did previous to the operation. The skin lesions which were found in different parts of the body have now disappeared. The operative wound of the old lesion in the upper portion of the tibia has healed solidly, but there is evidence of bone proliferation beneath. On the lateral aspect of the right foot there is a discharging sinus. This was the situation of the old abscess which was incised. The lower extremity of the right radius particularly on the inner side seems to be somewhat larger than it was two weeks ago and is distinctly tender on palpation. The fusiform swelling of the index finger of the left hand is still present but not discharging.



Fig. 4.—Showing lesion in right tibia, seven months after operation.

A comparison of the x-ray plates taken at an interval of 7 months is interesting in view of the pathological report to follow.

Figure 1 shows lesions on the skull and the tumor mass beneath eyes previous to the operation.

Figure 3 shows the lesion in the right tibia before operation. Figure 4 shows the same lesion four months after the operation.

Figure 6 shows the lesions about the right elbow. The lesion in the ulnar has since been operated upon.

The child on December 10th had a positive Von Pirquet skin reaction. The leucocyte count was 7,800 of which 58% were polyneuclear forms, 42% were lymphocytes and the blood showed no myelocytes. The urine examination was negative. No Bence-Jones bodies were obtained.

The bacteriologists have been unable to grow the material sent to them from the numerous operations, on the usual laboratory culture material.

The pathologist reports as follows: The specimen from the ulnar shows typical tubercles, necrotic central areas surrounded by tubercles and necrotic bone trabeculae; there is here as in the tibia evidence of osteal proliferation. The specimen from the tibia consists of a fragment of cortical bone having adherent to its inner surface a mass of greyish tissue 4 mil. in diameter. A section through the fragment of bone and adherent mass shows the latter to contain morphologically typical tubercles, solitary and multiple surrounding areas of necrosis. There is an erosion of the cortical bone in the region adjacent to the tubercular tissue. The periosteal surface of the bone shows distinct osteal

proliferation with the formation of new trabeculae. The specimen from the skull marked septic shows necrotic debris only, the specimen from the skull marked clean shows necrotic debris with peripherally poorly formed tubercles.

I wish to acknowledge my indebtedness to Dr. Halsey B. Loder of the department of Surgical pathology of the Harvard Medical School, for the pathological work done on this case.

XXIV.

The Significance of the Von Pirquet Reaction in Surgical Tuberculosis in Children.*

By L. Bruce Robertson, M.D.

Of the various tuberculin reactions, that described by Von Pirquet in 1907, has, in the hands of the majority of observers, proved to be the safest and least disturbing. Of the other reactions, namely the subcutaneous, the ophthalmic and the per-cutaneous or Moro reaction, suffice it to say that the sometimes unpleasant sequelae of the first, the local disturbance of the second, and the variability of the third are enough to recommend the simplicity and ease of the cutaneous test. The explanation[1] of the local reaction in the Von Pirquet test is still theoretical, but it is believed to be due to a hypersensitivity of the infected organism displayed on reinfection, accounted for by the presence of antibodies or bacteriolysins which have been produced as a result of the primary infection, the mechanism of the reaction consisting in the breaking up of the introduced virus and the liberation of a toxic substance in the skin, with its inflammatory effect at the point of inoculation. Occasionally when the test is negative at the first trial, a second attempt a short time later will result in a positive reaction. It is doubtful if an individual can be sensitized by the tuberculin absorbed at the first inoculation to such an extent that he will react, solely on that account, to the second inoculation.[2] The explanation may lie in the natural progress of the disease or in the action of the tuberculin on some latent focus irritating it to such a degree that antibodies are formed which give rise to the reaction at the second inoculation.

The method of application of the Von Pirquet test pursued at the Children's Hospital, Boston, is as follows: The skin over the anterior surface of the forearm is cleansed with 70% alcohol and allowed to dry. Two very small drops of the undiluted old tuberculin ("O. T.") are placed upon the prepared area about four inches apart, a circular control scarification extending into but not through the skin is now made midway between the drops by means of the ordinary watchmaker's screwdriver, and similar scarifications are made through the drops of tuberculin. The arm is held either by patient or nurse until dry, a matter of a few minutes.

The reaction due to trauma is seen in practically every case and is of no importance. It consists of a wheal about each scarification followed by a zone of hyperemia, which disappears within a few hours. The true reaction consists essentially of a hyperemic indurated zone about the scarification and appears as a rule within the first eighteen hours, becoming most pronounced during the second 24 hours and fading gradually in the next three to six days, leaving a desquamating, sometimes pigmented, area. In the very intense reactions, vesiculations may occasionally occur, the induration is more pronounced and the color a deep reddish purple. The periphery of such an area may be jagged with reddish streaks along the course of the superficial lymphatics leading from the area of reaction. One of this nature subsides slowly, and it may be two or three weeks before the desquamation and pigmentation have disappeared.

The object of the present investigation was to determine the reliability of the Von Pirquet reaction in surgical tuberculosis, particularly that of bones and joints. The statements made apply rather to the more severe types of bone and joint infection as the less severe types are treated in the out-patient department without being admitted to the wards.

The material consists of some 350 cases on which the Von Pirquet reaction was tried, collected from the records in the last 4 years. The children were all under 12 years of age.

Cases admitted to hospital with diagnosis of tuberculous disease of the spine

Number of cases, 71. Ages from 14 months to 10 years. Number of positive Von Pirquet reactions, 65. Cases in which the reaction was negative, 6.

Case 1. G. A. Age, 18 months. Duration of symptoms, 3 months. Patient had history of pneumonia following whooping cough 6 months before, and signs of pulmonary involvement were still present. The lower lumbar vertebrae were affected and a large lumbar abscess present was opened. Child showed a severe grade of toxemia and died in hospital after developing an empyema.

Case 2. E. W., 7 years of age. Duration of symptoms, 3 months. A second Von Pirquet test 5 days after the first one resulted in a positive reaction.

Case 3. E. S., 9 years of age. Admitted with a question of tuberculous disease of the lumbar vertebrae. The x-rays were negative and the whole condition entirely cleared up in 10 days, probably a sprain of spine.

* From the Orthopedic Department, Children's Hospital, Boston.

Case 4. E. F. Age, 3½ years. Admitted with question of tuberculous disease of spine and knee. This was probably not a tuberculous condition as the condition had entirely cleared up in 6 months.

Case 5. D. St. H. Age, 8½ years. T. B. spine and knee, with discharging sinus; duration, 5 years. Von Pirquet negative.

Case 6. P. N. Age, 3½ years. Tuberculous disease of spine. Double psoas abscess. Duration of symptoms according to history, 1 month. Von Pirquet negative.

One case with positive reaction later proved to be an acute exacerbation of a chronic cervical adenitis.

CASES ADMITTED TO THE HOSPITAL WITH DIAGNOSIS OF TUBERCULOUS HIP DISEASE.

Number of cases, 74, ages from 10 months to 11 2-3 years. Number of positive reactions, 67. Cases in which the reaction was negative, 7.

Case 1. M. M. Age, 2 years. Von Pirquet tried 6 months later and positive reaction obtained.

Case 2. G. H. Age, 2½ years. Von Pirquet test negative in May, 1910. The patient had had hip symptoms for 8 months, chronic bronchitis since measles two years before, and general condition was poor. Several months later she developed pulmonary tuberculosis. A second Von Pirquet test was tried (Dec. 4, 1913), and found positive.

Case 3. W. C. Age, 7 years. Clinical history of 1 year duration. Von Pirquet reaction negative. The case was under observation only two weeks and has not reported to the out-patient department since, so that diagnosis is still unproven. X-ray showed an anatomically incipient process in hip.

Case 4. A. C. Age, 4 years. Tuberculosis of hip with abscess formation. Duration of symptoms, 10 months. Nothing to account for negative reaction. Attempt made to follow up case, but child had been taken to New Hampshire.

Case 5. E. G. Age, 2 years. Admitted with question of T. B. hip. Duration of symptoms, 1 month. Leucocytes, 22,000. Four days after admission abscess in right iliac glands was opened and drained. Patient was discharged from hospital 1 month later with abscess almost healed and hip symptoms having subsided to a considerable degree. Diagnosis suppurative iliac adenitis.

Case 6. J. C. Age, 2 years. Admitted with question of tuberculosis of hip. Duration of symptoms, 3 weeks. The x-ray showed a destructive process in the great trochanter. Seven months later the child returned to the out-patient department wearing no apparatus and condition apparently cured.

Case 7. J. K., 2½ years of age. Diagnosis, tuberculosis of hip with pathological dislocation. The patient showed a very severe grade of toxemia, and pathological examination of tissue obtained at operation on the hip showed the presence of tuberculosis. Three successive Von Pirquet tests were negative.

CASES ADMITTED TO HOSPITAL WITH DIAGNOSIS OF TUBERCULOUS DISEASE OF THE KNEE.

Number of cases, 21. Ages, 2-8 years. Number of positive reactions, 20. The only negative reaction was in a boy 6 years of age. Duration of symptoms, 2 years. Von Pirquet test was tried on four different occasions and found negative.

CASES ADMITTED TO THE HOSPITAL WITH DIAGNOSIS OF TUBERCULOUS DISEASE OF THE ANKLE.

Number of cases, 14. Age, 2-5 years. Number of positive reactions, 14.

CASES ADMITTED TO THE HOSPITAL WITH DIAGNOSIS OF BONE OR JOINT TUBERCULOSIS ELSEWHERE THAN MENTIONED ABOVE.

Number of cases, 7. Number of positive Von Pirquet reactions, 7. Shoulder, 1; radius, 1; wrist, 1; dactylitis, 2; osteomyelitis of tibia, 1 (proven by pathological examination of bone obtained at operation); os calcis, 1. Totalling those cases in which a definite diagnosis of *bone or joint tuberculosis* could be made, we find 3.2 per cent. of negative reactions in 182 cases.

Of other tuberculous conditions for which patients were admitted there were 20 cases, in all of which the Von Pirquet reaction was positive. This list comprises: Tuberculous cervical adenitis, 14 cases; tuberculous peritonitis, 2 cases; tuberculous kidney, 1 case; tuberculous abscess of thigh, 1 (diagnosis proven by pathological examination); tuberculosis of hernial sac, 1 case; multiple tuberculous lesions, 1 case.

Of cases admitted with a diagnosis other than that of tuberculosis there were: Rickets, 20 cases. The Von Pirquet reaction was negative in 18 cases. Positive reactions.

Case 1. Patient aged 3½ years with knock knees. Showed no clinical evidence of tuberculosis.

Case 2. Patient aged 3 years with knock knees. Showed healed cervical adenitis with scar in neck.

Infantile paralysis, 18 cases. Von Pirquet reaction negative in 16 cases. Positive reactions.

Case 1. Patient aged 11½ years, has slight enlargement of cervical lymph nodes. Patient's father died of pulmonary tuberculosis.

Case 2. Patient, aged 5¾ years, showed palpable lymph nodes in anterior triangles of neck.

Osteomyelitis, 21 cases. Von Pirquet reaction negative in 16 cases. Positive reactions.

CASE 1. Age, 10 years. No clinical evidence of tuberculosis.

CASE 2. Age, 8 years. No clinical evidence of tuberculosis, but a family history of tuberculosis was present.

CASE 3. Age, 3¼ years. Von Pirquet reaction was negative in the first trial and positive 1 year later when patient was found to have developed cervical adenitis.

CASE 4. Age, 3¾ years. Patient shows old tuberculous glands of neck.

CASE 5. Age, 10 years. Patient had enlarged palpable cervical glands. The father died of pulmonary tuberculosis.

Congenital deformities, 28 cases. Von Pirquet reaction negative in 26 cases. Positive cases.

CASE 1. Age, 5 years. Patient showed no clinical evidence of tuberculosis.

CASE 2. Age, 2½ years. Patient had tuberculous glands of the neck.

Arthritis (non-tuberculous), 5 cases. The Von Pirquet reaction was negative in 4 cases.

In the single positive case, a child aged 6½ years, with multiple arthritis following otitis media, a chronic otitis media was still present which was not definitely non-tuberculous.

Synovitis of hip, 8 cases; of knee, 1 case. Number of negative reactions, 8.

In the 1 positive case, a child 3 years of age, there was no clinical evidence of tuberculosis, but the father and one sister have pulmonary tuberculosis and the mother died of it.

Epiphysitis of femur, 4 cases. Von Pirquet reaction negative in one case. Of the 3 cases in which positive reactions were obtained none showed any definite evidence of tuberculosis, although one showed enlarged tonsils and another had a family history of tuberculosis.

Flattened head of femur,[3] 2 cases, both of which gave positive Von Pirquet reactions. In neither case was there other clinical evidence of tuberculosis. One case gave a family history of tuberculosis.

Of other conditions, including acute suppurative lymphadenitis, pyogenic abscesses, sarcoma, traumatic bow-leg, renal calculus, hematoma of the abdominal wall, rupture of the liver, septic ankle, progressive muscular atrophy empyema, syphilitic periostitis, cirrhosis of liver, infectious diarrhea, scoliosis, cyst of neck, cyst of femur, ovarian cyst, Volkmann's ischaemic contracture, burns of body, hernia, hydrocele, appendicitis and pericolic adhesions, there were 43 cases, of which 36 showed negative Von Pirquet reactions. Of the cases in which a positive reaction was obtained, one had enlarged submerged tonsils, another had enlarged anterior cervical glands, while the remaining five showed no clinical evidence nor family history of tuberculosis.

To sum up, in all cases having clinical evidence of surgical tuberculosis, either in bone or soft tissues, 2.9% showed negative Von Pirquet reactions. In those cases not showing definite clinical evidence of tuberculosis, although some showed enlarged anterior cervical glands and others gave a family history of tuberculosis, 14% showed positive cutaneous reactions.

In the apparently non-tuberculous cases, the reaction is more frequently negative in the younger children, as seen from the following:

0-4 years, 48 cases. Positive reactions in 10%.

4-8 years, 61 cases. Positive reactions in 14.5%.

8-12 years, 40 cases. Positive reactions in 17.5%.

The reaction may be regarded as specific, and the fact that it is positive in a moderately small percentage of clinically non-tuberculous children does not outweigh its value as a diagnostic test. From the above figures it must be concluded that the Von Pirquet reaction is fairly reliable in children under 12 years of age, but that it has less significance where the patient shows enlargement of the anterior cervical lymph nodes or gives a family history of tuberculosis. The frequency of positive reactions in cases giving a family history of tuberculosis is well shown by Brown[4] in his statistics from the Babies' Hospital, New York. The tuberculous lesion may not necessarily be active, but up to the present time there has been no recognizable difference between the local reactions occurring in active and those in presumably latent cases.[5] It is stated that the reaction may be absent where severe toxemia is present,[6] and this fact would seem to be borne out by the two negative reactions occurring in two of the above-mentioned cases, one of tuberculous hip and one of tuberculous spine.

There is a much greater proportion of positive reactions in apparently non-tuberculous cases than of negative reactions in those clinically tuberculous.

The Von Pirquet reaction is said to be absent in measles during the incubation period and for several days after the rash has appeared. Evidence to this effect has been given by Von Pirquet and later by Moltschanoff.[7] The latter gives 100% of negative reactions in measles and 85% negative reactions in scarlet fever.

There has been an attempt made recently to differentiate between active and latent tuberculosis by noting the leucocyte count both before and after the Von Pirquet reaction, and Chiaravalloti[8] has shown in a series of cases of active pulmonary tuberculosis that there is a

definite increase in the total and polynuclear count after the cutaneous test. After investigating some 20 cases consisting of bone and joint tuberculosis and tuberculous peritonitis in the Children's Hospital, with this point in view, we found such a lack of uniformity in results that it was only justifiable to conclude that this test of the so-called "general reaction" to the Von Pirquet test is, at least in its present state, not applicable to cases of surgical tuberculosis

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[6] Lapage, C. P.: British Journal Children's Diseases, London, 1912, ix.
Moorman, M. G.: Journal of the Amer. Med. Assn., October, 1912.
[7] Moltschanoff: Jahrb. für Kinderheilkunde, April, 1912. lxxv.
[8] Chiaravalloti: Riforma Medica, Naples, 1913.

Book Reviews.

State Board Questions and Answers. By R. Max Goepp, M.D. Third edition. Thoroughly revised. Philadelphia and London: W. B. Saunders Company. 1913.

The second edition of this work was reviewed in the issue of the Journal for July 27, 1911 (Vol. clxv, p. 141). In this third edition considerable new material has been added, particularly with reference to serology, chemotherapy, syphilis, tropical disease, and cardiac physiology. Considerable old and superfluous material has also been eliminated, particularly in the field of materia medica; so that the total increase in size of the book is only two pages. Like its predecessors, it should be useful to teachers "as a repository of typical questions, a guide of instruction," and an evidence of the present demands of American examining boards upon candidates for registration in medicine.

Ulcer of the Stomach. By Charles Bolton, M.D., D.Sc. (Lond.), F.R.C.P. (Lond.). New York: Longmans, Green and Company. London: Edward Arnold. 1913.

The author has collected much clinical and pathological data concerning gastric ulcer. He tells us, in his preface, that he purposely omits any discussion of duodenal ulcer. The book, which is nearly 400 pages long, impresses one as of more value as a book of reference than a monograph on the subject of gastric ulcer. In an attempt to make the work complete a considerable amount of irrelevant material is introduced, so that the continunity is lost and with it interest lags. Most of the material is stereotype and very little is either new or personal. The book abounds with references and no statements are made that are not backed up by citation of authorities. In this regard, at least, the book is admirable.

Diseases of the Heart. By James Mackenzie, M.D., F.R.C.P. Third edition. London: Oxford University Press. 1913.

This excellent work is so well known that the third edition requires no extended review. A comparison with the last edition published in 1910 shows what definite progress has been made in the precise diagnosis of diseases of the heart, more particularly in the field in which Mackenzie has been a pioneer, namely, cardiac irregularity. The book throughout is clear, and admirably arranged. Epecially lucid and convincing are the hundred pages devoted to the various forms of cardiac irregularity. An appendix with ninety-two case reports is of great assistance in the illustration of the points that the author desires to make. The book is well printed on good paper and concludes with an admirable index.

Mind and Health. With an Examination of Some Systems of Divine Healing. By Edward E. Weaver Ph.D., sometime Fellow in Clark University, with an introduction by G. Stanley Hall, PhD., LL.D., president of Clark University. New York: The Macmillan Company. 1913.

The author aims in this book of 500 pages, including a bibliography and index, to present in popular form, the present status of the psychotherapeutic movement. An introductory historical statement is followed by a discussion of the theories of mind and the principles of psychotherapy, as propounded by both the older and more recent writers on the subject. The bias of the author is clearly shown by the fact that a very large portion of the book is concerned with the various religious systems of healing, all of which are discussed with an open mind and with liberal quotation from original sources. The work lacks interest to physicians because of the over-emphasis placed on the religious aspects of the matter. Whatever the future may bring forth, for the present it is desirable to study facts without prejudice, and without emotional appeal, and this the author fails to accomplish. In spite of this defect and also of unnecessary verbosity, the book is written with sincerity and should certainly serve as a guide to the more popular religious aspects of psychotherapy. It does not adequately cover the more searching psychological studies of recent years, upon which the whole subject must ultimately rest.

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THE CHILDREN'S HOSPITAL.

THIS issue of the JOURNAL is published as a *Festschrift* in honor of the forty-fifth anniversary of the founding of the Children's Hospital. The completion of this period of its life coincides with the opening and occupation of its new group of hospital buildings near the Harvard Medical School. The good fortune of this transition from an old to a modern and more favorable environment should prove not only an increased opportunity for service, but a fresh stimulus to continuance of activity and progress in medical study.

The history of the Children's Hospital has been associated with names of distinction in medicine and in surgery. Its development was intimately a part of the life-work of the late Dr. Thomas Morgan Rotch, who contributed the second article in this series, and whose untimely death on the eve of its publication is doubly lamentable in that he could not see the completion of his cherished projects. The reputation of the Children's Hospital, however, has not been made in pediatrics alone. Surgically, distinction for the hospital has been won by the department of orthopedics. The history of this surgical progress is amply reviewed in the fifth article of this series.

The remaining papers, by other members of the hospital staff, present a number of special details in the work of the Children's Hospital, and give an idea of the range and variety of its activities. Like all good hospitals, it has always been devoted not solely to the relief of the sick, but to the pursuit of medical research and the furtherance of medical education. In its new and more intimate local association with the Harvard Medical School, the opportunities and possibilities of this aspect of its work should be still further increased, and in every respect the hospital should share in the impetus given to each constituent part of a great medical centre. Its well-wishers look forward from the completion of this epoch in its history to another of even brighter success and more distinguished achievement.

ADVANCE IN HOSPITAL ADMINISTRATION.

IT is fitting on this occasion of the opening of the new buildings of the Children's Hospital, to call attention to progress in administration which indicates a marked change in attitude toward the teaching of medicine, and which will place the facilities of this hospital more completely at the service of the best in medical education than has hitherto been done. It is a long road from the conditions indicated in the first report, covering the time from the opening on July 19, to the end of the year, December 28, 1869, to those brought out in the last available report, for the year 1912. The original house in Rutland Street was opened for thirty patients. The hospital on Longwood Avenue will accommodate one hundred and fifty, and is capable of almost indefinite expansion. There is in addition a convalescent home. The budget for the first six months, including property, was a little over twenty-five thousand dollars; that for 1912 was over a million and a half, exclusive of the convalescent home.

During this time the contributions to medical knowledge, as well as the relief of suffering, have been commensurate with the opportunities given, and as the hospital enters its new quarters, the managers, with the hearty support and upon the recommendation of the staff, give new evidence of their interest in medical progress.

Realizing that the closer the union between a hospital and a good teaching institution, the better the interests of the patient are served, the

board of managers, several years ago, entered into an agreement with the Corporation of Harvard College, by the terms of which vacancies in staff positions should be filled by nominations from that corporation, dependent upon confirmation by the board of managers of the hospital. This agreement contemplated only members of the visiting staff as usually understood. Recently, however, the board of managers has taken a further step, which is unique, so far as we know. At a special meeting held on February 23, 1914, acting upon the suggestion of the staff and of the executive committee, it voted to create the positions of visiting pathologist, visiting bacteriologist, visiting chemist, visiting pharmacologist, and visiting physiologist, and in accordance with the agreement, the Corporation of Harvard College was requested to make nominations to fill them. This has been done and these visiting positions are to be filled by members of the laboratory staff of the Harvard Medical School, as follows: Assistant Prof. Howard T. Karsner to be Visiting Pathologist, Prof. H. C. Ernst to be Visiting Bacteriologist, Prof. Otto Folin to be Visiting Chemist, Prof. Reid Hunt to be Visiting Pharmacologist, Prof. W. B. Cannon to be Visiting Physiologist.

The purpose of the managers of the hospital in creating these positions is that these five men shall make regular visits to the wards and shall supervise the work of the hospital in their special fields. They are to be regular members of the visiting staff and are to have full privileges in the wards with due regard to the welfare of the patients and the necessary routine work of the hospital. They will not, of course, be troubled with the need of voting on such routine matters as the appointment of house officers, but in other ways the intention is that they shall have the full privileges of staff membership.

The difference between these and existing conditions is the difference between what is indicated by the term "consultant" and the term "visiting," and that this is great any one familiar with hospital management will not hesitate to acknowledge. The action is notable as recognizing the importance of the closest possible relationship between hospital and laboratory. Such a step would not have been possible when the hospital was opened, for there were no laboratories. It is commonly not thought of now, but the slightest reflection and knowledge of medical history will show how far reaching and important it may prove to be.

THE ROBERT BENT BRIGHAM HOSPITAL.

On Sunday, March 15, the buildings of the new Robert Bent Brigham Hospital, on Parker Hill, Roxbury, were informally opened for inspection by a company of over 2000 invited guests. The completion of these buildings and the beginning of their active service mark the addition of another modern and fully equipped hospital to the large and rapidly growing group of medical institutions in Boston centering about the Harvard Medical School.

The Robert Bent Brigham Hospital will be devoted to the care of chronic diseases, surgical and medical. Its staff is composed of well-known and able older and younger physicians and surgeons of Boston. Architecturally the buildings, of brick and limestone, form a fine structure in the modified Greek style, and from their commanding location not only are well seen but enjoy an almost ideally hygienic situation. The details of their equipment are of the most elaborate and approved modern type. The hospital begins its work under the most favoring conditions, and should contribute worthily to the service of the community and to its medical distinction.

MEDICAL NOTES.

Honors for Dr. Gorgas.—On Monday of last week, March 23, Dr. William C. Gorgas, Surgeon-General of the United States Army, was entertained at dinner by the medical profession of London, in recognition of his work in the sanitation of Panama. Among those present were Sir Rickman Godlee, president of the Royal College of Surgeons; Sir Francis H. Champneys, president of the Royal College of Medicine; Sir Thomas Barlow, president of the Royal College of Physicians; Sir Francis Ferrier, president of the Medical Society; Sir Havelock Charles, president of the Society of Tropical Medicine and Hygiene; Sir William Osler, Regius professor of medicine at Oxford; Sir Clifford Allbutt, Regius professor of medicine at Cambridge; Surgeon-General Arthur W. May, medical director general, Royal Navy; Sir William Lancelot Gubbins, director general, Army Medical Service.

On March 24, Dr. Gorgas received the honorary degree of Sc.D. at Oxford.

SIZE OF FRENCH FAMILIES.—In connection with the declining French birth-rate, a comparative study has recently been made of the number of children in French families. Of 11,000,000 families, 2,000,000 were found to be without children, 3,000,000 had one child each, 2,500,000 had two, and 1,500,000 three children each. There were four children in 1,000,000 families; five in 500,000; six or over in the remainder. There were 34 families with 17 children each and 45 with 18 each.

TYPHOID IN THE MERCHANT MARINE.—Dr. Rupert Blue, Surgeon-General of the United States Public Health Service, has recently issued an open letter to managers and masters of lake and river vessels in this country, calling their attention to the high prevalence of typhoid infection among American seamen aboard such craft. During the year ended June 30, 1913, there were admitted to the United States marine hospitals 392 cases of typhoid fever among members of the merchant marine, besides many others treated in public hospitals and at home. During this period there were no cases in the United States Navy. Dr. Blue therefore urges wider adoption of antityphoid vaccination.

BUBONIC PLAGUE IN HAVANA.—Three new cases of bubonic plague were reported at Havana on March 26. One of the patients has already died.

HOSPITAL BEQUESTS.—The will of the late Mrs. James N. Gamble, which was filed for probate on March 25, at Cincinnati, Ohio, contains a bequest to Christ Hospital in that city.

BOSTON AND NEW ENGLAND.

SCARLET FEVER AT YALE.—Report from New Haven, Conn., states that on March 20 there were eight cases of scarlet fever among students at Yale College. Every step has been taken to prevent further spread of the infection.

REGISTRATION OF DENTISTS.—Of 84 candidates who took the examinations on March 4, 5, and 6 before the Massachusetts State Board of Registration in Dentistry, only 28 were passed.

MASSACHUSETTS HOMEOPATHIC HOSPITAL.—The recently published forty-fourth annual report of the Massachusetts Homeopathic Hospital records the work of that institution for the calendar year 1913. During this period 6,508 patients were treated in the main hospital, 12,411 in the out-patient department, 1,040 in the maternity department, 811 in the children's ward, and 455 in the contagious department. From the training-school 27 nurses were graduated. There is urgent need of a new ward for children, and of $100,000 for the erection of a maternity building.

MONSON STATE HOSPITAL.—The recently published report of the Monson State Hospital at Palmer, Mass., records the work of that institution for the year ended Nov. 30, 1913. The total number of patients treated during this period was 1163, of whom 604 were men and 559 women. There were 65 deaths. Considerable progress has been made on the construction of a new building for 130 male patients.

NEW ENGLAND BAPTIST HOSPITAL.—The recently published twentieth annual report of the New England Baptist Hospital records the work of that institution for the calendar year 1913. During this period 722 patients were cared for, of whom 50 were obstetric cases. A total of 383 surgical operations was performed. From the training school a class of eight nurses graduated. The hospital has a legacy to provide and equip a new and much larger building. At present the question of selecting a site is still under consideration.

HOSPITAL BEQUESTS.—The will of the late Caroline Crowell, of Haverhill, Mass., disposing of property whose value is estimated at $56,700, gives one-fourth of the residuary estate to the Hale Hospital of that city.

The will of the late Charles R. Lawrence, of Brookline, Mass., which was recently filed in the Norfolk probate court at Dedham, Mass., establishes a trust fund, of which, upon the death of the principal beneficiaries, one-fourth each is to be given to the Children's Hospital and the Massachusetts General Hospital, Boston. The Massachusetts General Hospital is also made residuary legatee.

The will of the late Sarah E. Pratt, which was recently filed in the Suffolk probate court, contains bequests of $1000 each to the Perkins Institution for the Blind and the Massachusetts Charitable Eye and Ear Infirmary.

The will of the late Joseph C. Storey, of South Boston, who died on March 15, contains

bequests of $10,000 to the Massachusetts General Hospital and $5,000 to the Perkins Institution for the Blind. The residue of the estate constitutes a trust fund which, upon the death of the testator's widow, is to revert in equal shares to these two institutions.

The will of the late Martha B. Webb, of Brookline, Mass., which was allowed in the Norfolk probate court on March 25 at Dedham, Mass., contains a residuary bequest to the Beverly (Mass.) Hospital.

Cases of Infectious Diseases reported to the Boston Board of Health for the week ending March 24, 1914: Diphtheria, 49, of which 2 were non-residents; scarlatina, 130, of which 24 were non-residents; typhoid fever, 6, of which 1 was non-resident; measles, 43, of which 1 was non-resident; smallpox, 1; tuberculosis, 44, of which 4 were non-residents.

The death-rate of the reported deaths for the week was 18.75.

NEW YORK.

American Society for the Control of Cancer.—The first of a series of meetings under the auspices of the American Society for the Control of Cancer was held at the Women's Cosmopolitan Club on March 24. The speakers were Frederick L. Hoffman, LL.D., who has collected many statistics on the subject of cancer, and Prof. James Ewing of Cornell University Medical College. The latter took issue with Mr. Hoffman on statements made by him that cancer is essentially a disease of civilization and that radium is of no value in its treatment. Dr. Ewing expressed the opinion that many local malignant growths could be cured by radium, if treated sufficiently early. The limit of the penetrating power of its rays, he said, appears to be one and one-half or two inches, and the correct dosage of this agent has not yet been definitely determined.

Work of Montefiore Home.—The twenty-ninth annual report of the Montefiore Home and Hospital for Chronic Invalids shows that during the past year 1,083 inmates were cared for, of whom 472 were still under treatment. All the patients except 43 were treated free. The new buildings in the Bronx, to which the home has lately been removed, were erected at a cost of $1,965,000, and, with its country sanatorium for tuberculosis at Bedford Hills, the institution is now able to care for 700 persons suffering from chronic and incurable disease.

Report of the Loomis Sanatorium.—The recently published seventeenth annual report of the Loomis Sanatorium for the Treatment of Tuberculosis records the work of that institution for the year ended Oct. 31, 1913. During this period 372 patients were admitted. In treatment, special attention was devoted to tuberculin, artificial pneumothorax, and the employment of graduated exercise for the production of controlled auto-inoculation. An urgent appeal is made for funds to assist in reducing the sanatorium's debt of $147.000.

Legalization of Chiropractic.—Report from Albany states that on March 25 the State Senate passed bills extending to chiropractic and naturopathy the same legal recognition now given to osteopathy.

Current Literature

Medical Record.

March 14, 1914.

1. Bushnell, G. E. *The Extension of Tuberculosis in the Immune Lung.*
2. Hays, H. *Exact Diagnosis by Accurate Instruments in the Treatment of Catarrhal Conditions of the Eustachian Tubes and Ears.*
3. Beer, E. *Adenoma of the Prostate.*
4. Marshall, V. F. *A Report of Ten Cases of Acute Perforating Gastric and Duodenal Ulcer.*
5. Harris, C. M. *Some Important Factors in the Conservation of Hearing.*
6. Tocplitz, M. *Five Hundred Examinations of the Nose and Throat in an Institution for Delinquent Boys.*

New York Medical Journal.

March 14, 1914.

1. *Erdmann, J. F. *Diverticulitis of the Colon.*
2. Rosenberger, R. C. *Experimental Study of Tubercle Bacilli Submerged in Water.*
3. Stern, H., and Sachs, L. B. *Gastric Flatulence and Disturbances of the Heart.*
4. Gilbride, J. J. *Dyspepsia Due to Chronic Appendicitis.*
5. Bush, A. D. *Tobacco Smoking and Mental Efficiency.*
6. Knox, H. A. *Psychological Pitfalls.*
7. Herzig, A. J. *Quinine and Urea Hydrochloride in Nose and Throat Surgery.*
8. Tannenbaum, S. A. *Medical Contract Practice.*

1. Erdmann presents the results of further observations on sixteen cases of diverticulitis of the colon. He believes that pain in the left side of the abdomen with tenderness and rigidity means almost always diverticulitis. Left-sided appendicitis is a rare cause of left side symptoms. Prolonged chronic diverticulitis frequently becomes cancerous. Many "cancer cures" of this portion of the gut were really cases of chronic diverticulitis only. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

MARCH 14, 1914.

1. BRYAN, A. D. *Medicine a Function of the State.*
2. LOWELL, A. L. *The Danger to the Maintenance of High Standards from Excessive Formalism.*
3. WHITEHEAD, R. H. *Administering the Preliminary College Year in Chemistry, Biology, Physics and Modern Language.*
4. HOLMES, C. R. *Hospitals and Their Relation to Medical Colleges and the Training of Internes.*
5. POWELL, R. W. *Registration Under the Canada Medical Act.*
6. CULLEN, T. S. *Adenomyoma of the Rectovaginal Septum.*
7. *MASON, J. M. *Dangers Attending Injections of the Kidney Pelvis for Pyelography.*
8. SIMPSON, F. E. *Radium in the Treatment of Blastomycosis, with Report of a Case.*
9. HABERMAN, J. V. *Mental Healing. An Admonition.*
10. BOURKE, J. *Primary Carcinoma of the Pancreas in a Patient Twenty-Two Years Old.*
11. *HOAG, A. E., AND SOLLESKY, M. *Perimyositis Crepitans. Report of a Case.*
12. BRAY, A. *Ophthalmoplegic Migraine, with Report of a Case of Recurrent Paralysis of the Right External Rectus Muscle Following Parturition.*

7. Mason in a very interesting and practical article, demonstrates the quite common occurrence of over distention of the renal pelvis by collargol used for pyelography, and subsequent damage to the kidney substance with renal infarction or even peritoneal inflammation. He quotes the work of Mallory on the histology of the condition and warns against the over-distention of the pelvis by more careful injection measured by the gravity or mercury manometer methods.

11. These authors removed a piece of muscle from a student suffering from perimyositis crepitans and found small ruptures of parts of the muscle and aponeuroses, which are later followed by hyaline thickening, which cause the creaking when two surfaces rub together. Over-exertion is the causative factor. [E. H. R.]

THE AMERICAN JOURNAL OF MEDICAL SCIENCES.

JANUARY, 1914.

1. *BARKER, L. F. *Differentiation of the Diseases Included under Chronic Arthritis.*
2. *SPILLER, W. G. *Some Causes of Disappointment in Operations on Brain Tumor.*
3. *MACCALLUM, W. G. *The Mechanism of Circulatory Failure in Diphtheria.*
4. *RUDOLF, R. D. *Bleeding in Typhoid Fever.*
5. *HALSTED. *Reconsideration of the Question of Experimental Hypertrophy of the Thyroid Gland, and the Effect of Excision of This Organ Upon Other of the Ductless Glands.*
6. *JAMES, W. R., AND HARI, T. S. *Auricular Fibrillation: Clinical Observations on Pulse Deficit, Digitalis and Blood-Pressure.*
7. WARTHIN, A. S. *The Minute Changes Produced in Leukemic Tissues by Exposure to Roentgen Rays.*
8. BLOODGOOD, J. C. *Can It Be Proved from Clinical and Pathological Records That the Number of Cures of Cancer Will Be Greatly Increased by the Proper Excision in the Earliest Precancerous or Cancerous Stage of the Local Disease?*
9. ABT, I. A. *Unusual Type of Acid Intoxication in Infants.*
10. FOX, H. *Experience with Neosalvarsan at the Harlem Hospital.*
11. PEMBERTON, R. *The Metabolism, Prevention and Successful Treatment of Rheumatoid Arthritis. Second Contribution.*

1. Barker, after consideration of the different types of joint disease described both in ancient and in modern times, proposes a classification under the following main headings: 1. The true gouty arthropathies. 2. The arthropathies of severe nervous disease. 3. The (primary) hypertrophic osteoarthropathies. 4. The secondary chronic arthropathies, following various infections, and those following small foci of infection in various parts of the body. 5. The so-called (primary) chronic progressive polyarthritis.

2. Spiller, in discussing discouraging statistics in operations on brain tumor, writes particularly of the unfavorable effect upon the operative results of enlargement of the brain from tumor, distortion of the brain, especially from tumor in the posterior cranial fossa, and acute swelling of the brain,—all conditions which usually may be avoided by sufficiently early operation and proper technic.

3. MacCallum reports experiments which seem to prove that in animals injected with diphtheria toxin the heart is not materially weakened. This finding lends support to the theory that death in diphtheria may be due to vasomotor rather than cardiac failure.

4. Rudolf reviews the conflicting statements of the effect of hemorrhage in typhoid fever upon the course of the disease, some authors failing to recognize any favorable influence, while others support the evidence of Graves and of Trousseau, that improvement may follow. He publishes twelve charts of typical cases in which hemorrhage occurred (in one by venesection), in all of which the loss of blood was followed by a fall in temperature and improvement in the general condition without unfavorable effect on the pulse.

5. Halsted reports briefly upon experimental work upon excision of parts of the thyroid gland under aseptic precautions which failed to result in the hyperplasia of the remaining thyroid tissue which occurred in former experiments without asepsis. The explanation remains obscure.

6. James and Hart write to show how misleading an index of the condition of the circulation is the count of the radial pulse in auricular fibrillation. Of greater value is the simultaneous counting of the apex beat and of the radial pulse for recording which the authors have devised a method of indication on a chart. Of more interest is a method which they describe of determining the average systolic blood-pressure in these cases where the beats are of unequal force. The administration of digitalis caused a rise in blood-pressure thus estimated. [F. W. P.]

FEBRUARY, 1914.

1. *DEAVER, J. B. *Tuberculosis of the Breast.*
2. *CAMAC, C. N. B. *Dental Sepsis: Its Relation to the System.*
3. *WITHINGTON, C. F. *Pneumonic Hemiplegias.*
4. ERDMANN, J. F., AND MOORHEAD, J. J. *Splenectomy for Splenomegaly (Gaucher Type).*
5. *GREENWALD, I. *The Supposed Relation Between Paralysis Agitans and Insufficiency of the Parathyroid Glands.*
6. *COHEN, S. S. *On Some Angioneural Arthroses (Periarthroses, Pararthroses) Commonly Mistaken for Gout and Rheumatism.*
7. *BEER, E. *Leukoplakia of the Pelvis of the Kidney and Its Diagnosis.*

8. Simon, C. E., and Wood, M. A. *The Inhibitory Action of Certain Analine Dyes upon Bacterial Development.*
9. *Stern, H. *Typhlo-albuminuria.*
10. Pemberton, R. *The Metabolism, Prevention, and Successful Treatment of Rheumatoid Arthritis: Second Contribution.*

1. Deaver has collected 69 proved cases of mammary tuberculosis from the literature and adds 5 original cases. These he analyzes and discusses in detail both from the clinical and the pathological point of view. All but one were operated by one method or another, without operative mortality. The disease is regarded as essentially a surgical one, although tuberculin treatment is recommended as of possible value when used in conjunction with operation.

2. Camac writes to emphasize the importance of recognition and treatment of oral sepsis as a not infrequent source of arthritis, endocarditis, and of other septic processes in remote parts of the body, even though the manifestations at the original focus may be slight. Radiographs, a number of which accompany the article, are the chief means by which such processes are recognized.

3. Withington describes the occasional occurrence of hemiplegias in pneumonia. These are found generally in young and rather vigorous people and often end in recovery. Since the few cases that have come to autopsy have failed to show organic lesions in the brain, the cause is unknown.

5. Greenwald reports chemical examinations of the blood serum of patients with paralysis agitans to determine the content of acid-soluble phosphorus, a constituent notably increased in parathyroidectomized dogs. His failure to find that this is increased in paralysis agitans he reports as evidence against the theory that this disease is due to parathyroid insufficiency.

6. Cohen reports cases with joint symptoms in which the features seemed to warrant the conclusion that they were angioneural in origin. He discusses the clinical characteristics of these cases and refers to the literature.

7. Beer reports a case in which following attacks of renal colic shreds of pearly white membrane of the structure of epidermis were found in the urine. These are believed to have been thrown off from a surface of leukoplakia in the pelvis of the kidney.

9. Stern maintains that albuminuria without other evidence of kidney disease may be due to a communication of the lymphatics of the cecum with the urinary tract. [F. W. P.]

Berliner Klinische Wochenschrift.

No. 5. February 2, 1914.

1. *Bumm, E. *Further Experiences in the Therapy of Carcinoma by Irradiations.*
2. Warnekros. *On the Technic of Roentgen Treatment of Carcinoma.*
3. Lazarus, P. *The Present Status and New Aims of Radium-Mesothorium Therapy (First paper).*
4. *Pinkuss, A. *Further Work on the Mesothorium Treatment of Cancer.*
5. Fraenkel, E., and Gumpertz, F. *The Effect of Injections of Thorium-X on the Agglutinins.*
6. Grabs, E. *Experiences with Digifolin.*
7. *Kleinschmidt, P. *Clinical Experiences with Isopral as a Rectal Anesthetic.*
8. Buchholtz, F. *A New Successful Method of Treatment of Acne.*

1. The author, in a very enthusiastic report, presents 108 cases treated with radium or mesothorium. Only 40 of these cases were operable, and though some of them had been followed for only six months, only 15 of the 108 showed recurrences at the time of the communication. Of 12 cases of carcinoma of the cervix, nine were seemingly cured (to date), 2 had recurrences and 1 was not markedly affected.

The destructive effect of the rays is found to extend about 2½ cm, below the surface—not as deep as 3½ or 4 cm., as others have claimed. The radioactive substances do not have a selective action on carcinoma, as has been stated, but the young and active tumor cells are more rapidly and completely destroyed than are the connective tissue and supportive cells.

4. This is a short critical review of the whole subject of mesothorium therapy. Pinkuss suggests that carcinoma of the stomach can be treated by making a fistula through which the substance can be brought into close contact with the growth; he does not favor the method of passing it into the stomach on a sound or bougie passed down from above. He doubts the value of intravenous injections of thorium-x, as has elsewhere been suggested and tried. The best results of all treatment with radio-active substances are dependent on more exact knowledge of the proper dosage, time of application, and filtration; and careful working-out of these factors is of supreme importance.

7. The author has used isopral in 43 cases, giving 0.1 gm. (per rectum) per kilo body weight, one hour before operation. In five cases no further anesthetic was necessary; in all the rest it was. In 4 cases the effect of the drug was very slight, and in 4 others there was no effect at all. Seven cases, after waking up, were for several hours in a highly restless and excitable condition—at times out of their heads and almost maniacal.

The toxic effect in some cases was extremely marked, showing itself chiefly in the poor pulse, altered breathing and general appearance. Kleinschmidt concludes that although in some cases its action is almost ideal, its use is not to be generally recommended. [R. H. M.]

Correspondence.

ANTIVACCINATION AND THE LEGISLATURE.

Boston, March 28, 1914.

Mr. Editor: To the great surprise of many intelligent people the legislative committee on public health, Drs. Clarke, Bigelow and Hart dissenting, has reported favorably a bill permitting unvaccinated children to enter the public schools of the Commonwealth upon the written request of any parent or guardian who may not believe in vaccination. At present a physician's certificate is necessary for such admission. The bill was introduced and advocated by the antivaccination agitators.

Should the bill become law, much harm in the future will be the inevitable result. The number of unvaccinated persons in the community, already too large, would be greatly increased, thereby flooding the state with material ripe for infection upon slight exposure. Its enactment would be a decided step backward in legislation towards the days when smallpox was always in our midst, not infrequently springing up in epidemics, maiming and destroying large numbers of persons needlessly and inexcusably. It would be difficult to imagine any action of the legislature that would be more ill-advised, or more cruel to the helpless portion of the community and especially to the children of the poor, the ignorant and the careless, who are unable to protect themselves properly.

As the direct result of wise legislation, Massachusetts has been practically free from the dreadful scourge of smallpox for forty years. The present generation knows little or nothing of it. Only

those who remember the last severe epidemic in Boston in 1872-3, when nearly 4000 were attacked and over 1000 died, can begin to realize the terror, the distress and the demoralization of the daily activities of the community in consequence of its presence. The outside world shunned us. Business fell off to a marked extent and the attention of the people was focused chiefly upon the state of the epidemic. Can it be possible that another object lesson of this sort is necessary to enable us to appreciate the absence of this pestilence?

This disease is preventable, but not curable. The chief factor in its prevention is vaccination. Its value has been incontestably demonstrated in all civilized countries for more than a hundred years. Time is wasted in arguments on this question in well-informed circles. Vaccination, properly done and attended to, is one of the safest surgical operations known to the medical profession. For nearly ten years Massachusetts has prepared vaccine virus for distribution to its citizens free of expense. About half a million doses have been sent out and used with no known ill results. No purer, or more reliable virus has ever been made anywhere.

No one claims that accidents never occur after vaccination, as they occasionally do after the most trivial injuries. Within eight years the writer has seen one death from the prick of a pin and one arm amputated for the scratch of a needle, yet pins and needles have not been given up, nor has any legislation been sought to prohibit their use, as yet. The risks of our every-day life far exceed those from vaccination, while the benefits derived from the latter surpass our comprehension. The accidents are preventable. They are so rare that they are a negligible factor in the question.

Sensible people everywhere are so firmly convinced of the protective power of vaccination that they will continue to avail themselves of its benefits regardless of any legislation, past, present or future. Adults can protect themselves, or take the consequences. The helpless children of ignorant or thoughtless parents, however, deserve the protection of the state. That is the chief object of the present vaccination laws. It cannot be possible that in these days of unprecedented efforts to lessen the mortality of the young, we are ready to abandon one of the most efficient measures for accomplishing that object known to modern civilization. In some of the former epidemics smallpox destroyed half of the children under five years of age, to say nothing of the blindness and other mutilations in those who recovered. It is desirable to return deliberately to conditions approaching in any degree those of former times?

A word as to the evidence of the parties in hearing. One party consists chiefly of a few well-meaning, but terribly mistaken and irresponsible persons, whose vision is not achromatic, *i.e.* who do not see clearly, who accept cheap newspaper clippings, neighborhood gossip, etc., as evidence. They never refer to official records, as there are none favoring their peculiar ideas. They endeavor to prove their case with a lot of stuff that would not be accepted in any court in the land. Their judgment is so warped that they can see only one side of the question and will not accept any evidence not agreeing with their claims. As the lawyers say, they are not competent witnesses.

The other party to this discussion comprises the medical profession all over the civilized world, whose opinion is based upon the experience of more than a century, the sanitarians, health officers and all others having to do with health problems, together with a very large proportion of the intelligent public everywhere. The alacrity with which the general public resorts to vaccination in times of danger, shows their confidence in the measure. The evidence in its favor is so overwhelming that one is lost in amazement that its value can be questioned in these enlightened days. Is it reasonable to suppose for a moment that the great mass of intelligent people the world over is wrong on this matter and that the few persistent agitators are right? If the wonderful benefit of vaccination has not been proven, then nothing in this world is susceptible of proof.

If the members of the legislature believe that the reliable, the official history of vaccination and its effects is a lie, if they believe that the medical profession is composed of hypocrites and mountebanks preying upon the public for pelf, if they believe that under the pretence of "personal liberty," the helpless children of the commonwealth should not be protected, if they believe that the antivaccinationists are better and more reliable judges of the points at issue, than are the physicians, then they will vote for House Bill 1018, which is but an entering wedge to the repeal of all laws relating to vaccination.

On the other hand, if they believe with the medical profession and the vast majority of intelligent people everywhere that vaccination is a public benefit and hence that the citizens of the commonwealth should be protected from smallpox, as they have been for forty years, they will oppose the bill in question, thereby following the wise procedure of many former legislatures.

GEORGE W. GAY, M.D.
For The Massachusetts Medical Society.

Miscellany.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE TWO WEEKS ENDING MAR. 21, 1914.

March 19, P. A. Surgeon W. H. Short from Receiving Ship at Mare Island, Cal., to the *Cleveland*.

March 17, Surgeon A. R. Alfred, from Naval Proving Ground, Indian Head, Md., to Training Station, San Francisco, Cal.

P. A. Surgeon H. L. Dollard, to Naval Proving Ground, Indian Head, Maryland.

P. A. Surgeon I. W. Robbins, Commissioned from March 28, 1913.

Asst. Surgeon C. I. Wood, M.R.C., Commissioned from February 24, 1914.

Asst. Surgeon J. M. Quinn, M.R.C., Commissioned from February 24, 1914.

March 18, P. A. Surgeon I. S. K. Reeves, detached from *Tacoma* to *North Carolina*.

Asst. Surgeon C. P. Lynch, detached from Naval Medical School, Washington, D. C., March 28, 1914, to *Tacoma*.

March 19, Surgeon C. D. Langhorne, detached from Marine Barracks, Washington, D. C., to the *Vermont*.

March 20, P. A. Surgeon M. C Baker, from *Pittsburg* to *Chattanooga*.

APPOINTMENTS.

DR. T. MITCHELL PRUDDEN, emeritus professor of pathology in Columbia University, has been appointed by Governor Glynn a member of the New York State Public Health Council.

DR. RUDOLPH E. DIEDLING of Saugerties has been appointed by the governor of New York a commissioner of prisons.

RECENT DEATHS.

DR. DANIEL SIMMONS, who died recently at Brooklyn, N. Y., was born in 1844. He served throughout the Civil War in the ranks of the Eighty-third New York Volunteers. Subsequently he studied medicine, and in 1872 received the degree of M.D. from the New York Homeopathic Medical College. He was a member of the American Institute of Homeopathy and of the Kings County Medical Society. He is survived by his widow and by one daughter.

Original Articles.

GONORRHEAL METASTATIC ARTHRITIS.

By H. W. E. Walther, M.D., New Orleans.

Clinical Assistant in Genito-Urinary and Venereal Diseases in the Tulane University School of Medicine; Assisting Visiting Genito-Urinary Surgeon to the Charity Hospital.

Since the year 1781, when Salle and Swediaur first made mention of a condition which they described as "an inflammatory articular affection dependent upon gonorrhea," that systemic complication of gonorrheal blennorrhagia now commonly known as gonorrheal rheumatism or more correctly as gonorrheal metastatic arthritis has, as Keyes states, claimed a greater share of the attention of the profession than its frequency warrants,—a claim which is due to its activity and its severity. That its importance is being more generally recognized is demonstrated by the fact that within the past few years much new thought has been added to the already voluminous literature on this interesting subject, and although all agree on the importance of early recognizing this condition clinically, still no two writers agree on the method of treatment. For this reason it has occurred to the writer that a compilation of the ideas expressed by the recent contributors on this affection together with a summary of their methods of treatment would be of material value.

Hahn of Breslau, who has made an exhaustive study of this disease, states that of the numerous metastases of gonorrhea which he has met with in his vast experience, gonorrheal rheumatism deserves first place. It has been reported from conservative workers that between two and three per cent. of all our patients suffering with Neisserian urethritis become afflicted with this disease. The malady is more common in men than in women. It has been found that the condition may be due to constitutional invasion and localization in the synovial membranes of joints, tendons, and bursae by the gonococcus alone, sometimes apparently to mixed infection, with pyogenic bacteria in addition. It occurs frequently after the passage of a sound into the urethra. Many cases have also been reported in vulvovaginitis of little girls and in gonorrheal ophthalmia of babies. Krissel states that women seem to be almost immune to this complication, which is supposed to be due to the fact that the vagina and not the urethra is the usual seat of gonorrhea in the female. This, however, is only a supposition. We find the initial infection at least as often in the female urethra as in the vagina. He believes moreover that the cause of this apparent immunity is to be found in the difference of the structures of the female urogenital tract and, secondly, to the lesser chance of traumatic injury to the urethra and vagina in the course of treatment of a gonorrhea. In the light of our present knowledge of the etiology of gonorrheal metastasis, it requires either local retention with a subsequent trauma of some sort or an abrasion of the protecting epithelium in order to allow the escape of the bacteria or their toxins into the blood-vessels or the lymphatics. Such a trauma may be a mechanical one, but a sexual excitement or a congestion from any source may serve the same purpose. Epithelial lesions may be produced by instrumentation, but the invasion of the deep urethra or the vesical neck and the trigone by the gonorrheal process leading to more or less congestion and bleeding is sufficient to expose smaller blood-vessels and offer an escape of the bacteria and their toxins. Neither endourethral instrumentation nor the invasion of the posterior urethra and the trigone usually occurs in the earliest stage of the disease and, therefore gonorrheal metastatic arthritis is rarely observed in this stage. It is rather the exception than the rule for our patients to develop symptoms of this malady in the acute stages of a gonorrheal infection, although I have seen it develop in the third and fourth weeks following the initial symptoms. It is rarely seen at an earlier period. In chronic cases it oft times appears before the prodromal symptoms make their appearance.

Two cases, as illustrations of early onset, which are still fresh in my memory, occurred some years ago while the writer was a resident interne in the Marine Hospital at New Orleans. The first instance was in the case of a stoker in the Navy who developed metastatic arthritic symptoms on the thirteenth day following his initial urethral infection with the gonococcus, and the second instance occurred in a marine whose arthritic symptoms developed exactly twenty-one days after his first clap. In both instances the patients denied all previous venereal infection and I had no reason to doubt the truth of their statements.

As to the number of joints which become involved, statistics show that in about 30 per cent. of the cases one joint only is involved and that in the remaining 70 per cent. the lesions are polyarticular. Regarding the distribution of gonorrheal metastatic arthritis, Lovett quotes 755 cases from the collective figures of Northup, Finger and Benecke and states that in their cases the joints were affected in the following order of frequency:

Knee	258
Ankle	125
Wrist	76
Elbow	53
Small joints of hand	50
Small joints of foot	46
Shoulder	44
Hip	42

Heel and toes	21
Temporomaxillary	16
Other articulations	24

These figures, I believe, compare favorably with those of all other workers who have taken the pains to tabulate their findings. All agree that the knee is the joint most commonly involved and sometimes we find it the only articulation affected. Large, swollen and intensely painful ankle and wrist joints are also common pictures in this disorder. The other joints are involved much in the same proportion as given in the figures above.

I desire here to report a case which to me was very interesting because of the fact that the articulation involved is one not commonly invaded by the gonococcus. The patient was a white male, single, 25 years old and a tailor by occupation. He gave a history of having contracted gonorrhea six weeks previously, had taken no treatment for the urethritis and he came to me, not for the urethral condition, but for severe pains "back of his right hip" as he described it. He still had a profuse urethral discharge in which I had no trouble demonstrating Gram-negative diplococci, there was swelling and severe pain on pressure over right hip localized to the area directly over right sacro-iliac joint and his suffering was so intense that it was with effort that the patient walked or even stood erect. Temperature 101 F. Joint was aspirated and 10 cc. of serous fluid withdrawn in which gonococci were demonstrated by centrifugal methods. Prostate and seminal vesicles were normal. The treatment consisted in absolute rest in bed, immobilization of affected hip with adhesive plaster strips, energetic local treatment for urethral condition and Bier's active hyperemia to affected joint. In two weeks time the urethral discharge had greatly diminished, the pains in the hip had disappeared and within three and a half weeks the patient was back at his usual occupation. Two years have now elapsed and there has been no return of the trouble.

The types of this affection that we usually see come under the following five headings:

1. Arthralgia without definite lesions in the joint.
2. Acute serous synovitis with much peri-articular swelling.
3. Acute fibrinous or plastic synovitis with slight effusion.
4. Chronic serous or purulent synovitis.
5. Involvement of peri-articular structures, such as bursae and tendon sheaths.

As to the management of cases of gonorrheal metastatic arthritis much has been written within the last few years. Practically everything known in therapeutics has been tried in the hope of finding some amenable remedy for this troublesome complication of gonorrhea but unfortunately, up to the present time at least, we have no absolutely dependable fixed method of treatment which we might conscientiously follow. Among the methods which have been vaunted from time to time might be mentioned: the employment of the galvanic and the faradic electric currents, the Röntgen rays, radium, the actual cautery, active and passive hyperemia according to the methods of Bier, wet hot and cold packs, blistering, tincture of iodine, ichthyol, and similar preparations locally applied, vaccines, serums and the bacterial derivatives. Of the surgical treatments we might mention aspiration alone, aspiration with injection of Murphy's two per cent. formalin in glycerin, arthrotomy and the Fuller operation of seminal vesiculotomy. These are but a few of the many methods; the list could be carried along *ad infinitum*.

Some years ago Kreissl was asked by a colleague how he treated his cases of gonorrheal rheumatism and his reply was, "By treating the gonorrheal focus." I am sure that today we all agree with him that this is the only logical procedure to follow for if the joint disease is due primarily to a gonorrheal urethritis, the inflammatory arthritis will subside promptly if the source of infection is eliminated. All of our injections, irrigations, dilatations and topical applications will fail to relieve our patients if the retention foci are not removed, be they in the prostate, the seminal vesicles, in Cowper's glands, in the follicles or in the crypts.

Cumston has recently laid great stress on the prophylactic measures which he has employed with success in the treatment of cases of gonorrheal rheumatism. He advises the internal administration of salol in five to ten grain doses, four times daily after meals and at bed-time. He cites a case of a physician who had gonorrhea twice and on both occasions there developed a severe tenosynovitis of the tendons of both feet. With this patient's third infection he was placed on ten grains of salol four times daily and the writer ends his report by stating that the patient rapidly recovered from the urethritis under local treatment and no symptoms of gonorrheal rheumatism appeared.

It seems still to be a disputed question as to whether the affected parts should be completely immobilized or not, and while many who have written on this subject recommend that the joints be absolutely immobilized over the entire period of the inflammation, others, among them Hume, are inclined to be more conservative and advise that the joint affected be kept in splints no longer than twelve hours on a stretch for fear that permanent ankylosis of the part may result therefrom. During the interval, in which joint is removed from the splints, passive movements might be practiced so as to retain its function as much as possible.

Pain is frequently a factor to be reckoned with in these conditions and whereas in some instances it will be mild and transitory, at other times it is of such a nature as to require the administration of morphine, codeine, veronal or the salicylates to relieve same. In gonorrheal tenosynovitis, which Cumston states is the mildest form of gonorrheal rheumatism, he advises rest of the parts affected and in intense pain he states that blood-letting works like a charm. Although I have not employed this latter method myself, it certainly is worthy of a trial.

The massage of the prostate and seminal vesicles seems to play an important part in the relief so frequently reported in some cases of this malady. Kreissl advises that massage of the prostate and seminal vesicles should be performed daily of from one-half to one minute duration, and states that this treatment should be kept up until no more septic material appears in the washings for at least two weeks, and even then it should be discontinued by gradually increasing the intervals between massaging.

Locally to the joints, lead and opium lotion, ice caps, hot or cold wet packs, saturated solution of magnesium sulphate, ichthyol fifty per cent., and the actual cautery have, I believe, given most satisfactory results. Holland instructs his patients to drink one-half gallon of water daily and to eat light, easily digested food, without much meat. He gives his patients an early morning bath, after which they are put to bed until noon; in the afternoons freedom is allowed if no pains are felt. Bier's obstructive hyperemia by means of the elastic bandage, should be employed early in the treatment of gonorrheal metastatic arthritis. The sooner after the onset of the articular pains the elastic bandage is applied, the better will be the results obtained. Bier stated that in cases in which this treatment is started within the first few hours after the pain sets in, the improvement is often so rapid and striking that the correctness of the diagnosis may be questioned. In three cases I have had the opportunity to verify these statements. I have seen three patients within a day after the initial symptoms of the rheumatism had set in. All three cases had been treated by me for chronic posterior urethritis of gonorrheal origin. I immediately applied the elastic bandage, also elevated the limbs in the interval of treatment in order to reduce the edema. Two treatments daily were given of ten hours each. In all three cases I found a marked diminution of pain in the parts affected, and also increased mobility. The treatment was continued for twenty hours daily until the fever had subsided and then the time of treatments daily were reduced. Bier's active hyperemia (steaming or baking the joint) has also been used with good results, in selected cases, but as a rule its results have not been as encouraging as those obtained by the passive hyperemia with the elastic bandage.

As far as can be ascertained, the actual value of the serums, vaccines and the bacterial derivatives in the treatment of gonorrheal arthritis has not been finally determined. It is commendable to note here that the fourth congress of the German Urological Association, which met in Berlin in the fall of last year, had an interesting symposium on serotherapy and vaccine therapy in its relation to urology, in which such men as von Wassermann, Schneider and Asch discussed this question. It is to be hoped that in the near future more will be known as to the actual value of these agents in genitourinary surgery. Hartwell, who reported a series of cases of gonorrheal arthritis treated by the vaccines, and who was one of the first in this country to try them in this condition, sums up his article by stating that: "From observations on 51 cases it would seem that gonococcus vaccines are a valuable therapeutic agent in gonorrheal arthritis in all stages of the inflammation except where ankylosis has occurred. They do not however, seem to be able to prevent extension to fresh joints in early cases, and certainly do not produce enough lasting immunity to prevent recurrence of arthritis. Autogenous vaccines seem to be more efficient than stock, thus corresponding to the known specificity of biological substances."

W. G. Young has reported 28 cases of gonorrheal rheumatism treated with the vaccines with these results: cases cured 20; improved 5; not improved 3. The doses he employed varied from 5 million to 50 million bacteria, and I think his results interesting because he states that practically no other treatment was employed in this series excepting the vaccines. J. S. Read, and, more recently, Holland have reported excellent results by using the mixed (polyvalent) gonococcus vaccine. Holland uses an initial injection of 400 million, followed in two days with 500 million; four days later he gives 900 million and this dose is repeated every four days until the desired results are obtained. Broeman has emphasized the importance of treating every case of gonorrheal rheumatism immediately with either the antigonococcus serum, gonococcus vaccine or the newer bacterial derivatives whether they are stock or autogenous products. The combined bacterins (Van Cott) seems to be more useful than the single strain cultures. The initial dose he places at between 10 and 20 million, running up the dose every second, third or fourth day, until about 50 million are being given every second or third day. Usually within a week or ten days improvement may be expected, but from four to six weeks elapse before all symptoms have subsided. The antigonococcic serum is administered in the same manner.

Nothing has yet been found that does a particle of good when given internally to our cases of joint complication following gonorrheal infection, so with this statement we can con-

scientiously pass over the internal treatment for something more promising.

The newer surgical procedures at our command, which have been employed in combating this Frankenstein of urology, have undoubtedly done much toward curing the severer forms of the disease. Of the numerous operations advocated by their enthusiastic originators, I will content myself by making mention of but four, namely, (1) aspiration of the joint alone; (2) aspiration of joint plus the injection into same of some antiseptic or disinfectant; (3) making incision into joint, irrigating and draining same according to the method of Schuller; and (4) Fuller's operation of seminal vesiculotomy. Taking them up separately we might say that it is reasonable to believe that some cases have apparently been cured by simply aspirating the accumulated fluid from the affected joint; sometimes a single aspiration will suffice, while in other cases the procedure must be repeated at intervals as needed. The aspiration of gonorrheal joints with the injection of an antiseptic or disinfectant solution has been popularized by Murphy in this country and by Hildebrand and Roux in Europe. Murphy uses a two per cent. dilution of liquor formaldehydi in glycerin, and of this solution he injects 5 to 20 cc. depending upon the quantity of fluid aspirated and the size of the joint. With this method he has reported excellent results and many other reports just as promising have come from other writers who have given this method a fair trial. The technique of Hildebrand and Roux differs little from that recommended by Murphy except that they inject tinctura iodidi (3i to 3iii) into joint instead of liquor formaldehydi.

When either or both of the above treatments fail, the joint should either be freely opened, cleansed, packed and drained, or double drainage should be instituted with daily through and through irrigations of 1-5,000 bichloride of mercury solution.

Fuller of New York has recently given us a new method for curing our cases of gonorrheal arthritis by his operation of seminal vesiculotomy. Up to the present time Fuller has performed this operation 251 times, 122 of which were for gonorrheal metastatic arthritis, without a single fatality. In his last report the author shows that most of the cases, both acute and chronic, were of very severe grade and it was primarily for the relief of the rheumatic symptoms that seminal vesiculotomy was done. He believes that the rheumatism is the clinical symptom of seminal vesiculitis which usually, by incapacitating the individual, brings him to the hospital; and in his experience at the City Hospital, when those suffering from rheumatism see the rapid cures resulting with little post-operative discomfort in those who have been subjected to seminal vesiculotomy, there is such a scramble for operation that no time has to be wasted in persuasion. In a personal communication to the writer, Fuller states that it is not logical, in his opinion, to employ any local treatment in this disease, for he claims that such treatment is decidedly faulty in that the individual is not freed of the primary focus which causes the toxemia of which the joint is only one of the evidences.

Up to the present time however, the Fuller operation has found few enthusiasts, the reason, I believe, being that most conservative surgeons look upon this operation as rather a severe ordeal to subject patients to, and most of us would prefer to try every other means at our disposal before having them undergo this operation. To do this operation undoubtedly requires some skill and experience. The technique cannot be properly acquired from the literature. To have seen this operation performed several times by a competent surgeon is, in the opinion of our leading urologists, the only manner in which it can be thoroughly mastered.

FURTHER OBSERVATIONS OF SEASONAL AND METEOROLOGIC INFLUENCE UPON TUBERCULAR PATIENTS.

BY N. B. BURNS, M.D., NO. READING, MASS.

Assistant Superintendent, North Reading State Sanatorium.

Through the year 1913 we continued our study of the correlation between certain phenomena manifested by tubercular patients and meteorologico-seasonal change. This is in accordance with the interesting results learned from a similar investigation carried on during 1912 and published one year ago.[1]

It should be worth while to collect facts and data pertaining to such clinical observations as seem casually to have some connection with weather change and to arrange them along side meteorologico-seasonal change. This is in accurrence. For this purpose corresponding indices on the charts represent the respective variations: and it can be noted almost at first sight the amount of coincidence or correlation occurring from day to day and month to month.

In this way a graphic arrangement by means of correlative indices gives a ready and impressive picture of the influence which the weather might have upon any group of tubercular patients in this locality.

"We live in the laboratory of the earth's atmosphere" says Prof. Ward of Harvard University.[2] This is particularly true of the sanatorium patient who, although sheltered from the extremes of weather, is so intimately associated with his natural out-door environment that he can hardly escape the influence of its

changes. Hence we should except the likelihood of some reaction by the tuberculate arising from weather and seasonal variations.

Our bodies try to adjust themselves to the changing conditions of the medium in which we live. A healthy individual although naturally better equipped with compensatory powers for adapting himself to his varying atmospheric environment has the means of seeking close shelter for the larger part of twenty-four hours, and especially from so-called undesirable weather; therefore he is perhaps not so readily subject to meteorological influence except if he be an individual who "incubates" to such an extent that exposure to any weather change effects him profoundly.

However, it should be said that among those patients who take all that the treatment offers, spending a maximum amount of time in the open air, that such a thing as a "cold" is very rare. While this patient is afflicted with a serious constitutional disease, he is nevertheless able to withstand the rigors of riotous atmosphere better than his well brother who must be inside the greater part of each day.

Last year our study was confined to the patients' weight changes by months, and at the same time to the effect of supplementary diet as a remedial measure in combating such of these changes as were of an unfavorable nature. In 1913 we investigated the same matter. Plates similar to those of 1912 are herewith presented.

Perhaps the best exhibit is the Gaining Weight Chart. The heavier index in the larger compartment represents the total number of pounds gained since admission by the male patients who have shown an improvement; at the foot of the chart may be seen two subjoined indices, the heavier of which represents the number of individuals in the male class gaining. The lighter indices above and below refer to female patients in the same manner. The number of patients involved in the make-up of this chart ranged between one hundred and ten and one hundred and thirty-five. The daily average number of patients for the year 1913 at the sanatorium was 178.56.

On this chart it is interesting to note:

(1.) The high points reached in the colder months and the sharp decline in the spring months, especially from the latter part of March to the middle of July when the low point is reached.

(2.) The women gained weight rapidly in January and February, also in September and October.

(3.) The large gain made by both wards during two weeks in October when the weather was so unpleasant that walks and exercise were much restricted and rest treatment in maximum amount was naturally in order.

(4.) Both indices leave off at the end of 1913 at a higher level than at the beginning of the year. Possibly this may be accounted for by the better cooperation on the part of patients, since the formation of the "*Sanatorium-Hospital Class*" system, whereby a greater number of patients are taking the treatment faithfully and therefore deriving greater benefit. Especially among the female patients did the sanatorium class distinction appear most popular, which may be one reason for their gross gain index running up so rapidly in the fall and early winter.

(5.) Since the total census declined slightly during the latter part of the year and since the number of patients discharged per month varied only in a small way, these two factors are practically negligible, in considering the index movements.

The trend of the indices of this chart correspond with those of a similar chart of 1912, confirming our ideas that the spring of the year constitutes a quite unfavorable season for the consumptive.

It is a matter of clinical observation that anorexia is then a common symptom among a clinic of tuberculates, which probably accounts for a considerable loss of weight.

There may appear an attendent mental phase characterized by depression, irritability of temper, unreasonableness and sometimes delusions. Thus, food which was most palatable and satisfactory to the patient during the winter months, not only loses its attractiveness, but is foresworn by the patient as "bad," "not cooked right," or "I can't eat that stuff." There seems to be a vicious circle, for with all this mental restlessness, comes a greater activity and a genuine and dangerous "spring fever."

Plate No. 2 is a discount chart which applies to the gaining weight chart. The idea is to have all the charts check up accurately to the census of the Institution, and also to explain for such part of the index movements as are clearly removed from probable seasonal influence. Thus "Patients not Weighed" and "Patients with Stationary Weight" account for the patients not enumerated on plates one and three.

Two indices which are not printed herewith deal with the census increase and the amount of meat consumption by months. The former increased from one hundred and seventy-two on March first to one hundred and eighty-two by the middle of July and then dropped to one hundred and eighty in October, which figure was maintained for the remainder of the year. Thus in those months of greatest decline in weight gained the census was increasing and was clearly a minimizing rather than exaggerating factor in determining the true intensity of seasonal variation in the spring months.

Dealing with meat consumption, the index falls in the warm months and rises sharply in the fall and winter, attesting to the genuine quality of the appetites of that season.

The "Weight Gained by Discharged Pa-

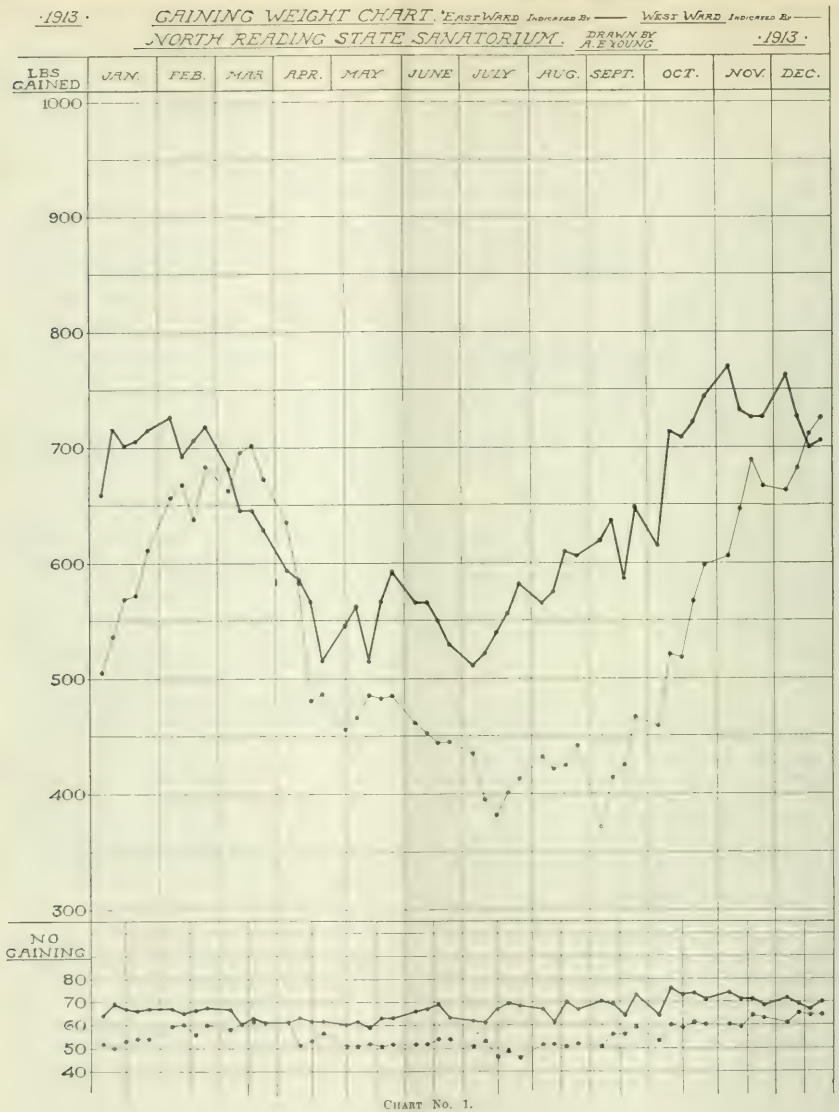


CHART NO. 1.

tients'' provides figures per week which should discount certain fluctuations shown on Plate No. 1. For instance, during the week of April seventeenth, female patients credited with ninety pounds of gained weight were discharged from the institution. A loss of one hundred pounds is shown on Plate No. 1 for that week. After allowing for weight discharged, a net loss is seen, which seems characteristic of that particular season of the year.

On the other hand from October sixteenth to the thirtieth patients' gains of seventy pounds were discharged in spite of which the main female index gained about eighty-five pounds, making a gain of one hundred and fifty. five pounds; thus there is a sharp contrast between the tendency in the spring months to

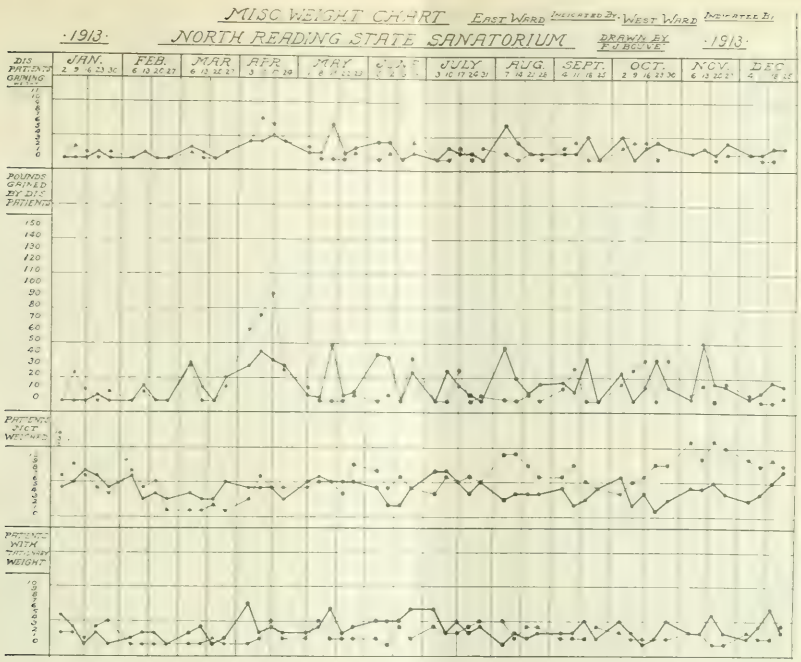


Chart No. 2.

cease taking on weight and that of the fall and early winter to gain weight and to improve in general condition.

Plate No. 3 gives four indices interpreted similarly to those of Plate No. 1 except they relate to emaciation rather than to gain in weight. This chart deals with those patients who were under admitted weight and registers quantitatively perhaps better than any other index could the activity of progressive disease in patients suffering with pulmonary tuberculosis. Three things are noticeable:

(1.) The minimum amount of weight loss occurs in the colder months; (2.) The maximum loss occurs in the warmer months; (3.) The rapid increase in amount of emaciation which appears in the spring months.

The final decline in weight of terminal cases is not shown on this chart because the weakness of such patients precludes their weighing for perhaps a long time before the end. Yet the last weight, taken some time before, must be reckoned in each week's account.

Some reason for the rebound in the lost weight indices in August and September is afforded by the fact that deaths in July outnumber all other months. The losses of patients dying are erased from the loss account and the index falls.

The factor causing the greater drop in these indices especially in the fall and winter months is constituted in the sort of patient who was below admitted weight in spring and summer but has managed to regain his weight lost and even to cross the line demarcating the gains from the losses, which change removes his records from Plate No. 3 to Plate No. 1. This change appearing in so many individual cases is confirmed in the aggregate by the direction of the indices on Plates Nos. 1 and 3.

In addition to the weight changes by months we began in 1913 an index chart picturing at various levels from the top down the records of daily barometer and wet and dry thermometer. These make three daily index curves and form "the weather department." The observations are taken on the premises and are usually about the same as reported by the United States Weather Bureau at Boston, Mass.

On lower cross lines are shown indices representing each day respectively; the total number of patients having streaked sputum and hemorrhages; the total number of bed patients; the total number having vesperal fever; and the total number having increased cough and chest soreness. By following the upright down one can see for any particular day the kind of weather which obtained and then the quanti-

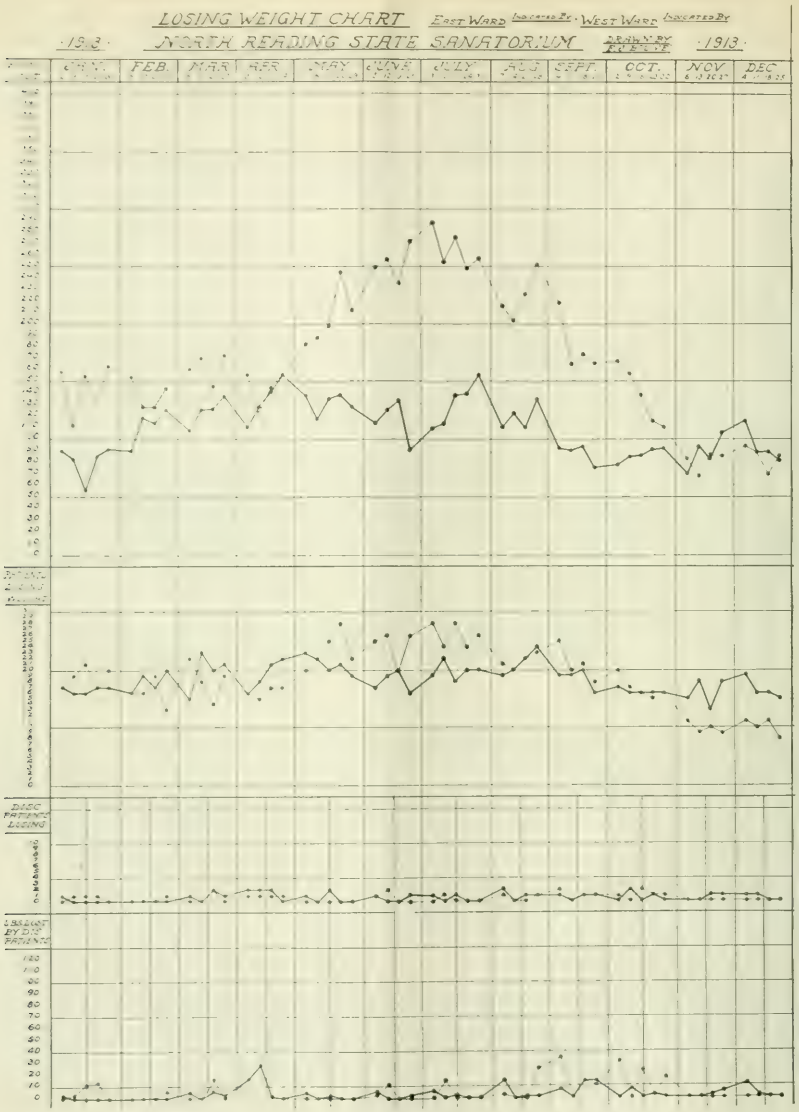


CHART NO. 3.

tative clinical reaction upon a group of approximately one hundred and eighty-five patients of which seventy-five per cent. are in the advanced stage. Whether there is a relation of cause and effect and if so how intense is the question at hand.

Reviewing the four charts which make up this series for the year the following observations can be made:

(1.) Barometer change seems to have very little affect upon the symptomatology. In a few instances hemorrhages have occurred following a fall in the barometer but in insufficient number of instances to justify constant relation. It is probably a matter of coincidence only in so far as barometer alone is concerned. There is a larger number of patients streaking in March, May and especially June than in

other months. Hemorrhage occurred more frequently in June than in any other month.

(2.) Relative humidity of high degree coincides with increased cough and chest discomfort, increased number of vesperal fevers, and increased number of bed patients.

(3.) Following weather relaxation and change from a protracted period of low glass reading wet and dry, together with high barometer, there seemed in several instances to be small epidemics of streaked sputum and occasional hemorrhages.

(4.) For seven different days in June the number of vesperal fevers rose to sixty-five and over, which is in excessive amount. Some reactions are not accompanied with humid weather. A plausible explanation is suggested, although the causative factor seems to lie outside the scope of this paper, in the fact that on several of these days visitors in large numbers, frequently over one hundred per day were visiting the patients, stirring them with family and other troubles, running over the grounds and making hard work and turmoil for all.

In this way of course there are factors not strictly meteorological which enter as a cause of variation among the indices on the plates presented. So it might be said that increased activity of patients encouraged by open weather in the spring time to walk further than they should cuts down the possible weight gain from the amount of the winter months when the heavy roads forbid extended walks. There are other reactions shown by the indices representing clinical symptoms but in a sporadic manner and apparently without definite relation to weather change. With two years' series of this sort before us more correlation may be seen.

Owing to the small lettering and complexity of these charts it is not at the present time practicable to have them reproduced among our published plates.

Many patients give a common history of onset of tuberculosis stating prodromal symptoms as in March, April and May followed by definite warning in the way of a hemorrhage or "pleurisy," "plural pneumonia," or "grippe" in June or July. This is particularly true of patients entering the sanatorium in the fall or winter months.

Accordingly, in view of the reactionary effect of the spring months upon the tuberculate it behooves one to be particularly critical of suspicious cases presenting themselves with perhaps vague signs but nevertheless real symptoms of pulmonary tuberculosis appearing in this unfavorable season.

REFERENCES.

[1] "Seasonal Variation of the Symptomatology of Pulmonary Tuberculosis," Boston Med. and Surg. Jour., March 20, 1913.
[2] "Elementary Meteorology," Ward.

Note.—One object in this investigation is to afford occupation of light and congenial nature for patients such as become unhappy when confronted with the enforced idleness involved in sanatorium residence.

This work meets the requirements for and represents the collaborative effort of about ten patients some of whom are now ex-patients.

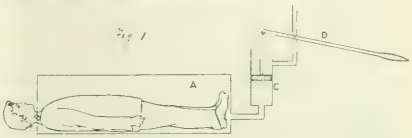
Mr. F. J. Bouvé, originator of the index drawings, was clearly helped in regaining health by the hearty interest he evinced for this work. Mr. Albert Young and Mr. C. W. Cushing have continued the drawings supplementing them with some added and excellent features. Misses N. Murphy, Florence Marsh, and Bessie Jean have collected much of the data on the women's wards. To these patients and to others who have helped I express my grateful appreciation for their earnest coöperation and faithful work.

N. B. B.

AN APPARATUS FOR USE IN OPERATIONS ON THE OPEN THORAX.

By Carl A. Ewald, M.D., Seattle, Wash.

It is the purpose of this communication to describe a mechanical principle in artificial respiration, which the writer believes has not thus far been made use of. It may have a practical application in surgery. A in Fig. 1 is an air-tight box, having at one end an opening B, lined with an inflatable rubber tube. C is a cylinder with a piston that can be raised and lowered by a handle D. A pipe connects C with A.



The subject is put inside, the head projecting through B. The lid is made tight and the tube about the neck inflated to make an air-tight joint. When the piston in C rises, a fixed amount of air which before filled A now fills both A and C. A fixed quantity of air which before occupied say 29,000 cu. inches now fills a space of say 30,000. The air pressure within has therefore, changed from 15 pounds to 29-30ths of 15, or 14½ pounds. When the handle is raised the air in C is forced back into A and the pressure restored.

The pressure within the lungs, however, always stays at approximately 15 pounds, because the lungs are open to the outside air through the trachea. When, therefore, the pressure in A is lowered, the chest expands, and air enters the lungs. When the piston descends, the air pressure in A returns to the normal, and the lungs become deflated through the elasticity of the chest walls and of the alveolar tissue. It is possible in this way to keep up an effective artificial respiration.

Before I had finished the construction of this apparatus, a further use of its principle suggested itself,—its possible value in operations on the open thorax. The most conspicuous apparatus in this field is Sauerbruch's Cabinet. In this a constant negative pressure is maintained outside the chest while the air in the lungs is in free communication with the out-

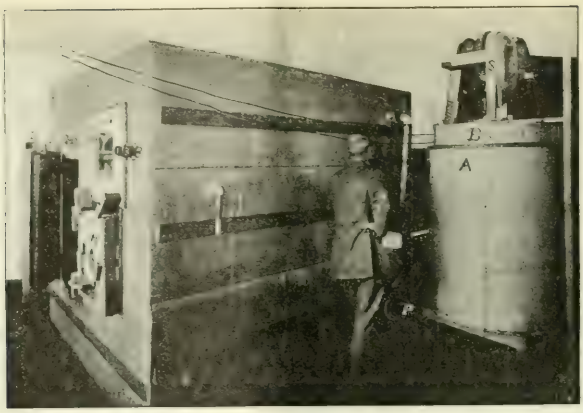


FIG. 2.

side air. The patient, however, must do his own breathing, and must do it not only with an injured chest-wall, but he must expire against a constant resistance. The muscular work instead of being directed to enlarging the chest, as in normal breathing, is done to deflate the chest, an act which in normal respiration is purely passive. These are reasons why Sauerbruch's device and the many modifications of it, including the various positive pressure cabinets, have not come into general use.

Other means have been devised to maintain respiration in the open thorax. Intratracheal insufflation is, perhaps, the most important. After reviewing them all, however, I still felt that the principle above described offered the best hope for a successful solution of the problem.

If we made our box large enough, with a pump correspondingly big, the subject with his head outside, could be made to breathe just as in the small box. The surgeon within would breathe the air of the closed cabinet. This I could show with my first apparatus,—a cabinet 6 ft. x 2½ x 1½. In the experiment I acted both as Versucher and Versuchsthier.

First I got inside the small cabinet with my head out, as in Fig. 1. When the pump was operated I could feel no change of pressure on my body, but my breathing was synchronous with the movements of the piston in spite of any moderate effort to the contrary. When I counted aloud and the piston went up, I missed a count or two until it descended.

I next closed the opening for the neck, got entirely inside, had the lid closed, and breathed the air within the box while the pressure was being changed from 15 to 14½ pounds some twenty times a minute. These pressure changes could not be detected so far as concerned my breathing. There was, however, a marked Politzer air-douche effect on my ear-drums, because obviously, the inner side of the tympanum does not feel the pressure changes as promptly as the outer side.

These two experiments showed: 1. That artificial respiration can be kept up effectively with such an apparatus allowing the anaesthetizer on the outside full access to the patient's head. 2. That the surgeon inside the cabinet feels no effect from the changing pressure except a somewhat disagreeable sensation in his ears.

I next built a cabinet 8¼ feet x 7 2/3 x 7 feet high, shown in Fig. 2. The frame was of fir scantling covered with one-inch boards and these covered with galvanized iron soldered at the joints. A window W, a door D, and an opening H for the neck, were provided and made tight with gaskets of rubber tubing. A U-tube partly filled with water recorded the pressure.

Instead of an iron pump, I used a better device,—a sheet iron cylinder B, 33 inches in diameter by 52 inches long, closed at the upper end, which moved vertically in another cylinder A, 36 inches in diameter by 48 inches high, filled with water to within 10 inches of the top. A 6 inch pipe P from the cabinet passed through the bottom of A to a height of 50 inches.

When the cabinet was closed and B then raised, part of the air in the cabinet passed into B and the pressure fell. When B descended the air within was forced back into the cabinet and the pressure restored. The work was done by a five horse-power induction motor. Three sets of iron gears reduced the speed from 1800 to 16 revolutions per minute. An iron crank 8½ inches long, carried at its end a loose iron block, which moved in a slot on the underside of a wooden lever 6½ feet long. One end of the lever was fixed. To the free end was fastened a leather strap S, which lifted B. When the crank turned the iron block mov-

ing in the slot, raised the free end of the lever 34½ inches. B returned by gravity and suction due to lessened pressure within.

A certain amount of leakage about the door and the opening for the head could not be prevented. This was found to be an advantage. The air that leaked into the cabinet when B was raised, would not all pass out again when B descended. After a few movements the pressure instead of being normal when B was down, became positive. As a positive pressure was not desired, a leather valve 5 inches square opening outward, was put in the top of the cabinet. Whatever air now leaked in was, most of it, forced out through the valve. The leakage lessened the efficiency of the apparatus somewhat, but it provided a change of air. It made unnecessary a device I had planned for filtering the air of carbon dioxide.

The volume of the air in the cabinet was 435 cu. ft. and of B above the water when up, about 17 cu. ft. We should therefore, have expected a maximum negative pressure of a little over a half pound per square inch, corresponding to about fourteen inches of water pressure. The greatest negative pressure obtained, however, was 10.2 inches. This was due 1. To the sucking in of the sides of the cabinet; 2. To leakage; 3. To friction of the air passing through the pipe. The six sides moved in a half inch at the centers when B was up. This decreased the volume of the cabinet over four cubic feet, and in effect reduced the volume of B by that amount. It accounted for most of the loss of efficiency.

The relative unimportance of the leaks was shown by opening three holes purposely left in the walls of the cabinet. A 1-inch opening reduced the negative pressure from 10.2 inches to 9.6. A 1½ inch opening reduced it to 9.3 inches. With two 1 inch and one 1½ inch openings, the negative pressure was 8.4 inches. With rigid construction, to avoid collapse of the sides, we could therefore leave an opening big enough to admit all the air needed by those inside the cabinet without greatly lessening the efficiency of our apparatus.

Experiments with this larger cabinet showed that it behaved exactly as the small one had. The subject with his head outside breathed synchronously with the movements of B, while those inside the cabinet felt nothing but a rhythmical pressure on the ear-drum and the bulging upward of the floor. Three or four persons could have remained inside for hours without difficulty of respiration. An opening that could be closed to any desired size, should be provided. This would serve primarily to regulate the negative pressure. Incidentally it would admit fresh air to those inside. A negative pressure which would be harmless to the lungs when the chest is closed, might be disastrous if applied directly to the lungs as when the chest is open. The difference of pressure which the unsupported lung tissue can safely bear must be determined by the surgeon and the opening then adjusted to limit the negative pressure in the cabinet to that amount.

Unfortunately, I was unable to do any experimental work on living animals. I secured, however, a dog at the City pound, that had just been killed by coal gas. I arranged the animal so the head was outside the cabinet and the body inside and opened the chest. The lungs were so contracted they had disappeared from view behind the engorged heart. When the motor was started the lungs were filled and deflated with perfect regularity.

From my work with this apparatus during the five weeks I had it in operation, I believe it offers a better means for the safe conduct of operations inside the open chest than any I have been able to find described. I hope it will be more fully tried out by others who have the facilities for carrying on work with living animals.

I shall note here some changes that experience has shown to be desirable:

1. The frame of the cabinet should be of fir or yellow pine 3 x 6 inches, 12 inches apart,—mine was 2 x 4, 16 inches apart.

2. Enclose with well dried 1¼ inch flooring with plenty of white lead and oil in each groove before tongue is fitted in. Give the whole two coats of paint. This will make an air-tight cabinet without use of a noisy iron covering.

3. Finish inside with ceiling or flooring nailed on diagonally to give added stiffness.

4. Size of cabinet about 11 feet x 12 x 7½ feet high.

5. Size of cylinder B for larger cabinet, 48 inches in diameter x 50 inches long, with vertical movement of 34 in. It should be of 16 gauge galvanized iron. Cylinder A should be 3 inches larger in diameter.

6. Size of pipe from cabinet 12 inches in diameter, 10 feet long, so machinery and cabinet can be put in separate rooms to avoid noise.

7. Pinion on motor shaft should be of rawhide to avoid noise. The other gears run slower and may be iron.

8. An opening in the side of cabinet 4 x 6 inches, which can be closed to any degree by a sliding plate operated from the outside or from within. This is to adjust the pressure and admit air for breathing.

9. A heavy plate glass top to admit light from above and allow spectators from suitably arranged seats, to watch operations.

The writer would be glad to give further details to any one desiring to carry on work in this field.

Scarlet-Fever in Cohasset.—Report from Cohasset, Mass., on March 29, states that scarlet-fever is at present epidemic in that town. Eight cases of the disease have been recently reported and the local schools are closed.

INSANITY IN CHINA.

By Alfred C. Reed, M.D.,

Assistant Physician, Yale Hospital, Changsha, China.

The question of the psychology, both normal and pathological, of the Oriental races, is of interest in two ways. It is of professional and scientific interest because it is such an untried field and offers so many alluring and wholly unknown lines of exploration. For the practice of medicine in the Orient there is imperative need of better understanding of these things not alone for the successful treatment of mental and many physical diseases but more particularly for their prevention. In the second place, the psychology of the Oriental races is of interest to the American physician because of the very practical and increasing relationship between the Orient and America, due to closer trade relations and the present tremendous awakening of Japan and China. The practice of medicine along western lines, and the introduction of modern scientific education and methods, are making rapid progress in Japan and increasingly so in China. The initial recognition of the Chinese republic by the United States has increased the Chinese regard for things American, and their desire for American customs and arts. American medicine now finds in China an opening never before presented. It will be to the advantage in a large degree of the medical profession of western countries, as well as to the great advantage of China if this opportunity is adequately met.

Aside from all these facts, the physician of all men can least afford to be provincial. Wide information must be his. Travel and knowledge gained from many lands are necessary to keep him broad-minded, energetic, sympathetic and a leader of men's thoughts.

China offers unusual opportunities for clinical and scientific investigation, and facilities are becoming available for such work. The results of such work will be applicable not only in China but also in western countries. Many problems are pressing for solution in the lines of public health and preventive medicine, clinical practice, surgery and the specialities, especially in diseases of the eye, skin and nervous system and in pediatrics. A problem can best be attacked however after it has been clearly defined. This is especially true in the realm of mental disease. If these facts hold in the United States, they are even truer in China. The pathological psychology of the Chinese is an unexplored field. There is practically no recognition or care of the insane from a public stand-point. Data are hard to get and of corresponding value when gotten. Here as in other lines, one of the primary needs in a medical way in China today is the need of statistics of incidence and local causes and characteristics of disease.

It is such considerations as these which lend special interest to a report[1] in the *China Medical Journal* by J. Allen Hoffman on patients discharged from the John G. Kerr Hospital for the Insane in Canton. Hoffman reports 312 cases discharged during the year 1912. Of these, 40% showed manic depressive insanity; 20% dementia praecox; 17.5% dementia paralytica; 3.5% exhaustive psychoses; 2% alcoholic insanities; 1.5% involutional psychoses, and the remainder scattered.

The manic depressive group showed the same preponderance of females over males which is found elsewhere. The average age of this group was 28 years, which also corresponds to figures in the United States. This was the largest group and showed the widest range of ages, from 15 to 62. Of the 125 manic-depressives, 22 showed paternal hereditary taint, 11 maternal and 4 collateral taint, a total of 30%, but more than half of the group were received through the police and no history could be obtained. Here too must be reckoned the fact that the maternal family history is often unknown. A complete record therefore would probably show the same degree of hereditary predisposition as in the United States. Among the vicious habits of the parents of these cases opium addiction and alcoholism were more common than in any other group. Venereal disease in the parents was rare. Manic depressive insanity often seemed to follow some season of festivity and drinking, and was especially common after the Chinese New Year. 28% of these cases gave a history of previous attacks. The results of treatment were not different from those at home. 61% were discharged cured, 24% improved, 8% not improved and 6% died.

As in the United States, dementia praecox is of frequent occurrence, forming 20% of Hoffman's cases. In this group there were over four times as many males as females. The average age of onset was 18, the actual time varying from 15 to 24 years. The hebephrenic type was most frequent and usually appeared in young men of the better class families socially. The paranoid type was less frequent and appeared at a somewhat greater age. Hereditary predisposition seems to be the great causal factor in South China. Opium addiction and alcoholism were of frequent occurrence in the fathers of these cases, and seemed to have a special influence in favoring mental weakness in the children. In many of these cases the exciting cause of the disease was in some way associated with the sexual life of the individual. Hoffman notes the fact that a surprisingly large number of cases of dementia praecox which in the United States are adjudged hopeless outside of an institution, in China are able to make a livelihood and return

[1] Hoffman, J. Allen: A Report of Patients Discharged from the John G. Kerr Hospital for Insane During 1912. China Medical Journal, November, 1913, p. 369.

to their homes. The easy-going leisurely pace of ordinary Oriental life is responsible for this, as is also the absence of the mental stress, competition and hurry of America. We see here a practical illustration of the mental results of the two environments.

Of Hoffman's cases, the third largest group was dementia paralytica, and in this group were four times as many men as women. While syphilis is wide-spread in China, the strange fact remains that dementia paralytica and other para-syphilitic affections are rare. In explanation of the high percentage of this disease at the John G. Kerr Hospital, Hoffman states that these cases were largely among persons who had travelled outside of China, some as coolies, some as merchants. They had been subjected to various hard-ships at sea, and were addicted to venereal excesses as well as to alcoholism or opium. All who could give a history, had contracted syphilis abroad, especially in Macao, the Malay states, Borneo, the Philippines and North and South America. Among the southern Chinese who have never left their own country, paresis is uncommon. The author points out that it is a subject demanding investigation as to whether syphilis alone is responsible for dementia paralytica, or whether other factors such as debauched living and the stress of the competitive western life enter in also. Or the syphilis of the Orient may be caused by a spirochaete of a different strain which does not tend to produce para-syphilitic affections.

Of the eleven cases of exhaustion psychoses, nine were in men and only two in women, just reversing western statistics, but explained by the shock of fear and exposure during the war of rebellion of that year. Alcoholic psychoses ranked fifth in number, though Hoffman considers them to be increasing. In five years in China, he has seen but one case of delirium tremens.

The opium habit was responsible for very few of this series of cases, but Hoffman reports having found whole families of children who were imbeciles, idiots, or dements, and in whose history the only causal factor apparently was opium addiction in the father.

The conclusion is reached that insanity is as common, if not in fact more common in South China than in the west. One strong contributory factor to this condition of affairs, is the custom of ancestor worship which demands that every male must have off-spring. Even demented persons are at times taken out of hospital that they may marry and beget children. Naturally this results in a greater increase of mental disease among the wealthier and better classes than among the poor who often can not afford to marry.

Three facts deserve special mention in a consideration of the prevalence and varieties of mental disease in China. Both are substantiated by the witness of many observers. The first is the absence to a great degree of alcoholism as a common vice except in the coast-wise cities. This largely removes the influence of alcohol as a hereditary factor in the development of mental disease, and in the production of mental defectiveness. At the great festival of the Chinese New Year, over-indulgence in alcoholic beverages is more common as it is also on other gala occasions. But as a chronic common vice, it has nothing like the prevalence found in western countries. The second fact is the frequency of syphilis in the primary, secondary and tertiary stages and the extreme infrequency of para-syphilitic conditions. It is a matter of clinical observation that arterio-sclerosis and thickening of the arteries is excessively common. Aneurysm however is rarely seen. Hemiplegia from embolism or thrombosis is frequent while tabes and paralytic dementia are quite unusual.

The third fact of special interest is that while conditions of heredity, opiumism and alcoholism, the latter chiefly in the coast cities, favor the development and increase of mental disease and defect, and while these diseases are probably as frequent in China as in America, nevertheless the lack of the stress and strain of life in America makes the results of such disease in many cases far less serious than the results of similar conditions in America. It is easier for the weakened mentality to take care of itself and be independent in China because of the machine-like routine of the ordinary life of the people and their freedom from exciting and disconcerting agencies of various sorts which in other countries are all too common. It must be noted too that there is more than a little truth in the often made observation that the Chinese differ in their nervous make-up from Occidental races. They often seem indeed to be devoid of nerves and utterly unaffected by and oblivious to, many things which a western man finds not only irritating but really unbearable. This placid disregard for things we usually associate with "nerves" must have a more or less important bearing on the development of latent causes of insanity. At present it is impossible to estimate this influence, but it is very real and ought to be an able adjunct if properly used, for the prevention of functional insanities whose out-break depends on some exciting cause in the immediate environment of the patient.

The student of heredity finds a rich field in China where genealogies are so carefully preserved. Many old families appear to be dying out, their energies and vigor dissipated, and some of the reasons lie close at hand. Too close inbreeding is not a factor, because of the deep repugnance and even prohibition of marriage between persons even distantly related. Usually the same surname, even where no blood relationship exists, serves to prevent marriage. But on the other hand, every male is virtually forced to have off-spring and the belief is well-nigh universal that daily sexual intercourse is

necessary for health. The debilitating effect of this and the gross moral tone of the people as a whole, has much weight in the perpetuation of poor and defective stock. Coupled with this is the fact that tuberculosis in every form is rampant and that venereal disease is rapidly increasing. It is evident that the percentage of mental defectives and insane would reasonably be high.

Under the new government, republican in name at least, China has great possibilities. Not the least of the necessities for her advance, is the development of public health work and the investigation of her great medical problems. If western nations like America are only now just awakening to the close relation between economic efficiency and public health, it is small cause for wonder that China with her inherent belief that human life is her cheapest commodity, should not yet have appreciated such a relation. The near future however promises to show a great advance both in the popular recognition of such things by the Chinese, and also in active measures to remedy existing conditions.

EDUCATIONAL STANDARDS FOR NURSES. STATE REGISTRATION AND TRAINING SCHOOL INSPECTION.

BY SARA E. PARSONS, R.N.,

Superintendent of Nurses, Massachusetts General Hospital.

UNDOUBTEDLY the standards for nursing education set by the American Red Cross is the most important fact in the nursing field today. All nurses with a spark of patriotism desire to be enrolled for the service of their country in time of war or calamity. Any school that would have the future welfare of the country at heart must desire to equip its pupils to meet the national standards. The school that pursues any other policy is, in my opinion, pursuing a suicidal course.

No one but a reliable woman with good moral standards and a complete all around training ought to be enrolled for active service, as no one can predict what phase of illness a nurse must deal with in Red Cross emergencies. The War Relief Board of the American Red Cross has created a national committee of fifteen to establish a uniform standard of qualifications to govern the enrollment of nurses. The committee in full is as follows: Jane A. Delano, R. N., Chairman; Mabel T. Boardman; Mrs. William K. Draper; Major R. W. Patterson; Dr. T. W. Richards; Dr. William Welch; Mrs. Frederick Tice; Emma M. Nichols, R. N., (City Hospital, Boston); Alma E. Wrigley; Mrs. Whitelaw Reid; Anna C. Maxwell, R. N., Isabel McIsaac, R. N., and Julia C. Stimson, R. N.

What are the requirements, and are they just?

TRAINING. The nurse must have had at least a two-years course of training received in a general hospital which includes the care of men and has an average of at least fifty patients during the applicant's training. In cases where subsequent hospital experience, or a post-graduate course would seem to supply any deficiency of training, applicants may be enrolled with the approval of the National Committee.

Graduates of State Hospitals for the Insane are not eligible unless their experience includes at least nine months training in a general hospital either during their course of training or subsequent thereto. In states where registration is required by law graduates of schools not meeting the requirements of the State Board of Registration will not be considered eligible for enrollment. Applicants must have the endorsement of the American Nurses' Association and of the Training School from which they graduated.

They must be at least twenty-five years of age.

It will be noted that an applicant may make up her deficiencies by post-graduate work so that these standards cannot be said to be unreasonable.

In view of the general ethical reasons why nurses should be adequately prepared for the profession they voluntarily assume, is there any just objection to an inspection of training schools by some properly qualified person appointed for that duty by the State Board of Nurse Examiners?

Is there any good reason why such an inspector should not be selected from nurses who meet at least the minimum standards set by the National Committee?

Is there any logical reason why hospitals that undertake to run training schools should not stand in the community for what they really are?

If they wish to meet national standards why should they not affiliate to make up their deficiencies as most recognized schools today are obliged to do?

Some of the largest and best-known schools in Boston are dependent upon smaller and special institutions to give their pupils experience which their own wards cannot supply. The Boston City Hospital, the Massachusetts General and the Peter Bent Brigham are good examples of the large hospitals that affiliate, and the Children's Hospital and the Adams Nervine are notable examples of what small special hospitals can do for their schools when determined to meet definite standards.

It is both difficult and expensive to maintain a good training school, but most hospitals find that it pays in results.

New York hospitals that wish to maintain training schools eligible for registration with the Board of Regents must give at least a two years course in a hospital or hospitals giving definite kinds of experience, and the schools must submit to the Regents papers to show that applicants have had at least one year in high school *or an equivalent* before entering the school. It is this last requirement that seemed to cause so much controversy between medical superintendents of hospitals and the nurses who stand almost unanimously for such standardization, (although they would prefer higher standards and intend to raise the educational requirements.) Women with less education than that must make up their deficiencies if they wish to care for the sick in New York as registered nurses.

To train, graduate and register women of such a low standard as a grammar school education implies an imposition on the public (that eventually pays for it in dollars) that is not to be endured.

The position of nurses as a body who are insisting on better education and better opportunities needs no defense in the mind of any thoughtful man or woman, but the plea made by a few who are loud in their cry for no restrictions on those who go into the hospitals and homes to nurse the sick is sometimes so plausible as to persuade those who do not carefully think out the whole situation.

Opposed to the names of men who are quoted as objecting to state registration for nurses; for training school inspection, etc., there are hundreds of notable men and women who endorse the movement.

May I quote from a letter recently sent me by a hospital trustee of another state who has recently become interested in the nurses educational movement—

"Small hospitals with training schools that are designed by Boards of Trustees for utilitarian purposes have much to answer for. Too many training schools are issuing diplomas that in substance certify to residence for a continuous term of months at some hospital where the holder has been a very satisfactory maid of all work.

"The laymen, who constitute the governing boards of hospitals that maintain training schools, have not been impressed with the moral obligations they assumed when inviting a young woman to enter the training school. The uppermost thought has been that it was an inexpensive and accepted method of paying for the care of sick people dependent on charity.

"Much good can be accomplished if an organized educational campaign could be conducted in the ranks of the laymen who govern the hospitals. Thousands of these well intentioned conscientious men are big in their business world but small in the knowledge that covers the subject of nursing education. I have been in hospital work very actively for twelve years and when I think of the utter ignorance of nursing education that blinded me for nine years I wonder what use I made of my eyes and ears.

"In detail this letter may not interest you, but its chief point is that you can readily see that an officer of an obscure country hospital has been awakened by the echo of the gospel that earnest women of the nursing world have been preaching."

The above letter speaks for itself. There is at present in Boston a progressive, humanitarian movement on foot to provide nursing and household care for people of moderate means, (Household Service Bureaus.) The Women's Municipal League is behind it, and a committee of its members, doctors and nurses are framing a curriculum, and searching for hospitals where attendants may be taught to do this much needed work. Such attendants may be of untold service in the community if provision is made so that the general public may readily distinguish between the trained registered nurse, and the attendant.

For the success of this project which is one of the most important social movements of the present day it is important that the State Board of Nurse Examiners be empowered to inspect training schools so that the registered nurse of the future in Massachusetts may stand before the public as one who has had sufficient practice and theory to warrant confidence when people wish to employ a trained nurse.

The attendant should also meet certain definite standards and be licensed or registered to practice. She will not take the place of the trained nurse any more than the trained nurse takes the place of the doctor but she will supplement the work of both.

In hospitals where the problem of training nurses for registration is too difficult we should find the laboratory for the training of attendants.

All persons who are interested in the 90% of the population who most need consideration will, it is hoped, help the trained nurses and the Board of Nurse Examiners to get their training school inspector, and also support the effort to provide the community with trained attendants.

Hospital Bequest.—Under the will of the late Frederick Townsend Martin of New York $5.000 is left to the Albany Hospital, Albany, N. Y., to endow a bed in memory of his mother.

Cases of Infectious Diseases reported to the Boston Board of Health for the week ending March 31, 1914: Diphtheria 46, of which 4 were non-residents; scarlatina, 130, of which 13 were non-residents; typhoid fever, 3; measles, 92, of which 1 was non-resident; tuberculosis, 50.

Clinical Department.

TREATMENT OF HEMORRHAGIC DISEASES.

BY H. GILDERSLEEVE JARVIS, M.D., HARTFORD, CONN.

Assistant Surgeon to the Hartford Hospital.

IN past years little progress has been made with the problems of the etiology and the treatment of hemorrhagic diseases. The etiology still remains an obscure subject, as two diametrical opposite opinions are held as to its cause:

1. That an abnormal vessel wall allows normal blood to escape through it.
2. Abnormal blood because of its abnormality is able to pass through a normal vessel wall.

The arguments in favor of either supposition are not as yet convincing, although the preponderance of evidence seems to be in favor of the latter view; that something which causes the blood to coagulate is missing. In the cases tested there seems to be a diminution in the number of platelets, and in the first case we were able to foretell an outbreak of purpura by the diminution of platelets. The coagulation time has been quite variable, 3-10 minutes up to 40 seconds in cases which seemed to be clinically the same.

The mortality was quite high when the older methods of treatment were in vogue. The combined statistics of Schloss, Commiskey, Vassmer and Shukowsky show a mortality of 50.3%. According to Vincent, taking all forms of the disease, probably 60% represents the average mortality.

The older methods consisted of the use of various therapeutic agents, *i.e.*, adrenalin, calcium chloride and lactate, tannic acid preparations, ferric preparations and gelatin. These agents were on the whole quite disappointing, although gelatin has been highly recommended by German writers and has been widely used in Europe. Vassmer reports 34 cases of melena neonatorum treated with gelatin, with a mortality of 8.8%.

NEWER METHODS OF TREATMENT.

The method of blood transfusion was introduced and was employed by Lambert, Carrell and Brewer in 1909. Lespinasse and Fischer in 1911, with their own cases and others, collected in the literature, reported a total of six cases with a mortality of 33 1-3%. Vincent, in 1912, reported 11 cases, 8 of which were successful. Bernheim had one successful case. He devised two metal tubes, one of which is inserted into the vein of the recipient and the other into the artery of the donor. When both are in place they are united. This method and that of Vincent with the glass tubes, makes the technic easier because it allows more room between the two patients. Vincent has made one improvement over the technic of others in the use of the external jugular vein, as it is the largest of the superficial veins in the baby.

There were also various modifications of the direct transfusion method as practiced by Kimpton, Lindeman and Vaughn.

A second treatment that came into vogue was the injection of animal serum. This was first suggested by the work of Weil on hemophilia. The serum was generally obtained either from a horse or a rabbit. The amount used was 10 c.c. up to as high as 100 c.c. at a time and repeated. Leary, Bigelow and others used it with fair success. This treatment was not confined to the hemorrhagic diseases of children, but was utilized in various conditions, such as tonsillar hemorrhage, uncontrollable bleeding from jaundice, hematemesis and even hemoptysis.

The third method was the use of human instead of other varieties of serum. Welch, in the *American Journal of Medical Science* for 1910, first brought out this idea. He reported 13 cases, all of which he cured this way. Last year he reported 32 cases; some of which were hemorrhagic cases, others were just septic, in which he used normal blood serum with what he called brilliant results. He gives no detail report of the cases nor of the per cent. cured. In conclusion he states, "Of other conditions in which I have had experience in the use of human serum, the various bleeding conditions rank first, and of these, more especially the hemorrhagic condition of the new born."

In considering the use of sera or blood transfusion, four points were impressed upon me:

1. Dexterity required as in a transfusion. Men have to be specially trained in the surgery of blood vessels to do this.
2. Danger, as from thrombosis.
3. How did we know that just the elements of the serum were missing?
4. Various articles are necessary to do a transfusion or even in the use of sera.

METHOD EMPLOYED.

To obviate the drawbacks mentioned above, I have employed the so-called injection of whole human blood. Schloss and Commiskey, in two articles during 1911-1912, reported nine cases with a cure of seven. Myers, of Wisconsin, had two cured cases. I took up this method about two years ago, starting in the pediatrical clinic of the Hartford Hospital, and up to date have had thirteen cases.

Of all the methods which have been advocated in the treatment of hemorrhagic diseases, this one is by far the simplest. The only apparatus needed is a syringe, needle and a piece of strong flexible rubber. The latter is not absolutely necessary. The syringe should hold at least 10 c.c., preferable 20 c.c. of fluid. Those made

entirely of glass are better because in these the blood is less likely to clot. The needle which has given the best results is a medium size aspirating needle. The piece of rubber joins the needle to the syringe and allows play between them, so that if the child squirms around, the needle is less likely to break off or injure the child.

The areas from which the blood is taken and where it is injected, must first be carefully sterilized. The blood is drawn from the basilic vein at the elbow, preferably from the father or some male relative, although on several occasions it has been taken from the mother as she lay in bed. It is then injected into the buttocks or back of the infant. The amount used is from 10 to 20 c.c., and is to be repeated in 4 to 6 hours if the hemorrhage is severe or if there are any signs of new bleeding. I always repeat it if purpura is present.

I will now briefly cite my thirteen cases:

Case 1. A. R. Admitted to Hartford Hospital on October 8, 1911.

Complaint. Swollen face and loose bowels.

June 1, 1912. A summary of this case shows numerous attacks of purpura, a continued emaciated condition complicated by pneumonia, double otitis media, perineal abscess, varying periods of general edema, rhinitis and at times the child has been in a critical condition.

Because of his hemorrhagic condition, 20 cc. of father's whole blood were injected into the patient's buttocks.

June 17. Because of another slight outbreak of purpura, 20 cc. more of father's blood were injected.

July 1. Child has gained steadily in all respects but because of one small purpuric spot on the right thigh, 20 cc. of blood were again injected.

August 15. No more purpuric outbreaks, child has gained steadily, is able to walk and was discharged well.

Case 2. C. P. Age 4. Came to my office for severe nosebleeds and spots over body. For two and one-half years has been subject to outbreaks of purpura and severe nosebleeds. This has been getting worse and last week the patient had an outbreak every day. Mother states that the bleeding is so severe that the child faints. On examination no ulcer was found in the nose, but the child was very anemic and purpuric spots were present on the left thigh and right leg.

15 cc. of father's blood were injected. Bleeding stopped immediately. In a week, two drops appeared at the nostril. 15 cc. of father's blood were again injected.

Feb. 15, 1913. Child was lost sight of. Since last note, the child has had one attack of nosebleed, but the father refused to have it treated any more.

Case 3. Baby Oliver, 6 weeks of age. For past three weeks has had bleeding from nose, gums and rectum. During the past two days, there has been bleeding from the cord and into the brain and orbital cavities. Examination shows a comatose child, fontanelles very tense, marked protrusion of right eye ball and bleeding from gums, navel, nose and rectum. Purpuric spots over rectum, thighs and upper extremities. Child practically moribund. Twenty cc. of father's blood were injected. Child died in four hours.

Case 4. Mary R., 3 weeks old. Came to my office Sept. 1, 1912.

Complaint. Bleeding. Mother stated that the child had bloody stools for about three days. On examining child, it had a rather free discharge of bright blood from the rectum. The rest of the examination was negative except for anemia. Hemoglobin 65 per cent. Coagulation time, 10 minutes.

Twenty cc. of mother's blood were injected into child's buttocks.

Child made an immediate recovery, gained steadily in weight and never had any more bleeding.

Case 5. Lillian W. Entered Hartford Hospital on November 22, 1912. Age 2 months. Past history negative.

P. I. One week ago baby began vomiting after feeding, sometimes curds and at other times liquids. Baby has been nursed every time she cried, either from breast or Eagle Brand Condensed Milk. Bowels irregular, at times 2 to 5 movements a day, green, watery, with some curds and mucus. Child has lost about one and one-half pounds since birth.

Examination. Crusts on scalp. Pharynx, chest and abdomen negative. Small umbilical hernia, recents loss of weight, skin clear.

Nov. 26, 1912. This infant has not been doing well. At first, while it took its feedings yesterday it had renewed vomiting and whereas there were noticed some bright blood clots in the stools on the 23d; to-day there is considerable bright blood in the faecal discharge and the child's general state is much depressed. Rectal examination, including an abdominal palpation, fails to reveal any cause for bleeding.

Ten cc. of father's blood were injected into child's back. Bleeding was immediately controlled.

Jan. 4, 1913. There has been no further bleeding and the infant has continued to improve and has gained two and one-half pounds. It is now on a milk formula and with the exception of slight eczema of the right ear, creases in neck and groin, there are no further abnormal developments.

Case 6. Baby B., 3 days old. Seen in Wallingford, Conn.

No bleeders in family. On second day after birth, diapers were red and again on that night there was slight bleeding from one nostril. No other foci of hemorrhage.

Examination. Well developed child. Blood clot in left ear and right nostril. Active bleeding from vagina and navel. Slight purpuric hue to entire skin.

Eighteen cc. of whole blood from paternal uncle were injected into child's buttocks. Blood was taken from the uncle because the father had been in poor condition. Bleeding immediately stopped and child has had no recurrence.

Case 7. Peter F. Admitted to Hartford Hospital on Feb. 23, 1913.

Complaint. Hemorrhages from nose.

Born November 16, 1912, full term, normal delivery. Weight, 9 pounds. Always breast-fed. Always well until present illness. Three days ago child had nosebleed from left side. Some was swallowed and a clot 1½ in. x ½ in. was vomited, also some very dark vomitus. Black stools for two days.

but no more vomiting. Stools were better yesterday and to-day, O.K. (yellow). Child did not nurse well this morning.

Father living (recovering from an operation). Mother living and well. No bleeders. One other child, O. K.

Feb. 23, 1913. Eight c.c. of serum from mother injected into child's buttocks.

Feb. 24. This infant is in a precarious state, somewhat stupid, right external strabismus. Tense fontanelle, peculiar pallor, semi-tonic state. Throat, chest and abdomen negative. There are no purpuric spots present, although on the right knee the skin is a little dusky.

Feb. 24, 5 p.m. Because of the precarious condition and duskiness of skin, 10 c.c. of whole blood from father were injected into the buttocks of the child.

Feb. 25. There is a slight increase in the intercranial pressure this morning. Fontanelle more tense. Eyes held in a staring, inattentive gaze, and except when the child is aroused, it remains in a semi-conscious state in which the eyes are partly open. There still remains the tonic state of the musculature. On the other hand, a stool just passed contains no blood.

Feb. 26. There has been no further evidence of hemorrhage. The fontanelle is the same as yesterday. The tonicity is a little less and the child responds to external stimuli; but when left, it returns to its semi-stupid condition in which the eyes still tend to be fixed, but less so than formerly.

March 1. The baby is less stupid today. Its pupils respond readily. There is still a little internal strabismus. The neck is a little stiff and the fontanelle tense, but less so than yesterday.

March 16. The improvement has been very rapid and satisfactory and today there is no evidence of intracranial pressure. Child is clear in its mind and improved in nutrition. It is on a milk formula supplemented by breast feedings. General physical examination negative.

CASE 8. Joseph P. Admitted to Hartford Hospital on March 20, 1913. Age 20 months.

Complaint. Severe epistaxis on March 17, 18 and 20.

Family History. Father and mother well. No other children. Mother 22½ years old; has had considerable epistaxis during the hot weather for the past few years, but not as a child. No known tendency to hemorrhage on maternal or paternal side of family.

Past History. Child born at full term, normal labor, well developed. Breast fed for 14 months. Since then it gets "everything." Bowels move normally, stools are soft, yellow, no curds. No vomiting except when taking breast feedings too quickly in early infancy. Always well up to present illness.

Present Illness. March 17, at 4.30 p.m., while in mother's arms, child's nose began bleeding quite profusely, lasting 55 minutes. Stopped by cold water compresses on neck.

March 18 at 2 a.m., began to bleed profusely from nose. Mother could not stop the hemorrhage and a doctor was called. The hemorrhage continued intermittently until 1 p.m. Baby then looked weak and pale.

March 20, at 2 a.m. began to bleed again and lasted until 6 a.m., stopped spontaneously. Two dark, bloody stools. Question of blood from right ear today (March 20).

This infant presents three prominent symptoms: First, as regards it skin: it is unduly pale and the child's face, particularly the upper lip, is puffy. There are purpuric areas on the lower extremities from the knee down.

Secondly, there is evidence of recent hemorrhage from the left nostril. On the other hand, the postpharyngeal examination reveals no blood. Thirdly, the child presents a peculiar, weak and dyspneic condition, there being no chest findings to account for it. In addition, it has a slight cough. Throat, chest and abdomen negative. Phimosis present. Child tends to lie in an exhausted and semi-stuporous condition after having been examined.

March 20, at 2 p.m., 19 c.c. of father's blood were injected into child's left buttock.

March 20, at 8 p.m., 25 c.c. of father's blood were injected into right lower back.

March 21. Small petechiae are present on legs and feet and a few on the forearms. The area over the right knee is increased and a new one has appeared over the left ilium. Generally the boy is better. The breathing is less labored, although abnormal still, and the child is a little brighter.

March 21, at 2.15 p.m., 20 c.c. of father's blood were injected into right buttock.

March 21 at 8 p.m., 20 c.c. of father's blood injected into back.

March 31. Purpuric condition has entirely cleared up.

CASE 9. S. A. G. Seen March 20, 1913. Three days old. Day after birth a right-sided cephalohematoma was noticed and dark blood in mouth, and there began to slowly appear purpuric spots over the backs of the hands and both lower legs. Forty-eight hours after birth, the child vomited dark blood, and stools looked darker than normal. Examination shows a moderate sized right sided cephalohematoma, purpuric spots on back of left hand, over both lower legs and right shoulder. Ten c.c. of whole blood from father were injected into the child. Child had a very dark stool while this was being done. Next day it appeared quite well, nursed well and stools were normal. Because of a new spot, 10 c.c. of whole blood again injected. Not seen the next day.

March 26. Child again seen. Very stupid and refuses to nurse. Several new spots have appeared. Ten c.c. of blood again injected.

Child gradually failed and died the next day. (Attending physician's note.)

CASE 10. July 15, 1913. R. T., 7 weeks old. Poorly nourished. Vomited almost everything for about four days. During last two days purpuric spots have appeared over abdomen and bright blood has been passed per rectum. Twenty c.c. of whole blood taken from a nurse and injected into child's buttocks.

July 22. Bleeding has stopped and child is gaining weight on a milk formula.

CASE 11. Seen at St. Francis' Hospital, Sept. 14, 1913. Three days old. Bleeding from ears, mouth and nose. Forceps case. At first it was thought that the bleeding was due to this, but when I saw the case, the bleeding was from other places. Child was in a very critical condition.

Twenty c.c. of father's blood injected into child's thigh. Child grew steadily worse and died in two hours.

Case 12. Mrs. W. W. C. Age 38. Two months pregnant. Because of poor physical condition it was deemed necessary to abort. This was done. She bled profusely, and inside of four days was packed and repacked eleven times, with no apparent good result. At this point 20 c.c. of her husband's blood were injected into her buttocks. In two hours the packing was removed with no bleeding. She has not bled since then.

Case 13. December 24, 1913. R. P. Age 8 days. Three days ago, impetigo began to appear over body and there was bleeding from the rectum, navel and left ear. Bleeding had been increasing and because of this, 20 c.c. of the father's blood were injected into the child's buttocks.

Dec. 25. All bleeding had stopped, except a little from the rectum.

Jan. 1, 1914. No more bleeding, impetigo better.

MORTALITY.

In this series of 13 cases which have just been reported, there were 3 deaths, or a mortality of 23%. If we take the combined statistics in the literature of the cases so far reported, that have been treated by this method, we find that there were 5 deaths in 24 cases, making a mortality of 21%. The four cases reported by Vincent are not included, because as he states, "I did not use the method as recommended, and consequently these cases are not a fair test."

The transfusion method, taking the combined statistics of Lambert, Carrell, Brewer, Bernheim and Vincent, shows a mortality of 29%.

The mortality of cases in which human sera were used cannot be given exactly, because the writers on this subject did not give their cases in detail.

If recognized and treated, these cases do not, as a rule, die from the loss of blood, but from the mechanical effect of the hemorrhage into some vital organ. In concluding, I would like to impress upon your minds the following three salient facts in favor of the injection of whole human blood in the treatment of hemorrhagic diseases:—

1. Simplicity of employment.
2. Efficaciousness.
3. Lack of danger to either recipient or donor.

So it seems to me that we now have within the scope of every practitioner, a method to combat more successfully this heretofore rather fatal disease.

In conclusion, I wish to thank those doctors who permitted me to see some of these cases and especially Dr. Charles A. Goodrich for his helpful aid and suggestions.

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A CASE OF FRACTURE OF THE CARPAL CUNEIFORM BONE.

By Wm. Pearce Coues, M.D., Boston.

Isolated fracture of the carpal cuneiform is of extremely rare occurrence. The special fracture text books make mention of the possibility of its occurrence without citing cases as a rule; and general surgical works make no mention of it in their pages. Fracture of the carpal scaphoid and dislocation of the semilunar quite naturally, on account of the frequency of these injuries, have been carefully studied and described even since the advent of the x-ray.

History of Case: Miss F. L., 23 years, was seen Nov. 11, 1913. The history was as follows: While doing gymnasium work, she met with the injury which we describe.

Aug. 16, 1913, while standing on the hands she turned too far, lost her balance, fell to the ground, rolled over on her left hand. The hand was flat, extended on the ground. Immediate pain was felt in the wrist and she was unable to use the hand afterward. She says she felt crepitus at this time. The next day the hand was very lame and there was ecchymosis over the dorsum of the hand, which lasted a week or more. Monday, she consulted a physician who thought there was no fracture. The hand was bandaged and liniment prescribed. Ever since then there has been disability, felt most in rotation of the wrist or extension of the hand. Pain on extension is most marked over the second metacarpal. The pain was constant at first; then only when attempting to do her work, but there has been no time when she has been able to do her gymnasium work without pain. Of late, numbness of the hand and arm was felt.

Examination. Well-developed, active, rather slight young woman. Examination of the wrist



Fracture of Carpal Cuneiform, November, 1913.



Fracture of Carpal Cuneiform, January, 1914.

showed the following: There was no obvious swelling or ecchymosis noted in the region of the cuneiform. Flexion and extension of the wrist is slightly painful in the region of the cuneiform bone. There is very slight pain in adduction of the wrist; in active abduction there is more pain. Forced passive abduction of the wrist causes great pain in the region of the cuneiform. Flexion and extension of the fingers is not painful. Rotation of the forearm causes pain in the wrist in the region of the cuneiform and slightly lower. There is a very slight synovitis of the middle extensor tendon, showing at the middle of the back of the hand. When the patient picks up a weight or turns a door knob the pain is felt in the wrist in the cuneiform region. Direct pressure over the cuneiform is very painful; but no crepitus is elicited. Lateral pressure across the wrist in such a manner as to make the pisiform press upon the cuneiform bone, causes much pain. The x-ray showed a fracture of the carpal cuneiform incomplete, running from the ulna side about half way across the bone obliquely. Hand immobilized on palmar splint with pad and strapping over the cuneiform. There was considerable relief experienced after the hand had been immobilized for a few days; and from this time, there was progressive improvement which, however, was slow. Two weeks after the first radiograph, a second was taken which showed no union of the crack. Another radiograph was taken in another two weeks, after fixation for about one month, which still showed no bony union; though the pain and disability were much less. The next radiograph, taken in about ten days, showed considerable union. At this time the splint was removed and the hand bandaged. Examination showed at this time practically no tenderness over the cuneiform, no thickening, and movements of the wrist were executed without pain. Picture taken the middle of January, 1914, nearly two months after the first picture showed union practically complete. A faint line could still be seen. Since this time patient has been using the hand cautiously without trouble or pain of any sort and examination shows practically no more tenderness over the cuneiform of this wrist than of the uninjured wrist.

Interesting points in the case are: The length of time of the disability and pain, without recognition of the nature of the trouble, and the somewhat long period of fixation necessary before union and a cure was effected. This undoubtedly was due to the length of time that the patient had attempted work with the hand, with the fracture still ununited.

Medical Progress.

PROGRESS IN MEDICINE: -RECENT ADVANCES IN CERTAIN BLOOD DISEASES.

BY ROGER I. LEE, M.D., BOSTON.

PRIMARY PERNICIOUS ANAEMIA.

ONE of the many theories of the etiology of pernicious anaemia has been that some hemolytic substance is elaborated in the intestinal tract perhaps from the mucous membranes or from some of the fatty acids. McPhedran[1] in a careful study of the hemolytic properties of fatty acids and their possible relations to the causation of toxic hemolysis and pernicious anaemia concluded that hemolysis by liberation of specially hemolytic fatty acids from the fatty complexes of disintegrating cells is not supported by evidence. None of the fatty acids were more toxin than the common oleic acid. Ewald and Friedberger[2] found no hemolytic substance from the mucous membranes of cases of pernicious anaemia.

Splenectomy in Pernicious Anaemia. A certain amount of evidence has been introduced by Banti,[3] Eppinger[4] and others, tending to show

that in pernicious anaemia there is increased hemolytic activity of the spleen. One result of the introduction of this evidence has been the removal of the spleen in certain cases of pernicious anaemia. Eppinger reports seven cases. Klemperer[7] reports ten cases, Mosse,[7] Huber[7] and others, report isolated cases of splenectomy in pernicious anaemia. Most of the cases were reported as improved after splenectomy. In Klemperer's series of ten cases there were two deaths; eight were benefited with one clinical cure.

Splenectomy in pernicious anaemia certainly has some basis on theoretical grounds. On the other hand—the case reports while showing uniformly considerable improvement, fail to arouse much enthusiasm. It is of course too early to pass critical judgment on any therapeutic measure in a disease that runs such a bizarre course as pernicious anaemia.

Salvarsan in Pernicious Anaemia. Inasmuch as arsenic has been advocated for so many years in pernicious anaemia, it is not remarkable that the literature contains some reference to the use of salvarsan in this disease. Boggs,[8] Bramwell[9] and a few others report remarkable improvement in the blood picture of pernicious anaemia shortly after the use of salvarsan. Their favorable experience has not been widely confirmed.

Transfusion in Pernicious Anaemia. Vogel and McCurdy[10] have studied the effect of blood transfusion and regeneration in pernicious anaemia. They give an extensive bibliography. They advise the repeated intravenous administration of rather small measured amounts of blood.

Weber[11] has advised the repeated intramuscular injection of fresh blood in small amounts for all forms of severe anaemia.

Radium in Pernicious Anaemia. Radium has been advocated as a therapeutic agent in all forms of blood diseases including pernicious anaemia. The literature on the subject of the therapeutic use of radium is very confusing. Radium in the form of thorium-x had at first many enthusiastic advocates. Of late, particularly in pernicious anaemia there is a tendency to urge caution in the use of radium preparations and many unsuccessful cases are reported. Meseth[12] gives a resumé of the literature and reports two personal cases of pernicious anaemia unaffected by thorium-x. v. Benczur[13] thinks that pernicious anaemia is favorably influenced by thorium-x which seems to him more effective than arsenic. The only safe conclusion from the evidence to date is that the radium preparations especially thorium-x are not harmless agents in the treatment of pernicious anaemia and that improvement is not the rule and even reported cure is rare.

Splenic Anaemia. The literature continues to be crowded with case reports of splenic anaemia. Most of these cases have been operated and are recorded as clinical cures after splenectomy. The fact now seems established that cases of anaemia and splenomegaly without apparent cause are usually cured by splenectomy. Giffin[14] from the Mayo clinic reports clinical observations on 27 cases of splenectomy. Splenectomy was done in 18 cases of splenic anaemia. Erdmann and Moorehead[15] in discussing the subject of splenomegaly (Gaucher type) review the mortality of splenectomy for various conditions. They believe that the mortality with the present surgical technic should not be over 10%. Erdmann and Moorhead give a good bibliography of splenomegaly (Gaucher type and report two cases of their own. Splenectomy was done in one case with apparent cure.

Confusion still exists as to the classification and interrelationship of the various anaemias with enlarged spleens. A large number of cases of splenic anaemia of the congenital family type with hemolytic jaundice have been described. Some of the cases of hemolytic jaundice certainly occur as a family group. In others no family history can be obtained.

Haematogenous Jaundice. Richards and Johnson[16] and many others report carefully studied cases with jaundice, splenomegaly, lowered osmotic resistance of the red cells, anaemia with typical staining reaction of the red corpuscles, and urobilinuria. A number of cases of apparent cures in this condition are reported following splenectomy. All the writers, however, point out the fact that the patients with this condition seem very little troubled with it and splenectomy seems a rather radical therapeutic measure for a disease that interferes but slightly with the patient's activity.

In so-called Banti's disease splenectomy is advised by Banti[5] himself and a number of apparent cures are reported after splenectomy. Klemperer and Hirschfeld[4] report one case of splenomegaly and anaemia that developed polycythaemia after splenectomy.

Pearce[17] and his co-workers in Philadelphia have studied experimentally in animals the relation of the spleen to blood destruction and regeneration and to hemolytic jaundice. They have found that the increased resistance of the red blood corpuscles characteristic of splenectomized animals persists for a least a year. There is also a decreased tendency to jaundice after the administration of hemolytic sera.

It seems to be the tendency to support the general supposition that these diseases called clinically "splenic anaemia," "family jaundice" and "Banti's disease," are all primary blood diseases but apparently with the active hemolytic agent in the spleen. The number of cures reported after splenectomy in these various conditions is too great to allow any other assumption than that the abnormal process is situated in the spleen.

Gibson's[18] recent report on the possible infectious etiology of certain of these conditions is of particular interest. Gibson finds that "in the spleens of six cases, three with the picture

of Banti's disease, two with splenic enlargement and fibrosis and one with splenomegaly there was found by a special method of staining an appearance which can be interpreted only as a parasitic invasion of the organ by a streptothrix organism, this being in such a relation to the affected parts, at least in the cases of Banti's disease as to leave no doubt that they are the cause of pathological conditions. Many other spleens examined with the same object in view showed no such appearances." Gibson's work of course points to the infectious nature of certain cases of splenomegaly and Banti's disease. This work naturally awaits confirmation.

Leukaemia. The conflict is still waged concerning the classification of the various forms of leukaemia. Herxheimer[19] in a comprehensive article with an excellent bibliography gives an admirable review of the classification of leukaemia. By means of the so-called oxydase reaction, which is positive in all cells of the myelocyte series and negative in all cells of the lymphocyte series, an adequate means of differentiation seems to have been obtained. Herxheimer reports typical cases of the so-called lymphatic leukaemia and myelogenous leukemia and gives illustrative cases also of leukaemias with cells much less differentiated than the typical lymphocyte and the typical myelocyte which are classified as lymphoblasten-leukaemia and myelo-blasten-leukaemia. He reports one case which seems to have been a true mixed type in one person. The evidence is slowly accumulating that acute myelogenous leukaemia once considered rare is relatively common. Burgess[20] in his study of leukaemia using the oxydase reaction believes that acute leukaemia is usually myelogenous.

Steele[21] reports the finding of a diphtheroid bacillus in a gland from a case of lymphatic leukemia, apparently identical with that found by himself, Negri and Miermet,[22] Bunting and Yates, Billings and Rosenow in Hodgkin's disease. The well known wide distribution of diphtheroid bacilli renders further confirmation of this finding in lymphatic leukaemia as well as in Hodgkin's disease very essential.

The therapeutics of leukemia can be classified under three groups, x-ray, radium preparations and benzol.

X-Ray in Leukaemia. It has been well established that x-ray treatment improves the blood picture and the symptoms and favorably modifies the course of certain cases of chronic leukaemia. Béclère and Béclère[25] report the results of the x-ray treatment of 110 cases of leukaemia since June, 1904. Their 12 cases of lymphatic leukaemia, one of which has been observed for five years, were all improved. Their 93 cases of myelogenous leukaemia were much less favorably affected. There was no effect in the five acute cases. Cumberbatch[26] reports a fatal leukopenia following 111 days of x-ray treatment of a case of myelogenous leukaemia. The white count fell from 691,000 to 850. The differential count was not essentially altered. Warthin[27] studied the minute changes produced in leukaemic tissues by exposure to the Roentgen rays. In none of his cases were the conditions of the haematopoietic organs changed to normal. The effect of the treatment was degenerative and inhibitive but not curative as the essential process seemed to progress unchecked.

Radium in Leukaemia. As in the case of pernicious anaemia extravagant claims have been made for the therapeutic value of radium and its preparations in all forms of leukaemia. Thorium-x has been the preparation usually employed. Rosenow[28] in a critical review concludes that thorium-x has not been of the value in the treatment of leukaemia that it was once considered. Thorium-x often benefits but accomplishes no more than the x-ray and often fails. Meseth[17] reports improvement in three cases of myelogenous leukaemia and apparent cure in one case. Thorium-x was unsuccessful in cases of lymphatic leukaemia. Klemperer and Hirschfeld[29] review the present state of the thorium-x treatment. It is not possible to summarize the extensive and conflicting literature on the subject. It would seem fair to state that certain radium preparations, particularly thorium-x, favorably influence the blood picture and symptoms of certain cases of leukaemia. Cure apparently does not follow or at least is very rare.

Benzol in Leukaemia. v. Koranyi[30] in 1912 first used benzol as a therapeutic agent in leukaemia. He based the justification of his use on some clinical and experimental studies of Selling[31] of Baltimore who in 1910 reported three cases of benzol poisoning with blood destruction. Selling also showed the destructive effect of benzol on the blood in experimental work on animals. Other experimental evidence of the effect of benzol on the blood picture has been reported by Santesson[32] in 1897 and others. v. Koranyi and his assistant Királyfi[33] showed that the administration of daily doses of three to four g. of benzol, preferably given with equal parts of olive oil in capsules had usually a remarkable effect on the blood picture and symptoms in chronic leukaemia. After an initial rise in the white count, diminution in the white count begins after two or three weeks. This diminution is at first slow and then rapid. The red corpuscles are at first stationary but usually increase. The spleen and the glands become smaller. Patients who have had previous x-ray treatment seem to do better. v. Koranyi and Királyfi insist on the necessity of large doses. Gastro-intestinal irritation occurs in some cases. The treatment must be carefully controlled by the blood examination as leukopenia may be accompanied by general blood destruction and death. Since these initial reports, many cases of leukaemia treated with benzol have appeared in the literature. The

large majority of these cases were favorably influenced by benzol. A few cures are claimed. In this country Billings[4] of Chicago and Barker and Gibbes[35] of Baltimore have reported series of cases. v. Boltenstern[36] has recently reviewed the literature to date and gives 38 of the more important references. His conclusions are sound. He believes that benzol improves cases of leukaemia symptomatically, reduces the high white count but without curing the disease. He believes that at this early date no conclusive judgment can be passed on the value of this form of therapy. Several observers while reporting great improvement and reduction to normal of the white count have emphasized the striking fact that in the favorable cases with low white counts after benzol treatment the proportion of leucocytes are but little altered. The disease is still manifest by the relative increase of the abnormal blood constituents. Fatal cases after treatment with benzol have been reported by Neumann,[37] Jespersen,[38] Mühlmann,[39] Sohn[40] and others. In Neumann's case of myelogenous leukaemia the leucocytes fell from 56,000 to 200 before death. Jespersen and Mühlmann both report cases which relapsed and died after apparent cure. The autopsy of these fatal cases showed uniformly the extensive liver necrosis that is also found in animals experimentally poisoned by benzol. Sohn and Billings refer to the fact that with the reduction of the white count there is no coincident increase in the uric acid excretion. Sohn studied carefully the metabolism of a case of myelogenous leukaemia treated with benzol and found no increased uric acid output. This finding is difficult to explain on the assumption that benzol destroys the myelocytes. His interpretation is that there is a leukopenia in the cirulating blood and a hyperleucocytosis in the internal organs. It seems generally agreed that the acute cases are not affected by benzol. Krokiewicz[41] and others report cases of leukaemia entirely unaffected by benzol.

The present status of the problem would seem to be that cases of chronic leukaemia can often be favorably affected in regard to their symptoms and blood pictures by the Roentgen ray, by radium preparations and by benzol. The administration of all these therapeutic measures if pushed may result fatally. Leukopenia is to be avoided. Probably none of these measures really cure the disease. Benzol which is given by mouth has the great advantage of simplicity of administration. The results of benzol treatment appear to be more rapid, and more striking. The dangers would also seem to be greater.

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Book Reviews.

Essentials of Bacteriology. By M. V. Ball, M.D. Seventh edition, thoroughly revised. With 118 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company. 1913.

The first edition of this manual (No. 20 in the series of Saunders' Question Compendia) was reviewed in the issue of the Journal for Sept. 15, 1892 (Vol. cxxvii, p. 270). Since that time the first part of the book, on general bacteriology, has been considerably amplified. This seventh edition has been completely revised, and many chapters have been entirely rewritten. Those on immunity and infection have been edited by Dr. Paul G. Weston, who also contributed the article on the Wassermann reaction. There is at the end a very useful table of the chief characteristics of the principal bacteria. The book aims to be "a concise and systematic introduction to the study of bacteria and allied microörganisms," and seems now to fulfil this purpose as well as is practicable for a work of its size.

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THE GOVERNOR'S MESSAGE ON THE UNPAID BOARDS.

THE Governor's recent message, based on the report of the Commission on Economy and Efficiency as embodied in House Bill No. 2137, prescribes a radical change in the administrative system of dealing with the sick, the delinquent, and the poor in our state institutions. For many years Massachusetts has committed herself to the policy of unpaid boards of trustees in handling these problems. It is fair to presume that a part at least of the efficiency of these institutions, which has made the State a model for others all over the Union, is due to this system and to the class of men and women who have served willingly and without pay on these boards. To sweep away this entire fabric, which it has taken so many years to build up and which, while it doubtless can be improved in many ways, has shown its worth, and to replace it with a system almost revolutionary in nature, is a proposition which deserves the most serious consideration by the medical profession.

Briefly, the new plan as proposed by the Economy and Efficiency Commission, provides for the abolition of the State boards of charity and insanity, the prison commission, the four boards of parole, the commission on probation, the commission for the blind, and the boards of trustees of the following institutions: the four state sanatoria for consumptives, the eight state hospitals and asylums for the insane, the two schools for feeble-minded, the hospitals for epileptics, the hospital cottages for children, the two institutions for inebriates, the state infirmary and the state farm, the three state training schools for children, and the hospital school for crippled children. The inmates of all these institutions number about 22,000. The powers and duties of all these boards and commissions are to be vested in a single paid board of five. This board may appoint a "director of public institutions" who is to have immediate charge of the proper execution of the board's policies. This director, in turn, may appoint four executive secretaries to whom he may delegate such of his powers as he sees fit, as well as a business agent, who is to attend to the buying and distribution of supplies, etc. The bill also provides for the appointment by the Governor of boards of three visitors each, to the several institutions, who will have power to investigate, hear complaints, and to report.

This bill, as explained in detail in the report of the Commission on Economy and Efficiency, aims to remedy certain defects which are supposed to exist in the present system. Among such defects are: a conflict and multiplicity of duties at present assigned to superintendents, defects in methods of accounting, variation in cost per patient and number of patients per employee in institutions of the same class, and a lack of uniformity in organization of departments, business methods, and construction of buildings. Besides remedying these defects, the new system aims to bring about centralizing of authority, closer supervision of work actually done, and economy in obtaining supplies by means of a central purchasing agency.

While to a greater or less degree certain of the defects above mentioned may exist under our present system and should and doubtless will be remedied, there are certain very evident advantages which result from a system of unpaid boards which are not mentioned in the report of the Economy and Efficiency Commission, and which find no place in what they propose to substitute.

Chief among the merits of our present arrangement is the high class of men and women who give their services to the state—men and women, many of whom are experts in their line, and who from disinterested motives and with the one aim to render service to the state, are spending tremendous amounts of time, energy, thought, and labor to this end. To do away with

all this, to annul the personal and humanitarian side of such service, would be a foolhardy and dangerous step. To replace such a system by one which has not proved its worth or stood the test of time and which opens the way for political influences of any kind would be still worse. During the last five years of his life, the late Dr. Arthur Tracy Cabot gave willingly and freely from the deep store of his wisdom and experience, practically all of his time and energy for the cause of stamping out tuberculosis and aiding consumptives in this state. Massachusetts can ill afford to discard one system and inaugurate another which will permanently deprive the state of such services as these.

GROWTH AND NEEDS OF DISPENSARY WORK.

A REMARKABLE development of dispensary service in this country is attested by the Report just issued by the United States Census Bureau. Five hundred and seventy-four dispensaries and out-patient departments are recorded in this publication, representing an increase of 370%, as compared with the 156 dispensaries which were listed* in a similar report issued by the same Bureau in 1904. The number of dispensary patients treated in 1910 is said to be 2,440,018, a figure which is undoubtedly too low, but even this is 50% above the number recorded six years before. The census list of dispensaries omits, for some reason, several institutions of importance, among which the large out-patient department of the Boston City Hospital may be mentioned. It is probable that during 1913 at least 3,000,000 persons received treatment at dispensaries in this country, excluding the commercial dispensaries.

In 1904 the hospitals received 87 patients per 100,000 population of the United States, and in 1910 the proportion per 100,000 had risen to 107, an increase of 23%. Dispensaries and out-patient departments have grown much faster than hospitals, the number of which, between 1904 and 1910, increased only 28%, and the proportion of hospital patients per 100,000 population increased 23%. Dispensary patients per 100,000 population, however, increased from 1982, in 1904, to 2711 in 1910, or 36%.

* The 1904 figures are probably too low, 200 being a more likely figure. This would make the increase, in 1910, 287%.

The following classification suggests some of the varied causes of this rapid growth:

General dispensaries receiving more than 1000 patients a year	291
General dispensaries receiving less than 1000 patients a year	62
Dispensaries for tuberculosis only	167
Other dispensaries for special diseases (eye, ear, nose and throat, gynecological, etc.)	53
Dispensaries not in operation in 1910	1
Total dispensaries in the United States in 1910	574

It will be seen that 167 dispensaries have been established as part of the anti-tuberculosis campaign, and about nine-tenths of these began work between 1904 and 1910, the larger number in Pennsylvania under a state law. But the tuberculosis dispensaries do not account for more than a fraction of the growth between 1904 and 1910. The general dispensaries of the larger type increased during that period more than 200%.

The distribution of the dispensaries is very interesting. Seventy-nine per cent. of the total number of patients treated were in New York, Pennsylvania, Massachusetts and Illinois, and 10% more were in the four additional states of Maryland, New Jersey, Ohio and Missouri. Thus, 89% of the two and a half million patients recorded for 1910 were in 8 of the 48 states. On the other hand, the dispensaries are widely scattered, there being only 8 states in which there are no dispensaries. (In 1904, 27 states had no dispensaries.) While dispensaries have blossomed most freely in the largest cities, such as New York, Philadelphia, Boston, Chicago, Baltimore, Cleveland and St. Louis, their establishment in communities of moderate size is one of the striking features shown by the Census Report.

Other interesting items appear from a study of the expenses. The amount appropriated for dispensary work from public treasuries, mostly municipal, was $23,501 during 1904, and $217,192, or nearly ten times as much, during 1910. While many inaccuracies might be pointed out in the report of the Census Bureau, the larger part are evidently due not so much to inefficiency in Uncle Sam's service as to the inability of dispensaries and out-patient departments of hospitals to furnish the information desired. Nearly two-thirds of the institutions treating 1,000 or more patients a year do not make a financial report showing the expen-

ditures of the dispensary or out-patient department. Most hospitals do not keep their accounts so that the expenses of the out-patient department can be stated separately. This is true even of some of the leading institutions of the country. Only 191 dispensaries reported their expenses for 1910, the total being $1,593,140, a surprising figure in view of the fact that most of the large out-patient departments do not report.

There can be no doubt that dispensary service meets a real demand, which has thus far been manifested chiefly in the larger centres of population. The lack of adequate medical service in many middle-sized industrial communities which have little in the way of hospital provision, and few of the specialists demanded by modern medicine, is coming more and more to the attention of those interested in public health. In such communities, the establishment of dispensaries is beginning. Probably no section of medical work today, in institutions, varies so widely in quality as dispensary service. In too many cases the dispensary or out-patient department has been a feeder, a poor relation, of the hospital, not a clinic in which serious medical work is attempted with the average patient. That the dispensary has a place of its own as a great factor in treating and preventing disease among large sections of the population, is forcing itself upon the minds of medical men and hospital administrators. The appointment by the American Hospital Association, at its convention last autumn in this city, of a Committee on Standards of Out-Patient Work, is a witness of this recognition. Dispensary work has evidently become too large a factor in medical service in this country not to require levelling up, standardization, and progressive development in efficiency.

THE INTERNAL USE OF COCAINE.

It is remarkable that, with the general properties of erythroxylon coca known for centuries, its most valuable alkaloid, cocaine, which was first isolated in 1859, by Niemann, should have been employed to so small an extent in internal medicine. There are, however, some circumstances which account in part for this. A survey of the literature upon the subject will show an abundance of very contradictory evidence regarding coca and its alkaloids, especially cocaine. In the use of preparations made from the crude plant itself these discrepancies can easily be accounted for, owing to the varying alkaloids contained in coca, some of which are highly toxic; also to possible variations in the strength and composition of preparations, since much of this work was done before the era of standardization of drugs. With a chemically pure cocaine there should not be such wide variations, though unless the cocaine is chemically pure, it may contain a certain amount of two very toxic alkaloids, one of which, isatrophycocaine, is a decided heart-muscle poison. Again, ever since the discovery of the anesthetic properties of cocaine the local uses of the drug have attracted such universal attention that the possibilities of its internal employment have been much neglected.

There can be little question that the latter deserves to be resorted to to a far greater extent than is now the case, and an able argument for such use is made in a paper on "The Value of Cocaine in Disturbances of Metabolism," which was read at a recent meeting of the Medical Association of the Greater City of New York, by Dr. William H. Porter, for many years professor of pathology and general medicine in the Post-Graduate Medical School and Hospital. This communication may be regarded as authoritative from the fact that Professor Porter has used cocaine internally for nearly thirty years and in many hundred cases, both acute and chronic. Both historic and experimental evidence, he says, seems to prove conclusively that this substance has the power to augment forcefully almost all the physiological activities of the animal economy and to sustain these augmented functions for a considerable period of time, thus materially enhancing the working power of the system. In physiological dose it stimulates in succession the cerebral hemispheres, the medulla, and the cord. Both mental and muscular activity are augmented to a certain extent, the respirations are increased, and the muscular contraction of the heart is slightly quickened and also increased in force. A slight rise in blood-pressure is caused, and the augmentation of both the respiratory and circulatory activity enhances the reduction processes of the body, an essential requisite in defective metabolism. It stimulates intestinal peristalsis and tends to improve digestion and the absorption of food, while glandular activity in general is more or less increased. It appears to excite all the functions of the body more uniformly

than any other known alkaloid. So long as the dose is kept within the physiological limit, only good will result, but beyond this limit, as in the case of other similar agents, bad results must follow, since it then depresses or arrests the physiological activities at first augmented. That there is a wide difference between its peripheral reflex stimulation and its oxidation reduction within the body is shown by the fact that patients who are profoundly depressed by cocaine when applied locally can take one and two grains of it internally three times a day, not only with no untoward effects, but with highly beneficial results. From the observation of several instances of this kind Porter has concluded that the local and the internal effects of the alkaloid are entirely different, and must be studied separately

In various disease processes and profound disturbances of metabolism in which the normal foods were no longer capable of exciting into physiological activity the sluggish protoplasmic masses of the economy, when everything was at a standstill, as it were, or when it became apparent that the patient was steadily losing ground, he has found, in a large number of cases during the past twenty-five years, that the use of half a grain or more of cocaine three times daily has produced almost miraculous changes for the better, even in those which seemed almost hopeless. In all chronic affections its power for good, he thinks, can hardly be overestimated. For the last ten years he has employed it more and more in the acuter diseases. When cocaine is given early in pneumonia, and throughout the attack, the results have convinced him that the chances for recovery are greater than without its administration. The same may be said of other acute affections, for if it has the great sustaining power which all the evidence seems to show that it possesses, the ability to eliminate the toxins of disease must be markedly augmented by it. It is a point worthy of special note that although he has prescribed this drug so extensively for nearly thirty years, he has yet to meet the first instance in which a patient has acquired the cocaine habit as a result of its internal use. Dr. Porter is accustomed to giving cocaine in capsules, and usually in combination with caffeine and strychnine. Should the criticism be made that one cannot judge accurately as to the true value of a remedy when it is given in conjunction with others, he would refer to the fact that he has sometimes found cocaine efficient in cases where all other means had failed This, to his mind, is the highest test for any remedial agent The discriminating mixture of several alkaloids, by the scientific physician, who knows the exact chemical composition of each, and just what each can accomplish alone and in combination, he believes to be a decided advantage

MASSACHUSETTS CONFERENCE ON TUBERCULOSIS. MASSACHUSETTS ANTI-TUBERCULOSIS LEAGUE.

The sixth session of the Massachusetts Conference on Tuberculosis was held in Boston on March 26, under the presidency of Dr. Walter C. Bailey, chairman of the trustees of hospitals for consumptives. All interested in the movement against tuberculosis were invited to attend and engage in the discussions, and there were many representatives from hospitals, sanatoria, boards of health, tuberculosis and nursing associations, and other organizations interested in health matters in all sections of Massachusetts.

In the forenoon the addresses were by Dr. P. Challis Bartlett, formerly superintendent of the Rutland State Sanatorium, on "Some Present Problems"; by Dr. Cleaveland Floyd, of Boston, on "Tuberculous Infection of Children"; and by Dr. Carl MacCorison, superintendent of the North Reading State Sanatorium, on "The Rôle of Family Clusters in the Prevalence of Consumption." Dr. MacCorison's study of family infection was based on the 1300 cases admitted to his sanatorium during the 3½ years since its opening. Among these there were 134 distinct examples of the incidence of three or more cases of consumption in a single family. Of 9371 persons who died of tuberculosis in Paris in 1911, 2523 were in houses where other cases had occurred.

In the afternoon the addresses at the conference were by Dr. George B. Underwood, president of the Gardner Association for the Relief and Control of Tuberculosis, on "The Social Worker's Educational Influence in the Tuberculosis Campaign"; and by Mr. Seymour H. Stone, secretary of the Boston Association for the Relief and Control of Tuberculosis, on "The Field-Work of the Anti-Tuberculosis Association." Mr. Stone pointed out that the state

has a well-defined policy of combating tuberculosis by providing for early cases at the State sanatoria, and requiring municipalities to segregate advanced cases in local hospitals aided by state subsidy. Several of these papers will be published in an early issue of the JOURNAL.

At the close of the session, Dr. Vincent Y. Bowditch, of Boston, was elected president of the conference for the ensuing year. Following this, the delegates from the various anti-tuberculosis associations organized the Massachusetts Anti-Tuberculosis League, by the adoption of a constitution and by-laws, and the election of the following officers:—

Presidents: Vincent Y. Bowditch, M.D., Boston, ex-President National Association for the Study and Prevention of Tuberculosis; J. F. A. Adams, M.D., Pittsfield, President Anti-Tuberculosis Association; Walter P. Bowers, M.D., Clinton, President Anti-Tuberculosis Association, Pesident Massachusetts Medical Society; James C. Coffey, Worcester, Agent Board of Health.

Treasurer: Arthur Drinkwater, Cambridge, Trustee Massachusetts Hospitals for Consumptives.

Secretary: Seymour H. Stone, 4 Joy Street, Boston, Secretary Association for Relief and Control of Tuberculosis.

Executive Committee: Roger I. Lee, Chairman, Boston; Henry Abrahams, Boston, Cigar Makers' International Union; Vanderpoel Adriance, M. D., Williamstown, President Anti-Tuberculosis Association; Carl A. Allen, M.D., Holyoke, President Association for Prevention and Relief of Tuberculosis; Walter C. Bailey, M.D., Boston, Chairman Trustees Massachusetts Hospital for Consumptives; Enos H. Bigelow, M.D., Framingham; Herbert C. Clapp, M.D., Boston; Eugene A. Darling, M.D., Cambridge.

Already twenty-three anti-tuberculosis associations have joined the League for the purpose of working together in the fight to eradicate the disease. This is an important step and should help to coördinate the work throughout the state.

The office of the League will be at 4 Joy Street, Boston, and anyone interested in the problem can become a member by the payment of $1.00 per year. Anti-tuberculosis associations and other health organizations are eligible to membership.

MEDICAL NOTES.

AWARD TO DR. RICE.—Report from London on March 27 announces that the King's medal of the Royal Geographical Society has been awarded this year to Dr. Alexander Hamilton Rice of Boston, for his distinguished work in the exploration of the Amazon and Orinoco river basins.

TWO FOREIGN MEDICAL CONGRESSES.—The forty-third Congress of the German Surgical Society will be held in Berlin from April 15 to 18, inclusive.

The next congress of the International Association of Thalassotherapy will be held at Cannesvon, April 15 and following days, under the presidency of Professor d'Arsonval. Prince Albert I of Monaco, a member of the Institute of France, will be honorary president. The question which will be specially studied is heliotherapy, and the reports to be presented will deal with the nature of solar radiations at the sea level and the means of measuring them; marine heliotherapy in its relation to actinomometry and climatology, the biological effects and dosage of marine heliotherapy; its effects in surgical tuberculosis, in abdominal tuberculosis, in pleuro-pulmonary and adeno-mediastinal tuberculosis, in the treatment of cutaneous tuberculosis, and in tuberculous affections generally.

GIFTS BY AN AMERICAN PHYSICIAN.—Report from Berlin on March 28 announces that Dr. Joseph Schneider, of Milwaukee, Wis., who in 1912 gave $25,000 for the promotion of public health in his native city of Würzburg in Bavaria, has recently made another gift of $25,000 for the same purpose.

OPENING OF THE HOOPER INSTITUTE.—The Hooper Institute for Medical Research, at the University of California Hospital, San Francisco, was officially opened on March 7, with addresses by Dr. Henry S. Pritchett, of the Carnegie Foundation, and Dr. Richard Mills Pearce of Philadelphia. The institute was founded with an endowment of $1,000,000 in memory of Mr. George William Hooper by his widow.

NEW DEPARTMENT OF ROCKEFELLER INSTITUTE.—On March 31, the New Jersey state legislature passed a bill permitting outside medical societies to engage in animal experimentation within the state. This was done to enable the

location at Rahway, N. J., near the New Jersey Agricultural Experiment Station, of the new department of the Rockefeller Institute for the study of animal diseases, for the endowment of which Mr. John D. Rockefeller has recently given a fund of $1,000,000.

BOSTON AND NEW ENGLAND.

Lectures by Dr. Fischer.—Dr. Guido Fischer, of Marburg, Germany, has been in Boston the past fortnight, giving at the Harvard Dental School a series of clinical lectures to show his methods of local dental anesthesia.

Danvers State Hospital.—The recently published thirty-sixth annual report of the trustees of the Danvers (Mass.) State Hospital records the work of that institution for the year ended Nov. 30, 1913. During this period the total number of patients treated was 2216, of whom 1029 were men and 1187 women. There were 206 deaths, in 86 of which cases autopsies were performed. From the training school, 7 nurses were graduated. Attention is called to the urgent need of a nurses' home for male attendants and married couples.

Boston Lying-in Hospital.—The recently published eighty-first annual report of the Boston Lying-in Hospital records the work of that institution for the calendar year 1913. During this period 884 babies were born in the hospital and 1824 in its out-patient department. Thirty-six nurses were graduated from the training-school. Particular attention should be called to the work of the pregnancy clinic, which during the year had supervision of 1652 prospective mothers. The value of this work in the prevention of pathologic complications and in public education is of great moment.

Massachusetts General and McLean Hospitals.—The recently published one hundredth annual report of the trustees of the Massachusetts General Hospital records the work of that institution for the calendar year 1913, the second year of the second century of its existence. With it is published the ninety-sixth annual report of the superintendent of the McLean Hospital. During this year 6251 patients were admitted to the wards of the General Hospital, 5424 were treated in the accident room, and 24,887 new cases in the out-patient department. The new Nurses' Home was opened during the year, and 46 nurses graduated from the training-school. A similar new home is needed for nurses at the McLean Hospital. At this hospital 364 patients were under treatment during the year; while 733 were received at the Convalescent Hospital in Waverly. The urgent needs of the General Hospital are an administration building, a private ward, and a ward for children. It is earnestly to be hoped that the charitable generosity of the public, of which there has already been abundant evidence, will soon make possible these necessary additions to the equipment of the hospital for further service and progress.

NEW YORK.

Division of Child Hygiene.—Dr. H. L. K. Shaw, director of the Division of Child Hygiene, of the State Health Department, established by the new health law, announces his plans in the *Bulletin* of the department. Among the matters included in these are the establishment of infant milk or welfare stations, the encouragement and systematizing of prenatal work, and local campaigns for the reduction of infant mortality, assisted by the department by means of exhibits, literature and lectures. The division is prepared, he states, to coöperate actively with local officials and others, so that the toll of infant lives this year may be appreciably lessened.

Apropos of the recent appeal of the New York State Grange for a Division of Rural Hygiene in the State Department of Health, the department has announced its readiness to do its part, and Commissioner Biggs expresses the opinion that with sufficient funds to establish and maintain an active and efficient division of the kind, there is no reason why the Health Department cannot save thousands of lives which are lost each year by preventable diseases.

New York Milk Committee.—The New York Milk Committee, through its secretary, Paul E. Taylor, secretary of the New York Milk Committee, has issued a statement in which he asserts that since 1907 more than $2,000,000 has been wasted by the state of New York through indemnity granted to what appears to be the selected list of owners of tuberculous cows. Many of the condemned cows, he says, have been milked until they became dry, and then fattened for food purposes after installations in state institutions. The health of boys who are inmates of these institutions has been endangered

through caring for the tuberculous cows. New York pays from $75 to $125 each for the diseased animals, while the standard price in New Jersey is $15. It is furthermore charged that New Jersey farmers sell the diseased cattle to sausage factories in Jersey City, and that their meat is made into bologna sausages and sold in New York.

PREVENTION OF TUBERCULOSIS.—The committee on the prevention of tuberculosis of the Charity Organization Society has issued a report covering the last three years. In it reference is made to the greatly overcrowded condition of the tuberculosis hospitals of the city. At the large Metropolitan Hospital on Blackwell's Island there have at times been more than 36% more patients than it was designed to accommodate normally, and the same state of affairs has existed to a greater or less degree in all the institutions of the kind. The hospital authorities are not to blame as, under the law, they cannot refuse to admit patients; nor are the financial authorities censured. The latter have been extremely generous, but it seems to have been impossible to keep up with the city's needs. At present, however, the situation is somewhat relieved. An appropriation of $2,000,000 has been made which will soon increase the number of hospital beds available for tuberculosis patients from 2270 to approximately 4000. This provides for the completion of Sea View Hospital, on Staten Island, which will accommodate 1000 patients, for the addition of a new pavilion accommodating 112 at the Metropolitan Hospital, for two additional pavilions at Riverside Hospital, on North Brother Island, and for new pavilions and shacks at the Otisville Sanatorium. The outlook is considered encouraging, as the official reports of the Health Department show that the death-rate from pulmonary tuberculosis in the city has fallen from 2.25 in 1908 to 1.66 in 1912.

APPOINTMENT OF DR. EMERSON.—At a meeting of the City Board of Health, held on March 31, Dr. Haven Emerson, associate in physiology and in medicine at Columbia University and assisting visiting physician to Bellevue Hospital, was appointed sanitary superintendent and deputy commisioner of health.

POLLUTION OF BATHS.—Health Commissioner Goldwater has sent a letter to Borough President Marks in which he states that his department will issue no permits this season for either public or private baths in Manhattan waters, as tests have conclusively shown that the waters of the Hudson, Harlem, East River, and Upper Bay are dangerously polluted with sewage. He expresses the opinion that many cases of typhoid fever and other diseases have been due to bathing in these waters. That the poor may not suffer from this deprivation he urges that increased facilities for interior bathing should be provided by the city at the earliest possible date.

RECEPTION TO DR. L'ESPÉRANCE.—A farewell reception was given Dr. Elise S. L'Espérance, this year's winner of the Mary Putnam Jacobi Fellowship, on the afternoon of April 4, at the residence of Dr. Emily Dunning Barringer, 828 West End Avenue, New York City. All women physicians were invited to meet both Dr. L'Espérance and also Dr. Alice Rohdè, the first winner of the fellowship. The Mary Putnam Jacobi Fellowship Fund was raised through the efforts of the members of the Women's Medical Association of New York City, many of whom had been pupils of Dr. Jacobi at the Women's Medical College of the New York Infirmary. It is open to all women graduates in medicine. Dr. L'Espérance sails in April to continue her cancer research work, which she is pursuing under the direction of Dr. Ewing of Cornell.

Current Literature

MEDICAL RECORD.

MARCH 21, 1914.

1. *McCASKEY, B. W. *A New Method for Estimating the Functional Capacity of the Kidneys by Forced Elimination of Preformed Urea.*
2. BERKELEY, W. N. *The Use of Pineal Gland in the Treatment of Certain Classes of Defective Children.*
3. CUNNINGHAM, W. P. *Lues—The Incorrigible.*
4. MEYERS, J. *The Passing of the Stomach Tube.*
5. BROWN, J. S. *The Etiology and Surgical Treatment of Gastric and Duodenal Ulcer.*
6. MASSEY, G. B. *Surgical Ionization and Other Physical Forces in the Treatment of Cancer.*
7. McDONALD, E. *A Skin Varnish and Substitute for Rubber Gloves.*
8. HARVEY, T. W. *Pituitary Preparations in Post-operative Conditions.*

1. McCaskey says that functional impairment of the kidneys may be limited to certain classes of waste products. There may be varying degrees of renal block for urea, chlorides and water, and from a therapeutic point of view it is of the greatest importance

to differentiate between these types because dietetic treatment depends upon it. The phenolsulphonephthalein test is inadequate because there is no parallelism between excretion of phthalein and of urea. By surcharging the blood with urea and determining the rate of its excretion, the permeability of the kidneys for this substance can be determined with great accuracy. Unless there is gastric stasis the ingestion of 30 grams of urea is sufficient. The capacity of the kidneys for the excretion of chlorides and of water can be determined in the same way but the problem is more complex. [L. D. C.]

New York Medical Journal.

March 21, 1914.

1. Brill, A. A. *Fairy Tales as a Determinant of Dreams and Neurotic Symptoms.*
2. Holmes, B. *The Abderhalden Reaction in Psychiatry.*
3. Willson, R. N. *Scarlatiniform Eruptions in Septic States.*
4. Hays, H. *Relaxed Ear Drums.*
5. Lowenburg, H. *The Etiology and Treatment of Infantile Wasting.*
6. Stimson, C. M. *The Gynecological Examination.*
7. Cornwall, E. E. *Acute Lymphocythemia.*
8. Wootton, H. W. *Trachoma, and Allied Conjunctival Affections.*
9. Hertzberg, R. *The Graduate Nurse.*

The Journal of the American Medical Association.

March 21, 1914.

1. *Anderson, J. F. *Danger in the Subcutaneous Injection of Solutions of Crotalin, with Report of a Fatal Case.*
2. *Opie, E. L., and Alford, L. B. *The Influence of Diet on Hepatic Necrosis and Toxicity of Chloroform.*
3. Frink, H. W. *What Is a Complex?*
4. Schaie, M. *Artificial Pneumothorax. A Summary of Forty-Five Cases at Bedford.*
5. Cutting, J. A., and Mack, C. W. *The Intraspinal Injection of Salvarsanized Serum in Paresis.*
6. Littig, L. W. *Subacromial Bursitis.*
7. Beck, C. *Gastro-enterostomy by a Plastic Flap.*
8. Hertzler, A. E. *Technic of Vaginal Hysterectomy.*
9. Lippman, C. W. *Simplification of Duodenal Tube Examination.*
10. Gaswith, H. K. *Bromid Eruption Simulating Blastomycosis or Eczema.*
11. Bernstein, H. S. *A Suggestion in the Treatment of Syphilis.*
12. Ritter, J. *An Anomalous Temperature-Curve in the Moderately Advanced Tuberculous.*
13. Patterson, J. *Elephantiasis, with a Report of a Case.*
14. McLean, F. C. *The Sugar-Content of the Blood and Its Clinical Significance.*
15. Smith, F. H. *Benzol Treatment in Two Cases of Leukemia.*
16. Wholey, C. C. *Cases of Insanity Arising from Inherent Moral Defectiveness.*
17. Otrich, G. C. *Lodgment of a Cockle-Burr in the Vestibule of the Larynx.*
18. Vrooman, C. H., and Wittich, F. W. *Apparatus for Producing Artificial Pneumothorax.*
19. Little, Y. A. *Wall of the Stomach Perforated by a Pencil.*
20. Steele, A. E. *A Case of Micrococcus Tetragenus Septicemia.*

1. Anderson makes out a strong case against the use of crotalin (rattlesnake venom) in any diseased condition in which it is used entirely empirically, such as in epilepsy and tuberculosis.

2. Experiments by these authors furnish evidence that fat administered to animals and presumably stored in part in the liver increases the susceptibility of the organ to the injurious action of chloroform. In view of the well-known solubility and diffusibility of chloroform in fats, they suggest that the fat of the liver cells determines the fixation of chloroform and occurrence of necrosis. The experiments with carbohydrates, on the contrary, furnish confirmation of the views that carbohydrates protect the body proteins from disintegration. Since necrosis of the liver with a variety of diseases, namely, toxemia of pregnancy, acute yellow atrophy of the liver, yellow liver and poisoning with a variety of substances exhibits close similarity to the necrosis of chloroform, it is suggested that a carbohydrate diet may be found to influence favorably the course of these diseases. [E. H. R.]

Bulletin of The Johns Hopkins Hospital.

March, 1914.

1. Henderson, D. K. *Remarks on a Case Received in the Henry Phipps Psychiatric Clinic.*
2. Churchman, J. W. *Essential Sialorrhea in a Dog, Cured by Excision of the Parotid, Submaxillary and a Portion of the Sublingual Glands.*
3. *Vest, C. W. *Observation Following the Use of Collargol in Pyelography.*
4. Miller, S. R. *Koplik's Spots Occurring on the Tonsils of a Child Subsequently Found to be Anaphylactic to Egg Albumen.*
5. Ford, W. W. *A Brief History of Quarantine.*
6. Hunnicutt, J. A., and Jones, A. P. *Tattoo Marks for the Identification of Animals in Laboratories.*
7. Thayer, W. S. *In Memoriam. Reginald Heber Fitz.*
8. Thayer, W. S. *Two Men: George Alexander Gibson, Hugh Angus Stewart.*

3. Vest records some unusual symptoms following the use of collargol in pyelography in six cases. Ten and fifteen per cent. solutions were used. Severe pain may result, with rise of temperature up to 102°, with definite urinary changes. He advises against using collargol for such purposes unless absolutely necessary. If used it should be allowed to enter the renal pelvis very slowly and under very slight pressure. [J. B. H.]

Journal of Medical Research.

January, 1914.

1. Wolbach and Honeij. *A Critical Review of the Bacteriology of Human and Rat Leprosy.*
2. Kolmer. *Concerning Experimental Anaphylaxis in Labor.*
3. MacLachlan. *Extensive Pigmentation of the Brain Associated with Nevi Pigmentosi of the Skin.*
4. Burgess. *Malignant Rhabdomyoma with Multiple Metastases.*
5. Weston. *Estimates of Cholesterol in Serum by Gravimetric and Colorimetric Methods.*
6. Whitman. *Giant Cell Endothelioma of the Gums with Observations on the Formation of Giant Cells in the Same, and in Tuberculosis and Blastomycosis.*
7. Wolbach. *Notes on the Life Cycle of a Hemogregarine Found in a Monitor.*
8. Sutton. *The Histopathology of Fordyce's Disease.*
9. *Floyd and Wolbach. *On the Differentiation of Streptococci; Preliminary Notes.*

9. Floyd and Wolbach present the preliminary report on the work of differentiation of streptococci. As a rule those organisms presenting high virulence

show slight fermentative properties. It is evident that, in all probability, not so many groups of this variety exist as was believed by Winslow. The gentian violet test for virulence may be of rough value, though it is of no great value. Further work is suggested along the line of agglutination and complement fixation. The latter test may prove of great value in differentiation. At present the greatest dependence is placed upon the sugar-fermentation reaction and the virulence of the organisms to laboratory animals. [L. H. S.]

SURGERY, GYNECOLOGY AND OBSTETRICS.

FEBRUARY, 1914.

1. *Brewer, G. E. *A Preliminary Report on a Simple and Rapid Method of Pyloric Closure in Gastro-Enterostomy.*
2. Lower, W. E. *Neoplasms of the Renal Pelvis; with Especial Reference to Transplantation in the Ureter and Bladder.*
3. *McWilliams, C. A. *The Function of the Periosteum in Bone Transplants, Based on Four Human Transplantations Without Periosteum, and Some Animal Experiments.*
4. *Elsberg, C. A. *The Surgical Treatment of Intramedullary Affections of the Spinal Cord.*
5. *McGlinn, J. A. *The Heart in Fibroid Tumors of the Uterus.*
6. *Rowntree, L. G., Geraghty, J. T., and Marshall, E. K. *A Study of the Comparative Value of Functional Tests in the Surgical Diseases of the Kidney Secondary to Obstruction in the Lower Urinary Tract.*
7. Balfour, D. C., and Wildner, F. *The Intercarotid Paraganglion and Its Tumors.*
8. Keyes, E. L., Jr. *Concerning Apparent Cures of Renal Tuberculosis.*
9. *Cole, L. G. *The Roentgenographic Diagnosis of Gall-Stones and Cholecystitis.*
10. Eastman, J. R. *A Further Study of Pericolonic Membranes.*
11. Phillips, C. E. *Fixation of Fractures by Means of Autogenous Intramedullary Bone Splints.*
12. Crotti, A. *Indirect Transfusion of Blood.*
13. Skinner, E. H. *The Mathematical Calculation of Prognosis in Fractures at the Ankle and Wrist.*
14. Harpole, W. S., and Fox, C. M. *Case of Pernicious Anæmia Treated by Splenectomy: Marked Improvement.*
15. Nicholson, W. R. *The Extraperitoneal Cesarean Section, Its Place in Obstetrics.*
16. Biehn, J. F. *Some Causes of Failure in Bacterin Therapy.*
17. Preston, M. E. *New Appliance for the Internal Fixation of Fractures of the Femoral Neck.*

1. Brewer in animal experimentation finds that an aluminum band will produce a mechanical closure of the pylorus in every instance, that in every experiment in which the animal lived more than nine days the band was completely embedded in newly formed tissue and invisible, and that in none of the animals did the band give rise to necrosis of the compressed tissues, signs of irritation or leakage.

3. McWilliams' article is of extreme value and practical importance. He finds that if the whole diameter of a bone be removed, then this bone will regenerate between the ends of the fragments if the whole or a part of the periosteum be preserved, binding the defect, but very little filling in will take place if the entire periosteum has been removed from between the fragments. Provided a graft be living and taken from the same patient, its future life depends on an efficient blood supply, irrespective of whether it is in contact with living bone or periosteum or not. Periosteum when transplanted alone into soft parts may produce living bone. Splitting of the periosteum of a graft is unnecessary. No matter what the blood supply, grafts should be transplanted with as much periosteum as possible.

4. Elsberg in an excellent paper containing many excellent illustrations, describes his method of extension in the surgical treatment of intramedullary affections of the cord. The method is as follows: The laminectomy being done and the dura opened, a short incision is made over the area where the growth seems nearest the surface, dividing the pia and substance of the column down to the tumor. The tumor will then begin to bulge through the incision. It should never be excised then but the wound loosely closed and reopened at a second operation a week or ten days later, when the tumor will generally be found to have extended itself and can be easily separated from adhesions and removed. Eleven illustrative cases are published in the article.

5. McGlinn does not believe that the definite entity of fibroid heart exists. Arteriosclerosis in these tumors is a part of the advanced age and not directly referable to fibroids.

6. The authors claim that the phthalein test affords an indispensable index of the true renal condition in functional impairment due to obstruction in the lower urinary tract.

9. Cole produces some truly beautiful skiagraphs of gall-stones and emphasizes the importance of Roentgen examination to differentiate between right renal calculi and gall stones. [E. H. R.]

MARCH, 1914.

1. *Finney, J. M. T., and Friedenwald, J. *Thirteen Years' Experience with Pyloroplasty. A Study of One Hundred Cases.*
2. *MacCarty, W. C. *Clinical Suggestions Based upon a Study of Primary, Secondary (Carcinoma?), and Tertiary or Migratory (Carcinoma) Epithelial Hyperplasia in the Breast.*
3. *Judd, E. S., and Sistrunk, W. E. *End-Results in Operations for Cancer of the Breast.*
4. *Deaver, J. B. *Gastric Hemorrhage.*
5. Curtis, A. H. *On the Etiology and Bacteriology of Leucorrhea.*
6. Barney, J. D. *Abscess of the Testicle.*
7. Besley, F. A. *Elephantiasis Congenitalis Lymphangiectatica. With the Report of Case from the Service of Dr. Besley and a Pathological Report by Harry Jackson, M.D.*
8. Von Eberts, E. M., and Hill, W. H. P. *Free Transplantation of Fascia.*
9. Mayo, C. H. *A Summing Up of the Goiter Question.*
10. Mann, A. T. *A Rubber Tube in the Reconstruction of an Obliterated Bile-Duct: an Hepaticoduodenostomy.*
11. MacGowan, G. *Conservative Surgery of the Testicle.*
12. Binnie, J. F. *Some Uses of Fat in Surgery.*
13. Park, R. *The Relation of the Ductless Glands to the Work of the Surgeon.*
14. Lerche, W. *Spastic Tumor of the Pyloric Canal and Other Spastic Conditions of the Stomach: Their Surgical Treatment.*
15. McGrath, B. F. *A Simple Apparatus for Transfusion by the Aspiration-Injection Method.*
16. Kane, H. F. *Technic of Closing the Abdominal Incision.*
17. Peterkin, G. S. *Scalpel Surgery of Tumors of the Bladder.*
18. Skillern, P. G. *On the Blocking of Infra-Orbital and Mental Nerves at Their Foramina to Induce Operative Anesthesia in Their Cutaneous Distribution.*
19. Garrett, N. M. *Management of Labor in Cases with Relatively Contracted Pelves.*

1. This article describes by text and beautiful plates the technic of this operation. The authors believe this operation has certain advantages over

gastro-enterostomy and few of its disadvantages. The only contraindications are inability to mobilize the duodenum when adhesions are too dense and thickening and infiltration about the pylorus; also in gastric disturbances not dependent on organic disease. The special advantages lie in the opportunity to excise all ulcers in the anterior walls of the stomach or duodenum after direct inspection, also application of treatment to ulcers in the posterior walls. Immediate and final results are most encouraging.

2. This article is of interest and worth careful study, especially to those interested in carcinoma and its early diagnosis.

3. These authors believe that the end results for cancer of the breast are as good as, if not better, than the results for cancer elsewhere. Prognosis in young people who had the benefit of early operation was better than expected. Results are evidently improving and this seems due to the fact that patients are coming earlier to operation, rather than to any improvement in technic.

4. Mortality in gastric hemorrhage is becoming less, chiefly because of increasing accuracy of recognition of the proper type of case in which surgery is to be employed.

Articles 5, 8, 9, 12 and 13 are of especial interest of a practical sort, but not especially adapted to review. [E. H. R.]

THE LANCET.

FEBRUARY 21, 1914.

1. *Hey, E. W. *Hunterian Lecture on the Experimental Principles of the Operative Treatment of Fractures, and Their Clinical Application.*
2. *Spencer, W. G. *The Thyroglossal Tract.*
3. Bibby, J. B., and Stewart, M. J. *Primary Carcinoma of the First Part of the Duodenum, with Secondary Involvement of the Common Bile-Duct.*
4. Thiel, F. H., and Embleton, D. *Methods of Increasing the Accuracy and Delicacy of the Wassermann Reaction.*
5. Rawling, L. B. *Decompression of the Brain in Intracranial Hemorrhage: The Value of the Operation in Cases the Outcome of Accident or Disease.*
6. Corbett, D. *A New Radiometer for Use with Sabourand's Pastilles.*

1. In this second Hunterian Lecture Graves takes up the methods of transfixing bolts and bolted plates as useful in cases of para-articular fractures, fractures of the long bones, etc. He considers the various kinds of plates, and the use of intramedullary pegs. He discusses the treatment of old cases of non union, indirect fixation by transfixion apparatus, immobilization by splints or plasties, et al. He goes into the various methods of treatment by massage and early movement, and methods of extension. He discusses those cases suited for operative treatment, and compares operative and non-operative methods. There are numerous diagrams and illustrations.

2. In an article with an extensive bibliography, Spencer describes the thyreoglossal tract and the various abnormal conditions, cysts, etc., which may arise along its course. He presents numerous illustrative cases. [J. B. H.]

FEBRUARY 28, 1914.

1. *Gilford, H. *Hunterian Lectures on Infantilism. Lecture I.*
2. *Sherman, T. *The Morbid Anatomy of Tuberculosis in Man.*
3. *Fairlie, H. P. *A Comparison of the Action of Chloroform and Ether on the Blood-Pressure.*
4. Jones, D. W. C. *A Case of Chronic Joint Lesions in Hemophilia.*
5. Whitfield, A. *On Three Cases of Eczematous Dermatitis Produced by Poisonous Plants.*
6. Maylard, A. E. *The Fate of a Plug of Iodoform Gauze Accidentally Left in the Abdomen.*

1. In the first Hunterian Lecture Gilford defines infantilism as a conspicuous arrest or delay of development, subdividing it into infantalism of cells, of organs, or of the individual as a whole. This latter he further subdivides into toxic and correlative infantilism. This somewhat complex subject he considers in great detail.

2. Sherman presents a mass of statistics, tables, and other information of the greatest importance in this article, which, however, is very difficult to review. As a summary of an immense amount of work, brought up to date (the paper was read Oct. 23, 1913, in Berlin) it is of immense value to all interested in this subject. Much of this first paper is devoted to general consideration and a discussion of the nature and modes of infection.

3. Fairlie concludes that ether is better for short operations without shock, but that chloroform is better for longer and more serious operations. [J. B. H.]

BRITISH MEDICAL JOURNAL.

FEBRUARY 21, 1914.

1. *Gray, H. M. W., and Mitchell, A. *A Series of Cases of Appendicitis in Children.*
2. Sheen, W. *Some Observations on the Operative Treatment of Fractures by Metal Plates and Screws.*
3. Maguire, C. *Congenital Deformity of Femur.*
4. Crow, D. A. *A Case of Chimney-Sweep's Cancer, and a Suggestion as to the Pathology of Cancer.*
5. *Cantle, J. *The Tuning-Fork and Stethoscope in the Estimation of Abdominal and Thoracic Viscera.*
6. Pruen, S. T. *Epidemic Cervical Adenitis with Cardiac Complications.*
7. Harrison, W. J. *Chronically Enlarged Tonsils and Their Treatment.*
8. Wilson, W. *Earache of Obscure Origin.*

1. The writers analyze 200 cases of appendicitis in children. Of the 60 acute cases, 3-13 years, 19 died, a mortality of 15%. There were no cases of either pneumonia or bronchitis in the entire series. He believes that in acute cases a resulting diffuse peritonitis is not uncommon; that prognosis in any given case is absolutely uncertain, and that complaint of abdominal pain, especially when accompanied by sickness should always provoke careful inquiry and examination. No aperients should be given by mouth or by any other route, and all food should be withheld.

5. Cantle describes the use of the tuning-fork-stethoscope method in outlining with precision such organs as liver, spleen, stomach, cecum, heart, etc. The tuning fork, when vibrating and placed over solid organs gives out a loud note; over hollow viscera, only a soft note to the person listening over this area with a stethoscope. This method is of interest and may be of value. [J. B. H.]

FEBRUARY 28, 1914.

1. Keith, A. *An Anthropological Study of Some Portraits of Shakespeare and of Burns.*
2. *Shufflebotham, F. *The Milroy Lectures on the Hygienic Aspect of the Coal-mining Industry in the United Kingdom. Lecture I.*
3. *Farrant, P. *The Pathological Changes of the Thyroid in Disease.*
4. Heslop, J. W. *Dissemination in Carcinoma of the Rectum.*

5. DONALDSON, M. *Some Observations on the Effects of Adrenalin.*
6. *VALLOW, H. *Alcohol, Housing Conditions and Consumption.*

2. This is an interesting study of the conditions in England under which miners work, their domestic circumstances, mortality, the fatal and non-fatal accidents and their causes, and the various diseases which may arise.

3. Farrant, basing his remarks on a study of 700 thyroids obtained at post mortem, discusses first the bacteria and other organisms therein found and then discusses the condition of the thyroid in relation to the disease from which the patient died, including diseases of unknown origin, measles, whooping cough, etc., malignant diseases, glandular and blood diseases. The various changes, such as acute and chronic hyperplasia, he describes in some detail.

6. In a short paper on the relation of tuberculosis to alcoholism and housing conditions, Vallow draws the natural and only possible conclusions which can be drawn from such a study. [J. B. H.]

THE PRACTITIONER.

MARCH, 1914

1. *LANE, W. A. *Chronic Intestinal Stasis.*
2. *LAZARUS-BARLOW, W. S. *Radiation and New Growths.*
3. *CHEATLE, G. L. *Sprains and Strains of the Knee Joint.*
4. WOODWARD, C. *Treatment of Fractures by Direct Extension of the Fragments.*
5. HOWELL, C. M. H. *Brachial Neuritis.*
6. *CARLISS, A. *The Diagnosis of an Acute Abdomen.*
7. MOORHEAD, T. G. *Endocarditis Lenta.*
8. EMERY, W. W. E. *Recent Advances in Clinical Pathology.*
9. FLEMING, A. *Recent Work on Vaccine Therapy.*
10. KESTEVEN, W. H. *"Myalgia," or Muscular Rheumatism.*
11. CURTIN, E. *An Attempt to Evaluate on a Physiological Basis Some Current Methods of Treating Acute Pneumonia.*
12. ANDERSON, W. K. *Morphinomania.*
13. FRASER, E. T. *The Thermoprecipitin Reaction in the Diagnosis of Pulmonary Tuberculosis.*
14. BILLING, E. *The Relation of the Time of Day to Mortality.*
15. DALAL, A. K. *Care of Rat-Bite Fever, Treated with Intravenous Injections of Neosalvarsan.*

1. In a long paper Lane again reviews the subject of chronic intestinal stasis and cites his own well-known views upon the surgical treatment of this condition. There are many illustrative diagrams. Both the conclusions which Lane draws as to the far-reaching effects of such stasis as the cause of apparently all the ills to which we are subject, and the ideas as to operating go much too far and too fast for the average American to keep pace with.

2. This is a highly technical article on a subject still in the experimental stage.

3. This paper is one of practical value to surgeons and general practitioners. There are numerous excellent plates.

6. Carliss in a long article discusses the diagnosis of various acute abdominal conditions due to hemorrhagic, inflammatory or obstructive lesions.
[J. B. H.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 1. JANUARY 1, 1914.

1. SCHMITZ, E. *Duodenal Ulcer.*
2. *GRAFE, E. *The Influence of Gravidity on The Growth of Malignant Tumors.*
3. PURJESZ, B. *The Demonstration of Typhoid Bacilli in the Duodenum with the Use of the Einhorn Sound.*
4. WALZEL, P. *Successful Operation on Stab-Wound of the Pancreas.*
5. PFANNER, W. *A Case of Spina Bifida Occulta Lateralis with Bladder Diverticula and Incomplete Urachus Fistula.*
6. BONDI, J. *The Relation of Maternal Nutrition to the Weight of the Fetus.*

2. The author describes seven series of experimental inoculation of cancer in rats with a consideration of comparative rapidity of growth in gravid and non-gravid animals. In one case only was the tumor in the gravid as large as in the non-gravid; in one series there was no growth but resorption in the gravid animals. It would seem from this that pregnancy acts unfavorably to the growth of tumors. Ehrlich's theory of atreptic immunity may offer the explanation. The developing ovum may be considered a parasite as also is the malignant tumor, the one growing at the expense of the other. [F. S. K.]

ARCHIV FÜR KLINISCHE CHIRURGIE.

VOL. 103. PART 2.

10. *KAERGER, E. *Treatment of Cleft Palate, with Particular Reference to Early Operation and Brophy's Method.*
11. *WALJASCHKO, G. A., AND LEBEDEW, A. A. *The Healing of Wounds of Liver, Spleen and Kidney.*
12. RIEDL, H. *Experiences with Nail Extension.*
13. *TOIDA, R. *The Question of the Sterility of Bile under Normal Conditions and Its Bactericidal Effect on Pathogenic Bacteria.*
14. OSHIMA, J. *The Fate of Homoplastic Skin Transplants in Man.*
16. UFFREDUZZI, O., AND GIORDANNO, G. *Experimental Surgery of the Thoracic Aorta under Continuous Intratracheal Insufflation Narcosis.*
16. BRESLAUER, F. *Cerebral Pressure. I. Acute Conditions.*
17. MEYER, E. *Hernia Obturatoria.*
18. BERG, J. *The Recognition of True Stenosis of the Bile-passages from Other Causes Than Gallstones.*
19. GRINENKO, A. P. *The Total Removal of the Prostate by the So-called Hypertrophy Itself.*
20. I. JEGER, E., AND ISRAEL, W. *The Final Result of Transplanting the Renal Veins to Another Portion of the Vena Cava.*
II. GOLIANIZKI, I. *Ligature of the Vessels Preliminary to Disarticulation of the Hip.*

10. A long, technical article with illustrations showing some excellent cosmetic results after Brophy's operation for hare lip.

11. Waljaschko and Lebedew suggest the use of a leaf of superficial fascia in closing wounds of the parenchymatous organs. The fascial covering acts as a hemostatic, and offers the suture-material a hold similar to that furnished by the capsule of an organ. Fewer sutures need be used, and the pressure need not be so great, thereby decreasing the amount of parenchymatous tissue which would otherwise be liable to pressure necrosis. Multiple rupture of the kidney has been treated in this way with good results, and the writers suggest the use of a leaf of fascia as a substitute for the kidney capsule.

13. Toida, experimenting with bile obtained from men and dogs, found that the bile of both is normally sterile. Human bile he found to be a very good medium for bacillus coli, fairly good for the bacilli of Asiatic cholera, bacillus paratyphosus B. and B. dysenteriae (Shiga-Kruse group), slightly favorable for bacillus pyocyaneus and staphylococcus pyogenes aureus. It was unfavorable to the streptococcus pyogenes and diplococcus pneumoniae. The

bile of dogs seemed a less suitable medium for bacillus coli, bact. paratyphi a., bact. dysenteriae Shiga-Kruse and staph. pyogenes aureus.

Human bile appeared to increase the virulence of Bac. Coli Communis, and in the incubator most of the organisms mentioned, except streptococcus and pneumococcus, lived for a month, some for 70 or 80 days. Age and sex seemed of little importance. [G. G. S.]

DIE THERAPIE DER GEGENWART.

JANUARY, 1914.

1. KLEMPERER, S. *In What Internal Diseases Is Operative Removal of the Spleen to Be Considered?*
2. SCHITTENHELM, A., AND MEYER-BETZ, F. *On the Treatment of Septic Affections.*
3. SALGE, B. *The Treatment of Rachitis.*
4. OPITZ, E. *The Treatment of Sterility in the Female.*
5. CLAUS. *What Can the General Practitioner Do in the Prophylaxis and Treatment of Diseases of the Ear?*
6. *LÖHE, H. *Experiments with a New Iodine-Albumin Preparation (Testijodyl).*
7. MEIDNER. *Modern Radium Treatment of Tumors.*

6. Löhe reports his experience with testijodyl, a new iodine-albumin compound, in the treatment of syphilis. His patients took the tablets without difficulty, and he observed no untoward effects. The acne and coryza often observed after iodide of potassium, were lacking. The specific action of the remedy, whether given alone or with mercury and salvarsan, was prompt and very similar to that of potassium iodide. The amount of iodine received by the patient is considerably less than in the usual dosage of the iodide. [L. D. C.]

ANNALES DE L'INSTITUT PASTEUR.

VOL. 24, NO. 1. JANUARY, 1914.

1. MARIE, A. *Activation of the Tetanus Toxin.*
2. *CINCA, A. *Effect of a Chemical Abscess upon Experimental Trypanosomiasis and upon Its Treatment with Atoxyl.*
3. MAZÉ, P. *Investigations upon Vegetable Physiology; Effect of Mineral Solutions upon the Development of Maize.*
4. MAZÉ, P., RUST, M., AND LEMORGUE, M. *Study of Chlorosis of the Higher Vegetables Attributed to the Excessive Richness of the Soil in Lime.*
5. CAZALBOU, L. *The Cultural Evolution of Dermatophytes.*

2. Cinca has studied experimentally the effect of a sterile abscess produced by turpentine upon the presence of trypanosomes in the blood and without the use of atoxyl. The abscess forms from the turpentine in about 4 to 5 days. In his first series he studied the effect of these abscesses upon the trypanosomes of Ouganda and Surra in the guinea-pigs. The appearance of the trypanosomes in the blood was retarded for some time, and after they had appeared such an abscess would make them disappear entirely or become greatly diminished for some time, but a recurrence of the parasites appeared later. The animals treated thus survived somewhat better than the controls. His second series was treated both by the turpentine abscess and atoxyl. The animals treated with both showed a more marked disappearance of the parasites from the blood than those treated only with atoxyl. After the abscess repeated injections of atoxyl would keep the parasites from the blood for a long time but could not produce a permanent cure. He feels that the abscess and atoxyl treatment combined is more satisfactory than either treatment alone and thinks it may prove of considerable value in the treatment of animals for these infections. [C. F., JR.]

BULLETTINO DELLE SCIENZE MEDICHE.

JUNE, 1913.

1. PAZZI, M. *Psychic Disorders of the Female in Relation to the Normal and Pathologic Sexual Functions.*
2. FIORINI, M. *A Useful Device to Augment the Oscillations in the Dynamic Explorer of the Sphygmodynamometer.*
3. MUSINI, E. *A Case of Facial Plastic for Grave Post-operative Deformity, and of Canalization of Stenson's Duct for Salivary Fistula.*
4. BALDONI, A. *The Alleged Diagnostic Value of the Specific Reaction of the Urine in Cancer.*

JULY, 1913.

1. *PUNTONI, V. *Some Cultural Variations of the Cholera Vibrio.*
2. MONTANARI, A. *Stoffel's Operation in a Case of Painful Secondary Contraction from Hemiplegia.*

1. Puntoni describes, and illustrates with two excellent plates, interesting cultural variations in three strains of cholera spirilla obtained respectively from the Bologna and Naples epidemics of 1911 and from St. Petersburg through the Pasteur Institute at Paris. [R. M. G.]

AUGUST, 1913.

1. PUNTONI, V. *Disturbances of Cutaneous Function as a Cause of Gastro-Intestinal Lesions.*
2. BOSCHI, E. *Further Observations on Peptic Ulcer and Especially on Its Attendant Painful Phenomena.*
3. *SANTINI, C. *Experimental Researches on Gas Embolism Following Insufflation of Air into the Bladder.*
4. BONAZZI, O. *Some Observations on the Etiology of Parotitis.*

3. In the *Journal of Urology* for January, 1913, Nicolich and Marion published each a case of fatal air embolism following inflation of the bladder prior to suprapubic prostatectomy. To determine the route by which the air could have entered the circulation, Santini performed twelve experiments on dogs, which he reports and from which he derives the following conclusions:—

(*a*) A healthy bladder will burst from high pressure before injected air will enter the ureters.

(*b*) To force air into the ureters it is necessary to injure the muscular fibres which reinforce the posterior wall of the ureter in its intravesical course.

(*c*) By injecting air directly into the ureters it is possible to make it enter the renal parenchyma so as to produce gas embolism.

(*d*) The air traverses the collecting tubules and the absorption zone between the medulla and the cortex.

(*e*) A minimal pressure, however, is sufficient to force the air through a vesical vein into the inferior cava and right heart.

(*f*) In gas embolism from insufflation, therefore, the route is probably through veins opened by lacerations of the mucosa. [R. M. G.]

SEPTEMBER, 1913.

1. GAVINI, G. *A Case of Pigmentary Urticaria of the Adult.*
2. PAZZI, M. *From the Obstetrico-Gynecologic Field to the Frontiers of Pediatrics and Rational Eugenics. (Preliminary Note.)*

OCTOBER, 1913.

1. *LUSSANA, F. *Influence of Alanin on the Biliary Secretions.*

2. Busi, A. *The Radiologic Index of the Cranium.*
3. *Bonazzi, O. *A Peculiar Lesion in Reapers.*

1. Lussana's last work is a contribution to the knowledge of the content of amino acids in the organism. All interested in this subject will regret the untimely death of this promising young investigator.

3. Bonazzi has observed that, from the nature of the motions required in their work, reapers are subject with great frequency to acute synovitis of the joints of the thumb and of the extensor tendons of the left hand. This condition, therefore, he regards as an occupation disease. [R. M. G.]

Il Policlinico.

September, 1913.

Medical Section.

1. Puntoni, V. *The Inagglutinable Vibrios, Their Relation to the Cholera Vibrio and Their Importance in the Etiology and Prophylaxis of Cholera.*
2. De Sandro, D. *The Amylaceous Bacteria of the Human Intestine.*
3. *Filadoro, P. *Syphilitic Pulmonary Alveolitis with Anthracosis—A Clinico-Histologic Study of the Etiology of Anthracosis.*
4. Pontano, T. *The Relation Between Serum Diseases and Anaphylactic Phenomena.*
5. Vigano, L. *The Thermoprecipitins of Micrococcus Melitensis.*

3. Filadoro reports a fatal case of pulmonary syphilis with anthracosis, giving in detail the clinical history and gross and microscopic autopsy findings. He is convinced that anthracosis is a secondary phenomenon. In the case reported it was secondary to syphilitic broncho-alveolitis and interstitial pulmonitis. The inflammatory reaction round about the grains of carbon is a mechanical process, such as always occurs about fractures. [L. D. C.]

Surgical Section.

1. Leotta, N. *Wounds of the Heart. (To be continued.)*
2. *Scalone, I. *A Process for the Production of Vasal Stenosis.*
3. Comolli, A. *Abnormal Evolution of the Peritoneum, of the Primary Umbilical Loop, and of the Common Mesentery.*

2. Scalone describes in detail the technic of his method of producing permanent stenosis of large vessels in the treatment of aneurysm. This description should be read in the original, as it cannot well be abbreviated for abstract. It seems to be a contribution of genuine value to vascular surgery. [R. M. G.]

Obituary.

THOMAS MORGAN ROTCH, M. D.

In the death of Thomas Morgan Rotch, Professor of Pediatrics in the Harvard Medical School, March 9, 1914, the profession of medicine, Harvard University, and a large number of patients and personal friends, have sustained a grievous loss. Dr. Rotch, for many years the leading specialist in the diseases of children in New England, was born in Philadelphia on December 9, 1849. His father was Rodman Rotch of New Bedford, and his mother Helen Morgan of Philadelphia. His great-grandfather, Samuel Powel Griffiths, was a prominent physician in Philadelphia, holding the professorship of Materia Medica in the University of Pennsylvania from 1791 to 1796.

Dr. Rotch was graduated from Harvard College in 1870, and, having chosen medicine as a profession, entered the Harvard Medical School in the autumn of the same year. While in the school he took the first prize of the Boylston Medical Society. He was appointed one of the house physicians of the Massachusetts General Hospital in the autumn of 1873, and took his medical degree in 1874. Immediately after his graduation he went to Europe to complete his medical education. His studies were especially carried on in the universities of Berlin, Vienna, and Heidelberg, and after an absence of two years he returned to America, settled in Boston, and began his life's work in the practice of medicine.

At this time there was no physician in New England whose practice was especially devoted to children, and there was practically no teaching at Harvard in children's diseases. From the very beginning of his medical career Dr. Rotch evinced the greatest interest in and enthusiasm for the promotion of all knowledge pertaining to children. For the past thirty-eight years he labored unceasingly to increase this knowledge, and his investigations, writing, and teaching have given invaluable additions to this branch of medicine. His constant endeavor was to convince the American people that too little thought and practical attention have been given to the early years of life.

Dr. Rotch's principal life work was the building up in the Harvard Medical School of a department devoted to children. He was convinced that the anatomy, physiology, and pathology of early life differed so greatly from those of adult life, that special teaching of this subject was of the highest importance in medical education. His chief interest was in the organization and efficiency of the pediatric department of Harvard University. In 1888, the university established a chair for the diseases of children especially for Dr. Rotch. His title later was changed to Professor of Pediatrics.

For the past twenty years Professor Rotch was much interested in developing the work of the Infants' Hospital, the first hospital in this country to admit patients restricted to the first two years of life. Dr. Rotch always believed that babies should be cared for in a hospital entirely separate from children and from adults. In this hospital he elaborated one of the great works of his life, the system of percentage feeding, which has made his name well known in Europe as well as throughout America.

In 1902 Professor Rotch was invited to England to address the Children's Section of the British Medical Association on "The American

methods of modification of milk in the feeding of infants," presenting his pioneer work on this subject. This resulted in the establishment of a milk laboratory in London and in the adoption of the percentage method of feeding in England, especially in the London Infants' Hospital, of which at that time he was made consulting physician. Professor Rotch was senior physician of the Children's Hospital and of the Infants' Hospital, and was also medical director of the Infants' Hospital. He was consulting physician to the Boston City Hospital and physician emeritus to the Boston Dispensary.

He has held the positions of president of the Suffolk District Medical Society, president of the American Pediatric Society, president of the New England Pediatric Society, president of the Boylston Medical Society, and councillor of the Massachusetts Medical Society. He was also a member of the Association of American Physicians and of the American Medical Association.

After seventeen years devoted to the study of children and to teaching in the hospital wards and in the Medical School, Professor Rotch published the results of his investigations in a large illustrated work on the Diseases of Children which under the title of "Pediatrics" has since been used as a Harvard textbook. This book had a wide circulation and was accepted as a standard both in America and in England. Of late years Dr. Rotch did a good deal of work developing the use of the Roentgen ray in connection with children. As a result of this work in 1910 he published an illustrated book on "The Living Anatomy and Pathology of early Life as shown by the Roentgen Method." Dr. Rotch has covered in his writings the entire field of early life, always striving to keep before the public the truth that it is the study and practical scientific care of this period of life which produce the best results for good citizenship at a later period.

In 1874, Dr. Rotch married Helen Rotch, the daughter of William J. Rotch and Emily Morgan of New Bedford. They had one son, Thomas Morgan Rotch, Jr., born on May 21, 1878. Dr. Rotch's only son died on March 13, 1902, in less than a year after taking his A. B. degree from Harvard University. The Thomas Morgan Rotch, Jr., Memorial Building of the Infants' Hospital has just been completed and opened. A portion of the funds were contributed at the time of the young man's death by his friends and those of his parents. This hospital, which forms one of the group of buildings surrounding the Harvard Medical School and which is probably the most perfect infants' hospital building in the world, was the chief interest of Dr. Rotch's last years. It remains as a monument to his genius in the planning of details, and is designed not only to be a hospital perfectly adapted to the care of babies, but also to be an educational centre for students, physicians, and the laity in connection with everything pertaining to infants.

All those who came into contact with Dr. Rotch in his life work were impressed with the breadth of his views and his devotion to his profession. He made the teaching of Pediatrics a vital part of medical education. He possessed a remarkable power of carrying out his purposes even against opposition, and his purposes were always big purposes. He was a man of the most untiring energy and perseverance with remarkable genius for organization. His ideals were always high ideals and his aims were always large aims. He looked always far ahead, planning for the future.

EGBERT LE FEVRE, M.D.

Dr. Egbert Le Fevre of New York, dean of the faculty and professor of therapeutics and clinical medicine in the University and Bellevue Hospital Medical College, died on March 30 from scarlet fever, after an illness of only four days. Dr. Le Fevre was born at Raritan, N. J., on October 29, 1858, and his father, the Rev. James Le Fevre, who was one of the trustees of Rutgers College, is still living. He was graduated from Rutgers in 1880, and from the medical department of New York University in 1883, and in 1910 each of these institutions honored him, Rutgers conferring upon him the degree of ScD., and New York University that of LL.D. He served as interne at Bellevue Hospital, and three years after completing his service there was appointed clinical lecturer on the practice of medicine in the University medical school. When the Bellevue school was united with that of the University he was appointed to the professorship held up to the time of his death. He served successively as visiting physician to the City Hospital and Bellevue Hospital, and was made consulting physician to St. Joseph's Hospital for Consumptives and the Red Cross, Beth Israel, Nassau, Nyack, Mount Vernon, and North Hudson Hospitals. He was also the author of an excellent work on physical diagnosis. Dr. Le Fevre was not only highly esteemed on account of his professional attainments, but greatly beloved for his personal worth, and on the day that his death was announced eloquent tributes to his memory were paid in the chapel of the university by Chancellor Brown and by the chancellor emeritus, Dr. MacCracken.

Miscellany.

INTERNATIONAL SURGICAL ASSOCIATION.

The fourth congress of this Association will be held at the Hotel Astor in New York City lasting four days, beginning Monday, April 13,

1914. This is the first time that the congress has ever had a meeting outside of the city of Brussels, where the first one was held in 1905 and repeated every three years. The membership of the Association is limited to a certain number from each country. The membership in the United States is about one hundred. The president of the fourth congress is Professor Depage of Brussels, Professor Willems of Ghent is president of the international committee, and Dr. L. Mayer of Brussels is the general secretary. The local secretary is Dr. J. P. Hoguet, 40 East 41st Street, New York City, and the American committee is composed of Dr. Roswell Park (deceased) of Buffalo, Dr. L. L. McArthur of Chicago, Dr. C. L. Gibson of New York City, and Dr. R. H. Harte of Philadelphia. These last three, with the addition of Dr. Rudolf Matas of New Orleans and Dr. R. G. LeConte of Philadelphia constitute the committee designated to represent the American Surgical Association in making preparations for the entertainment of the foreign members.

The program is limited to the consideration of three main topics:—

1. "Gastric and Duodenal Ulcers." Introduced by papers by De Quervain of Basel, Hartmann of Paris, Lecone of Paris, Mayo of Rochester, Minn., Moynihan of Leeds, and Payr of Konigsberg.

2. "Grafts and Transplantations." Introduced by papers by Morestin of Paris, Villard of Lyons, Ullman of Vienna, Lexer of Jena, and Carrel of New York.

3. "Amputations." Introduced by papers by Witzel of Dusseldorf, Ceci of Pisa, Kusmik of Budapest, Binnie of Kansas City, Durand of Lyons, and Ranzi of Vienna.

After the close of the congress, Thursday, April 16, most of the foreign members will make a tour of other cities, the itinerary including Philadelphia, Baltimore, Washington, Chicago, Rochester, Minn., Montreal, and Boston. The foreign members have been invited also to attend the session of the American Surgical Association held in New York at the Hotel Astor April 9, 10, and 11, and many have signified their intention of arriving on the *Imperator*, due April 9.

MEETING ON CANCER.

THE American Society for the Control of Cancer announces a public meeting to be held on Friday evening, April 10, at 8.30 o'clock at the New York Academy of Medicine, 17 West 43rd Street. Final arrangements for a symposium on the nature and control of cancer have been made.

Dr. Clement Cleveland, vice-president of the Cancer Society, will act as chairman of the meeting, and the discussion will be opened by Dr. William H. Mayo, the eminent surgeon of Rochester, Minn., and president of the American Surgical Association, which will be in session in New York City during the week.

Frederick L. Hoffman, LL.D., statistician of the Prudential Insurance Company, who will shortly publish the most thorough statistical study of cancer which has yet been made in America, will present the latest evidence as to the prevalence of this disease in New York City, in the state, and in the country, and will discuss the possibility of controlling the death-rate by educating the public in regard to the symptoms and early recognition and treatment of cancer, as has been done with conspicuous success in Germany.

Professor Francis C. Wood, M.D., director of cancer research for the George Crocker Special Research Fund of Columbia University, will read a paper on "The Nature of Cancer and its Cure." Dr. Wood is in charge of the cancer research laboratory recently built by Columbia University at 116th Street and Amsterdam Avenue.

"The Control of Cancer from the point of view of the Cancer Commission of Harvard University," is the subject chosen by Dr. J. Collins Warren of Boston, professor emeritus of Harvard University, and chairman of the Harvard Cancer Commission. Notable improvements in the treatment of cancer, especially by means of radium, have recently been described in the annual report of the Harvard Commission and are in use under its direction at the Huntington Memorial Hospital of the Harvard Medical School. Dr. Warren is also a trustee of the American Society for the Control of Cancer.

The meeting will be open to the public without cards of admission and there will be no reserved seats.

Correspondence.

THE MASSACHUSETTS MEDICAL SOCIETY.

COMMITTEE ON STATE AND NATIONAL LEGISLATION.

BOSTON, April 3, 1914.

Mr. Editor: The following is the brief of the Committee of the Massachusetts Medical Society on State and National Legislation regarding the very important legislation that is proposed in the Report of the Commission of Economy and Efficiency. Every physician should inform himself regarding the proposed legislation and do what he can to interest his friends in the matter.

Very truly yours,

ARTHUR K. STONE, *Secretary.*

44 Fairfield St., Boston.

The Committee of the Massachusetts Medical Society on State and National Legislation wish to register with the Ways and Means Committee their emphatic protest against the conclusions of the State Commission of Efficiency and Economy in their recent report to the Governor.

The committee is sure that to abolish the Boards having in charge the varied interests of the State wards would be a calamity. The complex problem of

caring for the sick, the mentally defective, and the criminal, requires subdivision and specialization of effort to achieve good results. The committee believes that the long-standing policy of the State of Massachusetts to care for its wards by means of unpaid boards of trustees, who can devote their time and ability to the study of the immediate problem of their particular institution, is a wise one, and has resulted in Massachusetts being in the fore-front of the states in the general intelligent treatment of its philanthropic problems. No single commissioner or small group of men could control all of this vast and varied sociological activity to advantage. Individuals have accepted membership in these unpaid boards chiefly because of an original interest in the peculiar class of persons whom their special board serves. Most interested in the feeble-minded are less so in the blind; those caring especially for dependent infants are more indifferent to prisoners or sufferers from tuberculosis. By long service on their respective boards, many have obtained a high degree of *expert knowledge* which is bound to be of great use to their beneficiaries. To abandon all these benefits, and to put all sorts and conditions of state wards under one central bureau, is to lose enormously in the helpful efficiency of our state charities, even if there were a small saving in the amount of money expended, which our committee doubts would happen. The financial saving would have to be far larger than it is likely to be to counterbalance the dozen or more new, salaried officers whom the bill provides for. And we believe the way the money is spent,—in other words, the expert intelligence employed in its spending,—is quite as important as the mere question of the amount spent.

The committee is further of the opinion that the assumed economies which would be carried out under the proposed machinery would not materialize. Any large institution can probably purchase as cheaply, and, what is of as much importance, have what is adapted to its particular needs, as could a large central purchasing agency, with all the intricate machinery of management which would be necessary to insure honesty and provide for the rapid distribution of materials to the various institutions. This doubtless could be accomplished, but no group of five men paid the proposed salaries could develop such a plan as would work efficiently for a great state like Massachusetts. In addition, the wants of the institutions are so varied that it would doubtless occur that there would be great waste of materials which did not meet the exact requirements of the superintendents; and no mere purchasing agency could be convinced that the special requirements were necessary. Even in the matter of building, the needs of the institutions are so different that no absolute standard of construction is either possible or desirable.

The committee believes that much can be done in a helpful way to standardize methods of accounting, to suggest certain standard methods of building, heating, and ventilation, and to encourage and help overworked superintendents by giving them proper assistants to aid them in their work. It should be recognized that some men are specially good administrators, and consequently should be given specially good clinical assistants; others are specially good in devising plans for the improvement of the persons entrusted to their care, and such men should have specially good administrative assistants.

It must be remembered in any attempt to standardize our institutions, that this state work has been going on for half a century, and that it has not been possible to foretell because of the enormous increase in population, the great complexity of the problems arising from the rapid growth of the urban population. In some cases where seemingly wise plans for the development of the institutions have been made, these plans have not been accepted by the legislatures and make-shift plans have had to be substituted, which in the long run have entailed additional expense.

Wise, helpful, constructive criticism of the institutions will undoubtedly do much to make for general economy, but this committee is quite sure that the plan proposed is destructive in its nature and makes for neither efficiency nor economy.

REGISTRATION OF NURSES: A REJOINDER.

Boston, Mass., March 30, 1914.

Mr. Editor: We are all in accord with Dr. Cook's hope "that the physicians of Massachusetts will post themselves thoroughly as to the present tendencies in the registration of nurses," but some of us cannot endorse the implied criticism that the needs of the well-to-do as against the needs of all classes, inspires the motive actuating the effort in behalf of the measure under consideration.

An analysis of Dr. Cook's article, made up largely of six quotations, seems to show that his conceptions of the practical working of the proposed legislation, would be to endow the Board of Registration of Nurses with a power which might imperil the existence of some of the training schools for nurses, and thereby might curtail the education of a sufficient number of nurses to meet the requirements of the people. He intimates that the members of the Board of Registration of Nurses, might use this power in an arbitrary and unjust manner and, therefore, should not be given this weapon to be used in dealing with inferior schools. If his argument should be carried out, then no discretionary powers should be given to any public officials, and every board should have absolute standards to govern its actions, and be made to adhere rigidly to rules made by a Legislature composed largely of people who cannot intelligently deal with problems which individual members may not have studied.

The trend of modern effort seems to be to study all educational methods, and to eliminate the weak or poorly equipped schools, both because the product of the inferior school is undesirable, and also especially because the school which advertises to give a good training and does not do so, is a fraud. Those who have investigated this problem, know that many young men and women have been induced to spend money and years of the best part of their lives in attendance at institutions where the published promises have not been kept.

Does the objector to this legislation, want these frauds, some of which are medical schools and some of which are training schools for nurses, to continue? Does he want imperfectly trained nurses with low moral and professional standards, to be placed before the people of this state simply because the demand for nurses is not fully met?

Have not this eminent physician and his associates, enough influence to induce the Governor to take cognizance of any pernicious activity on the part of the Board of Registration of Nurses?

We all confidently hope that there will be developed a nursing scheme which will provide for the needs of everybody, but in the meantime, it does not seem possible that the proposed legislation, which is only one step in the process of evolution, will be any barrier to progress. Very truly yours,

W. P. Bowers, M.D.

REGISTRATION OF NURSES: ANOTHER REJOINDER.

Boston, March 31, 1914.

Mr. Editor: At the risk of being tiresome I am impelled to reply to Dr. Cook's letter in the Journal of March 26th.

The nurses who are working for House Bill No. 1186 will unite with Dr. Cook in earnestly requesting the physicians of Massachusetts to post themselves thoroughly as to the present tendencies in the registration of nurses.

The writer of one of the letters from which Dr. Cook quoted is Dr. Hornsby, Editor of the *Modern Hospital* and was superintendent of the Michael Reese Hospital in Chicago. Dr Hornsby very kindly sent me a copy of his letter to Dr. Cook so that the nurses might know just what his criticisms were of the law in Illinois, as well as the bill that is now pending in Boston. In regard to the Illinois law he writes the following—not quoted by Dr. Cook:

"You will note also Section 2, line 9, that the board has the right of inspection of hospitals, presumably for the purpose of seeing that the training of nurses is adequate. In most cases the law has worked out all right in this respect . . .", he then cites one instance quoted by Dr. Cook at the hearing in the State House, where the inspector did not use good judgment. He then goes on to say "but on the whole our board members have been extremely sensible and the law seems to be working out all right."

This testimony from a gentleman in Dr. Hornsby's position in Illinois seems to warrant some encouragement to those who are working in other states for similar legislation. He closes the discussion in his letter as follows:

"But I believe most of this controversy is academic rather than vital for immediate purposes, because we have in the leadership of the nursing profession a group of sane, intelligent women who are quite as anxious that proper conditions should prevail as the medical profession could be, or the public, or the administrators of hospitals, and it is my experience that even the most divergent views in this controversy about nursing are apparent rather than real. We are not all of us at exactly the same point in the road of progress and consequently we do not see things from exactly the same angle, but we are going in the same direction, are headed for the same goal and we are all using the same make of compass, so I don't think we are going to get very far apart."

"As a matter of fact, nursing ideals and the qualifications of our present day nurses have improved so vastly in the last few years, under the present leadership in that profession, that it seems to me the whole problem is in pretty safe hands"

I am

Faithfully yours,

SARA E. PARSONS, R.N.,
Superintendent of Nurses.

NOTICES.

MASSACHUSETTS GENERAL HOSPITAL: A surgical meeting open to the medical profession will be held at 8.15 p. m., on April 10th, in the lower ampitheatre of the Out-Patient Department. Entrance on either Blossom or Fruit streets.

Dr. Daniel F. Jones will present a "Report on the Surgical Treatment of Cancer of the Rectum since 1900."

SOCIETY NOTICES.

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY.—The annual meeting of the Society will be held at the American House, Boston, on Wednesday, April 15, 1914, at 11.00 a.m. The annual oration will be delivered at 12.00 o'clock, noon, by Dr. Charles D. McCarthy of Malden. Subject: "Medicine and Social Evolution."

Dinner will be served at 1.00 p. m.

LYMAN S. HAPGOOD, *Secretary.*

APPOINTMENTS.

DR. WILLIAM E. CHENERY has been appointed Chief of the Nose and Throat Department of the Forsyth Dental Infirmary for Children.

The following gentlemen have received and accepted appointment to the staff of the Forsyth Dental Infirmary for Children:—

CONSULTING SURGEONS, Hugh Williams, M. D.; F. B. Lund, M. D.; Hugh Cabot, M. D.; H. H. Germain, M. D.

CONSULTING PHYSIOLOGIST, George Tarr Ney Dearborn, M. D., Ph. D.

CAPTAIN ARTHUR N. TASKER, Medical Corps, United States Army, has been selected as lecturer on tropical medicine at the Long Island College Hospital. This is a new chair recently established by the faculty of the school.

RECENT DEATHS.

DR. WALTER A. HAYNES, a dentist of Boston, died on March 28 at Revere, Mass. He had served for many years on the Revere board of health. He is survived by his widow.

DR. CHARLES EMERY ROWELL, who died on March 29 at Stamford, Conn., was born in Concord, Vt., on May 2, 1849. He graduated in 1875 from the New York Homeopathic Medical School, and for five years practised his profession in New Hampshire before removing to Stamford. He served as mayor of that city in 1910, having previously been its coroner and a member of the local board of health. He is survived by his widow and by three sons.

DR. GEORGE P. COOKE, who died on March 22 at Milford, Mass., was born in 1850. He graduated from the Harvard Dental College in 1869, and since that time had practised in Milford.

DR. A. WALDO FORBUSH, who died recently in Somerville, Mass., was born at Westminster, Mass., on Aug. 11, 1851. After graduating from Westminster Academy, he received the degree of M.D. in 1881 from the Eclectic Medical College, New York. He practised successively in Charlestown and in Somerville. He was a member of the Massachusetts Homeopathic Medical Society, and of the Massachusetts and Boston District Eclectic Medical Societies. He is survived by his widow.

DR. CHARLES LYMAN HODGKINS, who died recently in Park Falls, Wis., was born at West Roxbury, Mass., in 1870. He received the degree of M.D. from Georgetown University. During the Spanish War, he served as surgeon of the Seventeenth United States Regiment. Subsequently he practised successively at Castleton, Vt., Cotter Hill and Memphis, Tenn. He also worked for a time as sanitary engineer in Ecuador. He is survived by his widow.

DR. JULIA A. MARSHALL, of Norfolk Downs, Mass., died at Boston on March 26. She was born in 1841.

DR. VINCENT HAMILL, who died of heart disease recently in New York City, was born at Phoenix, N. Y., in 1873, the fourth generation in the direct line of a family of physicians. He attended Cornell University, and received the degree of M.D. from the Buffalo (N.Y.) Medical College. He is survived by his widow.

DR. JOHN WALDO JOHNSON, who died at Boston on March 24, was born on June 14, 1856, in South Framingham, Mass. He graduated from the Framingham Academy, and received the degree of M.D. in 1877 from the Harvard Medical School. He was a Fellow of The Massachusetts Medical Society. He is survived by his widow.

DR. JOSEPH F. NEE, who died recently in South Boston, was born at Scituate, Mass., in 1880. He graduated from Georgetown University in 1904, and since that time had practised dentistry in South Boston.

Original Articles.

SOME PROBLEMS IN NEPHRITIS.*

By Horace D. Arnold, M.D., Boston.

During the past few years much attention has been given to the study of nephritis, both abroad and in America. Experimental nephritis in animals has taught us much in regard to these obscure conditions and will give us even more valuable information in the future. A number of new ways have been devised for studying the functions of the kidneys, and some of these are easily applicable to patients. In many other lines of investigation progress has been made. Enough has been done to show us that our old classification is unsatisfactory, and that many of our ideas were erroneous. The solution of many of the problems, however, has not been reached. The effect on the general practitioner has been to unsettle many of his convictions without giving him definite and reliable information to take their place. Have these investigations any practical bearing on the diagnosis, prognosis and treatment of nephritis? That is the question that the general practitioner asks,—and he asks it sometimes with some impatience.

It is not the purpose of this paper to give a complete answer to this question, for our knowledge on this subject is not yet complete enough to warrant definite conclusions. Neither will the attempt be made to make a systematic summary of our present knowledge and views of nephritis. This could be done properly only in a monograph,—not in an ordinary paper before a medical society. It has, however, seemed worth while to present to you some personal experience with some of the problems of nephritis, and to show to what extent these functional tests and other methods of investigation have been of value in dealing with these problems. Only a part of the field will be touched upon. Single typical cases will be used in the way of illustration, rather than any attempt to establish a point through the statistical compilation of cases.

The cases here presented belong mostly to the general class of cardio-renal cases, in which the condition of the kidneys is usually spoken of as chronic interstitial nephritis. This is a very comprehensive class, including cases that vary widely as to their cause and equally widely in their manifestations. In a large majority of these cases, as seen clinically, the cause of the disease cannot be definitely determined. In a number of cases the writer has been of the opinion that the most reasonable explanation lay in an excess of nitrogen in the diet.

In seeking an etiology for a given case of nephritis, we may consider the possible causes under three heads. 1. Microörganisms, which by locating in the kidney substance cause an inflammatory reaction. 2. Toxins, which may cause an inflammatory or degenerative reaction, depending on the kind and the strength of the toxic substance. 3. Circulatory changes, including both mechanical changes in the general or the renal circulation, and alterations in the vessel walls. In the class of cases which I attribute to an excessive amount of nitrogen in the food, the infections of the kidney may be ruled out, the circulation is essentially normal, and arteriosclerosis does not exist to a sufficient degree to cause definite degeneration of the renal cells. We must, therefore, look for our explanation in some toxic substance.

In these cases toxins from micro-organisms may be ruled out, except those which may be produced within the intestinal canal, and these may be disregarded practically if the bowels are kept freely open. Toxic substances from outside, such as lead and alcohol, have not been taken. We are, therefore, reduced to the consideration of toxic substances produced within the body by metabolism. We know that the chief function of the kidneys is to eliminate the products of nitrogenous metabolism, and that such substances, when not removed, act as poison to the system. If in sufficient amount, they produce the condition known as uremia.

According to the theory advanced above, the continued excessive ingestion of nitrogenous food (protein) taxes the functional power of the kidneys. An excess of nitrogenous waste material in the circulation may well be irritating to the kidneys, as it is to other organs and tissues. It is recognized that one such product, uric acid, does have such an effect, if in excess. Where there are no manifestations of gout, but a known excessive ingestion of protein, it seems probable that the trouble is due to an excess of some other nitrogenous waste product or products, whose identity is as yet unrecognized. If this is true, then the dictum, "Spare the kidneys by reducing the amount of protein in the food" is of great value as a preventive measure against nephritis, as well as the most important method of treating the disease when it has once been established. The following case illustrates this view.

Case 1. Male, 46 years, married, real-estate dealer. Heredity exceptionally good; from a long-lived family. Had always been in robust health; no venereal disease; no alcohol; tobacco in moderation. His habits were regular; he was an active business man, but without unusual business strain. There were none of the etiological factors usually spoken of in connection with chronic interstitial nephritis, but he was a hearty eater and habitually ate an excessive amount of meat. This, in my opinion, was the reason why at the age of 46 he showed an early stage of Bright's disease.

He was first examined in the spring of 1900. The urine showed the faintest possible trace of albumen and a few hyaline casts,—nothing else abnormal. The heart was moderately enlarged. The

* Read at a meeting of the Medical Section, Suffolk District Medical Society, January 21, 1914.

pulse was rapid, 100, and increasing to 112 on slight exertion,—and it showed high tension. No apparent arteriosclerosis. He complained of rapid heart action, nervousness, general malaise, and loss of appetite. This case would ordinarily be classed as one of primary chronic interstitial nephritis. He was placed on a somewhat restricted protein diet; he improved rapidly, and was not heard from again as a patient until June, 1905.

In June, 1905, he consulted me for a cold. It was found that the Bright's disease was in a much more advanced stage, although cardiac compensation had kept him relatively free from symptoms. After following the diet directions of 1900 for about a year, he had felt so well that he abandoned the restrictions and began to eat meat freely again. He was again placed on a low protein diet, with meat carefully restricted, and did very well until he had a retinal hemorrhage, about Jan. 1, 1907. He then consulted an oculist, who told him of the retinal hemorrhage and also stated that he had "advanced Bright's disease."

While this statement was true, the man's temperament was such that it was inadvisable to let him know how serious his condition was. I had spoken only of "kidney trouble" in terms serious enough to secure his thorough co-operation in dietetic treatment. He now became exceedingly worried and was unmanageable. He frantically tried one treatment after another that was reputed to "cure" Bright's disease. He abandoned each when it failed after a short trial, and sought my advice only at intervals. He grew rapidly worse, went abroad, against my advice, to consult European "specialists," and barely got home alive. He died in the spring of 1908 at the age of 54 years. No autopsy was allowed, but clinically it was a typical case of chronic interstitial nephritis. His death was due more directly to circulatory failure than to renal inefficiency, although at the very last there was a mild uremic condition.

One of the definite problems in chronic nephritis is the question of how much to tell patients about their condition. There can be no rigid rule. Each case must be judged on its own merits. Tranquillity of mind and a hopefulness for benefit, if not for a cure, are valuable aids to other forms of treatment. To most people the term "Bright's disease" means a warrant for a speedy death. The straight question, "Have I got Bright's disease?" is a hard one to answer, but it can generally be parried, or the affirmative answer can be so explained as to avoid the terror which people commonly associate with the name.

In this case the oculist made a mistake in telling him bluntly that he had "advanced Bright's disease." He added to his mistake by recommending an extremely limited diet, based chiefly on a certain kind of bread. This diet was, to be sure, very low in protein, but it was entirely inadequate for proper nutrition. When he returned to my care after a short interval, he had lost markedly in weight and strength, and the compensation of his heart was badly broken because of poor nutrition. This was the beginning of a rapid decline. As soon as his heart was somewhat improved he rushed off to one of the "water cures," and speedily broke the compensation again by overloading his circulation with large quantities of fluid. And so he went from bad to worse, and finally squandered what little strength he had left in a trip to Europe in the hope of getting better advice.

CASE 2 illustrated this problem, as well as demonstrating that our ordinary prognostic rules do not always hold true. I believe this case also was due chiefly to a high protein diet, although arteriosclerosis entered into the problem to some extent. When first treated he was 60 years of age. He had a good deal of arteriosclerosis. The urine was characteristic of chronic interstitial nephritis, as were also the cardio-vascular changes. He had just suffered a hemianopsia, which was apparently due to a slight cerebral hemorrhage. The prognosis as to duration of life would ordinarily be given as a very few years at most, yet this occurred fifteen years ago, and the patient today is considered a very well-preserved man for seventy-five years of age. He really considers himself too well to be under a doctor's care. He does not know to this day that he has any serious kidney trouble and he has lived comfortably and enjoyed life. His temperament is such, however, that if he had known the exact conditions he would have worried himself into his grave in short order.

Fifteen years ago a moderate regulation of his diet and the establishment of a regular regimen was sufficient to restore him to relatively good health. Ten years ago he had very mild uremic symptoms, and the dietary restrictions were increased. In the early spring of 1910 he again had a mild uremic attack, but refused to regard his condition as more serious than a "slight indigestion" until in June of that year he had a severe uremic attack. Since then he has followed the directions about diet very faithfully, and has remained well for three and one-half years. Except for mild cardiac stimulation and an occasional laxative pill, he has had no drug treatment.

In June, 1910, when he had his last uremic attack, his blood-pressure was 210. He was placed on a diet containing 70 grams* of protein and 2000 calories daily. Under this dietetic treatment his blood-pressure soon fell to 160, and it remained between 160 and 170 for three years,—until about six months ago. It has since then been gradually rising and now ranges from 180 to 200. His cardiac compensation is still good, however, and so far it has not seemed necessary to restrict his diet any more.

This case may serve as an introduction to the very interesting problem of the relation of renal inefficiency to high blood-pressure, including the question as to whether we can affect the blood-pressure in such cases by regulating the diet.

As a result of studying a large number of cases of chronic interstitial nephritis, I am convinced that in a great many cases the blood-pressure can be materially lowered by reducing the amount of protein ingested in the food. The

* The amount of protein taken by a patient is, of course, not known accurately,—as in an elaborate metabolism experiment in the laboratory. These figures are approximate only. However, the error is probably very slight, and they are as accurate as can be hoped for in practice.

basis for this belief lies in the fact that in so many cases the blood-pressure falls after such a regulation of the diet, when apparently all other conditions as to mode of life and treatment have remained the same. In these cases the low protein diet was employed at first on the principle of sparing the kidneys, and with no expectation of any effect on the blood-pressure. Observations on the blood-pressure were made as a matter of routine study. The frequency with which there was a fall in pressure and the amount of the reduction soon attracted my attention. It does not occur in all cases, but I think we must accept as a clinical fact that such a reduction is the rule rather than the exception in the class of these cases that are able to be about and can come to the doctor's office.

What the explanation may be is another matter,—the fact remains, and it is a most important factor in the treatment of such cases. Furthermore, the reduction thus obtained is usually greater than I have been able to obtain by any other method. In my experience vasco-dilator drugs rarely give a persistent reduction of more than 10 mm. Some time ago I tabulated my results from high-frequency electricity, and found the average reduction was from 10 to 15 mm. In those cases in which the blood-pressure falls as a result of a low protein diet, reduction of 20 to 30 mm. are very common, reductions of 30 to 40 mm. are far from rare, and I have seen a reduction of 60 mm. or more in a few cases. In those cases in which the heart is laboring to maintain an adequate circulation, a reduction of the pressure by 20 mm. or more is a most valuable aid in restoring compensation.

Case 3 is interesting from the point of view of the effect of the diet on the blood-pressure, but it also illustrates the fact that in many cases by a proper regulation of the diet, life may be prolonged in advanced cases far beyond what we have been taught to expect.

This patient was a manufacturer, and was 61 years of age when he had his first uremic attack, about the last of October, 1908. The attack was so severe that for a time his life was despaired of. I saw him first on the second day of his second uremic attack, December 26, 1908. This attack was less severe than the first one, yet he was in a state of profound stupor, from which he could be aroused only with difficulty, and into which he sank again after a few moments. This was a case of chronic interstitial nephritis, with a moderate amount of arteriosclerosis. Renal inefficiency was marked enough to result in uremia, but the cardio-vascular system was in fairly good condition. This case, however, was not actually as advanced as the uremic attacks would seem to indicate. The chief reason for this statement is that under only moderate limitation of protein he lived a little more than three years and two months after I saw him first, and finally died of circulatory failure. He was found dead in bed on the morning of March 3, 1912. Except in his acute attacks the protein in his diet was not reduced below 70 grams daily, and it was often 80 grams or more.

In explanation I would say that I have taken 90 grams of protein as an entirely sufficient allowance for a healthy person, and as the maximum that any person should take when there is any question of impaired renal functions. I have taken 40 grams of protein as the lowest practical limit to be kept up continuously in cases with marked impairment of these functions, and have fed patients for months at a time at this lower limit. In proportion to the estimated severity of the case, the protein is reduced from 90 grams toward 40 grams. That this man could live over three years on a diet averaging about 80 grams of protein daily argues against an extreme impairment of the renal functions.

There was, however, a definite limit to the power of elimination by his kidneys, and if this was exceeded for any length of time he was soon in trouble. After the attack in December, 1908, he recovered his strength so quickly and felt so well that he could not be persuaded that continued restriction of the diet was necessary. However, a relatively short break from diet regulations caused a moderately severe uremic attack on May 5, 1909. After that he was more tractable.

At another time, when he was following his diet carefully at 80 grams of protein daily, he added green peas, on his own initiative. I had allowed him a certain list of green vegetables. He decided that fresh peas in the spring might be considered a "green" vegetable, not knowing that peas contain about 7 per cent. of protein. As he was fond of peas he ate them freely every day and unwittingly increased his protein by about 10 grams daily. This was the only departure from the authorized diet, yet after about ten days or two weeks this slight excess caused mild uremic symptoms.

We had, then, in this case a pretty sharply marked limit to the amount of protein he could take in his food. If he kept below this limit, he felt, to use his own words, "better than he had been for years." If he exceeded this limit for a short time, he lost his appetite and suffered from malaise; if he continued a longer time he had definite uremic symptoms. It seems clear that these symptoms, mild or severe, were due to the retention of nitrogenous waste products in the system, due to the ingestion of more nitrogenous food than the kidneys could eliminate.

This case illustrates especially well a variation in the blood-pressure corresponding with the excess of nitrogenous waste material in the blood. In his first uremic attack the blood-pressure is reported to have been 212. In the second attack I found it 190, but this observation was made shortly after a dose of nitroglycerin, and it probably had been over 200. Under a low protein diet the blood-pressure gradually fell to 160 on the thirteenth day after the uremic attack began. He was then able to come to my office and in the following

two weeks received eight treatments with high-frequency electricity. The average fall of blood-pressure at the end of each treatment was 10 m.m., although, of course, the effect of each single treatment on the blood-pressure was largely temporary. At the end of this period the blood-pressure had fallen to 140,—a total reduction of at least 50 mm.

In the attack in May, 1909, the reduction was even more striking. The blood-pressure was highest on the third day of the attack, when it registered 230. On the fourth day, 220; fifth day, 180; sixth day, 170. At this point he was able to sit up. On the eighth day it was 140. On the ninth day he was able to go out for a short walk. On the tenth day the blood-pressure was 135, and registered the same when he came to my office on the twelfth day. Here was a total fall of 95 mm. in 9 days, with no apparent explanation except that a low protein diet allowed the kidneys to eliminate the excess of nitrogenous waste material in the blood.

During the period of about three years when he was under treatment his blood-pressure would remain between 140 and 150 if he remained on a strict diet. However, although he reported for examination fairly regularly, he repeatedly broke over his diet restrictions, and thus gave an unusual opportunity to study the relation of a varying protein diet to blood-pressure. With an increase in the intake of protein the blood-pressure rose. The rise was roughly proportioned to the excess of protein, and not infrequently reached 170 or 180. Numerous other cases have apparently shown the same relation. Incidentally I may add that I have never seen any ill-effects from any reduction of the blood-pressure that resulted from, (or accompanied?) a low protein diet. It has been held by some authorities that a high blood-pressure in chronic interstitial nephritis is a conservative process and should not be interfered with. In this class of cases, of which I have given instances, nothing but benefit has followed such reduction.

But this is not the whole story. In other cases, apparently similar, no reduction of blood-pressure followed a considerable reduction of protein in the diet. It would appear that the conditions in these two classes of cases must be materially different, and we look to the newer methods of investigation in the hope that we may gain information which will enable us to differentiate the several varieties of disease which are now all included under the head of chronic interstitial nephritis.

A little more than a year ago, Professor Folin announced new methods of blood analysis by which could be determined with great accuracy the amount of nitrogenous waste products in the blood, and also the amounts of urea, ammonia, and uric acid. These methods are too difficult and delicate to be performed by practicing physicians, but the results are of great clinical importance in some cases. Folin states that in nephritis he has found the amount of nitrogenous waste products to vary from slightly above normal to four or five times as large as normal.

In cases of pronounced or threatened uremia the amount of waste nitrogen has been very high, otherwise the amount has not seemed to correspond to any particular clinical diagnosis. He also states that in these cases he has found "no correspondence between the blood-pressure and the degree of retention of the ordinary nitrogenous products." The amounts of these various substances in the blood are expressed in figures representing the number of milligrams in 100 grams of blood. In the cases which follow the amounts found will be stated in comparison with the normal amounts.

CASE 4. Merchant, 57 years. A case of moderately advanced chronic interstitial nephritis, moderate arteriosclerosis, and myocardial degeneration. In this case alcohol was an important etiological factor. He was a hearty eater and an estimate of his ordinary diet, recorded for three days, showed a daily average of about 140 grams of protein and over 3000 calories. The output of urea was approximately 20 grams in 24 hours, which is abnormally low for the amount of protein in the food. It seemed probable that there was retention of nitrogenous waste products in this case, and a specimen of blood was taken and sent to Professor Folin for examination. The report showed the amount of uric acid to be at the upper normal limit, the nitrogenous waste nearly twice the normal amount, and the urea once and a half times the normal amount.

The amount of protein in the diet was reduced from 140 grams to 70 grams, and the calories from 3000 to 2000. On this diet he had fewer symptoms and seemed to improve. Another specimen of blood was taken for examination 26 days after the first one. The uric acid had fallen from the upper normal to the lower normal limit, the nitrogenous waste was reduced one-third, but the urea was reduced only one-tenth.

The blood-pressure at the time of the first blood analysis was 195, at the time of the second analysis it was 185, and three weeks later it had fallen below 170. This is not as striking a fall in blood-pressure as has occurred in many cases, but it is a definite drop. The patient did not return for further observation, but we learned from his family physician that after a definite improvement he became careless about his diet and had resumed his alcoholic habits. The case shows by blood analysis a retention of nitrogenous waste, as was expected, and a definite drop in its amount when the amount of protein in the food was reduced. At the same time there was a definite fall in blood-pressure. So far this is the only one of my cases of this type in which this change has been followed through two blood analyses.

Correct, in this case, would seem to be our theory of impaired excretion, the retention of nitrogenous waste, and some relation between this and the blood-pressure. I believe this is a typical case of a certain variety of chronic interstitial nephritis. I have had the blood examined in a number of other cases which failed to give any confirmation of this theory. However, any

argument on a numerical basis among these cases would not be fair, for the other cases were the ones which had failed to respond to dietetic treatment. In other words they belong in a different class. Statistical arguments are valueless unless cases that are to be compared are so selected that they belong to a sharply differentiated class.

The figures in Case 4 are as follows:

	Uric Acid.	Nitrogenous Waste.	Urea Nitrogen.	Protein in Food.	Blood-Pressure.
Normal	1-2	24-26	12-13	90 grams	150
Dec. 12, 1912	2	46	19	140 grams	195
Jan. 7, 1913	1.2	30	17	70 grams	185
Feb. 1, 1913	—	—	—	70+ grams	170—

Case 5 is interesting in several respects, and shows among other things, that one normal blood analysis does not settle the diagnosis of the case. Accurate and reliable as this test is, nevertheless it throws light on but one factor in the clinical picture. It does not necessarily invalidate other evidence, and this case shows the value of considering all the features in the case in the interpretation of the significance of the blood analysis.

This patient was a married woman of 28 years. In 1910 she had eclampsia at the seventh month of her first pregnancy. She had albumen in the urine at that time, but the urine is reported to have been free from albumen since her recovery from that illness. In 1911 she had a miscarriage at about the third or fourth month of pregnancy, but there was no eclampsia. She has not been pregnant since. Early in 1913 her appendix was removed. No renal trouble was noted at the time of this operation. In the summer of 1913 her blood-pressure was found to be 200. I examined her first on September 23, 1913.

At that time the systolic blood-pressure was found to be 240, and the diastolic pressure was 120. The heart was moderately enlarged. There was a slight mitral regurgitation. It was reported that the urine had been examined recently and found to be normal. A single specimen at the time of my examination showed no albumen, but a centrifugalized sediment showed a few hyaline casts. One week later a twenty-four hour specimen showed the slightest possible trace of albumen by the nitric acid test, and the sediment contained a number of hyaline and fine granular casts.

The case appeared to be one of chronic interstitial nephritis. There seemed to be no etiological factor except the possibility that the trouble started from some one of the ordinary infectious diseases or a tonsillitis which she had had in childhood and early youth. It seems probable that it antedated the attack of eclampsia in 1910. She was anemic, the hemoglobin being down to 60%, and she had suffered from anemia five years before. It was my opinion that the slight mitral regurgitation was due to the anemia, acting through a poorly nourished left ventricle. She had had no symptoms and considered herself well, except for slight breathlessness on marked exertion.

An estimate of the diet for four days showed an average protein intake of 56 grams, but it had varied on the different days from 41 grams to nearly 70 grams. Her attending physician had reduced her allowance of meat to small amounts, so that she was already on a low protein diet, but with rather wide variations from day to day. The twenty-four hour amount of urea was 9.4 grams. —a low amount for a diet containing about 60 grams of protein. This fact, together with the evidence of the urinalysis led me to infer that she had chronic interstitial nephritis with impaired elimination and the retention of nitrogenous waste. The blood-pressure, however, was so high that it did not seem probable that it was due solely to the amount of nitrogenous waste that would be retained from so low an amount of protein in the diet.

On Oct. 1 a specimen of blood was taken for analysis. The report showed figures for uric acid, nitrogenous waste, and urea nitrogen that were about the low normal limit. At first sight this report would seem to indicate not only that there was no accumulation of nitrogenous waste in the blood, but that there was no nephritis. However, the other evidence seemed to indicate so clearly that this case was interstitial nephritis and that probably the power to eliminate nitrogen was impaired, that I looked for an explanation for the apparent discrepancy. It then appeared that on the day when the urine was collected, the day before the blood was taken for analysis, she had taken only 41 grams of protein. It therefore seemed probable that the kidneys could eliminate the amount of nitrogenous waste from this amount of protein and that this would explain the absence of any accumulation in the blood. Therefore this condition of the blood did not necessarily exclude nephritis. Her blood-pressure at this time had also fallen to 225.

As soon as the blood had been taken for examination she was placed on a diet containing 2000 calories and 60 grams of protein. This was not a lower amount than the average she had been taking, but it was thought that she would do better on a steady diet of this sort than on the wide variations her diet had shown before. On October 10 she was ordered a capsule three times daily, which contained 5 gr. of ferrous carbonate and 1-6 gr. of extract of nux vomica. This was given for her anemia and constitutes the whole of the medicinal treatment to date. On November 14 her diet was cut to 52 grams of protein, and on December 4 it was reduced to 44 grams. On that date the hemoglobin had risen from 60 to 80%, and the systolic blood-pressure had fallen to 200, although the diastolic pressure remains about the same, 120 to 125. She was appreciably better in every respect, and this improvement and the lowered blood-pressure seemed to be the results of a low protein diet.

Meantime, on Oct. 28, she entered the Peter Bent Brigham Hospital so that I might get a report on tests of her renal functions. While there, on a somewhat higher protein diet, another analysis of the blood was made and the amount of nitrogenous waste was found to be fully double the normal figure. In other words, this patient had a definite limitation to the power of her kidneys to eliminate nitrogenous waste. When the protein intake was sufficiently low there was no accumulation of these waste products in the blood, but when it exceeded the limit of excretion these waste products promptly accumulated in the blood.

A closer study of the output of urea in the urine showed that the action of the kidneys in this respect was sluggish. It was also shown that the elimination of salt was poor. On the other hand, the water balance was practically normal, and the tests for the excretion of potassium iodide and lac-

tose were normal. The phthalein test was nearly normal.

This case would ordinarily be classed clinically as one of chronic interstitial nephritis, yet it is distinctly different from the ordinary type of this disease. By means of the blood analyses and the tests of the renal functions we are able to show this, and we have received valuable information to guide us in treatment. Her protein intake should be kept as low as 45 grams daily and the amount of salt taken in the food should be limited. That the other renal functions are normal is valuable knowledge, and it possibly warrants a better prognosis than we should ordinarily give. I do not think we have yet accounted for her very high blood-pressure. Apparently this has been influenced to a slight extent by regulating the diet, but it would seem to be chiefly due to some other factor.

Certain aspects of Case V have brought us to the consideration of the clinical tests of the renal functions. These will be reviewed very briefly, with a few words of comment. The details of the technique will not be given, for lack of time.

The phenolsulphonephthalein test is supposed to measure the general excretory function of the kidneys. It is sometimes called the "phthalein" test or the "red" test, as a matter of convenience. Up to the present time it has been used more extensively in surgical cases than in medical cases. It has established a definite place for itself in surgery, especially in reference to the question of operations on the urinary tract. If the excretory power of the kidney is sufficiently low, operative measures should be postponed, if possible, until the renal functions have been improved by treatment, or in some cases they should be abandoned altogether. The mortality in several of these operations has been materially lowered through the intelligent interpretation of the results of this test.

This test has not been employed as extensively in the study of medical cases as in connection with surgical operations. It is, of course, equally accurate for medical cases, but the interpretation of the results is not so clear. It should be used more frequently in the study of such cases, and we may hope that with the collection of sufficient data this test will have a greater value in relation to the diagnosis, prognosis, and treatment. At present we may state that the percentage of phthalein excreted is reduced in cases of nephritis, and that the degree of reduction corresponds generally to the degree of impairment of the renal functions. In threatened uraemia the percentage is usually very low. Furthermore this test sometimes indicates a dangerous impairment of the renal functions, when other evidence of such a condition is lacking. On the other hand if other symptoms indicate danger, we should not disregard the warning because the phthalein test is essentially normal. Cases have been reported in which the phthalein test was essentially normal, yet uraemia followed in a very short time. A very low phthalein test, combined with a blood analysis which shows a large amount of retained nitrogenous waste, strongly suggests the imminence of uraemia.

We are not able to infer much from this test as to the duration of life, because we do not yet know how low the phthalein test may go and yet be compatible with a renal efficiency that will sustain life indefinitely, if the diet and regimen of the patient are properly adjusted. This is especially true of cases of interstitial nephritis which are stationary or are progressing slowly. This test, however important, is but one piece of evidence, and it must be considered in relation to all the other evidence in the case. The phthalein test gives no special indications as to the treatment of cases of nephritis, except in those cases where it indicates that uraemia is imminent. Here we would inaugurate vigorous measures earlier than if we depended solely on the other indications.

We now come to the consideration of functional tests which determine the power of the kidneys to excrete certain individual substances. The substances at present utilized for such tests are water, salt, nitrogen, lactose, and iodide of potash. Information about the excretion of the first three (water, salt, and nitrogen) has a distinctly practical bearing on the problems of treatment. If the kidneys have difficulty in eliminating any of these substances, it is common-sense to reduce the amount of work for the kidneys by reducing the amounts of the substances in question.

On the other hand these tests are supposed to be of value in diagnosis, enabling us to distinguish the cases in which the glomerular functions are impaired, those in which the functions of the tubules are impaired, and the mixed forms in which both systems are involved. It is generally agreed that the excretory functions of the glomeruli are different from those of the tubules. These tests, however, are based on the further assumption that we know what these different activities are, and that we can test these individual functions by these specific substances. Here we have left the solid ground of fact (or views about which there is general agreement), and have embarked upon the sea of theory (or views about which there is a definite difference of opinion). Will our boat, the working hypothesis of these tests, prove seaworthy?

It should be noted in this connection that we know far too little about the physiology of the kidney as a whole, and less about the normal or abnormal functions of its different parts. Furthermore there is a distinct lack of correlation between the clinical observations and the autopsy findings in many cases. The autopsies generally show that we are dealing with mixed

cases by the time death occurs, where both the glomeruli and the tubules are involved, although in the more acute fatal cases one system or the other is apt to be chiefly affected. Important work is now being done in experimental nephritis on animals, but it is not yet entirely clear how far the results are applicable to the nephritides of man, which are due to toxins of a very different character. It will require much more work along all these lines before we can form really reliable conclusions. The functional tests must be studied more extensively in connection with other clinical evidence, both of these must be better correlated with autopsy findings, and some of the problems can be elucidated by animal experimentation. In the meantime the assumptions on which these functional tests are based represent the opinions of men who are leaders in the investigations along these lines, and they may be accepted as the best working hypotheses available.

According to these views water and lactose are eliminated chiefly through the glomeruli, while sodium chloride and potassium iodide are excreted by the tubules. There is less definite agreement as to the place of excretion of nitrogenous material; therefore, as far as the localization of the functional disturbance is concerned, nitrogen has less significance than the four other substances.

Inability of the kidneys to excrete lactose in a normal way seems pretty clearly to indicate an abnormal glomerular function. Cases of this sort may be divided into two classes, those which show polyuria and those which show oliguria. Polyuria is considered to be due to a hypersensitive condition of the glomerular vessels, while oliguria is due to a hyposensitive condition. The ratio of fluid output to intake determines which condition exists.

Iodide of potash seems to be excreted by the tubules, but this test is perhaps less reliable and conclusive than the other tests. Salt seems to be excreted chiefly by the tubules, but the question of the amount of salt excreted depends not only on the functional power of the tubules but to some extent on the activity of the glomeruli. Normally the tubular epithelium appears to have the power of concentrating the urine by excreting an excess of salt ingested, even if the amount of fluid ingested is not increased. If the fluid intake is increased an excess of salt would be taken care of, at least to a certain extent, even if the concentrative power of the tubules were impaired, because of the increased outflow of urine. Therefore in this test we must take into consideration both the intake of salt and of water, and the output of urine and its concentration. Furthermore in the type of abnormal glomerular action in which the vessels are hypersensitive, salt appears to act as a diuretic and to increase the amount of urine. The functional activity of the tubules as to salt excretion is, therefore, tested by adding salt to the diet in considerable amounts without increasing the amount of fluid taken. If the tubules are normal and the glomerular action is normal this excess is eliminated in a concentrated urine. If the glomerular vessels are normal or hyposensitive and the tubules are impaired there will be more or less salt retention. If the glomerular vessels are hypersensitive, the diuretic action of the salt may make the test less conclusive as to the functions of the tubules, although if the tubular function is much impaired some salt retention will probably be found under these conditions.

Bearing the significance of these functional tests in mind, we may now consider Case VI,—one of the most puzzling cases of cardio-renal disease that I have studied.

Case 6. This man was a traveling salesman for shoes; 45 years of age. He was first examined September 3, 1912. His history gave no probable etiology for his present trouble. He had never used alcohol to any extent.

His present trouble dated from February, 1911,—19 months before I saw him. The best information obtainable about an attack which occurred at this time would seem to indicate that it was uremia accompanied by a temporary aphasia and paralysis of his right hand and arm which lasted several hours.

In November, about nine months later, he fell unconscious and had more convulsions. The diagnosis, made by a very good clinician, was again uremia. After a few days in the hospital he returned home. Since then he had been in fair health, but had not returned to business. He complained of more or less malaise, loss of strength, some headache, and occasional attacks of dizziness. There had been no dyspnea on exertion, or other cardiac symptoms. He had noticed nothing unusual about the urine, but had been obliged to pass it two or three times during the night for a good while.

Physical examination showed an enlarged heart, the left border being 2 cm. beyond the nipple line. The heart action was strong and regular. There was a short, fine, high-pitched systolic murmur at the aortic area, and a lower pitched, rougher systolic murmur at the apex. There was moderate arteriosclerosis of the peripheral arteries, and it seemed probable that the aortic systolic murmur was due to arteriosclerotic changes at the aortic valve. The other systolic murmur was characteristic of slight mitral regurgitation. Compensation was good. The aortic second sound was much exaggerated. The pulse was 100, regular, and of very high tension. The systolic blood-pressure was 275, and the diastolic pressure was 190. There was moderate edema of the eyelids and slight soakage of all subcutaneous tissues, but no edema of the lower extremities that could be ascribed to broken cardiac compensation. He had recently consulted a good oculist, who reported to me that the fundi were normal except for definite evidence of arteriosclerosis. The physical examination was otherwise negative.

A single specimen of urine at the examination September 3 showed a specific gravity of 1010, acid, a slight trace of albumen, and a few hyaline casts.

The twenty-four hour urine, two days later, showed 1440 c.c.; specific gravity, 1012; acid; a very slight trace of albumen; many hyaline and a moderate number of fine granular casts; no other abnormal constituents in the sediment.

He had been requested to record his diet for the twenty-four hours during which he collected the urine, and a calculation showed that he was taking about 2100 calories and 96 grams of protein. The output of urea was 21.6 grams for the twenty-four hours,—a smaller amount than would be expected from the protein intake. The diagnosis of chronic interstitial nephritis seemed to be definitely established. There was moderate arteriosclerosis and cardiac changes secondary to the nephritis and arteriosclerosis. With a history of what appeared to be two uremic attacks ten and nineteen months previously, and with the extremely high blood-pressure, this patient seemed to be in a very advanced stage of the disease. The cardiac compensation, however, was unusually good, and the danger seemed to be more on the side of inadequate renal elimination and uremia than in the direction of the circulation. I assumed that the high blood-pressure was probably due to retained nitrogenous waste products, and, as he was taking a diet that was too high in protein for his kidney condition, I expected a definite fall in the pressure on a lower protein diet.

In this expectation I was entirely disappointed. Further observation of this case showed that the first observation of a blood-pressure of 275 was unusually low for him. It was usually considerably above 300. The exact figures cannot be given, as the scale of the mercury manometer did not go above 300. He was first placed on a 70-gram protein diet, and this was gradually reduced until on Nov. 12 he was ordered a diet containing only 52 grams of protein. On the lower protein diet the blood-pressure was more often between 275 and 300 than above 300, but, as it was at times over 300 and as it was only 275 at the first examination, it is not clear that the lower protein diet had definitely reduced it.

In other respects, however, he was distinctly better. His pulse was generally lower, frequently down to 88. He was practically free from headache, felt stronger and more energetic, and described himself on November 26 as "better in every way." The urine improved. The amount and specific gravity remained about the same. The casts diminished and disappeared on October 8, about one month after treatment was inaugurated. The albumen disappeared on November 11. The urea fell from 21.6 grams to about 13 grams in twenty-four hours on the reduced protein diet. These conditions remained essentially unchanged until early in January, 1913.

On January 14 a specimen of blood was taken for analysis. The result was essentially normal, the uric acid, nitrogenous waste, and urea being only very slightly above the upper normal figures. Professor Folin stated that this analysis was inconsistent with the results obtained in a large number of cases of nephritis, and raised a question as to the diagnosis. It seemed possible that the reduction of the protein intake might have reduced the amount of nitrogenous waste material to what the kidneys could eliminate, and that under these conditions a normal blood analysis would be consistent with the existence of nephritis. In order to test this idea, I increased the protein in his diet from 52 to 90 grams and asked him to continue at this diet for a month, unless he became decidedly worse. Inside of a week he telephoned to say that he did not want the full protein diet, that he found it difficult to force himself to take it, and that he was not feeling as well. I asked him to do the best he could for two weeks and then report.

On February 27 the blood was taken again for analysis. It was estimated that he had taken an average of 80 grams of protein for twenty days. The blood analysis was practically identical with the first examination. The amount of nitrogenous waste in the blood had not increased with an increased amount of protein in the food. The figures of the two analyses are as follows:—

	Uric Acid.	Nitrogenous Waste.	Urea Nitrogen.	Protein in Food.	Pressure. Blood-
Normal	1-2	24-26	12-13	90 grams	150
Jan. 14, 1913	2.3	30	15	52 grams	270
Feb. 27, 1913	2.2	28	16	80 grams	295

Besides suffering a return of his symptoms to a moderate degree, as a result of increasing the protein in his diet, the urine at this time, February 27, showed a return of albumen and casts after they had been absent in a number of examinations during the previous three months. The urea, which on February 7 was 13 grams on a diet containing 52 grams of protein, was now 18 grams, on an 80-gram diet. It was demonstrated that he did not do as well on a high protein diet. He was now allowed 70 grams of protein daily for a time. On this he felt better than when he tried to take 80 or 90 grams, but not as well as on the lower diet. He voluntarily cut below 70 grams in a short time and on March 28 he was again placed on a 52-gram diet. The blood analysis showed that the increase of symptoms was not due to retained waste products.

As he was feeling well again on his 52-gram diet, I had some difficulty in persuading him to submit to further tests. However, on May 2, I induced him to allow Dr. Reginald Fitz to try the phthalein test. The elimination of the dye-stuff was 14% for the first hour, when normally it should be 50%; and for two hours it was 28% instead of nearly 70%. This test indicated a marked impairment in the elimination by the kidneys, and confirmed the diagnosis of nephritis. In addition, Dr. Fitz found albuminuric retinitis with a slight hemorrhage, which further confirmed the diagnosis. He also found the systolic blood-pressure over 300.

A short time afterwards I persuaded the patient to go into the Peter Bent Brigham Hospital, so that the other tests of the renal functions could be made. The lactose test showed some impairment of the function of the glomeruli. Whereas in 5 or 6 hours at least 60% of the lactose should be excreted, only 50% was excreted in 7 hours. That this abnormality was of the type with hypersensitive vessels was shown by a polyuria when the amount of water was increased and a diuretic action by an increase in the amount of salt.

The tabular function of the kidneys was shown to be fairly good, because the concentration of the urine was somewhat increased when extra salt was given, notwithstanding the diuretic effects of the salt, and because iodide of potash was eliminated in a normal manner. The nitrogen elimination was somewhat below normal, but this had been shown not to result in nitrogen retention on a moderately high protein diet.

The results of these special examinations may be summed up as follows: The diagnosis of nephritis was definitely confirmed. It was shown that nitrogen and salt and water could be eliminated in fairly good quantities, and the danger of retention of these substances with resulting oedema and uraemia seemed remote. In this case the vascular changes seemed to predominate and the danger would consequently lie in overtaxing the circulation. For this reason, since nitrogen and salt both stimulated the hypersensitive blood vessels, these articles should be given sparingly. The cause of the high blood-pressure was not demonstrated. The whole case seemed to be one in which vascular disease predominated over the renal condition, and was more or less independent of the nephritis.

As far as treatment of this case is concerned this investigation merely gave additional reasons for continuing the low protein and low salt diet which had already been inaugurated. As far as diagnosis is concerned, while it confirmed the diagnosis of cardio-renal disease, it reversed the diagnosis as to the predominance of the two elements, the renal and the vascular. I had assumed from the history and the evidence that the kidney functions were so seriously impaired as to constitute the real source of danger. It proved, however, that the renal functions are fairly satisfactory and that the danger will lie rather with the failure of the circulation. This investigation also offered a better prognosis than I should have dared to promise without it.

During the past summer this patient lived a moderately active out-door life on the coast of Maine. He continued his 52 grams of protein in a salt-poor diet. He called to see me at the end of November. He looked in perfect health, and said he felt better than for years. However, his pulse was 92, his systolic blood-pressure was over 300 and the diastolic pressure 190, and the left border of his heart was 1 cm. farther to the left. So far he has had no medication except occasionally a grain or two of phenolphthalein to keep his bowels open. The present indications are to continue the same dietetic regulations, to avoid anything beyond moderate exertion, and later, if necessary, use cardiac tonics when the heart begins to fail.

As we accumulate more data, we shall undoubtedly divide our cases of chronic interstitial nephritis into at least two or three clinical types. A better insight into these cases should lead to better treatment and more benefit. Even advanced cases of Bright's Disease of the ordinary type, may be benefited. If we can regulate the diet so that the nitrogenous output is within the capacity of the kidneys and the patient still gets sufficient nutrition, many of these cases may live in comfort for years longer than we have been taught to expect.

In conclusion,—what practical deduction can we draw from the consideration of the problems presented by these cases.

Cases of nephritis do better on a low protein diet, which requires less functional activity on the part of the kidneys. The degree to which the protein should be cut down depends on the degree of impairment of the renal functions. A rough estimate can be made on the basis of allowing 90 grams of protein in the lightest cases and about 40 grams in the severe or advanced cases. Intermediate grades should have an amount of protein between these extremes, varying according to the severity of the disease. If the symptoms improve and the blood-pressure falls, the functional tests are not essential; otherwise valuable information may be obtained from them, even in the present stage of our knowledge. With the accumulation of more data, the inferences that may be drawn from these functional tests will be more and more valuable.

In cases with oedema, and also in the cases in which the blood-pressure remains high although the protein in the food is reduced, the amount of salt should be reduced.

As a result of further study, we shall undoubtedly divide our cases of chronic interstitial nephritis into at least two or three clinical types.

A better understanding of these cases and a more careful study of the problems of nephritis will lead to more intelligent treatment and resulting benefit to the patient. A proper regulation of the diet,—not forgetting to provide a sufficient amount of nutrition,—will enable many of these patients to live in comfort for years longer than we have been taught to expect.

THE IMPORTANCE OF DIAGNOSIS AND TREATMENT OF PRIMARY SYPHILIS.

By C. Morton Smith, M.D., Boston.

The treatment of syphilis of the central nervous system, tabes and general paralysis is receiving widespread attention at present both in the clinic and laboratory. Syphilis was not recognized as the etiological factor in tabes and paresis until recently. These conditions were classed as para-syphilitic affections, *i.e.* syphilitic in origin but not in character. Mercury and iodides had slight control over the progress of the disease in these cases, and with no exact knowledge of how these degenerative changes occurred, it was claimed they were due to toxines or by-products of the infection and corresponded with the nerve changes after diphtheria.

Noguchi's demonstration of spirochaetes in the brain tissue of paretics and the successful inoculation of rabbits with the spinal fluid of tabetics shows beyond a reasonable doubt that

we are dealing not with the action of toxines but the direct effect of the spirochaeta pallida. However, the fact remained in regard to the slight success of the old-time treatment.

Some tabetics responded to intravenous injections of salvarsan, but with many it was inefficient and paretics were not improved. Attention was called by Camp to the fact that arsenic was not found in the cerebro-spinal fluid in cases that had received salvarsan intravenously. This is said to be due to the selective activity of the choroid plexus, which allows only certain substances to pass from the blood stream into the ventricles. Flexner's work on meningitis suggested intraspinal injections, and Swift and Ellis devised their method of preparing and introducing salvarsanized serum. Following their lead, much careful work is being done along these lines and the results already obtained amply justify a continuation of this method of treatment as the process seems to be arrested or perhaps cured in some, while other cases are relieved of distressing symptoms.

The object of this article is to emphasize the importance of early diagnosis and prompt energetic treatment, for therein lies the reasonable hope of safeguarding the patient against these serious nerve lesions already mentioned.

During the comparatively short time that salvarsan has been in use a fairly definite method of application has been developed whereby it seems possible to sterilize the individual before the nervous system has been invaded. When energetic treatment with salvarsan and mercury is begun during the early primary stage the disease can be aborted in a large percentage, if not in all cases. If treatment is delayed until the secondary stage or later, it is still usually possible, but more difficult, to bring about the desired serologic change.

Syphilis may invade the central nervous system during the secondary stage and may or may not cause clinical symptoms. Hence, Bernstein advocates an early lumbar puncture in all cases of syphilis to determine the cell content of the spinal fluid, this being a more accurate guide to cerebro-spinal syphilis than the Wassermann reaction on blood serum or spinal fluid. He also favors a routine intraspinal injection of salvarsanized serum as a precautionary measure.

There is still need of an intimate clinical knowledge of syphilis although the diagnosis of a primary lesion no longer rests on clinical examination alone. Spirochaetes can often be demonstrated in primary sores only a few days old, either by the dark-field microscope, or in stained preparations. The latter is best suited for the general practitioner as no special apparatus is needed.

Many patients are exceedingly optimistic regarding their own possible primary lesion and lose valuable time before seeking advice, believing it to be only a "cold sore" or "chafe." Further time is also lost in some cases if we can believe the patient's statement that "the doctor said it was a soft sore and did not amount to anything," and later when a roseola appeared, explained that "it had backed up into the system."

In the out-patient department of a large hospital the writer has been surprised at the small number of patients with primary syphilis or questionable lesions seeking or sent for advice or treatment. Not only does the welfare of the patient call for an early diagnosis, but the safety of the public also demands prompt recognition and healing of primary sores. Many small epidemics have been traced to an unrecognized primary lesion of the finger, lip or elsewhere. Numerous instances of this sort are on record, one of the latest being Schamberg's report of practically a dozen cases of infection about the mouth traced to a young man with a primary lesion of the lip who attended a party where kissing games were played.

There is still the same old necessity for a positive diagnosis before beginning treatment, but with the means already mentioned it is often possible to make a definite statement at the first visit. Failing to find spirochaetes the Wassermann reaction usually becomes positive three or four weeks after the appearance of the sore.

It is also important that the treatment begun early should be continued until a serologic as well as symptomatic cure is obtained. The Wassermann test is of value to the clinician as a measure of treatment, as well as an aid to diagnosis. A weakly positive reaction in a known syphilitic, or where the reaction has been strongly positive is an indication for further treatment. In a case for diagnosis, lacking history and clinical evidence, a weak reaction should be disregarded.

The treatment of early syphilis should comprise three to six intravenous injections of salvarsan given at ten-day or two-week intervals and supplemented by mercury, preferably by intramuscular injection. The effect is determined by a Wassermann test six to eight weeks after treatment has been omitted. If the test is positive the course of injections should be repeated. When such treatment is begun in the primary or early secondary stage a permanent negative test should be possible in six to nine months in the majority of patients.

By early diagnosis and active treatment we can hope to accomplish the following:—

1. Abort the disease in a large number of cases.
2. Protect the family and community.
3. Prevent the probability of transmission of syphilis to the offspring, some of whom may become a burden to the state.
4. Lessen the possibility of the so-called neuro-recurrences.
5. Probably safeguard the individual against late nerve syphilis,
6. Thus diminishing the likelihood of their becoming useless members of society, if not state charges.

Clinical Department.

A CASE OF BONE CYST OF THE OS CALCIS.

By Wm. Pearce Coues, M.D., Boston.

Bone cysts other than those found in the long bones are of such uncommon occurrence that the report of the following case is of interest. In a cursory examination of the literature on this subject, I have been unable to find a similar case.

A. L. 14 years, was seen Sept. 5th 1913.

Past History. The mother and father are living and well; one brother died in infancy of gastroenteritis; one brother and two sisters are living. One of the sisters is of a nervous temperament, with much digestive trouble. The patient's past history is not important concerning this trouble.

Present Illness. There is trouble in the other heel, the right, since last May, when he fell directly on the heel while doing gymnasium work. This foot bothered him off and on since, with considerable aching at times. The pain especially noted after walking or running. Absolutely no symptoms from the left heel, the seat of the bone cyst.

Examination showed a well nourished boy. The right heel was painful to pressure over the epiphysis of the os calcis. There was no abnormal thickening made out. X-ray of this foot showed an old separation of the epiphysis of the os calcis.



Bone Cyst.
Left os calcis. Male, 14 years.

An x-ray of the left foot was taken for comparison. This picture showed a bone cyst of the body of the os calcis. The whole of the central portion of the body of the os calcis was involved, the thinning extending down apparently quite close to the plantar surface of the bone. Immediate intervention was not advised, but observation at short intervals with radiographs for comparison with the first picture, and operation, should the slightest symptoms arise, was urged. Some two months after this the patient was heard from. The trouble had given no symptoms up to that time.

Medical Progress.

A REVIEW OF THE PROGRESS IN PATHOLOGY FOR 1913.

By S. B. Wolbach, M.D., Boston,

Assistant Professor of Bacteriology, Harvard University Medical School.

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It is hardly to be expected that notable contributions in gross and microscopic pathological anatomy will be made each year, because of the highly developed state of our knowledge on these subjects. The bulk of the work done along these lines is too highly specialized to be of general interest. Some of the most notable contributions to pathological histology, which represent many years of investigation, have been made by Mallory, in his text-book, "Pathologic Histology." Of special note are his contributions to the histology of early syphilitic lesions, trichinella spiralis, the histology and classification of tumors, infectious lesions of the heart, blood vessels and kidneys and the pathology of the liver.

The contributions in the field of experimental pathology from America are perhaps more noteworthy than those from abroad where the corresponding type of work is done in closer connection with the clinic, and in the main is represented by diagnostic and metabolism experiments upon patients.

TUMORS.

A valuable contribution for those who deal practically with tumors is to be found in Mallory's text-book, "The Principles of Pathologic Histology." This book contains an admirably simple and adequate classification upon a histologic basis, and the different tumors are well illustrated and described with great clearness.

Rous and Lange (*Journal of Experimental Medicine*, Vol. 18, No. 6, p. 651) report the find-

ing of a third transplantable chicken tumor due to a filterable cause. This third tumor is a sarcoma having characteristic intracanalicular arrangement in relation to blood sinuses which accompany the growth. Like the other two chicken tumors described by Rous, a spindle cell sarcoma and an osteochondro-sarcoma, this one is due to an agent which will pass through Berkefeld filters.

Henke and Schwarz (*Deut. Med. Woch*, Vol. 40, No. 6, p. 67) claim to have transmitted a mouse carcinoma by injection of cell-free filtrates. The tumor was one propagated by them from a spontaneous mammary carcinoma of unusual virulence. The technic was to grind up the tumor in sterilized salt solution by means of sand. The emulsion was centrifugalized and filtered through ordinary filter paper. The filtrate is said by the authors to be cell-free.

Tyzzer (*Journal of Medical Research*, Vol. 28, No. 2, p. 309) has contributed some valuable experimental evidence concerning factors in the distribution and growth of tumor metastases. Tyzzer made use of the carcinoma of the Japanese Waltzing mouse, which was originally propagated by him from the spontaneous tumor discovered several years ago. In all, 157 inoculated animals were utilized and manipulated in various ways. He found that metastases may be artificially produced by the manipulation and massage of the implanted tumor, and that this is accomplished as readily during the early development of the tumor as in the later period in which metastasis naturally occurs. Incomplete operations involving the incision of implanted tumors do not increase the incidence of the metastases, but the metastases that result grow more rapidly if a large amount of the original tumor mass is removed. Radical operations involving removal of all the tumor, when performed just prior to the period in which metastasis commences, results in a temporary freedom from this complication, even though recurrence commonly occurs. The clinical inferences to be drawn from this work are obvious.

HODGKIN'S DISEASE.

Renewed interest in the etiology of this poorly defined disease is awakened by reports of the cultivation of a diphtheroid bacillus. The first account is by Negri and Mieremet (*Cent. f. Bak. Orig.*, Abt. 1, bd. 68, heft 3-4, p. 292) who cultivated from two cases, a bacillus having distinctive cultural and morphological characteristics. Their animal experiments on guinea pigs, rabbits, mice and monkeys did not give conclusive results, and for the greater part were negative. In the introduction to their paper, the authors call attention to the fact that Fraenkel and Much found bacilli, morphologically similar, in cases of Hodgkin's disease, by the antiformin sedimentation method. Eleven cases which were proved not to be tuberculosis yielded the diphtheroid bacillus. A number of other observers confirmed this work before the time of publication by Negri and Mieremet. The authors believe their cultures to be identical with the bacilli found by Fraenkel and Much.

In this country, apparently stimulated by the work of Fraenkel and Much, and independently of Negri and Mierement, Bunting and Yates (*Arch. of Internal Medicine*, Vol. 12, No. 2, p. 236) report the cultivation of the diphtheroid organism from three cases of Hodgkin's disease. In later publications (*Journal American Medical Association*, Vol. lxi, No. 20, p. 1803, and Vol. lxii, No. 7, p. 516) they report inoculation experiments in five monkeys which reacted in a manner suggestive of Hodgkin's disease. The authors lay stress on the fact that the blood picture in these monkeys was similar to that which is found in man in the early stages of the disease.

Billings and Rosenow (*Journal of the American Medical Association*, Vol. lxi, No. 24, p. 2122) report the cultivation of the same bacillus in twelve cases. No animal experiments are recorded. The cultures were utilized for vaccine treatment of the disease with results suggestive of improvement.

Steele (BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. clxx, No. 4, p. 123) reports the finding of the same bacillus from a case of Hodgkin's disease, and from a case of lymphatic leukemia.

It is difficult to appraise the importance of these papers. They are certainly highly suggestive that the commonest form of chronic glandular enlargement known as Hodgkin's disease is infectious and due to a bacillus closely related to the diphtheria bacillus on the one hand and the tubercle bacillus on the other. The animal experiments so far recorded cannot be taken as conclusive; they are merely suggestive and the lesions obtained are such as would result from an extremely attenuated tubercle bacillus or even by attenuated pyogenic bacteria. It is true that the lymph nodes draining the regions inoculated show chronic inflammatory changes and necrosis, but it must be remembered that the inoculations were repeated several times in the same animal. The metastases of the lungs, liver, heart and pancreas were in the nature of abscesses and did not simulate the metastatic lesions in man.

In this connection one must also take into account that diphtheroid bacilli are frequently encountered in human tissues. The most notable instance is in leprosy, where they have frequently been encountered in all parts of the world (Wolbach and Honeij, *Journal of Medical Research*, Vol. xxix, No. 3. p. 367). These observations will undoubtedly stimulate research regarding the occurrence of bacilli in normal and diseased tissues, other than Hodgkin's disease. In the absence of a perfectly characteristic reaction in animals, proof depends on indirect methods, such as the obtaining of

characteristic immune reactions and statistical studies.

COMMUNICABLE DISEASES.

Non-Infectious Tick Bite Disease. Todd in 1912 (*Canadian Medical Association Journal*, Vol. ii, No. 8 and No. 12) calls attention to a peculiar disease of children associated with the bites of ticks. The tick is the same one that transmits spotted fever in Montana. The symptoms are those of an acute ascending paralysis. Recovery takes place after removal of the ticks.

Bishop and King (*Journal of Economic Entomology*, Vol. vi, No. 2) in a study of the spotted fever tick record nine cases of paralysis in which the symptoms subsided rapidly after the removal of the ticks. They know similar cases reported from Wyoming.

Eaton (*Australasian Medical Gazette*, Vol. xxxiii, No. 17) reports the case of a child with temperature and paralysis of the legs and thighs, who recovered rapidly after the removal of a tick which was attached over the right scapula. He quotes other similar cases noted by Cleland in Australia.

It is hardly possible that a disease of this nature could be caused by an infectious agent, but coming from such widely different sources, it is not possible to doubt the accuracy of the observations, and we must accept the fact of a new disease, caused by bites of ticks, and probably dependent upon the injection of toxic substances.

Verruga Peruviana, Oroya Fever, Uta, Strong, Tyzzer, Brues, Sellards and Gastiaburu (*Journal of the American Medical Association*, Vol. 61, No. 19) give a preliminary report of the first expedition to South America from the Department of Tropical Medicine of Harvard University. They have shown that verruga peruviana and oroya fever are separate diseases, contrary to the generally accepted idea that the latter is an acute stage of the former. They accept as a cause of the diseases bodies found in the red blood corpuscles, originally described by Barton, Gastiaburu and Nicolle. The nature of these bodies has been disputed but Strong, Tyzzer and their associates have definitely decided that they are parasitic in nature and have created a new genus, Bartonia, for these parasites. The authors have succeeded in transmitting verruga peruviana to animals,—monkeys, dogs and rabbits. An inoculation experiment done on a volunteer produced only local papules. There was no fever, no eruption and no blood changes, such as occur in oroya fever.

Uta is a disease known from prehistoric times in Peru and is a destructive granulomatous process involving the face. The members of the expedition have found the parasite of this disease, which is a leishmania.

(*To be continued.*)

RECENT PROGRESS IN GENITO-URINARY SURGERY.

By Francis S. Watson, M.D., Boston,

and

Paul Thorndike, M.D., Boston.

KIDNEY.

Infantile Kidney. Geraghty and Plaggemeyer.[1] Three thousand, nine hundred and forty autopsies at the Johns Hopkins Hospital show three cases of the above type where a large hypertrophied kidney existed on one side and a small so-called infantile kidney on the other side.

CONCLUSIONS.

The diagnostic points in determining the presence of a kidney of the type presented above, may be summed up briefly as follows:

1. When disease is present in the larger, hypertrophied kidney, the total function, as estimated by phenolsulphonephthalein, is decreased, and the function of the diseased kidney is usually greater than the function of the supposed healthy kidney.

2. The function of the infantile kidney shows marked decrease, although the urea percentage and general character of the urine is normal, while the amount of urine secreted is relatively small.

3. Pyelography is of doubtful value, since the size of the kidney pelvis is usually not a reliable index of the size of the kidney.

4. In persons not too stout it may be possible to secure Roentgen-ray shadows, showing the presence of a diminutive kidney.

In Case 7 considerable diagnostic help was obtained from the Roentgen ray, which showed a very small kidney shadow, less than half that of the opposite side. This, taken in conjunction with the functional findings and the character of the urine, was of considerable diagnostic aid.

In conclusion, it may be emphasized that kidneys of the infantile type are a menace to the surgeon if the opposite kidney is the seat of the disease. The character of the urine may be normal in appearance and the urea concentration or percentage may be high. The recognition of this anomaly may be extremely difficult, and its presence can be suspected only when function estimations are carried out.

Tests of Renal Function. The Blood-kidney Index in Kidney Disease. Bromberg[2] says that the chlorides in the blood and in the urine afford a most valuable means of estimating renal function. He says that normal concentration in the blood is just half that in the urine, and he calls this ratio of 1 to 2 the hemo-renal index. He claims that a change in this index points to trouble sooner than any other sign, and that as

soon as this ratio becomes less than 1 to 2, some serious disturbance should be looked for. If the ratio becomes less than 1 to 1.5, operation of any sort is contraindicated. The author has made a small electric apparatus by which he computes easily the amount of chlorides in the blood and urine by comparing their electric conductivity. This apparatus is illustrated and described. It requires only a few drops of blood and of urine for the performance of the test.

Fluorescin Test. Strauss, in thirty cases, found that if one gram of fluorescein-sodium be given by mouth, a fluorescent urine was passed in from ten to twenty minutes, and that this fluorescence disappeared after thirty-five to forty hours. He thinks these facts may be made the basis of a valuable renal test which will be extensively used because the drug is taken by mouth instead of under the skin, and the technic is so much simpler than that of the tests now commonly in use.

Chromo-ureteroscopy. Thomas[4] believes that chrono-ureteroscopy, based on the employment of indigocarmin, is the most valuable single test for renal sufficiency or insufficiency that we possess, because it is the most practical, affording the same diagnostic advantages as the functional tests dependent on bilateral synchronous ureteral catheterization, the technic and determination of which are tedious, complicated and consume much more time. Comparative observations of the onset and intensity of the color elimination have never failed to determine the functional sufficiency of the supposedly normal twin organ in view of operative intervention. It is of no value in movable kidney, in the presence of ureteral kink or hydronephrosis, pyelitis, essential hematuria, or early tuberculosis. It is of value in the differential diagnosis of hemorrhage and chronic interstitial nephritis from other types of the disease.

URETERO-VESICAL VALVE.

Braasch[5] discusses the advisability of cutting the uretero-vesical orifice either through a suprapubic incision or through an operative cystoscope for the purpose of removing the stones from the lower end of the ureter. He reiterates the fact that this uretero-vesical valve exerts, under certain conditions, a check-valve action which, however, is of questionable value in preventing a reflux of urine from the bladder. He reports his own experiments and concludes as follows:

"Tentatively we conclude that in experienced hands there is little or no danger in human beings from the operation of meatotomy through the operative cystoscope, either as regards immediate hemorrhage or sepsis, or as regards late results from injury to the kidney.

"The protection from reflux is affected at least as much by physiological function of the ureter as by the check-valve action at the meatus. These together, rather than the uretero-vesical valve alone, constitute the 'factor of safety' which prevents reflux.

"The ureter alone, almost without exception, sufficed experimentally to prevent reflux, even if the uretero-vesical valve had been destroyed. Section of the valve appeared to leave the protective ureteric function intact.

"The above data would confirm the opinion expressed by others that renal infections are seldom if ever ascending, but rather hematogenous in origin."

Intra-dural Route, Anastomosis, for the Relief of Paralysis of the Bladder. Frazier and Mills.[6] The authors describe in detail a remarkable operation of nerve-root crossing by which an anastomosis between the first lumbar and the third and fourth sacral nerves was accomplished. They claim that such a procedure has a place in surgery, especially in the paralyses of the bladder and rectum following trauma, and they conclude their admirable paper in part as follows:

"If this new plan of procedure had no other application than for the relief of the vesical palsy it would still have a wide and important field. That it is based on a reasonable hypothesis has been proved by experimental observations on the lower animals; that it is a justifiable risk no one will gainsay; that it gives promise of attaining its object has been demonstrated by the fact that our patient has already gained some control of the bladder."

PROSTATE.

Radium in the Treatment of Prostatic Cancer. Pasteau and Degrais.[7] At the present time, when surgery offers so little relief for prostatic cancer and when radium is being hailed as cancer's most powerful enemy, this article is of interest. The authors have used radium on fifteen patients, among whom were two physicians. The radium was introduced into the full bladder by means of a narrow tube, which is described. It is left in place three or four hours, and six exposures are made at intervals of three to six days. Similar exposures may be made through the rectum or through an incision in the perineum or into the bladder from above, as well as through the ureter. Improvement is claimed in every one of the fifteen cases.

A New "Punch Operation" for Small Prostatic Bars and for Contractures of the Prostatic Orifice. Young[8] describes an instrument for punching out pieces of tissue for the relief of obstruction due to small prostatic bars or to contractures or lobules not associated with lateral hypertrophy of the prostate. He says that in such cases the operation is radical, does not have to be repeated, does not require subsequent urethral dilation and does give lasting cures.

The Human Prostate Gland at Birth. Lowsley[9] spent many months studying serial cross sections of the prostate of a baby. The results of his work are embodied in a wax model which maintains exactly the normal relations of the

structures studied, and which demonstrated admirably certain facts of real surgical value. For example, two large lobules in the outermost portion of the lateral prostatic globes send branches in a direction away from the bladder. All other lobules extend towards the bladder. In most successful enucleations the two forward branches are found extremely adherent and must be cut across. Again, he shows how cancer and hypertrophy may exist together and how the hypertrophied lobe may be so distinctly capsulated as to resist the invasion of cancer and so oblige it to travel in other directions. This is a most interesting and instructive paper of great value.

TESTICLE.

Paths of Infection in Genito-urinary Tuberculosis. Walker [10] offers evidence (clinical, pathological and experimental) which he thinks goes to show that tuberculosis infection of the testis takes place by extension down the cord and not through the blood stream. He does not deny that the latter form of infection may exist, but says it is rare. The evidence he quotes as follows:

"Clinical evidence: 1. It is extremely rare to find tubercle of the epididymis without discovering some indication of disease of the prostate or the vesicles. 2. Prostatic tubercle is not infrequently found without any lesion of the testicle. 3. The appearance of a tuberculous epididymitis is often preceded by symptoms of prostatitis or vesiculitis—the so-called prodomata of tuberculous epididymitis. 4. The earliest signs of tuberculous disease are found at the lower pole of the epididymis. This is the first position which opposes the line of march of the invading organisms. 5. Tuberculous disease of the testicle is analogous to acute infections which are known to have been produced by extension from the urethra. The ordinary type of tuberculous epididymitis has no analogy to the hematogenous orchitis of mumps. Pathological evidence: 1. Lesions of the testicle without disease of the prostate are rare whereas tuberculous lesions of the prostate are not infrequently found unaccompanied by disease of the testicle. 2. When tubercle of the testicle is found in association with tubercle of the prostate, the lesions in the prostate generally have the appearance of being older than the lesions in the epididymis. 3. Tuberculous nodules in the lower pole of the epididymis usually appear older than those in the upper pole. They are the first to soften and break down. Experimental evidence: 1. Microorganisms and inanimate granules are rapidly absorbed from the urethra and carried to the testicle. 2. A tuberculous epididymitis may be experimentally obtained by inoculating the urethra, after having damaged one of the testicles." This work is recorded because it is so at variance with commonly accepted beliefs.

Transplantation of the Testicle. Lespinasse.[11] The author reports a most remarkable case in which slices of a recently removed healthy testis were transplanted between fibres of the rectus muscle and also into the scrotum of a man who had lost both testicles and was impotent. "On the fourth day after the operation, patient had a strong erection accompanied by marked sexual desire. The man has, since the operation, regained his sexual powers completely, both as to desire and as to ability. Furthermore, these powers have remained present for two years." A description of the technic of the operation follows

"A man, aged 38, consulted me in January, 1911, to find out if anything could be done for the loss of both testicles. One testicle which had been retained was removed during a hernia operation; the other had been lost by an accident about two years previous to his consultation with me. He was unable to have intercourse, which was his chief reason for coming to me.

"A testicle from a normal man was easily obtained. In fact, I was surprised at the number of testicles that are available for transplantation purposes.

"The two patients were anesthetized at the same time, and the recipient prepared as follows: The scrotum was opened high up and a bed prepared in the same way as we prepare the bed for the reception of an undescended testicle. Hemostasis was carried out with great care. Another incision was made over the rectus abdominalis muscle; this incision was carried down through the skin and fascia. The fibres of the rectus muscle were exposed and these fibres separated by opening an artery and forceps plunged into the muscle. Hemostasis was carried out and then the testicle to be transplanted was removed. It was immediately stripped of the epididymis, cord and tunica vaginalis, and then sliced transversely to its long axis, these slices being approximately 1 mm. in thickness. The central slice and the one next to it were taken out and placed among the fibres of the rectus muscle. Another slice was placed in the scrotum. The wounds were closed without drainage and healed by first intention throughout."

SEMINAL VESICLE.

Belfield.[12] In these two short articles, illustrated by radiographs, the author describes the technic by which collargol or some equivalent metallic compound may be injected into the vas deferens and so up into the seminal vesicle through a small scrotal incision opening into the vas just above the testis. The incomplete work Belfield had done has already demonstrated several important facts, namely, the existence of a peristalsis of the ampulla and vesicle into the prostatic urethra and sphincteric closure of the ampulla and vesicle; the occasional blockade of the ejaculatory duct," converting the vas and vesicle into a retention cyst."

GONOCOCCUS.

Gonococcus Vaccines and Glycerine Extracts of the Gonococcus in the Diagnosis of Gonorrheal Infections. G. C. Shattuck and W. S. Whittemore.[13] Persons suffering from infectious diseases often demonstrate certain changes in the blood serum. These changes are believed to be responsible for certain reactions, like that of tuberculin, and a few investigators believe they have found in the serum of gonorrheal persons changes which they believe to indicate a specific reaction for gonorrhea. The authors of this valuable article hoped to find "a reliable method of diagnosis for gonorrhea by means of a specific reaction." Their conclusions follow:—

"*a.* From published work of others referred to above:—

"1. Reactions thus far observed after injections of gonococcus vaccine have not been clearly specific for gonorrheal infection.

"2. The reactions seem to show a selective action in some types of gonorrheal disease.

"3. Local reactions after injections are common in non-gonorrheal cases. They are not valuable for the diagnosis of gonorrhea or for demonstration of its cure.

"4. Focal reactions are seen frequently in active gonorrheal arthritis and salpingitis; but, whereas they have been observed in cases showing no other evidence of gonorrhea, their diagnostic value is small.

"5. A general reaction is seldom noticeable, and it may be easily simulated by slight symptoms due to other causes. It has *per se*, no diagnostic value.

"6. Gonococcus vaccine autolyses rapidly, and thus undergoes changes little known.

"*b.* From writers' work:—

"1. The concentrated vaccine used by the writers showed no superiority for diagnostic tests.

"2. It produced in gonorrheal and in control cases a local lesion like that of a chemical irritant. We think that autolysis may have been a factor in producing the supposedly irritating properties of our vaccine; that the changes in the vaccine may have prevented it from producing a specific reaction; and that the unsatisfactory therapeutic effects of gonococcus vaccine may, perhaps, be traceable to autolysis.

"4. Glycerine extracts of the gonococcus inoculated by the method of von Pirquet caused, in a few cases, the formation of peculiar papules which may have represented a specific reaction. Most of the cases showed no definite reaction.

"5. Although our tests were negative in the main, and although the work of others using similar methods has yielded unsatisfactory results for diagnosis, we desire to emphasize our belief that failures serve as guideposts to progress, and that present knowledge justifies the hope that a valuable diagnostic test for gonorrheal infection may yet be devised through improved methods of preparing vaccines or extracts of the gonococcus.

"It is with great pleasure that we express our thanks and obligation to Dr. Albert E. Steele for preparing the vaccines and the extracts which we used, and to Dr. Hugh Cabot, as well as to many other members of the staff of the Massachusetts General Hospital, for the opportunity to study their patients."

An Easy Method for the Cultivation of the Gonococcus. G. F. Clark, U. S. N.[14] Clark uses Thalmann's medium and human blood serum. His technic follows: "Five hundred grams of lean, finely minced beef are placed in 1000 c.c. of distilled water and allowed to stand over night in an ice box. It is then filtered and the filtrate made up to 1000 c.c. with distilled water. To 100 c.c. of the beef juice add 1½ grams of agar and boil for fifteen minutes. Then add 2 grams of glucose and bring the reaction to plus 0.6 by addition of NaOH. Tube, sterilize, slant and incubate over night. No peptone or salt is required. To each tube of the medium add 4 to 5 drops of fresh, sterile human blood-serum. After washing the glans penis with alcohol and wiping off any secretion at the meatus, a drop or two of the pus is expressed from the meatus and inoculated on the medium. It is best to incline the test-tube prior to inoculation, so that the serum will flow over the entire surface. The pus should be evenly spread. In sixteen hours the colonies of gonococci can be readily seen as small white points. Toward the bottom of the tube the colonies are larger, sometimes almost as large as staphylococci when grown in ordinary mediums."

Complement Fixation Test. Schwartz and McNeil.[15] The authors state their belief that the complement fixation test is simpler than that of isolation of the germ in culture and they think the possibilities of error are less. They detail the following figures:—

A positive reaction in 31.4% of cases, clinically post-gonorrheal; a positive reaction in 54.8% of 62 patients, infected within 3 years; a positive reaction in 13.2% of 165 patients, clinically cured after three months.

EXCRETION OF FORMALDEHYDE.

An Experimental Study of the Antiseptic Value in the Urine of the Internal Use of Hexamethylenamin. Hinman.[16] "Hinman finds that hexamethylenamin is easily converted into formaldehyde in an acid medium but not in an alkaline one. The amount of excretion in the urine is influenced by the size and frequency of the dose and the changes that occur in the acid contents of the stomach. Disease of the kidney has no influence on the formaldehyde content of the urine. Doses smaller than fifteen grains three times a day cannot be expected to produce much antiseptic action.

Excretion of Formalin in the Urine and Inquiry into the Accuracy of Burnam's Test.

Smith.[37] In our last report, published in this JOURNAL (January 2, 1913) mention is made of the work of Burnam and L'Esperance. In the paper under consideration Smith discusses Burnam's work, and from a study of 213 specimens of urine obtained from fifty persons, draws the following conclusions:—

"1. Burnam's test for formaldehyde in urine is definitely positive when this substance is present in the strength of 1 part in 40,000 or more.

"2. The urine should be examined as soon as possible after it has been voided. A negative test at one time does not prove that formaldehyde is never liberated.

"3. From the evidence at hand, we believe that formaldehyde is liberated from the hexamethylenamin by the acids of the urine, not by a specific function of the renal epithelium.

"4. This process may take place in the kidney, but is continued in the bladder.

"5. Litmus paper, as an indicator of the true acidity of the urine, was unreliable in about 25% of the cases examined.

"6. The degree of acidity of urine, as measured in terms of its hydrogen ion concentration, showed in our cases a constant relation to its power to set free formaldehyde. The higher the acidity, the greater was this power.

"7. The requisite amount of acidity, which is not great, is present in the majority of normal urines, and can be secured in almost all cases by the use of boric acid or sodium acid phosphate.

"8. The writer disagrees with the statements of Burnam and L'Esperance that only 50 to 60% of individuals break up urotropin. Examination of 213 specimens from 50 individuals showed that only in the urine of one case was formaldehyde never found."

VALUE OF NEPHRECTOMY IN CASES OF UNILATERAL RENAL TUBERCULOSIS.

By Dr. J. Z. Barrie, of Lyons, France, 1912. (A Rey, 4 Rue Gentil, Lyons.)

This very thorough and interesting monograph rests for its material upon a number of patients selected from the clinical records of one of the most careful analyzers of clinical material in France, Dr. Rafin, which embraces a considerable number of patients whose records are complete both as to the conditions preceding operation and to the late results of the nephrectomies.

The reporter of these observations precedes them by saying that the diagnosis of unilateral renal tuberculosis was most carefully tested before operation and also afterward, and divides the work that he details for the further aspects of the cases as follows:—

What is the duration of renal tuberculosis when no operation is done?

Then the question of spontaneous cure of renal tuberculosis is considered in the light of hitherto published evidence. In a third chapter the question is considered, "Does the disease in one kidney threaten involvement of its fellow organ?" And in connection with this question the results of the study of the immediate and late results of nephrectomy in cases of unilateral renal tuberculosis are considered.

Finally, the comparison of the advantages gained by the removal of the focus of tuberculous disease is made with the disadvantages of leaving such a focus undisturbed by surgical intervention. In 91 cases observed and whose histories until death were known, death took place at the following times after the beginning of the malady in the cases in which no operations were done.

In the first year death occurred in 19.
In the second year death occurred in 10.
In the third year death occurred in 15.
In the fourth year death occurred in 8.
In the fifth year death occurred in 7.
In the sixth year death occurred in 13.
In the seventh year death occurred in 6.
In the eighth year death occurred in 5.
In the ninth year death occurred in 2.
In the tenth year death occurred in 1.

From the tenth year to the sixteenth year there were 5 deaths.

Of the surviving patients there were 77.

Of these, 18 had had the disease for 1 year to 2 years; 19 had had the disease from 3 years to 5 years; 28 had had the disease from 6 to 10 years; and 12 for more than 10 years.

The average time of death in the cases in which the patients had died was four years and six months, and the average time of life reported in the cases in which the patients were still alive was 4 years and 9 months.

The cases are further analyzed with regard to duration of life or occurrence of death in women as compared with men and also according to the ages of the patients attacked.

The first of these analyses indicates that death comes later in the cases of women than of men.

In considering the question of spontaneous cure of renal tuberculosis, he examines the cases from two points, these are the conditions found at autopsies and carefully established clinical observations.

Data are given of cretaceous areas surrounded by fibrous capsules in the kidneys, which have been interpreted as being tuberculous processes, either healed or en route to become so in some instances, while in other cases kidneys have been found with areas of cicatricial tissue which have been variously interpreted, but concerning which there is lacking definite proof of their being end results of a tuberculous process. The general consensus of opinion is that a completely healed tuberculous process, if it occurs at all in the kidney, is of very rare occurrence, and many authorities deny the existence of such a condition.

The clinical facts are almost as rare as are those which point to the possibility of a spontaneous cure in cases of renal tuberculosis. One

instance reported by Wildbolz seems to be pretty well established and by all the known tests by which the presence or absence of the malady can be discovered.

He calls attention to the deceptive condition that may be presented in the cases in which the kidney has the ureter closed and undergoes caseous atrophy under a tuberculous process, and in which cases cured may be absolutely simulated and yet the process still be present in the shut-off kidney.

Barrie then takes up the question of the effect or the transmission of the malady from one kidney to the other. He gives statistics which seem to show that in cases in which one kidney is infected the disease is transmitted to the opposite organ in a considerable number, rather than from some extra-renal focus, and calls attention to three series of facts which indicate the involvement of the second from the first kidney infected.

Israel reports, for instance, that in the series of cases published by him there were more cases of bilateral renal tuberculosis in which the infection was confined to the kidneys than there were, or those in which there was an extra renal focus of the disease,—this in bilateral cases.

If this fact be true it would point to the greater frequency of the transmission of the infection from one kidney to its fellow than to the second kidney from any extra renal focus.

The second fact cited is that when one kidney is removed there is a decidedly lesser chance that the second one will be infected than when the two organs are allowed to remain.

In considering the question of cure in unilateral cases by means of nephrectomy the number of cases in which cure can be definitely established is as 32.0% of the whole number operated.

In five of these cases the cure has been demonstrated by testing the patients more than eight years after operation. In 32 cases the cure is established and endures from five to eight years.

Later in the report the influence of nephrectomy upon the bladder in unilateral cases is given.

Of 52 cases in which careful observations were made there were 5 in which no benefit was derived on the part of the bladder from the nephrectomy; in 43 there was a return to the normal subjective condition of the bladder promptly; in 9 it occurred slowly. With regard to the condition of the urine following nephrectomy the following statements are made:

In 35 of the cases the urine became and remained perfectly clear after the operation; in 8 others it did not.

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Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY.

MEETING OF THE MEDICAL SECTION JANUARY 21, 1914, AT THE BOSTON MEDICAL LIBRARY.

L. H. SPOONER, M.D., SECRETARY.

Dr. Horace D. Arnold read a paper entitled,

SOME PROBLEMS IN NEPHRITIS.*

DISCUSSION.

DR. H. A. CHRISTIAN: We are indebted to Dr. Arnold for his presentation of this important subject, presented largely by means of the review of a few very carefully studied cases, some observed for a long time. I would like to emphasize at this time the importance of such observations on the part of practitioners. Chronic nephritis is a common disease, so all have the opportunity of observing it. It is a disease of long duration, consequently the practitioner has a distinct advantage over the hospital physician in its study. Being a disease of long duration, it is the private patient, who is followed year in and year out by the general practitioner, and not the hospital patient, who comes for a brief time and is frequently then lost sight of, who furnishes the best opportunity for study. Furthermore, it is important that the patient under investigation should be intelligent and well to do, because intelligent coöperation on the part of the patient is necessary and because it is only among the well to do that the opportunity is afforded for continued use of special diets. So the well-to-do individual of intelligence observed for a long time is almost a requisite for such a study. At this time I wish to emphasize the very great importance to all of us of following these patients through the course of their disease, and when they die, of securing autopsies in order to know the exact condition in the kidney about which the physician has been speculating over a period often of years. Only a very few carefully observed cases of this nature have been recorded with autopsy findings.

Dr. Arnold has presented to you an hypothesis as to the etiology of nephritis and as to the cause of hypertension in chronic nephritis. I am quite sure that he has presented this as an hypothesis to serve as a guide to investigation rather than as a demonstrated fact. Such an hypothesis is of value, because if observation proves it to be correct we thereby have secured information as to definite facts. If observation proves it incorrect, it has helped because it has led to a study which has in the end provided us with facts, notwithstanding these facts

* See page 601.

may be contrary to the hypothesis with which we started.

Personally I do not feel that there is any necessarily close relation between high protein intake and hypertension. In the hospital, looking over the records of blood-pressure, I repeatedly see in some cases the blood-pressure fall, in others rise, when all of the patients are essentially under the same conditions of rest in bed, and diet, have, so far as we can make out, essentially the same pathological condition. These changes in blood-pressure take place without our being able to assign any definite cause. Furthermore, I have not infrequently observed the blood-pressure to fall while the non-proteid nitrogen of the blood rose. Recently we had under observation a case in which the blood-pressure was 240 millimeters of mercury with 96 milligrams of non-proteid nitrogen per 100 c.c. of blood. As the non-proteid nitrogen in the blood rose to 129 milligrams, the blood-pressure fell to 220, and when it further rose to 330 and 347 milligrams, the blood-pressure had fallen to 180. Furthermore, we not infrequently see very high blood-pressures without any evidence of the accumulation of non-proteid nitrogen in the blood.

Studying the ability of the kidney to excrete various substances, we find in some cases with high blood-pressure and with evidences of chronic nephritis that the individual is able to excrete nitrogen well and salt poorly. Other cases are able to excrete salt well and nitrogen poorly. Still other cases excrete both salt and nitrogen well, while a fourth group excrete neither salt nor nitrogen well. All of these cases have hypertension. Whatever the cause of the hypertension, it would seem that there are different types of cases on this group. It might be very helpful in getting at a proper dietary treatment for such cases to know these facts in advance and to model a diet in accordance with such observations. In the hospital quite easily such determinations can be made in relatively short time. Then a diet can be planned, but that diet must be continued for a long time before any definite conclusions can be drawn from its use. In this sense it would seem necessary that both the hospital physician and the general practitioner should share in the investigation and each would have a very definite part in the study.

Dr. R. Fitz: Dr. Arnold has described striking results in the dietetic treatment of chronic nephritis. But to make any form of treatment most efficacious, a positive and accurate diagnosis of the existing lesion must be made as early as possible. Dr. Folin has pointed out that the different parts of the kidney have selective excretory functions, and Dr. Arnold has outlined tests which may be made to study various renal excretions. The basis for these tests is experimental and theoretical, and the interpretation of the results obtained has not been controlled in a sufficiently large number of cases to establish their significance from an anatomical-pathological point of view. But enough clinical evidence has accumulated to prove that their use is of real worth in the early diagnosis of kidney disease.

Every clinician is familiar with patients who consult him for indefinite cardio-vascular symptoms. Physical examination shows a slight cardiac hypertrophy. The blood-pressure may be increased. The urine is normal by ordinary tests. In this class of cases it is essential to discover the existence of a nephritis. It is in this group of cases that the more delicate tests for renal function are of greatest importance.

In such patients the phthalein test is usually normal, while the rest-nitrogen of the blood does not afford positive information of a renal lesion, since it has not accumulated. But the excretion of lactose, nitrogen, salt, water and iodide may definitely prove or exclude abnormal function on the part of the kidney, and if observed repeatedly, makes it possible to follow the progression of the disease before there are any outspoken clinical signs of its existence. Thus it must be emphasized that the finer tests for renal function are valuable in the diagnosis and prognosis of kidney disease as well as in serving as a guide to rational dietetic treatment.

Dr. Otto Folin: From an extended series of observations made on patients at the Long Island Hospital we believe that there is no tangible relationship between the blood-pressure and the accumulation of nitrogenous waste products in the blood in nephritis. The accumulation of such waste products can be modified, increased or diminished within very wide limits by the use of high and low nitrogen diets, but we have failed to find corresponding variations in the blood-pressure.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting of Wednesday, February 4, 1914, 8 P.M.

The President, Dr. James C. Wilson, in the chair.

Dr. William S. Newcomet read a paper on,

ONE HUNDRED CASES OF MALIGNANT DISEASE TREATED WITH RADIUM.

DISCUSSION.

Dr. Edward A. Shumway: The last patient shown by Dr. Newcomet has been under my observation since 1900, when I operated upon him for convergent squint. The results of the operation were excellent and he was comfortable until 1911 when he developed severe headache associated with vomiting and staggering toward the left side. In March, 1912, Dr. Frazier operated, evacuating and removing the wall of a cyst the size of a walnut found on the upper surface of the left cerebellum. The symptoms were entirely relieved but there was a recurrence of symptoms in the spring of 1913. In September Dr. Frazier did a second operation and found a solid growth in the cerebellum on the left side which proved to be a glioma. The case was considered inoperable, but upon the father demanding that something be done, the boy was referred to Dr. Newcomet. The result as seen now is gratifying. It is possible that the improved condition of the optic nerve head may be the result of the second operation, which, however, did not improve the general symptoms. Whether the improvement be temporary remains to be seen. The case, however, is well worthy of report.

Dr. Charles H. Frazier: It is evident from the reports of Dr. Shumway and Dr. Newcomet that the application of radium has had a very positive influ-

ence upon the growth. We have had several cases, however, in which improvement following a simple decompressive operation in conditions precisely similar to this case, has continued over a period of at least three years. Regarding the use of radium in tumors of the brain Dr. Robert Abbe of New York and I have discussed the feasibility of using radium directly at the time of operation, not only in brain tumors generally, but possibly in lesions of the pituitary body, and we have under observation two cases in which such procedure may be employed.

DR. GEORGE L. DE SCHWEINITZ: It seems to me that there is a certain use which radium has, even if it is unable to check the progress of a growth, namely, the alleviation of pain. We may not always hope to remove the growth, but even if there is a relief of pain, the application of radium is abundantly justified. Of its value in deep-seated growths I can express no opinion, because I have not had any personal experience. Dr. Newcomet is to be congratulated on the conservative attitude which he has assumed.

DR. JAY F. SCHAMBERG: Dr. Newcomet should be congratulated upon the encouraging results shown in the patients exhibited. Likewise he should be commended for his conservatism. I feel that we ought to maintain a feeling of hopeful expectancy regarding the results of radium treatment. We are in an experimental period. The most hopeful cases Dr. Newcomet shows are those of pronounced influence upon metastatic lesions in the lymphatic channels. It is fortunate that we have had presented this evening a paper which differs in tone from the extravagant utterances which have appeared in the public press within recent months.

DR. M. B. HARTZELL: Dr. Newcomet is to be congratulated upon his rational conservatism. The most we can say about radium is that it is a hopeful remedy, and that, when we have learned more about it, perhaps we shall discover that we have a remedy for a certain class of malignant growths.

DR. ALFRED GORDON: It would be one of the greatest acquisitions in medicine if radium could be applied to tumors of the brain. When Dr. Abbe came a short time ago before the College it occurred to me to ask him why this agent should not be tried in tumors of the brain, which are practically all hopeless cases. He seemed somewhat surprised by this question and said he would make an effort to make such application of this agent. Literature gives instances of the successful use of radium in some neurological conditions, such as obstinate cases of sciatica. It has also been employed in syringomyelia and in progressive muscular atrophy.

DR. A. B. HIRSH: In view of the expensive charges being made for the radium emanation bearing waters for internal administration, it should be remembered that the Department of Agriculture at Washington has issued a caution that these waters lose their medicinal effect within a few hours after leaving the source of supply.

DR. JOHN A. MCGLINN: I have had no experience with radium, except one case which I sent to Dr. Newcomet. It seems to me that in these cases of inoperable cancer of the cervix radium has its greatest field, if results equal those in the case shown tonight.

DR. NEWCOMET, closing: With reference to the direct application to the brain case referred to by Dr. Frazier, it seems hardly necessary to open the head to make these applications with the radium, as the "crossfire" should answer and give us as perfect result. The case presented tonight gives an example of this method and while decidedly improved, hasty conclusions must be withheld. It must be admitted that sarcomas are always most irregular in their course, and glioma is of sarcoma type. The cases of spontaneous cure have usually been sarcoma. The ideal method of using radioactivity is to employ the emanations of radium. Emanation waters must be used soon after derivation from their source. Where you have a large supply of radium the emanation should be taken off for use and the radium kept in stock.

THE CURE AT VITTEL.

DR. WILLIAM J. TAYLOR: Vittel is in northeastern France, in the Vosges, in a wide valley with an elevation of 1100 feet. The waters may be classed as mild alkaline bicarbonated, sulphated waters, non-chloride bearing, the most pronounced characteristic being the almost total absence of chloride of sodium. Their mineralization is sufficient but not excessive, and they have not the inconvenience of waters highly charged with sulphate of lime, nor the dangers of waters too strongly alkaline. The really active principles are the sulphates, carbonates and chlorides of magnesia, soda and potash, and to some extent the bicarbonates. The waters of Vittel are readily absorbed and have not the tendency to liberate free carbonic acid, and can be used with great freedom as a table water. The absence of sodium chloride renders them of the greatest value in all kidney troubles, in arterial degeneration, as well as in many diseases of the heart, and in all neurasthenias consequent upon toxemias of every sort. The Vittel treatment is primarily that by diuresis. The dosage must be carefully adapted to different individuals and diseases. Massage of some sort is essential. One form given,—massage under water,—is simply massage and movements of all the joints while a spray of hot water is playing over the whole body. I believe that the greatest efficacy of these waters is in cases of excessive uric acid and other waste products or toxemias and renal calculosis. The action in lowering blood-pressure is most marked by diminishing the viscosity of the blood. I regard this method of diuresis by drinking large quantities of the moderately mineralized sodium chloride free water as far superior to treatment by baths, sweating and the heavy drinking of actively purgative and highly mineralized waters. Contraindications to the treatment are very low blood-pressure, grave valvular cardiac disease and profound anemias. In certain juvenile epilepsies, particularly those with digestive disturbance and faulty elimination, I am told that the use of the waters is of the greatest value in diminishing the number of seizures, and in a few cases they seemed to be of lasting benefit.

DISCUSSION.

DR. WILLIAM S. NEWCOMET: Dr. Taylor mentioned the fact that possibly some of the value of these waters was due to the radioactivity that they possessed and which during transportation was lost, this accounting for the results obtained at the springs. It might be mentioned that most of these waters are radioactive, but more especially those that come from deep wells.

Dr. H. B. Allyn: I have not had the pleasure of visiting Vittel, but for some years have been using here the waters for gout, gouty conditions, neuralgias and the general neurasthenic states accompanying gout, and for gravel, and I have found them the best of any heretofore employed for these purposes.

Dr. James M. Anders: I have prescribed this water in selected cases and have found it to be an efficient diuretic. It contains no chloride of sodium, and the diet prescribed in the course of treatment is a salt free or salt poor diet, which two facts, in a large measure, explain the efficacy of the water, both as a diuretic and eliminator of poisonous wastes. Certain elements of the life at Vittel, —restricted diet, walks, freedom from care and responsibility must be given weight These waters are not in the slightest degree laxative, nor to any extent diaphoretic. Treatment, therefore, is based largely upon the diuretic action of the water. The results, it seems to me, corroborate in a striking manner the generally accepted opinion that the kidneys are the principal eliminating channels of the body.

Dr. Taylor, closing: I have nothing to add, except that Vittel is now becoming very popular, but is patronized almost entirely by French speaking people. During my stay I did not see half a dozen Americans or fifty English people.

Dr. Alfred Gordon read a paper on,

CEREBROSPINAL FLUID AND A SPECIAL METHOD OF TREATMENT OF ESSENTIAL EPILEPSY.

The value of lumbar puncture and the importance of study of cerebro-spinal fluid for diagnostic and therapeutic purposes are described and mention made of toxic products usually present in the blood and in the cerebro-spinal fluid in epilepsies. Attention is called to the work of Geni and Donath with reference to the toxicity of blood serum in epileptic individuals. It is then estimated that if the cerebro-spinal fluid of one epileptic patient could be injected in another epileptic patient, thus bringing into the economy two opposing toxins, gratifying results might be secured. Four patients were subjected to the treatment in a period of ten months. There has been decided diminution in number of attacks and in severity, with general improvement in mentality and all functions. The treatment is shown to be far superior to any other. Rules are outlined for future investigation in this field of work.

Dr. Morris J. Lewis: Dr. Gordon does not mention whether in any of the cases the Wassermann reaction was present or not. In a rather large experience I have found this reaction present in quite a large proportion of cases, especially in cases developing after puberty. I would hesitate about using spinal fluid in the manner mentioned, and especially, without knowing most definitely that there was no communicable disease present.

Dr. Gordon, closing: Unquestionable hesitation should be felt in any new treatment. I did not introduce the fluid into the spinal cord, but subcutaneously. I simply take this opportunity to present to the profession the favorable results so far obtained, which, so far as I know, have not been gained by any other method. The Wassermann test was made and found negative.

Book Reviews.

A Text-Book of Histology. By Frederick R. Bailey, A.M., M.D., Fourth revised edition. pp. xviii+644. Figs. 384. New York: William Wood and Company. 1913.

In the new edition of Bailey's Histology "the text has been thoroughly revised and some parts of it rewritten"; fifty-five pages and thirty figures have been added, but it has seemed unwise to alter the general plan of so successful a text-book. This plan consists in presenting a clear and simple account of the well-known facts of histology. Indeed, reference is frequently made to the sharply contended issues of the day, but the author usually writes of them with the fairness and unconcern of a noncombatant and consigns them to small type. The development of the various tissues and organs is also lightly treated, usually in the form of postscripts to the accounts of the corresponding structures in the adult. What to do with the nervous system has long been a puzzling question for the writers of histological text-books. Stöhr, for example, deals with it very briefly and refers his readers to special treatises. Bailey's Histology, however, includes a special treatise of 132 pages, written and revised by Dr. O. S. Strong, in which the nuclei and fiber-tracts are concisely described. This thorough treatment of the central nervous system is perhaps the most notable feature of the book.

Among the illustrations one sees many old familiar figures, since two-thirds of them have been gathered from other sources, including many from the standard text-books. As stated in the preface,—"The uselessness of redrawing perfectly satisfactory illustrations has led the writer to borrow freely." His indebtedness is correspondingly great, but the ignominy of appearing like Aesop's daw in peacock plumes has been avoided by frankly acknowledging the source of every figure. Both figures and text have been well printed, and the volume is attractive, though somewhat heavy.

Medical Jurisprudence from the Judicial Standpoint. By W. Ramsay Smith, M.D., C.M., D.Sc., F.R.S. (Edin.). London: Stevens and Sons, Limited. 1913.

The monograph aims to view "the principles and practise of medical jurisprudence from the point of view of the court, the bench, and the judge." Such an exposition by a physician argues unusual and intimate familiarity with the law, and this indeed the author appears to possess. The English common law is the basis of the work; but its colonial and American

modifications, together with the civil law, are also considered. The subject is illustrated with representative cases from actual experience. The volume should be of value to any physician who is in any way to be involved in legal procedure.

Anatomy and Physiology. A Text-Book for Nurses. By JOHN FORSYTH LITTLE, M.D. Philadelphia and New York: Lea and Febiger. 1914.

This excellent first-year text-book for nurses is a useful contribution to the teacher's working material. It is well arranged, and is illustrated with 147 engravings and 4 plates, many of them taken from Gray's Anatomy. There is a list of appropriate questions at the end of each chapter; and at the end of the book are tables of weights and measures and a useful glossary. The volume is published in the Nurses' Textbook Series.

Manual of Surgery. By ALEXIS THOMSON, Professor of Surgery, University of Edinburgh; and Alexander Miles, surgeon Edinburgh Royal Infirmary. Volume Third. Second edition. With 255 illustrations. Edinburgh, Glasgow, and London: Henry Frowde and Hodder and Stoughton. 1913.

This third volume, on operative surgery, was first added to the fourth edition of this standard Scottish work, and was reviewed in the issue of the JOURNAL for Nov. 21, 1912 (Vol. clxvii, p. 738). In this second edition of the new volume, the Basle anatomic nomenclature has been adopted, the older terminology being also retained in brackets and the equivalents included in the index. The number of illustrations has been increased from 220 to 255, and the total of pages from 565 to 620. A chapter has been added on arterial suture. The volume securely maintains the immediate position of acceptance which it found on first publication.

Tropical Medicine and Hygiene. By C. W. DANIELS, M.B, Cantab., F.R.C.P., Lond. In three parts, with colored and other illustrations. Part I. Diseases Due to Protozoa. Second edition. New York: William Wood and Company. 1913.

The first edition of this volume, by Daniels and Wilkinson, was reviewed in the issue of the JOURNAL for June 2, 1910 (Vol. clxii, p. 755). In this second edition, from which the name of the junior author has disappeared, an alteration has been made in the arrangement of the material whereby the amount of repetition is diminished. The subjects of prophylaxis, treatment, and nursing are more extensively considered in connection with each disease. The terminal appendices have been reduced from five to three by the withdrawal of the classification of the *diptera*, but the total number of pages is increased from 264 to 277. The two colored plates have been improved and transferred from the end of the book to the front; and the number of figures in the text has been increased from 62 to 73, and an introductory list of illustrations added. The book should easily maintain its position of value in the literature of tropic diseases.

Principles of Surgery. By W. A. BRYAN, A.M., M.D., professor of surgery and clinical surgery at Vanderbilt University, Nashville, Tennessee. Original illustrations. Philadelphia and London: W. B. Saunders Company. 1913.

A book of seven hundred pages, well printed, and adequately illustrated with pictures and microphotographs, limiting itself entirely to "Principles of Surgery"; eliminating, therefore, operative technic and condensing treatment into brief paragraphs, sometimes sentences, which are to be found at the end of individual chapters. It is thus possible for a man of Dr. Bryan's experience and knowledge to condense a large amount of information within a small compass. It is the new example of the reaction against enormous systems of surgery which have been recently so common.

The reviewer desires to recommend this book enthusiastically. It is one of the most successful examples of condensation which we have seen in years. It is comprehensive, and yet eliminates everything that is not essential. Its brief passages on treatment are admirable in tone and in accordance with the most advanced views. For instance, anthrax. It has been shown that the means formerly employed, of excision or cauterization, rendered the dislodgment of the bacteria from the malignant pustule much more probable than if no such interference had been made. Even so insignificant trauma as may be done by hypodermic injections or attempting to lift the eschar, are interdicted. In other words, eliminating operative treatment.

The chapters on tumors and cysts constitute about one-third of the book and again attract the reader by a combination of brevity and thoroughness. The writer's purpose has been to put the fundamental facts before the student and the physician in a simple and logical way, and thereby to lay a foundation upon which an intelligent understanding of the immense details of practical work may be built.

The book may be studied with benefit by every man who has had two years of medical training.

THE BOSTON

Medical and Surgical Journal

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GENERAL PARESIS AND THE DIFFICULTIES IN ITS TREATMENT.

THE recent advances which have been made in our knowledge of syphilis have surely come to us in quick succession. Our progress in the knowledge of malaria and trypanosomiasis should be a source of great optimism for us. Our advances in the acute contagious and infectious diseases have been noteworthy, but in few diseases have we had such rapid progress as in syphilis, and particularly in syphilis of the nervous system. First we have Schaudinn, not a physician, but a zoologist, discovering the spirocheta pallida, latterly and more properly called the treponema pallida, which is now generally acknowledged to be the causative organism of syphilis. It was not long before this was followed by the Wassermann reaction and its modifications with the blood serum, as a laboratory test for past or present, latent or active syphilis. Then we have the application of chemical, serological, and cytological methods to the spinal fluid for the diagnosis, prognosis and treatment in acute and chronic infectious conditions of the central nervous system. The investigation of the cerebrospinal fluid now consists of the Wassermann reaction, the tests,—Noguchi, Nonne-Appelt and others,—for increased globulin, and the quantitative and qualitative cell count, especially pleocytosis and lymphocytosis. Recently the Lange gold solution test has been added to our laboratory armamentarium.

In pathology, too, we have been making great headway. This applies particularly to the pathology of general paresis and locomotor ataxia, the so-called para- or metasyphilitic diseases. Ordinarily cerebrospinal syphilis presents a pathological lesion which is confined mainly to the blood-vessels and meninges, with the well-known endarteritis of Heubner, with gummatous exudation and lymphocytic infiltration, whereas, in the so-called parasyphilitic diseases, namely, general paresis and locomotor ataxia, we find the changes in the neurones or nerve cells. The first-named condition, cerebrospinal syphilis, is, accordingly, essentially a lesion of the interstitial connective tissue. The second group, paresis and tabes, are, on the other hand, essentially lesions of the parenchymatous tissues of the nervous system. It was thought, for this reason, that the two contrasting conditions could not be due to exactly the same cause acting in precisely the same way, but that, although tabes and paresis showed a decided relationship to syphilis, they were not caused directly by the spirocheta pallida, but were due, in some unknown way, to toxins acting upon the nerve cells after the spirochetes had spent their force, after the fashion, we may say, of neuritis or paralysis following in the wake of diphtheria.

Noguchi and Moore[1] have, however, recently found the spirochete in the brains of twelve out of seventy patients who had had frank general paresis, as proved by the clinical, laboratory and pathological findings. Later Noguchi[2] reported the finding of the spirochete in forty-eight brains among two hundred of general paresis, and in one spinal cord out of twelve of locomotor ataxia. Noguchi also infected rabbits directly with the tissue from general paretics and produced a perfectly typical luetic lesion in the testicle of the rabbits so infected, and was able to recover the spirochetes from these lesions.[3] The finding of the spirochete in the brain of paretics has since been confirmed by others, notably Marinesco. Forster and Thomasczewski[4] resorted to the method of brain puncture in the living general paretic, aspirated cortical substance from the brain and demonstrated the presence of living spirochetae pallidae in the cortical tissue from the brains of these living paretics. From the experimental

[1] *Journal of Experimental Medicine*, Feb., 1913, p. 232.
[2] *Journal of Cutaneous Medicine*, Aug., 1913, p. 543.
[3] *Journal of American Medical Association*, July 2, 1913, p. 85.
[4] *Deutsche Med. Wochenschrift*, 1913, Vol. XXXIX, No. 26.

investigations and findings of such scientific and reliable workers in the field of experimental medicine we may conclude, at least in the case of general paresis, that syphilis is the direct causative factor in the production of this strange disease.

The findings in paresis show that the organism is imbedded deep within the tissues, far away from the blood vessels, and practically in direct contact with the nerve cells themselves. There is, further, an accumulation or infiltration of lymphocytes about the blood vessels, especially in the perivascular lymphatic channels. The reason why the spirochete has not been found in the past seems to be because the examination was directed mainly to the regions of the blood vessels, and the examinations were not as conscientious, prolonged and intensive as they should be. Moreover, in paresis the spirochetes are difficult to see, even with the modern staining methods.

The reason for the resistance of paresis to treatment by ordinary anti-syphilitic methods is not easy to explain, but recent study discloses the following facts: The spirochetes are so deep in the tissues that they are not easy to get at through the blood stream, which difficulty is further enhanced by the infiltration of the adventitial spaces, the so-called perivascular lymphatic spaces, with leucocytic invasion, and hence an interference with diffusion of spirocheticidal poison (mercury, arsenic, salvarsan). It is particularly for this reason that the results produced by mercury and salvarsan, intramuscularly or intravenously, have not been encouraging in paresis. It is also supposed that in paresis we may have a different kind of organism, having from the very beginning a different affinity for nervous tissue or a greater resistance, or the same species of organism may have, as we find in ordinary cerebrospinal syphilis, for some reason or other invaded the deeper structures with its destructive effects upon the parenchymatous nervous tissues and become unduly resistant.

The problem which here presented itself was how to reach the spirochetes buried deep within the brain substance and apparently but little accessible by way of the blood stream. Certain observations having shown that salvarsan, after being administered intravenously, cannot be recovered in the cerebrospinal fluid withdrawn by means of lumbar puncture, we were justified in concluding that the possible spirochetes in the cerebrospinal fluid were not reached by the salvarsan. It was logical, therefore, to expect that when this drug, in some way or other, is injected directly into the subdural space, more direct contact with the spirochetes might be obtained. It was found, however, that the drug salvarsan, when diluted with salt solution and injected into the spinal canal (subdural space), was injurious and capable of doing serious injury to the nerve structures. It may be noted here that recently (March, 1914) it was reported that there had been seven deaths from neosalvarsan in Los Angeles, California. Investigation disclosed the fact that the drug neosalvarsan had been mixed with salt solution and given intraspinously. Swift and Ellis, however, overcome these difficulties by using the serum taken from other syphilitic patients or from the same patient, the latter having received one hour previously an intravenous injection of salvarsan or neosalvarsan.[5] Thus hetero- or auto-salvarsanized or neosalvarsanized serum was being employed, this being further diluted with normal saline solution. Lately certain modifications, such as the intraspinous injection of undiluted auto-salvarsanized serum, have been tried by various workers in the field of intraspinal therapy.

For the technic and results of this method of treatment the reader is referred to the original articles by Swift and Ellis and others.[6]

The lesson to be learned from a consideration of the facts here enumerated is this: We should do our utmost to attempt to make an early diagnosis in general paresis, by both clinical and laboratory examination. As soon as the diagnosis is made treatment should be instituted. This should be vigorous anti-syphilitic treatment, mercury and potassium iodide, and salvarsan or neosalvarsan, intravenously and intraspinously, being employed. The case should be watched and checked up by repeated examinations clinically and in the laboratory. The Wassermann reaction in the cerebrospinal fluid and the cell count are especially important guides as to prognosis and the results of our therapeutic efforts. Under these conditions it is at least possible that the results may be more favorable than hitherto reported.

[5] *New York Medical Journal*, July, 1913; *Archives of Internal Medicine*, Sept. 15, 1913; *Journal of Experimental Medicine*, Oct., 1913, p. 428 and 435.

[6] See also Ayer, BOSTON MED. AND SURG. JOUR., March 26, 1914, p. 452.

MEDICAL LEGISLATION. SUPPRESSION OF ILLEGAL TRAFFIC IN HABIT-FORMING DRUGS.

There are at present pending, before both the national congress and the legislature of this Commonwealth, bills aiming to suppress the illegal sale of habit-forming drugs. The extent to which such drugs, notably morphia and cocaine, are consumed by habitués constitutes a serious menace to the health as well as the morals of the community, and any legislative attempt to control their sale is therefore important and deserving of medical attention.

Of the two measures of this type now under consideration by the Massachusetts General Court, one prohibits druggists from filling any prescription containing a habit-forming drug, the other makes it a criminal offence to dispense such drugs for other than legitimate medicinal use. The first is aimed at those habitués who, having somehow obtained a physician's prescription for morphia or cocaine, continue to employ it indefinitely as a permanent means of securing the drug. The second is aimed at a limited, but unfortunately existent, class of irregular, self-styled, misguided practitioners, who are willing to issue such prescriptions to enable habitués to obtain drugs illegitimately. It seems that these are both desirable measures and should be enacted into law.

The measure on this subject now pending before the national congress is the so-called "Harrison Anti-Narcotic Bill." The provisions of this bill may essentially be summarized as follows:—

Sect 1. It shall be unlawful for any person to produce, import, manufacture, compound, deal in, dispense, sell, distribute, or give away any of the aforesaid drugs or articles (preparations of opium or coca, and hypodermic syringes) without having registered and paid the special tax provided for in this section.

Sect. 2. It shall be unlawful for any person to sell, barter, exchange, or give away any of the aforesaid drugs or articles except in pursuance of a written order of the purchaser or person to whom such article is given, on a form to be issued in blank for that purpose by the Commissioner of Internal Revenue.

Sect. 3. Any person who shall be registered in any internal-revenue district under the provisions of section one of this act shall, whenever required so to do by the collector of the district, render to the said collector a true and correct statement or return, verified by affidavit, setting forth the quantity of the aforesaid drugs and articles received by him in said internal-revenue district during such period immediately preceding the demand of the collector, not exceeding three months, as the said collector may fix and determine; the names of the persons from whom the said articles were received; the quantity in each instance received from each of such persons, and the date when received.

Sect. 4. It shall be unlawful for any person who shall not have registered and paid the special tax as required by section one of this act to send, ship, carry, or deliver any of the aforesaid drugs or articles from any State or Territory, the Territory of Alaska, the District of Columbia, or any insular possession.

Sect. 5. (Provides for the filing of forms and prescriptions.)

Sect. 6. The provisions of this act shall not be construed to apply to the sale, distribution, giving away, or dispensing of preparations and remedies which do not contain more than two grains of opium, or more than one-fourth of a grain of morphine, or more than one-twelfth of a grain of heroin, or more than one grain of codeine, or any salt or derivative of any of them in one fluid ounce, or, if a solid or semi-solid preparation, in one avoirdupois ounce; or to liniments, ointments or other preparations which are prepared for external use only, except liniments, ointments and other preparations, which contain cocaine or any of its salts or alpha or beta eucaine or any of their salts or any synthetic substitute for them: Provided, That such remedies and preparations are sold, distributed, given away or dispensed as medicines and not for the purpose of evading the intentions and provisions of this act: Provided, That the amount of any drug herein mentioned shall be shown upon the label of the container of such remedy or preparation. The provisions of this act shall not apply to decocainized coca leaves or preparations made therefrom, or to other preparations of coca leaves which do not contain cocaine.

Sect. 7. All laws relating to the assessment, collection, remission and refund of internal-revenue taxes, including section 3229 of the Revised Statutes of the United States, so far as applicable to and not inconsistent with the provisions of this act, are hereby extended and made applicable to the special taxes imposed by this act.

Sect. 8. It shall be unlawful for any person not registered under the provisions of this act, and who has not paid the special tax provided for by this act, to have in his possession or under his control any of the aforesaid drugs or articles; and such possession or control shall be presumptive evidence of a violation of this section, and also a violation of the provisions of section one of this act.

Sect. 9. Any person who violates or fails to comply with any of the requirements of this act shall, on conviction, be fined not more than

$2,000, or be imprisoned not more than five years, or both, in the discretion of the court.

Sect. 10. The commissioner of internal revenue, with the approval of the secretary of the treasury, is authorized to appoint such agents, deputy collectors, inspectors, chemists, assistant chemists, clerks and messengers in the field and in the Bureau of Internal Revenue in the District of Columbia as may be necessary to enforce the provisions of this act.

Sect. 11. The sum of $150,000, or so much thereof as may be necessary, shall be, and hereby is, appropriated, out of any moneys in the treasury not otherwise appropriated, for the purpose of carrying into effect the provisions of this act.

Sect. 12. Nothing contained in this act shall be construed to impair, alter, amend or repeal any of the provisions of the act of congress approved June 30, 1906, entitled "An act for preventing the manufacture, sale, or transportation of adulterated or misbranded, or poisonous or deleterious foods, drugs, medicines, and liquors and for regulating traffic therein and for other purposes" and any amendment thereof, or of the act approved February 9, 1909, entitled "An act to prohibit the importation and use of opium for other than medicinal purposes," and any amendment thereof.

The purpose of this bill is assuredly good, and in the main its provisions seem excellent. There are certain aspects, however, in which it appears questionable whether they will accomplish the end desired. In the first place Section 6 has been principally criticised, and from two opposite points of view. On the one hand, it is pointed out that this section exempts precisely the class of preparations which it is most desirable to suppress, namely, those containing small amounts of narcotic drugs from which, however, addiction may easily be acquired or maintained. On the other hand, this section is criticised because it allows only so proportionately small a dose of heroin in comparison with that of morphine.

In the second place, the Harrison bill is criticised because it does not allow a physician to supply himself with morphia or cocaine for his own dispensation in his office or on visits, without registering with the Internal Revenue Department. Such registration, it is contended, would be an inconvenience and hardship, and it is urged that manufacturers should be given more leeway in supplying registered physicians.

The first of these three objections seems by far the most important. If it be true that drug-habits are to any extent fostered by preparations of the exempted class, then these exemptions should certainly be restricted or entirely removed. The bill as a whole, however, would doubtless be beneficial, and if amended in the light of expert criticism should prove a valuable measure of national legislation towards restriction of the illegal traffic in habit-forming drugs.

VINDICATION OF ANTITYPHOID INOCULATION.

Much interest has been felt in the case of Clarence Panzer, a young man of Woodhaven, Borough of Queens, who died on April 1 after an illness of two weeks, the cause of death assigned by the attending physician being typhoid fever. As Mr. Panzer, who was a member of the 13th Regiment, New York National Guard, had, in company with other members of the regiment, been inoculated against typhoid (though a considerable time before his illness), the Health Department, although threatened with a suit for damages, very properly refused to issue a burial permit until an autopsy had been made. The case was accordingly placed in the coroner's hands, and an autopsy, made on April 2, showed conclusively that the disease to which the patient had succumbed was not typhoid fever, but malignant ulcerative endocarditis. It had also been previously known that the patient was the subject of organic heart disease. In this connection it seems appropriate to quote the following editorial from the Boston *Herald*, as a gratifying example of sound medical opinion in the lay press:

"The infallibility of typhoid vaccination as a preventive has received confirmation from an unusual New York case. A member of the coast artillery recently died of an illness diagnosed as typhoid. As he had previously been inoculated, his death attracted much attention. The anti-vaccinationists, who extend their opposition to all serums, made much of the case. They cited it in contravention of last year's army records that show but two typhoid cases, in both of which inoculation had been doubtful.

"A post-mortem examination, obtained with difficulty, showed that the New York private was not a victim of typhoid. The autopsy revealed an unusual vegetation in the heart which had caused the symptoms closely akin to those of typhoid. The error was purely one of diagnosis by the attending physician. The value of anti-typhoid vaccination remains unshaken. The incident illustrates, moreover, the duty of relatives to allow an autopsy when the interests of science demand it."

MEDICAL NOTES.

The Solly Tuberculosis Society.—On January 24, 1914, the physicians of Colorado Springs, particularly those interested in the care and treatment of tuberculosis, met at luncheon and formed a society for the advancement in scientific treatment and prevention of tuberculosis. The organization was named "The Solly Tuberculosis Society" in honor of the late Dr. S. Edwin Solly, of this city.

At the regular monthly meetings of the society some particular phase in the treatment of tuberculosis was presented in the form of a symposium covering all the latest writings in various modern languages.

The first regular meeting of the society was held Feb. 17, 1914. At this meeting the question of the influence of altitude and climate in the cure of tuberculosis was presented for discussion.

London Death-Rates in February.—Statistics recently published show that the total death-rate of London in February was only 14.8 per 1000 inhabitants living. Among the several districts and boroughs, the highest rate was 20.3 in Holburn, a central slum, and the lowest was 10.4 in Hampstead, an open suburb on the north.

Award of Fothergill Medal.—It is announced that the Fothergill gold medal of the London Medical Society for 1914 has been awarded to Dr. John George Adami, F.R.S., LL.D., Strathcona professor of pathology and bacteriology at McGill University, for his work on pathology and its practical application to medicine and surgery.

A Munificent Bequest.—It is announced from Philadelphia on April 8 that under the will of the late Dr. Louis A. Dühring, for many years professor of dermatology at the University of Pennsylvania, the university will receive approximately $1,000,000. This munificent bequest is to be divided between the general library, the university hospital, the departments of dermatology, archeology and paleontology, and the College of Physicians of Philadelphia.

Transmission of Bubonic Plague.—Report from New Orleans, La., on April 6, states, on the authority of Dr. John Guiteras, director of sanitation for the republic of Cuba, that the recent cases of bubonic plague in Havana are believed to have been transmitted not by rats but by fleas conveyed in sacks of sugar.

A Centenarian.—Edward Jones, who died on April 7 at Niles, near Youngstown, Ohio, is said to have been born in 1807. He was a Welshman and a sailor, but retired from the sea some years ago.

A Voting Centenarian.—Miss Margaret Swinbank, of Sycamore, Ill., who is said to have been born in 1813, cast her first municipal ballot at the general election on April 7. She is believed to be the senior woman voter in the United States.

Illness of the King of Sweden.—Report from Stockholm states that King Gustave of Sweden was operated on April 9 for gastric ulcer. Gastro-enterostomy was done, and the royal patient is reported as progressing favorably.

German Congress for Internal Medicine.—The thirty-first German Congress for Internal Medicine will be held next week at Wiesbaden, from April 20 to 23, inclusive, under the presidency of Dr. Von Romberg, of München.

"The principal papers to be presented are: On Monday, April 20, "Nature and Treatment of Sleeplessness," the reporters of which subject are Herren Gaupp (Tübingen), Goldschneider (Berlin) and Faust (Würzburg). On the third day, Wednesday, April 22, at 10 a.m., by the desire of the president, Herr Werner (Heidelberg) will present a comprehensive address upon the radiation treatment of new growths of the internal organs, and on the fourth day, Thursday, April 23, at 11 a.m., Herr Schottmüller (Hamburg) will deliver an address on "The Treatment of Sepsis."

Bubonic Plague and Yellow Fever in Ecuador.—Report from Panama on April 4 states that 21 deaths of yellow fever have recently occurred at Esmeraldas, Ecuador, among the federal troops who are holding that city; and that several cases of yellow fever and bubonic plague have been notified recently at Guayaquil.

A School Clinic at Southampton.—In a recent address, Dr. R. E. Lauder, medical health officer of Southampton, England, describes the methods of school inspection there employed. In 1912, medical treatment by private physicians

was recommended for 1133 children. In only 328 cases was the advice followed. In 1913, therefore, the city established a municipal clinic and dispensary, in which common diseases of the teeth, eyes, nose, throat, ears, and skin are treated. A full-time dentist is there employed, at a salary of £300 a year. Visiting nurses investigate home conditions and follow up the pupils with instructions.

NEW JERSEY STATE HOSPITAL.—The recently published thirty-eighth annual report of the managers and officers of the New Jersey State Hospital, at Morris Plains, records the work of that institution for the year ended Oct. 31, 1913. During this period 2847 patients were under treatment, of whom 195 died and 84 were discharged as recovered. The institution is seriously overcrowded, and among its urgent needs are new and additional buildings and an incinerating and water purification plant.

BOSTON AND NEW ENGLAND.

SCARLET FEVER IN BOSTON.—Scarlet fever continues epidemic in Boston. Since last December there have been 20 deaths of the disease, and 555 cases are now under treatment.

SCARLET FEVER IN COHASSET.—Scarlet fever continues epidemic in Cohasset, Mass. Three new cases were reported last week. All the schools, churches, and the town hall and library have been closed.

GLANDERS IN BEVERLY.—Glanders is at present epizoötic among working horses in Beverly, Mass. Ten deaths from the disease have already occurred, and the local public drinking fountains have been ordered closed.

SMALLPOX ON A SPANISH STEAMER.—A case of smallpox was discovered recently in this port aboard the Spanish steamer *Inez*, recently arrived from Barcelona. The vessel was fumigated, the crew vaccinated, and the patient transferred to the quarantine hospital.

SCARLET FEVER IN BRIDGEWATER.—Scarlet fever is at present epidemic in Bridgewater, Mass., where 42 cases of the disease have already been reported. All schools have been ordered closed.

SMALLPOX IN BROCKTON.—Smallpox is at present mildly epidemic in Brockton, Mass. Three new cases of the disease were reported on April 1.

TWO LIVING BROCKTON CENTENARIANS.—Abraham Weiner, of Brockton, Mass., who is said to have been born in Odessa, Russia, on April 1, 1809, celebrated recently his supposed one hundred and fifth anniversary. He served for 25 years in the Russian Army before migrating in 1864 to the United States. He has five children.

Morris D. Shimelovitch, of Brockton, Mass., is said to have been born on Feb. 8, 1811. He is in excellent health and walks out daily.

INVESTIGATION OF DRUNKENNESS IN MASSACHUSETTS.—The recently published report of the commission, appointed in August, 1913, to investigate drunkenness in Massachusetts, records the work and recommendations of that body. A series of public hearings was held and numerous measures considered. The first part of the report is concerned with ascertaining and stating the nature and magnitude of the problem, the second with discussion of suggestions for the prevention of drunkenness. The commission makes ten specific recommendations for legislation, embodied in six proposed bills which are printed in an appendix. It believes that the method of committing persons to penal institutions for drunkenness is wrong in principle and should be abandoned.

HUNTINGTON HOSPITAL FOR CANCER RESEARCH.—The recently published first annual report of the Collis P. Huntington Memorial Hospital for Cancer Research records the work of that institution for the fiscal year ended June 30, 1913. During this period 75 in-patients and 115 out-patients were treated. The number of deaths is not stated. Various lines of research were pursued and two papers on the results have been published.

ABOLITION OF VITAL STATISTICS DIVISION.—The mayor of Boston has recently abolished the division of vital statistics in the health department of this city, thereby retiring Dr. William H. Davis, the statistician who held post as its chief.

COÖPERATIVE SUBURBAN BOARD OF HEALTH.—The Coöperative Suburban Board of Health,

which was organized on April 1, 1913, has just completed successfully the first year of its activities. It was designed to carry on the health work, either in whole or in part, of the towns of Wellesley, Belmont, Framingham, Weston, Needham, Melrose, Winchester, and Canton, Mass. By this combination, which was originally suggested by Prof. Earle B. Phelps of the Massachusetts Institute of Technology, each of the townships has secured far more extensive and efficient health supervision than would have been possible for it to maintain alone, and at an aggregate cost considerably less than that previously spent for this purpose. This first year has abundantly justified the theory of this plan of health work, which might to advantage be imitated in other rural and suburban town groups throughout the country.

Hospital Bequests.—The will of the late Eliza Callahan Cleveland, of Jamaica Plain, Mass., which was filed in probate on April 3, contains a bequest of $3000 to St. Luke's Hospital for Women, Shanghai, China.

The will of the late Elizabeth S. Hall, which was probated on April 7 at Exeter, N. H., contains a bequest of $10,000 to the building fund of the Exeter Cottage Hospital.

The will of the late Henry C. Whitcomb, which was recently filed at the Suffolk probate court, contains a bequest of $20,000 to the Home for Aged Couples, Boston.

The will of the late Frank Wood, of Ashmont, Mass., which was filed recently at the Suffolk registry of probate, creates a trust for the establishment in Dorchester, Mass., of a home for convalescents and incurables. For this purpose the testator gives 40 acres of land and $50,000.

Cases of Infectious Diseases reported to the Boston Board of Health for the week ending April 7, 1914: Diphtheria, 54; scarlatina, 147, of which 13 were non-residents; typhoid fever, 7, of which 1 was non-resident; measles, 86; tuberculosis, 38, of which 1 was non-resident.

The death-rate of the reported deaths for the week was 17.15.

NEW YORK NOTES.

Opening of Dispensary, Syracuse Medical College.—The Syracuse University Medical College celebrated the opening of the new Dispensary March 30, 1914. During the afternoon the building was open for inspection. The building has specially designed rooms to accommodate the following clinics: On the first floor, obstetrics and gynecology, pediatrics, genito-urinary diseases, orthopedics, and tuberculosis, with the pharmacy and offices for clerks, medical superintendent and staff. On the second floor, general surgery, proctology, nose, throat and ear, dermatology and syphilis, internal medicine, psychiatry and neurology, and ophthalmology. In the basement are the x-ray room, an orthopedic shop, a milk-distributing station and the manufacturing pharmacy. The third floor is occupied by the laboratories for chemical and microscopical diagnosis, bacteriology, and research work. A small laboratory for instant use is provided with each large clinic. The furniture and equipment is of the latest model. In the evening a public meeting was held at which Chancellor Day formally presented the use of the building and equipment to the Syracuse Free Dispensary Association, which will continue the conduct of the Dispensary as a charity, while vesting in the faculty of the College of Medicine the organization and administration of the medical and surgical service. The address of the evening was made by Dr. Richard C. Cabot of the Harvard Medical School, who with his characteristic forcefulness impressed upon the audience the importance of dispensary work and of the great advances in medical practice which would be gained by team work.

Reorganization of Presbyterian Hospital.—At a meeting of the trustees of Columbia University, held on April 6, it was announced that the Presbyterian Hospital, which is in alliance with the medical department of the university, had so reorganized its administrative work as to provide for single responsibility for both medical and surgical services. In accordance with this plan, Dr. Theodore Janeway, Bard professor of the practice of medicine in the College of Physicians and Surgeons, has been appointed medical director of the hospital, and Dr. George E. Brewer, surgical director. The pathological department of the hospital will be under the direction of Dr. William G. MacCallum, professor of pathology. At this meeting it was also announced that a gift of $2,000, for surgical research, had been received from an anonymous donor.

Death-Rate for Week Ending April 4, 1914.—There were 1612 deaths and a death-rate of

15.06 per 100 of the population reported the past week as against 1512 deaths and a rate of 14.68 for the corresponding week of 1913, an increase in the absolute number of deaths of 100 and in the rate of .36 of a point, equivalent to a relative increase of 39 deaths. The following causes showed a decreased mortality: Measles, scarlet fever, cerebro-spinal meningitis, diarrheal diseases under five years of age, influenza, bronchitis, broncho-pneumonia, pulmonary tuberculosis, Bright's disease and nephritis; the mortality from whooping cough and typhoid fever was the same as that of last year. The following causes showed an increased mortality: Diphtheria and croup, digestive diseases other than diarrhea, organic heart disease, lobar pneumonia, diseases of nervous system, violence and all other causes. The mortality of infants under one year of age showed an increase of 27 deaths, between one and five years a decrease of 38 deaths, between five and sixty-five years of age an increase of 43 deaths, and at sixty-five years and over an increase of 68 deaths.

The death-rate for the first fourteen weeks of 1914 was 15.57 per 1000 of the population as against 15.77 for the corresponding period of 1913, a decrease of .20 of a point.

APPOINTMENT OF DR. WILBUR.—It was announced at Albany on April 6 that Dr. Cressy L. Wilbur, of Washington, D. C., chief statistician of the United States census bureau, has been appointed head of the new division of vital statistics in the New York state department of health, at a salary of $4000 a year.

MEDICAL JUDGES AND INSANE CRIMINALS.—A bill has recently been brought before the state senate at Albany, providing that in each county there shall be a medical judge who shall attend any trial at which medical evidence is taken concerning the sanity of a party to an action, and shall give medical advice to court and jury, his instructions to have the same weight as those of a trial judge. It is also proposed that the clause in the penal code enabling a verdict of "not guilty by reason of insanity" be changed to "guilty but insane." This would prevent the acquittal of dangerous criminal lunatics, and would also prevent insane criminals from securing writs of *habeas corpus*. It is reported, however, that the Governor will veto this bill on the ground that it would virtually abolish capital punishment. The measures are recommended by the State Bar Association.

ANTI-PNEUMOCOCCUS SERUM.—A press report on March 25 states that the Rockefeller Institute for Medical Research has announced the preparation by Dr. Rufus Cole of an anti-pneumococcus serum for the treatment of pneumonia. The serum is prepared like that of diphtheria, from the horse.

RECOMMENDATIONS FOR BELLEVUE HOSPITAL.—The hospital investigating committee of the Board of Estimate and Apportionment has made a report in which are described the deplorable conditions which have existed at the old "dead house" at Bellevue Hospital, N. Y., on account of the lack of room, and recommends the appropriation of $12,000 for the maintenance of a new one. It is also recommended that the state law concerning autopsies be amended so as to enable hospitals to make a much larger percentage of autopsies than is now possible. The reports goes on to say: "Bellevue Hospital has built and equipped the finest pathological building in the United States, and probably the best in existence. It is provided with every modern facility for performing autopsies and following up such autopsies by experimental work upon tissues; but, although the hospital has provided itself with this exceptionally well-designed and thoroughly equipped building, it is practically unable to use it, because of the inability to secure permission to perform autopsies. So long as it is impossible to perform a larger percentage of autopsies medical knowledge in the United States will lag behind that of Europe, and advancement will naturally be slow. . . The conclusions to be drawn from the large percentage of errors in clinical diagnoses revealed in the records of Bellevue are not that the findings of the attending physicians are carelessly made and recorded, but rather that too great reliance is placed upon inexperienced house physicians and internes, and also that the current knowledge necessary to make clinical diagnoses which shall approach accuracy is insufficient.

Current Literature

MEDICAL RECORD.

MARCH 28, 1914.

1. CLARK, L. P. *Remarks upon Mental Infantilism in the Tic Neurosis.*
2. WOLDERT, A. *Determination of the Blood-Pressure as an Aid to Diagnosis and Prognosis in Certain Diseases.*
3. DICKINSON, G. K. *The Trail of the Serpent.*

4. Lewison, C. G. *Nerve Injuries.*
5. *Clark, J. B. *A Case of Syphilis Cured Apparently by Accident.*
6. Peterson, E. A. *Streptococcic Infection of the Cervix Uteri.*

5. Clark reports a case of fresh syphilis in which, owing to a misunderstanding, mercurial ointment was rubbed into the skin of the entire body regularly for four days. There were no symptoms of mercurial poisoning, and the luetic symptoms disappeared in an incredibly short time. [L. D. C.]

New York Medical Journal.

March 28, 1914.

1. Tyson, J. *Treatment of Chronic Nephritis.*
2. Bryant, W. S. *The Conservation of the Functions of the Ear, Nose and Throat.*
3. Buerger, L. *Obstructions in the Lower Ureter.*
4. Keilty, R. A. *A Teaching Classification for the Terata and Hemiterata.*
5. Stauffer, N. P. *Common Colds.*
6. Gwathmey, J. T. *The Technic of Oil-Ether Colonic Anesthesia.*
7. Levin, H. L. *Organic and Psychogenic Delirium.*
8. *Austin, F. D. *The Dose of Hexamethylenamine.*
9. Kaempfer, L. G. *Salvarsan in Rhinoscleroma.*
10. Halstead, W. T. *Significance of the Thymus Gland in Graves' Disease.*

8. Austin discusses the pharmacological action of hexamethylenamine and describes chemical tests for free formaldehyde in the fluids of the body. He says it is the duty of every physician who gives the drug to make one of these tests. The antiseptic value of hexamethylenamine in the alkaline fluids of the body is nil, for the conversion of this substance into formaldehyde will not occur in an alkaline medium. The ordinary dose of 5 to 7½ grains three times a day is not sufficient to be of any antiseptic value, even in acid urine. Ten to forty grains every four hours are necessary to insure germicidal action of the formaldehyde in solution. [L. D. C.]

The Journal of the American Medical Association.

March 28, 1914.

1. Sutton, R. L. *The Histogenesis of Multiple Basocellular Carcinoma.*
2. Carman, R. D. *Radiologic Signs of Duodenal Ulcer, with Special Reference to Gastric Hyperperistalsis.*
3. *McGuigan, H. *Formaldehyde.*
4. *Nelson, K., and Haines, E. F. *Observations of the Results of Nine Months' Experience with Neosalvarsan at the United States Military Prison Hospital, Fort Leavenworth, Kan.*
5. Krumbhaar, E. B. *Hemolysis Due to Intravenous Injection of Distilled Water.*
6. *Lindeman, E. *Blood Transfusion. Report of One Hundred and Thirty-Five Transfusions by the Suringe-Cannula System.*
7. *Rawlston, R. D., and Woodyatt, R. T. *Blood Transfusion in Diabetes Mellitus.*
8. Reed, C. A. L. *Fixation of the Ptosic Stomach and Colon by Retroperitoneal Implantation.*
9. Hall, J. N. *Why Prolonged Medical Treatment of Peptic Ulcer is Inadvisable.*
10. Baeslack, F. W. *A Sero-Enzyme Diagnosis of Syphilis.*
11. Knott, V. B. *The Removal of the Appendix in All Cases of Appendicitis with Localized Abscess.*
12. Davies, B. C. *A Clinical Study of Asthma.*
13. Friedlander, A., and Wagner, E. A. *Diagnosis of Whooping-Cough by the Complement-Deviation Test. Preliminary Note.*
14. Brooke, R. *The General Action of Quinine in the Treatment of Amebic Dysentery.*
15. Besley, F. A. *Pseudopancreatic Cysts, with a Report of Four Cases.*
16. Deavor, T. L. *Chronic Retention of the Urine. Twenty-eight Years of Catheterization.*
17. Glaze, A. L. *Syphilitic Sore Throat Diagnosed as Diphtheria. Subsequent Eruption Confused with Supposed Antitoxic Erythema.*
18. Howell, W. B. *Death During Ether Anesthesia —Status Lymphaticus.*
19. Creasy, R. C. *Ankylosis of the Mandible.*

3. This author publishes a very thorough paper on formaldehyde. He finds that the drug has no field of usefulness in medicine other than for local use.

4. The authors found that five injections of neosalvarsan combined with intensive mercurial treatment have failed to show as good curative results, as shown by the serum reactions, as did one dose of salvarsan. In order to "cure" 70 or 80% of cases it would be necessary to use four or five times as much neosalvarsan as salvarsan.

6. Lindeman's article is of value and practical interest. The simplicity of his technic appeals. His analysis of results is valuable.

7. The authors transfused 500 c.c. of peripheral blood from a healthy male donor into a brother suffering from severe diabetes mellitus and obtained a marked rise in the output of sugar, ammonium and acetone bodies and glucose. They conclude that such transfusion is contraindicated in severe diabetes mellitus. [E. H. R.]

The Archives of Internal Medicine.

February, 1914.

1. *Stewart, G. N. *Studies on the Circulation in Man. XI. The Blood-Flow in the Hands and Feet in Certain Diseased Conditions of the Vessels or of Their Venous Mechanism.*
2. MacCarty, W. C., and Brodebs, A. C. *Chronic Gastric Ulcer and Its Relation to Gastric Carcinoma. Review of 684 Specimens.*
3. *Folin, O., Denis, W., and Seymour, M. *The Non-Protein Nitrogenous Constituents of the Blood in Chronic Vascular Nephritis (Arteriosclerosis) as Influenced by the Level of Protein Metabolism.*
4. *Wilbur, R. L., and Addis, T. *Urobilin,—Its Clinical Significance.*
5. *Newburgh, L. H., and Lawrence, C. H. *The Effect of Heat on Blood-Pressure.*
6. Robinson, G. C. *Paroxysmal Auricular Fibrillation.*
7. Long, J. H., and Muhlfman, G. W. *The Neutral Action of Certain Digestive Ferments.*

1. Stewart reports on a study of the blood flow in the hands and feet in arteriosclerosis, aortic aneurysm, Raynaud's disease, obliterative arteritis, gangrene, and angio-neurotic edema. He found that in cases with marked arteriosclerosis the blood flow in the hands was smaller and the contralateral vasomotor reflexes less pronounced than normal. In thoracic aneurysm the flow in the hands may be normal. When it is subnormal there is no evidence that the existence of the aneurysm as such has any influence in diminishing the flow; the diminution is due to coexisting pathologic conditions, *e.g.*, myocardial changes, valvular lesions. A great difference in the form of the pulse wave in the two radials associated with thoracic aneurysm does not necessarily indicate a difference in flow through the hands. In the cases of Raynaud's disease the hand flows were subnormal, even in the absence of an actual attack, and very much below the normal in the more advanced cases. An abnormally great contralateral reflex vasoconstriction to cold seems to characterize the earlier stages of this disease.

3. Folin, Denis and Seymour studied the non-protein nitrogenous constituents of the blood in arteriosclerotic nephritis and the effect upon them of variations in protein ingestion. Their results indicate that the direct determination of non-protein nitrogen and urea in the blood is a more reliable guide to the protein tolerance of patients than can be obtained from the phenol sulphonephthalein test or any other direct test of renal efficiency.

4. Wilbur and Addis made an exhaustive clinical and experimental study of urobilin, and their conclusions upon its clinical significance are valuable. The intestinal formation of urobilin from the decomposition of bile present within the bowel is the usual mode of origin, but there is evidence that a diseased liver may originate urobilin either directly as a product of its cells or indirectly from decomposition of bilirubin within the bile passages. Under these circumstances the accumulated urobilin in the liver is absorbed by the blood stream and excreted in the urine. There is a close association between increase of urobilin in the urine and disturbance of liver function. An increased quantity of urobilin in the stools indicates increased blood destruction. The interpretation of urobilin findings in the urine is somewhat problematical, while the determination of an increased intestinal excretion rests on a much firmer basis. Urobilinuria occurs almost constantly in the hypertrophic stage of hepatic cirrhosis. The degree of urobilinuria is a good index of the damage done to the liver parenchyma by chronic passive congestion, a marked degree of it being of ominous prognostic significance in cardiac decompensation. Urobilinuria is absent in obstructive jaundice, present in hematogenous jaundice. In obscure febrile conditions it is of diagnostic importance. The persistence of urobilinuria after malarial attacks in the absence of fever and of urobolin in the stools indicates cirrhosis, abscess or some other complication. In pernicious anemia total urobilin elimination is very large, in secondary anemia comparatively small. In pneumonia early and marked urobilinuria is a bad prognostic sign. Severe nephritis, even in the presence of increased production of urobilin, may prevent definite urobilinuria, so that large amounts of urobilin in the urine may be taken as indirect evidence of a certain degree of efficiency in the renal epithelium.

5. Newburgh and Lawrence studied the effect of heat on blood pressure in a series of experiments on cats and rabbits. They have found that degrees of hyperthermia not greater than those encountered in infections are sufficient to cause marked hypotension. The increased body temperature of infection is a potent factor in the production of the lowered blood-pressure which occurs in such conditions, and may be the entire cause of it. [L. D. C.]

JOURNAL OF EXPERIMENTAL MEDICINE.

MARCH 1, 1914.

1. *CLARK, P. F., FRASER, F. R., AND AMOSS, H. L. *The Relation to the Blood of the Virus of Epidemic Poliomyelitis.*
2. LECOUNT, E. R., AND LONG, E. R. *The Relation between the Fat Content of the Bile and Fatty Changes in the Liver.*
3. JOBLING, J. W., AND PETERSEN, W. *Soaps as Ferment-Inhibiting Agents. Studies on Ferment Action.*
4. JOBLING, J. W., AND PETERSEN, W. *Ferment-Inhibiting Substances in Tubercle Bacilli. Studies on Ferment Action.*
5. KARSNER, H. T., AND DENIS, W. *A Further Study of Nitrogen Retention in the Blood in Experimental Acute Nephritis.*
6. KARSNER, H. T., AND DENIS, W. *A Note on Nitrogen Retention Following Repeated Injections of Nephrotoxic Agents.*
7. LAMBERT, R. A. *A Note on the Specificity of Cytotoxins.*
8. *EVANS, H. M., BOWMAN, F. B., AND WINTERNITZ, M. C. *An Experimental Study of the Histogenesis of the Miliary Tubercle in Vitally Stained Rabbits.*
9. MEDIGRECEANU, F. *The Indophenoloxydase Content of Tissues from Rabbits Infected with Pneumococcus.*
10. MEDIGRECEANU, F. *A Comparative Study of the Rate of Proteolysis of Tissues Obtained from Rabbits Infected with Pneumococci and of Tissues from Normal Rabbits.*

1. Clark, Fraser and Amoss were unable to infect monkeys with specimens of human blood taken during the paralytic stage of poliomyelitis. In only one instance out of ten tests were they able to produce infection with a specimen of blood from experimental poliomyelitis in monkeys. In general their experiments showed that infection is accomplished far less readily through the circulation than by means of the more direct lymphatic and nervous channels of communication with the central nervous system.

8. Evans, Bowman and Winternitz carefully studied the histogenesis of an experimental miliary tubercle, developing inside the liver lobules in animals that have been vitally stained and inoculated with bovine tubercle bacilli. It is of considerable interest that the effects of the dye and of the tubercle bacilli are somewhat similar. They were able to show that the mononuclear cells which enter most actively into the reaction induced by the tubercle bacilli are endothelial and not hematogenous in origin. [R. I. L.]

THE LANCET.

MARCH 7, 1914.

1. *GOODHART, J. F. *A Lecture on Glycosuria and the Albuminuria of Adolescents.*
2. *GILFORD, H. *Hunterian Lectures on Infantilism. Lecture II.*
3. *SHERMAN, T. *The Morbid Anatomy of Tuberculosis in Man.*
4. MAY, O. *The Significance of Diabetic Family History in Life Assurance.*
5. FARRANT, R. *The Pathological Changes of the Thyroid in Disease.*
6. HUGHES, B. *Case of Acute Suppurative Appendicitis Complicated by Gangrene of the Ileum.*

1. Goodhart discusses glycosuria, in contradistinction from diabetes and its relation to retinal changes occurring in the course of arteriosclerosis and renal disorders—known as "gouty glycosuria." The latter part of his paper he devotes to albuminuria of adolescence its causation and diagnosis.

2. In his second lecture, Gilford continues his discussion of infantilism as associated with anomalies of sex organs, thyroid insufficiency, and abnormalities of the pituitary gland. He goes into the historical side of the question and gives much interesting information on the general subject.

3. Sherman presents conclusions from his detailed study of the morbid anatomy of tuberculosis in man as follows: Hypersensitiveness due to a primary infection is probably of great importance in relation to reinfection, not necessarily from a primary focus but from a new infection from without. The majority of cases of pulmonary tuberculosis are due to aerogenic infection, although retrograde infections do occur. There is no evidence in favor of a spread by direct continuity from the deep cervical glands to the lungs. In children manifest pulmonary tuberculosis is often a sequel of bronchial gland tuberculosis. In Scotland bovine infections in childhood are commoner than in most other parts of the world. There is much of interest and value in this article. [J. B. H.]

March 14, 1914.

1. Short, A. R. *Hunterian Lecture on Changes in the Blood in the Causation of Surgical Shock.*
2. Bassett-Smith, P. W. *The Agglutination of M. Melitensis by Normal Cows' Milk.*
3. Moynihan, B. G. A., and Tatlow, E. T. *A Case of Transgastric Excision of a Gastro-jejunal Ulcer.*
4. Browning, C. H. *The Technic of the Wassermann Reaction with Special Reference to the Use of Antigens Containing Cholesterin.*
5. Robinson, H. B. *Popliteal Aneurysm.*
6. Hackenbruch, Prof. *The "Ambulant" Treatment of Fractures with Plaster-of-Paris and Fracture Clamps.*
7. Gray, H. T. *Recurrent Intussusception: with Suggestions as to the Etiology.*

British Medical Journal.

March 7, 1914.

1. *Osler, W. *The Visceral Lesions of Purpura and Allied Conditions.*
2. Bradburn, T. S. *Oral Sepsis Simulating Henoch's Purpura.*
3. Stewart, P. *Further Note upon a Case of Hysterical Monoplegia Following Electric Shock.*
4. *Shufflebotham, F. *The Milroy Lectures on the Hygienic Aspect of the Coal Mining Industry in the United Kingdom. Lecture II.*

1. Osler interestingly describes certain manifestations of purpura, other than skin lesions, which occur in the course of the disease. These are of two types, mechanical, due to the presence of an exudate in the walls of the stomach, intestines, or elsewhere, and second, inflammatory, as nephritis, pleurisy, endocarditis, etc. He presents various interesting cases showing cerebral manifestations, ocular lesions, gastro-intestinal symptoms, angio-neurotic edema, epistaxis and renal complications, cardiac and respiratory lesions.

4. Shufflebotham, in his second lecture on the hygiene of coal mining, takes up the causes of explosions and their prevention by watering of coal dust, etc. He considers the various poisonous gases, such as black damp, fire damp, after-damp, etc., the treatment of cases of asphyxiation from such causes, and last he refers to rare causes of poisoning, such as sulphuretted hydrogen, smoke, nitrous fumes, et al.

[J. B. H.]

March 14, 1914.

1. *Holmes, G. *The Diagnosis of Tabes Dorsalis.*
2. *Campbell, H. *The Treatment of Syphilis of the Nervous System by Intrathecal Injections.*
3. *McIlroy, A. L. *Some Problems in the Treatment of Venereal Diseases.*
4. *Abraham, J. J. *Arseno-therapy in Syphilis with More Particular Reference to "Gabyl."*
5. Bayly, H. W. *The Diagnosis and Treatment of Chronic Gonorrhea and Its Local Complications.*
6. Barnes, A. E. *A Case of Otitic Meningitis and Cerebellar Abscess with Recovery.*
7. *Shufflebotham, F. *The Milroy Lectures on the Hygienic Aspect of the Coal-Mining Industry in the United Kingdom. Lecture III.*

1. This is a practical article on the diagnosis of tabes, but presents nothing new.

2. Campbell believes that the injection of salvarsanized serum into the spinal cord is the only effective way of treating certain forms of syphilis of the central nervous system. It should be begun as early as possible. It acts by destroying the spirochaetes within the central nervous system and the cerebro-spinal fluid.

3. Among the preventive methods in handling the venereal problem, McIlroy recommends that all measures to prevent compulsory prostitution be encouraged; that the mentally deficient be segregated; that the public be educated as to the seriousness and size of the problem and that prompt notification of all abortions and premature births be made. In curative methods he urges that everything be done to keep patients under observation as long as possible and that this be only in the hands of the medical profession. He does not believe in special hospitals for such cases.

4. Abraham is of the opinion that mercury is regaining its old position as the main standby in the treatment of syphilis; that the real progress of arseno therapy is not in effecting a complete cure but in bringing about a rapid healing in the early, highly contagious stages of the disease.

7. In the third Milroy Lecture, Shufflebotham considers dust and its effects, particularly as regards tuberculosis and fibrosis. He discusses the symptoms and signs of the fibroid lung and then takes up the influence of temperature on the health of miners.

[J. B. H.]

Il Policlinico.

medical section.

October, 1913.

1. Massalongo, R., and Gasperini, N. *Pneumonic Hypertrophic Osteoarthropathy.*
2. Izar, G. *A Case of Lung Abscess Cured by Means of Artificial Pneumothorax.*
3. Pezzi, P. *Considerations upon Two Cases of Complete Auriculo-Ventricular Dissociation.*
4. Pontano, T. *Reports Concerning Serum Disease and Anaphylactic Phenomena.*

surgical section.

1. Scalone, I. *Strangulated Crural Hernia of the Uterine Tube, with Syndrome of Paralytic Ileus.*
2. Leotta, N. *Wounds of the Heart.* (Conclusion.)
3. Dialti, G. *Points of Technic in Suprapubic Prostatectomy.*
4. Stefano, P. A. *Some Cases of Ludwig's Angina.*
5. Casali, R. *Contribution to the Topography of Sinus Terminalis of the Spinal Dura Mater with Surgical Considerations.*
6. Chiasserini, A. *Vasal Plastics with Free Flaps of Aponeurosis.*

November, 1913.

medical section.

1. *Bosisio, R. *Experimental Studies on Antityphoid Vaccination in Man.*
2. Moreschi, C. *Chronic Lymphatic Leukemia and Intercurrent Typhoid Infection.*
3. Sisto, P. *Studies on Progressive Pernicious Anemia.*

1. Bosisio reviews the experimental work of many investigators on typhoid vaccination and describes some experiments of his own. He is satisfied that Loeffler's method of preparing vaccine is the best. Such vaccine remains potent for a long time and a single minute dose of it given intravenously assures a high grade of immunity of long duration, appearing within eight days of injection. [L. D. C.]

surgical section.

1. *Giordano, G., and Stropeni, L. *Experimental Contribution to the Surgery of the Diaphragm.*
2. Serafini, G. *Total Spino-Facial Anastomosis for Traumatic Lesion of the Facial.*

3. NASSETTI, F. *The Operability and Routes of Approach to Tumors of the Pineal Gland.*
4. PIAZZA, E. L. *Contribution to the Knowledge of the Congenital Median Formations of the Neck.*
5. CHIASSERINI, A. *Experimental Inflammatory Lesions of the Hypophysis and of the Hypophysary Region.*
6. PINARDI, G. *Experimental Researches on Transplantations of the Urethra.*

1. The authors report ten animal experiments in diaphragmatic surgery by the endothoracic route, especially the replacement of large diaphragmatic flaps by fascia lata. [R. M. G.]

DECEMBER, 1913.

MEDICAL SECTION.

1. SISTO, P. *Studies on Progressive Pernicious Anemia.*
2. BRUGNATELLI, A. *A Case of Bilious Peritonitis with Effusion of Bile in the Peritoneum without Perforation of the Biliary Tract.*
3. SFORZA, C., AND COSCO, G. *The Spread of Human Tuberculosis to the Muscles and the Bone Marrow.*
4. *ANSELINI, A. *A Clinical Contribution to the Diagnostic Value of Antistaphylolysin.*

4. Anselini reports results of a study of the blood serum in cases of staphylococcus infection as compared with that of normal individuals and of persons suffering from other diseases. He finds that a certain amount of antistaphylolysin is present in normal serum and a much larger amount in patients with staphylococcus infections. The serum of persons with staphylococcaemia, containing a considerable quantity of antistaphylolysin, does not show complement deviation with aqueous extracts of staphylococci, antiformin extracts being used as antigen. [L. D. C.]

SURGICAL SECTION.

1. PIGNATTI, A. *Grafts on the Vas Deferens.* (*To be continued.*)
2. BARTOLOTTA, E. *Operative and Histologic Contribution to the Study of Congenital and Elephantiasic Fibromata of the Lower Eyelid.*
3. FORONI, C. *Sclerectomy ab Externo.*

THE SEI-I-KWAI MEDICAL JOURNAL.

DECEMBER, 1913.

1. HIGUCHI, S. *A Case of Extra-Uterine Gestation Occurring Twice in One Woman.*
2. HIGUCHI, S. *Report on Fifty Cases of Extra-Uterine Pregnancy.*
3. KAMADA. *On a Case of Carcinoma Uteri Complicating Pregnancy.*
4. OHKINNA. *On a Case of Primary Carcinoma of Vagina.*
5. IWAHARA. *On a Treatment of Vomitus Matutinus.*
6. TSURUTO. *On Two Cases of Angina Pectoralis Occurring in the Course of Gastro-Intestinal Disorder.*

Obituary.

JOSEPH D. BRYANT, M.D.

DR. JOSEPH D. BRYANT of New York, professor of surgery in the University and Bellevue Hospital Medical College, died from diabetes in St. Vincent's Hospital on April 7. Dr. Bryant was born at East Troy, Wis., on March 12, 1845, and was graduated from Bellevue Hospital Medical College in 1868. He then served as interne at Bellevue. During almost his entire professional career he was connected in some capacity with the hospital, and for many years had been attending surgeon. In 1898 he was appointed professor of surgery in the Bellevue Medical School, and when the consolidation of this with the medical department of New York University was effected he was made professor of surgery in the new medical college. He had been visiting surgeon to St. Vincent's Hospital for twenty-seven years, and at the time of his death was also consulting surgeon to the Gouverneur, Woman's, and Manhattan State Hospitals, the Hospital for Ruptured and Crippled, and St. Joseph's Hospital, Yonkers. Dr. Bryant was the physician and confidential friend of Mr. Cleveland, both when he was governor and president, and by him was appointed state commissioner of health and surgeon-general of the state national guard. He was greatly honored by the profession, serving at various times as president of the New York State Medical Association, the Medical Society of the state of New York, the New York Academy of Medicine, and the American Medical Association. He was the author of an elaborate work on operative surgery, and collaborated with Dr. Albert H. Buck in the chief editorship of the "American System of Surgery."

Miscellany.

ANOTHER METHOD OF PROVIDING DENTAL NURSES.

IN the issues of the JOURNAL for Jan. 1 and 22 (Vol. clxx, pp. 24 and 139) we commented editorially on the proposed measure, now pending before the General Court, providing various changes in the methods of registration of dentists in Massachusetts. At a recent meeting of the Massachusetts Society for the Advancement of Mouth Hygiene, this measure was strongly disapproved. The society favors the accomplishment of the same end by adopting the following amendment to the present law regulating and governing the practise of dentistry in the state:

"Nor shall the law prevent a person, male or female, from cleaning the teeth of and teaching mouth hygiene to the children in public or private schools or institutions approved therefor by the board of health of the city or town in which such school or institution is located, which approval upon written application by the authorities of such school or institution said board of health in its discretion is hereby authorized to give, provided that such person is 20 years of age, of good moral character, has duly qualified

by passing a satisfactory examination in the subjects of mouth hygiene, sterilization, transmission of infectious and contagious diseases and the cleaning of teeth, and holds a certificate to that effect from the board of registration in dentistry, and upon the payment by each applicant of a fee of $5, which shall not be returned. Such board is hereby authorized to make such examination and issue such certificate."

The annual report of the Massachusetts State Board of Registration in Dentistry, recently filed, also opposes the establishment of dental nurses on the ground that in private offices they would be likely to practise other dental procedures than teeth-cleaning.

"Conviction for practicing dentistry by these certified 'dental nurses' would well nigh be impossible," says the report. "Obviously, the objection must be apparent. The passing of such a bill would be the opening of the door to an indiscriminate lot of unqualified adventurers to the general practise of dentistry and a virtual repeal of the present law. Therefore, the work of these qualified 'nurses' should be strictly limited to public and private hospitals, schools and charitable institutions.

Correspondence.

THE FRIEDMANN SERUM AND THE SOCIETY OF GERMAN SANATORIUM PHYSICIANS.

New York, April 7, 1914.

Mr. Editor: A sensational notice appeared at the beginning of last month in some of the leading New York American and German-American newspapers in which it was stated that on the occasion of the annual meeting of the Association of German Sanatorium Physicians on Febrbuary 28, one hundred and twenty of these physicians had carefully investigated the results of Friedmann's work. It was reported that 40,000 cases had been treated with Friedmann's serum and that the successes had been simply phenomenal. It was furthermore stated that Dr. Friedrich Franz Friedmann had been the guest of honor at a banquet given by the sanatorium physicians and that he had been effusively thanked by Privy-Councillor Professor Dr. Pannwitz for his work, in the name of the sanatorium physicians present. Finally, it was said in the newspaper report that Dr. Friedmann had made the statement to an American press representative that Professor Ehrlich had expressed the opinion that the Friedmann serum was absolutely harmless.

In a communication received by the undersigned, bearing the signatures of the President, Dr. O. Pischinger, the Vice-President, Dr. J. Ritter, and the Secretary, Dr. Schellenberg, of the Association of Sanatorium Physicians of Germany, Austria and Switzerland, he was requested to enlighten the American medical profession concerning the incident connected with their visit to the Friedmann Institute in Berlin, and to give the facts the widest possible publicity at least among medical men.

First of all, the officers of the association expressed their astonishment that the visit of the sanatorium physicians to the Friedmann Institute should have been used as a means of advertising Friedmann and his remedy abroad. Because of the report of cures which constantly crept into the German medical and lay press and the demands for the remedy from many sanatorium patients, it was natural that the sanatorium physicians while visiting Berlin should wish to see for themselves what was going on in the Friedmann Institute. Thus they asked Friedmann to show them his cases and give them a talk on the indication for his remedy. About 60 of the 125 members of the association visited the Friedmann Institute on the 26th and 27th of February, 1914. They distinctly stated that their visit was in no way to be considered a pilgrimage to pay homage to Friedmann for his discovery but rather an investigation to find out just how much truth there was in his claims. Many had already tried the remedy and had been disappointed, others were prejudiced, and it is for this reason that they wanted to examine critically into Friedmann's claims. It is absolutely untrue that a banquet was given to Dr. Friedmann. After the conclusion of the visit there was a confidential conference, without Dr. Friedmann, at which the members concluded to discuss the theme again next fall and in the meantime collect as much material as possible.

That the undersigned may not be accused of prejudice or misinterpretation, I wish to quote in German the most essential statements which were made as the result of the visit of the association to the Friedmann Institute:

"Wir waren uns darüber einig, dass die uns von Friedmann gezeigten Fälle klinisch recht schlecht beobachtet waren und im Allgemeinen keineswegs als 'Erfolge' angesehen werden konnten. Wir haben uns gewundert, dass uns keine ordnungsmässig geführte Kurve gezeigt wurde. Die Röntgenplatten, die man uns zum Beweis zeigte, bewiesen tatsächlich garnichts. Wir geben zu, dass einzelne Fälle allerdings einen gewissen Eindruck auf uns gemacht haben, *wobei wir uns aber auch darüber klar waren, dass solche Fälle auch ohne jede Behandlung und bei jeder Behandlung vorkommen können*, und dass die Zahl dieser Fälle verhältnissmässig *viel* zu klein war, um ein günstiges Urteil über das Mittel abgeben zu können."

(We were of the unanimous opinion that the cases shown by Friedmann had been clinically very badly observed, and as a whole could not be considered as successes or cures. We were astonished that no carefully recorded temperature and weight curves were shown. The x-ray plates which were shown to us as evidence of cures did not actually prove anything whatsoever. We will admit that some cases indeed made an impression upon us, but here we must also remember that such cases occur without any treatment or with any kind of treatment, and that the number of them were altogether too few to permit a favorable judgment of the value of the remedy.)

I have since received a letter from Geheimrat Professor Dr. Pannwitz in which he substantiates what has been said in the official communication from Drs. Pischinger, Ritter and Schellenberg. He particularly expresses his indignation at the use of his name in connection with a banquet which never took place. He declared the whole thing to be a newspaper invention.

Prof. Dr. L. Brauer, Director of the Eppendorf Krankenhaus of Hamburg, who had also heard the American version of the sanatorium physicians' visit to the Friedmann Institute in Berlin, wrote me a letter full of indignation and said at the same time that "he had tried Friedmann's remedy at the Eppendorfer Krankenhaus and the results had been unfavorable." He has reported these unfavorable results recently at the Balneological Congress and the Hamburger Aerzte Verein, and intends to publish more on the subject at an early date. He has since sent me the advance sheets of his forthcoming communication regarding Friedmann wherein he says: "The pulmonary cases tested in the Eppendorfer and Salemburg hospitals with Friedmann's method did not improve, but some of them without a shadow of doubt were rendered worse by the treatment. Five cases of bone and joint tuberculosis in children treated with the Friedmann serum by Dr. Trepler in the Salemburg institution were not influenced at all by the treatment and in

one case, although the movement of the afflicted joint increased, the general condition of the lesions was rendered worse."

In paying a gratifying tribute to the earnest and unbiased work done with Friedmann's serum by American investigators, which likewise gave unfavorable results, Professor Brauer advised me, in the interest of the German medical profession, and especially in the interest of the unfortunate patients who naturally are inclined to accept such advertised endorsement as genuine, that it would be most desirable for the present status of the Friedmann remedy in Germany to be made clear to the American medical profession and the laity.

I am sure our German colleagues in general and particularly the German sanatorium physicians, Professors Pannwitz and Brauer, will be greatly indebted to you, Mr. Editor, if you will give the foregoing a space in your esteemed journal and thus make clear the real status of Friedmann's remedy in Germany.

Respectfully yours,

S. A. KNOPF, M.D.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING APRIL 4, 1914.

March 27, Surgeon G. F. Freeman, from *North Carolina* to the *Nebraska*.

P. A. Surgeon E. H. Old, detached, *Nebraska* to wait orders.

March 28, Medical Director G. T. Smith, detached, Navy Yard, Washington, D. C., to wait orders.

Surgeon C. E. Riggs, detached, *Louisiana* to wait orders.

Surgeon F. C. Cook, detached, Naval Hospital, Puget Sound, Washington, to *Louisiana*.

April 1, Asst. Surgeon J. T. Boone, commissioned asst. surgeon, M.R.C., March 17, 1914.

April 2, P. A. Surgeon D. C. Walton, detached, Naval Hospital, Brooklyn, N. Y., and ordered to Naval Academy, Annapolis, Md.

Asst. Surgeon C. I. Wood, M.R.C., to New York Hospital.

EXAMINATION OF CANDIDATES FOR ASSISTANT SURGEON.

TREASURY DEPARTMENT.

UNITED STATES PUBLIC HEALTH SERVICE.

Boards of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 B Street, SE., Washington, D. C., and at the Marine Hospitals of Boston, Mass., Stapleton, N. Y., Chicago, Ill.; St. Louis, Mo.; New Orleans, La.; and San Francisco, Cal., on Monday, April 27, 1914 at 10 o'clock a. m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service, when applications for examination at these stations are received in the Bureau.

Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Service in hospitals for the insane or experience in the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two years' professional work.

For investigation to appear before the board of examiners, address "Surgeon General Public Health Service, Washington, D. C."

APPOINTMENTS.

DR. L. D. BRISTOL, of Syracuse Medical School, has recently been appointed director of the public health laboratory of the University of North Dakota.

RECENT DEATHS.

DR. JOSEPH B. BRYANT, of New York, died in that city on April 7, at the age of 69 years.

DR. G. P. DAVIS, who died on April 1, at Hartford, Conn., was born in 1845. He graduated from Yale in 1865, and in 1869 received the degree of M.D. from the New York College of Physicians and Surgeons. He was a former president of the Connecticut State Medical Society.

DR. PHILIP MANSFIELD FITZSIMMONS who died on April 4 at Cambridge, Mass., was born in Ireland in 1863. He migrated to the United States in 1889, and in 1892 received the degree of M.D. from the University of Vermont. He settled in the practise of his profession at Cambridge, where he served as medical inspector of schools. He was a member of the American Medical Association, a Fellow of The Massachusetts Medical Society, and a member of the Cambridge Medical Improvement Society. He is survived by one daughter and one son.

DR. F. J. S. GORGAS, formerly dean of the dental department of the University of Maryland, died at Baltimore on April 8, at the age of 80 years.

DR. ALLAN FOSTER BARNES, of Cambridge, a Fellow of The Massachusetts Medical Society, died at the Massachusetts General Hospital, Boston, April 12, 1914, aged 38 years.

BOOKS AND PAMPHLETS RECEIVED.

Diseases of Women. By Charles A. L. Reed. D. Appleton and Company. 1913.

Preventable Blindness—A Challenge to the Professions. By Henry Copley Greene, B.A. Reprint.

Essentials of Prescription Writing. By Cary Eggleston. W. B. Saunders Company. 1913.

Materia Medica, Pharmacology, Therapeutics, Prescription Writing. By Walter A. Bastedo, Ph.G., M.D. W. B. Saunders Company. 1913.

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THE TREATMENT OF CASES OF MENTAL DISORDER IN GENERAL HOSPITALS.*

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In the report of the Boston City Hospital for the year ending January 31, 1913, the trustees, speaking of the establishment of the house service for nervous diseases, made the following statement:—

> "With the passage of time the advantages of this plan become more evident. Perhaps the most marked gain for the hospital is in the opportunity this service gives for the observation of patients with psychopathies, or confusional or hallucinatory states. In this way there is given the opportunity to distinguish the various forms of cases, particularly to separate the cases due to some toxaemia or other temporary causes from the more chronic cases, thus preventing the need of committing many of these patients to institutions for the insane, and thus saving them from the stigma of having been insane, however unreasonable this stigma may seen to physicians, and also avoiding considerable expense for the community for the transfer to other institutions of these transitory cases."

In the many discussions that have been held as to the disposition to be made of the so-called "acute and borderland cases of mental disease," I have at various times contended that such cases could very well be received and temporarily cared for in our general hospitals,—a contention which the hospital authorities have always strenuously opposed. It was therefore with considerable gratification as well as surprise that I read the words just quoted, for they showed that the experience of the last four years in the treatment of such cases in the neurological service has demonstrated not only that the admission of such cases is possible, but even advantageous.

The mentally disturbed patient is, of course, not looked upon with favour in a general hospital. He may be noisy, violent or dangerous; patients and nurses fear him; he may have to be fed or be filthy in his habits; his language and conduct may be offensive; he may even kick off the bed-clothes or wander about in his night shirt. Consequently a matron, who does not want the bed-clothes thrown off when the thermometer reaches 104°, or who, like the matron described by Dr. Mary Neff*, "wants the patients to sit all in a row," because they "look neater that way," looks at him askance. His departure, whether to the insane hospital or the morgue, is hailed with relief. Nevertheless every hospital of any size must inevitably have to deal with disturbed or violent cases, if it receives accident cases, surgical cases, acute infectious diseases, apoplexies, renal diseases, or, I might almost say, any patient at all. If the hospital has a special ward, like the psychiatric ward at Bellevue, the problem is easier, but with open wards the difficulties are obvious and have often been regarded as insuperable.

It therefore seems desirable, especially in the light of the recent comments of the trustees of the hospital, to review my own personal experience in the last four years in dealing with patients who have manifested some mental disturbance during their stay in the hospital. I will speak only of the cases admitted to my own service during one half of each year, although it is safe to assume that conditions do not differ materially during Dr. Thomas's service in the other half of the year. It is fitting here to recognize Dr. Thomas's complete cooperation in the work of the service in caring for these patients and the absolute support which Dr. McCollom has given us, in spite of certain anxious misgivings, in our efforts to carry out our own ideas in the face of considerable opposition and interference on the part of others.

A few words of explanation may be desirable in regard to the Neurological service. After a struggle of twenty-three years, following the abolition of the service in 1886, it was re-established in July, 1909. Twenty beds were allotted to the service,—an inadequate number, for the service has contained at times thirty or forty patients. There is no special ward, but patients are distributed in several wards. Excited patients are put in an open ward of eight beds, or in double rooms opening on a corridor leading directly from this ward. The doors are not locked and access is free. About four hundred patients are admitted annually to the wards, chiefly adults. In addition the visiting physicians have charge of the out-patient department, which receives seven or eight hundred new cases a year. Cases are often referred from the out-patient department to the wards, but the great majority of cases admitted to the hospital come from outside and are never seen in the out-patient department. No special effort has been made to collect mental cases and recommend them for admission; they have come in simply in the course of the ordinary hospital routine. After some months the trustees passed

* Read at a meeting of the Boston Society of Psychiatry and Neurology, December 18, 1913, and at a meeting of the New York Psychiatrical Society, January 7, 1914.

* Journal of the American Medical Association, vol. lxi, p. 559, August 23, 1913.

a vote that all cases in the hospital in which the question of commitment was raised should be referred to the neurological department which should provide for such commitment if advisable. Such cases are usually, although not always, transferred to the Neurological service.

In the last four years there have been admitted to the service during the months when I was on duty 785 patients. Of these 49 were not neurological cases. The remainder may be classified as follows:—

Diseases of peripheral nerves	62
Diseases of spinal cord	78
Diseases of brain	279
Neuroses and psychoneuroses	157
Mental diseases	74
Alcoholism	93
Cases classed under two headings	7

This classification is the conventional one, classifying hysteria, epilepsy, psychasthenia, etc., among the neuroses, and including paresis among the mental diseases and cerebral oedema (alcoholic "wet brain") under alcoholism. The following table will show the diagnoses most frequently made.

Apoplexies (hemorrhage, embolism, thrombosis)	207
Alcoholism	93
Hysteria	52
Neuritis	40
Epilepsy	36
Tabes	35
Chorea	23
Cerebral syphilis	21
Dementia precox	20
Cerebral tumor	18
General paresis	14
Spinal tumor	11
Spinal syphilis	10

Under alcoholism I have included beginning delirium tremens, cases that never developed a true delirium, but came near it, alcoholic confusion, hallucinosis, paranoid states, pseudo-paresis and "wet brains." In addition most of the cases of neuritis were of alcoholic origin and many of them showed the Korsakow syndrome. The 74 cases of actual mental disease were of all types, senile dementia, paresis, dementia praecox, maniacal-depressive insanity, infectious psychoses, confusional states, etc.

This classification, however, is not very illuminating. Under the hospital rules mental and alcoholic cases, which form about twenty per cent. of my cases, are not supposed to be admitted. We must also remember that many cerebral cases, not classed as mental,—apoplexy, tumor, syphilis,—may show pronounced mental symptoms, that many cases of neuritis have Korsakow's syndrome, and that hysteria, chorea, epilepsy and psychasthenia can cause considerable disturbance, so that these "mental" cases are only a part, perhaps a minority, of the cases which show mental disturbance. If the cases admitted to Dr. Thomas's service are like those admitted to mine, which seems to be the case, it is not an exaggeration to say that the service receives about one hundred patients each year who show considerable mental disturbance. I may add that I have myself committed 69 patients from the hospital in the last four years, and I think that at present about forty such cases are committed each year.

The crucial point in regard to the admission of mental cases to the wards of a general hospital is, of course, neither the number of cases nor the diagnosis, but the conduct of the individual patient. A general paralytic may be able to go about and attend to business without harm to anything or anybody except the business, or he may be the most dangerous patient in an asylum. That many of our patients have been actually insane the number of commitments shows, but many have been fairly quiet and easily controlled, just like the majority of patients in an insane hospital. I have, however, dealt with nearly every variety of patient in these last four years as far as conduct goes,—simple confusion, cases requiring forced feeding, agitated and suicidal melancholias, aggressive paranoiacs and the most violent epileptic mania. Violent mania is of course rare, whether in a general hospital or an insane asylum, yet to the minds of many of the laity, and apparently some physicians, "insanity" seems to connote violent mania, if indeed it be not identical with it. In some of the discussions on the treatment of incipient and border-land cases of mental disease, I have often wondered just what the cases were, for they were depicted as so much more violent and intractable than the incipient and border-land cases I had met, that it almost seemed as if, in comparison with them, the first Mrs. Rochester—still the type of the insane person—were a Quaker damsel.

I do not mean to imply that, previous to the reestablishment of the neurological service, there were not mental cases in the hospital. On going over the records of the old service for nervous diseases thirty years ago, I have been surprised to note the very considerable number om mental cases admitted, and I can recall many cases each year since that have come under my observation as a consultant. Many alcoholic and some mental cases may still be found in the general services, so that there have been more cases in the hospital during the last four years than my statistics would indicate. Every general hospital actually receives a considerable number of such cases, and, although the hospitals object and profess not to receive them, they will continue to have them in their wards so long as they receive patients at all.

In most hospitals, however the mentally disturbed patient, like other unacknowledged children, is not very well treated. Even if he

be not actually violent he may get out of bed or disarrange the bed-clothes, and the one idea is to keep him quiet. The result is restraint, and since drug restraint usually requires the connivance of the physician, mechanical restraint, which can be applied without a prescription, is preferred. This is often irritating and sometimes brutal. With a sheet across the body, each hand tied down to the side of the bed and each foot tied to the bottom, it is a common thing for the patient, if he be restless, to rub several square inches of skin off his wrist and ankles. The exasperating effect of such restraint is obvious, and since he can get relief in no other way, he takes it out in cursing—and small blame to him. In hospitals for the insane a list is kept of all patients put under restraint, noting the kind of restraint and the length of time it is applied. Such a list is regularly submitted to the trustees on their visits, and the trustees usually visit such patients and investigate their condition personally. What general hospital does the same?

I am not disposed to make a fetish out of "no restraint." I have seen patients in insane hospitals where I believed at times restraint was desirable. In general hospitals restraint may be even more necessary, especially in surgical cases, but it is applied much oftener than is necessary. There is much truth in the statement that violent mania is often an artefact, due to psychical sepsis, and it is a fact that much of the restraint used in general hospitals is due to an inefficient and insufficient nursing force.

It naturally follows that an effort has been made to cut down restraint, in which Dr. Thomas thoroughly cooperated. House officers and nurses were told that mechanical restraint as ordinarily applied was damnable, and some of the former apparently came to believe it. Both house officers and nurses speedily became convinced that, if they employed restraint except as a last resort in urgent cases, they would be very thoroughly damned, and no restraint has been permitted except on the express orders of the house physician. In the enforcement of such rules and in the prevention of interference by matrons and executive assistants, we have been much helped by Dr. McCollom, who has always been ready to supply special nurses when necessary. The result has been that in the neurological service little restraint has been used, usually in the form of a sheet fastened across the bed, or, very rarely, of a camisole. The brutal "spatch-cock" method of tying, already described, has proved needless. Restless patients have often done well when side pieces were put on the beds—an innovation in the hospital which we owe to Dr. McCollom, and which would undoubtedly shock a matron who thinks things "look neater" if everything is uniform. The result has sometimes been shown in the remark of a house officer, "It's interesting to see how that patient quieted down after you took off the restraint he had on in the other service."

In endeavoring to do away with mechanical restraint, I do not think I have fallen into the excessive use of drug restraint. I have used the milder sedatives, bromide or veronal, in moderate doses in a good many cases, especially in alcoholic cases, but I have very rarely prescribed more powerful drugs, hyoscine, morphine or even chloral. An occasional wet pack, forced feeding, absolute avoidance of alcohol in the alcoholic cases, a few moderate doses of bromide and more or less persuasion have usually sufficed.

The question naturally arises, "What has been the result of all this? How can you get on in a general hospital and open wards with these excited, noisy patients if you do not restrain them?" In the first place most of these patients are not excited and noisy unless they are restrained. If the physician takes alarm at the first symptoms of aberration, restlessness or disarrangement of the bed clothes and applies restraint, the patient becomes irritated in consequence and is ready to make trouble. Even when the patient is excited and noisy we have managed to get on with very little restraint, and apparently we have done better without it. In four years there has been no suicide, no patient has escaped from the hospital, and only very rarely from the ward, and no patient has seriously injured himself or others. I speak solely of my own service, but I think the same holds true of Dr. Thomas's service. This is what any man with insane hospital experience ought to expect, but some have seemed disposed to question whether, without the regime of an insane hospital with locked doors and violent wards, no restraint was feasible in an open hospital ward. Cases will undoubtedly occur which will give rise to trouble—suicides, escapes, assaults,—but they occur even in hospitals for the insane, and they are not common. Cases of incipient mental disease, "border-land" cases requiring a period of observation to determine their mental state, even the emergency cases picked up by the police, can perfectly well be treated in the wards of a general hospital, as our experience in the last four years has shown. They make more trouble for the nurses and give them more work; they are a source of anxiety to the administration and the staff, but they can be dealt with without much harm, provided the physician knows how to deal with them.

Another question, which is often regarded as a bugaboo, is the legal status of these patients. It is urged that we have no legal right to receive such cases or to hold them against their will, or, if the patient be violent, to put him under restraint. This is perfectly true, and,

of course, a very serious difficulty to which we usually pay no attention. Once in a great while a patient has stood upon his legal rights and demanded immediate discharge, but a few excuses and delays have given time for the necessary steps for commitment, when it has been necessary.

Four years' experience has convinced me that, even without a special psychiatric pavilion or psychiatric wards insane patients can be received and temporarily cared for in the open wards of a general hospital with comparatively little restraint and that such a procedure is attended with somewhat more trouble, but no great risks. The question arises, however, what is the good of it all? The statement of the trustees gives a partial answer which merits a little more consideration.

In the first place, if mental cases be received in a general hospital, it is an easy way of dealing with cases of acute onset or the cases which fall into the hands of the police. A case of dementia praecox, suddenly attacked with mutism and found wandering about the town acting strangely, can be brought to the hospital without delay, without legal formalities and without waiting to hunt up his friends, and can receive immediate treatment, just as if he were attacked by apoplexy or were the victim of injury. This is often of advantage and it may prevent neglect or ill treatment, such as the insane used to receive in police stations. With a psychiatric hospital within easy reach, if admission be not made too difficult, it may, of course, serve the same end.

Still more important are the cases which do not fall in the hands of the police, but who either come of their own accord or are brought by their friends. In such cases the general hospital can be of great service to the community in three different ways. A patient may present obscure symptoms which make the mental state a fit object of inquiry. He can be subjected to observation until a definite diagnosis and suitable provision for his future can be made, without any disturbing legal procedure and without alarming the patient or his friends with immediate processes of commitment. A patient in the early stages of some mental disorder can be thus cared for until it is easy to determine what is best to be done. The family is often very loath to admit that there is actual insanity and shrink from the formalities of commitment even though the nature of the disease and its probable outcome are fully explained. They grasp at every straw to avoid commitment to an insane hospital and suggest home care, a sanitarium for nervous diseases and the like. If the patient be taken to a general hospital they have a chance to watch his condition for themselves and to realize his unfitness for anything but asylum care. The idea of his insanity gradually grows in their minds and they become more reconciled to accepting the inevitable than they would be if the experiment had not been tried. Time is afforded for family councils, for personal investigation of desirable hospitals and for a fuller realization of the patient's actual mental state. The general hospital thus exerts a beneficial and desirable influence by lightening the burden of a family in its time of distress.

Finally, cases of short duration can be treated in the general hospital until they are able to return home and can combine treatment as out-patients, on the "after care" principle, until recovery is complete, thus avoiding an official recognition of the "stigma of having been insane."

This stigma is of great influence upon the minds of the general public and it is by no means as unreasonable as we try to assume. It is unreasonable to regard insanity as a disgrace, but that belief is dying out, but it is not unreasonable to recognize the fact that insanity is to a considerable extent a stigma both economically and socially. The employer of labor, in the broadest sense of the term, may very properly question the efficiency of the employee who has been officially judged to be of unsound mind. Even if he has been allowed to go at large and has been pronounced recovered, has he the quickness of perception, the accuracy of memory, the intelligence, the judgment, the decision that are requisite? Is he as good as he was before or as good as the rival candidate who has never been adjudged insane? The answer to both these questions may be yes, but the employer is justified in asking them, and the mere fact that they can be asked excites a certain prejudice against the victim. It is his misfortune and not his disgrace, the question may be raised without any justification, but the previous insanity remains as a handicap, and the employer is justified in doubting his efficiency as he would be in doubting the efficiency as a look-out man of the applicant who wore ten dioptre glasses.

Furthermore, until our modern craze for eugenics has passed to that land of oblivion where Annie Rooney watches the march of the Mulligan Guards, some will doubt, perhaps wisely, perhaps without reason, even if the state is not sufficiently up-to-date to have a eugenic marriage law, whether M. or N., if once adjudged insane, is a fit person to be joined in holy matrimony.

If, therefore, a person suffering from some acute mental disease, which does not impair his mentality afterwards or influence his future offspring, can be treated without an official, legal recognition of his trouble, it may be of great advantage, a positive benefit to the patient and the community.

That such cases can be treated and get well in the wards of a general hospital, even if the conditions for their treatment be not ideal, has

been shown many times in the last four years. I will not go into details but indicate in a few instances what has been done.

A young musician, neurotic and with a bad family history, entered the hospital with a rather severe pneumonia attended with delirium. After the pneumonia had wholly cleared up he developed hallucinations, which seemed to him real, mental confusion and some delusions. He was transferred to the neurological service, where, after a time, the hallucinations began to lose their reality and the delusions subsided. He was encouraged to disregard his hallucinations and finally improved so much that he was able to go into the country with some friends. It seemed at first as if the trouble were likely to develop into dementia precox, but he eventually made a complete recovery.

A Russian Jew, speaking little English, came to Boston, where he met with some business disappointment. He was picked up by the police and brought to the hospital weak and cataleptic. Later he became confused and had hallucinations. He also seemed at first a typical dementia precox, but later, after the arrival of his wife and the straightening out of his financial troubles, he made a complete recovery.

An alcoholic patient was admitted to one of the medical services where he speedily developed delusions of persecution with hallucinations of sight, smell and hearing. Under the sway of these delusions he made a dramatic escape one night over the wall in his nightgown and was brought back by the police from Washington Street, where he was trying to board a car. He was transferred to the neurological service for commitment and gave a very dramatic account of his escape, detailing all the facts most accurately. After a few days of careful attendance and re-assurance his delusions disappeared and he recovered completely.

A police officer, markedly alcoholic, but who denied syphilis, was admitted to the laryngological service with edema of the glottis, and tracheotomy was performed. After that he became much excited, tried to escape and was noisy and troublesome. He showed marked euphoria, considerable exaltation, lack of comprehension, slurring speech and the inconsequential manner of a paretic. There was failure of memory, the handwriting was suggestive and the pupils sluggish. He had, however, considerable insight, and, when I saw him in consultation, knew who I was and that I had been called in to determine his mental state, and commit him to an insane hospital. The Wassermann test in the blood and cerebrospinal fluid was negative, the globulin reaction was negative and there was no increased leucocytosis. He began to show less excitement so that I resisted the pressure to commit him, and a few weeks later was able to send him to the country, where he made a complete recovery.

It is sometimes said that a general hospital is not adapted for the treatment of the insane because it has not the facilities of an insane hospital. It is not adapted for permanent treatment. It lacks the opportunities for work, entertainment, exercise, out-of-door life, and recreation which are such important factors in our modern hospitals for the insane. It has, however, certain advantages which are not to be wholly ignored. A few years ago a good deal was said about "bed treatment" in the early stages of the acute psychoses. That, of course, is what a patient is likely to get in the wards of the hospital. Furthermore, unless he be very demented or confused, he enters into an atmosphere of physical sickness which is inevitably impressed on his mind. He is in a ward with others who are manifestly sick persons, therefore there may be something the matter with himself, his hallucinations and delusions may be the product of physical disease. The suggestion of the hospital ward may help to establish an insight into his own condition. This, of course, may be a disadvantage in somatopsychoses of a hypochondrical nature, but in other cases it may do good. In some alcoholic cases of a paranoid type, where the patient insisted upon getting up and leaving the hospital, I have found that the suggestion that the patient was in the hospital with other sick people because he was sick himself, and that he ought to stay a little longer until he was better, actually worked, and the patient stayed until he recovered.

If, therefore, the Trustees can express themselves as they have in their last report, it is no emotional conversion but a simple recognition of what four years' experience has shown, that it is feasible for a general hospital, even without a special ward, a hydrotherapeutic plant and other aid, to receive and treat both doubtful and pronounced cases of mental disorder, with little restraint and without great risk of serious results: that it is also feasible to treat some cases of short duration until they recover; and that the reception and treatment of such cases is a benefit to the patient and his friends, by giving an opportunity for study of his condition, for deciding upon the proper disposition of the case, and, perhaps, by preventing the stigma which actual commitment may inflict.

I would go a step further and say that it is the duty of every large general hospital to take such cases. The mental patient has a claim upon the benefits of a public hospital just as well as the surgical, the gastric or the renal patient. To be sure the reception of such cases means some extra trouble, a few more nurses and more anxiety for the staff and the administration. The adoption of aseptic methods in the surgical wards meant much more trouble and vastly greater expense. There are certain risks involved, but our experience, though limited, has shown that they are not very great. Every good hospital for the insane has its escapes, its suicides, its act of violence. The general hospital may expect them as well; they are a part of the game, but the benefits to the community outweigh them.

One word in conclusion. It is not practical to receive and care for such patients in a general hospital unless there be a special service under the charge of a visiting neurologist familiar with mental diseases and their treatment. The average American internist is too ignorant of mental and nervous diseases to deal properly with such cases. Something more is requisite than restraint while in the hospital and commitment at the earliest opportunity. The visiting physician must be familiar with mental diseases, he must be able to make a sound prognosis as well as diagnosis, must know how the patient is likely to behave and be ready to assume risks and to take proper precautions. He must have the control of his patients and their treatment without interference from administrative officers, and must be alone responsible for the treatment, the stay in the hospital, restraint and commitment. Only under such conditions can the reception and treatment of cases of mental disorder in general hospitals be of full benefit to the patient and the community.

[Since reading this paper I have learned from Dr. H. M. Adler that, at the Psychopathic Hospital, they had recently compared the death rate from alcoholism at several different hospitals, and that, since the establishment of the neurological service at the City Hospital the death-rate from alcoholism at that institution, in spite of defective facilities for treatment, has been reduced one-half.]

MEDICAL INSPECTION OF IMMIGRANTS AT THE PORT OF BOSTON.*

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While the above heading is given as the subject this evening it applies in general to all ports of the United States. The story of immigration is as old as the history of the United States; in fact with certain qualifications it is the history of this country. While laws in the early days provided for the restriction of inanimate goods, more or less unwritten and written law restricted the human being from certain localities, which finally grew into organized law for the protection of the community. For example the Quaker was not welcome in the land of the Puritan and Virginia gradually closed the door to redemptioners. Our institutions have been founded by, supported by, and in turn supported aliens and their descendants. The first rule of national life is self preservation and as immigration still has an important rôle in America national life it must be carefully scrutinized to admit the desirable.

The medical aspect of immigration was brought to public notice about the year 1824 when New York City attempted to levy a head tax on all foreign passengers arriving in that city; later in 1847 a similar act was passed by the state. This money was intended for the support of an immigrant hospital. It was declared unconstitutional in both cases by the courts on the ground that the power to regulate commerce was vested in Congress and not in any state.

This was probably the first restrictive policy that was actively started but of course the whole earlier history of the country showed that economic pressure tended to restrict newcomers to those nearest the race, language and ideals of the region. For many years each state dealt with the problem of restricting the entry of diseased aliens as best they could. Of course this was very difficult owing to the ease of passing from one state to another.

When the Federal Government took supervision of the matter in 1882 a general rule was adopted to reject those who suffered from physical defects liable to make them public charges, note being made of insane, idiots and persons unable to take care of themselves. In 1891 this law was further extended to include those suffering from loathsome or dangerous contagious diseases. In 1903 the most radical step was taken when the Government placed a fine of $100 on the steamship company, in addition to exclusion, for each case of a loathsome or dangerous contagious disease that could have been detected by competent medical inspection at the time of embarkation. In 1907 the law was extended to exclude epileptics, feeble-minded and persons who have been insane within five years, or have had two or more attacks of insanity at any time previously, tuberculosis (meaning tuberculosis of the lungs, intestinal tract or the genito urinary system) or those suffering from such mental or physical defect which may affect the ability of the alien to earn a living. At the same time idiots, imbeciles and the tubercular were placed in the $100. fine class. In 1891 Congress turned the work of medical inspection over to the Marine Hospital Service (now the Public Health Service.) This Service has published definite rules for the medical examination of aliens which if followed insure a uniform system of inspection and records at all ports of entry.

Whether an immigrant belongs to the excluded class or not is a function of the immigration officials. This is often confusing to many for it must be understood that the Immigration Service is a Bureau of the Department of Labor and the Public Health Service is a Bureau of the Treasury Department. Hence the two Bureaus work together; the certificate of the medical officer constituting the legal evidence

* Address given before the Norfolk District Medical Society, Boston, Mass., Jan. 27, 1914.

upon which the immigration officials base their action, in mandatory cases and in other cases consider the certificate from the standpoint of affecting ability to earn a living or likely to become a public charge. Seldom does the alien suffer from too harsh a medical judgment. All things taken into consideration he gets the best end of the doubt for the rules require the certificate to be based on conclusive evidence. For example a case of pulmonary tuberculosis cannot be so certified unless a microscopical slide showing the bacilli can be demonstrated.

Briefly the law divides all defectives into three classes and makes no distinction between cabin and steerage passengers. United States citizens of course are exempt from examination but may be called upon by the immigration officials for satisfactory evidence of citizenship.

Class A. Mandatory exclusion because of definite specified diseases such as idiocy, imbecility, feeble-mindedness, insanity, epilepsy, tuberculosis, loathsome or dangerous contagious diseases.

Class B. Aliens not under Class A., but present some defect or disease affecting ability to earn a living, as hernia, heart disease, defective nutrition, varicosities, presenility, certain diseases of the nervous system, chronic joint diseases, marked defective vision and tuberculosis of the skin, glands and joints.

Class C. Aliens presenting defects or diseases of less seriousness but must be certified for the information of the immigration officers that they may pass intelligently on the case.

In order to prevent any alien slipping by without examination by doctor every passenger carries an identification card. In the cabin this card is punched as each alien passes the medical officer so that the inspector can tell at a glance whether or not he has been seen. As the immigration inspectors are on the alert they usually return to the doctor any alien who presents any unusual physical or mental appearance even if his card is punched. To prevent delay a slight abnormality such as a scar of the face from a burn is noted by the doctor and a slip given the alien noting the condition and stamped "Special Medical Passed." The steerage usually being examined on shore are checked by attendants to prevent any oversight. At Ellis Island the steerage passengers' inspection cards are stamped in ink by an attendant.

In the law contagious means communicable and loathsome contagious mean those whose presence excites abhorrence and are essentially chronic such as favus, ringworm of the scalp, leprosy venereal diseases. Dangerous contagious diseases may be illustrated by trachoma, hookworm and amoebic dysentery.

The method of conducting examination must vary somewhat with local conditions and to accomplish this without undue annoyance to travelers, without delaying traffic requires care and tact on the part of the medical officer. Before inspection two sources of information are at hand; the manifest sheet and the ship surgeon's report. How reliable this information is depends on the type of men filling the forms. When one considers that nearly all immigration is carried in foreign ships manned by foreign officers it requires experience in dealing with them to estimate the value of their reports. As far as possible all inspections should be made in daylight for under artificial light certain diseases involving different hue or alteration in the skin cannot be noted accurately.

The medical examination is divided into two parts, primary and secondary. In the primary the efforts of the examiner is directed toward segregating from among those presented those suspected of having disease, defect or abnormality of any kind in order to enable the healthy to proceed without unnecessary delay. Secondary; to make a systematic inquiry as to the signs and symptoms in those turned aside in order to determine a diagnosis and proper certification. The alien may be detained for any reasonable period of observation required to complete the diagnosis and if necessary hospital treatment provided.

Primary inspection is conducted on an even level surface, so that the passenger may not be tempted to look where he is stepping. Care is taken against crowding, to maintain a line evenly spaced and to have as little baggage carried as possible. The examiner stands in a position to secure as even illumination as possible. Direct sunshine in the face or reflected from the water must be avoided. To also facilitate the work the line should make a right angle turn in front of the examiner in order to secure a good view of both sides and back with the least effort.

The examiner then proceeds in a systematic manner to examine the line as it approaches. Standing with the light falling over his shoulder he begins his study of the alien at about twenty feet distant. Beginning with the feet at that distance, as the alien draws near the eye gradually rises from the feet to the head without effort. The character of the gait or other defect of the lower extremities will attract attention such as flat feet, nervous disorders, deformities, abnormalities, joint diseases, or artificial legs. As the glance sweeps upward undue prominence of or about the groins may be noted, the hands as they furnish important evidence of the general physical development, diseases of the respiratory and vascular system, disordered or impaired nutrition, defective mentality, nervous, cutaneous diseases besides local defects and deformities. The abdomen noticed for undue protrusion, ascites, splenic enlargement, pregnancy and abdominal tumors in general. The chest for asymmetry, undue prominence, defective development and the back for evidence of spinal disease and deformity. The neck is surveyed for goitre, abnormal pulsations, enlarged glands, tumors and deformities. The

head is examined for abnormalities such as unusual shape deformity, disproportion, and asymmetry affecting the bones of the face and skull; this includes any signs of disease of the ears as well as the skin. The oral and ocular membranes act as an index for anaemia, while the scalp and beard are scrutinized for evidence of ringworm, favus or other infection. By this time the alien has arrived close enough for the eyes to be taken into close detail and the lids everted for the detection of trachoma.

A feminine voice may further confirm the suspicion of arrested sexual development which has been aroused by noting the absence of beard and the peculiar wrinkles about the upper lip, a tremulous voice often found in alcoholics, scanning speech or hoarseness make us at once turn off a case for more detailed examination.

Not only sight but the sense of touch and smell play a part. The hand against the forehead gives an idea of the presence of fever at the same time sight is taking in conditions about the mouth. Response to a simple question gives an index of hearing and mental reaction, while the sense of smell simultaneously may arouse suspicion of uraemia, ozaena, favus, foul discharge from ear, abscesses or ulcers concealed by clothing.

Associated with this the examiner acquires a habit of noticing unusual conduct, bearing, language, peculiar facial expression and emotional outbreaks. Febrile changes are constantly watched for, signs of exanthemata and in infants one of the most obvious signs of respiratory changes may be noted by watching the movements of the alae nasi muscles. Defective vision is often detected by squinting, a desire to keep in the proximity of accompanying persons, a tendency to look downward while walking, avoid the gaze of the examiner, indecision or confusion in the sense of orientation when obliged to make a sudden change in the direction of his course.

By the time the immigrant is face to face with the examiner a general impression has been formed and it has either been so favorable that the alien is passed at once or something may have been noted to cause his detention.

The above gives briefly a general idea as to what observation shows on the primary examination and the secondary examination is the regular medical procedure to confirm a diagnosis or pass the alien.

To the casual visitor it may seem a routine condition and tend to justify the criticism of a writer that I quote from a Boston newspaper. "The immigrants simply file past them and they look hard at them as hard as they can and that is about all they do. If they are looking for any particular one they switch him off for further examination and they do the same if their suspicions are aroused. They are really very clever at detecting skin and eye diseases and do their best work in that line. They don't see all and thousands get by them. Diseases like tuberculosis of the lungs are constantly coming in against the law; all except the very advanced cases getting in. Still more important are the diseases of the mind, the feeble minded and the insane which are rarely detected." Owing to the critic's lack of knowledge of the immigration law, lack of experience in the practical side of the examination and its results, the above is a good description of the impression made and is of about the same value as the opinion of the medical student who after attending a few large surgical clinics, said that all there was to surgery was "cut it off or cut it out." As matter of fact there is much more to it than the casual visitor ever sees unless he is willing to spend plenty of time in careful investigation of the subject from all sides.

A knowledge of racial types and their peculiarities is essential, for without this a great many normal persons would be detained, hence ethnology plays an important part.

Since the days of laboratory and other aids to diagnosis we have tended to lose sight of the value of observation and what it may tell us until we are reminded of it by some expert like the late Professor Fitz of Harvard. It is of interest to note that over seventy-five years ago Robert Ferguson in a lecture before the students of King's College, London, stated "That there is a right and wrong method of observing is evident since mankind has always observed but rarely discovered." In fact it can be safely stated that almost no grave organic disease can have a hold on an individual without stamping some evidence of its presence upon the appearance of the patient evident to the eye or hand of the trained observer.

It must be borne in mind that owing to certain limitations immigration inspection is a sieve and not a dam, also medicine is not a science like mathematics. It would be decidedly unfair to certify a person on suspicion, hence it is a wise provision in the regulations that calls for definite evidence and gives the alien the right of appeal. While to those that look on from the outside it may seem as if little is accomplished; if one considers the fact that the stream of men, women and children passing in line is really composed of a body of individuals from whom the physicians in the employ of the steamship companies have already endeavored to eliminate the physical and mental unfit, it may be a matter of surprise to know that about 1.5 per cent. of the total number of immigrants arriving at the ports of the United States have been certified for physical or mental defects that would place them in one of the classes which either rendered deportation mandatory or required the alien to submit satisfactory proof that his disability will not make him a public charge.

To show how experience in this work is necessary to avoid the mistake of confusing racial characteristics with pathological conditions some

conditions met with will be described in the following paragraphs.

It takes considerable experience to know what constitutes the healthy color in a given race. A healthy Gypsy might readily be suspected of having Addison's disease, a healthy Greek of suffering from malarial cachexia or malignant disease. A normal West Indian Negro sometimes has the peculiar pallor suggestive of tuberculosis and the temperate Alpine mountaineer often dilated capillaries resembling those seen in chronic alcoholics. Sea sickness may readily leave bad effects for some days and the pallor and weakness suggest some serious constitutional disease.

Pulsating blood vessels in the neck are often caused by fright increasing the heart action and it can be readily noted that all or nearly all immigrants pass before the doctor in a high state of nervous tension, for they believe that once by the medical officer the battle is nearly over. This is not their first medical examination. They have seen others weeded out before leaving, while during the voyage weird tales of all sorts have been poured into their ears as to what may happen with all the local color and exaggeration characteristic of human nature.

Irritation of the conjunctiva caused by certain occupations involving exposure to smoke, dust or heat, such as iron workers, bakers, coal miners and line workers may cause a chronic inflammation and scar formation of the lids simulating an old incompletely cicatrized trachoma.

The face of a muscular able-bodied Italian peasant often is so devoid of fat and muscle tissue that on first sight one would think that the whole body was thin and undeveloped. The complexion of the Slavish peasant woman would be suspicious of chlorosis if possessed by a Scandinavian or English woman of the same class. On the other hand the red cheek of the Scandinavian would arouse thought of a hectic flush if seen in the Polish woman.

The excitably of the southern Italian and the Hebrew are well known. It is easy to excite in them almost maniacal action. The stolidity and indifference of the Slav would suggest melancholia if presented by the Hebrew. The sanity of an Englishman would be questioned if on slight provocation he evinced the external manifestation of emotion that would occur in the Sicilian. The German girl takes her examination seriously and her sanity would at once be suspected if she saw the same reason for light remark and laughter as the girl from Ireland. Some races are extremely emotional, others slow; and unless the normal is known it is impossible to pick the abnormal. In short, in determining mental conditions by inspection the first essential is to determine the race or type of the individual and to have a good knowledge of his racial characteristics. To the trained examiner the facial expression, attitude, mannerism and dress convey an expression of understanding. It would be difficult for an examiner not familiar say with the Syrian peasant type to form any opinion of his mental calibre from his appearance or attitude alone. A few questions will determine reaction and orientation. If from this nothing is noted the alien may be allowed to pass, otherwise he is held for a more complete mental examination.

It is unpracticable under the present law and facilities to consider every alien a possible mental defective and subject him to complete examination unless on primary inspection there were some signs of mental disorder. With the feeble-minded, the facial expression and attitude is a valuable index except in the high-grade types where it is negligible and is then a matter of judgment and experience of the examiner (based upon the normal) to decide how much lower the suspect is in the mental scale, considering all the factors of race, previous environment and education.

Owing to the lack of agreement among experts as to where the normal ends, the mental problem is a difficult one. The term mental instability, psychopathic tendency or constitutionally inferior can be referred to a class whose mental organization is of the weakest, yet showing no definite mental symptom at present, would go on normally in primitive surroundings but on slight stress such as found in a new country with its disappointments, its strange language and customs become mentally disordered.

Investigators that have given careful study of the subject agree that the medical inspection is no farce. Examiners that have had years of experience in the service have seen a marked increase in efficiency due to experience and increased facilities. It is by no means perfect but is being improved as fast as Congress will grant authority and facilities. There are still many loopholes and any attempt to seal them is naturally fought bitterly by those interested in keeping an open gate.

Rarely are newspaper or magazine articles on the subject fact but rather sentimental fiction with just enough fact to give a foundation for a good story.

Every time a defective is admitted it is an inducement for many more to try. If the public were truthfully informed it would result in the country receiving a better physical and mental type of immigrant and in turn the immigrant would or could have better treatment and protection.

It has been estimated that out of the alien head tax of $4.00 about twelve cents pays the cost of the present inspection. If this is true the public treasury is certainly not being drained by the medical department.

The work is hazardous and requires men of good physique. Furthermore, they must be interested in the subject in order to pay close

attention to their work. In the busy season the constant standing and mental concentration tend to produce breakdown and there is always the chance of contracting contagious diseases.

PTOSIS—A CAUSE OF GYNECOLOGICAL FAILURE.

BY F. S. KELLOGG, M.D., BOSTON.

MANY patients continue to be sick after gynecological operations performed for their relief or cure. This is due to many well-known causes, perhaps the most potent being that much gynecology is done on patients who cannot or will not afford "after treatment," used as an all embracing term.

That ptosis unrecognized or untreated is often the cause of this failure to get results I feel sure.

Four cases seen in the last six months show this is so, even in good hands. Out-patient hospital cases show it more often.

CASE 1. Miss S., 25 years old. Stenographer. Operated three years ago. Complaint at that time, constipation and bloating, pain in back, dysmenorrhea, fainting between and with periods. Operator is one of New England's foremost gynecologists. Operation, D. and C. Appendectomy, resection cystic ovaries, ventral suspension. Result of operation: As before except that periods easier for several months, when they became as painful as before operation. Referred by family physician, with statement that case is very neurasthenic. Wishes to know if there is anything in pelvis to account for symptoms.

CASE 2. Mrs. K., 40 years old. Married, 2 children. Operated two years ago. Complaint at that time, nervous debility, backache, leucorrhea, constipation and indigestion. Operator one of Boston's foremost gynecologists. Operation, amputation of cervix. Since operation previous symptoms all worse; referred by physician with statement that he finds nothing wrong medically, that patient is neurasthenic, and complains constantly of soreness in the abdomen. Wishes to know if there is anything in pelvis to account for this.

CASE 3. Mrs. S., married 6 years; 27 years old. Five months after marriage consulted physician for pain in left lower quadrant, vaginal discharge, pain and burning on micturition. He told her the womb was tipped and said he replaced it. The pain continued, she became very constipated and "felt her food," so she consulted another physician. He told her she had "inflammation" and treated her for it three years; at the end of this time he felt he was not getting results and called in consultation a reputable and well-known gynecologist. He operated, D. and C., left salpingectomy, resection left ovary, appendectomy, and suspension. Result: Pain as before, constipation and gas worse. In 1912 she became pregnant and was delivered by operation of a living full-term child, the next day her cervix and perineum were repaired. Since the baby, which was followed by an afebrile puerperium, she has had her previous symptoms increasingly, has lost 25 pounds, and has been markedly tender in the lower quadrants, has had no coitus on this account. She is referred by her physician who wishes to know if what he finds in her pelvis accounts for the symptoms.

CASE 4. Mrs. H., married, 24 years old. Delivered by Caesarian section 18 months ago by well-known obstetrician in Boston. Indication, generally contracted pelvis. Since operation bowels have never moved without strong cathartics, has soreness in abdomen, bloats so that rarely can wear a corset. She returned to the obstetrician and was treated medically by him for some time, then went to three physicians in own district and had stomach washings, rectal washings, and bladder washings. Referred by last physician, who wishes to know if anything in pelvis accounts for symptoms and loss of weight. Suggests that gut may be adherent to uterus.

It is only fair to call these cases complete operative failures, save perhaps for the baby in case four. These patients felt they had not got their money's worth. They knew they were neurasthenics because many doctors had told them so, and they were skeptical of the medical profession. The "operative failure" who has had "neurasthenia" wished on her by some doctor is difficult to help.

These four patients had ptosis when I saw them. They had symptoms of ptosis when operated upon except the last, in which it subsequently went unrecognized by the operator Regarding the pelves—Case I. had a retroversion temporarily adherent recurring after her operation. Case II. had nothing except a beautiful new cervix. Case III. had a recurrent temporarily adherent uterus and tender vaults without masses. Case IV. had an uterus adherent to the lower end of a high Caesarian scar, pelvis otherwise negative. Case I. had uterus replaced and held with pessary after depletion; it helped the periods, nothing else. Case III. had the same; it helped the pelvic tenderness, nothing else.

They were relieved of all symptoms, including "neurasthenia," by mechanical support of the abdomen.

There seems to be some question among good physicians whether the disease ptosis exists. By the disease ptosis I mean dropping of viscera, especially the transverse colon, giving rise to intestinal stasis, "indigestion," sometimes gas formation. And gas stasis, giving rise clinically to bloating. It is not necessary in admitting this to admit the far reaching well-known conclusion of Metchnikoff and Lane of the influence of this sequence on other organs as a factor in the production of other diseases. To illustrate this skepticism: I had operated not long ago on a young woman with a membranous adhesion between ascending transverse colon, and omentum. She had resisted treatment at the hands of a

good medical man, together with mechanical treatment carefully carried out over a period of two months. X-Ray showed bismuth in the dilated ascending colon 30 hours after ingestion. Operation showed the adhesion and the ptosis precisely as the x-ray man had promised. The patient had lost 25 pounds in ten months. Though too recent to be sure of a cure, she has gained five pounds, eats well, feels well, and has good color. My etherizer met in the hall a medical acquaintance, an excellent physician, and spoke of the case in some detail. The excellent physician replied that he had doubts about *all* this visceroptosis business for he saw so many patients with ptosis without symptoms. I think, considering the mass of observation on the subject, and the therapeutic results in orthopedic hands that this is ultra-conservative. Valvular heart disease without symptoms is fairly common, I believe; it is common to have symptoms with valvular heart disease. So with ptosis, it occurs with and without symptoms.

Regarding the diagnosis it simply requires that the observer be looking for it. The appearance of the abdomen with gutters running down on either side from the ribs to about the level of the umbilicus, plus the symptoms specially bloating or a sense of bloating and soreness plus any, all or none of the four tender points, right lower quadrant, hepatic flexure, left lower quadrant, splenic flexure; and the x-ray will confirm it if one wishes. The condition if of long standing makes the patient thin so that the abdomen, especially in nullipara, is not necessarily protuberant and these cases oftenest escape detection.

The treatment of uncomplicated ptosis belongs by right to the orthopedic surgeon, and has been best described and carried out by him. A most striking therapeutic result is obtained in straight ptosis by the well equipped orthopedic emporium. There in addition to the mechanical support, the corset, the details of which they best understand, they command the means for teaching strengthening exercise and profitable posture. In short, any case of ptosis, certainly if the x-ray shows it free from bands, adhesions etc., not doing well in the hands of any other branch of the profession should have the final benefit of treatment in the hands of the orthopedic surgeon. I believe as well that this treatment will benefit many cases with apparent bands, membranes, etc., and think it should be given a fair trial before cutting operations are resorted to. It is not time lost because after cutting surgery it seems reasonable that a better permanent result will be obtained by orthopedic support than if this is neglected and the "orthopedic education" is better taught before operation than some weeks after it when the patient recovers sufficiently to make it possible.

It is not the purpose of this paper to consider the details of ptosis treatment, a matter already laid before the profession by far abler minds with far broader experience. It requires considerable study and much patience and fussing, especially when working with a cheap enough corset to make the treatment acceptable or possible to the patient who is "doctor-poor" from previous experience. Such a one will not have faith enough to pay $25.00 for a corset, certainly not at first.

It may be said in passing that skepticism with regard to the pathological entity of ptosis illustrated earlier, is nothing compared to that with regard to treatment by corset support among many physicians who have tried it. They say they have "thoroughly tried it out and there's nothing in it." Their methods of thoroughly trying it out develop on further questioning to about that of leaving the patient in a room with a corset, some very hygenic corset, and letting them get acquainted. Another method, somewhat better though still bad, is to ship the patient to a lady corset maker, who may or may not help, depending somewhat on the embonpoint of the individual, the fatter patient getting the better service because the cosmetic effect especially of the only just now dying style, and the hygienic necessity somewhat parallel. The thin ptotic has no chance in the world with her. The orthopedic surgeon, he himself, not even his trained corset maker or trained nurse, fits and adjusts his corsets with a definite object, and anybody else must do the same to get results. And a $3 or $5 corset made of relatively cheap, stretchable material will stop doing its work in 4 to 7 days after it has been fitted, due to the stretching in fabric and change in figure. After it is fixed it will do it again in ten days, and it will do it again and some more, and must be watched.

One other practical point in working with corsets deserves mention. As a rule prolapsed viscera are not attached to the abdominal wall, even on the inside, and pulling up an abdomen with the hand inside the corset with the patient standing, especially when the patient has dropped to 95 pounds and has no abdomen, does not raise prolapsed viscera. In a manner as breezy as the subject under discussion Codman under title "Our Little Balloons, Some Observations On Gas and Ptosis."* seems to show that the viscera are toy balloons held down at different levels by strings, the mesenteries, but tending to float up, so that to get the intestines down where they do not belong one must invert the individual, and if the individual walks erect as is customary the balloons remain high in the abdomen as they should. The gist of this somewhat Shavian article seems to be that the orthopedic explanation of ptosis has sought lightning as a cause when the barn took fire from a cigarette in the stall. Be that as it may, the fact is that the toy-balloon of the ptotic be it excellently, as it sometimes is, or poorly, as the article above referred to sug-

* Boston Med. and Surg. Journ., Oct. 9, 1913, vol. clxix, No. 15, "Our Little Balloons. Some Observations on Gas and Ptosis," by E. A. Codman, M.D., Boston.

gests, equipped with gas, is invariably overloaded with sand ballast;—the practical point being that if you place the patient in high Trendelenburg and apply the support and teach the patient to do the same you will get results, otherwise you probably will not.

Nor is it the purpose of this paper to deal with the very suggestive subject of the effect of intestinal stasis on pelvic disease. Nor has it to do with the cases which have adhesions and come to abdominal section. It is to impress that one reason for some definite failures in gynecological surgery is untreated ptosis, and because an operation which promises to cure and leaves the patient as before, though the surgical result is perfect, creates a prejudice against not only the operator but his branch. It appears to me therefore, that a working knowledge of ptosis with its variations is a necessity for those who do gynecological surgery.

THE PHYSIOLOGIC COST OF INSUFFICIENT PROTECTIVE CLOTHING.*

By G. W. Fitz, M. D., Boston.

There is perhaps no subject of such constant and vital interest, on which there are so many opinions vigorously supported, as that of clothing. As what we wear is a matter of daily choice, that we may adapt ourselves to the vagaries of weather and climate, and as each individual considers himself the ultimate judge of what constitutes comfort for himself under these varying conditions, the subject is of necessity clouded by a mass of personal, unscientific, more or less haphazard opinion. The chief popular attempt to mould this opinion has been made, not by hygienists nor by physicians, who are as rarely consulted upon this subject as upon the family diet, but by the manufacturers of special fabrics, who have bombarded the public with cleverly constructed statements of the vital superiority of their particular products. As a result of this, there are today a number of clothing cults, supported by this quasi-scientific commercial literature, advocating the exclusive use of wool, silk, cotton, or linen, in knit, mesh, or other forms of weave, and in varying weights.

In an attempt to analyze and explain the various features of personal comfort involved in the different materials and weaves, and to establish the functions of clothing, certain physiologists, notably Rubner, have made elaborate experiments. They conclude that the essential features of ideal underclothing lie in its ability to remove moisture rapidly from the surface of the body and, at the same time, to delay its evaporation at the outer surface of the clothing, in order to avoid chill. The ideal underclothing must further be sufficiently porous to give adequate ventilation to the surface of the body and must contain fibres sufficiently elastic to give a large air and moisture capacity, which they must retain even when wet, thereby avoiding clinging to the skin and loss of ventilation.

The material which in cool weather best meets these requirements in underclothing, they found to be that which Nature has developed in various forms, in her vast experimental laboratory, expressly for the protection of animal life, namely hair or wool; and its mode of manufacture to be the so-called tricot, or knit, weave. The objection to the practical use of wool which they recognize, is its first cost and its liability to be quickly ruined by shrinking when washed.

Next in value to wool, they found silk, which, although somewhat inferior to wool in certain characteristics, has the advantage of being an extremely agreeable and smooth fabric, which is not at all irritating to sensitive skins. The insurmountable objection to its general use is its very high initial cost and its lack of durability in the knit weave.

Cotton proved to be next in value to wool and silk. Cotton fabric however, is somewhat deficient in the essential characteristic of elasticity of fibre. Therefore, when used as underclothing, it has an inferior air and moisture capacity, and fails, even when dry, to conserve the body heat to the same degree as wool. When moist, its inferiority is considerably increased by the softening of its fibres and the consequent reduction of its air and moisture capacity; the ventilation of the skin, to which it tends to cling, is reduced, at the same time that the rapidity of evaporation from its outer surface is decidedly increased. The heat of the body is thereby dissipated so rapidly that chill often results.

Linen was found to be still less desirable than cotton, since it favors an even more rapid evaporation of the body's moisture and thereby greatly predisposes to chill.

The desirable weave for all of these materials, when used as underclothing, was proven to be the tricot or knit, because of the added elasticity and porosity it imparts to the fabrics. In the case of cotton, this weave contributes a firmness which somewhat lessens its tendency to cling to the skin and to lose its porosity when moist.

The open mesh weave Rubner found objectionable in direct proportion to the size of its holes, since it reduces the fabric's ability to absorb and remove from the skin its excess moisture.

We naturally turn from the conflicting and confused opinions of the laity with their vagaries of habit and standards of immediate personal comfort, and the conclusions of the physiologists, which are based largely upon the physical characteristics of clothing in their re-

* Read at International Congress on School Hygiene, Buffalo, August 25-28, 1913.

lation to the heat regulation of the animal body, to the experience of physicians, based upon the observation of the influence of clothing upon health. In this, we naturally expect greater unanimity of opinion through the generalization and elimination of individual peculiarities and the formulation of a consistent standard of clothing use from the standpoint of health.

Being unable to find any satisfactory expression of such medical opinion, I sent a questionnaire to several hundred of the most prominent medical practitioners of America, selected chiefly from Cattell's *American Men of Science*. Rather more than a hundred replies were received. Of these, forty odd, while expressing great interest in the subject, frankly acknowledged total ignorance of it, and admitted an attitude based wholly upon personal predilection, since they had paid no attention to the clothing habits of their patients. More or less complete replies were received from about sixty, and have been tabulated on the basis of positive statements only. Of these, thirty-six agreed that personal comfort was a guide to the kind and amount of clothing required. Thirty-four stated positively that cold hands, feet, nose and ears were reliable signs of insufficient clothing, barring the presence of chronic cardiac or other causative disease. Only eight considered cold extremities consistent with adequate clothing and normal health. Other criteria suggested by a few were general health, resistance to disease, weight and reaction to cold.

In the selection of materials for clothing, although there was not complete unanimity of opinion on the part of those who committed themselves, wool led by more than five to one in its favor. Twenty-seven claimed that at all ages in cool climates wool was a necessary protection. Only five claimed that it was totally unnecessary. Twenty-five considered it essential as underclothing, especially in childhood; twenty-eight considered it also essential as underclothing for old age. Twenty-seven made it essential as outer clothing for all ages. As a more or less complete substitute for wool in underclothing, sixteen favored cotton, three specifying cotton mesh; seven favored linen, four specifying linen mesh; nine favored silk; eight favored mixed wool and cotton.

In reply to the question as to the hygienic safety of the present light-weight winter clothing for women and children, thirty-seven condemned it as unsafe; four were in doubt; eleven approved of it. Among the deleterious effects stated to have been observed were an increased tendency to colds and minor illnesses, poor sleep, lowered intellectual efficiency, decreased growth and development. Twenty-two expected from it decreased, while two expected increased, resistance to disease.

In choice of room temperature, greater unanimity of opinion is apparent, in that only one called for a temperature above 73° F., whereas forty-one chose a range of 65° to 70,° with a marked tendency in favor of 67° to 68°. The remaining eighteen were non-committal, with the exception of four, who thought higher temperatures at times necessary, unless the great dryness of indoor winter air was neutralized by additional moisture.

The following diseases were recognized as having, in their experience, been associated with inadequate protective clothing: bronchitis, by 30; nasal catarrh, by 27; pneumonia, by 26; pleurisy, gastro-enteritis and rheumatism, by 22; nephritis and tonsillitis, by 19; tuberculosis, by 18; middle ear and antrum inflammation, by 16; catarrhal jaundice, gastritis, rheumatoid arthritis and imperfect nutrition, by 14; retarded growth, by 13; dyspepsia and neurasthenia, by 10; osteo-arthritis and villous arthritis, by 8. Thus many physicians are seen to recognize as results of under-protection by clothing, not only acute catarrhal troubles, but also remote and essentially chronic organic, joint, and nervous ailments, which, in their inception, may in no wise affect the individual's immediate sense of comfort and against which he may not therefore guard himself.

A large proportion of the prominent physicians who replied to my questionnaire would thus seem to be in agreement with the findings of the physiologists, that wool is the superior material for clothing and that it is a necessary safeguard of health.

Their conclusion would appear to be borne out by the practical experiences of men in the more trying branches of labor, where disability is quickly shown, as firemen on steamships and workers in foundries and other places in which perspiring men are exposed to cold drafts of air. I remember, for example, a foundryman coming to my clinic with a markedly painful spinal osteo-arthritis, who, when questioned as to his habits of clothing, replied that, when he went into the foundry, the workmen all advised him to wear wool underclothes and warned him that otherwise his back was sure to become crippled. Because of poverty and a large family, he wore heavy cotton instead, with the result of being permanently incapacitated for heavy work at the end of a few years. This is only one of many instances which have come under my observation and have convinced me of the causal relation between inadequate protection by clothing and remote ailments of rheumatoid or arthritic type, which are not generally recognized as being thus associated.

The deleterious effects of inadequate clothing are not confined to adults. There is a type of child, poorly nourished and generally underdeveloped in strength and endurance, with poor appetite and constantly subject to minor ailments, who is popularly diagnosed as having poor circulation because of habitually cold extremities. We often see in this class marvelous improvement as a result of changing to wool underclothing, sufficient in amount to keep the hands and feet warm. Unfortunately, the change

is often attributed entirely to the tonic medicine which the doctor usually gives at the same time.

Many persons, especially women, are content to go through life with cold extremities, accepting the popular verdict of poor circulation, because they experience no particular discomfort, on account of the essential exhaustion of the terminal sense organs for cold in the extremities. In this class we frequently find developed, usually after the years 30 to 35, many cases of painful joints, especially of foot, ankle, knee and hand. The joints, on examination, frequently show distinct enlargement, that is, are osteoarthritic in nature. In some, the enlargement is very slight and its sensitiveness greatly in excess of that seemingly warranted by the physical condition. We find further many cases of nervous irritability, ranging from the "nervous stomach" to distinct and painful neuritis of persistent type.

This multitude of cases, such as painful joints in women and children, colic, especially in young children, nervous states seemingly obscure in their origin, malnutrition, sleeplessness, general irritability, and neuritis, which are ameliorated or even cured by a change to warmer clothing, constitute a mass of positive evidence which no amount of personal prejudice or negative experience would seem competent to overthrow. Negatively to argue that dozens of people are seemingly able to maintain their normal equilibrium for years in spite of inadequate clothing is far from proving either that they may not later pay with years of suffering, or that dozens of others do not pay earlier in life. It is the argument used to prove alcohol incapable of harm, because some drunkards live to be eighty.

That, notwithstanding this positive evidence, there yet exists today so much ignorance and conflicting opinion on the subject of under protection by clothing and its physiological cost (it will be remembered that out of over one hundred prominent physicians, nearly half expressed their ignorance of the subject) is undoubtedly due to our failure carefully to study the etiology of chronic diseases, and especially, to get adequate histories of the clothing habits of our patients. The situation is now further complicated by the great emphasis being laid upon the stimulating effect of cold and the miracles it performs, with the result that we are in danger of being swept off our feet in our indiscriminate use of this powerful agent. We are in danger of forgetting that, like most so-called stimulants, it has another and antagonistic side. Brief applications of cold, especially when alternated with heat, are marvelously stimulating to the nutritive processes and nerve control of the body. They train its heat-regulating apparatus to broaden the range of safe exposure to variations of temperature, and under such training, the body unquestionably becomes better able automatically to protect itself.

This use of cold as a stimulant and trainer of the automatic processes of the body is, however, a very different matter from the keeping of any part of the body constantly at a temperature below the normal of 98.5° F. Under these conditions, the delicately controlled heat-regulating mechanism at once acts in defence of the vital organs by partially excluding the blood from the extremities where it is being overcooled. The result is that the tissues of the extremities are kept in a state of anemia and chill. This means in a certain percentage of cases, but apparently not of necessity in all, that the nutritive conditions in bone, nerve, muscle, tendon and other tissue, are so changed that wholesome development and maintenance may be impossible. In this depressed condition, cellular activity is often so seriously impaired that the weak spot in the individual is made manifest, as in the form of overgrowth of tender bone around the joints, or of an abnormally irritable state of the nerve terminals and trunks. The cold, instead of being a stimulant, has now become a depressant of serious menace to comfort and health.

The normal warmth of the entire body, on the contrary, means the maintenance of cell activity at its maximum efficiency through the presence of a rich blood supply, and renders the body most resistant to disease.

It thus appears that each individual has to consider whether or not, through adequate clothing, he will insure himself against the risk of illness or of prolonged discomfort and inefficiency during the later years of his life. It would seem that the safest form of insurance had been shown by physiologists and physicians and by the practical experience of men under trying temperature conditions, to be wool clothing for cool weather, since by its use the body has been found to be fully protected. The expense of this insurance has by many been considered prohibitive, not because of its first cost, but because the life of the porous wool undergarment is so shortened by shrinkage in washing. This objection I have proved to be easily obviated. For the past ten years, my family and I have worn in winter pure wool unions, of varying weights, a form of garment which cannot be worn when even slightly shrunk. By using ammonia in wash water of blood temperature and a so-called wool soap and by avoiding rubbing except lightly with the hands, we have not been able to discover any shrinkage or loss of original softness and pliability. Garments originally bought large, of heavy weight and pure wool, have remained too large even after several years of use, and garments of exact fit have remained so. From the standpoint of economy, therefore, judged by its yearly cost as an insurance against financial loss through illness and inefficiency, knit wool underclothing must be considered remarkably cheap.

From the standpoint of the possible physiological cost of inadequate clothing in lowered vitality, illness, and inefficiency, as well as discomfort, we must consider it extremely fortunate that nature, by its ages of experimentation

to develop for animal life the best protection against wet and cold, has thereby provided the human animal with so adequate a protective material.

In view of the fact, however, that there is so much confusion in the popular mind on the subject of proper protection by clothing and so much neglect and difference of opinion on the part of physicians, and that the positive evidence of disability through underprotection, now at our disposal, is too isolated and fragmentary to be considered fully authoritative, it would seem that the great practical importance of the subject demands that it be more adequately studied in the future.

Since positive evidence of clothing effects upon patients under the observation of physicians furnishes the most valuable data for this study, I shall be very grateful to any physicians who are willing to coöperate with me by sending to me pertinent clinical reports of observed cases or the results of their observations along the lines indicated in the following questionnaire:—

1. Do you recognize as immediate or remote effects of insufficient clothing, any of the following ailments: Bronchitis, pneumonia, pleurisy, gastritis, nephritis, varicose veins, rheumatism, rheumatoid arthritis, osteo-arthritis, villous arthritis, neuritis, neurasthenia, dyspepsia, gastro-enteritis, catarrhal jaundice, nasal catarrh, tuberculosis, tonsillitis, middle-ear inflammation, retarded growth, imperfect nutrition?

2. Do you consider that wool must be used as protective clothing in the cool weather of temperate regions?

As underclothing in childhood, youth, middle age, or old age?

As outer clothing in childhood, youth, middle age, or old age?

3. What do you consider an adequate substitute for wool in protective clothing, as underclothing? As outer clothing?

4. What do you consider the best tests of sufficient protection by clothing?

Are habitually cold hands and feet, nose and ears, consistent with adequate protection?

5. Do you consider the present underprotection in winter of the chests and extremities of women and children as hygienically safe?

What results therefrom have you already noticed?

6. In homes, schools, etc., during winter months, should the temperature be maintained at summer heat, 73°-77°, with indirect ventilation, and the occupants be dressed accordingly? or,

Should the temperature be maintained at or below 70°, with the addition of direct ventilation, and the occupants be dressed warmly enough to insure warm extremities?

FRACTURE OF THE CLAVICLE.

By F. E. Peckham, M. D., Providence, R. I.

In the Boston Medical and Surgical Journal, Vol. clxvi, No. 21, pp. 777, 778, May 23, 1912, I published a method of treating fractures of the clavicle, which has since proved very efficient. Like all methods of holding a fracture, however, the details must be accurately carried out, each individual case must be treated by itself, and the mechanics made to accomplish the results.

To recapitulate, by means of webbing, (the correct width for the individual case), straps are made with whalebone placed in pockets running transversely and then the whole covered with cotton flannel. These straps go round the shoulders in such a way that the pull across the back draws them sharply backward. In order to accomplish this, the straps must be kept at the tips of the shoulders. See Figs. 2 and 3. When this pull backward is exerted at the tips of the shoulders, the fragments of a fracture of the clavicle are drawn out to length. Then, if this adjustment is continued, union will take place.

It seems to be the custom of the general practitioner as well as the general surgeon to put up such a fracture with a Velpeau bandage with the humerus strapped back, the idea being that strapping back the humerus holds the shoulder back, and that the Velpeau holds it up, and hence in position. It is commonly said also, that these fractures do well anyway, so that they get very little attention. If all the cases put up in this way were x-rayed, many would be found in which the apposition would not be very good, and in the case of women, would mean quite a callus formation, which would be very objectionable in evening dress.

To prove the efficiency of this method of treatment, a recent case will be reported.

This patient had suffered from a fractured clavicle seven and one-half weeks before consulting me. The shoulder had been treated by the usual bandaging, and the x-ray (see Fig. 1) shows the condition it was in, with the fragments riding by. The picture shows no callus formation and there was tenderness on pressure at the point of fracture and also on motion whether active or passive. By grasping the fragments between the fingers, no motion was elicited with a moderate amount of force. To loosen up the fracture, the knee was placed between the scapulae behind, the shoulders were then grasped firmly and forcibly pulled backward against the knee as a point of resistance. Then the fragments were grasped firmly with the fingers and manipulated, using as much force as possible. This hurt some, but no anesthetic was used. Then the straps were applied as shown in photograph. (See Figs. 2 and 3.) Then manipulation was made every day and the straps tightened to correspond to the gain. At the end of a week, or eight and one-half

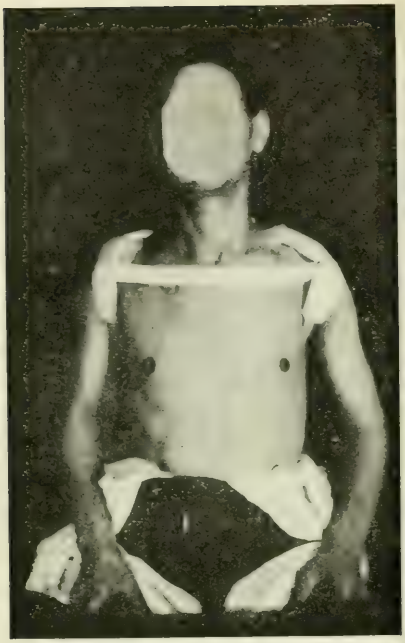


Fig. 2

Shows anterior view of strapping.



Fig. 3

Shows posterior view of strapping.

weeks from the fracture, the x-ray showed good alignment, and the shoulder, which before was dropping, is now up to level. Manipulation ceased and the picture, ten and one-half weeks from the accident, shows the position and with callus formation (See Fig. 4.) Also this callus formation is only moderate and in no way does the so-called "bunch" of callus exist.

If such a result can be obtained in a fracture already seven and one-half weeks old, the possibility of duplicating it in a fresh fracture would seem to be good.

Medical Progress.

A REVIEW OF THE PROGRESS IN PATHOLOGY FOR 1913.

By S. B. Wolbach, M.D., Boston,

Assistant Professor of Bacteriology, Harvard University Medical School.

(Concluded from page 613.)

AMEBIC DYSENTERY.

Recent work by Craig (War Dept., Office of the Surgeon-General, Bull. No. 2), (*Journal of Infectious Diseases*, Vol. 13, No. 1), and Darling (*Southern Medical Journal*, Vol. 6, No. 8) show that the two supposedly distinct species of parasitic ameba, entameba histolitica and entameba tetragena are identical. Entameba coli is not pathogenic. There is not sufficient evidence at present to prove that any of the amebae that have been cultivated are pathogenic to man.

Walker and Sellards (*Philippine Journal of Science*, Section B, Vol. 7, No. 4) also insist upon the identity of entameba histolitica and entameba tetragena. They present also what is perhaps the most important etiological study of amebic dysentery that has been made. Sixty feeding experiments were made upon man with different species of amebae and entamebae. Their results show that none of the amebae and entamebae, which may be cultivated on artificial media, are capable of producing dysentery in man. The cultivated amebae are incapable of living parasitically in the intestinal tract of man. When ingested, they may encyst and pass through the stools, whence they may be recultivated. Entameba coli, however, does multiply in the intestinal tract, but does not produce disease, and this fact was proved by an experiment in which twenty men ingested cultures of entameba coli. Entameba histolitica when given to man does produce dysentery. Out of twenty men who ingested material containing this organism, eighteen showed multiplication of the organism in the intestine, and of these eighteen, four developed entamebic dysentery. The incubation period was in the respective in-

stances, 20, 57, 87 and 95 days, giving an average of 64.8 days. It was also possible to prove conclusively that the forms described as entameba tetragena might occur exclusively in the stools of men who had ingested entameba histolitica only, and that motile entameba histolitica might occur exclusively in men who had ingested only tetragena forms. Other evidence is given which convincingly proves that tetragena cysts are developed in the life cycle of entameba histolitica. This work is of tremendous importance in that it establishes the pathogenicity of only one type of the ameba found in human stools. It makes a positive diagnosis possible,

FRACTURE OF THE CLAVICLE—PECKHAM.



Fig. 1.

Shows the fracture seven and one-half weeks from the accident. The fragments are riding by, and there is no callus formation.



Fig. 4.

Shows the fracture ten and one-half weeks from the accident.

flasks containing the medium with valves and secured anaerobic conditions by exhausting the air and replacing with hydrogen repeatedly. The morphology of the parasite is described and illustrated as minute chromatoid bodies which are similar to those described by a long list of observers in vaccine and smallpox pustules. The cultures and sub-cultures were inoculated into calves and produced vaccine vesicles. The name *Microsoma vaccinae* is given.

Noguchi and Cohen (*Journal of Experimental Medicine*, Vol. xviii, No. 5) using the spirochete culture technic, claim to have cultivated an organism from trachoma. The organism cultivated resembles the trachoma bodies found in human lesions, and there is a morphological sequence in the cultures similar to that observed in tissues, namely, initial bodies, lanceolate or ovoid in shape and occurring in pairs, groups and rosettes, and later extremely minute, round or ovoid granules occurring in pairs and masses. Inoculation experiments on monkeys were negative; "a transient papillary conjunctivitis lasting about one week was produced in some cases. Trachoma bodies were not found.

BERI BERI AND SCORBUTUS.

Holst and Frölich (*Zeit. f. Hyg.* Bd. 75, Heft 2) have extended the work which was abstracted in the *Review of Pathology* last year, for the purpose of determining the nature of the anti-

enemy with the nature of beri beri and the substances which prevent the disease—the vitamines. He finds that the vitamine fraction from yeast is made up of three substances; one of the formula $C_{24}H_{19}O_9N_5$; another $C_{29}H_{23}O_9N_5$, and nicotinic acid. From the vitamine fraction of bran, two substances have been isolated, $C_{26}H_{20}O_9N_4$ and nicotinic acid. A table is also given of the composition and value of the various purine, pyrimidin and nuclein derivatives with their allied forms of allantoin and hydrantoin. He finds that those substances were the most active which in composition most nearly resembled vitamines.

STREPTOCOCCUS AND PNEUMOCOCCUS.

Rosenow (*Journal of Infectious Diseases*, Vol. xiv, No. 1, p. 1) describes with convincing detail



weeks from the fracture, the x-ray showed good alignment, and the shoulder, which before was dropping, is now up to level. Manipulation ceased and the picture, ten and one-half weeks from the accident, shows the position and with callus formation (See Fig. 4.) Also this callus formation is only moderate and in no way does the so-called "bunch" of callus exist.

If such a result can be obtained in a fracture already seven and one-half weeks old, the possibility of duplicating it in a fresh fracture would seem to be good.



FIG. 3.
Shows posterior view of strapping.

Their results show that none of the amebae and entamebae, which may be cultivated on artificial media, are capable of producing dysentery in man. The cultivated amebae are incapable of living parasitically in the intestinal tract of man. When ingested, they may encyst and pass through the stools, whence they may be recultivated. Entameba coli, however, does multiply in the intestinal tract, but does not produce disease, and this fact was proved by an experiment in which twenty men ingested cultures of entameba coli. Entameba histolitica when given to man does produce dysentery. Out of twenty men who ingested material containing this organism, eighteen showed multiplication of the organism in the intestine, and of these eighteen, four developed entamebic dysentery. The incubation period was in the respective in-

stances, 20, 57, 87 and 95 days, giving an average of 64.8 days. It was also possible to prove conclusively that the forms described as entameba tetragena might occur exclusively in the stools of men who had ingested entameba histolitica only, and that motile entameba histolitica might occur exclusively in men who had ingested only tetragena forms. Other evidence is given which convincingly proves that tetragena cysts are developed in the life cycle of entameba histolitica. This work is of tremendous importance in that it establishes the pathogenicity of only one type of the ameba found in human stools. It makes a positive diagnosis possible, and it will prevent needless treatment of persons having non-pathogenic ameba in their stools, while affording absolute indications for the treatment of ameba carriers.

CULTIVATION OF NEW PARASITES.

Noguchi (*Journal of Experimental Medicine*, Vol xviii, No. 3) reports briefly the cultivation of the parasite of rabies. The method employed is similar to that used for the cultivation of the relapsing fever spirochete. The culture medium consists of sterile human ascitic fluid containing a fresh piece of sterile rabbit's kidney and covered with paraffin oil. The parasites are described as minute, granular and pleomorphic chromatoid bodies. Other forms, simulating negri bodies were found. These cultures were capable of producing rabies in dogs, rabbits and guinea-pigs.

Fornet (*Berliner Klin. Woch.*, Bd. 50, p. 40) reports the cultivation of the parasite of vaccinia. Raw vaccine lymph is made sterile by shaking with ether; this usually requires about twenty hours of continuous shaking. The ether does not diminish the virulence of the vaccine. After the material has been proved to be sterile for bacteria, the ether is removed by evaporation in an exhausted chamber. The bacteria-free virus is inoculated into a medium composed of one-third beef serum or ascitic fluid and two-thirds sugar bouillon. Growth takes place under anaerobic conditions. Fornet equipped glass flasks containing the medium with valves and secured anaerobic conditions by exhausting the air and replacing with hydrogen repeatedly. The morphology of the parasite is described and illustrated as minute chromatoid bodies which are similar to those described by a long list of observers in vaccine and smallpox pustules. The cultures and sub-cultures were inoculated into calves and produced vaccine vesicles. The name *Microsoma vaccinae* is given.

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BERI BERI AND SCORBUTUS.

Holst and Frölich (*Zeit. f. Hyg.* Bd. 75, Heft 2) have extended the work which was abstracted in the *Review of Pathology* last year, for the purpose of determining the nature of the anti-scorbutic substances and their preservation. They found that heating destroyed the anti-scorbutic properties of cabbage and milk, while on the other hand, drying in a vacuum did not destroy the anti-scorbutic substances. They also found that acid plant juices preserved their anti-scorbutic property after heating. The anti-scorbutic substances can best be extracted by acid solutions, and these substances may be extracted and preserved in 80% alcohol containing 1% of citric acid. On the exact nature of the anti-scorbutic bodies they have nothing to say.

Vedder and Willliams (*Philippine Journal of Science*, Section B, Vol viii, No. 3) report a large number of experiments to determine the composition, preparation and methods for isolating protective substances against beri beri from rice polishings. They have confirmed Funk's observations by isolating a crystalline base (Funk's vitamine) from rice polishings by Funk's method. This base promptly cured fowls suffering from experimental beri beri or polyneuritis. In addition to Funk's vitamine they have isolated two groups of substances, purine bases and choline-like bases which are capable of partly or wholly protecting fowls fed on polished rice against poly neuritis, but these substances are incapable of curing fowls that have the disease.

Funk (*Ergebnisse der Physiologie*, Vol. xiii). This paper extends through two numbers of this journal and is very comprehensive. It deals chiefly with the nature of beri beri and the substances which prevent the disease—the vitamines. He finds that the vitamine fraction from yeast is made up of three substances; one of the formula $C_{24}H_{19}O_4N_2$; another C_{26} $H_{28}O_4N_2$ and nicotinic acid. From the vitamine fraction of bran, two substances have been isolated, $C_{26}H_{26}O_8N_4$ and nicotinic acid. A table is also given of the composition and value of the various purine, pyrimidin and nuclein derivatives with their allied forms of allantoin and hydrantoin. He finds that those substances were the most active which in composition most nearly resembled vitamines.

STREPTOCOCCUS AND PNEUMOCOCCUS.

Rosenow (*Journal of Infectious Diseases*, Vol. xiv, No. 1, p. 1) describes with convincing detail

the modification of streptococci in cultures, so that ordinary hemolytic streptococci were changed into types identical with streptococcus viridans, which is the type so commonly found in endocarditis cases. Further modification was secured by repeated passage through animals until the cultures had assumed all the characteristics of the pneumococcus. Rosenow believes that he has secured a genuine transmutation from streptococcus to pneumococcus. He has also succeeded in bringing about the reverse process. Every possible immune test was done to control the morphological and cultural changes. The acquisition of new immune properties with change of cultural characteristics is particularly suggestive and important.

While Rosenow's work in many ways is consistent with observed facts and would explain the large number of types of streptococci which can be distinguished culturally, and although it bears every earmark of honest purpose and accuracy, the conclusions are so remarkable that confirmation must be obtained before it will be generally accepted.

Floyd and Wolbach (*Journal of Medical Research,* Vol. xix, No. 3, p. 493) have published a preliminary report of the differentiation of streptococci, based upon a study of 147 cultures. They find, in substantiation of Gordon and Winslow, that it is possible, by cultural tests, to separate streptococci from human sources into six main divisions, and that there is a certain definite relationship between the character of the cultures and the nature of the pathologic process and prognosis. The validity of the grouping was supported by agglutination and complement-fixation tests.

Agglutination and complement fixation tests would indicate that the differences in immune reactions are found with differences in cultural characteristics, and if the latter can be acquired and lost, by change of conditions, it is quite probable that the former may vary accordingly. This is what Rosenow claims to have done experimentally.

ACID AGGLUTINATION OF BACTERIA.

During the last few years, considerable attention has been paid to the acid agglutination of bacteria. Briefly expressed, the term means the precipitation of bacteria from suspensions by various degrees of acidity. The acidity is expressed in terms of hydrogen ionization. The phenomenon may be elicited by inorganic acids and bears some relation to the precipitation of colloid solutions by electrolytes. It was supposed that the method would be of value in the differentiation of bacteria. Recent papers, however, by Sgalitzer (*Zeit. f. Hyg.,* Bd. 76, Vol. 2) and Gillespie (*Journal of Experimental Medicine,* Vol. xix, No. 1) show that the reaction cannot be made specific for different strains of organisms. The paper by Sgalitzer is very comprehensive and deals with a variety of organisms of the colon typhoid and cholera groups. Gillespie's paper concerns the acid agglutination of pneumococci only. The conclusions to be drawn from these papers as to the value of this method is that it will not serve for the identification of organisms for the purposes of diagnosis. It has some value, however, as a method of differentiation between closely allied organisms, in that these may be precipitated by different degrees of acidity.

EXPERIMENTAL NEPHRITIS.

As in previous years, the large proportion of the work of those engaged in experimental pathology has been directed towards the kidney. There has been little change in the character of the work done, and it consists mainly in the study of elimination of certain substances by the kidney, or the retention of others in the blood, after the establishment of renal lesions. The discovery by Underhill (*Journal of Biological Chemistry,* Vol. xii, p. 115) that the subcutaneous injection of sodium tartrate in rabbits and dogs would produce marked degeneration of the tubular epithelium of the kidneys, has stimulated some new work, and a repetition of older work with this form of experimental nephritis.

Underhill, Wells and Goldschmidt (*Journal of Experimental Medicine,* Vol xviii, No. 4) found that sodium tartrate when introduced subcutaneously into rabbits does not appear in the urine, and conclude that the disintegrative influence of the salt upon the tubules is sufficient to account for the failure of the salt to be eliminated. They could find no lesions of the glomeruli. A fairly extensive research by the same authors upon rabbits seems to show that the tartrate acts specifically upon the convoluted tubules of the kidney. To produce a marked effect it is necessary to give the salt subcutaneously; when given by mouth, the lesions are slight. The effect is most marked when fasting animals are used. The administration of alkali in the form of sodium carbonate, acetate or citrate during the state of fasting permits a greater elimination of urinary constituents during tartrate nephritis, and histologically there is some evidence that the alkali modifies the lesion. In a third paper in this same number these authors find that there is a marked diminution in nitrogen elimination, as determined by the effect upon the urine of injecting urea. On the other hand, sodium chloride is rapidly eliminated. In the light of the histological findings, the results are interpreted to mean that chlorides and water are passed through the glomerular mechanism, while urea becomes a urinary constituent by way of the convoluted tubules.

Pearce and Ringer (*Journal of Medical Research,* Vol. xxix, No. 1) noted exudative lesions in the glomeruli in tartrate nephritis in dogs, in addition to the severe lesions of the tubules. Pearce (*Journal of Experimental Medicine,* Vol. xviii, No. 2) makes a further report on the kid-

ney lesions produced by injection of rattlesnake venom, first described by him in 1909. The type of lesion is an acute exudative glomerular process. It was impossible to reproduce the subacute and chronic type of glomerular nephritis as seen in man.

Karsner and Denis (*Journal of Medical Research*, Vol. xix, No. 3) were unable to produce similar lesions in cats by the use of rattlesnake venom. In nephritides produced by hemolytic immune serum, arsenic, diphtheria toxin and tartaric acid, they showed that there is a demonstrable accumulation of nitrogen in the blood. The most marked results were obtained in the case of tartrate nephritis. In another paper, in this same number, they showed that in the subacute or chronic nephritis produced by repeated injections of uranium nitrate, there is an increase in the accumulation of non-protein nitrogen in the blood. However, with the subacute form of nephritis produced by diphtheria toxin injections, there is only a temporary or slight retention of nitrogen.

Other papers dealing with the function of experimentally diseased kidneys are those by Kraus (*Arch. of Internal Medicine*, Vol. xi, p. 613) and Frothingham, Fitz, Folin and Denis (*Arch. of Internal Medicine*, Vol. xii, p. 245). Both papers deal with uranium nephritis. Kraus found that creatinin excretion is diminished and uric acid excretion is increased in acute uranium nitrate nephritis. Creatinin injected in normal dogs is excreted "in toto," but if injected in uranium nitrate nephritis, it causes a decreased excretion of the normally occurring creatinin, uric acid, chlorides and water, and may cause death. The injection of creatinin in subacute uranium nephritis produces no effect.

The latter authors studied the relation between non-protein nitrogen retention and phenolsulphonephthalein excretions in renal uranium nephritis. They found that there was a retention of phenolsulphonephthalein with nitrogen retention so that the diminution of this substance in the urine is an indication of the retention of nitrogen and the degree of nephritis. They make, however, the important observation that the amount of phenolsulphonephthalein in the urine indicates the renal function at the moment, while the amount of non-protein nitrogen and urea in the blood is rather a measure of an accumulated difference between the amounts of waste nitrogen produced in the metabolism and the amount eliminated by the kidneys. The time element, therefore is an important factor in the test.

Rowntree, Fitz and Geraghty (*Arch. of Internal Medicine*, Vol. ii, p. 121) have made an experimental study on dogs to determine the effect of chronic passive congestion on the function of the kidney. The method consisted of applying constricting bands about the renal vein or the vena cava, above the entrance of the veins. The tests, which were adequately controlled, consisted in the study of the elimination of phenolsulphonephthalein, lactose, salt, potassium iodide and water. Lactose excretion is the first to become affected by increasing grades of chronic passive congestion; then excretion of salt and iodide; lastly that of phenolsulphonephthalein. The phenolsulphonephthalein test gives the most reliable information concerning the decrease of renal insufficiency, and decrease in the phenolsulphonephthalein excretion always means severe lesions and usually death. On the other hand, marked delay in the excretion of lactose, iodide and salt may occur with a normal phenolsulphonephthalein output. Lactose is the most delicate test for renal involvement, although it is of least prognostic importance.

Christian and O'Hare (*Journal of Medical Research*, Vol. xxviii, No. 1) describe the glomerular lesions produced by the injection of uranium nitrate. A variety of types are encountered, from the appearance of hyaline droplets in the capillary walls, to thrombus, hemorrhagic exudation, edema and even proliferation of the capillary epithelium.

O'Hare (*Arch. of Internal Medicine*, Vol. xii, No. 1) was unable to produce marked glomerular lesions in the kidneys of dogs, although the tubules were markedly affected. The only glomerular lesion he was able to produce by injections of uranium nitrate was that of hyaline droplet formation in the capillary tufts. Another paper by the same author in this number records experiments where uranium nitrate and Bacilli coli communis were injected into the same animals. The method employed varied in the individual animals. The bacterial cultures and drug in some instances were injected simultaneously, and in others at alternate intervals of varying lengths of time. By this method, chronic lesions were produced which simulate closely those in chronic interstitial nephritis in man.

MacNider (*Journal of Medical Research*, Vol. xxviii, No. 3) studied the effects of different anesthetics upon the kidney in acute uranium nephritis. Dogs were employed and the anesthetics used were mixtures of chloroform and alcohol and ether accompanied by subcutaneous injections of morphin. Anesthetics increased the severity of the changes produced by uranium nitrate. The chloroform-alcohol anesthetic (Gréhant's anesthetic) produced a more deleterious effect than ether and morphin.

Walker and Dawson (*Arch. of Internal Medicine*, Vol. xii, No. 2) have studied the effect of diuretic drugs on the lives of animals with severe acute uranium nitrate nephritis. Rabbits were employed and the results indicate that the diuretic drugs theocin, caffein and potassium acetate shorten the lives of rabbits having severe acute renal uranium nephritis. Spartein sulphate in some instances shortens the life of experimental animals, but is not as detrimental as the other drugs. Water in large amounts was also found to be detrimental in some cases. The

general conclusions are that diuretics are probably contraindicated in acute, severe nephritis in man, because in animals they do shorten life.

Mosenthal and Schlayer (*Deut. Arch. f. Klin. Med.*, Bd. 3, Nos. 3 and 4) have investigated the element of fatigue to diuretics, evidenced by kidneys diseased through chromium and uranium injections. In normal animals they found that repeated injections of salt give no evidence of renal fatigue, either in affecting the volume of urine excreted or the vascular response of the kidney as indicated by changes in the volume, registered by means of the oncometer. Repeated injections of caffein did give evidence of fatigue in that the maximum result was produced by the first injection. Subsequent injections produced a steadily decreasing volume of urine and sodium chloride content. The elimination of sodium chloride simultaneously injected diminished even more rapidly than the volume of urine. The behavior of the kidneys in these two forms of nephritis vary according to the stage. In the early stages of the nephritis produced by chromium, the injection of salt acted as a strong diuretic, while caffein decreased the amount of urine; in uranium nephritis the reverse was true. In chromium nephritis injections of salt acted as a strong diuretic, while caffein decreased the amount of urine, and this action was most marked when the diuresis produced by salt was at its maximum. On the other hand, in uranium nephritis, repeated injections of salt did not produce diuresis, but steadily diminishing amounts of urine, indicating fatigue. Injections of caffein greatly increased the amount of urine from the fatigued kidneys. No explanation is offered for the difference in these results.

Longcope (*Journal of Experimental Medicine*, Vol. xviii, No. 6) finds that the repeated injection of small doses of foreign protein, horse serum and egg white in dogs, cats, rabbits and guinea-pigs that have been sensitized to these products causes injury to the cells of various organs and tissues, with resulting, demonstrable inflammatory reactions. Among these changes, there develops in dogs and rabbits a well marked nephritis affecting the epithelium of the loops of Henle and the collecting tubules, and less frequently of the convoluted tubules. Lesions in the glomeruli are produced in all of the animals used, although these changes were slight and described as congestion and swelling and probably proliferation of the capillary epithelium.

LOS ANGELES OBSTETRICAL SOCIETY.—The Los Angeles Obstetrical Society was inaugurated March 25, 1914, with a membership of forty-seven. The Society is limited to fifty members and there is already a waiting list. The officers are Dr. Titian J. Coffey, president, and Dr. Geo. E. Malsbary, secretary.

Reports of Societies.

BOSTON SOCIETY OF PSYCHIATRY AND NEUROLOGY.

MEETING HELD AT THE BOSTON MEDICAL LIBRARY, JANUARY 7, 1914.

D. H. FULLER, M.D., Secretary.

DR. P. C. KNAPP read a paper entitled,

THE TREATMENT OF CASES OF MENTAL DISORDER IN GENERAL HOSPITALS.*

DISCUSSION.

DR. F. C. RICHARDSON: In the hospital with which I am connected there have been, in addition to the various deliria, not a few cases of true psychosis as well as many borderline conditions. As is the custom in most general hospitals, these cases have been cared for with inadequate means, and, I fear, insufficient knowledge.

An effort has been made to coöperate with the Westborough Hospital for the Insane in an exchange of nurses, so that the general hospital nurse may in a few weeks learn something of tube feeding, simple restraint, etc. It must be said, however, that our hospital executives object to this plan on the ground that nurses from hospitals for the insane are, as a rule, of distinctly inferior grade to those of our training school, and are apt to act as an unfavorable influence. On the other hand, it is found that comparatively few of our general nurses wish to submit to residence in the hospital for the insane. These facts point directly to the necessity for raising the standard of nurses for the care of the insane, and, while it is perhaps foreign to the subject under consideration, I may say that in my opinion this matter demands immediate and serious consideration by those in authority.

The advantages to the patients and to the attendants of keeping borderline and doubtful cases in the general hospital are obvious; and means for the proper care of such should be provided by every superintendent. Such provision is made in the neurological department of the Evans Memorial, where patients are kept under observation until definite decision can be arrived at. Such appliances as the camisole, stout restraining sheets, and equipment for giving the prolonged warm bath, sprays, douches, etc., enable us to feel justified in retaining these patients for a reasonable length of time, and thus saving them, perhaps, from the undesirable suspicion of having once been insane.

Neurologists having service in general hospitals have a right, it seems to me, to demand proper facilities for at least the temporary treatment of such mental cases as come under their care.

DR. W. J. BRICKLEY: There are about 40,000 patients a year, of all diagnoses, treated at the Haymarket Relief Station and, naturally, we receive many mental cases. We examine and treat them all for a time, and dispose of them as their needs require. They are brought there because this general hospital is convenient and the necessary examination can be quickly made. To refuse to ad-

* See page 637

mit and treat such patients would work a hardship because of the delay in getting them to mental hospitals, which are usually situated at a distance from the center of the community and those citizens and the police who present them to us. The general hospital can assort the types of mental cases into the temporary as alcohol and hysteria, or rapid course cases as delirium tremens and toxemias, and the slower course cases, as general paralysis, dementias, etc. Everybody is willing, even eager, to have such cases enter a general hospital. No time is lost in obtaining a correct diagnosis and in starting treatment. In Haymarket we have these cases thrust on us and we must care for them. Most of our mental cases are due to the use of alcohol. Thus we have treated about 200 cases of delirium tremens this year. These are very hard problems for a general hospital. Dr. Knapp has spoken of the advantages of hydrotherapy and plenty of attendance. In my place we have no apparatus for hydrotherapy and have a scarcity of attendants. Therefore we do the best we can under the circumstances imposed upon us. I do restrain patients; I do give drugs, and I give enough of either, or both, to get results. Surrounded as our hospital is by busy streets, any patient who passed through our doors would be lost in thirty seconds. We have no extensive grounds with surrounding walls. Yet we have had only two patients escape and one who broke a leg by jumping from a window,—these during the past three years. This means eternal vigilance.

I know that hydrotherapy and individual care, with freedom from restraint, is best for the delirium tremens patient. Especially is restraint bad in the early phases, when the patient is promptly made worse by it; but lacking an adequate equipment, we have to resort to it. I have noticed that the delirium tremens cases that are almost well make good nurses for the sick delirium tremens cases. The convalescent delirium tremens cases are repentant and only too glad to assist in ward work, or in quieting and watching the delirious ones. In fact, they, being dull witted, are more patient than some orderlies would be. Thus the convalescents have the benefit of some simple employment, the sick are benefited and the hospital expense is cut down. This last leads me to a new phase of the subject. Dr. Knapp is a visiting physician and treats or orders treatment. The executive of the hospital is the one who must furnish the means of treatment. The executive cannot grant the demands of the visiting physician, at times. These mental cases, more especially the acute manias, are costly to treat. They are destructive and require a larger nursing force, etc.; they are a nuisance and a menace in a general ward. It is the executive who has to prevent or to explain the escape or injury of these mental cases,—not the visiting physician. As an executive as well as a treating physician, I know whereof I speak, when I assure you that the mental cases are the worst class to treat in a general hospital. None the less, I believe it to be the duty of the general hospital to receive and care for, temporarily, the sudden onset mental case. I believe that they should be under the care of neurologists; that, should they remain mental, they should stay in a general hospital only a short time,—weeks.

Dr. J. J. Thomas: I have very little to add to the interesting paper that Dr. Knapp has given us tonight, except to corroborate what he has said: and my experience with the service, during the half year in which it has been in my charge since it was established, has not differed essentially from what he has told us. The excited cases, which, of course, are the most difficult to handle with the facilities at our disposal, have not been a large proportion of the mental cases which have come to us. By a fortunate chance, what accidents have happened during my term of service have been upon other services than mine,—medical or surgical. By the use of hot packs and extra nurses, which the administration has always given on request, we have overcome some of the deficiencies of facilities. After all, however, these excited cases have been a small number of the whole, and I consider much more important the care of other cases, where the symptoms were distinctly mental, and the making possible, by this continued observation, the proper disposal of these cases. Many have recovered in a short time in the wards, either entirely, or so that they could be sent to the care of their relatives; others have been committed and still others sent to institutions like Tewksbury. Without this opportunity for study, I feel sure that many of these cases would not have been handled as well as we were able to do it. Other cases which were committed, I feel certain, could not have been sent to hospitals for the insane, if it had not been for the relations which were established with the relatives while the patients were at the hospital on the neurological service. So, though this service was not established as a psychiatric clinic, and is not primarily a psychiatric clinic, to this day it has justified its existence by the service it has been able to give in this class of cases alone.

Dr. E. S. Abbot: I am glad Dr. Knapp emphasized so strongly the fact that it is necessary for the physician in charge of these mental cases to know how to treat them. Neither the general physician nor the house officers do know. During my four years' service in an executive capacity at the Boston City Hospital I saw several cases literally done to death by bromides and other sedatives. When I tried to remonstrate, I was looked on as not really knowing what I was talking about. I do not see how the general practitioner can know any better. Almost all the text-books on general medicine recommend or at least suggest sedatives in case mental symptoms of any sort arise. The medical student is taught that way, and so he practices.

In the delirious cases, especially delirium tremens, the patient has been taking poor care of himself; he has been eating too little, and though he has been drinking, his water intake has not been sufficient, and he has usually neglected his bowels. He is suffering, therefore, from semi-starvation, lack of food and water, he has a toxemia, and his gastro-intestinal tract is irritated. What does he need? Abundant water, simple abundant food, flushing out of the bowels. He does not need an additional toxin—bromides, etc.—which he must eliminate. The deliria of acute infectious diseases are similar, probably due to the exhaustion and the toxemia from bacterial poisons. It seems to me quite irrational to add a toxin to the body already suffering from toxemia, merely for the relief of one symptom, and that not a fundamental or important one.

A word as to the amount of food and water needed. Most of these cases get far too little. We need to make sure that they get a sufficient

number of calories. Some years ago I looked up the food values of the diet we were giving at McLean to tube-fed patients. I was rather surprised at the difference on different wards. The calories varied from 2900 to over 4000 a day. The amount of liquid was pretty uniform,—72 oz. a day. The average stomach can hold without regurgitating about 24 oz., so we put the requisite number of calories into three daily feedings of that amount. I think the 72 oz. of liquid is about the minimum that patients can get along on. The need of water was well illustrated by a case we had some twenty years ago. He was confused and was rapidly exhausting,—he might have been considered a case of Bell's mania in the older days,—but his color was high, and an examination of the blood showed over 6,000,000 reds and 115% of hemoglobin. That meant that he was drying up, desiccating. His improvement was remarkably rapid when he was given enemas of water to retain, and was fed by tube, with consequent reduction in red cell count and hemoglobin. We are apt to overlook the water intake in the confused or delirious patient, but it is highly important.

DR. A. W. STEARNS: I have had the good fortune to have worked under Dr. Knapp at the Boston City Hospital and more recently have been at the Psychopathic Hospital, and I can say that the ideals for which he has been striving are identical with those which have, I think, been realized at the Psychopathic Hospital.

DR. E. S. BOLAND: The Boston City Hospital is fortunate in having the services of such men as Drs. Knapp and Thomas to care for these cases which are sure to turn up in the wards and outpatient department of every large hospital. The results are brilliant in spite of the lack of a special ward and trained nursing. For the visiting staff, internes, and nurses such acute mental cases have an invaluable educational importance, but their presence in the common wards is a sore trial to other patients. For the ordinary sick, injured, or post-operative case the ordinary ward is not a bed of roses, and if they are to have the added infliction of a jimjam or epileptic in adjoining beds, they too might want to "take to the woods." Therefore, unless the City Hospital can devote a separate ward to the service, I protest against the reception and care of such patients in the wards.

DR. KNAPP in closing, said he may have had luck in dealing with the executive department of the hospital, but he regretted that Dr. McCollum was unable to be present and tell how much the executive department had suffered in at least half of the last four years from his complaints and persistence in keeping patients before committing them. He had not meant to be understood that a hydrotherapeutic plant and a suitable psychiatric ward were undesirable,—they were, of course, a very great help,—but the idea of having mental cases in the hospital was really contrary to the rules, and it had not been thought best to call attention too strongly to the subject, by urging a special ward. Without these advantages he had managed to get along without much trouble. As to keeping patients who were actually insane in the hospital, instead of sending them to a hospital for the insane he had been guided by circumstances. If a patient seemed to be improving rather rapidly, despite the disadvantages of the hospital, he kept him. If a patient had to be tube fed or if he were very violent, as in epileptic mania, he was naturally committed in a few days. It was obviously a bad thing for a sane patient to be in the ward with noisy and delirious cases, and a ward with better facilities for isolation was most desirable. He agreed fully with Drs. Abbott and Tuttle that these cases had been often badly treated in years past. Not only had there been excessive use of restraint and of drugs, but there had also been a superstition that the alcoholic patient must have alcohol to prevent the development of delirium tremens. Time and again had he seen alcoholic patients in the wards in the medical and surgical services—oftener in the medical than in the surgical,—where he had in vain urged cutting off alcohol absolutely, feeding the patient as much as possible, and flushing him out thoroughly. The alcohol would be kept up,—and the patient died.

Book Reviews.

Structure and Inflammation of the Heart Valve Tissue. By PROFESSOR DR. PAUL GRAWITZ, With five photographic tables. Berlin: Richard Schoetz. 1914.

In this monograph, from the institute of pathologic anatomy at the University of Greifswald, the author believes he has demonstrated, by cell cultures *in vitro*, that the small round cells of inflammatory tissue are not wandering hematogenous elements, but are derived from the cells of the inflamed tissue. In endocarditis there is no invasion of new cells, but a defensive cell metamorphosis analogous to that seen in the normal development of heart valve tissue. The work is admirably illustrated by twelve photomicrographic figures.

The Intervertebral Foramen. By HAROLD SWANBERG. Chicago: Scientific Publishing Company. 1914.

This monograph, described in its sub-title as "an atlas and histologic description of an intervertebral foramen and its adjacent parts," consists of a series of 16 admirable full page plates, with descriptive text, illustrating a study of the first thoracic intervertebral foramen of a cat. It is not, however, primarily, a study in anatomy or in comparative anatomy. Indeed, the purpose of the work is best indicated in the introductory note by Dr. Harris E. Santee: "Mr. Swanberg," he says, "shows by actual sections the exact relations of the first dorsal nerve at the intervertebral foramen. A study of his work will help to determine whether compression of the nerves at this point is likely to occur; and whether, therefore, there is substantial ground for the doctrine that such compression is the immediate cause of all or of a considerable number of pathologic conditions." Apparently the author believes that such compression is unlikely, or at all events very infrequent.

Diseases of the Rectum and Pelvic Colon. By Martin L. Bodkin, M.D., New York, rectal surgeon, St. Mary's Hospital, the Williamsburgh Hospital and the Howard Orphan Asylum; late rectal surgeon, Bushwick Hospital. Illustrations specially drawn by Francis A. Deck. New York: E. B. Treat and Company, 241-3 West 23d Street. 1913.

An admirable small handbook of four hundred pages with about one hundred illustrations which are, without exception, very good and a distinct help to the reader. The writer has endeavored to master "the relationship of proctology to the many ailments generally treated by the regular practitioner" and presents his views in the plainest and most direct language. An examination of the book shows that he has well attained this purpose. Only modern operative technic is outlined.

The book is a safe and interesting guide to the treatment of rectal and colonic diseases.

Clinical Surgical Diagnosis. For Students and Practitioners. By F. De Quervain, professor of surgery and director of the surgical clinic at the University of Basle. With 510 illustrations and 4 plates. Translated from the fourth edition by J. Snowman, M.D. New York: William Wood and Company. 1913.

The author's name is well known to all who follow the progress of surgery of the foreign clinics. He is a man of wide experience and his work is characterized by accuracy of observation and of technic, and by excellent results. In the preface of his book he tells us that it is the outcome of years of association with students as a teacher, and with medical practitioners at consultations. It is concerned entirely with diagnosis, which includes not only the most recent diagnostic methods, but also some of the best of the earlier methods which are sometimes in danger of being forgotten today. Throughout, the book begins with symptoms and progresses towards conclusions and cites a very large number of actual cases; histories are produced in a few lines. He is enthusiastic about differential diagnosis, but says, "Diagnosis is not to be made for its own sake, but as a means to cure," and warns against loss of time while refinements of diagnosis are being investigated. Illustrations, with rare exception, are his own. They are very numerous and admirable, whether they appear as half tones, as diagrams, as x-ray plates, or as colored full-page illustrations. Indeed, the volume is the most entirely satisfactorily illustrated book which we have seen in months. The arrangement is on the anatomical basis.

The book is divided into six parts:—

1. Surgical Diseases of the Head.
2. Surgical Diseases of the Neck.
3. Surgical Diseases of the Thorax.
4. Surgical Diseases of the Abdominal and Pelvic Viscera.
5. Surgical Diseases of the Pelvis and Spinal Column.
6. Surgical Diseases of the Extremities.

Throughout the book, characteristics of accuracy in observation, condensation of symptoms, and logical reasoning, are everywhere in evidence. We have not yet discovered a condition of any importance which has been omitted, nor one which is considered to unnecessary length.

Indeed, the book seems to be entirely without obvious fault or omissions and may cordially be recommended as a most admirable and interesting text-book on surgical diagnosis.

Diagnostic Methods. By Herbert Thomas Brooks, A.B., M.D. Second edition. Revised and rewrittten. St. Louis: C. V. Mosby Company. 1914.

This volume is sufficiently described by its sub-title as "a guide for history taking, making of routine physical examinations and the usual laboratory tests necessary for students in clinical pathology, hospital internes and practicing physicians." In this second edition, a chapter has been added on Schwarz's complement fixation test for gonorrhea.

A Manual of Operative Surgery. With Surgical Anatomy and Surface Markings. By Duncan C. L. Fitzwilliams, M.D., Ch.M., F.R.C.S., Eng.; F.R.C.S., Edin., surgeon in charge of out-patients, St. Mary's Hospital; senior assistant surgeon to Paddington Green Children's Hospital; lecturer on clinical surgery and joint lecturer on operative surgery, St. Mary's Hospital Medical School. New York: William Wood and Company. 1913.

A small book of four hundred and fifty pages "written for the instruction of the apprentice and to help the journeyman craftsman of our profession." The elementary teaching is derived from that received both at Edinburgh and London, crystallized by a long experience of coaching for the higher examinations. It is not easy to say just what ends this volume is intended to meet. It is a little larger than Treves' hand-book and very much smaller than Treves' Operative Surgery, or the Operative Surgery of Beckham. It is illustrated with a large number of wood-cuts, on the whole very good. It is at least half concerned with the more or less old fashioned method of operations on arteries and on bones. These are given at times in

somewhat unnecessary detail, while farther on the complicated operative technic of stomach and intestines is dismissed rather briefly. It is, no doubt, a good hand-book for students, but is not, in the reviewer's judgment, in any way superior to two or three hand-books already in existence, notably that of Treves, to which reference has already been made. For this reason, it cannot be enthusiastically recommended.

Gunshot Injuries. How They are Inflicted. Their Complications and Treatment. By COLONEL LOUIS A. LAGARDE, United States Army Medical Corps (Retired); late commandant and professor of military surgery, United States Army Medical School; professor of military surgery, medical department, N. Y. University, etc. Prepared under the direction of the Surgeon-General United States Army and published by authority of the Secretary of War. New York: William Wood and Company. 1914.

Dr. Lagarde's book, a volume of convenient size, and of four hundred pages, must be accepted as the present authority upon gunshot wounds. We will say at the beginning that it is well bound and clearly printed and illustrated by a large number of pictures and diagrams, almost all of which are entirely new and which are distinctly good both as technical reproductions, and as supplements to the text. In his preface, Dr. Lagarde says that as far as possible, "I have presented the characteristic feature of wounds by the old armament in preantiseptic times, and compared these with the results of gunshot injuries by modern arms in the Spanish-American, Anglo-Boer, Russo-Japanese and Turko-Balkan Wars, and have also availed myself of the character of wounds by firearms in civil life, and their results as compared to similar wounds in the military service. Like observations have also been made to a less extent on wounds by different kinds of rifles, pistols and revolvers on animals, experimentally and in the hunt." He also includes a chapter on medico-legal phases of gunshot wounds; lectures in civil and military medical schools form the basis of the book. Chapters have been revised in the office of the chief of ordnance, and surgeon-general; the volume may, therefore, be accepted as official from the viewpoint of the medical department of the United States. There are fourteen chapters beginning with definitions, followed with characteristic symptoms and treatment of wounds in general, and then a half dozen chapters of special wounds,—head, chest, abdomen, etc. An index completes the volume.

It is somewhat disconcerting to discover in reading the chapter on gunshot wounds of the abdomen, that the latest authority seems a trifle in doubt as to the advisability of immediate operation on abdominal gunshot wounds, even in civil life; most of us have considered that indication was absolute even though the wound was more than twenty-four hours old, and it is surprising to find that so high an authority as Dr. Lagarde seems to have some doubt in the matter. There can certainly be no possible doubt that the earlier the operation, the better the patient's chances. The volume may cordially be recommended to every surgeon interested in this important surgical subject.

The Surgical Clinics of John B. Murphy, M.D. October and December, 1913.

The October number of these always interesting surgical magazines contains, besides a well illustrated article on hernia, Dr. Murphy's views upon appendicitis, including, of course, his sequence of symptoms and his differential diagnosis. There is also a talk on cancer by Dr. W. L. Rodman, of Philadelphia; an article on joint affections, Hirschsprung's Disease, besides a series of interesting individual cases.

The December number has a very interesting article on Dr. Murphy's method of producing artificial pneumothorax by injection of nitrogen, with a brief historical survey of the subject. Also, two students' clinics given at the opening of the school year illustrating Dr. Murphy's method of instruction; an article upon cholelithiasis and pyonephrosis; a number of bone cases and a list of cases operated on and demonstrated by Dr. Murphy during the week of the Clinical Congress of Surgeons, Nov. 10 to 15, 1913, in Chicago. This formidable list includes one hundred and forty-nine individual cases, covering apparently almost the entire field of surgery, showing an unusually large number of bone cases.

The Clinics continue to be invariably suggestive, whether one agrees with Dr. Murphy's views or not.

Pyorrhea Alveolaris. By FRIEDRICH HECKER, B.Sc., D.D.S., A.M., M.D. Illustrated. St. Louis: C. V. Mosby Company. 1913.

The purpose of this book is to expound its author's theory of *pyorrhea alveolaris*. He believes it to be a general infection, which may be due to various bacterial organisms, with local manifestation in the alveolar process, gum, and peridental membrane. He classifies eleven different varieties of pyorrhea and describes nine species of bacteria which may be its cause. The essence of his treatment is bacteriologic determination of the cause, followed by the preparation and administration of a suitable autogenous vaccine. Whatever the ultimate value of his theory, its exposition constitutes a useful contribution to the literature of the subject.

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MEDICAL INSPECTION OF IMMIGRANTS.

Owing to the recent agitation concerning immigration, the timely subject in this number will bear careful reading. A review of the Immigration Service annual reports show that the most important function of the immigration inspection lies in the medical examination. If an alien is sound in body and mind he is not likely to do much harm. A careful appraisal of our human imports then is a serious matter and one to require thought. Doubtless more aliens are held and appeals taken for medical reasons, directly or indirectly, than any other.

Dr. Nute has had a broad experience in immigration work and a chance to see all sides, having been stationed on the Canadian border, Ellis Island, N. Y., and at the port of Boston. He shows that from the earliest times undesirables have been attracted to this country; that as communities grew restriction followed just as naturally against the alien human being as the alien goods in the market of trade. Among the early adventurers were persons sent to America to serve out penal offences, to escape prosecution, and persons suffering from the Wanderlust. Among the latter were many types that undoubtedly today would be recognized as mental defectives. Later on those who had acquired settlement, having defective relatives, were naturally anxious to have the defective relative at hand, more particularly so when American institutions gained the reputation of dealing more kindly with the inmates than the home asylums.

It is important to understand that it is only since 1903 that financial penalty has been placed upon the steamship companies in addition to returning the alien to the port of embarkation of his home town. Also that there is always the appeal, hence the chance of a good gamble, as the ship has to return to Europe in the natural course of events. It is only since 1907 that the feeble-minded have been mandatorily restricted. Microscopical evidence must be present to certify certain conditions, as tuberculosis, gonorrhea, favus, ringworm, etc. Any physician thus can understand how many incipient tuberculous persons may be admitted. Tuberculosis in the meaning of the law refers only to the lungs, genito-urinary, and intestinal tracts. Persons suffering from tuberculosis of the bones, joints, skin, glands, etc., may be landed. In fact, persons with pulmonary tuberculosis can be landed according to certain departmental decisions.

The immigration law, like most other laws, has for nearly every rule an exception, and the alien with money and influence may utilize it to his advantage. The doctor never admits an alien, neither does he ever exclude one; that is the function of the immigration officials.

Those who have travelled can readily realize the difficulties of cabin inspection, which often has to be made after dark, with poor light, and even in daylight in cold and stormy weather some place has to be sought that may not delay the ship or passengers. To do this without delaying traffic, without putting passengers to inconvenience, passengers that often are nervous, tired and irritable after a long journey, who resent being asked personal questions, certainly requires tact.

Observation has taught these examiners a great deal both in a knowledge of human nature and the practical recognition of diseased conditions. To the visitor the spectacular line work seems to be about all there is, but he rarely follows behind the scenes and learns what happens to those who turned into the detention rooms. The hardest work is often between ships, when cases have to be carefully recorded, after due examination that carries with it the hard work of any hospital examining rooms. The mental examination may readily be seen to be a different matter than any institution has to face. Here the examiner must pick out the defectives from the mixed stream flowing past. After picking out a suspect, the doctor receives no aid

from the alien's relatives or friends. Instead, all sorts of pressure will be brought to bear to discredit the examiner.

During the past year the work at Boston has markedly increased. New lines have entered, but the type of immigrant has changed. Not many years ago most of Boston's immigrants came from Northern Europe and the British Isles. Today southern and eastern Europeans predominate and emigration is beginning from Turkey in Asia and Persia.

Boston is sadly in need of a proper immigrant station, both for protection of the public and in fairness to the detained immigrant. The present quarters are inadequate in every way. It does not require much of a rush of traffic to fill it to overflowing and cause many to be detained on ship board until such time as room can be made by either landing or deporting those detained on Long Wharf. It should be kept in mind that detained aliens are not felons, but human beings waiting to prove their right to land, or waiting the sailing of the ship to return them to their homes. Boston is fortunate in having a well trained medical staff, but the best carpenter cannot build much of a house with a jack knife, and it is only due to the vigilance of these doctors that serious outbreaks of diseases have not occurred.

As a result of much injudicious talk on the part of some of the newspapers and magazines, there has been built a false situation, either by those that do not understand or those that are prejudiced against restriction.

If every charitable institution, prison, or hospital supported in any part by public funds, would report to the Immigration Service or in an annual report every inmate who is a public charge or who is seeking free aid, the taxpayers might learn something not hitherto realized.

There is only one reason for restricting immigration, and that is the protection of American institutions. There are many reasons for laxity, such as cheap labor, foreign commercial companies' traffic products, and a cheap vote easily controlled.

The feeble-minded problem is one of the most serious, for it is more open to dispute, and less likely than the insane to become a public charge. Many forms of insanity are curable, and at least usually recognizable; but the feeble-minded are the more dangerous, as they never play the normal in life's competition and often go for years or life unrecognized.

The best remedy is honest enforcement of the law,—make every public office holder seeking to land a defective alien enter his name as a sponsor in the public records, more authority and better facilities for the medical department, a better division of work so that efficiency may not be diminished by speed, even if more medical officers are required, and lastly a clearer understanding on the part of the public that has to pay the bill.

Every alien should be required to show the United States that he is clearly and beyond a doubt entitled to land in this country, instead of requiring the United States constantly to be on the defensive.

IMPORTANT MEETINGS IN NEW YORK.

SEVERAL important surgical and medical meetings have been held in New York during the past fortnight.

The annual meeting of the American Surgical Association was held in New York on April 9, 10, and 11. At the sessions on the first day addresses were made by Dr. William J. Mayo, of Rochester, Minn.; Dr. James E. Moore, of Minneapolis, Minn.; Dr. A. G. Gerster, of New York; and Dr. George W. Crile, of Cleveland, Ohio. On April 10, Dr. Alexis Carrel, of the Rockefeller Institute for Medical Research, reported a series of experimental operations on dogs, in which the great vessels at the base of the heart were clamped and the heart action stopped for two or three minutes to enable surgical procedures on the cardiac valves. In a series of 12 dogs, thus treated only 2 died, the remainder being perfectly well at the end of four months.

Other speakers were Professor Robert Proust of Paris, Dr. George E. Armstrong of Montreal, Dr. Fred T. Murphy of St. Louis, Dr. Howard Lilienthal of New York, Dr. James G. Mumford and Dr. Samuel Robinson of Clifton Springs, N. Y., Dr. Willy Meyer of New York, Dr. James E. Thompson of Galveston, Dr. Joseph Ransohoff of Cincinnati, O., Dr. A. J. K. MacKenzie of Portland, Ore., Dr. Charles H. Mayo and Dr. E. H. Beckman of Rochester, Minn., and Dr. John P. Murphy of Chicago.

The annual meetings of several other societies were held at the New York Academy of Medicine at the same time as that of the American Surgical Association. On April 9, the

Society of Sanitary and Moral Prophylaxis discussed the control of medical charlatans. At the meeting of the pediatric section, Dr. John Lovett Morse, of Boston, discussed the clinical and sociologic aspects of pertussis. In the evening of April 10 the American Society for the Control of Cancer held a public meeting, at which Dr. William J. Mayo made the opening address. Dr. J. Collins Warren, of Boston, reported the work of the Harvard Cancer Commission.

At the closing session of the American Surgical Association on April 11, papers were read by Dr. Richard Sparmann of Vienna, Dr. Robert Abbe of New York, Dr. Kenneth A. J. MacKenzie, and Dr. J. M. T. Finney, of Baltimore. Rochester, Minn., was selected as the next place of meeting, and the following officers were elected for the ensuing year:—

President, Dr. George E. Armstrong, Montreal; vice-presidents, Dr. Lewis S. Pitcher, Brooklyn, and Dr. Frank E. Bunts, Cleveland; secretary, Dr. Robert G. Le Conte, Philadelphia; treasurer, Dr. Charles L. Gibson, New York.

On April 13 the fourth triennial convention of the International Surgical Association was opened in New York at Hotel Astor. There were addresses by Surg.-Gen. Gorgas of the United States Army; Dr. W. J. Mayo; Prof. Charles Williams, chairman of the international committee; Prof. A. DePage president of the congress; and Dr. Lewis L. McArthur, chairman of the American committee.

The afternoon session was devoted to the reading and discussion of papers on amputation. Papers were read by Dr. Witzel of Düsseldorf, Dr. Geci of Pisa, Dr. Durand of Lyons, Dr. Razzi of Vienna and Dr. Binnie of Kansas City.

The subjects discussed at the remaining sessions of the convention were:—

1—"Gastric and Duodenal Ulcers," by De Quervain of Basel, Hartman of Paris, Mayo of Rochester, Minn., Moynihan of Leeds, and Payn of Königsberg.

2—"Grafts and Transplantations," by Morestin of Paris, Villard of Lyons, Ulmann of Vienna, Lexer of Jena, and Alexis Carrel of New York.

At the concluding session on April 15, it was voted that the fifth convention be held at Paris in September, 1917. The Association was organized and held its first meeting at Bruxelles in 1905, and the conventions of 1908 and 1911 were also held in that city.

During the week following the convention in New York, many members of the Association have made excursions to Baltimore, Boston, Buffalo, Chicago, Philadelphia, Rochester, Minn., and Washington.

AMERICAN POSTURE LEAGUE.

Official announcement was made on April 2, of the incorporation at Albany of the American Posture League, a national body formed to improve human health and efficiency, through interesting the public in correct physical posture and the improvement of conditions affecting it.

The new organization is concerned with the sitting and standing position of children in schools and of adults in shops, offices, factories and elsewhere. It hopes to effect a more general use of scientific and healthful principles in seating accommodations for working purposes and for public audience rooms and vehicles.

"Correct standing posture is defined briefly as one in which the different segments of the body,—head and neck, chest, and abdomen,—are balanced vertically one upon the other, so that the weight is borne mainly by the bony framework, and a minimum of strain or effort is required of the muscles and ligaments. In this posture, under normal conditions, the organic functions,—respiration, circulation, digestion, etc.,—are performed with least mechanical obstruction and with the greatest efficiency.

"Many conditions of school, factory, personal and public environment exert a molding influence upon the posture of the body. Those conditions inhere largely in furniture and clothing, in habit posture, changes in position and occupation; rest conditions and related matters.

"Good chest development cannot be expected of a boy when the shape of his school seat and the cut of his coat force him for many hours each day into faulty postures. Thousands of children who carry heavy loads of school books are forced into distortions of posture that in all but the most robust must have a serious effect on health and development. Round shoulders are to be expected in a child whose clothing is supported without proper regard for the anatomy and mechanics of the shoulder."

No organized attempt to standardize these various conditions has hitherto been made. Individual orthopedic surgeons, and in a few instances special commissions, have attempted improvements, but the skill and judgment of

the parts have never been combined in united effort. A great field of hygiene and preventive medicine is ready for cultivation, and the American Posture League seems peculiarly fitted to enter it, since it includes in its membershp leading orthopedic surgeons, physical trainers and educators who have specialized on these subjects for years.

"The educational work of the League will be conducted largely by means of illustrated bulletins which it will issue at intervals, each covering some particular phase of the subject. Thus, industrial conditions will be treated in bulletins that will take up the standing occupations, with information on correct standing; how to rest while standing in postures not harmful; foot gear, and habit postures of the feet for such occupations. Similar matters will be treated for the sitting occupations. In several industrial lines the coöperation of the League has already been enlisted, notably for shop girls and motormen. School conditions will have a special series of bulletins, for which much practical, helpful material has been gathered. For general, personal hygiene, bulletins will be issued for physical educators, physicians and others interested. The League hopes eventually to place in the hands of such workers information as to articles, especially in furniture and clothing, that meet scientific standards in regard to posture.

"Lantern slides and lecture outlines for the various conditions mentioned are being prepared, numerous requests for such being on file.

"By all of these means the League will make an earnest effort to popularize strong, rather than weak, standing and sitting postures, and to create an intelligent sentiment in favor of right conditions affecting them."

The League owes its inception to its President, Miss Jessie H. Bancroft, assistant director of physical training in the public schools of New York City. On its board of directors are Dr. Frederick R. Green, of Chicago, secretary of the council on Health and Public Instruction of the American Posture Association; Dr. Joel E. Goldthwait of Boston, ex-president of the American Orthopedic Association; Dr. R. Tait McKenzie, the well known sculptor, who is a director of the physical education department of the University of Pennsylvania; Dr. Henry Ling Taylor, professor of orthopedic surgery in the New York Post-Graduate Medical School; Dr. Thomas A. Storey, professor of hygiene and physical instruction in the College of New York; Dr. S. Josephine Baker, director of the Department of Child Hygiene, New York City Board of Health; Dr. Eliza M. Mosher, of Brooklyn; Dr. Eleonora Everhard, of Dayton, Ohio; Dr. William H. Burnham, of Worcester, Mass., and Dr. E. G. Brackett of Boston.

MEDICAL LEGISLATION. THE BAGSHAW VACCINATION BILL.

In the issue of the Journal for April 2 (p. 559) we published a communication from Dr. George W. Gay on "Antivaccination and the Legislature." In spite of the protest of the Massachusetts Medical Society, which he represented, and of the profession at large, the Bagshaw bill (House No. 1018) to which he referred, was last week passed by the State Senate. As Dr. Gay pointed out, this bill is virtually "an entering wedge for the repeal of all laws relating to vaccination." As it now stands, it provides that "any child or person who has rached the age at which attendance at school is permitted or required, and who is otherwise eligible for enrollment, who presents a written statement, signed by either a parent or guardian, if such child or person be a minor, or by himself if the person has reached the age of twenty-one, which declares that such parent or guardian or person is opposed to vaccination, shall not, as a condition precedent to admission to the public schools, be required to submit to vaccination, and shall be allowed to attend the public schools, except at the time of a threatened or actual outbreak of smallpox, when the school board shall temporarily debar such child or person from the public schools."

Conscientious objection to vaccination has for some years been legally tolerated in Great Britain, with the inevitable result that smallpox, though still infrequent, is far more widely prevalent in that country than, for instance, in Germany, where compulsory vaccination is enforced. In another column of this issue of the Journal we print a description of two recent epidemics of smallpox in communities not universally protected by vaccination. Such epidemics will infallibly occur in Massachusetts if any appreciable number of children or other persons are allowed to remain unvaccinated. To be sure, only the unvaccinated will be infected and die; but the expense, loss, and industrial and eco-

nomic disturbance must be shared and borne by all.

The Bagshaw bill has not yet been passed by the House, so that there is still a possibility that it may not become law. That it may not do so, is the earnest desire of all physicians and other sensible persons in the community.

MEDICAL NOTES.

Bubonic Plague in Havana.—In recent issues of the Journal we have recorded the occurrence of several cases of bubonic plague at Havana. Two new cases of this disease were discovered in that city on April 11 and another on April 12, making a total of 5 then under care in hospital. Three blocks of houses in the infected district were closed, and the residents ordered to vacate by the sanitary department. By order of Dr. Juan Guiteras, director of sanitation, 12 blocks in the commercial district were also closed for thorough deratization. Report from Havana on April 14 states that two more cases of bubonic plague have been discovered in the city, making a total of 7.

A Declining Welsh Death-Rate.—Statistics recently published indicate that in the ancient town of Pwllheli in Wales the total mortality has steadily declined for the past 35 years. In the decade ending in 1888, the death-rate was 21.7 per 1000 inhabitants; in that ending in 1904 it was 18.8; in the period 1905-12 it was 17.05; and in 1912 it was only 9.45.

Walsh Radium Bill.—Among the measures now pending before the national senate is the Walsh radium bill, which aims to safeguard the radium bearing lands of this country from private exploitation. In its amended form it provides for "a prior right of purchase by the Government on all radium ores taken from lands located after the passage of the act. It also provides for a Government owned and operated plant for the reduction of radium ores and the manufacture of the various radium salts employed therapeutically. The Bureau of Mines already has perfected a process of extraction and is prepared to begin radium making immediately."

If government control of radium production be desirable, the national legislature has already lost much valuable time in establishing it, since many claims are being occupied, over which the United States can never exercise the jurisdiction given it by the bill.

A Prolific Centenarian.—Mrs. Pauline Porrell, of Sanford, Me., who died on April 12, is said to have been born in September, 1813. She is survived by eight children, 49 grandchildren, and over 80 great-grandchildren.

BOSTON AND NEW ENGLAND.

Typhus Fever at Providence.—Report from Providence, R. I., states that on April 15, 3 cases of typhus fever were discovered among Greek immigrants aboard the steamer *Madonna* recently arrived from Mediterranean ports. The patients were taken to New York for detention.

Mount Sinai Hospital, Boston.—The recently published twelfth annual report of the Mount Sinai Hospital, Boston, records the work and progress of that institution for the calendar year 1913. During this period 24,324 treatments were given in the various departments, and 339 obstetric patients were attended in their home. All the departments are much handicapped in their activities by lack of room. The dental department has been closed. The plan for a Jewish Hospital has been postponed until after a new dispensary building has been erected.

Massachusetts School for Feeble-Minded.—The recently published sixty-ninth annual report of the trustees of the Massachusetts School for the Feeble-Minded at Waltham, records the work and progress of that institution for the year ended Nov. 30, 1913. At the close of that period there were 1335 inmates of the school at Waverley and 292 in the farm colony at Templeton. The report contains an admirable statement of the classification and method of training and instruction. The principal present needs of the institution are two new cottages, a visitors' and recreation building, a steel water tower, and a cottage for 15 additional patients at Templeton.

New Contagious Building at Boston City Hospital.—It is announced that work is soon to begin on the new contagious disease building

of the Boston City Hospital, for which an appropriation of $297,000 was made last summer. The site is on Massachusetts Avenue, opposite the main hospital, purchased by the city in 1910. The new building, which is to relieve the present overcrowded condition of the South Department, will accommodate 200 patients, each in a separate room or cubicle, many of the partitions being of glass. This idea of construction was originally adapted from the contagious hospital at Walthamstow, England.

According to the plans, the new building will be of six stories, of which the main floor, that above the high basement, shall be arranged as an isolation ward, with a room for each patient, and all rooms opening on the open-air outside veranda or gallery, which will be used for the open-air treatment of patients. The four floors above will be used for patients convalescent from scarlet fever. The detention ward will accommodate fifty patients, but the entire building will have a normal capacity of two hundred.

OPENING OF THE CHILDREN'S HOSPITAL.—The new buildings of the Children's Hospital, Boston, were officially opened on April 15, with addresses by President Lowell, Dean Bradford, and Mayor Curley. About 2000 invited guests were present. A full description of the new buildings was published in the issue of the JOURNAL for April 2.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending April 14, 1914: Diphtheria, 34; scarlatina, 112, of which 20 were non-residents; typhoid fever, 5, of which 1 was non-resident; measles, 93, of which 2 were non-residents; tuberculosis, 62, of which 1 was non-resident.

The death-rate of the reported deaths for the week was 17.78.

NEW YORK.

STATE HOSPITAL FOR CRIPPLED AND DEFORMED.—The recently published thirteenth annual report of the New York State Hospital for the Care of Crippled and Deformed Children, located at West Haverstraw, Rockland County, records the work of that institution for the year ended Sept. 30, 1913. During this period 101 orthopedic patients were treated in the hospital wards, with 2 deaths, and 126 in the out-door department. An industrial school is maintained in conjunction with the hospital, and had an average daily attendance last year of 55 pupils.

ADIRONDACK COTTAGE SANITARIUM.—The recently published twenty-ninth annual report of the Adirondack Cottage Sanitarium at Saranac Lake records the work and progress of that institution for the year ended Oct. 31, 1913. During this period 327 patients were treated, of whom 35 were discharged apparently cured, and only 2 died. The appended ninth medical supplement presents a statistic study of cases. In the treatment, both rest in bed, graded exercises, and artificial pneumothorax have been employed. The principal present needs of the institution are a new laundry, increased bed accommodation, two new small cottages, and sleeping-out porches on several of the older cottages.

MERCANTILE ESTABLISHMENTS MAY HAVE TO BE QUARANTINED.—Two hundred cases of smallpox were discovered in Toledo during the months of December, January and February. Of the entire number of sufferers, but one had been vaccinated, and that one was vaccinated thirty years ago. The story of the Toledo epidemic is the story of hundreds of localized epidemics the world over. An epidemic of equal severity would give to New York City seventy-five hundred cases of smallpox in three months, or thirty thousand cases in a year. Such an epidemic would be a calamity to the people and would be ruinous to the city's trade.

The Department of Health is determined that a smallpox epidemic shall not occur in New York. It has asked the people to protect themselves and, by protecting themselves, to protect their neighbors and to save the city from disaster. Many thousands have responded, but the city is not yet free from danger, and the department is now obliged to issue the following announcement:—

NOTICE TO EMPLOYERS.

Employers of labor are expected to have their employees vaccinated.

Notice is hereby given that in case of smallpox developing in any place of employment, the Department of Health will put such place under quarantine.

MARCH DEATH-RATES.—The weekly reports of the Health Department show that the mortality

sented an annual death-rate of 16.42, as against 15.34 in February, and 16.59 in March, 1913. Among the diseases in which there was an augmented fatality were the following: The weekly average of deaths from measles increased from 13.25 in February to 17.5 in March; the weekly average from whooping-cough, from 4.25 to 5.75; from diphtheria and croup, from 44 to 46; from influenza, from 13 to 22.75; from epidemic cerebrospinal meningitis, from 3.75 to 4.5; from pulmonary tuberculosis, from 191.25 to 209; from acute bronchitis, from 15.24 to 19; from pneumonia, from 160.75 to 197; from bronchopneumonia, from 115 to 145.5; from apoplexy and softening of the brain, from 25.24 to 28.5; from diarrheal diseases under five years, from 30.75 to 33.25; from appendicitis and typhilitis, from 14.75 to 16.25; and from Bright's disease and acute nephritis, from 123 to 126. Among the diseases in which there was a diminished mortality were the following: The weekly average of deaths from typhoid fever declined from 4.25 to 2.5; from scarlet fever, from 16.25 to 13.5; from organic heart diseases, from 249 to 238; from hernia and intestinal obstruction, from 13.5 to 10.5; and from cirrhosis of the liver, from 20 to 18.25.

Veto of Colgate Bill.—Governor Fielder of New Jersey, yielding to the solicitation of the anti-vivisectionists, on April 13 vetoed the Colgate bill, enabling the Rockefeller Institute to establish a branch near New Brunswick, which was passed by the legislature; and this he did in spite of the fact that among those who appeared in favor of the bill were Dr. Simon Flexner of the institute; Dr. J. T. Lipman, director of the experiment station at New Brunswick; and Dr. D. C. English, editor of the *Journal of the Medical Society of New Jersey*, and that special stress was laid on the benefit which the farmers of the state would derive from the institute's studies of diseases of animals.

Veto of the Blauvelt Bills.—Governor Glynn has vetoed the two Blauvelt bills, one amending the Criminal Code in relation to pleas of insanity, and the other the penal law relative to the responsibility of incompetent persons; both of which had the backing of the State Bar Association and the Society of Medical Jurisprudence. With the vetoes he filed a memorandum, a portion of which is as follows: "The purpose of these two bills is to create a new plea, 'Guilty, but insane,' available for defendants charged with crime, and to enact a new legal definition of the term 'insanity'. . . While both bills indicate a sincere attempt on the part of the persons interested in the subject to substitute something better for existing law, I am constrained to the opinion that the subject is one which will require further investigation and discussion before the existing law is amended."

Current Literature

Medical Record.

April 4, 1914.

1. Blake, J. A., and Worcester, J. N. *A Method for Plicating Voluminous Cœca.*
2. Chetwood, C. H. *Drainage of the Bladder Following Suprapubic Operations.*
3. Rhein, M. L. *The Dental Aspect of Oral Infection.*
4. Dominguez, F. *A Case of Sporotrichosis with Multiple Localizations—Importance of the X-ray Examination to Determine the Foci.*
5. Williams, E. H. *The Liquor Question in Medicine.*
6. Steen, S. *The Present Status of the Non-Operative Treatment of Benign and Malignant Growths, as Seen at the Clinics Abroad.*
7. Bangs, L. B. *Cicatrix of Bladder Relieved by Fulguration.*
8. Gottheil, W. S., and Saterstein, D. L. *Autoserum Injections in Certain Obstinate Dermatoses.*

New York Medical Journal.

April 4, 1914.

1. Chetwood, C. H. *Modern Technic in Urethral Stricture.*
2. Graham, E. E. *The Advantages and Disadvantages of Quarantining Hospital Wards for Measles.*
3. Benedict, A. L. *Dreams.*
4. Gottheil, W. S. *The Mischief of Free Medical Service.*
5. *Baar, G. *Differential Diagnostic Value of Cyclic Indicanuria in Gastro-intestinal Diseases.*
6. Williams, T. A. *A Contrast in Psychanalysis: Three Cases.*
7. Sinclair, D. A. *A Retrourethral Cystoscopic Guide for External Urethrotomy.*
8. Rosenbaum, G. *Roentgenology of the Intestinal Tract.*
9. Barnes, G. E. *Affective Activity, Emotion, as the Cause of Various Neurasthenic Bodily Diseases.*

5. Baar discusses the results of his studies of indicanuria as a diagnostic aid in gastrointestinal diseases. He believes that every lesion, no matter how simple, of the gastrointestinal mucosa is sufficient to allow enough indol absorption to cause indicanuria. In these cases he advocates testing the twenty-four hour urine daily for one month, using colonic lavage meanwhile to be sure that the indican does not form in the lower colon, and testing the gastric juice for achlorhydria to exclude this possible cause of indicanuria. Indicanuria may be transitory (due to a

temporary lesion or insufficiency of secretion), constant (due to permanent lesions or insufficiency), or cyclic (recurrent). Cyclic indicanuria may be the only positive evidence of gastrointestinal lesions requiring surgical interference, *e.g.*, chronic appendicitis, cholecystitis, duodenal or gastric ulcer.

[L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

APRIL 4, 1914.

1. *CROSSEN, H. S. *Conservative Operative Treatment of Long-Standing Inversion of the Uterus.*
2. *THOMAS, H. B. *Spinal Transplant.*
3. *FOSTER, M. H. *Methods of Examination of Illiterates for Mental Defectiveness.*
4. GEORGE, A. W., and GERBER, I. *The Practical Application of the Roentgen Method to Gastric and Duodenal Diagnosis.*
5. WALLACE, R. *The Surgical Treatment of Spinal Cord Injuries, with Report of Cases.*
6. MONTGOMERY, D. W., and CULVER, G. D. *Eczema Marginatum of the Toes.*
7. BRISTOL, L. D. *Paratyphoid Fever with Report, Including Post-Mortem Examination, of a Fatal Case of the "A" Type.*
8. MCLEAN, F. C., and SELLING, L. *Further Simplification of Quantitative Determination of Chlorids in the Urine.*
9. PLUMMER, W. A., and NEW, G. B. *Tumor of the Middle Cranial Fossa Involving the Gasserian Ganglion.*
10. VIKO, E. *Surgical Treatment of Urethro-Rectal Fistulae.*
11. JAMISON, C. *The Presence in the Urine of Dialyzable Products Reacting to Ninhydrin.*
12. KIMBALL, A. H. *Voluntary Displacement of the Eye.*
13. *ELLIOTT, H. R. *A Case of Infantile Uterus and Appendages, with Result of Treatment.*
14. CALLISON, J. G. *Easily-Prepared Diluting Fluid for Counting Red Cells.*
15. DEAL, D. W. *A Case of Dorsal Dislocation of Proximal Phalanx of Great Toe.*

1. Crossen advocates and describes by text and adequate illustrations the anterior method of splitting the constriction ring of the cervix and reposition of the inverted uterus.

2. Thomas in a defence of Albee's method of spinal transplant for tuberculous spondylitis states that the operation is not a severe one. It shortens the period of treatment. Complicating pulmonary tuberculosis is not a contra-indication in all cases and young patients do better than adults.

3. Foster states that there is no one test for feebleminded cases, but a routine examination of all the mental faculties is required. Physical signs and facial appearances are of but little use in picking out defectives.

13. Elliott cites a case of a woman of twenty-five years who by the use of lutein tablets and massage of an infantile uterus the size of on English walnut later had development of menses, sexual desire and finally became the mother of a healthy child.

[E. H. R.]

JOURNAL OF MEDICAL RESEARCH.

MARCH, 1914.

1. WOLBACH AND HONEIJ. *The Diphtheroid Bacillus from Leprosy Lesions.*
2. *WOLBACH AND BINGER. *The Cultivation of a Free Living Filterable Spirochete. A Preliminary Report.*
3. *WOLBACH AND BINGER. *Notes on a Filterable Spirochete from Fresh Water. Spirocheta Biflexa.*
4. TODD AND WOLBACH. *Concerning the Filterability of Spirocheta Duttoni.*
5. WOLBACH. *The Distribution and Morphology of Spirocheta Duttoni and Spirocheta Kochi in Experimentally Infected Ticks.*
6. HOMANS. *Degeneration of the Islands of Langerhans Associated with Experimental Diabetes in the Cat.*
7. *ROSENAU, FROST AND BRYANT. *A Study of the Market Butter of Boston.*

2. The spirochete cultivated from the filtrate of water collected from the shores of Jamaica Pond by Wolbach and Binger is shown to be filterable. Passage through a fine filter yields evidently a pure culture of the organism which they have called spirocheta elusa. They have been able to cultivate the organism in fluid and upon solid media by means of hay infusion, which seems to promote the growth of this organism. The filterability of spirochetae in general suggests the employment of this means to separate this group from other bacteria, which are generally not able to pass through the filter.

3. The same authors have discovered another and more delicate spirocheta, also filterable from stagnant fresh water. This organism is so actively motile that its curved ends give a peculiar appearance, from which its name has been constructed, *i.e.* spirocheta biflexa.

7. Rosenau, Frost and Bryant have examined twenty-five samples of Boston market butter. They find no relation between the price and its properties of physical or bacteriological purity. They find that the number of bacteria diminishes with the age of butter. This reduction was as high as 96% in six weeks. In six of the twenty-five samples B. coli was isolated, in fourteen streptococci and in two tubercle bacilli. As a conclusion, the authors recommend most strongly the pasteurization of cream intended for butter production. [L. H. S.]

JOURNAL OF INFECTIOUS DISEASES.

JANUARY, 1914.

1. *ROSENOW. *Transmutations within the Streptococcus—Pneumococcus Group.*
2. *CUMMING. *Rabies—Hydrophobia. A Study of Fixed Virus, Determination of the M. L. D., Vaccine Treatment and Immunity Tests.*
3. MCCOY, *Tumors of Ground Squirrels.*
4. *MOORE. *Observations on Antibody Formation in Typhoid.*
5. *ROSENOW. *The Etiology of Acute Rheumatism, Articular and Muscular.*
6. KLIGLER. *Observations on Indol Production by Bacteria of the Colon-Typhoid Group.*
7. STEINHARDT AND LAMBERT. *Studies on the Cultivation of the Virus of Vaccinia.*
8. *BREED. *The Sanitary Significance of Body Cells in Milk.*
9. ROGERS. *The Preparation of Dried Cultures.*
10. NORTH, WHITE AND AVERY. *A Septic Sore Throat Epidemic in Cortland and Homer, N. Y.*
11. *DAVIS. *The Actinomyces-like Granules in Tonsils.*
12. BERRY AND SMEATON. *Comparative Tests of Sputum by the Kimyoun and Ellimass-Erlandsen Methods.*
13. *BERRY. *Tubercle Bacilli in the Blood.*
14. *DICK. *Multiple Arthritis Due to a Friedländer Bacillus.*
15. PAPPENHEIMER AND VON WEDEL. *Observations on a Spontaneous Typhoid-like Epidemic among White Rats.*

1. Rosenow has been able to change cultures of the hemolytic streptococcus into the pneumococcus, Str. viridans and Str. mucosus. Similar changes in reverse order are also reported. Mutations have been demonstrated to be complete in all cultural respects

in many instances. The nature of this variation is so obscure that the author suggests the existence of a premutation stage, because the same strains refuse to yield mutations when placed under apparently identical conditions. The latter seem to be of two varieties—in the first place those which call forth luxuriant growth, and secondly those which are unfavorable to multiplication. The latter appears to force the organism to new and latent energies. He suggests as a graphic classification of this group the fingers of the partially flexed hand. The hemolytic streptococcus is represented by the little finger and the pneumococcus, at the other end by the index finger; the Str. viridans by the middle finger and the streptococcus from rheumatism by the ring finger. The Str. mucosus, having properties of both extremes, is represented by the thumb.

2. Cumming finds a vaccine of rabies, dialyzed against running distilled water, to be more efficient as a prophylactic than others prepared in the ordinary manner. This material will protect against 8 M. L. D. Since it is much stronger, the course of treatment necessary to prevent the disease is much shortened. It has been clearly demonstrated that its use is perfectly safe and that the reaction is inconsiderable.

4. Moore finds that the injection of a single dose of anti-typhoid vaccine in an individual artificially protected three years previously causes a sudden, sharp and prolonged increase of anti-bodies. The curves are very striking, in contrast with those of controls; who were treated in the same manner, but without previous protection. This indicates an immunity, though latent, at least three years after inoculation.

5. Rosenow has isolated from a high percentage of "acute joints" in acute rheumatism three varieties of cocci. These are interchangeable, of low virulence and freely susceptible to phagocytosis. All such organisms he groups under the heading Streptococcus Rheumaticus. The reason for his success in isolation of these organisms depends upon the use of dextrose—ascitic-agar media. Material is mixed with the media while it is still fluid. Then the tubes are "fixed." Growth is found 0.5-1 cm. below the top and 2-3 cm. above the bottom.

8. Breed shows that the cells in milk are polynuclear leucocytes or endothelial cells. The presence of the former is not necessarily due to pus formation, nor the presence of blood in the milk. The leucocytes are extended through the capillaries and are thrown off into the milk much as the lining endothelium of the milk glands is desquamated. Hence the presence of these cells in large numbers is not an indication of milk impurity. The strippings always contain much higher cell counts than does the first part of the milking. There is great variation in cell count in the same cow from day to day and from different quarters of the same udder, as well as from different portions of the same milking.

11. Davis states that the actinomyces-like granules found in the tonsil are in no way related to the ray fungus. They consist chiefly of bacilli, streptococci and spirilla. He even states that there does not appear to be a well authenticated case of primary actinomycosis of the tonsil yet reported.

13. Berry, in line with so many others, has examined the blood of 50 patients suffering from advanced phthisis, for tubercle bacilli. Her efforts have proved fruitless, since she was unable in any instance to demonstrate a simple acid-fast bacillus. [L. H. S.]

The Lancet.

March 21, 1914.

1. Moultin, C. M. *Hunterian Lecture on the Biology of Tumors.*
2. Elliot, R. H. *The Technic of the Operation of Sclero-Corneal Trephining.*
3. *Adamson, H. G. *On the Nature of Rodent Ulcer; Its Relationship to Epithelioma, Adenoids, Cysticum of Brooks, and to Other Trichepithelio-mata of Benign Nevoid Character; Its Distinction from Malignant Carcinoma.*
4. Williams, L. *Of Arteriosclerosis.*
5. McCarrison, R. *Etiology of Endemic Cretinism, Congenital Goitre and Congenital Parathyroid Disease; Abstract of Experimental Researches.*
6. Morton, R. *The Suppression of Reverse Current in X-ray Coils.*

3. Adamson believes that rodent ulcer is an affection distinct from true malignant carcinoma, and that it belongs to the class of nevoid growths which include andenoma sebaceum and multiple benign cystic epithelioma. His reasons for this belief he describes in detail presenting several illustrative cases.

5. McCarrison presents further evidence for his belief that the exciting agent or agents of goitre exist in the intestinal tract of sufferers. He describes his experiments on rats to demonstrate this theory. He has found that of the offspring of goitrous parents a small percentage are born cretins, 6% are born with congenital goitre, 32% with congenital parathyroid disease, and 33% with normal thyroid and parathyroid glands. Cretinism and congenital goitre are due to the action of toxic substances, derived from the intestines of the goitrous mother, in the fetal thyroid and parathyroid mechanism. [J. B. H.]

British Medical Journal.

March 21, 1914.

1. Luff, A. P. *The Art of Prescribing.*
2. Collie, J. *The Business Side of Medical Practice.*
3. Binst, R. C. *Medical Etiquette, Ethics and Politics.*
4. Childe, C. P. *Cancer, Public Authorities and the Public.*
5. Pratt, E. F. *Experiences of the National Health Insurance Act.*
6. *Shufflebotham, F. *The Milroy Lectures on the Hygienic Aspect of the Coal-mining Industry in the United Kingdom. Lecture IV.*

6. In the fourth Milroy Lecture on the hygiene of coal-mining, Shufflebotham takes up the question of miners' nystagmus, its frequency (about 9% of all coal workers), age at which it occurs, usually not before a miner has worked ten years underground, symptoms such as headache, giddiness, vomiting and nausea, eye symptoms, night blindness and general nervous symptoms. He discusses the physical signs, clonic spasm of the lids, muscular tremor, gait, vision, onset of the disease and its diagnosis. [J. B. H.]

The Indian Medical Gazette.

March, 1914.

1. Rogers, L. *The Emetine and Other Treatment of Amebic Dysentery and Hepatitis, Including Liver Abscess.*
2. Thurston, E. O. *A Series of 101 Cases of Abscess of the Liver.*
3. Newman, E. A. R. *The Operative Treatment of Hepatic Abscess.*
4. Nott, A. H. *Emetine and Liver Abscess.*
5. Munro, D. *Emetine in Amebic Dysentery.*
6. Seal, C. B. *Amebic Dysentery in the Darjeeling District and Its Treatment.*
7. Sandes, J. D. *Treatment of Liver Abscess.*
8. Chaterji, K. K. *Emetine in Hepatitis and Abscesses of the Liver.*
9. Carter-Warkham, R. *Emetine and Ipecacuanha, Their Amebacidal Value in Pathogenic Amebiasis.*

10. WHITMORE, A. *An Experience in the Use of Emetine in the Treatment of Amebic Dysentery.*
11. HOOTON, A. *The Emetine Treatment of Dysentery.*
12. HUDSON, C. T. *Notes on the Employment of Emetine in the Dharwar District.*
13. MADDOCK, E. C. G. *A Note on Three Cases Treated with Emetine.*

EDINBURGH MEDICAL JOURNAL.

MARCH, 1914.

1. SYM, W. G. *Injuries of the Eye.*
2. *FORDYCE, A. D., AND GIBBS, J. H. *The Place of Diet in the Development of Dental Caries and Dyspepsia in Childhood.*
3. ROBERTSON, W. *The Isolation of Scarlet Fever.*
4. *WATSON, D. C. *Manifestations and Treatment of Intestinal Toxemia.*
5. BARBOUR, A. H. F. *The Place of Gynecology in the Medical Curriculum and in General Practice.*
6. FLEMING, R. A. *Three Cases of Beriberi.*

2. This is a short practical article on the diet of young children, with special reference to the prevention of dental caries and dyspepsia. The common causes of these two conditions are (1) the lack of breastfeeding and improper feeding, (2) pap(?)-feeding on weaning, (3) sweets, (4) excess of carbohydrate food, (5) lack of animal food. (Exactly what constitutes "pap" the reviewer is unable to discover.) With these points in view the authors lay out a simple schedule for needs.

4. In his first paper Watson made three great classes of conditions due to intestinal intoxication: (1) a neurasthenic group, (2) rheumatoid arthritis, and (3) a "dyspeptic" group. In this paper he proceeds to illustrate the first group of nuerasthenics, citing many cases and showing some admirable x-ray photographs. Next he shows cases to illustrate the relation between intestinal toxemia and arthritis and shows examples of the good results following operation. [J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

NO. 10. MARCH 10, 1914.

To Celebrate the 60th Birthday of Paul Ehrlich, March 14, 1914.

1. *GENNERICH. *The Results of Salvarsan in the Marine Hospital at Wik.*
2. SCHREIBER, E. *The Treatment of Syphilis by Mercury and Salvarsan.*
3. DREYFUS, G. L. *Three Years' Experience in the Salvarsan Treatment of Tabes and Lues of the Central Nervous System.*
4. *IWASCHENZOFF, G. *Salvarsan, and Lues of the Central Nervous System (Including Tabes Dorsalis).*
5. LEREDDE. *Technic of the Sterilization of Syphilis by Salvarsan.*
6. WECHSELMANN AND EICKE. *The Technic and Results of Subcutaneous Neosalvarsan Injections.*
7. KATZENSTEIN, J. *The Technic and Results of Intravenous Neosalvarsan Injections.*
8. SEYFFARTH, R. *The Technic of Injections of Concentrated Neosalvarsan.*
9. HARDRAT, E. *Syphilitic Reinfection.*
10. LESSER, F. *A Peculiar Case of Syphilitic Reinfection.*
11. PÖHLMANN. *Hypersusceptibility to Drugs.*
12. KIRCHNER, C. *Fracture of the Base of the Skull with Involvement of the Mastoid Process.*
13. ABDERHALDEN, E. *Critical Replies to*
    1. *Deetjen, H., and Fraenkel, E.*
    2. *Flatow, L.*
    3. *Kaemmerer, H., Clausz, M., and Dietrich, K.*
14. PLAUT, F. *Paul Ehrlich's Sixtieth Birthday.*

1. During the past four years Gennerich has followed over 1200 cases of syphilis. These fall into three groups according to the amount of treatment which they received. In the beginning, Gennerich used salvarsan intramuscularly, later intravenously in small doses. Now he considers that large doses of salvarsan intravenously, combined with mercury, represent the best means of treatment.

Gennerich's results are tabulated. He concludes that fresh lues can be aborted by the proper use of salvarsan and mercury, but that in more chronic cases prolonged treatment is necessary since complete sterilization cannot be so easily obtained.

4. Iwaschenzoff reports on 130 cases of syphilis of the central nervous system which he has treated with intravenous injections of salvarsan or neosalvarsan. He believes that in this form of the disease salvarsan is of great therapeutic benefit and that improvement of symptoms occurs in direct relation to the amount of treatment which has been received. In his experience he has found no difference in the results obtained from using salvarsan or neosalvarsan, but advocates at the beginning of the cure repeated small dosage rather than large, single doses. [R. F.]

NO. 11. MARCH 17, 1914.

1. V. BEYER, H. *A Method for Joint Extension.*
2. OELLER, H., AND STEPHAN, R. *Clinical Studies with Abderhalden's Dialysis Method. Second Communication: The Serological Diagnosis of Tumors.*
3. PAGENSTECHER, H. E. *Experimental Investigations on the Production of Congenital Anomalies in Animals.*
4. HOFFMANN, M. *Cataract and Its Analogue in Vitro.*
5. V. LINDEN. *Experiments to Demonstrate the Affinity and Toxicity of Copper and Methylene Blue Salts for the Tubercle Bacillus.*
6. *KÄMMERER, H., AND WEGNER, R. N. *The Etiology of Endocarditis Lenta. Micrococcus Flavus as the Productive Agent.*
7. MEIROWSKY. *Studies on the Distribution of Spirochaetae in the System.*
8. VOLPIUS, O. *The Operative Mobilization of Joints.*
9. *DRACHTER, R. *The Diagnosis of Peritonitis in Infants and Children.*
10. FLÖRCKEN, H. *A Clinical Study on the Use of Blood Vessel Wiring.*
11. STRAUCH, A. *Imitation Diseases in Children.*
12. SWART, S. P., AND TERWEN, A. J. L. *The Technic of Abderhalden's Serum Reaction.*
13. BACHAUER. *The Prevention of Diphtheria in the Schools of Augsburg.*
14. KRÜGER. *The Treatment of Hematoma of the Ear.*
15. BLEULER, E. *Crutches or Legs?*
16. STRAUSS, H. *A Simplification of the Method for Estimating Chlorides in Urine.*
17. LIEK, E. *Perineal Prostatectomy.*
18. ZADE. *Do Animals Think?*
19. BRUHN. *Comments on the Thinking Dog.*
20. FLATOW, L. *Abderhalden's Method for the Diagnosis of Pregnancy.*
21. KÄMMERER, H., CLAUSZ, M., AND DIETRICH, K. *Abderhalden's Dialysis Method.*
22. GEBB. *Local Anesthesia in Eye Surgery with Novocain Potassium Sulphate.*

6. Schottmüller has already pointed out that the streptococcus viridans is the cause of the majority of cases of subacute infectious endocarditis. Kämmerer and Wegner report a typical example of this disease in which the micrococcus flavus was obtained in blood culture, and was found, morphologically, on the heart valves at autopsy.

Kämmerer and Wegner recognize that this organism is usually an avirulent saprophyte of the mucous membrane of the mouth and throat but believe that it

became pathogenic in their case, superimposed upon an already damaged endocardium. Their observations are reported because in the literature similar findings are almost unknown, and because Kämmerer and Wegner believe that various organisms will be found more frequently in endocarditis if careful bacteriological studies are made in this group of cases.

9. Acute peritonitis in infants and children is a difficult diagnosis to establish on account of its confusing physical signs and lack of typical history. Drachter has found the following manoeuvre useful: The child's thigh is flexed at the hip, the lower leg is held at right angles and the bottom of the foot is struck sharply. The visceral and parietal layers of the peritoneum are brought together by this position, and the blow will often cause definite manifestations of pain if the peritoneal surfaces are inflamed. Drachter does not consider this sign in any way specific for peritonitis. If it is positive, however, in a questionable case, peritonitis is present; if it is negative the other physical signs must determine the correct diagnosis. [R. F.]

Obituary.

ALLAN FOSTER BARNES, M.D.

Dr. Allan Foster Barnes, of Cambridge, Mass., who died in Boston on April 12, was born in Somerville, Mass., on Oct. 6, 1875. He obtained his preparatory education at the Cambridge Latin School, and received from Harvard University the degree of A.B. in 1898 and that of M.D. in 1902. After his graduation, he served for two years as surgical house officer at the Massachusetts General Hospital. He settled in Cambridge, and in 1905 became the city bacteriologist. In 1911 he was appointed to the visiting staff of the Cambridge Hospital.

Dr. Barnes was a Fellow of The Masschusetts Medical Society, a member of the American Medical Association, of the Boston Medical Library, of the Boston Society of Medical Sciences, of the Cambridge Society for Medical Improvement, and a founder of the Aesculapian Club of Boston. He is survived by his parents and two brothers.

In an obituary notice of Dr. Barnes in the daily press, one of his friends writes of him as follows:—

"To his many friends his loss is irreparable. To him loyalty was a religion. He found and gave great happiness when his day's work was done, and he was with those he loved, and his keen sense of humor, as well as his lovable and cheerful personality, created a happy atmosphere.

"His ability to suppress his own feelings in times of stress, personal suffering or disappointment, was remarkable.

"In literature he cared only for the best, and whatever he undertook, he did conscientiously with his utmost ability. To those who knew him his strength of character, loyalty, self-control, courage and great patience were an inspiring lesson and a noble example."

Miscellany.

THE NEW CHILDREN'S HOSPITAL OF PHILADELPHIA.

The Children's Hospital of Philadelphia was established in November, 1855, by private charitable donation. Its present building, erected in 1867, and several times enlarged, has become quite inadequate; and a new hospital of 150 beds is to be built at a cost of $1,000,000, of which over one-third has already been pledged. Plans have been drawn, and the corner-stone of the new structure was laid in October, 1913.

"The buildings will occupy three sides of a square sixty feet in dimension, leaving a great central court, open to the south, to furnish interior light, air and attractive greenery. The main building will be set back from the sidewalk about fifty feet, with projecting pavilions at the ends for operating and service purposes. This will be the administration building. It will face north, and on either side of it will be the wards, turning the corners to the south, while two interior wards will project into the central court. Down the western side will extend the babies' dispensary and out-patient department, and on the opposite side of the court will be the nurses' home.

"The babies' building will have fifty free beds and a training school for nursery maids, while the out-patient building will contain a dispensary with clinics for sick children, a babies' dispensary, a milk laboratory, and means of studying preventive methods through educational work. There is already established a country branch at Wynnefield, about five miles east of the municipal building of Philadelphia.

"The babies' building will contain a check room, where the baby coaches may be left during the visit, and a waiting room. Suspected cases of communicable maladies are to be sent at once to a special detention room in the basement for examination. A partition will separate the waiting babies into two general classes, those requiring medical treatment and those that are well, but whose mothers have been educated to the desirability of bringing the children each week so as to keep them well. Immediately at hand will be a milk room where mothers may obtain at cost either whole or modified milk. There will be various examination rooms for an immediate separation of the nervous, dental patients and the like who have their own waiting rooms. Whooping cough patients will have a special entrance and exit. The best features of modern treatment are to be provided: X-ray room, rooms for surgical or corrective treatment, a gymnasium, etc. A roof garden will be at the service of patients who require fresh air and sunlight and more careful treatment than they are likely to receive at home."

NON-VACCINATION AND VIRULENT SMALLPOX.

THE weekly report of the United States Public Health Service for Feb. 13 states that there has recently been an outbreak of virulent smallpox at Springdale, Washington County, Arkansas. On Feb. 11 there had been six cases, of which four had terminated fatally. The infection was introduced by a person from Tampico, Mexico.

"These cases and the origin of the infection illustrate the manner in which virulent outbreaks of smallpox in this country have started during recent years. For several years a strain of mild smallpox has existed throughout practically all parts of the country. In no instance, however, has this mild infection been authentically shown to have been the cause of a virulent outbreak. All virulent outbreaks in which the source of the infection has been traced have had their origin in some existing virulent outbreak in this country or have been imported.

"The manner in which the strain of mild smallpox existing in this country remains true to type is illustrated by an outbreak which occurred in New Zealand as the result of infection imported from the United States."

A letter from the district health officer at Auckland on Jan. 7 reported this epidemic as follows:—

"We have recently undergone in New Zealand a fairly widespread epidemic of the smallpox of the mild type which seems to have been prevalent in America during the last twelve years. It appeared simultaneously in Australia, where, among nearly 900 cases no deaths have occurred. In our case the disease has been almost entirely confined to the Maori race, who are peculiarly susceptible to infectious diseases, more especially of the pustular type. The cases among these natives were on the whole much more severe than those among Europeans. In some cases the disease had all the appearance of confluent smallpox, and in a small percentage even proved fatal yet other natives infected from such severe cases might take it in the usual mild form, and there was no evidence that it worked up in virulence permanently to the normal degree of severity. The majority of the cases even in natives, very few of whom were vaccinated, were more like chicken pox so far as severity was concerned.

"We were able to trace the introduction into New Zealand to a party of persons who came from Utah by way of Vancouver in the steamer *Zealandia*, landing here on April 8. One of this party had a pustular disease of mild type while on board the steamer. In all, some 2,000 cases occurred, but owing to the fact that the natives are a wandering people without definite places of abode, and do not notify their cases, and rarely send for a European doctor, accurate statistics are impossible to obtain."

These epidemics, like numerous others that have recently occurred in various parts of the country, point the moral of the great risk to any community from the growth within it of any considerable group of non-vaccinated persons.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The annual meeting will be held at the Boston Medical Library, 8 The Fenway, Saturday, April 25, 1914, at 8.15 p. m.

Paper by Dr. Frederick J. Cotton, "Recent Progress In the Treatment of Fractures." Discussion.

Business: Report of the Librarian, Treasurer, etc. Election of Officers.

Refreshments after the meeting.

HORACE D. ARNOLD, M.D., *President.* WALTER C. HOWE, M.D., *Secretary.*

RECENT DEATHS.

DR. CHARLES HUNT PORTER, formerly of Springfield, died at his home in Taunton, April 16, 1914, aged 42 years. He was a graduate of the College of Physicians and Surgeons of Columbia University and a Fellow of The Massachusetts Medical Society.

DR. CHARLES HENRY BROCKWAY, of Worcester, Mass., who died at the Worcester City Hospital of cerebral hemorrhage April 17, 1914, was born in Boston in 1852. He had been a Fellow of The Massachusetts Medical Society since 1874. He was a graduate of the College of Physicians and Surgeons of Columbia University and previous to settling at Worcester in 1888 had practised in Lynn, Mass., and Avon, Pennsylvania. He is survived by his widow, one daughter and one son.

DR. PAYSON JONATHAN FLAGG, a Fellow of The Massachusetts Medical Society, died at his home in Mittineague (West Springfield), Mass., on March 22, 1914, aged 55. He was a graduate of Jefferson Medical College in 1885.

DR. FRANCIS KELLY ROARKE, who died on April 19 at Troy, N. Y., was born in 1869. He was an otologist and rhino-laryngologist, and was not married.

APPOINTMENTS.

Announcement of New appointments on the reorganized staff of St. Elizabeth's Hospital was made on April 19. The entire staff is now composed as follows.

VISITING STAFF.

Dr. John R. Slattery, superintendent and physician-in-chief. *Dr. Thomas F. Harrington*, associate physician-in-chief. *Dr. M. J. Cronin*, physician. *Dr. John W. Lane*, surgeon-in-chief. *Dr. Edward A. Supple*, surgeon. *Dr. Arthur L. Chute*, chief of urological department. *Dr. Thomas F. Broderick*, orthopedic surgeon. *Dr. Thomas F. Green*, obstetrician. *Dr. P. F. Butler*, roentgenologist. *Dr. Andrew F. Downing*, director of laboratory serum diagnosis. *Dr. Henry S. Rowen*, consulting obstetrician.

OUT-PATIENT STAFF.

Medical Department: *Dr. Thomas J. O'Brien, Dr. Felix McGirr, Dr. Leo T. Miles, Dr. John J. Sullivan.* Assistants: *Dr. Francis J. Doherty, Dr. Joseph Macauley.* Surgical Department: *Dr. Arthur H. Crosbie, Dr. Eugene V. McCarthy, Dr. Joseph Stanton, Dr. George F. Keenan.* Assistant: *Dr. Edward J. O'Brien.* Throat Department: *Dr. John J. Brainard, Dr. Edgar M. Holmes, Dr. John F. O'Brien, Dr. Andrew Sullivan.* Gynecological Department: *Dr. Robert Fair, Dr. Thomas J. Scanlan, Dr. Delbert Jackson, Dr. Charles Kickham.* Eye Department: *Dr. Samuel L. McDonald, Dr. Peter Kelleher, Dr. Peter McAdams, Dr. Jeremiah J. Corbett.* Assistant: *Dr. C. J. Lynch.*

Original Articles.

THE ART OF COMPANIONSHIP IN MENTAL NURSING.*

By Henry R. Stedman, M.D., Brookline, Mass.

Just as the "lunatic asylums" of fifty years ago were built throughout as if violent and physically difficult patients were to be their only inmates, so our training schools of today in hospitals for the insane are almost exclusively devoted to instruction in the treatment and management of acute and violent cases and the physically ill.

It is also an important, but generally unrecognized fact,—and old and experienced nurses bear out these statements,—that in but barely a third of the mental and nervous cases to whom the nurse is called will she† find that the technical instruction which she has had in the training school of the hospital for the insane, is of use to her in private work. By technical duties I mean the management and hygiene of the ward, continuous baths, the care of the physically sick, the preparation and serving of food, and the employment of the various measures necessary for dealing with excited and dangerous patients.

It is only in the acute and other severe cases, which form but a small proportion of the mental patients, that these special requirements are called into play, and then the specially trained, fearless and watchful nurse is indeed a godsend to the patient, the physician and the family. The same remark applies to patients in state hospitals. There, apart from the acute and other excited and difficult cases, are hundreds of quiet, semi-sane or convalescent and generally harmless patients who, even if partially demented, are more or less appreciative, for whom such special and skilled nursing is inappropriate and unnecessary.

Consequently, the nurse soon finds on taking up private work that in most cases she has to fall back upon what native common sense, patience, tact, knowledge of human nature and general information she may possess in order to prove acceptable and helpful to her patients. She finds that if she is ever to be the high-grade nurse of her ambition she will be obliged to be nothing short of a companion to her patient,—who is, for example, one of the many mild melancholiacs or psychasthenics or a case of hypomania living at home,—whom she has to persuade and influence so that she will do the things she ought to do, whom she has constantly to reassure, guide and encourage, and for whom she has to do a number of minor offices never suspected in her course at the training school. In short, she has often to fill the rôle of devoted friend and helper, whether or not her efforts are appreciated and responded to by her charge, and to do such work well is often as difficult and trying a task as to deal with a case of acute mental disturbance, although in a far different way.

It is impossible to specify the many and diverse requirements for skilled personal and individual nursing, for it is nursing and of a high type, although such cases have not to be actually handled, bathed, and dressed or, as a rule, physically controlled. Just as it is not easy to put into words exactly what people in general do that makes them congenial and companionable to their personal friends, so it is impossible to give in detail all the qualities and accomplishments which go to the making of the expert companion-nurse. I will not sermonize on the virtues and accomplishments required of the ideal nurse in this line of work, but simply urge the use of the same means in general that we all employ to win our way with others.

In order, however, to emphasize the wide difference there is between individual and hospital nursing in mental diseases, let us run through a few of the daily duties involved in the private work of the expert mental nurse who is alive to her patients' needs. She reads to her charge systematically and often, so far as possible, selecting desirable books and such as would please her when well. She also sees that the patient reads, even training her to read aloud regularly for a definite time each day. Many a silent, partially demented or melancholic patient has been brightened up and improved by thus exercising the disused function of speech. Reading aloud, especially to single patients in state hospitals is so rare an occurrence that some of us can with difficulty recall an instance of it. Of course, the surroundings and the mental condition and lack of intelligence of many patients make this in a large degree impossible, but a fair number of them are not so demented or so ignorant but that they can be reached by such diversion. Some of them have never learned to read and a few do not know now, but more have never acquired the habit of reading. They can and should be encouraged to learn to like it. The teaching of the more demented is advocated and even practiced in one or two advanced hospitals. Is not then the practice of reading an easy and natural way in which to begin or revive the education of some of the less demented? The libraries of our state hospitals, some of them large ones, do not begin to be utilized for patients as they should be or as they are, for example, at the McLean Hospital. Are the books only for a few intelligent patients in the best ward, who have so many

* Read at a Conference on Modern Developments in Mental Nursing at the Boston Psychopathic Hospital, February 16, 1914, being Psychopathic Hospital contribution 1914.3. Previous contribution by Dr. A. Myerson, 1914.2 entitled "Contralateral Arm Reflexes" was published in the *Journal of Nervous and Mental Disease*, February, 1914.

† For convenience the feminine pronoun is used here in speaking of nurses and patients as the traditional nurse is a woman, but our remarks apply equally to the man nurse and his patient.

other things to interest them? The nurse will also utilize the newspapers, not only for the diversion of her patient, but also for her own improvement, knowing that if she keeps herself informed on the current events of the day or week she will increase her capacity for interesting companionship with all her patients.

It is no news to any intelligent person nowadays that systematic occupation goes a great way toward distracting and engrossing a patient's thoughts. It greatly lightens the companion's task. Most all available kinds are helpful, according to the age, strength and sex of the patients, from embroidery and arts and crafts work to wood cutting and chopping, provided it be free from drudgery and is varied and shared in by the nurse. Dr. Eliot tells us, by the way, that nothing brings content of mind like plenty of hard work that is interesting. The advances made in our state hospitals in this direction have done more than anything else to increase the general content of the patients, the quiet of the wards and a less artificial atmosphere generally.

The nurse will also often have to help in a patient's correspondence and to urge her to write to her relatives or friends. To extort every week or so a few lines of her own composition from a patient may be laborious work, but with patience and persistence not infrequently can be developed into a routine accomplishment when desirable, which will be a help to her and a source of satisfaction to her family. On the other hand, the nurse has also to keep a check on injudicious writing on the part of certain patients, the manic and the paranoid, for example, to accomplish which, without antagonizing them, is anything but easy.

The accomplished companion-nurse will also have as a part of her armamentarium some proficiency at games of various kinds, indoor and outdoor. She will begin early to master solitaire and card games of all kinds and be on the alert for new ones. Out-of-door sports she will pick up with various patients, not a few of whom take a certain satisfaction in teaching the nurse the necessary points.

Regular out-of-door exercise she will make interesting and beneficial by knowing the interesting walks to take and can occasionally cultivate in her charge a love of out-of-door life and nature study. She will also be equally vigilant as to rest hours for her patient as a definite part of the undeviating daily routine of work, play and rest by which the day is hourly piecemealed and which it is so important to establish.

Now personal individual care and attention which is lightly regarded by many as merely "making things pleasant for the patient" and dismissed as "frills" is what, in my experience of thirty years of living in intimate daily and hourly association with mental cases of every description, acute and chronic, mild and violent, makes far more than anything else for the best results that are at all possible. Often the less pronounced acute cases are equally susceptible to their influence. It is the old claim made true of the value of individual care and the nearer we can approach it the better and more scientific is our treatment of the case and the greater the benefit to the patient. In short the methods which really count in the treatment of the mental disease are psychic. Personal attention and influence suitably directed is the essential factor—the *sine qua non*—and to magnify the importance of the technical part of mental nursing is to put the cart before the horse.

We do not for a moment lose sight of the indispensable special methods of treatment for the acute, severe and difficult case of mental disease, continuous baths, the various packs, feeding and close and systematic surveillance which are in constant practice by all physicians in mental cases, but maintain that it is only when the patient's mind has reached a stage when it can be appealed to ever so little by means similar to those I have described that the opportunity for improving her condition begins.

How then is the nurse to fit herself for such important individual duties and acquire the training that is so necessary a part of her life work? She must practice on the patients in the wards. Let her begin by singling out a few for daily regular personal and friendly attention, however slight. It is not enough to be generally kind and helpful superficially to the ward-patients as a whole, as many conscientious and faithful nurses are. She should get down closer to the individual patient. Let her ask her now and then about home and family matters. Our advice to her would be: manage to find time to write a letter home for a patient or two or to help them to do it. Unfailingly encourage good work in whatever the patient does. That costs little time. Acquire and show a little genuine friendly interest and less aloofness toward the individual patient than generally prevails in institutions. All this should not be done fitfully but regularly and systematically, keeping in mind that it is not only the kindly and humane thing to do, but that it is an *important part of your training*, and before long you will not only find a way to extend your influence to others, but will be surprised to see the result to the patient and yourself. Finally when a patient leaves the ward ask yourself whether or not you have made of her a grateful friend and remember that every patient-friend that you have gone out of your way to make, means more to you in future usefulness and practical success in *mental* nursing than months of instruction in hydrotherapy, massage, bandaging, etc., necessary and helpful though they are in special cases.

It follows that all possible means should be tried for giving the nurse who is in training

more time than she now has for such important work directly with the patient. A prominent obstacle, as Dr. Frost has pointed out, is the unnecessary amount of time consumed in study and attendance at the school lectures. There is no question that they could be considerably curtailed without any loss of suitable instruction in the branches that have a direct bearing on nursing in mental disease proper and with distinct gain to the patient. The trouble is that in order to offer a course of training that will attract the right sort of applicants, and heaven knows we need them, certain subjects are taught which relate almost exclusively to physical disease and injury which the mental nurse has to cope with but seldom. In order, therefore, to keep a good staff of nurses for purely mental cases we train them in general nursing in a number of branches that, for practical use, are largely foreign to their legitimate work. An all around training is, of course, desirable for any nurse, but it should not be given at the expense of the patient. The mental nurse would suffer no loss of efficiency and have more time to get closer to her patient if such branches as bacteriology, urinalysis, gynecology, obstetrics and much of the anatomy taught were in some cases omitted altogether and in others materially curtailed. This done, it might be possible to substitute with still a good margin of time, a "current-events" class, for example, a lecture or two on the means for diverting the single patient, reports of personal interviews with patients and their domestic and other troubles which might have a bearing on their condition and their future needs, etc. Prizes offered for the best record in individual work have proved helpful in this direction.

We have enumerated on another occasion the many ways in which a resident social worker in each of our state hospitals could be most useful in the direction mentioned. There is great need of more intelligent lay help other than nurses for hospital patients.

Finally, such methods as are here advocated can only be justly questioned after they have been actually taught and tried in our hospitals. When that is done and they are persistently followed and generally extended, better conditions for recovery will obtain, I believe, the wards will take on a more natural atmosphere and greater ease of administration will follow.

Dr. W. W. Keen Honored.—At the close of the fourth congress of the International Surgical Association, America was honored by the election of Dr. W. W. Keen of Philadelphia as the president of the next congress. Paris was selected as the place for the meeting of the association in 1917.

CERTAIN ASPECTS OF THE MEDICAL HISTORY OF EXOPHTHALMIC GOITRE.*

By R. Fitz, M.D., Boston.

[From the Medical Clinic of the Peter Bent Brigham Hospital, Boston.]

The names of three men stand out above all others in connection with the medical history of exophthalmic goitre. These names are Caleb Hillier Parry, Robert James Graves and Carl Adolphus von Basedow. All three of these observers lived within fifty years of one another; all three recognized the symptom-complex which bears their names; all three described the disease from entirely different points of view and for entirely different reasons. It is interesting to compare these various authors and to consider what an important influence, seventy-five years ago, environment and training had on medical observation.

Caleb Hillier Parry was born in 1755. His father was a minister in a small English town, but was so well known a scholar throughout England that Johnson tells us his head teemed with knowledge. Parry was an eldest son. He was sent to a good school and from there went to Edinburgh to learn his profession. From his earliest days he was recognized as having manly sense, calmness of temper and philosophical firmness of mind; his genius, his application, his disposition all promised great things. After receiving his degree, he decided to become a general practitioner of medicine and accordingly moved to Bath in 1779.

At that time Bath was the medical centre of the most fashionable English society. Although Mr. Pickwick visited the city after Parry's death, the times had changed but little and the impressions of that astute gentleman are valuable in showing the kind of patients and the kind of life that Parry had to deal with.

Mr. Pickwick tells us that "a visitor in Bath lead a very pleasant existence with perhaps a slight tinge of sameness. Every morning the regular water drinkers met each other in the pump-room, took their quarter of a pint and walked constitutionally. At the afternoon's promenade all the great people and all the morning water-drinkers met in grand assemblage. After this they walked out, or drove out, or were pushed out in bath chairs and met one another again. After this the gentlemen went to the reading rooms and met divisions of the mass. After this they went home. If it were theatre night perhaps they met at the theatre. If it were assembly night they met at the rooms. The ball nights in Bath were moments snatched from Paradise, rendered be-

* A part of this paper was read at a meeting of The Harvard Medical Society of the Harvard Medical School on March 8, 1913.

witching by music, beauty, elegance, fashion, etiquette and above all by the absence of tradespeople. In the ball-room and the passages, the hum of many voices and the sound of many feet were perfectly bewildering. Dresses rustled, feathers waved, lights shone and jewels sparkled. Brilliant eyes, lighted up with pleasurable expectation, gleamed from every side; and look where you would some exquisite form glided gracefully through the throng and was no sooner lost than it was replaced by another as dainty and bewitching."

It was in such gay surroundings that Parry began the practice of medicine. At first it was discouraging. "A great part," he wrote, "of the obstacles to the improvement of the science of medicine originates in the habit of self-indulgence, leading persons to the gratification of present appetite, or the removal of present suffering with little or no consideration of the future. A man shall be grossly ignorant of the whole science of medicine, yet if he has a certain degree of assurance, aided by an adequate number of fashionable phrases, with a determined resolution of flattering his patients by an appearance of great zeal and attachment, and by confirming the good opinion which they entertain of their own discernment in the choice of medicine and diet which they most like, that man shall grow popular and rich and become accessory to the daily destruction of his fellow-creatures."

But as time went on Parry became a fashionable doctor in his turn, and it appears that nearly the whole catalogue of British nobility and many of the most distinguished men in the kingdom came to him for advice. He was even acquainted with the King, who accepted a piece of cloth manufactured from some of Parry's sheep and declared that from its excellent quality, he should feel a pride in wearing it.

In his early days Parry acquired the habit of taking full and complete notes on every case which came under his control. In his later years he contented himself with the more useful task of recording such cases as led to the establishment of principles. His writings therefore are based entirely on his own personal observations and cover a large field of subjects. They were not made, however, from the point of view of a teacher or student of medicine, but rather as objective descriptions of what he saw. This is shown by a quotation of his first case of exophthalmic goitre published in his "Posthumous Papers" in 1825.

"ENLARGEMENT OF THE THYROID GLAND IN CONNECTION WITH ENLARGEMENT OR PALPITATION OF THE HEART.

"CASE 1. There is one malady which I have in five cases seen coincident with what appeared to be enlargement of the heart, and which so far as I know, has not been noticed, in that connection, by medical writers. The malady to which I allude is enlargement of the thyroid gland.

"The first case of this coincidence which I witnessed was that of Grace B., a married woman, aged 34, in the month of August, 1786. Six years before this period she caught cold in lying in, and for a month suffered under a very acute rheumatic fever, subsequently to which, she became subject to more or less palpitation of the heart, very much augmented by bodily exercise, and gradually increasing in force and frequency till my attendance, when it was so vehement that each systole of the heart shook the whole thorax. Her pulse was 156 in a minute, very full and hard, alike in both wrists, irregular as to strength, and intermitting at least once in six beats. She had no cough, tendency to fainting, or blueness of the skin, but twice or thrice had been seized in the night with a sense of constriction and difficulty of breathing, which was attended with a spitting of a small quantity of blood. She described herself also as having frequent and violent stitches of pain about the lower part of the sternum.

"About three months after lying in, while she was suckling her child, a lump about the size of a walnut was perceived on the right side of her neck. This continued to enlarge till the period of my attendance, when it occupied both sides of her neck, so as to have reached an enormous size, projecting forwards before the margin of the lower jaw. The part swelled was the thyroid gland. The carotid arteries on each side were greatly distended; the eyes were protruded from their sockets, and the countenance exhibited an appearance of agitation and distress, especially on any muscular exertion, which I have rarely seen equalled. She suffered no pain in her head, but was frequently affected with giddinesss."

Besides his remarks on this condition, there are found among his medical writings careful studies on thoracic affections, abdominal affections and affections of the genito-urinary organs. His two best known monographs are the "Inquiry into the Symptoms and Causes of Syncope Angina called Angina Pectoris," and "The Nature, Cause and Varieties of the Arterial Pulse." He was interested in many other matters as shown by the titles of a few of his agricultural papers which include, "An Account of a Prize Crop of Cabbages." "Tables of the Female Descendents from 100 Yearling Ewes during Twenty years." "Observations on the English Race Horse."

On the whole, Parry was a fine and elevated character, a man of culture and great charm of manner, a tireless student and note taker. Above all he was a practitioner of medicine, writing, in part, because he had scholarly tastes and scholarly upbringing with such a man's love of the pen, and in part, because, as he said, the business of man was not merely to eat, to drink, to sleep, to enjoy sensual pleasures and then to lay himself down to die, but because it was also the business of man to make the world better after him and to give it the benefit of his experience. He died in 1822.

Robert James Graves was born in Dublin in 1797. He, too, was descended from scholarly people and was brought up in a well-to-do household. His father was a senior fellow of Trinity College and Regius Professor of Divinty, Graves, himself, received a careful preliminary education and went to Trinity College. While there, with two exceptions, he obtained the first prize in classics and science at every examination, and received a gold medal on taking his A. B. degree. He studied medicine with equal zeal and industry, thus it may be assumed that he, too, was a youth of unusual promise.

In Ireland, following its union with England, there was a period of mental inactivity throughout the entire country. Ireland's great men had disappeared, her orators and her advocates were no longer heard unless feebly, and her young men were apathetic. Even Dublin felt the effect of this general mental languor according to Thackeray's description. "A handsomer town with fewer people in it, it is impossible to see on a summer's day. In the whole wide square of Stephen's Green, I think there were not more than two nursery maids to keep company with the statue of George I, who rides horseback in the middle of the garden, the horse having his foot up to trot, as if he wanted to go out of town too. Small troops of dirty children (too poor and dirty to have lodgings at Kingstown) were squatting here and there upon the sunshiney steps, the only clients on the thresholds of the professional gentlemen whose names figure on brass-plates on the doors. A stand of lazy carmen, a policeman or two with clinking boot-heels, a couple of moaning beggars leaning against the rails and calling upon the Lord, and a fellow with a toy and book stall were all the population of the Green.

"At the door of the Kildare Street Club, I saw eight gentlemen looking at two boys playing at leap frog; at the door of the University six lazy porters, in jocky caps, were sunning themselves on a bench.—a sort of blue bottle race— and the Bank on the opposite side did not look as if six pence worth of change had been negotiated there during the day. There was a lad pretending to sell umbrellas under the colonnade, almost the only instance of trade going on."

Since there were few resident nobility or gentry, the professors of law and medicine formed the aristocracy of the city. But the Dublin Medical Schools, too, had suffered from the Irish torpor. Their chief attraction was less the characters of their professors or the number of the original works which issued from them, than the circumstance that of all the cities in the British Empire, Dublin was the one in which the greatest supply of dead bodies for dissection could be obtained. Clinical teaching was unknown, and there was little if any anxiety to encourage the individual pupil to learn.

It was in such surroundings that Graves in 1818 received the degree of Bachelor of Medicine from Trinity College. It must be remembered that he was young, keen-minded, and discerning enough to realize that he had not been educated with any degree of thoroughness. Therefore, as he afterward said, he did not begin life as a practitioner without practice, but for the next three years he studied medicine and the ways of teaching medicine in the better known universities of England, Germany, France and Italy. His trip abroad had a profound effect on his entire life. He returned to Dublin, ardent, energetic, filled with a desire to teach, and well trained not only in clinical subjects, but also, in the allied sciences of pathology, physiology and chemistry. He at once established a private school in medicine and was appointed physician to the Meath Hospital. It was here, that Graves delivered his introductory lecture to the students and pointed out the broad principles of medical education which gave him his unique place in the history of medical teaching.

In this lecture Graves took up the methods of instruction which were in vogue in Italy, France and England. In these countries the clinical side of medicine was taught by a system of ward rounds. The instructor walked from bed to bed examining the patients and expressing his opinions in a loud tone of voice so that the whole audience could hear what was going on. Graves' chief objection to this kind of teaching was that however well inclined the student might be, he was never obliged to exercise his own judgment in distinguishing diseases and had no opportunity to try his skill in their cure.

Graves determined to follow out the German method of clinical instruction. According to this, various members of the class were held responsible for the history, the examination, and the treatment of various cases. At ward rounds each student would report his case in the presence of the instructor, who satisfied himself whether all the necessary particulars had been accurately reported by the pupil. After the patients had been examined the professor and his class proceeded to the lecture room. The pupils were examined concerning the nature of the diseases studied, their probable termination, and the most appropriate method of treatment, each man answering only concerning the patients entrusted to his special care. During the examination the student's diagnosis and proposed remedies were submitted to the consideration of the professor who corrected whatever appeared to be erroneous in either. At the conclusion the prescriptions were read by the professor who strictly commented on, and corrected any inaccuracy or inelegance they might contain. The advan-

tages gained by such "practising pupils" seemed too obvious to require comment; being obliged to give reasons for every plan of cure that they proposed, the students became accustomed to a rational and careful investigation of diseases; and enjoying the most important of all advantages—the early correction of their errors—they commenced private practice with a sufficient degree of experience to render them unlikely to commit any serious mistakes. In other words, Graves believed that the hospital was a place to convert theoretical into practical knowledge; a place to observe the symptoms of diseases previously known to students only through the medium of books or lectures; a place to learn the art of recognizing these symptoms and of appreciating their relative importance and value; a place to study their connection with morbid alterations of internal organs; and, finally, a place to become acquainted with the best method of relieving patients by the application of appropriate remedies. This method of instruction was a radical innovation to the Medical Schools of Dublin, but became entirely successful and gave Graves a universal reputation as a teacher. Trousseau says of him, "For many years I have spoken of Graves in my clinical lectures. I recommend the perusal of his work; I entreat those of my pupils who understand English to consider it as their breviary; I say and repeat, that, of all the practical works published in our time, I am acquainted with none more useful, more intellectual."

As a result of his experience as a teacher Graves published his System of Clinical Medicine in 1843, composed of lectures which had previously appeared in the medical papers of the day. The book contained in it Graves opinion on such subjects as nursing, consumption, the treatment of fevers, etc., and included his remarks on exophthalmic goitre.*

In describing the latter disease, Graves mentions that he had lately seen three cases of violent and long-continued palpitations in females, in each of which the same peculiarity presented itself, viz., enlargement of the thyroid gland. The most typical case is given in detail.

"A lady aged 20, became affected with some symptoms which were supposed to be hysterical. This occurred more than two years ago; her health previously had been good. After she had been in this nervous state about three months, it was observed that her pulse had become singularly rapid. This rapidity existed without any apparent cause, and was constant, the pulse being never under 120, and often much higher. She next complained of weakness on exertion, and began to look pale and thin. Thus she continued for a year, but during this time she manifestly lost ground on the whole, the rapidity of the heart's action having never ceased. It was now observed that the eyes assumed a singular appearance, for the eyeballs were apparently enlarged, so that when she slept or tried to shut her eyes, the lids were incapable of closing. When the eyes were open, the white sclerotic could be seen, to a breadth of several lines, all round the cornea.

"In a few months, the action of the heart continuing with increasing violence, a tumor, of a horse-shoe shape, appeared on the front of the throat, and exactly in the situation of the thyroid gland. This was at first soft, but soon attained a greater hardness, though still elastic. From the time it was first observed, it has increased little, if at all, in size, and is now about thrice the natural bulk of the fully developed gland in a female after the age of puberty. It is somewhat larger on the right side than on the left.

"A circumstance well worthy of notice has been observed in this young lady's case, which may serve to throw some light on the nature of this thyroid tumefaction. The circumstance I allude to is, that from an early period of the disease a remarkable disproportion was found to exist between the beats of the radial and the carotid arteries, the pulsation of the former being comparatively feeble, while those of the latter were violent, causing a most evident throbbing of the neck, and accompanied by a loud rustling sound. In about fourteen months the heart presented all the signs of Laennec's passive aneurysm; the tumor in the neck is subject to remarkable variations in size, sometimes diminishing nearly one-half. None of her family have had goitre, nor was she ever in any of the usual localities of the disease."

This description is sufficiently concise and sharp to make one realize that as a lecturer, Graves must have been distinguished by force and clearness of language. This impression is well substantiated by his clinic on the treatment of fevers. "In a patient laboring under fever and a protracted abstinence from food, whose sensibilities are blunted and whose functions are deranged, it is not at all improbable that such a person will not call for food although requiring it; and if you do not press it on him, and give it as a medicine, symptoms like those which arise from starvation in a healthy subject may supervene. You may, perhaps, think it unnecessary to give food, as the patient appears to have no appetite and does not call for it. You might as well think of allowing the urine to accumulate in the bladder because the patient feels no desire to pass it."

The following story illustrates how keenly he felt the truth of what he taught. He was going around the hospital one day and entered the convalescent ward. He began to expatiate on the healthy appearance of some patients who had recovered from severe typhus. "This is all the effect of our good feeding," he exclaimed, "and lest, when I am gone, you may be at a loss for an epitaph for me, let me give you one in three words: 'He fed fevers.'"

During many years Graves enjoyed a large and lucrative practice, and was much sought after as a consultant. Yet it is as a teacher, and not as a practitioner of medicine that he must be remembered. He was a strong man,

* The original paper was published in 1835.

and a bold man, capable of holding friends and enemies. He came to Ireland at a time when medical education in that country was at lowest ebb, yet by his efforts he made the Dublin School universally known, and exercised a great influence on medical teaching in England, France and America. His own words are his best epitome, "If a teacher neglects his duty, if he teaches erroneously, his negligence and his error are multiplied indefinitely by those whom he ought to have better instructed; the scene of his guilt, for it deserves no better name, becomes fearfully enlarged, for there is no country so remote that it may not contribute victims to the incapacity of his pupils. But if, on the contrary, he works with zeal and diligence, a compensation awaits him to which scarcely any member of any profession can attain."

He died in 1853.

Carl Adolphus von Basedow was born in Dessau in 1799. His father was a government councillor and his uncle a distinguished teacher. Thus he, as well as Parry and Graves had the advantages of comfortable surroundings and a good up-bringing. He attended school in his native city but went to Halle University to learn medicine.

The University of Halle was the first of the German universities to be founded on the principle of free research and instruction. The older teaching was based upon the assumption that the truth had already been given, and that instruction had merely to do with its transmission. In Halle, however, it was believed that the truth must be discovered and that it was the duty of a college to qualify and guide the student in this search. Von Basedow fell under such influences.

After graduation in 1821, he moved to Merseburg. The town is one of the oldest and most picturesque in Germany; it is situated on the river Saale, and has always been small and unprogressive. Its most striking features are its cathedral, its town hall and castle. It appears to be a very typical, old-fashioned German village.

Von Basedow practised here until his death. The influence of his early training is well shown by his article on exophthalmic goitre which appeared in 1840, and is the first complete monograph on the subject. It begins by citing all the available literature that Basedow could find. He reports four cases of his own, occurring in three women and a man. All had exophthalmos and goitre, three had frequent pulse, two palpitation. Other symptoms were emaciation, dyspnea, edema, nervousness, diarrhoea and mild sweating.

He explained the exophthalmos as due to hypertrophy of the orbital tissues, "strumous" in the sense of goitrous. While his physiology and conception of the disease differed from the views now held, nevertheless, von Basedow was the first observer to attempt to study exophthalmic goitre as a disease and his article is remarkably complete. He wrote various other monographs on medicine and surgery, none of which are as well known as the one on goitre. He died in 1854 as a result of infecting himself at an autopsy on a case of typhus fever.

It is impossible to study the lives of these three men without feeling the important influence that environment had on their characters. Parry lived in the centre of fashion, and his interests were associated with those of the people with whom he came in contact. He had no university connections to stimulate him. As a result, he developed the tact in handling his patients and the knowledge of men that made him so successful. He was a broad-minded man, well informed about the variety of subjects which interest the educated Englishman who lives in the country but who deals with all classes of people. He was a splendid example of the general practitioner,* 'the flower (such as it is) of our civilization, and one who shared as little as any in the defects of the period, and most notably exhibited the virtues of the race.'

Graves lived in a university town where scholastic success represented the pinnacle of greatness. As a result the practice of medicine became to him of secondary importance. His aim was to improve the conditions for medical education in his own school and elsewhere, and his ambition was to make himself a clinical teacher. By insisting that the most essential part of a student's instruction was obtained at the bedside in close contact with the patient, he showed a far-sighted policy, carried it out, and materially changed the plan of medical teaching in England and America.

Von Basedow lived in a small German town. He was uninfluenced by the cares of a lucrative practice or the responsibilities of a university professorship. He lived his own life as an upright citizen, studying carefully the subjects that interested him, and describing them completely and well It is a pity that more details of his life and character are not known.

Whether exophthalmic goitre be called Parry's disease, or Graves' disease, or Basedow's disease, all three of these physicians deserve places in the history of medicine. It is difficult to find more perfect models of the practitioner of medicine, the teacher of medicine, or the student of medicine.

* R. L. Stevenson: Preface to "Underwoods."

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THE DEMONSTRATION OF GALL-STONES BY THE ROENTGEN RAY.

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AND

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UP TO within the past year, the demonstration of gall-stones upon plates by the Roentgen method has been regarded generally as a rare curiosity. Of late, however, Roentgenologists are learning more and more how to demonstrate these stones, so that the examination may be of definite diagnostic and prognostic value to the practitioner.

We believe that this advance has been peculiarly an American one. Carl Beck showed the first plates of gall-stones at a meeting in New York in 1899.[1] Since then he has devoted considerable energy to a development of the technique of gall-stone Roentgenography. More recently Case[2] and Cole[3] have both published numerous cases of gall-stones.

The practical application of the Roentgen method to gall-stone diagnosis has apparently not spread so rapidly on the other side of the Atlantic. Ewald, in his very recently published monograph on diseases of the liver,[4] states that—"unfortunately radioscopy has, up to the present, given us no reliable data for the recognition of gall-stones. The few cases that have been demonstrated were all rare exceptions of pure calcium stones."

This statement is by no means true as regards the present status of gall-stone diagnosis in this country.

In our own experience we began to find the shadows of gall-stones by accident during the course of the bismuth examinations of the alimentary tract. Gradually the accidental findings became so frequent that we found it advisable to look for gall-stones in every case. At present we have adopted the routine method of examining the gall-bladder region in every patient, before giving the bismuth meal.

Pure cholesterin stones, as is well known, do not have a density differing much from that of the general abdominal contents; therefore they will not interrupt the Roentgen Rays to any appreciable degree, so that their shadows cannot be differentiated. Fortunately however, these pure cholesterin stones are not common,[5] or at least do not cause many chronic disturbances. When the gall-bladder is chronically inflamed with repeated infections, the stones that are deposited have the characteristic lamellae of calcium and bile salts encrusted on the cholesterin core. It is only the calcium admixtures that we can show by the Roentgen Ray. Therefore, the clearness of demonstration of gall-stones upon the plates will be in proportion to the amount of calcium present.

As a rule nearly every case which has symptoms referable to gall-stones will have some calcium.[5] Of course the Roentgen demonstration of gall-stones has not yet reached the position that has already been attained with regard to renal and ureteral calculi. However, at present we believe that with care, and with attention especially directed to the gall-bladder region, gall-stones can be demonstrated in nearly every case where the symptoms have been of long duration, and gall-stones are really present.

In the near future we hope that the certainty of diagnosis will approach that which already has been reached with renal calculi. At any rate, before long it will be possible to state definitely whether there are gall-stones present containing calcium or not.

The technique for the demonstration of gall-stones is very simple. The complicated methods which have been devised for projecting away the liver shadow, etc. are entirely unnecessary. The patient lies upon the table with his face down. The plate is placed under the right hypochondriac region. The maximum of sharp definition is obtained with a very small diaphragm, 1½ inches in diameter, and a very small cylinder placed close down upon the back. It is preferable to use a fairly soft tube with a rapid exposure. It is better not to use intensifying screens, but to use the simple plates as in kidney work.

The gall-stone shadows will vary according to their calcium content. Often there will be a central light area due to the cholesterin core, with a peripheral calcium shadow. (Fig. 1.) Occasionally there may be made out the irregular deposits of calcium corresponding to the lamellated structure. (Fig. 1, stone 2.) At times the shadow will be dense and almost uniform, when there is considerable calcium salt present. (Fig. 2.) As a rule the faceted outlines will



Fig. 1.—Two large faceted gall-stones, in a man weighing nearly 200 pounds. Hepatic flexure adherent to gall-bladder region. (Note the varying density of the ribs, gall-stones, and bismuth.)



Fig. 2.—1. Mass of stones filling gall-bladder.
2. Single stone in cystic duct, near entrance to common duct.

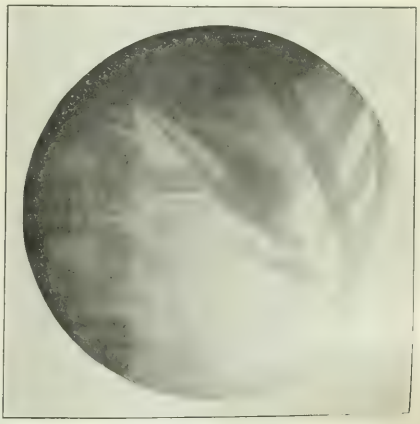




Fig. 4.—1. Large conglomerate mulberry stone, with numerous areas of calcification.
2. Edge of gall-bladder.
3. Edge of liver.



Fig. 5. 1. Mass of nearly forty small gall-stones.
2. Antrum of stomach, demonstrated by fluoroscope to be adherent to gall-bladder region.
3. Pressure effect of gall-bladder upon antrum.



be clear, although at times the calcium masses may be circular or irregular. The stones will sometimes be closely packed in a mass, corresponding to the gall-bladder boundaries. At other times the shadows may be more separately scattered throughout the gall-bladder region. When the faceted outlines are distinct, it is easy to tell that there are many stones present. However, when the shadows give the appearance of a single conglomerate mass, one is easily led into error. We have seen essentially the same picture prove in one case (Fig. 4) to be a single conglomerate stone of the mulberry type, and in another case it proved to be a mass of closely packed small stones. (Fig. 5.) The shadows of gall-stones may, in rare instances, be entirely obscured by a very greatly thickened gall-bladder.

In addition to the gall-stones, we are usually able to show other indirect evidences of gall-bladder disease, by the later bismuth examination. These consist of the evidences of adhesions due to pericholecystitis. The duodenum and antrum of the stomach occupy an abnormal right sided position in the sub-hepatic region, and on manipulation appear to be fixed there. (Fig. 5.) The hepatic flexure, or some parts of the proximal transverse colon, may be demonstrated as adherent to the gall-bladder. (Fig. 1.) However, these accessory aids merely mean adhesions in the gall-bladder region. They may be congenital adhesions, or the results of chronic gall-bladder disease without stones. The actual demonstration of the gall-stones themselves establishes the diagnosis without a doubt.

The commonest sources of error in the diagnosis of gall-stones are renal calculi, calcified mesenteric glands, and costo-chondral ossification.

Renal calculi usually cause confusion when we do not find the characteristic light cholesterin cores and faceted outlines, or when we have single or conglomerate stones. The writers have, however, seen renal calculi that showed definitely faceted outlines, and on a single Roentgen plate could easily be interpreted as gall-stones. The differentiation can usually be made by taking similar plates with the patient lying first on his abdomen and then on his back. Gall-stones are nearer the anterior abdominal wall, while renal calculi are nearer the back. Therefore the anterior plates in the case of gall-stones will show the shadows small and sharp, whereas the plates taken on the back show the shadows larger and more blurred. Just the reverse occurs in the case of renal stones; that is, the posterior plates show smaller and sharper shadows than the anterior plates. The shadows of renal calculi usually have a constant relation to the kidney outline, whereas those of gall-stones may change their relative position with changes in the projection angle.

Calcified mesenteric glands will be found to occupy somewhat different positions in different plates, by manipulating the abdominal contents between exposures. As a rule they are found much lower than the gall-bladder region. Also there will be found very little difference as regards the postero-anterior, or the antero-posterior exposures.

Ossification of the *costal cartilages* may produce a calcium mass simulating a number of gall-stones. (Fig. 6.) On careful observation, however, this mass will be found continuous with the ends of the ribs, and also similar masses will usually be found in the left hypochondriac region.

In our routine work, gall-stones have been found in cases where their presence was at first entirely unsuspected. Later a careful history has brought out symptoms attributable to them. Again they have been found in cases where the entire attention of the physician had previously been directed to their secondary manifestations in the stomach or bowel. In these cases no symptoms of gall-bladder trouble could ever be elicited. This has been especially true in several cases of anacidity, and one of true achylia, resulting from gall-bladder disease. We therefore believe that a routine examination of the gall-bladder region is of considerable importance as a preliminary to the later bismuth examination of the alimentary tract.

SUMMARY.

The demonstration of gall-stones by the Roentgen Ray has already reached a position in this country that warrants its more general use as a dependable aid to diagnosis.

It is advisable to examine the gall-bladder region for stones prior to every bismuth examination of the alimentary tract.

We believe that gall-stones can be demonstrated by the Roentgen Ray in nearly every case of gall-bladder disease of long standing where stones are really present.

The chief sources of error are renal calculi, calcified mesenteric glands, and costo-chondral ossification. These can be differentiated by proper technique.

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GIFT TO LEONARD HOSPITAL.—Mrs. Russell Sage of New York has signified her intention to give $25,000 to the Leonard Hospital, Troy, provided the residents of that city will raise an additional $40,000.

INTRACRANIAL HÆMORRHAGE IN THE NEWBORN.*

BY ROBERT M. GREEN, M.D., BOSTON.

[From the Clinic of the Boston Lying-in Hospital.]

INTRACRANIAL hæmorrhage in the newborn either may be due to the trauma of labor, natural or instrumental, or may be associated with the disease known as *haemorrhagica neonatorum*. In the former instance, the treatment is purely local; in the latter, the local treatment becomes secondary to that of the general condition. In either case, early recognition of the symptoms is of extreme importance, since any operative treatment, if indicated, must be prompt to be effective. This review of the subject will be illustrated by cases from the clinic of the Boston Lying-in Hospital, for the privilege of observing and reporting which I wish herewith to express my grateful acknowledgment to the Visiting Physician.

Trauma, especially of difficult forceps delivery through a contracted pelvis, has long been recognized as the commonest cause of intracranial hæmorrhage in the newborn. There may be little or no external evidence of injury; the baby usually seems normal in every way; and symptoms of its condition seldom appear before the second day, and sometimes not until the fourth or fifth, probably depending on the amount and rapidity of the hæmorrhage. As a rule the latter is usually venous, and of slow oozing character. The signs, which theoretically should be those of progressive increase of intracranial pressure, are seldom typical, as in an adult, but are often modified into a clinical picture, which, though distinct and definite when once recognized, is not that which *a priori* one would expect.

Abels[1] emphasizes the similarity of this picture to that of traumatic tetanus. He points out, however, that strabismus and nystagmus are often absent in hæmorrhage, and that the extent of the convulsions is seldom as great as in tetanus. In my experience the reflex and motor phenomena are frequently unreliable guides to diagnosis or as localizing signs. The two following cases may serve to indicate the type of clinical picture more often met in traumatic intracranial hæmorrhage due to forceps extraction.

CASE 1. Baby S. (B. L. H. 149-92. No. 16570). Male. Born March 31, 1909, by difficult multiparous high forceps extraction. Weight, 9 lbs. 13 oz. Easily resuscitated. Appeared normal and nursed until 48 hours old, when it began to refuse the breast. Its cry, previously lusty, became feeble and querulous. Physical examination showed marked general pallor of skin and mucous membranes. Face slightly puffy. No bulging of fontanelles. No alteration of reflexes. No external hæmorrhage. Thorax and abdomen normal. The baby was stimulated with heaters and brandy, but died in a few hours without development of further symptoms. Post-mortem examination: The right cheek anterior to the right ear, and the left cheek in the corresponding situation, show a broad purplish area of discoloration. On section, the tissues of the scalp are found infiltrated with a considerable amount of blood-like material. This infiltration is continuous with a similar condition in the subcutaneous tissues of the upper part of the areas of purplish discoloration described above. There is no break in the continuity of the tissues along the sutures, and no bulging of the fontanelles. On opening the skull, a large amount of fluid blood escapes from beneath the dura, and on removing the brain the convexities of the hemispheres are found covered with a rather thick layer of blood-clot. This is situated mainly in the region of the posterior half, but it extends forward laterally as far as the temporal lobe. At the base, there is a slight amount of clot along the crura and over the pons. On section, the brain tissue is not remarkable. The sinuses, as far as can be made out, are intact, and the hæmorrhage is probably due to a break or breaks in the pial vessels. The trunk was not examined.

CASE 2. Baby P. (B. L. H. 152-46. No. 16906). Female. Born August 29, 1909, by difficult forceps extraction through a contracted primiparous pelvic outlet. Weight, 7 lbs. 10 oz. Baby easily resuscitated and cried vigorously. Face considerably traumatized. No cephalhematoma. Nursed well until the fourth day, when it began to refuse the breast, and to develop general pallor and progressive œdema of the right side of the face. Cry feeble and moaning. Physical examination was entirely negative. Lumbar puncture yielded clear fluid. The baby was fed breast milk with a medicine dropper and stimulated with brandy and subpectoral salt solution, but continued to fail, and died, without convulsions, on September 5.

Post-mortem examination: On the right side of the head, the tissues are swollen and show dark reddish discoloration. On section, the subcutaneous tissues are swollen and markedly infiltrated with brownish red, bloody fluid. No fractures of the skull are made out. The sutures are intact. On opening the skull, there is a moderate amount of frank blood-clot resting here and there over the right hemisphere, and a considerable amount of blood-like material in the right middle fossa. This blood is all subdural. No definite laceration of brain-tissue is made out. The sinuses are intact. Trunk: the peritoneal cavity is not remarkable, and the stump of the umbilical cord is in good condition.

It appears from these cases that subdural hæmorrhage of fatal grade may occur without producing the classic signs either of intracranial pressure or of traumatic tetanus. Indeed, I have come to feel, from observation of over a dozen cases, that, given an adequate history, a presumptive diagnosis of intracranial hæmorrhage may be made in any baby that, within a few days of birth, becomes pale, refuses the breast, and shows a peculiar, though slight, facial œdema. This latter sign, presumably due to back pressure from within the skull on superfi-

* Read at a meeting of the Surgical Fortnightly Club on Feb. 24, 1914.

cial veins emptying into the dural sinuses, I have felt to be a sign of considerable importance and value. This presumptive diagnosis may be made even in the absence of nystagmus, bulging of the fontanelles, or reflex modifications. Indeed nystagmus is so often present in babies that for this purpose it seems to me a sign of very little significance. The appearance of any of these, or the onset of convulsions, is of course confirmatory evidence.



Types of Intracranial Hemorrhage. (Seitz.)

Fig. 1. Intraventricular Hæmorrhages.

Fig. 2. Massive Subdural Supratentorial Hæmorrhage of the Cerebral Convexity.

For further confirmation, lumbar puncture is important, and should generally be done; but even this may fail to yield bloody fluid in the presence of considerable hæmorrhage. Whether it does so or not, probably depends on whether the hæmorrhage is confined to the convexity of the cerebral hemisphere or extends below the tentorium and along the base.

For complete confirmation, aspiration of the subdural space, through a fontanelle or suture, is of supreme value, and should be done in every suspected case, and always before any operative measure is undertaken. This procedure is advocated by Henschen,[2] its originator. It is not only of diagnostic but may be also of therapeutic value. Gilles[3] reports a case cured by "decompressive cranial puncture." The technic is simple. Care must of course be taken not to wound the dural sinuses. Over the vault of the cranium there is abundant room, especially when the subdural space is filled with blood. The needle should be inserted nearly parallel with the surface of the skull, and when entered, if blood is not immediately obtained, may be carefully swept in various directions, not, however, attempting to cross the middle line, on account of the falx. The coronal suture, at the lateral angle of the anterior fontanelle, is the most favorable point for insertion; but exploration may also advantageously be made through the lambdoid suture. If blood be found, as much may be removed as can be made to flow through the needle, depending on the degree of coagulation.

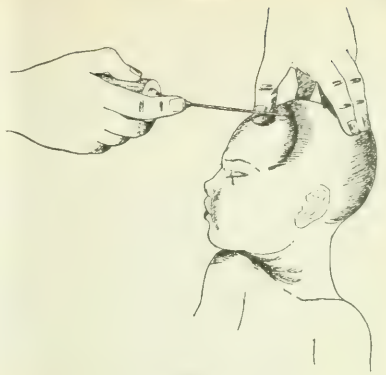


Fig. 3.

Technic of Fontanelle Puncture. (Henschen.)

If a considerable amount of blood can be withdrawn in this manner, it may be wise to wait before instituting further procedures. But if only a small amount be obtained, or if there be no improvement in the baby's condition, immediate decompressive craniotomy is indicated. Of cases thus treated, 17 have thus far been reported, 9 by Cushing[4], 1 by Seitz[5], 1 by Meara and Taylor[6], 1 by Hubbard,[7] 3 by F. T. Murphy,[8] and 2 by Simmons.[9] Of these, 7 have recovered, four of Cushing's cases, 1 of Murphy's and 2 of Simmons's. Torbert,[10] in 1909, reported two cases, both of which, however, died without operation.

The operative technic, as described by Simmons, consists of a transverse skin incision along the coronal suture. The suture itself is then opened and the dura incised, first on one side, then on the other, of the median line. If necessary, the suture incision can later be extended to make an osteoplastic flap, but often mere incision, with insertion of a rubber-tissue wick, affords sufficient drainage. Both of Simmons's cases recovered under this treatment, and it seems that perhaps others have died from the greater shock of a more extensive procedure.

That fatal intercranial hæmorrhage should result from difficult forceps delivery is not surprising; indeed the wonder is that it does not occur more often. But that it should follow easy, normal, even multiparous labor is almost incredible. Yet such is the fact, as is evidenced by the two ensuing cases:

Case 3. Baby L. (B. L. H. 155-32. No. 17257). Female. Born January 30, 1910, after a spontaneous precipitate primiparous labor of 4 hours, 10 minutes, through a slightly justo-minor pelvis. Weight, 6 lbs. 14 oz. Baby easily resuscitated and cried vigorously. Continued well until February 4, when it had two convulsions. Physical examination showed moderate bulging of the anterior fontanelle, but was otherwise negative. A hypodermic needle was inserted into the lateral angle of the

anterior fontanelle, with the escape of a considerable amount of dark fluid blood. Baby seemed relieved and had no further convulsions. On February 5, baby was seen in consultation by Dr. F. T. Murphy, who advised and made an incision at the site of previous puncture, with further escape of two ounces of dark fluid blood. Baby's respiration and color improved after this procedure, but it died an hour later.

Post-mortem examination: At the left lateral angle of the anterior fontanelle is a two-inch incised linear wound, in which is a small rubber-tissue drain, and from which exudes a small amount of dark fluid blood. Scalp not remarkable except for slight infiltration with similar fluid. The cut above described extends through the dura. The subdural space is filled with cruor clot overlying the cerebral convolutions and extending down into the longitudinal fissure. A small amount of fluid blood wells up from the spinal canal through the foramen magnum. Cerebral sinuses intact. Brain otherwise normal in appearance, and on section shows no hæmorrhage into its ventricles or substance. Examination of trunk showed nothing abnormal.

CASE 4. Baby C. (B. L. H. 156-50. No. 17386). Male. Born March 29, 1910, after an easy, normal, multiparous labor of 16 hours, 10 minutes, through a slightly justo-major pelvis. Weight, 9 lbs. 8 oz. Easily resuscitated and cried vigorously. Appeared normal and nursed well until April 1, when it refused the breast. The temperature was 100°, the anterior fontanelle slightly prominent, but physical examination was otherwise negative. That afternoon the temperature rose to 101°, the fontanelle became more prominent, and spasmodic nystagmus developed, but there were no convulsions. The general condition remained good, but on April 2 the baby had a convulsion and died before any treatment could be instituted.

Post-mortem examination: Scalp normal. Fontanelles and sinuses normal. Subdural space contains a small amount of fluid blood, especially on the right side, increasing in quantity towards the posterior part of the brain. The right occipital lobe is largely replaced by a massive currant-jelly clot, about the size of a hen's egg, and homogeneous throughout. The source of this hæmorrhage could not be determined. The remainder of the brain was normal on section. Examination of the trunk showed nothing remarkable, except some minute punctate hæmorrhagic patches in the lungs.

The precipitate labor in the first of these cases may have been a sufficient traumatic factor to explain the hæmorrhage; but in the second there seems no adequate reason to account for it. It is noteworthy that in none of the cases of this series could the source of the bleeding be determined at autopsy. Beneke[11], [12], in 1910, expressed the belief that in the majority of instances the lesion is a laceration of the tentorium. Pott,[13] in 1911, reported 33 autopsies on the newborn, in which tentorial lacerations were found. He describes three types of tear: one in the free edge of the tentorium, one in its superior layer, and a third between the layers. He ascribes them to the tension put on the tentorium by the compression of parturition, which stretches the falx in the direction of the long axis of the skull.

Henschen,[14] in 1912, concurs with Beneke's opinion, but points out that in cases where such lesion is absent the bleeding probably comes from the rupture of veins in the pia. Bauereisen[15] reported two and later[16] nine cases of tentorial laceration. Benthin[17] reported 10 cases, and expressed his belief that in normal deliveries the lesion may be produced by too violent manual compression of the head through the perineum in the effort to save the latter from tearing. Von Herff[18] also reports a case and believes the lesion to be often of this type.

Seitz[19] believes that only in about half the cases is the intracranial hæmorrhage due to tentorial laceration. In some of the others in which the hæmorrhage is intraventricular, instead of subdural, he believes the bleeding is from the veins of the choroid plexus. Eastman[20] has reported such a case, in which there was intraventricular as well as subdural clot. In the remainder, that is in supratentorial hæmorrhages over the cerebral convexity, Seitz believes the source is from lacerations of the superior longitudinal sinus or its tributaries. He believes also that venous stasis and increased fœtal blood-pressure are important determining or predisposing elements in intracranial hæmorrhage of all types.

Finally, it is to be remembered that intracranial hæmorrhage may be merely one localization of the bleeding of *hæmorrhagica neonatorum*, as the following cases illustrate.

CASE 5. Baby B. (B. L. H. 171-176. No. 19245). Male. Born June 24, 1912 after a normal, easy multiparous labor of 13 hours. Weight 9 lbs. 8 oz. Baby easily resuscitated and cried vigorously. Apparently normal except for cephalhematoma below posterior fontanelle. Nursed well until June 28, when it began to refuse the breast and showed marked pallor. On June 29 the baby was listless and very anemic. The hematoma on the back of the head had increased to twice its original size. The pupils were dilated and did not react to light. The left knee jerk was markedly increased. Both hands in position of tetany. Twitching of eyelids and lips, but no true convulsions. On June 30, there appeared small hæmorrhagic spots on the skin under the right axilla, on the left arm and over the middle of the back. Seen in consultation by Dr. Vincent, who injected 10 c.c. of mother's blood subcutaneously into the baby. Four hours later 10 c.c. of blood were similarly injected. The baby showed no improvement, but sank into progressive coma and died on July 4.

Post-mortem examination: There were several c.c. of bloody fluid in the pericardium. Each adrenal was reduced to a single large cyst containing bloody fluid. There is over the occiput a flaccid mass, the size of half a peach, which consists of diffusely infiltrated blood-clot extending forward in the median line to the anterior fontanelle. It lies under the epicranial aponeurosis, covering the squamous portion of the occiput, and not connected with the interior of the cranium. On opening the skull, a

free subdural blood-clot was found overlying the entire right hemisphere and extending along the base into the spinal canal. Source of hæmorrhage not determined.

Case 6. Baby Y. (B. L. H. 172-206, No. 19879.) Female. Born Aug. 22, 1912, after a precipitate multiparous labor of two hours. Weight, 7 lbs. 14½ oz. Baby easily resuscitated and cried vigorously. The mother's four previous pregnancies all terminated in miscarriage, but her Wassermann reaction was negative. The baby nursed well at first, but lost weight steadily. There was slight bleeding from the vagina a few days after birth. On Sept. 2 there was a slight hæmorrhage from the mouth, and on Sept. 3 a bright, profuse hæmorrhage from the cord. There was slight ptosis of the left eyelid, and paresis of left half of the body. Seen in consultation by Dr. Vincent. Anterior fontanelle bulging; lumbar puncture yielded 5 c.c. of blood-stained fluid. Thirty c.c. of blood were taken from the mother's vein and injected subcutaneously near the baby's scapula. There was no improvement, and the baby died on Sept. 4.

Post-mortem examination: Considerable fluid blood oozing from umbilicus, which is open and communicating with the umbilical vein, the stump of the cord being gone. There is slight oozing of bloody fluid from the mouth and nose. On reflection of the scalp, the anterior fontanelle, the sagittal and coronal sutures were seen to be dark and tense, and on incision the subdural space was found to be occupied by a diffuse layer of blood-clot, somewhat thicker on the left hemisphere than on the right, and extending completely around to the base of the skull, and down through the foramen magnum into the spinal canal. Source of hæmorrhage not determined.

It may perhaps be questioned whether the first of these two cases were really one of true hæmorrhagic disease, though it was so considered by Dr. Vincent. The second, however, was undoubtedly so. In both cases, the treatment employed by Dr, Vincent was directed toward relief of the anemia. Even had transfusion been possible, this alone would not have sufficed in the presence of so massive an intracranial effusion. In an ideal case of this type, one might first transfuse to restore the volume of blood and correct the tendency to hæmorrhage, and then aspirate or decompress to relieve the intracranial tension.

Obviously the most important measure in connection with so serious a condition as intracranial hæmorrhage is prophylaxis. In cases associated with hæmorrhagic disease this is manifestly impossible: a slight and otherwise unimportant degree of unavoidable trauma may here act as an inevitable factor in determining the location of an impending hæmorrhage. In normal deliveries one should remember not to compress the head too violently with the hand through the perineum, in the effort to save the latter from tearing. Above all one should, when possible, avoid all difficult or high forceps extractions by doing elective Cæsarean section. This of course requires rare judgment, since it is a matter of great difficulty to tell in advance how easily a given fœtal head may pass through a given pelvis. In weighing arguments for decision, however, due consideration should be taken of the much greater risk of intracranial hæmorrhage in high forceps deliveries, particularly where the fœtal life is a matter of special importance or solicitude.

Doubtless minor grades of intracranial hæmorrhage, from which the baby recovers spontaneously, often occur unrecognized. Of the possible or probable sequels of such non-fatal cases in epilepsy, spastic paralyses, imbecility, or other defects it is not practicable here to speak. In severe cases of intracranial hæmorrhage, the prognosis for life is so grave as to demand prompt recognition and efficient treatment of the condition. In all cases the prospect of complete functional recovery is so uncertain as to demand the most zealous prophylaxis.

While the above paper was in press, I had the opportunity and privilege of seeing at the Boston Lying-in Hospital and operating on the following additional case.

Case 7. Baby K. (No. 20718.) Male. Born March 30, 1914, after a protracted multiparous labor, terminated by low forceps. Weight, 8 lbs., 6½ oz. Baby easily resuscitated and cried vigorously. It seemed healthy at first, but never took its feedings well and lost weight steadily. I first saw the baby on the morning of April 12. At that time it had a pinched, anxious, trismic expression. The arms were spastic and held in a typical position of tetany. The right knee-jerk was exaggerated, the left could not be elicited. The pupils were equally dilated; the eyes showed moderate nystagmus and were generally held directed towards the right. There was marked bulging of the anterior fontanelle. A diagnosis was made of supratentorial intracranial hæmorrhage, probably on the left side, and was confirmed by cranial puncture. Clot was obtained on the left side, and a small amount of bloody fluid on the right. That afternoon, as soon as parental consent could be obtained, the baby was operated on by Dr. Simmons's method. A small amount of clot and a considerable ooze of bloody fluid was obtained from the incision through the left fronto-parietal suture, and a small amount of similar fluid from the right side. Rubber tissue drains were placed into the subdural space on both sides, and the skin wound closed with interrupted horsehair stitches. A moist salt solution dressing and bandage were applied and the baby sent to the ward in poor condition. The bulging of the anterior fontanelle was entirely relieved by this procedure, and the pupils became contracted; but the baby continued to refuse feedings, and died in a few hours. Post-mortem examination showed a moderate supratentorial hæmorrhage, chiefly restricted to the left side, with a small amount of blood on the right side and base, which was apparently due to leakage from above. The source of the hæmorrhage could not be determined.

Though this case differs somewhat in type and duration from those above reported, it illustrates essentially the same principles of diagnosis and treatment. If the condition had

earlier become apparent, operation might possibly have been more successful.

CONCLUSIONS.

1. Intracranial hæmorrhage may occur in the newborn either from the trauma of operative or normal labor or in association with *haemorrhagica neonatorum*.

2. It often does not present the typical clinical picture of increased intracranial pressure.

3. Its presumptive diagnosis depends on early recognition of refusal to nurse, pallor, and slight facial œdema, which may be confirmed by the appearance of more classic signs.

4. Diagnosis may be positively established, and some therapeutic relief afforded, by lumbar puncture (when the hæmorrhage is infratentorial), or by cranial puncture (when the hæmorrhage is over the cerebral convexity).

5. If these measures fail to give relief, operative decompression by craniotomy is indicated.

6. The majority of intracranial hæmorrhages in the newborn are subdural, but intraventricular hæmorrhages may also occur.

7. The source of bleeding may be from laceration of the tentorium, of the choroid plexus, of the longitudinal sinus or of the pial vessels.

8. In cases associated with hæmorrhagic disease preliminary transfusion may be indicated before craniotomy.

9. The gravity of the prognosis demands an enlightened prophylaxis by avoiding all unnecessary occasion for fœtal trauma.

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SOME PRESENT PROBLEMS IN TUBERCULOSIS.*

BY P. C. BARTLETT, M.D.,

Late Superintendent Rutland State Sanatorium.

THE last report of the Boston Association for the relief and control of tuberculosis shows a constant decrease in the number of deaths from tuberculosis during the past five decades. That there has been a decrease is gratifying, but there is still a great deal of work to be done. In this paper I shall briefly discuss the following problems.

First, the number of consumptives in the state and the number of beds available.

Second, the reason for the scarcity of comparatively early diagnosis.

Third, methods to bring about the early discovery of incipient cases.

Fourth, the question of suitable occupations for arrested or partially arrested cases of tuberculosis.

Fifth, the danger of duplication of effort in the various health boards, local societies, etc.

There are at present in Massachusetts approximately ten thousand patients under treatment for tuberculosis, and there are many times this number of people with non-active tubercular foci. We have about 3000 beds in the different sanatoriums and hospitals that can be used for these patients.

There is a considerable number of these cases that do not need hospital or sanatorium care as they can be perfectly well looked after in their own homes. There is still a large number of cases that need hospital care for which we have no provision. Many of these should be taken care of in their own communities, in hospitals built for the advanced type of cases. And when such hospitals are provided one of our present problems will disappear.

There are still altogether too many patients with active disease that are not recognized as tuberculous until their disease is moderately advanced or worse. There are two causes for this delay. First, many patients do not seek advice because of lack of knowledge of their complaint. Second, patients seek advice but their physician delays making a diagnosis because of lack of knowledge of the early symptoms or because of a too hurried examination.

For the first class of cases we must continue our educational campaign and, if possible, discover new methods of bringing before the people the necessity of early diagnosis. Dr. H. L. Barnes, in a recent paper, advocated newspaper advertising to bring the matter before the people and I believe this would help.

For the second class of cases we should perfect ourselves in every way possible to make an early diagnosis and also see that the medical students are given practical instruction in this most important branch of internal medicine. In our zeal to find the early case we should not, however, make a positive diagnosis of clinical tuberculosis without sufficient evidence. There is a distinct Phthisiophobia in the community to be combated and this can only be done by education.

We must recognize the fact that a tuberculous focus has been established in the majority of children and that they will react to a tuberculin test, but show no evidence of clinical tuberculosis. The problem is to prevent them from becoming active infections and to decrease

* Read at the sixth Massachusetts Conference on Tuberculosis, March 26, 1914.

the number that are exposed to infection in infancy and childhood. The children should be placed in the best environment possible and the cases of apparent poor physical development especially looked after, kept in open air schools or open air rooms, and live in hygienic surroundings. The sociologist says, "Provide an income sufficient to obtain good food and proper housing and there will be fewer cases of tuberculosis."

Another problem which always confronts us is to find suitable employment for the arrested or partially arrested case of the disease. Many patients do better to resume the occupations for which they have been trained rather than to take up some entirely new occupation even if their work is to some extent undesirable, provided they can live a well-regulated, hygienic life when not at work. There are some cases, however, that could be distinctly benefited if they could be trained in some light out-of-door employment or some of the less dangerous of the indoor employments. Last year the legislature of New York passed a bill allowing the municipal hospitals to establish work shops. These work shops are for the production of articles or supplies needed in the institution itself or by any other department of the municipality. This offers one method of training patients in occupations which are frequently better than the one in which they are trained and also starts them at work under the best possible conditions.

There is also a problem of duplication of effort. The local boards of health, the various tuberculous societies and various other health agencies should realize that only through the most complete co-operation can the best results be obtained. Miss Billings, who is employed by the Trustees of Hospitals for Consumptives, is at present doing valuable work in looking up discharged sanatorium cases and in securing the co-operation of the local boards of health and local societies.

Some of the problems, then, that confront the tuberculosis worker are very complex and are bound up with the problems which confront all of the workers in preventive medicine. When we realize that about 80% of all deaths are due to preventable causes, or in other words each one of those deaths is the result of ignorance or carelessness, then we realize that only by the broadest kind of education and the union of all of our sociological, educational, medical and sanitary forces can the preventable diseases be reduced to a minimum.

A Living Centenarian.—Mrs. Lydia Dow French, of Roxbury, Mass., is said to have been born on April 21, 1814, at Seabrook, N. H., and celebrated last week her supposed centennial anniversary. She is a widow and has two living daughters. Her health is excellent.

THE TUBERCULOUS CHILD.*

By Cleaveland Floyd, M.D., Boston.

Director, Out-Patient Clinic, Boston Consumptives' Hospitals Department.

Since the conception of the campaign to suppress tuberculosis was inaugurated three distinct steps have been noticeable in its development. At first the early diagnosis of pulmonary tuberculosis was considered to be the chief aim of most of the effort put forth. The second step has been the effort directed toward an adequate provision for those suffering with the disease in its advanced form, and thirdly, the child as an important factor in the problem has slowly become recognized. Not that the early detection of the disease and provision for it are any less important, but the question of tuberculosis of childhood has become more so.

The tuberculous child is of interest and importance chiefly from these aspects, namely, the source of and the manner in which infection takes place; the extent to which the children of the community are infected, and the influence of tuberculosis acquired in childhood upon later life.

Recent researches in the past ten years have shown that from five to ten per cent. of all cases are due to infection through milk, this type generally showing itself as tuberculosis of the joints, peritoneum or glands.

With the elimination of the tuberculous cow as a source of food this source of disease will be suppressed. Hess, in a striking observation made on infants, found that a few weeks' exposure to tuberculosis gave rise in most instances to the disease. Young children are not found to have as marked a degree of susceptibility as infants and with increasing years the intensity and duration of exposure to tuberculosis must be more marked to give rise to infection. The marked sensibility of the infant makes for a generalized tuberculosis. At an older period, general glandular infection is present, and only as the child moves on toward adolescence is the localized pulmonary infection predominant.

The entrance of the tubercle bacilli into the body takes place in two ways, through the digestive tract and by means of inhalation.

Experimental work on animals has clearly demonstrated that the organism may pass through the intestinal wall, gain access to the glands and reach the root of the lungs.

Lodgment of the bacillus in the tonsils may show subsequent inflammation of the glands of the neck with an extension into the chest.

But while the method of infection may occur from the use of tuberculous milk and the carrying into the mouth of material contaminated with the tubercle bacillus, laboratory and clinical findings still support the view that the great avenue of pulmonary infection is through direct

* Read at the sixth Massachusetts Conference on Tuberculosis, March 26, 1914.

inhalation. With the tubercle bacillus finding egress from the body chiefly from the air passages, with these secretions constantly thrown into the air, in a moist or dry state, and with the most susceptible part of the body open to the disease, it is but natural that the pulmonary tissue should be most often involved. The seat of the disease in the child may be the root of the lung and therefore not evident, except as it shows itself in symptoms of general debility.

The extent to which tuberculosis is prevalent among infants and children has been largely determined. Medin found that among 7000 children dying from various diseases, under one year old, 10% showed tuberculosis. This proportion rapidly increases with the increasing age of the child until at 16 years it is very probable,—as shown by laboratory and clinical methods that very few have not become infected to some degree.

The proportion of cases among children who have come in contact with active tuberculosis in the home varies from 29% to 40%. Sachs in Chicago obtained a percentage of 29. In Boston among 1000 children so exposed, 35% showed evidence of pulmonary involvement.

The effect upon the health and life of a child infected with tuberculosis may be evident in two ways: the immediate result may be a period of poor health, consisting of anemia and lack of strength, often with recovery, but with a very slow return to robust health, which is frequently never obtained. In a much smaller number of cases the lungs may be extensively involved and the child present the picture of phthisis as commonly seen in the adult.

In a great majority of cases, therefore, in early life, the tuberculous infection merely shows itself as a state of chronic ill health or general debility. With the advent of young adult life, necessitating occupation in a workshop or factory, the disease often seems to manifest itself for a second time either through the lighting up of the old process or by an added infection from outside contact. It is probable, however, in many instances where the patient in childhood has been infected and has yet grown to be a robust adult, this very early infection acts as a preventative in that the body is more resistant to a subsequent infection.

In those instances also in which a second attack of the disease occurs, the extent of its damages may be much more readily limited than would otherwise be the case.

Children who have attained adult years without having previously been infected with tuberculosis, and at this time of life are exposed to it, often seem peculiarly susceptible to its ravages. In these cases the disease seems to take the type of a general infection, often having a very malignant course, as is seen in infants. It is, therefore, probably true that some degree of immunity to tuberculosis is obtained through childhood infection, and if such children are subsequently surrounded with proper living conditions they may be well prepared to resist the disease, even if further exposed to it.

If, then, the child is ordinarily infected through direct contact with the disease in the home and the extent of tuberculosis in children so exposed is found to be a very large one, and that young adult life often succumbs to phthisis as a result of the lighting up of an early or later added infection, certain measures now more or less in general use in the effort to control tuberculosis should be re-emphasized. The susceptibility of young children even following limited periods of exposure has been so strikingly shown that measures looking towards the isolation of every active case of phthisis in a sanatorium or hospital are increasingly important.

Careful observation of all children so exposed for a period of years has proven of great value not only in the detection of the early stages of the disease but through the building up of the under-nourished and debilitated, has prevented a latent infection from becoming evident. For about five or six years the Boston Consumptives' Hospital has had a large number of children under observation who have in the first part of this period, shown tuberculosis acquired from home infection. At the present time the great majority of these children show little or nothing to indicate their former infection. Some are now young adults. I am confident that as a result of this prolonged period of care and observation they will prove to be well above the average in health in future years.

Medical inspection of school children is proving of great value, especially in arousing the interest of the parents in the health of the child. Many abnormal nose and throat conditions that lead to improper or prevent proper lung expansion are being corrected. The under-nourished child is supervised and the anemic child is examined for tuberculosis. Schoolhouse infection is being eliminated and along with it a better fed, cleaner and more normal mass of school children is apparent.

Some of the best work being carried on in Boston is being done by the Provident Association, where families are taught hygienic living. This necessarily means cleanliness, proper preparation of food, and fresh air in the home. This work, therefore, is fundamental in that it aims to prevent, not only tuberculosis, but disease in general. I hope the time will come when it can be greatly extended.

The recent child labor law in this state will in time undoubtedly make for better health among children and is worthy of cordial support.

If then we surround the child who has been exposed to tuberculosis in the susceptible years of life with healthful conditions in the home, healthful conditions of study, and if we prevent its early entrance into the confinement of factory or workshop life and do this on a sufficiently large scale we have the solution of the problem of the tuberculous child in our hands.

THE SOCIAL WORKER'S EDUCATIONAL INFLUENCE IN THE COMMUNITY.*

By George B. Underwood, M.D., Gardner, Mass.

Before speaking of the educational influence of a social worker in the community, might it not be well to consider for one moment what social work really is? One authority defines social work as "the study of character under adversity and of the influences that mold it for good or ill." Another says that "it is the making the best of what sound life or character there is left, also its ideals are public health and the extermination of disease."

The campaign of the social worker in Gardner is not directed against all poverty and distress, much of which comes under the province of the Associated Charities, the District Nurse, and the Overseers of the Poor, but is a campaign of education as directed to the tubercular patient, their families, and such associates as are brought into direct or constant relation with the tubercular patient. The work naturally focuses first on an active guidance of the tubercular patient that he may make the best use of such resources as he has toward recovery; and then toward the education of his immediate family and associates with the idea of preventing the further spread of the disease.

Hence, the position of the social worker is really that of teacher, as Dr. Cabot says "one who needs all the virtues, no more and no less than the railroad man, the farmer, or the shopkeeper. But his first and chief duty to all men is to give, with such ripening sympathy and friendliness as is possible under the circumstances, the benefit of his expert skill, and so fulfill his special function in the community." Besides natural versatility and tact, the work requires a fund of experience and a professional knowledge gained from a rigorous training.

Her experience and training must be varied, for the sympathetic nature which is absolutely essential, must be supplemented with a practical business training. In one family she has to teach the wage earner to plan the expenditure of his small income in such a way that necessities may be provided for his family, and again a mother must be taught the art of cooking to tempt the appetite of the patient; others need direction in the methods of housekeeping so that the patient may be surrounded by as sanitary and comfortable conditions as possible.

She must have a wide acquaintance with the business men and people of wealth in the community whose confidence she must have gained—business men, because of the dependence upon them in securing employment for those who need suitable work, and people of wealth, because of their assistance in supplying funds, with which to buy necessities and comforts for the destitute. Constant vigilance and oversight is the keynote of the work.

One not familiar with the work, would hardly appreciate the far reaching influence of the social worker. Her frequent visits to a home bring her in contact with the well members of the family whom she interests in the condition of the patient, and who thus become educated in methods of prevention of diseases as well as methods of treatment. In her numerous visits to the home she may find another member of the family in a state of malnutrition, anemia, or debility. She sends the person to the clinic or family physician for examination. No definite signs of tuberculosis are found, but with a little treatment to build him up and increase his resistance the patient is rendered less liable to the contraction and development of phthisis. This work the Association believes to be of great value.

To illustrate more vividly the influence of the social worker, let us picture an ordinary working man from thirty to forty-five years of age, who feels the full responsibility of a family from four to seven, dependent for their sustenance upon his daily work. For some time this man has felt tired, and some nights completely played out, has been subject to frequent colds, as he thinks, naturally attended with more or less cough.

Let us now imagine this man in the office of a good physician, who has been sufficiently interested in his case to have made one or more careful examinations and to have learned personal history, and who, although he has been reasonably certain of his diagnosis of tuberculosis, has just found a positive sputum.

The physician, knowing the poor home conditions and that at the present time, only a small proportion of tubercular cases can be treated at our state sanatoria, is fortunate to have at his command an efficient social worker to see that his instructions and treatment are properly followed.

The physician explains with confidence to the disheartened man that the social worker will prove an important factor in his recovery; that she will teach him not only what he can do to be of the greatest benefit to himself, but also how to avoid being a source of contagion to other members of the family, for although the physician prescribes, it is the social worker who carries out the detail of management.

The next day the social worker, having been asked by the physician to visit the patient, finds the unfortunate man thoroughly discouraged and helpless. The grief that he feels for his needy family, and the hopeless outlook into the future render him an abject figure.

The social worker enters, and on her first visit establishes a bond of sympathy and confidence. She talks with him about the instruc-

* Read at the sixth Massachusetts Conference [illegible] March 26, 1914.

tions of the physician, the necessary rest, the exercise, his food, the care of sputum, the absolute necessity of plenty of fresh air, open windows, sitting out of doors, etc., much of which seemed impossible to him as he sat in the doctor's office and thought of the lack of warm clothing and other means with which to carry out these instructions.

The social worker assures him that she can easily obtain a chair for him and plenty of warm clothing; she knows women ready and glad to sew and provide clothing for his children. So the cloud begins to lift. The confidence which the social worker inspires, arouses hope, and with new encouragement, the patient is better able to begin his battle.

It is usually at this stage that the patient with tuberculosis is the hardest to control. Oftentimes not feeling very sick, in the ordinary understanding of the term, he is inclined to wander. It is now that the frequent visits of the social worker are of greatest importance. She must be alert, earnest, convincing, and ready to correct repeated doubts the patient may have in relation to his treatment. It is now that she strengthens faith in his physician and prevents his going about from doctor to doctor in search of immediate cure.

A person but slightly ill is sometimes somewhat feeble-minded and suffers from tricks of memory with regard to the instructions and advice of the physician. In this case the patient needs constant supervision and instruction, which the physician is unable to give, but which the social worker can supply.

As I have said before, it is the incipient case which benefits most from the supervision of the social worker. A person acutely sick usually suffers pain or some distress which urges him to seek help as soon as possible. The incipient case of tuberculosis does not feel this urgent demand for relief. He may have more or less cough, suffer loss of weight and appetite, and have the sensation of general loss of strength and debility, but with proper treatment, have very little to complain about.

It is in such a situation that the patience of the social worker is taxed, for she must visit the patient frequently, see that every detail of treatment is properly carried out, and continually encourage, so that he will make the necessary effort to secure a permanent result.

Now when the patient is told and fully realizes that he has tuberculosis, his mental attitude toward the whole situation may be likened to the young man going into battle for the first time. He would run away from the enemy were it not for the watchful eye and moral support of his commanding officer. Just so does the continual moral support of the social worker bring back the confidence, and add new courage to successfully arrest and overcome the disease.

The work of the social worker, viewed from the economic standpoint rather than the humanitarian, is of great benefit to the state. If it were not for her supervision of patients returned from sanatoria, the large amounts of money expended in sanatorium treatment would in many cases be practically wasted, for it is a recognized fact that unless followed up, many patients would not continue the necessary treatment at home, and were it not for the constant vigilance and supervision of the social worker a recurrence of the disease would be sure to result. Hence, the sum expended in the treatment of the patient at the sanatorium might prove to be a loss to the state, for the patient again may soon return to his former condition.

In all this work vain indeed would be the efforts of the social worker, if she had not an advisor in the person of a good physician who is entirely in sympathy with her work, understands her needs, and is ever ready to counsel and help her in the many perplexities which are sure to arise. Without this co-operation, failure must follow where success would otherwise be attained.

Some may question—Why bother with this home treatment when out state supports institutions so well equipped for the express purpose of caring for patients? Why incur the expense of salary of a social worker and maintenance of a dispensary? The social worker watches carefully those patients who have returned from sanatoria and sends them to the dispensary or their own private doctor for examination, especially when they are taking up their work again. She follows carefully those who are waiting to go to sanatoria, and if the waiting seems long encourages them to be patient, and in the meanwhile helps them at home as much as possible.

There is a certain class of patients who do better under careful supervision at home. These cases are usually in those persons who suffer from homesickness. Take for instance a homesick person often depressed because of his condition and place him in a sanatorium where there are others afflicted as he is, and he is overcome with a sense of loneliness and homesickness. This class of cases needs the sympathy and encouragement of relatives and friends. When the patient returns from a sanatorium, he finds that the arrangement of his time has to be planned on a new basis. In adjusting himself to this new regime, the advice and moral support of the social worker is indispensable.

In Gardner, an anti-tuberculosis dispensary was established in 1909. This was earnestly and actively opposed by the physicians of the town, who in common with doctors throughout the state, at that time did not appreciate the importance of the diagnosis of incipient cases.

In 1910, the local social worker began her duties, and she was instructed to call on the physicians and see if she could help them in any tubercular case they happened to have under

observation. This plan worked so well that within a few months the physicians, seeing that the dispensary did not detract work from their offices, showed an entirely different attitude: opposition ceased, new interest was aroused, and confidence and co-operation followed. This is evident from the fact that during the first three months after the social worker commenced her duties, and the dispensary was moved to the Board of Health office, forty new cases were reported.

Since its establishment, seventy-three cases have been sent to sanatoria, seventeen of whom have died, four of these having died of other diseases than tuberculosis. Of the remainder forty-seven are working full time: eight, part of the time: and one is unable to work at all. Since 1908, 232 cases have been reported. Most of these the social worker calls upon in the interest of the attending physician or the dispensary.

Not wishing to detract from the benefits derived from sanatoria or local hospital, we wish to emphasize the effort to put more efficient social workers throughout every community in the state. We feel that as much effort should be made to put as many social workers in the field as is put into building new sanatoria, as they both are essential in the management and care of the tubercular patient.

The social worker does much to correct the mistaken ideas of the public, who sometimes practically ostracize the tubercular patient. The social worker should strive to accomplish her ends by tact, constant attention, and friendliness, rather than by making her directions compulsory and thereby creating a feeling of antagonism to her work.

That the social worker is a most important influence in a community cannot be denied, and that her influence is educational is recognized, for as Dr. Cabot says, "The contagion of disease must be opposed by a contagion of intelligence."

THE FIELD OF WORK OF THE ANTI-TUBERCULOSIS ASSOCIATION.*

By Seymour H. Stone, Boston.

Secretary, Boston Association for the Relief and Control of Tuberculosis.

THE STATE PROBLEM.

What is the tuberculosis problem in Massachusetts? Briefly stated there are about 5,000 deaths annually, and a State Commission on Tuberculosis has estimated that there are between 35,000 and 40,000 persons suffering with the disease.

* Read at the sixth Massachusetts Conference on Tuberculosis, March 26, 1914.

THE STATE PLAN FOR HANDLING THE PROBLEM.

The State has developed a well-defined policy for fighting the disease which may be summarized as follows:

1. It has established four 4. State sanatoria, to be used mainly for patients in the incipient or curable stages of tuberculosis.

2. A law was passed in 1911, and amended in 1912, providing that cities shall, and towns may, build hospitals for the care of persons having tuberculosis. It is proposed that these hospitals shall care for patients in advanced stages of the disease. Experience has proved that while persons with the disease in the early or curable form are willing to remain at the State hospitals, those suffering from an advanced form prefer, as is natural, to be near home and friends, and can only be adequately reached and provided for in local institutions.

3. At the same time another law was passed requiring the State to assist these cities and towns in the maintenance of their hospitals by paying them $5.00 per week per patient, provided such patients are indigent and have tuberculosis germs in their sputum.

4. To complete this plan a law was passed which requires cities and towns of 10,000 inhabitants or over to maintain tuberculosis dispensaries for the discovery, treatment, and supervision of needy persons afflicted with tuberculosis.

WHOSE JOB IS IT TO PROVIDE FOR THE TUBERCULAR?

This program, if carried out, will undoubtedly provide for most of those sufferers from the disease who need care. It means the expenditure of large sums of money, and this in turn means appropriations, raised by taxation: for the cost of maintenance of State, and particularly municipal tuberculosis work, is rapidly increasing.

A bulletin issued recently by the National Association for the Study and Prevention of Tuberculosis shows that nearly $20,000,000 was spent last year in the treatment and prevention of tuberculosis in the United States. This fact clearly indicates that the duty of caring for the tubercular is too great a one for private enterprise, and should therefore be assumed by the State and the municipalities, and paid for by taxation. That this policy is gaining headway is shown in this same bulletin which states that 69.3 per cent. of the above sum of $20,000,000 was derived from public funds, either federal, state, county, or municipal, as against a record of 53.5 per cent. in 1909.

THE STATE'S EQUIPMENT.

Massachusetts maintains at public expense:

1. Four State sanatoria under the Trustees of Hospitals for Consumptives.

2. A hospital for indigent men and one for

indigent women at the State Infirmary, Tewksbury.

3. Thirteen municipal hospitals.
4. Fifteen municipal dispensaries.
5. A prison hospital for tubercular prisoners.
6. And special provision for the tubercular insane at twelve asylums.

PRIVATE INSTITUTIONS.

This State program, however, does not mean that there is no place for the private institution. While a large majority of persons afflicted with tuberculosis are poor or of very moderate means, often with others dependent upon them, there are, of course, many who are amply able to pay for the care and treatment received. For this type of case the private institution is the proper place. There are several hospitals and sanatoria specially endowed for this purpose, and excellent institutions already well established, that should by all means be continued and supported.

THE FIELD FOR THE ANTI-TUBERCULOSIS ASSOCIATION.

In view of the above facts what work remains for an Anti-Tuberculosis Association? It is evident that it:—

1. Should not *permanently* maintain a hospital.
2. Should not *permanently* maintain a dispensary.
3. Shoud not *permanently* maintain a visiting nurse or nurses.

It seems to me, however, not only legitimate but very desirable that an Association should carry on experimental work of this sort to demonstrate a need and should then turn it over permanently to the municipality. The longer the Anti-Tuberculosis Association carries on these enterprises the longer the legitmate duty of the municipality is neglected and the proper work of the Association deferred. If it is impossible to induce a municipality to take over a necessary piece of work, I believe that an Anti-Tuberculosis Association should find some other way of passing on the enterprise. If this is not done the energy of the Association is invariably diverted from its own peculiar and important field of work.

THE PROPER WORK FOR AN ANTI-TUBERCULOSIS ASSOCIATION.

An Anti-Tuberculosis Association should, in my estimation, direct its energy along preventive lines of work; that is, in the direction of investigation, education, experiments and legislation.

INVESTIGATION.

Under the head of investigation it can make a study of local conditions, ascertaining the amount of tuberculosis in a given community, determining whether there is proper equipment to provide for it, and proposing a complete program for the suitable handling of the problem.

EDUCATION.

The object of the educational work should be to instruct people how to guard against contracting the disease, to give information about early symptoms, and what to do to protect others from infection. This can be carried out by free lectures in churches, lodges, labor unions, clubs and theatres; also by the distribution at lectures, schools and clubs of literature dealing with preventive measures, health rules, the value of fresh air, and sleeping-out devices. Exhibits of various sorts may be used to advantage but probably the most useful type is the small portable exhibit that can be shown in schoolrooms and churches, and set up in libraries, settlements, clubs, and even in the waiting rooms of hospitals clinics and stations. The newspapers will be found to be a willing and very useful ally in an educational campaign if material is prepared in a newsy form. Too much credit cannot be given the newspapers for all that they have done to assist in the fight against tuberculosis. Nor must it be forgotten that the sale of the Red Cross Christmas Seal has a certain amount of educational value.

EXPERIMENTAL.

As has already been suggested, experimental work, to demonstrate the need of a hospital, a dispensary, a visiting nurse, a day camp or an open air school, may be carried on by an Anti-Tuberculosis Association to the very great advantage of a community. When a real need of this sort is pointed out in a practical way to a progressive city or town, the public authorities are not slow in taking over and establishing the work on a permanent basis.

LEGISLATION.

Interest in legislation is an important function of an Anti-Tuberculosis Association. If the Association is not near the State Capital it is possible for it to be kept informed of the activities at the State House by some organization that is in close touch with the legislative machinery. Such an organization we have had to a certain degree in the Boston Association, and now with the formation of a Massachusetts Anti-Tuberculosis League we hope that distant Associations may be kept even more closely informed about legislation.

After being apprised of what is before the legislature an active Association may do good work by carefully studying the measures, applying them in theory to its own community, and then bringing pressure to bear on the local legislative representative to aid in enacting or defeating them. If it is possible to unite all the Associations for or against a given measure the pressure will be very effective.

An Anti-Tuberculosis Association can be even more effective by insisting on the enforcement of local or municipal laws, such, for instance, as those requiring physicians to register all cases of tuberculosis, obliging cities to build and maintain tuberculosis hospitals and dispensaries, and forbidding spitting in public places. It is also possible for an Association to do good work along the line of urging ample appropriations for the maintenance of municipal hospitals, dispensaries, nurses, open air schools and the Health Department.

COÖPERATION.

One of the most important things for an Association to cultivate is hearty coöperation with the health authorities, relief agencies, and the various civic bodies. It should always bear in mind that each of these agencies is necessarily looking at the tuberculosis problem from a different point of view, which, while it may not coincide with the point of view of the Association, is nevertheless worthy of the most thoughtful consideration. Toleration is a valuable characteristic and the Association that possessess it will find it comparatively easy to coöperate with others.

New Instruments.

HOME-MADE PROBES.

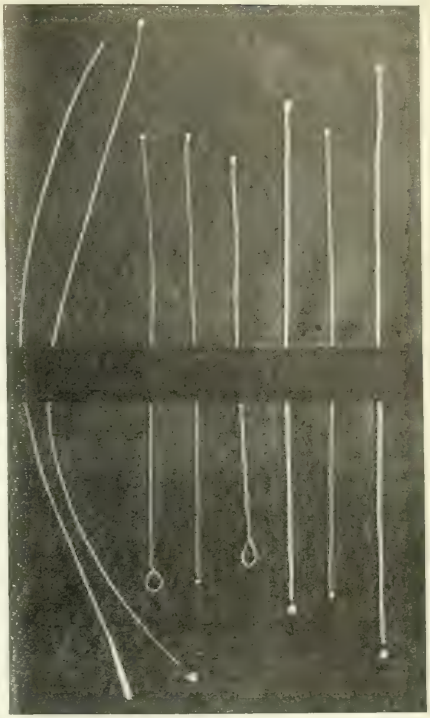
By Ernest Boyen Young, M.D., Boston,

Junior Visiting Physician for Diseases of Women, Boston City Hospital; Assistant in Gynecology, Harvard Medical School.

Probes are always becoming lost or mislaid, and it is often impossible to procure one of suitable size, length or pliability for special explorations, or in some emergency.

If of a size pliable enough to follow a delicate sinus, the tips are apt to be so small as to engage in any slight irregularity of the passage, and so mislead as to its extent. Furthermore, the material is often so stiff that the probe refuses to follow the tortuous course in friable tissue, and a false passage is the result.

In an emergency a very serviceable probe for small sinuses may be made by tipping a strand of silkworm gut with a drop of paraffin, or by wrapping one end with a wisp of cotton and then dipping one or twice in collodion. When paraffin is used, the end of the gut should be scorched in the flame, which roughens it and makes the paraffin bead secure. Metal probes are naturally more satisfactory, and the writer having found it necessary, in several cases, to employ probes of greater length and flexibility than could be bought, has manufactured them for his own use by a method so simple, that it may be generally useful. In the making, it is possible to vary the size of the beaded tip, according to the caliber of the sinus, so that a very flexible fine probe may be armed with a tip nearly as large as those on the heavy probes sold by the instrument makers, thus providing a flexible probe and at the same time minimizing the danger of the tip engaging or creating a false passage.



1. Silk worm gut tipped with cotton.
2. Same tipped with paraffin.
3. Silver wire with borax bead.
4. Copper wire probe.
5. Same as 4 silver wire.

Silver or copper wires of suitable size, are most useful although silver is the better; as the smaller silver wires are easily fused in the common alcohol flame, while larger copper wire always requires the flame of a Bunsen burner. The copper wire also oxidizes and may become rough, while the silver wire comes from the flame bright and ready for use. However, any roughness is easily removed by a piece of fine emery paper, sand paper, or a whetstone, while the roughness of the copper may be obviated by dipping the hot wire in

powdered borax, and again heating in the flame. The borax bead of the chemical laboratory also makes an excellent tip.

Under all circumstances, a Bunsen flame is preferable, as the greater heat gives a smoother bead, but for smaller wire the alcohol flame is sufficient.

Larger probes may be made by twisting together strands of smaller wire, and then forming a bead on one extremity. A loop may also be left on the folded end for the insertion of a strand of silk or other material which it may be desired to introduce into the sinus, or as a guide to indicate the direction of the passage.

Probes made in this manner are also useful in "stirring up" indolent granulations; the twists of the wire acting as a mild curet when pushed back and forth.

The wire should be held upright in the flame until a sufficient bead has collected. A few trials enable one to estimate the size of bead which a given wire will hold, as if allowed to become too large, the melted metal will drop from the wire.

The photograph shows various probes made by the methods described.

Reports of Societies.

THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting of Wednesday, March 4, 1914 at 8 P. M. The President, Dr. James C. Wilson, in the chair.

THREE CASES OF WIRING WITH ELECTROLYSIS FOR AORTIC ANEURYSM. ONE HERETOFORE IN PART REPORTED.

DR. H. A. HARE: Three additional cases of wiring with electrolysis for aneurysm of the thoracic aorta are reported and a patient exhibited illustrating the beneficial effects of this procedure more than four years after the first operation and more than two years after his second wiring which was resorted to because he had a return of very severe pain and a marked bulging near the site of the original sac. The great gain is arrest of the lesion and relief of pain.

To my conclusions in an article published by me in the *Journal of the American Medical Association* of April 13, 1912, I would now add that after having performed this operation twenty-five times I can see no reason for changing the views then expressed. I desire, however, to emphasize once more the fact that only especially prepared wire can be used and that silver wire, because it does not coil, is an unsuitable agent.

DISCUSSION.

DR. GEORGE W. NORRIS: I should like to ask Dr. Hare whether the wire introduced into an aneurysm is ever absorbed? I have an impression that in one case of which I have knowledge no wire was found at autopsy.

DR. THOMAS MCCRAE: I agree with Dr. Hare regarding the absence of danger in wiring, if properly done. Regarding the curious course taken by the wire, I have a specimen in which two loops passed through the aortic orifice and down to the lower end of the ventricle. I have seen one case of anatomical cure of abdominal aneurysm after wiring. The patient died from a second aneurysm which was also wired but without the result of the first occasion. I would ask Dr. Hare whether he has any theory upon the relief of pain by the wiring and electrolysis. The question is certainly not one of coagulation.

DR. JAMES TYSON: On March 27, 1911, I presented to the Section on Medicine of the College an aneurysm which had been twice wired in my wards at the University Hospital, wherein, too, one piece of wire had passed through the aortic orifice down into the apex of the ventricle by two loops.

DR. ROBERT N. WILLSON, JR.: Dr. Hare has encouraged me to mention the unfavorable results of a series of wirings done by us at the Philadelphia Hospital. Of six large aneurysmal sacs four were thoracic; two, abdominal. Five of the patients died within three days after wiring. In all cases the procedure was carried out practically as outlined by Dr. Hare. All showed marked relief from pain immediately following operation. One of the patients went back to work and lived for several months. Not one was benefited permanently. While there was immediate relief from pain, almost without exception, the wiring seemed active in hastening the end. During fourteen years I have seen many times for a colleague a patient with a large slowly growing aneurysm under the upper piece of the sternum, and who during this entire time has been living with reasonable comfort.

DR. HARE, closing: Answering the inquiry whether or not the wire is at times absorbed I would say that it is. I have known of one other case already reported in which at autopsy no wire could be found. I do not know whether, finding a tiny point of the wire protruding, the man had for amusement, pulled it out; or, it had undergone some process of absorption. I am inclined to thing that in some cases the wire may have been partly destroyed by the electrolytic process, particularly, if by any mishap, the negative instead of the positive pole were used. The most notable effect in my series of 25 cases of wiring is the relief of pain. The wire used must have temper so that if handled it will spring into the air. I do not see how coagulation can fail to occur if there has been no mistake in the use of the poles. I attribute the relief from pain to the sedative influence of the galvanic current (although I have not much confidence in electro-therapeutics), and to the removal of the strain upon the sac by the clotting. In cases unimproved or in which there is recurrence of pain it is often found that there is more than one aneurysm. The question at issue is whether we shall operate, or allow a man to live in pain. Of course there must be care in the selection of cases. In two cases seen within the last two months operation would have been unjustifiable. In one the sac was filled with a laminated clot. In the other case there was a history of pain and bulging in the third inter-

space to the right. There was present a small expansile mass. There was so much breath sound around the growth that I questioned whether insertion of the needle was possible without puncture of the lung. On the other hand, in some of the more desperate cases, the aneurysmal sac has been black and blue. In one such case the patient was wired in May and later was wired in two places at one sitting, and died from rupture of another sac than the one wired.

THE UNDERLYING FACTORS IN THE SPREAD OF TUBERCULOSIS.

Dr. Albert Philip Francine: In placing the responsibility for the spread of infection we must in the last analysis begin with the individual. The first remedial step is education among the poor and ignorant; the second, improvement of physical conditions of living. Next in importance in this relation is the subject of conditions of labor. The problem of tuberculosis is in a large sense a social and economic one. It is not alone strictly anti-tuberculosis measures which may be confidently looked to for results, but to all the associated movements for the public welfare in health, morals and conditions. Two great medical factors in the communicability of tuberculosis stand out *i. e.*, source of infection and age of infection. The great source of the infection lies in the carelessness of the individual consumptive, and childhood is the age at which infection occurs. Healthy adults have a very considerable resistance or immunity to tuberculosis, but in proportion to bad environment is this immunity impaired. Infection in childhood, as a rule, lies dormant until adult life. It is largely children infected by contact in their homes who furnish later the ever on-coming crop of consumptives. Infection may also be due to tuberculous milk and meat, and the direct transmission of the tubercle bacillus may take place from mother to fetus by placental circulation. Authoritative opinions differ upon the cause of the decreased death rate from tuberculosis in urban populations. Newsholme concludes that this decrease is due to the institutional treatment of the sick of our cities, and particularly the tuberculous sick. Karl Pearson denies the value of our general campaign, and says that the only efficient source of prevention lies in developing communal or race immunity. The maintenance of racial and communal resistance is important and points to the necessity by good food, rest and recreation, airy schools, playgrounds, inspection and supervision for raising this resistance, particularly in childhood and early adult life. When we consider as essentially one the social and economic, and the more strictly medical, conditions, responsible for tuberculosis, the point is brought forcibly upon us that it is by the combination of our anti-tuberculosis campaign and all allied movements toward improvement of health, morals and conditions of the people that we may expect to control this disease. As Folks well says, "If our task is the more difficult because it is bound up with every phase of modern civilization, it is equally true that every substantial advance in other lines assists our cause."

DISCUSSION.

Dr. James Tyson: Dr. Francine has well stated the grounds on which is based the spread of tuberculosis. I should like to ask him whether there is any reason to believe that the ascendancy in the struggle against tuberculosis which is being claimed has been at all reversed? My question is prompted in part by a statement in the lay press (from which, however, it is not always safe to quote) that in France the mortality from tuberculosis had doubled in the last twenty-seven years.

Dr. Francine, closing: I have to say, Mr. President, in reply to Dr. Tyson's question, that there is not the slightest possible doubt that the figures for the mortality in relation to the incidence of tuberculosis have diminished enormously. There is confusion from the fact that apparently the morbidity is greater because we are reporting all cases today. The information is before the people in a way never reached before and the mortality is certainly diminishing all along the line.

THE INCIDENCE OF FIBRINOUS AND BRONCHOCATARRHAL PNEUMONIA IN THE PHILADELPHIA GENERAL HOSPITAL.

Dr. Robert N. Willson, Jr.: Considerable interest and an occasional good natured difference of opinion have existed during the past eighteen months as the result of the determination of one of the medical services in the Philadelphia General Hospital to discriminate sharply between the fibrinous and the bronchocatarrhal types of pneumonia, especially with a view to treating patients suffering from the one condition in cold; and, from the other, in warm fresh air. There should be a clear cut discrimination between the two clinical types of pneumonia. There is a doubt whether there ever has been, or ever will be, a truly asthenic, vitally vigorous, sufferer from bronchocatarrhal pneumonia. Let us keep those patients indoors who are not able to establish a temperature reaction or a considerable leukocytosis as indications of their attempt to outride the storm that has beset them. Wash and warm, and even re-wash, their breathing air a sufficient number of times to render it cleaner and fresher than outdoor air. Send outdoors only such febrile pneumonies as crave the cold and obtain a stimulus and a relief in and from it. Send even these back into the warmth when the crisis occurs, or when, for any reason, they are distressed by the low temperature.

Book Reviews.

The Cancer Problem. A Statistical Study. By C. E. Green, F.R.S.E. Third edition. Edinburgh and London: William Green and Sons. 1914.

The first edition of this interesting monograph was reviewed in the issue of the Journal for May 18, 1911 (Vol. clxiv, p. 723). In this third edition, the text has been considerably rewritten and expanded from 90 to 98 pages by the addition of new data, statistics and other material. There have also been added several new plates, figures, maps and diagrams, and a col-

ored frontispiece; but the volume has been unfortunately curtailed by the omission of its excellent index. The plan of the work remains unchanged. The progress of cancer research during the past three years, especially the work of Mr. Erwin Smith on plant cancer, has on the whole tended to confirm the plausibility of Mr. Green's theory. His position remains as yet, of course, quite hypothetical, yet may well some day be deductively and experimentally proved correct.

Infections of the Hand. By ALLEN B. KANAVEL, M.D. Second edition, thoroughly revised. Philadelphia and New York: Lea and Febiger. 1914.

The first edition of this book was reviewed in the issue of the JOURNAL for May 16, 1912 (Vol. clxvi, p. 743). As indicated in its sub-title, it is "a guide to the surgical treatment of acute and chronic suppurative processes in the fingers, hand, and forearm." In this second edition, the author has made certain additions in regard to chronic processes, has introduced a clearer system of cross-references and has inserted *resumés* at the end of several of the chapters. The number of illustrative engravings is increased from 133 to 147. The total number of pages is increased from 447 to 463. The work should retain its position as an authoritative monograph on the important subject of manual infections.

Sanitary Statistics of the Navy for the Years 1909-1910. Rome: Italian Polygraphic Office. 1913.

This belated biennial report of the chief inspector of health to the Italian minister of marine records the health statistics of the navy for 1909 and 10. It follows the system of the preceding report (reviewed in the issue of the JOURNAL for Apr. 11, 1912 (p. 566) with certain changes in the nosologic tables to keep pace with the progress of medical science. It completes a decennium of statistics. In the succeeding decennium, it is purposed to adopt other simplifications and modifications, not so much in the classification of diseases, as in the number and system of columns. As it stands, the volume presents an immense mass of tabulated data, with a small amount of interpretative text, which should be of undoubted value and interest to those concerned in such subjects.

Dental Diseases in Relation to Public Health. By J. SIM WALLACE D.Sc., M.D., L.D.S. London: The Dental Record. 1914.

This volume consists of three communications made by the author at medical meetings. The first, which comprises over three-fourths of the pages, and from which the book takes its title, was an address before the recent Seventeenth International Medical Congress at London. The second deals with "the physiology of oral hygiene," and was the opening of a discussion on dental hygiene in infancy and childhood, before the Royal Sanitary Institute at Exeter. The third, on "children and dental disease," was presented before the British Medical Association. They indicate well the status and problems of popular education in dental and oral hygiene in England, and therefore should be of special interest to those concerned with similar problems in the United States.

Cunningham's Text-Book of Anatomy. Edited by ARTHUR ROBINSON, M.D., F.R.C.S., Ed. professor of anatomy, University of Edinburgh. Fourth edition, enlarged and rewritten. pp. xxv—1596. New York: William Wood and Company. 1913.

This fourth edition of Cunningham's Anatomy has undergone special revision because of the deaths of Professor Cunningham, Professor Birmingham and Professor A. H. Young. The articles which these men have written for previous editions have been revised and in part rewritten by others. In general, however, the book maintains the appearance of the editions which have gone before. The editor has accepted completely the Basle anatomical nomenclature except in certain instances where the new terms have been unsatisfactory. This text-book remains one of the best composite volumes on the subject of general anatomy. The separate sections are written by men of recognized distinction in their various fields, and the occasional overlapping by the various writers is not to be regarded as a detriment except when insofar as it increases somewhat the size of an already ponderous volume. The illustrations are admirable and printed exclusively in the text. We highly commend this edition as we have its predecessors as one of the relatively few standard books of its type. The work of the American publisher is entirely satisfactory.

A Manual of Medical Treatment or *Clinical Therapeutics.* By I. BURNEY YEO, M.D., F.R.C.P. Fifth edition by RAYMOND CRAWFORD, M.A., M.D., Oxon., F.R.C.P., and E. FARQUHAR BUZZARD, M.D., Oxon, F.R.C.P. In two volumes. William Wood and Company. 1913.

The fifth edition of this manual, which comes in two volumes of eight hundred pages, compressed, however, into a convenient size, will appeal to those physicians who wish to look up the conservative treatment of disease. Many complicated prescriptions are included.

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THE ANTI-VACCINATION BILL.

Opposition to vaccination arose just as soon as Jenner told the world "duly and efficiently performed it will protect the constitution from subsequent attacks of smallpox as much as that disease itself will. I have never expected that it would do more and it will not, I believe, do less." Cartoonists seized upon the subject in the early days of vaccination, and many sermons were preached against the practice. It is curious that from the beginning most of those who opposed vaccination refused to study its effects at first hand, but based their opinion upon theoretical, sentimental, or religious grounds. Many a detractor wanted to make the fate of vaccination hang upon a single case of smallpox. Jenner never claimed vaccination to be an infallible prevention, and always took care to emphasize the fact that has been demonstrated over and over again during the past hundred years, that vaccination protects against smallpox in the same way that smallpox protects against smallpox. Some people have smallpox two, three, and four times. Jenner mentions, "The lady of Mr. Guinnett, who has had the smallpox five times. . . ."

We now know perfectly well that the effects of vaccination wear off in time, and that persons should be re-vaccinated in order that the protection may be renewed. Persons successfully vaccinated on two occasions are usually immune from smallpox for life. Vaccination and re-vaccination, systematically and generally carried out, confer complete protection to a community or a nation. In other words, while the individual protection is not always perfect, the communal protection is absolute.

Thomas Jefferson, in 1806, wrote to Jenner saying, "Future nations will know by history only that the loathsome smallpox has existed, and by you has been extirpated." This prophecy has not been fulfilled, though eminently possible. Germany has taught the world how to utilize Jenner's great demonstration. On April 8, 1874, Germany passed a general compulsory vaccination and re-vaccination law. This law requires the vaccination of all infants before the expiration of the first year of life, and a second vaccination at the age of twelve. Since this law went into effect there have been no outbreaks of smallpox in Germany; in fact, the disease has practically been abolished from that great nation.

Those who have practical experience with smallpox soon learn that persons who have been well vaccinated do not contract the disease, while those who have not been vaccinated almost invariably do so if exposed. The most convincing demonstration is to visit a smallpox hospital, where doctors, nurses, ward-tenders, and others who come in frequent and intimate contact with many cases of smallpox, never contract the disease.

One of the most convincing demonstrations concerning the efficiency of vaccination was made in Boston on August 16, 1802, when nineteen boys were vaccinated with the cow-pox. On November 9 twelve of them were inoculated with smallpox; nothing followed. A control experiment was made by inoculating two unvaccinated boys with the same smallpox virus; both took the disease. The nineteen children of August 16 were again unsuccessfully inoculated with fresh virus from these two boys. This is one of the most crucial experiments in the history of vaccination, and fully justified the conclusions of the Board of Health—*cow-pox is a complete security against the smallpox.*

The splendid results recently obtained in the Philippines are a modern demonstration of the practical results of vaccination.

Much fuss has been made concerning the dangers of vaccination. The alleged dangers have been greatly magnified. The chief danger lies in the fact that an open wound is produced which is subject to the complications of any wound. Even a pin prick or a razor scratch may result in death. When the aggregate number of acci-

dents resulting from the complications of vaccination are considered, the total is so small that the individual risk may be disregarded. Furthermore, the methods of vaccination have been greatly improved during the past decade, and the quality of the vaccine virus furnished through government inspection and control, in accordance with the law of July 1, 1902, is a safeguard which ensures a pure and potent vaccine virus.

John Ring was an active protagonist of the cause of vaccination, and was accustomed to answer antivaccination arguments with a vigorous pen. On one occasion Jenner wrote to John Ring as follows, "Your satires against the antivaccinationists are keen, but the keenest of all are those which are engraved with the point of your lancet."

THE ALIEN INSANE IN THE CIVIL HOSPITALS OF NEW YORK STATE.

DR. SPENCER L. DAWES of Albany, appointed by Governor Dix special commissioner to make an investigation on this subject, in order to ascertain existing conditions and their causes, and suggest remedies therefor, has submitted to Governor Glynn an elaborate report of his studies. These were based upon: (1) public hearings at the state hospitals for the care of the insane; (2) public hearings in Albany and New York, at which were examined hospital superintendents, representatives of charitable institutions, of steamship companies, and of foreign governments, the chief examiner of the Bureau of Deportation and his assistants, and private citizens; (3) statistics of the nativity and citizenship of every patient in the state hospitals, obtained from a special census taken September 30, 1912.

The investigation covered a large number of topics, among which were, provision for cost and maintenance of the insane in the state, increase of insane patients in the state hospitals compared with increase in general population, nativity and parentage of the insane in New York State and the United States, time of aliens in this country before admission to state hospitals, cost of caring for the alien insane, eugenic effects, and attitudes of other states. As to the matter of eugenics, it is stated that the long-standing belief in the popular mind of the association of insanity with heredity has been confirmed by modern investigation, so far, at least, as to establish the point that heredity is by far the most important single factor in the causation of certain forms of mental disease. To ancestors afflicted with feeble-mindedness, dementia precox, and other mental disorders, numerous mentally defective or mentally diseased descendants have been traced in many of the families which have been investigated, while in a few of the cases examined, where one party to the marriage was normal (and presumably of normal ancestry), the other being insane, some normal children resulted. The result of investigations into heredity down to the present time entirely justifies the statement that it is highly undesirable that the feeble-minded, epileptics and those with certain types of insanity should have children. The opinion is therefore expressed that mental defectives, the insane, and those particularly likely to become insane, who are so undesirable as parents of future generations of Americans, should be excluded, as far as possible, from entry into the state and country. If, however, they have been admitted, but have not become citizens, they should be returned to the homes from which they came.

In the report is included a series of recommendations, first, for the State of New York, and, second, for action by the United States Government. Under the first heading it is advised that since at present the only authority under which an insane alien can be debarred from entering this country is the federal law, which can be enforced only by federal officers, the state, through its executive or legislature, should urge upon congress the necessity of providing sufficient appropriations for the efficient enforcement of the Immigration Act and of enacting needed amendments to this. The part of the state in effecting deportation of insane and mentally defective aliens consists in reporting such cases to the federal immigration authorities, furnishing information for the verification of their landing, and certifying to the conditions found and their origin from causes which existed prior to landing. This work, so far as it relates to the insane, should be performed more efficiently each year by the Bureau of Deportation, with the coöperation of the State Hospital Commission and the superintendents of state hospitals, provided that adequate funds are provided for the purpose. For the past three years the number of aliens repatriated and of non-residents returned from the

state has each exceeded the number of aliens deported by the federal authorities. As repatriation at present depends upon the consent of the steamship companies, it is highly desirable that the rights of the state in this matter should be protected without further delay by amendments to the federal and state laws. Better arrangements should be made with the proper authorities of foreign governments for the reception of insane aliens repatriated by the state. Existing facilities for statistical research should be extended and used to the fullest extent for the study of the whole question of the alien insane, along the lines of this inquiry.

The recommendations for action by the federal government are given in two divisions: (*a*) under existing laws, (*b*) new legislation recommended. In the first, as to the exclusion of insane and mentally defective immigrants at the time of their arrival, it is stated that there is need for the employment at the ports of entry of more trained alienists, that, as far as possible, physicians skilled in the detection of mental diseases and defects should be selected from the candidates for admission to the Public Health Service, and that, in order to insure a greater number of alienists, physicians in this service should be detailed for training at hospitals for the insane. All that is required for putting these recommendations into effect is the necessary appropriations, and unless the things are done, much of the legislation recommended will be ineffective. There is also needed the employment and careful training of a sufficient number of interpreters for this part of the medical examination.

A number of recommendations are then made in regard to deportation by federal warrant of insane aliens who become public charges from prior causes or are found in the state in violation of law. In the division of new legislation recommended the following points are taken up: 1. Exclusion of insane and mentally defective immigrants at the time of their arrival or before embarkation. 2. Deportation by federal warrant of insane aliens who become public charges from causes existing prior to landing or are found in the state in violation of the Immigration Act. 3. Repatriation of aliens at expense of state or friends, and with consent of aliens themselves. 4. Appropriations. 5. The proper method of returning the alien insane to their homes. It is impossible to detail the various recommendations here, but the following under the first point may be mentioned as worthy of special attention: It is urged that the Immigration Act should exclude immigrants with chronic alcoholism and those with psychopathic inferiority (many of these cases, though detected at the ports of entry, pass the inspecting officers, as the present law does not forbid their admission); that the act should provide that each immigrant examined receive at the port of entry a certificate that no mental or physical diseases or defects were found, or that those found had been set forth therein; that it should provide for the imposition upon transportation companies of a fine of not less than $200 for bringing to this country any alien whose insanity, mental defect, chronic alcoholism, or constitutional psychopathic inferiority could have been detected by a competent medical examination prior to embarkation; and that it should provide for a special study of the methods employed in the detection of mental diseases and defects among immigrants, the changes desirable, etc., by a board of medical experts, including officers of the Public Health Service and physicians in civil life who are especially familiar with the subjects involved.

PREPARATIONS FOR MILITARY AND NAVAL SURGERY IN MEXICO.

With the final and actual outbreak of hostilities between the Mexicans and the United States troops, the possibilities of active military surgery and nursing in this country become immediate and imminent. The medical corps of both the Army and the Navy are in a state of admirable and prepared efficiency. On April 22, Surgeon-General Braisted of the Navy published the following plans for caring for the naval sick, wounded, and dead.

"The medical department is actively at work preparing for the care of the sick and injured, not alone of our own, but of the enemy as well, as demanded by the Geneva convention.

"The naval organization for the ships and landing parties is complete in all regards, and steps for the care of the sick and wounded and for sanitation and the preservation of health ashore are being taken in conjunction with the Public Health service and Red Cross organization.

"It is the intention to bring the remains of all naval dead to the United States at the

earliest opportunity, dependent upon the circumstances and location attending the fatalities, and either to forward them to the next of kin or to make final interment in a national cemetery, as may be desired by the families of the deceased. All expenses of the dead will be defrayed by the United States."

On April 22 also Surgeon-General Gorgas of the Army presided at a meeting of the executive committee of the Red Cross, at which a program was arranged for nursing at field hospitals.

Military medicine and camp hygiene have made great progress since, and partly in direct consequence of, the war between the United States and Spain, and our state of preparation should be much better now than it was at the outbreak of that conflict. Particularly the development of antityphoid inoculation has enabled the protection of practically our entire army and navy against one of the most dreaded and fatal of military epidemic diseases. Moreover, the Red Cross stands ready to send at immediate notice 4200 nurses to augment the regular nursing corps, so that the deficiency of nurses, which was so grievous at the beginning of the Spanish War, should not now occur.

Probably no class in the community regrets the necessity of war more than do physicians and nurses. Yet, whether from civil or from military life, probably no class will make a readier response to the demand upon them for service at the front, for working on the firing-line is with them a daily professional habit.

AN IMPORTANT TRIAL ON ANIMAL EXPERIMENTATION.

A TRIAL has recently been held in Philadelphia, whose decision will have an important bearing, as precedent, on freedom or restriction of animal experimentation in this country. The Women's Pennsylvania Society for the Prevention of Cruelty to Animals caused the arrest of Dr. Richard M. Pearce, Dr. Joshua E. Sweet, Dr. Alonzo E. Taylor, and three other members of the medical faculty of the University of Pennsylvania, for alleged cruel treatment of dogs after operations. Much of the evidence brought by the prosecution was of the nature of the absurd accusations usually made by anti-vivisectionists.

In the course of his charge to the jury Judge Bregy said:—

"To indicate a view on the part of physicians that these operations upon the dogs were made for scientific purposes to obtain information for the alleviation of human suffering, I charge you that the law of Pennsylvania does not allow pain and suffering, torment or torture to be inflicted upon dogs for any purpose except the relief of the suffering of the dog itself. They have no right to torture a dog or violate the law as I have read it to you for the purpose of obtaining scientific information. The law says that any person that does a thing as I have read it to you—that is, if a person is guilty of wanton cruel torture of an animal he shall be guilty of a crime."

After being out over 48 hours the jury reported a disagreement and was discharged. It is expected that a new jury will be empanelled. Meantime the prosecution, encouraged, has announced its intention to secure new warrants for the arrest of other prominent physicians and invesigators, charging them with cruelty in performing surgical operations on animals.

MEDICAL NOTES.

NEW JERSEY STATE BOARD OF HEALTH.—The somewhat belated thirty-sixth annual report of the board of health of the state of New Jersey, recently published, records the activities of that body for the year ended Oct. 31, 1912, together with the report of the bureau of vital statistics for the same period. The report of the secretary, Dr. Bruce S. Keator, is followed by those of the divisions of medical and sanitary inspection, creameries and dairies, state laboratory of hygiene, food and drugs, sewerage and water-supplies. The report of the bureau of vital statistics consists almost entirely of tabulated data.

THE AMERICAN SOCIETY FOR PHYSICIANS' STUDY TRAVELS.—The American Society for Physicians' Study Travels will make its first tour immediately after the close of the next meeting of the American Medical Association, starting from Atlantic City June 26. The complete itinerary can be obtained upon application to the secretary, Dr. Albert Bernheim, 1225 Spruce Street, Philadelphia, and it will be found to promise an interesting, pleasant and profitable

outing to all participants. The objects of the newly-formed organization are in the main to afford an opportunity to make the best use of one's vacation, time and money, in seeing cities and health resorts, and gaining practical knowledge of their institutions—medical, historical, and municipal—as well as to attend clinics, demonstrations, lectures, illustrated with lantern slides, and public addresses.

In addition, however, many sight-seeing trips have been arranged for, and the path of the Society lies by rail and water through a section of this country and Canada abounding in picturesque, sylvan, and grand scenes, so that the tourist, whatever his individual taste, will enjoy the advantages of healthful recreation en route. It is believed that American physicians and their wives will appreciate the benefits of these tours, which have become so popular, both in Germany and in France, where they are undertaken even more than once annually.

Early bookings, through the secretary, are urged, in order that satisfactory accommodations can be secured for all who desire to participate.

Jubilee of Melbourne University Medical School.—The medical school of the University of Melbourne, the oldest medical school in Australia, will during the remainder of this current week, celebrate the jubilee of its foundation. During the fifty years of its existence it has already graduated about 1100 practitioners, and now has an attendance of 380 students.

"The Melbourne School has from the first insisted on a five years' course, and its degrees have been registrable in the United Kingdom since 1890. The celebrations will commence on Thursday, April 30, and will last three days. The university is asking the state government to provide funds for the appointment of assistant professors of anatomy, physiology and pathology, the proper staffing of these departments being regarded by the faculty of medicine as the most pressing want of the school. Old graduates are being invited to contribute varying sums annually for five years to a permanent fund, the interest of which will be devoted to the promotion of clinical research in the teaching hospitals of Melbourne. A history of the medical school is being prepared. The jubilee celebrations will include an inaugural ceremony in the Wilson Hall of the university; a series of short addresses on the history, needs and prospects of the school; demonstrations in the laboratories, museums and hospitals; a jubilee dinner, and a theatre party. A portrait of the dean of the faculty, Sir H. B. Allen, is to be painted for presentation to the university."

BOSTON AND NEW ENGLAND.

Milk and Baby Hygiene Association.—The recently published fifth annual report of the Boston Milk and Baby Hygiene Association records the work of that organization during the past year. In this period the number of milk stations was increased from 9 to 12. The number of babies cared for in 1913 increased 13% over 1912; 3421 babies made 13,754 weekly visits to the milk station conferences; and 41,945 visits were made by nurses to babies in their homes. Of the babies cared for by the Association, one-half were breast-fed.

Prevention of Milk-Borne Epidemics.—The Massachusetts State Board of Health has recently sent to every practitioner in the Commonwealth a circular letter calling attention to a recent vote of the Board,

"That beginning March 1, 1914, it shall be the duty of the officers in charge of any city or state institution, charitable institution, public or private hospital, dispensary or lying-in hospital, or any local board of health or any physician in any city or town to give immediate notice preferably by telephone or telegram, 'collect' to the State Board of Health, Room 145, State House, Boston, Mass., in every case coming to their notice in which typhoid fever, diphtheria or scarlet fever has occurred in the household of any person engaged in the production, transportation or distribution of milk for public sale; and in every case coming to their notice in which typhoid fever, diphtheria or scarlet fever has been due, or presumably has been due, to the consumption of milk infected with material derived from persons infected with said diseases."

The purpose of this regulation is to aid the Board in its effort to prevent epidemics due to the contamination of milk supplies.

Massachusetts Homeopathic Medical Society.—The seventy-fourth annual meeting of the Massachusetts Homeopathic Medical Society, held recently in Boston, was attended by about 200 members. At the closing session, the following officers were elected for the ensuing year: President, Dr. T. E. Chandler of Boston; first vice-president, Dr. Amanda C. Bray of Worcester; second vice-president, Dr. Harry J. Lee of Boston; recording secretary, Dr. E. S. Calderwood of Roxbury; corresponding secre-

tary, Dr. Benjamin T. Loring of Boston; treasurer, Thomas M. Strong of Boston; and chairman of the board of censors, Dr. George R. Southwick of Boston.

HOSPITAL BEQUESTS.—The will of the late Susan H. Leeds, of Boston, which was filed recently in the Suffolk registry of probate, contains a bequest of $500 to the Boston Floating Hospital. It also provides that one-half of the ultimate residue of the estate shall be given to the city of Boston for use in its department for consumptives.

The will of the late Sarah S. Pierce, of Lynn, Mass., which was filed on April 21 in the Essex County registry of probate, provides that on the death of her husband $1000 shall be given to the Lynn Hospital, to be known as the Pierce Fund.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending March 21, 1914: Diphtheria, 39; scarlatina, 127, of which 13 were non-residents; typhoid fever, 2; measles, 78, of which 1 was non-resident; tuberculosis, 42, of which 3 were non-residents.

The death-rate of the reported deaths for the week was 21.32.

NEW YORK.

VISITING OF INFECTIOUS DISEASES.—On April 1 the City Health Department inaugurated the practice of having all cases of measles, scarlet fever, and diphtheria discharged from the hospitals of the department visited at once by the district nurse of the Bureau of Infectious Diseases, to determine the condition of the patient (as to infectivity, etc.), and the home condition of the family. Advice is given as to the care of the convalescent patient and if necessary the family is referred to the proper charitable organization for financial and other assistance. At least one additional visit is made after the expiration of the incubation period of the disease, to ascertain if any secondary cases have developed. It is announced that it is the intention of the Commissioner of Health to eventually give to this work the full force of hospital social service visiting in the complete sense of the term, although this will, naturally, necessitate a large staff of district nurses. The establishment of a special convalescent home for suitable cases is one of the possibilities hoped for.

PROVISION FOR PERTUSSIS.—At a meeting of the Section on Pediatrics of the New York Academy of Medicine, held on April 9, at which whooping-cough was the topic of the papers and discussions, a resolution was adopted providing for the appointment of a committee to urge upon the Health Department, in view of the present large direct and indirect mortality from the disease, the necessity of making more ample provision for dealing with it.

REORGANIZATION AT PRESBYTERIAN HOSPITAL.—It is announced that the managers of the Presbyterian Hospital, New York, have so reorganized the clinical and scientific work as more closely to coördinate it with the instruction in the College of Physicians and Surgeons, Columbia University. Dr. Theodore C. Janeway, Bard professor of the practise of medicine, has been appointed medical director; Dr. George E. Brewer, professor of surgery, surgical director; and Dr. William G. MacCallum, professor of pathology, pathologist. All these appointees will have continuous service and single responsibility.

ALIEN INSANE IN NEW YORK.—The recently published report of Dr. Spencer L. Dawes, special commissioner on the alien insane in the civil hospitals of New York State, presents a large amount of tabulated statistics, with discussion thereof, and recommendations for both state and nation in dealing with the problem. These recommendations fall under three headings: first, the exclusion of insane and mentally defective immigrants at the time of their arrival; second, the deportation of insane aliens by federal warrant; third, the repatriation of aliens with their consent at the expense of the state or of friends.

GLANDERS.—The latest number of the *Monthly Bulletin* of the City Health Department is largely devoted to the subject of glanders in the horse and in man, which, it declares, is one of those diseases, like typhoid fever and Asiatic cholera, that ought not to exist in our modern civilization. In the Borough of Manhattan in 1913 there were discovered 589 glandered animals among approximately 65,000 horses, or about 9 out of every 1000. The disease is found to be most frequently transmitted through blacksmith shops and public drinking troughs. The returns in the Bureau of Records show that in the city of New York there were in 1909 three deaths from human glanders; in 1910, four; in 1911, three; in 1912, five; and in 1913, one.

BOYLAN ANTI-NARCOTIC BILL. — Governor Glynn has signed the Boylan anti-narcotic bill, recently passed by the legislature. One of the features of this is that physicians, druggists, dentists and veterinarians are required to obtain from the Health Department blanks, bound in book form, in which to keep duplicate records of the purchase of narcotic drugs and of the manner of their disposal. The governor has also signed the bill amending the State charities law in relation to the commitment of the feebleminded, and another bill providing for a commission to investigate the custody, treatment and training of the mentally deficient, and submit a full report for action by the next legislature. The law now made effective authorizes any judge of a court of record to determine the mental condition of any person alleged to be feebleminded, and, after hearing the evidence, to commit, at his discretion, the person to a public institution. It is specified that every application for commitment must be accompanied by the certificate of two physicians to the effect that in their opinion the person named is mentally deficient.

Current Literature

MEDICAL RECORD.

APRIL 11, 1914.

1. STARK, H. S. *The Phenomenon of Pathological Antagonism: Its Relation to Diabetes Mellitus.*
2. LERCH, O. *A Contribution on the Thymus.*
3. BURROWS, W. F. *The Cure of Habitual Constipation by the Intra-abdominal Use of Oil.*
4. WALKER, F. E. *Practical Points in Surgery.*
5. JACOBY, A. *Liver Abscess.*
6. KENEFICK, T. A. *The Internist and Seminal Vesiculitis.*

NEW YORK MEDICAL JOURNAL.

APRIL 11, 1914.

1. CLARK, L. P. *Psychopathic Children.*
2. GORDON, A. *Internal Pachymeningitis in Young Children.*
3. LILIENTHAL, H. *Hypertrophic Pyloric Stenosis in an Infant; Rammstedt's Operation.*
4. SAJONS, C. E. DEM. *Torsemia in the Genesis of Hyperthyroidism, and Their Treatment.*
5. PRICE, G. E. *A Sixteenth Century Paramour.*
6. SMITH, H. *Plastic Operation for the Restoration of Severed Vocal Cords; Permanent Thyroid Fistula Following Attempted Suicide with a Razor.*
7. BELL, F. MCK. *The "Why" of Obesity.*
8. CRENSHAW, H. *Dream Interpretation.*
9. ROSENBLOOM, J. *Gum Camphor as a Preservative for Urine.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

APRIL 11, 1914.

1. *HENDERSON, Y. *Respiratory Experiments on Man.*
2. *SCHUMACKER, L., AND MIDDLETON, W. S. *The Cardiac Effects of Immoderate College Athletics.*
3. *MITCHELL, A. R. *Ischemic Pains.*
4. ROSENOW, E. C. *Etiology of Arthritis Deformans. Preliminary Note.*
5. *HAAS, S. L. *Free Transplantation of Bone Into the Phalanges.*
6. FRAZER, T. *The Tongue and Upper Alimentary Tract in Pellagra.*
7. BRISTOL, L. D. *Paratyphoid Fever, with Report Including Post-mortem Examination of a Fatal Case of the "A" Type.*
8. MCLEAN, F. C., AND SILLING, Z. *Further Simplification of Quantitative Determination of Chlorid in the Urine.*
9. PLUMMER, W. G., AND NESS, G. B. *Tumor of the Middle Cranial Fossa Involving the Gasserian Ganglion.*
10. *SHALET, L. *Clinical Report of Five Hundred and Seventy-One Cases of Pulmonary Tuberculosis Treated with Tuberculin.*
11. ANDERS, J. M. *An Interesting Case of Chronic Lead-Poisoning with Relapse Following Fresh Exposure.*
12. WILE, U. J. *The Technic of the Intradural Injections of Neosalvarsan in Syphilis of the Nervous System. A Preliminary Report.*
13. WALLACE, R. *An Unusual Case of Vaccine Anaphylaxis.*
14. CLARK, O. *Exophthalmic Goiter as a Clinical Manifestation of Hereditary Syphilis.*
15. TOUSEY, S. *A Case of Disseminated Carcinoma of the Breasts and Axillae Improved by Radium.*
16. BARTON, W. M. *The Favorite Formula or Pet Prescription.*

1. Henderson gives concrete examples of an interesting series of experiments on respiration in the normal human subject. No conclusions are drawn. The paper is a statement of effects.

2. The authors in a careful and well tabulated review find that athletic training leads at first to physiologic hypertrophy of the heart, but when prolonged and weakened by severe athletic contests it usually leads to hypertrophy plus dilatation of a variable degree, frequently marked by valvular insufficiency. Functionally, the hypertrophied heart, even when dilated and giving distinct evidence of valvular insufficiency, may prove more fitted to carry the man through a severe athletic contest than a normal heart.

3. Mitchell finds that many pains for which we are otherwise unable to find a proper cause are due to a temporary ischemia or anemia of the part, which, under proper treatment with agents causing vasodilation, are readily cured.

5. Haas successfully transplanted free bone between resected areas in the phalanges and obtained satisfactory union and functional results.

10. Shalet believes that every case of tuberculosis should be treated with tuberculin. Of the pulmonary cases there is no way of telling beforehand what cases will be benefited the most, but all should be given a trial. In his series 25% showed distinct improvement, 5% were apparently cured; 15% were made worse. The effect of tuberculin on localized visible tuberculosis such as fistulae in ano, glands of the neck, etc., is marked, and in the case of glands of the neck by far the treatment of choice. [E. H. R.]

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.

APRIL, 1914.

1. *SELLARDS, A. W. *A Clinical Method for Studying Titrable Alkalinity of the Blood and Its Application to Acidosis.*
2. *BROWN, L. *Some Errors in the Diagnosis of Pulmonary Tuberculosis.*
3. *GREY, E. G. *Observations on the Protective Enzymes of the Body. (Abderhalden.)*
4. SHIPPEN, L. P. *Principal Types of Micro-Organisms in Baltimore Milk.*
5. JOSEPH, M. *Bacteriological Findings in Baltimore Oysters.*
6. DIBERT, M. *Brief Note on the Baltimore City Water.*

1. This is a detailed chemico-physiological article on the complex subject of acidosis, diminished alkalinity, etc., and their relation to diabetes and certain obscure comas. The paper shows the result of much careful work.

2. Brown, in a paper most valuable on account of its frankness, describes various mistakes he has made in the diagnosis of pulmonary tuberculosis. Of great interest is the description of 5 cases diagnosed as phthisis which turned out to be Hodgkin's disease. Among other causes for error were malignant disease, bronchiectasis and infarction of the lung.

3. Grey, as the result of his experiments, concludes that the Abderhalden ferments are specific.

[J. B. H.]

SURGERY, GYNECOLOGY AND OBSTETRICS.

APRIL, 1914.

1. MAYO, C. H. *Resection of the Rectum for Cancer, with Preservation of the Sphincter.*
2. *BLOODGOOD, J. C. *Carcinoma of the Lower Lip; Its Diagnosis and Operative Treatment.*
3. *PATERSON, H. J. *The Operation of Gastrojejunostomy and the Principles Which Should Determine Its Use.*
4. *CRILE, G. W. *Cholecystectomy vs. Cholecystostomy and a Method of Overcoming the Special Risks Attending Common-Duct Operations.*
5. DAVID, V. C. *A Bacteriological Study of Fifty Cases of Non-Tuberculous Diseases of the Bladder and Kidney.*
6. BEEBE, S. P., AND VAN ALSTYNE, E. V. N. *Treatment of Transplantable Rat Sarcoma by Fulguration.*
7. *KELLY, H. A., AND DUMM, W. M. *Urinary Incontinence in Women, without Manifest Injury to the Bladder.*
8. FULLERTON, W. D. *Fibroid Tumors of the Ovaries.*
9. STURGIS, M. G. *Mixed-Cell Tumors of the Soft Palate.*
10. *SWEET, J. E., AND STEWART, L. F. *The Ascending Infection of the Kidneys.*
11. *BLAIR, V. P. *Dental Disorders and Peridental Infections; Their Relation to Neighboring Organs.*
12. CASTLE, O. L. *Primary Carcinoma of the Liver in Childhood.*
13. KANAVEL, A. B. *Mobilization of the Duodenum.*
14. *JOHNSTON, G. C. *The Pituitary Gland in Its Relation to Epilepsy.*
15. *CODMAN, E. A. *The Product of a Hospital.*
16. CAULK, J. R. *Incrustations of the Renal Pelvis and Ureter.*
17. HARTZ, H. J. *Gastric Sarcoma.*
18. MOSCHOWITZ, A. V. *The Pathogenesis and Treatment of Herniae of the Linea Alba.*
19. CORNER, E. M. *Arthrotomy of the Hip.*
20. FORBES, A. M. *The Treatment of Scoliosis.*
21. HEINEBERG, A. *Uterine Endoscopy; an Aid to Precision in the Diagnosis of Intra-Uterine Disease.*
22. TOREK, F. *Laryngectomy Combined with Gastrostomy.*
23. SCHMITZ, H. *Massive X-raying in Gynecology.*
24. COERR, F. H. *A Double-Lever Instrument Devised for the Open Reduction of Fractures.*
25. ANDERSON, W. J. *Head Injuries; Some Conclusions.*

2. Bloodgood's article is the type of exposition which should be in the hands of every practitioner throughout the country. He divides his cases into three groups: 1a, in which local excision of the growth only was done, after five years the percentage or probability of cure was found to be 63%. Group 1b, glands negative, shows 95% cures, and group 1b, glands positive, shows only 50% cures. He believes that the operative removal of the glands is always indicated, and the percentage of cures depends largely on early operation. The article is well illustrated and the figures should be studied in detail.

3. Paterson finds that after gastrojejunostomy, which he believes to be a physiological operation and not a purely mechanical one, the total gastric chlorides are reduced on the average 30%. He also thinks that we might safely return to the anterior operation without harm. Occlusion of the pylorus after the above operation is an unnecessary complication and based on erroneous pathology. Gastrojejunostomy is preferable to excision of ulcer near the pylorus or in the body of the stomach.

4. Crile believes that in the type of case which has recurrent cyclic disturbances or repetition of previous symptoms after cholecystostomy, that cholecystectomy is the operation of choice, the latter showing less morbidity. The clinical end results of cholecystectomy are good, while in unsuitable cases cholecystostomy is followed by recurrent cholecystitis. If acute infection be present then in most cases cholecystostomy should be done first, to be followed later by cholecystectomy.

7. Kelly and Dumm describe the progressive incontinence of urine occurring in middle aged women without history of any trauma except childbirth, and the numerous methods, both medical and surgical, for its control, and describe and illustrate a simple operative procedure, which can be done under local anesthesia. Of twenty cases done sixteen have been cured. The paper is a valuable one.

10. This paper is an extremely interesting and practical piece of work on a so far little explained subject. The authors conclude from extensive evidence furnished from the literature and experiment that an extensive network of lymph-vessels and channels exists in the mucosa and submucosa, in the external coats of the bladder and the ureters and in the entire structure of the kidney. This network in the bladder anastomoses freely with the lymphatics of the bladder at the one end, and with the lymph apparatus of the kidney at the other end. They believe that an ascending infection travels through this lymphatic system, not through the blood vessels of the ureter nor through the lumen of the ureter. They give ample reason why the blood vessels and the ureter can be excluded as avenues of ascending infection. The paper is well worth careful reading and is suggestive in the way of treatment.

11. The author makes the sweeping but more or less convincing statement that there is no organ or tissue in the whole body that may not be at the mercy of infection that gains entrance through or around the teeth.

14. Johnston suggests that epileptic seizures may be due to the deprivation of the system of the products of the pituitary gland and suggests feeding these patients on this substance, with gradual withdrawal of bromides.

15. Codman's article on the product of a hospital is of very practical importance. [E. H. R.]

THE LANCET.

MARCH 28, 1914.

1. *WHITEHOUSE, H. B. *Hunterian Lectures on the Physiology and Pathology of Uterine Hemorrhage.*
2. BLUMFELD, J. *Anesthetics and Diagnosis.*
3. *NEVE, A. *An Operation for Hemorrhoids: a Review of Eight Hundred and Fifty Cases.*
4. *COOK, J. B. *An Investigation into the Effects of Drinking-water upon the Causation of Dental Caries in School Children.*
5. TRESIDDER, A. G. *A Case of Malarial Coma Lasting Forty-six Hours; Recovery.*

1. In an article illustrated with numerous plates, Whitehouse in the first part of the Hunterian Lecture discusses uterine hemorrhage and its physiology and pathology. He has done numerous experiments on the coagulation time of blood at menstrual periods and of the menstrual blood itself as to the presence of antithrombin in this and in the endometrium. He describes numerous other experiments along this line.

3. Neve reviews his results on 850 operations for hemorrhoids.

4. Cook believes that excessively soft water is a causative factor of importance in producing dental caries in children and should be borne in mind along with other causes. [J. B. H.]

BRITISH MEDICAL JOURNAL.

MARCH 28, 1914.

1. *MACWILLIAM, J. A., AND MELVIN, G. S. *Systolic and Diastolic Blood Pressure Estimation, with Special Reference to the Auditory Method.*
2. *MURRAY, J. R. *Systolic and Diastolic Blood Pressures in Aortic Regurgitation.*
3. ROBINSON, H. B. *Three Cases of Pancreatic Cyst.*
4. BEVERS, E. C. *A Renal Cyst Causing Chronic Intestinal Obstruction.*
5. *RAEBURN, J. A. *Subcutaneous Injections of Emetine in Pulmonary Tuberculosis.*
6. ROSEBRUGH, A. M. *An Economical Treatment of Inebriates.*
7. *SHUFFLEBOTHAM, F. *The Milroy Lectures on the Hygienic Aspect of the Coal-mining Industry in the United Kingdom. Lecture IV.*

1. The writers discuss the significance of diastolic blood pressure as compared to the variable systolic. They describe the auditory method, its application, the apparatus used and the estimation of systolic and diastolic pressures by this method. They believe that its simplicity, care and rapidity are points in its favor. In brief, this method consists in using a tambour, connected with the ears as a stethoscope, placed underneath the pressure cuff and over the brachial artery above the bend of the arm. Pressure is applied so as to shut off the pulse entirely, then as it decreases a sharp thud is heard at the exact time that the blood first goes through the artery.

2. Murray, using the auditory method, discusses blood pressure in aortic regurgitation under varying conditions.

5. Raeburn, endorsing the results of Flandin and Joltrain as to the value of emetine in hemorrhage in consumption, also found it of great value in cases of bronchitis alone, in cases presumably tuberculous but without bacilli in the sputum, but of little value in open cases of pulmonary tuberculosis with bacilli present.

7. Shufflebotham believes that miners' nystagmus is due to 4 causes: (1) defective illumination in the mines, (2) the peculiar cramped position of the miners, (3) refractive errors frequent among the miners themselves, and (4) the frequent injuries which miners sustain to themselves and to their eyes. He discusses treatment of the eyes and of the general condition and preventive measures in detail. [J. B. H.]

THE PRACTITIONER.

APRIL, 1914.

1. *BARR, J. *On the Functions of the Thyroid, the Suprarenal and the Pituitary Glands.*
2. *ROLLESTON, H. D. *Chronic Splenic Anemia and Banti's Disease.*
3. *TOOTH, H. H. *On the Indications for Surgical Treatment in Intracranial Tumor.*
4. *EDMUNDS, A. *Ectopia of the Bladder.*
5. PORTER-PARKINSON, J. *Difficulties of Diagnosis in Disease in Children.*
6. SMITH, E. B. *Some Points in the Diagnosis and Treatment of Epilepsy in Childhood.*
7. PARDHY, V. M. *Nephroptosis (Movable Kidney, Floating Kidney, Dropped Kidney).*
8. MACADAM, W. *The Significance of the Urinary Excretion of Creatin and Creatinin.*
9. DUNCAN, C. H. *Autotherapy in the Prevention and Cure of Purulent Infections.*
10. SIBLEY, W. K. *The Treatment of Eczema.*
11. WHITING, M. S. *The Extraction of Diabetic Cataract.*
12. MCCANN, F. J. *The Recent Progress of Gynecology.*
13. YEARSLEY, M. *A Retrospect of Otology.* 1913.
14. GORDON, W. *The Value of the Cardiac Sign in the Diagnosis of Gastric Cancer.*
15. CORBEN, C. *Schlatter's Disease.*

1. This is a general clinical article reviewing the functions of various ductless glands, although presenting nothing new.

2. Rolleston in a scholarly way, goes over the subject of chronic splenic anemia and its separation from Banti's disease and other conditions. Very little is known in regard to its pathogeny except that as splenectomy cures the disease, the spleen must in some way be responsible, and that there is *not* any active haemic infection or intoxication at work; also that splenic inadequacy is not the cause of the anemia. He discusses in detail the ways in which the spleen may cause the anemia. Later on he seems to contradict himself by stating that (*a*) in splenic anemia a chronic infective or toxic process has (*c.f.* above) its headquarters in the spleen, which thereby undergoes fibrotic enlargement; (*b*) that the large spleen mechanically causes gastric hemorrhage and the resulting anemia, and that poisons from the spleen eventually cause cirrhosis of the liver. He describes the clinical picture, blood changes, etc., symptoms, differential diagnosis, etc. There is an elaborate list of references.

3. Tooth, in a long paper, records his study of 497 cases of cerebral tumor which have come under observation and treatment at the National Hospital in London from 1902 to 1911. He first discusses these tumors and operations topographically, those occurring in the forebrain and those in the cerebellum. He describes the urgent signs and symptoms, the nature of the operation, site, sequelae of the first and second stages of such operations and results. The paper is a most valuable contribution to the subject.

4. Edmunds, in a long paper with excellent plates, discusses ectopia of the bladder. He believes that plastic operations to merely reconstruct the bladder are unsatisfactory and that transplantation of the base of the bladder is better than the separate transplantation of the ureters. The wound should be left freely open. [J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 12. MARCH 24, 1914.

1. GAUPP, R. *The Scientific Importance of Wagner's Case.*
2. BECKER, T. *The Diagnosis of Paranoia.*
3. *RACH, E. *Anatomical Types of Tuberculosis in Children Which are Recognizable by Radiographs.*
4. GRUBER, G. B. *Recent Studies on the Pathology of Trichinosis.*
5. RIETSCHEL, HEIDENHAIN AND EWERS. *Fever in Infants, Following Chloride Infusions.*
6. GABASTON, J. A. *A New Method for Freeing the Placenta.*
7. *KLEIN, W., AND FRÄNKEL, E. *The Effective Elements of the Wassermann Antigen.*
8. FRIIS-MÖLLER, V. *An Atypical Case of Tuberculosis.*
9. BERNDT, F. *The Operative Treatment of the Severest Forms of Flat-foot.*
10. LEXER, K. *Wounds from Impalement.*
11. GOLDSCHMIDT, M. *The Mechanism of Resorption of the Lens.*
12. MORPUGO, F. *A Case of Retinal Hemorrhage Following Calomel and Salvarsan.*
13. SCHWAB. *Vatren Gauze, a Dressing for Surgical Wounds.*
14. HIRT. *The New Psychological Institute in the University of Munich.*
15. KLEIN, G. *The Measurement of Ray Dosage in Radium and Mesothorium Treatment.*

3. Rach has controlled radiological findings in the lungs of children with tuberculosis by autopsy. He believes that it is possible to differentiate six different anatomical types of the disease by a combination of x-ray and physical findings. These are: (1) Ghon's primary lung focus, where isolated tuberculous foci are found with or without tuberculosis of the bronchial glands. (2) Tuberculosis of the glands, where isolated shadows are seen in the region of the bronchial lymph nodes. (3) Hilus tuberculosis of two forms, (*a*) arising from an intrapulmonic focus and extending along the lung hilus, (*b*) due to extension inwards from a primary infection originating from tuberculosis of the lymph nodes of the hilus. (4) Miliary tuberculosis of the lungs. (5) Tuberculosis of sucklings, characterized by extensive cavity formation. (6) Apical tuberculosis analogous to that found in adults.

7. At present most serologists use alcoholic extracts of normal organs as antigen in the Wassermann reaction. It has been found empirically that lecithin, oleic acid, and cholesterin have certain specific antigenic properties. This has led to attempts to isolate the specific chemical antigen from these various extracts.

Klein and Fränkel have made chemical and serological studies with an alcoholic extract of beef heart. They believe that the most powerful antigenic action was obtained by the combined effect of lecithin with a small amount of an unrecognized soapy substance and free cholesterin. Whether more complicated substances have to do with the reaction will be demonstrated by future studies. [R. F.]

No. 13. MARCH 31, 1914.

1. ENGELHORN, E., AND WINTZ, H. *A New Skin Reaction for Pregnancy.*
2. ESCH, P. *The Dosage and Effect of Intramuscular Injections of Pantopon-Skopolamin During Labor.*
3. CERFEL, C. *Laudanum in Labor.*
4. ZWEIFEL, E. *The Technic of Sacral Anesthesia.*
5. *FUNK, C. *The Prophylaxis and Treatment of Pellagra According to the Vitamin Studies.*
6. ROST, G. A. *Vaccines in Gonorrhea.*
7. HEUBLIN, M. *A Simple Method for Differentiating by Culture True Diphtheria from Pseudo Diphtheria Bacilli.*
8. MAYER, W. *The Serum Diagnosis of Epilepsy.*
9. JOSEPH, J. *Plastic Operations on the Nose.*
10. VULPIUS, O. *Lengthening of Tendons.*
11. SCHLIMPERT, H. *Teaching with Blumreich's Mannikin.*
12. MÜLLER, M. *The Value of Legalizing Prostitution.*
13. RUPPRECHT, K. *The Alcoholic Criminals among the Youth of Bavaria.*
14. MUCK, O. *The Cause of a Characteristic Torticollis in Lesions of the Posterior Fossa of the Skull Which Encroach on the Limitations of This Cavity.*
15. SCHARNKE. *The Treatment of Delirium Tremens.*
16. KRÖNIG, E. *An Attempted Suicide with Digalen.*
17. WEISZ, E. *A Simple Apparatus for the Treatment of Ankylosed Wrist-Joints.*
18. BERGER, D. H. *The Practical Work of a German League for Medical Literature.*

1. Engelhorn and Wintz have made "Placentin" analogous to tuberculin and luetin, to be used for the intracutaneous diagnosis of pregnancy. Its method of preparation is not sufficiently simplified for general use, so Engelhorn and Wintz do not describe it. It is an extract of placenta which is injected intracutaneously according to Pirquet's method. The results are either sharply positive or negative within forty-eight hours, and are most marked thirty-six hours after injection. Among seventy pregnant women, the reaction was positive in every case, as early as the seventh or eighth week after conception, and as late as the tenth month. In fifty-three non-gravid patients the reaction was negative in every case except one, which was that of a six-year-old child. The reaction did not remain positive after the fourth day of the puerperium.

Engelhorn and Wintz conclude that a larger series of cases must be tested before too much is claimed for the specificity of the "Placentin" reaction. They feel justified, however, in publishing these suggestive results.

5. Funk believes that beri-beri is caused by the eating of rice which has been polished free of its "vitamin" bodies, and that pellagra is due to the ingestion of polished maize. He comments upon the frequency and high mortality of pellagra in this country. Between 1907-1912 there were twenty thousand fatal cases.

Funk considers that the prophylaxis and treatment of pellagra is simple. Maize, only, which has been untreated should be eaten, and in any pellagra zone other "vitamin" containing vegetables should be cultivated, or if this is impossible, they should be imported duty free. For treatment, foods should be given in abundance which contain "vitamin" substances, such as uncooked fruit-juice and milk, butter, and for carbohydrates, potatoes. [R. F.]

Miscellany.

EXPERIENCE WITH EUGENICS IN PHILADELPHIA.

The following item from a recent issue of the Philadelphia *Bulletin* is another evidence of the impracticability of so-called eugenic marriage laws, at least in their present form. The failure of the experiment in Philadelphia is analogous

to that in Detroit, Mich., and for a fundamental reason well stated in the last paragraph of the quotation:

"After an eight months' trial, Chief Clerk Ferguson of the local marriage license bureau virtually admits that the amended marriage license law partly based on 'eugenics' is a failure, when he says that only one case has arisen in Pennsylvania since the act became effective, where an applicant was refused a permit for disabilities classified under it. He points out that the weakness of the statute in practice lies in the fact that the clerks have no right to deny a license so long as the applicants give technically 'satisfactory' answers to the prescribed questions concerning health and physical condition, even though the replies may be palpably untrue.

"In other words, about the only result accomplished by the change in the old laws has been to impose increased burdens on the clerks and to subject all applicants to annoying and embarrassing personal questions, without preventing the unfit from entering matrimony. It is inconceivable that every one of the thousands of persons who have applied for licenses in the State since the first of last August should have been free of the impediments recited by the law either in the matter of bodily soundness or in ability 'to support a family' as the clause is worded, if the statistics compiled by the sociologists and eugenists are right in their conclusions regarding the dissemination of disease and other forms of wretchedness.

"The ineffectiveness of the Pennsylvania law is not remarkable, however, for the same result has been reported in other States where even more drastic legislation has been attempted. It only goes to prove what the eugenic theorists entirely overlook, that when couples make up their minds they are suited to each other no mere law is going to prevent them from mating."

INFANT MORTALITY IN NEW ZEALAND.

A PAMPHLET on methods of reducing infant mortality, as illustrated in the work of the New Zealand Society for the Health of Women and Children, has recently been published by the children's bureau of the United States department of labor. In her introduction to this pamphlet, Miss Julia C. Lathrop, chief of the bureau, writes as follows:—

"The infant mortality rate of New Zealand has been for some time recognized as the lowest of any country in the world, and it is stated that recent further reductions are due in large measure to the activity of this society. As an example of its value, the consul general states that the work of the society has reduced infant mortality in Dunedin, a residential city of about 60,000 inhabitants, 50% during five years, from 1907 to 1912. Because of the absence of adequate birth and death registration in the United States, the infant death-rate of this country as a whole is unknown, but estimates tend to show that it is at least twice the rate of New Zealand, which the registrar general of that country reported in 1912 to be 51 per 1,000. New Zealand, like certain of our states, is a young and vigorous country with a scattered population and with no large cities, and there is every reason to believe that similar volunteer effort in this country would produce similar results. In view of the marked and growing interest in the preservation of infant health in the smaller cities and rural communities of the United States, I believe that the account of the methods of the New Zealand society is especially timely. It will be seen that public interest is strongly enlisted in its efforts. Seventy volunteer committees in as many districts maintain the educational and nursing work in conjunction with the central office, and the government itself assists in various ways. The detailed statement which follows is not offered for the purpose of urging exact reproduction of the New Zealand organization, but rather to stimulate interest in working out whatever methods are practicable locally for securing the same results."

The following points are summarized as conclusions from this study of conditions in New Zealand:—

"1. The recognition that not only in cities but in country districts provision should be made for instructing mothers in the care of babies; teaching young girls all practical methods of home making, including baby hygiene and feeding; giving proper hospital care to sick babies, and maintaining conferences where mothers can have their children examined and can thus learn of any bad condition before it has progressed beyond recovery.

"2. The need of definite knowledge of just what the problem is in the different communities. This knowledge it is not possible to obtain in many districts of the United States, because, on account of the incomplete registration of births and deaths, this country does not know how many babies are born and how many die. Therefore, to urge the passage of good registration laws in states in which such laws do not exist and to force efficiency in administering the registration laws in other states is a definite requirement.

"3. The need of coöperation between volunteer and public health authorities in reducing the infant mortality.

"4. Recognition of the merit of the methods of the New Zealand Society for consideration by club women and others in making plans for infant-welfare campaigns in rural communities in the United States.

"5. The value of methods which include districting the territory in a state and organizing local committees having supervision of the welfare work; the employment of nurses whose

services are chiefly educational; newspaper publicity, and the publication of pamphlets and other literature on hygiene and the care of babies and children, containing advice vouched for by the best medical authorities and expressed in direct, simple methods."

It would seem that methods which have so well succeeded in the community of New Zealand might to advantage be adopted to meet the same problem in our own country.

Correspondence.

A PHENOMENON OF ARTIFICIAL RESPIRATION.

22 APRIL, 1914.

Mr. Editor: Some time ago, I communicated to you in a letter (which you courteously did me the honor to publish in the issue of your JOURNAL for Sept. 26, 1912, Vol. clxvii, p. 453) a phenomenon of artificial respiration, which I had then observed for the first time, and which consisted in the passage of air completely through the alimentary tract of a badly asphyxiated newborn baby undergoing mouth-to-mouth insufflation.

Last week I repeated this observation in the case of a baby born by Caesarean section, in whose attempted resuscitation I had the privilege of assisting. Mouth-to-mouth insufflation was employed, as in the previous case, and within a few moments the passage of air-bubbles from the rectum, synchronously with each insufflation, was observed. The sphincter was completely relaxed, and the amniotic fluid had been considerably stained with meconium *in utero*.

The constant passage of air through the alimentary tract caused considerable abdominal distention, which was partly relieved by passing a catheter into the stomach. The distention, however, did not seem to embarrass the cardiac action, which continued regular and of good quality. For a time the baby breathed fairly well, but seemed to suffer from inspiratory dyspnea, such that mouth-to-mouth insufflation again became necessary, with the same air-bubble phenomenon as before.

After two and one-half hours, the baby's condition became so precarious that a low tracheotomy was done in the hope of relieving the respiratory obstruction. A catheter was then passed through the tracheotomy tube, and oxygen forced directly into the lungs. For a time the baby's color improved; but it failed to establish spontaneous respiration and died with the ultimate decline and cessation of the heart-beat.

Unfortunately no autopsy was permitted, so it could not be determined whether the obstruction was due to an enlarged thymus, as was suspected. In any event this second occurrence of the air-bubble phenomenon in a fatal case of infantile asphyxia seemed to me of sufficient interest to call to the attention of your readers. I am inclined to believe that it could occur only in cases in which the asphyxia had caused complete intestinal paralysis, and, therefore, is always of very serious prognosis.

Very truly yours,

ROBERT M. GREEN, M.D.

78 Marlborough St., Boston.

SOCIETY NOTICES.

NEW ENGLAND PEDIATRIC SOCIETY.—The thirty-second meeting of the New England Pediatric Society will be held at the Boston Medical Library at 8.15 p. m., on Friday, May 1, 1914.

The following papers will be read:

1. "The Fasting Metabolism of Infants," Hans Murschhauser, Ph.D., Düsseldorf, Germany.
2. "Some Developmental Causes of Poor Health in the Child: Their Importance to the Adult," John Bryant, M.D., Boston.
3. "Myotonia Congenita: With Report of Cases," Charles Hunter Dunn, M.D., Boston.

Light refreshments will be served after the meeting.

C. A. PRATT, M.D., *President.*
FRITZ B. TALBOT, M.D., *Secretary.*

MASSACHUSETTS SOCIETY OF EXAMINING PHYSICIANS.—A meeting of the Society will be held at the Hotel Westminster, April 30, 1914. Addresses through the courtesy of the Surgeon-General of the Army by Lieut.-Colonel Henry A. Shaw and Major George M. Ekwuzel of the Medical Corps of the Army. Subject: "Medicine and Surgery in the United States Army."

Dinner at 6.00 p. m. Address at 7.30 p. m.

J. H. STEVENS, M.D., *Secretary.*

NATIONAL CONFERENCE OF TUBERCULOSIS SECRETARIES.—The second annual meeting of the National Conference of Tuberculosis Secretaries will be held at the New Willard Hotel, Washington, D. C., May 7 and 8, 1914.

THE MISSISSIPPI VALLEY CONFERENCE ON TUBERCULOSIS to be held in Memphis, May 12, 1914, at time of National Conference of Charities and Correction. Conference called by A. E. Kepford, State Lecturer of the Department of Tuberculosis of the Iowa State Board of Control, and James Minnick, Secretary of the Illinois State Association for the Prevention of Tuberculosis.

RECENT DEATHS.

DR. CHARLES HUNT PORTER, who died on April 17, in Taunton, Mass., was born at Quincy Mass., in 1871. He obtained his preliminary education at the Adams Academy in that city, and received the degree of A.B. from Harvard College in 1892. He first studied theology, and was ordained to the ministry in 1895. He then entered the college of Physicians and Surgeons, of Columbia University, from which he received the degree of M.D. in 1908. He practised for a time at Springfield before settling in Taunton. He is survived by his widow.

DR. CHARLES PICKERING PUTNAM died at his home in Boston, April 22, 1914, aged 69 years. He was born in Boston Sept. 15, 1844; was graduated from Harvard College in the class of 1865 and from the Harvard Medical School in 1869. He became a Fellow of The Massachusetts Medical Society in this year. He was one of the founders of the Boston Medical Library in 1875 and had served on its executive committee and committee on library and finance continuously until his death.

DR. M. M. JOHNSON, who died at Hartford, Conn., March 15, 1914, was born at Malone, N. Y., April 21, 1844. He graduated from Brown University in 1870 and received his M.D. degree from the University of New York. He was one of the foremost surgeons of New England for many years, writing numerous articles for medical journals.

ASSIGNMENTS OF NAVY SURGEONS.

DR. F. W. F. WIEBER, medical director at the Charlestown (Mass.) Navy Yard, has been detached from duty there and detailed to the Portsmouth (N. H.) Navy Yard.

DR. N. J. BLACKWOOD has been assigned to duty at the Charlestown Navy Yard.

Original Articles.

RESULTS OF THE SWIFT-ELLIS INTRADURAL METHOD OF TREATMENT IN GENERAL PARESIS.*

By A. Myerson, M.D., Taunton, Mass.

Clinical Director and Pathologist, Taunton State Hospital.

One of the most important contributions of 1913 in the field of syphilis was the introduction by Swift and Ellis[1] of intradural injections of salvarsanized serum. Since the technique and underlying principles of this treatment have been detailed by the original workers, and subsequently described by Hough[2] and others in reports upon cases treated by the method, it is superfluous, in this report on the fate of cases treated, to describe the technique used. It may be said that it was in all respects similar to that used by Swift and Ellis. A brief preliminary statement of the results obtained in the treatment of these cases was published in the annual report of the Psychopathic Hospital.[3] At that time I stated that the treatment could influence the course of paresis in that it was possible by using it to change the Wassermann reaction from positive to negative, and materially to reduce cell count and globulin content. In a later paper dealing with albumen content of the spinal fluid I have made some further observations on the subject, and now wish to supplement my previous report by a more detailed account of the further history of the individuals treated by this method.

The material was drawn from the cases at the Psychopathic Hospital, Boston, Mass. All here reported are paretics. Some of the cases have been under observation and treatment for a year, others for a less time, but enough treatment was administered and examinations were made frequently enough to establish in my opinion the conclusions which will be presented at the end of this paper.

Following are the cases, with a brief account of the initial condition, the record of treatments administered, the results in spinal fluid and blood, clinical changes and condition at present. It will be understood that only noteworthy changes or conditions are here recorded. The Wassermann test in each case and at all times was made by the Harvard Medical School, Department of Neuropathology. The cell count, globulin and albumen content tests were made by myself except in a very few cases.

Case 1. No. 11341. T. J. L., male, aged 40 years. Entered the Psychopathic Hospital Jan. 3, 1913. *Physical signs.* Irregular pupils, right greater than left; light reaction of left pupil, 0; right pupil, slight reaction to light; convergence reaction present. Arm reflexes, much exaggerated. Knee jerks equal and much exaggerated. Ankle jerks, absent. Homolateral and contralateral adductors, present. Right cremaster, slight; left, O. K. Right abdominal, slight; left, O. K. Speech impaired. Mentally: Delusions of persecution, slight memory defect, orientation slightly impaired as to place. Euphoric, verbose and irrelevant in conversation. Wassermann reaction in blood and spinal fluid positive. Thirty-five cells per cubic mm.; globulin, markedly increased; albumen, markedly increased. Diagnosis, unqualifiedly, general paralysis.

Treatment. Feb. 15, .6 gr. neosalvarsan.

Feb. 15, serum shows 10 cells, glob. +−+ positive, alb. ++− positive. No intradural treatment given.

Feb. 27, .9 gm. neosalvarsan.

March 1, intradural treatment, 30 c.c. serum. Spinal fluid at this time shows 5 cells, globulin, positive.

March 11, .9 gm. neosalvarsan. Wassermann reaction in serum negative. Globulin ++; no cells. Wassermann in spinal fluid positive.

March 17, 30 c.c. serum intradurally.

April 9, .9 gm. neosalvarsan.

April 11, 30 c.c. serum injected. Spinal fluid at this time ++0 for globulin, +++ albumen, 0 cells. Wassermann reaction, serum slightly positive.

April 16, Wassermann reaction in spinal fluid from previous lumbar puncture reported negative.

April 22, .9 gm. neosalvarsan.

April 24, 30 c.c. of serum intradurally. Slight blood in spinal fluid, therefore no accurate examination possible.

April 26, Wassermann reaction, spinal fluid from the above specimen negative.

May 1, Wassermann reaction, serum negative.

May 7, 45 gm. neosalvarsan.

May 10, 20 c.c. serum. Wassermann reaction, serum negative. Glob. ++0, alb. ++0, few cells.

May 21, .9 gm. neosalvarsan.

May 24, 20 c.c. serum intradurally. Wassermann reaction, serum negative. Wassermann reaction, spinal fluid positive.

May 29, Wassermann reaction, serum negative.

June 25, .9 gm neosalvarsan

July 10, .9 gm. neosalvarsan.

July 12, Wassermann reaction, serum negative.

Aug. 6, .9 gm. neosalvarsan.

Aug. 9, Wassermann reaction, serum.

Aug. 13, Wassermann reaction, spinal fluid negative.

Aug. 26, .9 gms. neosalvarsan.

Aug. 30, 30 c.c. serum intradurally.

Aug. 30, Wassermann reaction, serum negative.

Sept. 3, Wassermann reaction, spinal fluid negative. Glob. −+0, alb. −+0, no cells.

Treatment was discontinued at this time. During this time the patient's mental condition did not particularly change. He was still somewhat irrelevant—foolish rather than demented, euphoric, but with no definite delusions or hallucinations. Physical signs not changed.

Oct. 24, patient showed evidence of slight confusion during the last few days, restless, speech defect more marked.

* Being Psychopathic Hospital Contribution 1914.6, the previous contribution 1914.5 by M. C. Jarrett entitled "The Function of the Social Service of the Psychopathic Hospital, Boston," to appear at a later date in the Boston Medical and Surgical Journal.

Oct. 27, patient had a slight convulsive seizure. In November he had very many general convulsions.

Physical Examination at the Present Time. He lies in bed, has lost weight and is very weak. His speech defect is more marked. The physical signs have not altered except for the fact that the cremasterics and abdominal reflexes have disappeared. He is disoriented, has no appreciation whatever of the situation, is euphoric, talks continually of what he is going to do in his work and has big plans for the future.

Wassermann reaction in blood, positive. Spinal fluid examination. Wassermann reaction, +, albumen, globulin and cell count not reported.

Summary. Patient received ten treatments of Neosalvarsan in less than one year's time. He received in addition seven intradural treatments of salvarsanized serum. The results have been mainly limited to the disappearance of the Wassermann reaction, to the reduction in the globulin, albumen and cell count. It will be seen, as I have pointed out in a paper on Albumen Content in Spinal Fluid, previously cited, that the Wassermann reaction and the cell count have been the most variable of the reactions. As far as his mental condition goes, many a paretic without treatment will show as stationary a course for a year. In other words, there has been no obvious effect of the treatment on his mental or physical condition. Following the discontinuance of the treatment by a little over a month, there came on what usually portend the final stages of paresis, namely, convulsions. At the present time the picture presented is that of a much deteriorated paretic in bad physical condition.*

Case 2. No. 11378. C. S., male, aged 45 years. Tabes of long standing. Entered the hospital on Feb. 1 in an exceedingly maniacal, euphoric condition. The physical signs in this case were those of marked tabes, ataxia, absent reflexes, Argyll-Robertson pupils, history of lightening pains, etc., plus a mental condition of extreme psychomotor activity, euphoria, ideas of grandeur.

Wassermann reaction in the blood, positive. Wassermann reaction in the spinal fluid, positive. Since there was a slight mixture of blood in the spinal fluid, globulin, albumen, and cell count were not made at that time.

Treatment. Feb. 8, .55 gm. neosalvarsan.

Feb. 13, .9 gm. neosalvarsan.

Feb. 17, 30 c.c. of serum injected intradurally. Patient struggled and bloody spinal fluid was obtained, which was of no value for diagnosis.

Feb. 27, .9 gm. neosalvarsan.

March 1, 30 c.c. of serum. Wassermann reaction + in the spinal fluid Glob. +++, small cell increase — 5 cells.

Mar. 11, .9 gm. neosalvarsan.

March 14. 30 c.c. of serum. Wassermann reaction, blood positive. No cells in spinal fluid; no glob. Alb. +, increased moderately. Wassermann reaction, March 11, serum positive.

Patient became so boisterous, so troublesome and destructive that it was found necessary to transfer him to the Boston State Hospital, main department. His condition showed no appreciable change. He was still maniacal, euphoric. The physical signs showed no abatement. He was later transferred to Worcester.

Summary. Four treatments of Neosalvarsan; three intradural injections within the space of six weeks. No improvement clinically. Serum unchanged. Spinal fluid showed no cells, no globulin, but in this case there is no record of the original cellular and globulin content of the spinal fluid because of contamination with blood.

Case 3. No. 11409. H. N., male, aged 39 years. Admitted Feb. 14, 1913. Came from Boston City Hospital where he had been for three weeks. Marked delusions of persecution, hallucinations of sight and hearing, intensely agitated, excited and restless. Argyll-Robertson pupils. Knee jerks present, moderately active. Ankle jerks present, moderately active. Wassermann reaction, blood positive. Wassermann reaction, spinal fluid positive. Cell count, 50 per cubic mm.; alb. +++, glob. +++. Clinical diagnosis, general paralysis.

After patient had been in the hospital a very short time his delusions and hallucinations vanished, so that by the middle of March, or a month after his admission, he was completely clear, a fact which cannot be ascribed to his treatment since betterment had commenced before the treatment was instituted. A note dated Feb. 26, before the treatment was instituted, says, "Insight is quite re-established."

Treatment. Feb. 27, .45 gr. neosalvarsan.

March 1, 30 cc. serum. Spinal fluid not examined.

March 15, 20 c.c. serum injected in spinal canal. (Serum was removed one hour after salvarsan was injected. Delay in intradural treatment due to other causes.) Spinal fluid examination at this time—no cells, glob. ++0; alb. ++0. Wassermann reaction spinal fluid, +. Wassermann reaction in blood +.

April 3, .9 gm. neosalvarsan.

April 5, 30 c.c. serum. Cells 30, glob. +++.

April 16, .9 gm. neosalvarsan.

April 19, 30 c.c. serum intradurally. Wassermann reaction, serum negative. Glob. ++0. Red cells in spinal fluid.

April 23, spinal fluid removed on the 19th reported negative.

April 30, .9 gm. neosalvarsan.

May 1, 30 .cc. serum intradurally. Cells 25, glob. ++0. Wassermann reaction, serum suggestion of positive. Spinal fluid, negative. Reported on May 7.

May 15, .9 gr. neosalvarsan. Wassermann reaction, serum slightly positive

May 21, Wassermann reaction, spinal fluid slightly positive.

May 28, .6 gr. neosalvarsan.

June 4, 20 c.c. serum intradurally.

May 31, Wassermann reaction, serum negative.

June 4. Spinal fluid slightly positive. At this time the patient was discharged on visit—condition improved.

* Since this paper was written this patient has died. Autopsy showed characteristic signs of general paresis.

June 30. Patient returned to hospital. Insomnia, which was now his principal complaint, increased upon leaving the hospital to such a point that he found it necessary to return.

July 5, .9 gr. neosalvarsan.

July 8, Wassermann reaction, serum slightly positive.

July 10, 30 c.c. of serum injected intradurally.

July 12, Wassermann reaction, spinal fluid negative. Cells 0; glob., slightest possible amount; alb., moderately increased.

July 30, .9 gr. neosalvarsan.

Aug. 2, Wassermann reaction, serum suggestive of positive.

Aug. 13, .9 gr. neosalvarsan.

Aug. 16, Wassermann reaction, serum negative. Spinal fluid not reported on.

Aug. 28, .9 gr. neosalvarsan.

Aug. 30, Wassermann reaction, serum negative. At this time treatments were discontinued.

Sept. 13, Wassermann reaction, serum slightly positive. Spinal puncture done Sept. 13, cells, 50; glob., positive; alb. increased. Wassermann reaction, spinal fluid positive.

Nov. 7, Wassermann reaction, spinal fluid positive. Lumbar puncture at this point, 1 cell; globulin, tested by Nonne's method, positive; by Noguchi's method, negative; albumin, slightly increased. (These last two lumbar punctures and examinations done by W. F. Cook of the Psychopathic Hospital.)

Dec. 24, Patient was transferred to the Taunton State Hospital. Diagnosis at that time, general paralysis of the insane. Condition reported improved.

Physical examination at the Taunton State Hospital on December 26, 1913: Patient is pale and has marked tremor. Argyll Robertson pupils. Arm reflexes are markedly increased. Knee-jerks are moderately active—right, active. Left Achilles is abolished; right, slight. The left abdominal reflex is lively—right, abolished. Cremasterics, active. Sensation in tact.

Mental Examination at this time: Patient is well oriented as to time, place and person. Grasp on the situation is good. Insight is fair. He knows his disease and knows its usual course. Remembers most of the disease, and gives the story of his life in a coherent fashion, and is accurate on details. He insists that he has inherited syphilis. Delusions are of a hypochrondriacal nature. He insists that he hears the bugs creeping around in his brain, feels them jumping from one place to another, feels them burrowing under his skin, and when a specimen of his blood is shown he insists that he can see the bugs in the blood. He holds his hands to the light and examines them by the hour to see if the bugs are there. No other delusions, and no hallucinations except the one regarding the bugs.

Wassermann reaction in the blood, positive. Wassermann reaction in spinal fluid doubtful. No cells seen; very slightest trace of globulin; very moderate increase in albumen.

Summary. Remission occurred before treatment was instituted. Following the treatment it will be noted that the Wassermann reaction was the most variable sign, disappearing both in blood and spinal fluid, reappearing. The cell count has been abolished once, but showed great variability, and it is especially noteworthy that at the end of the treatment the number of cells was 50. A month and a half later, *without any treatment*, the cells diminished to one, and at a still later examination they disappeared entirely. The globulin, it will be noted, disappeared on two occasions, and was, however, relatively more constantly present than the cells or Wassermann. The albumen increase was the most constant sign of all and showed the least fluctuations, although it had nearly reached the normal at the last examination.

Patient is to receive further treatment, but it is to be said that his physical condition is gradually growing worse. He looks paler than he did on entrance to the Psychopathic Hospital, and he is abjectly miserable. Moreover, the psychosis seems to be traveling malignly for he is now distinctly deluded regarding the "bugs," a symptom not noted until lately.

Case 4. No. 11452. S. H. S. Male. Admitted Feb. 25, 1913, voluntary patient; aged 36 years, attorney by occupation.

Fairly good family history. Patient has always been nervous. He drank moderately and was an inveterate smoker. Thirteen years ago he had the initial lesion and went to Hot Springs for treatment. Treatment followed this, irregularly. Admitted to the bar four years ago, not successful.

Present Illness dates back from Dec. 1, 1912. Despondent, downcast and unhappy. He has made two attempts at suicide, once by taking trional, and again by bichloride of mercury. No hallucinations or delusions. Sleepless, no appetite. Arms and legs feel numb. Immediate cause of psychosis said to be the breaking off of his engagement with a young woman he intended to marry. This the patient did to protect the young woman.

Physical Examination. Right pupil larger than the left. Argyll-Robertson on left—slight reaction to light on right side. Knee jerks and ankle jerks lively. Arm reflexes exaggerated. Sensation not disturbed. Periosteal reflexes active. Abdominal reflexes, uppers gone, lowers, O. K. Cremasterics present. Wassermann reaction, serum positive. Spinal fluid positive to Wassermann, 40 cells, globulin increased, albumen increased.

Treatment. March 3, .45 gr. neosalvarsan.

March 7, serum, 30 c.c. Wassermann reaction, spinal fluid positive.

March 19, .9 gr. neosalvarsan.

March 21, serum, 30 c.c. No cells, glob. slight. Wassermann reaction, spinal fluid positive.

April 3, .9 gr. neosalvarsan.

April 5, 30 c.c. serum. Glob. +++, 25 cells, alb. increased

April 16, .9 gr. neosalvarsan.

Apr. 19, 20 c.c. serum intradurally. Wassermann reaction, serum positive. Glob. ++, cells 30, Wassermann reaction, spinal fluid negative.

April 22, .9 gr. neosalvarsan.

April 26, spinal fluid positive.

April 30, .45 gr. neosalvarsan. Wassermann reaction, serum negative.

Physical examination at this time disclosed no great difference from previous examination. Men-

tal examination disclosed no definite signs of a psychosis. At this time, however, he found himself examining words that came to his mind in something the following manner. For example, the word "echo" as it came to his mind in sentences brought forth questions as follows: "What is an echo?" "What does the word 'echo' mean?" "Are there many echoes?" "Do woods give echoes?" His mind would busy itself answering those questions, and at the same time he recognized the absurdity of his own activity. He stated that this symptom was most constant and that it had no particular emotional content, that is, no particular words or sets of ideas were continually reacting. Still very sleepless and can see no betterment in his condition. Has perfect insight. Is willing to be treated and thankful for attention given him. Is on the whole rather hopeless.

Concerted and persistent effort will usually elicit a correct reply to any question in educational matters, but the patient's first tendency is to say, "I don't know" to anything at all difficult. In other words, he thinks his memory is gone. This symptom is important in view of later developments.

May 10, Wassermann reaction, serum slightly positive.

May 21, .9 gr. neosalvarsan.

May 24, 30 c.c. serum intradurally.

May 24, Wassermann reaction, serum positive.

May 29, Wassermann reaction, serum suggestive of positive.

June 4, .6 gr. neosalvarsan.

June 7, Wassermann reaction, serum positive. 20 c.c. intradurally.

June 11, Wassermann reaction, spinal fluid slightly positive. Glob. 0, cells 0, alb. slightly increased.

July 2, .45 gr. neosalvarsan. Wassermann reaction, serum positive.

July 7, Wassermann reaction, serum positive. Spinal fluid, not examined for cells or globulin.

July 10, Wassermann reaction, spinal fluid negative.

July 16, .45 gr. neosalvarsan. Wassermann reaction, serum slightly positive.

July 19, 30 c.c. intradurally. Wassermann reaction, serum slightly positive. Wassermann reaction, spinal fluid moderately positive.

July 30, .45 gr. neosalvarsan.

Aug. 13, .6 gr. neosalvarsan.

Aug. 14, 30 c.c. salvarsanized serum, last treatment. Spinal fluid, Wassermann reaction slightly positive.

Aug. 16, Wassermann reaction, serum slightly positive.

Aug. 26, Wassermann reaction, serum negative.

Sept. 13, Wassermann reaction, serum negative.

Dec. 16, transferred to main department of Boston State Hospital.

Physical Examination. Pupils show same changes as before, as do the other physical signs. Condition, unimproved.

Jan. 20, examined by present writer. Physical signs as above stated. Patient is thinner, however, than when at the Psychopathic Hospital, and the mental examination shows a distinct change in the emotional tone. While he still claims that there is no hope for him, his whole attitude is euphoric. Voice is loud, manner is breezy, and he laughs in a silly manner at times. He states in an irrelevant fashion that his brother is coming to see him and bring him some candy and cake, whereas such a visit when patient was first seen at the Psychopathic would have been passed over by him as too trivial to mention to the physician. Now he mentions it with great gusto. He says, "My memory is as good as it ever was. I remember every little thing in detail. My memory is excellent." This is in marked contrast with his attitude at the Psychopathic when he was complaining continually of his memory. The facial movements are somewhat more stiffened and exaggerated. Otherwise he gives no definite mental signs of general paresis. Wassermann reaction, serum negative. Spinal puncture refused.

Summary. Patient received eleven doses of neosalvarsan intravenously and seven intradural injections. Wassermann reaction in serum and blood became negative at times. At one time the globulin disappeared as did the cells. He showed no improvement, however, in his clinical manifestations although for a long time he showed no downward change. When the treatment was discontinued, there seemed to have followed an emotional deterioration, manifested at the present time by a mild euphoria and triviality. On the whole it is possible that the treatment in this man's case halted the disease for a short time, but that it did not seriously alter its progress is manifested by the impaired physical condition at the present time, and the gradual, if not obvious, mental breakdown, this despite the fact that Wassermann reaction at present is negative.

The next case is recorded in this series because the patient had four injections into the spinal canal and refused further treatment in this manner because of the violent reaction. However, he had ten doses of neosalvarsan, and offers an excellent comparison with the other cases.

CASE 5. No. 11415. J. H. S., male, aged 48 years, married.

Family History. Negative. In 1904 the case was diagnosed as locomotor ataxia at the Boston City Hospital. The gait has been unsteady for years—pains in the legs. About six years ago patient became rather irritable and has grown more so of late. One month ago he called his wife and said that he had a vision, and told her to hide all the knives. Cried a good deal.

Physical Examination. Argyll-Robertson pupils. Arm reflexes present, knee and ankle jerks 0. Diminished sensation to pain in a belt-like fashion around the chest. Memory defect noted in recalling the three last governors. Arithmetical tests are poorly answered. No hallucinations or delusions noted. Emotional tone somewhat euphoric. For a diagnosis of paresis, there are but few mental signs, but the history of irritability, the memory defect and the euphoria point decidedly that way. Tabes is without a doubt present. Wassermann reaction in blood, positive. In spinal fluid, suggestive of positive, 40 cells; globulin much increased.

Treatment. Feb. 20, .45 gr. neosalvarsan.

Feb. 22, 25 c.c. serum.

Feb. 24, report on blood taken before intradural injection, serum negative.

March 6, .9 gr. neosalvarsan.

March 8, 30 c.c. serum; 0 cells, glob. ++. Wassermann reaction, serum.

March 19, .9 gr. neosalvarsan. Wassermann reaction, serum negative.

March 22, 12 c.c. serum. Wassermann reaction, spinal fluid negative No cells, glob. +, alb. moderately increased.

April 9, .9 gr. neosalvarsan.

April 12, 30 c.c. serum. Glob. ++, cells 0. Spinal fluid negative.

From this time the patient refused any intradural treatment.

April 16, .45 gr. neosalvarsan.

April 22, .45 gr. neosalvarsan.

April 26, Wassermann reaction, spinal fluid negative. Glob. very slightly plus, cells 7.

April 30, .45 gr. neosalvarsan. Wassermann reaction, serum negative.

May 7, .45 gr. neosalvarsan.

May 10, Wassermann reaction, serum negative.

May 21, .9 gr. neosalvarsan. Wassermann reaction, serum negative.

May 24, Wassermann reaction, serum negative.

June 4, .9 gr. neosalvarsan. Wassermann reaction, serum negative.

Record does not contain treatment after this. The symptoms did not change except that the patient claimed to have less pain in his legs. In December he was transferred to the main hospital; condition clinically unimproved.

Jan. 20. Examined by writer. Much thinner than upon entrance to the hospital. Optic atrophy marked. Memory fairly good. Euphoria extremely marked. Said to the examiner, "See how well I walk now days," and proceeds to demonstrate. Gait is extremely ataxic and unsteady. Diagnosis by staff of Boston State Hospital, tabo paresis. Wassermann reaction, blood negative. Wassermann reaction, spinal fluid, not made since lumbar puncture was not permitted.

Summary. Early case of paresis—late case of tabes. Four intradural injections with changes after the first intravenous so far as Wassermann reaction is concerned. This reaction disappeared from the blood and spinal fluid almost immediately upon treatment, but seems to have been due to salvarsan more than any other factor in the treatment. Despite its absence, the condition of the patient showed no definite improvement, and shortly after treatment was stopped his condition became distinctly worse. Here too the Wassermann reaction is negative.

Case 6. No. 11737. F. M. L., male, aged 39 years, married. Entered May 6, 1913. The occasion of this patient's commitment to the hospital was a sudden outbreak in the house of a friend. He threw an Indian club out of the window, and then chased a small boy who had taken it down the street, screaming in a maniacal fashion. Family history negative. Had a high school education. He had been a spendthrift, a heavy drinker, and has led a dissolute life. At first he denied syphilis, but later admitted having had it years ago. At the time of entrance he was clearly oriented. Memory seemed intact. No hallucinations or delusions were elicited. He was somewhat euphoric. Continually attempted to leave the hospital. Rather verbose in answers. Otherwise showed no distinct mental symptoms.

Physical signs were carefully noted at that time. The left pupil was slightly larger than the right, both reacted moderately to light, consensual and distance. Cranial nerves of the face were good. No paralysis anywhere. Slight tremor of the hands. Reflexes of the arms were equal and moderate. Knee jerks, equal and active. Ankle jerks equal and active. No Babinski, Gordon or Oppenheim. Adductors moderate. Cremasters and abdominals O. K. In other words, physical examination was almost entirely negative. Blood serum positive to the Wassermann reaction to syphilis. Spinal fluid showed moderate pressure, albumen much increased, Wassermann negative, globulin by Nonne's method very slightly positive, likewise by Noguchi's method; cells mostly reds, of which there were perhaps 1000 in the field. No blood had been drawn upon puncture, and these cells it was evident had not come from the puncture since the slightly yellowish tinge of the spinal fluid could not be centrifuged out. This peculiar spinal fluid had its explanation a very short time afterward in the following:

May 11. During the morning the patient was confused, restless, and attempted to get out. At 12.30 he suddenly lost consciousness, became rigid, and showed some clonic movements. Recovered in about thirty minutes. During this time there was a double Babinski, more on the right side, rigid pupils, absence of cremasteric and abdominal reflexes. At six p.m. he was up and around, very euphoric, and markedly confabulating. He told how he had been out all day in an automobile and spoke of the very elaborate meals which he had had. Showed marked loss of memory for recent events. Was disoriented for time and place. Gave irrational answers to questions on educational matters. Lumbar puncture done at this time shows that spinal fluid was under high pressure, was yellowish in color, contained very many red cells, although no blood had been drawn by the puncture, and as before, the color could not be centrifuged out.

The Wassermann reaction in the blood was still positive. At this time there was positive Wassermann reaction of spinal fluid. The globulin was distinctly positive.

From this time for a period of one month, the patient had marked euphoric delusions. He was to marry a nurse of the ward. He had $50,000, a motor boat, and a Pierce-Arrow automobile was to take him and his bride all over the country and to Europe. He denied that he was married, and said most emphatically that the nurse, who was possessed of all the virtues of her sex both in person and character, had promised her hand to him as soon as he could get out. He had schemes for making money. Gradually this euphoric state disappeared.

Treatment. May 14, .45 gr. neosalvarsan.

May 21, .45 gr. neosalvarsan.

May 24, 20 c.c. serum intradurally. Wassermann reaction, serum positive.

May 28, .9 gr. neosalvarsan. Wassermann reaction, serum negative.

May 31, 30 c.c. serum intradurally. Wassermann reaction, serum negative.

June 6, .6 gr. neosalvarsan.

June 7, Wassermann reaction, serum slightly positive. 20 c.c. serum injected intradurally. Spinal fluid at this time showed still the slight

yellowish tinge, although no red cells were to be seen. This yellowish tinge persisted for some time, and was probably due to hemoglobin and to dissolved coloring matter from the red cells. Finally it disappeared and the fluid became clear.

June 11, 45 gr. neosalvarsan. Wassermann reaction, spinal fluid negative.

June 14. Wassermann reaction, serum positive.

June 19, .9 gr. neosalvarsan.

June 21, 30 c.c. serum intradurally. Wassermann reaction, serum negative. Spinal fluid, suggestion of positive.

July 2, .9 gr. neosalvarsan.

July 7, 30 c.c. serum intradurally. Spinal fluid at this time, 5 cells, glob. slightly +, alb. distinctly increased. Suggestive positive Wassermann. Serum, slightly positive.

July 16, .9 gr. neosalvarsan.

July 19, 30 c.c. serum intradurally, 10 cells; glob. ++, alb. increased. Wassermann reaction, serum negative; spinal fluid, negative.

July 30, .9 gr. neosalvarsan.

Aug. 2, Wassermann reaction, serum positive.

Aug. 9. Another physical and mental examination was made. He does not remember the two weeks following the convulsion. Following that, however, his memory is clear. He laughs at his former delusions concerning the nurse and likewise those concerning his wealth. He spontaneously states that he had been losing memory for some time before he came to this hospital, likewise losing his ambition, and that he was cranky at home. No pains. Occasional dizzy spells. Physical examination at this time shows very important changes. The right pupil showed almost no reaction to light. The left showed prompt consensual and light reaction. The right arm reflex is lively, greater than the left. Right cremasteric is greater than the left. Knee jerks are equal. Right ankle jerk is active. Left ankle jerk is very slight. No Babinski, Gordon or Oppenheim. Mental examination showed no distinct defects by the Binet-Simon and Healey tests. By careful psychological tests for memory defect and by the ordinary psychiatric examination, nothing of pathological nature was found. He took an active part in the social life of the ward and was one of the leading spirits amongst the patients.

Aug. 13, .9 gr. neosalvarsan.

Aug. 16, 30 c.c. serum intradurally. Wassermann reaction, serum slightly positive. Wassermann reaction, spinal fluid negative.

Sept. 13, serum positive. Treatment discontinued.

Oct. 29, note was made that his condition was unchanged.

Dec. 24, discharged to the Taunton State Hospital. Diagnosis, general paralysis. Condition, unimproved.

At the time of discharge from the Psychopathic Hospital, the patient had commenced to become grandiose again. He exhibited eccentricities of conduct and is said to have a hysterical outburst. This outburst, the patient describes differently. He states that he had a numb feeling in his head and a numb feeling in the right hand; that while he knew the words he was to say and use, he could not utter them. Neither could he write, although he says he understood writing when it was given to him. When he attempted to make himself understood by the physicians, he spoke nonsense, and realized that it was nonsense. By his description, there was a cerebral condition of some kind, transitory in nature, marked by motor aphasia and confusion, with numbness of the right hand.

Physical examination in Taunton State Hospital on Dec. 26. At this time the pupils are Argyll-Robertson on both sides. Tremor of tongue. Blunting of sensation of right side of face. Arm reflexes as before. Left Achilles diminished. No Babinski, Gordon and Oppenheim. Cremasterics present. Left upper and lower abdominal reflexes absent, right upper present, right lower absent. Ophthalmoscopic, negative.

Mental examination at this time shows verbosity, pomposity, euphoria with delusions of grandeur, mostly of a sexual character. He is to marry Miss M., a nurse at the Psychopathic Hospital, and they are to go on a long trip together. He is to furnish a home. She is the most beautiful and virtuous of women, etc. Orientation is intact. Memory is good. No hallucinations. Acts superior to his environment. Somewhat irritable and a trouble-maker amongst the patients. Wassermann reaction in spinal fluid positive. Albumen, moderately increased, globulin moderately increased. Thirty lymphocytes. Serum positive.

Summary. This patient, at first considered to be a case of cerebral spinal syphilis, is now considered a general paretic. First, the history of cerebral accident, second the euphoria, grandiose ideas, etc., third, the gradual development of Argyll-Robertson pupils, and the gradual change in reflexes; fourth, the appearance of the four reactions in blood and spinal fluid plus the albumen increase in the latter. He has shown fluctuations in the Wassermann reaction in blood, and there was present in the spinal fluid evidence of a hemorrhage which has made its way into it. Undoubtedly the first flare-up was accompanied by a hemorrhage into some part of the brain, and it is very probable that the second development of grandiose ideas started with some cerebral attack. It is to be especially noted that the Argyll-Robertson pupils developed in this patient's case despite the use of salvarsan and the intradural method of treatment, and for that reason I think this case is of crucial importance in determining the value of the Swift-Ellis method.

Case 7. No. 11537. J. M., male, aged 37 years. Entered the 25th of March. Family history negative. Early life of patient uneventful. Married, four children, no miscarriages. Two years ago he was thrown from a horse and broke three ribs—recovered. Somewhat later he had "trouble with his head," of indefinite kind—recovered. About Christmas before entrance he began to act queerly. Became careless, worrisome, nervous, could not sleep, forgetful of recent events, and at times irritable and untidy.

Physical Examination. Argyll-Robertson pupils, exaggerated reflexes, some unsteadiness of gait. Mentally: Disoriented for time, no grasp of surroundings, poor memory, loss of educational facts, some euphoria, retardation in answers, and impaired insight. Serological examination showed positive Wassermann in blood, positive Wassermann

in spinal fluid. One hundred cells in spinal fluid, markedly increased globulin and albumen.

Treatment. April 9, .9 gr. neosalvarsan.

April 12, 30 c.c. of serum intradurally.

April 16, Wassermann reaction, spinal fluid positive. Fifty cells, albumen and globulin in marked excess.

April 22, .45 gr. neosalvarsan; 30 c.c. serum intradurally.

April 26, Wassermann reaction, blood and spinal fluid positive.

May 7, .9 gr. neosalvarsan.

May 10, Wassermann reaction, serum slightly positive; 20 c.c. serum intradurally. Wassermann reaction, spinal fluid positive; 30 cells, glob. somewhat reduced, alb. much increased.

May 21, .9 gr. neosalvarsan. Wassermann reaction, serum negative.

May 26, 30 c.c. serum intradurally. Spinal fluid, Wassermann positive.

June 4, .9 gr. neosalvarsan. Wassermann reaction, serum positive.

June 7, 30 c.c. serum intradurally. Wassermann reaction, spinal fluid positive; 50 cells, globulin and albumen in excess.

June 25, patient becoming rapidly demented. Now lies in bed most of the time. Occasionally gets up and tries to put on other patients' clothing. Does not know the way to his bed and is very untidy. No insight whatever. No grasp on surroundings. Memory for recent and remote events much worse. Treatment discontinued. Transferred to Boston State Hospital, main department, on June 25, 1913. Died Jan. 23, 1914, after severe convulsions. Was bedridden most of stay in hospital.

Summary. Despite intensive treatment—five doses of neosalvarsan and five intradural injections within two months, patient grew rapidly worse, and within one year after onset, died of general paralysis. This case needs no further comment except that on entrance he did not seem worse than many other paretics who last longer.

Case 8. No. 11636. A. V. D., male, aged 57 years. This case, although not receiving many intradural treatments, received several doses of salvarsan, followed later by intradural treatments, despite which his condition rapidly grew worse.

Family history is good. Personal history not remarkable, except that he has had no children although married many years. A chancre occurred thirty-five years ago. The first symptom was bladder trouble in August of last year, incontinence of urine since that time. Insomnia. History of paralytic attack two days before entrance.

Physical Examination. Pale, thin man. Aortitis. Argyll-Robertson pupils. Very lively ankle and knee jerks. Homolateral and contralateral adductors. Skin reflexes absent. Speech defect.

Mental Examination. Poor grasp on surroundings; recent memory defect although remote memory seems good; educational tests well answered except where recent events are concerned. He is rather choleric and irritable, but on the whole formal and courteous. Flow of thought not remarkable. No insight. Wassermann in blood and spinal fluid, positive. Cell count 30, glob. and alb. increased.

Treatment. April 22, .9 gr. neosalvarsan.

April 29, seems to be slightly improved. Answers questions fairly well. Hard to please in the choice of books, which he continually asks for and reads.

April 30, .9 gr. neosalvarsan.

May 1, Wassermann reaction, serum positive.

May 15, .45 gr. neosalvarsan.

May 17, Wassermann reaction, serum positive.

May 28, .45 gr. neosalvarsan.

May 31, Wassermann reaction, serum positive. Fifteen c.c. intradurally. Wassermann reaction at this time positive in spinal fluid. Spinal fluid shows increased cell count, alb. and glob. increase.

June 11, .45 gr. neosalvarsan.

June 14, 30 c.c. serum intradurally. Wassermann reaction, serum positive. Wassermann reaction, spinal fluid positive.

July 19, Wasermann reaction, serum positive; .45 gr. neosalvarsan.

July 20, 30 c.c. serum intradurally. Wassermann reaction, spinal fluid positive; 30 cells, glob. increased.

Aug. 26, .9 gr. neosalvarsan.

Aug. 30, Wassermann reaction, serum positive.

At this point treatment was discontinued. Patient's condition was growing worse, and he seemed weaker and more demented. Bladder trouble was worse. It was impossible to arouse him to long continued conversation although when he did answer, his replies were usually correct and well expressed. Grasp on surroundings very poor.

Sept. 13, note says, "Patient has grown progressively worse. Died today at 4.15 a.m." Autopsy disclosed the usual cerebral and cord findings of general paresis.

Summary. A man who received seven doses of neosalvarsan, and three doses of intradural therapy, despite which he grew rapidly worse and died. There was nothing in the clinical history of his case to distinguish it from that of many another man in the late fifties who acquires paresis. Such cases usually last but a short time, and the salvarsan and intradural treatment probably had no influence either in hastening or retarding his death.

Five other cases treated by the intradural method are not here recorded. Of these, one was a tabetic, and, therefore, his record is not pertinent to the question of the value of the use of the intradural method in paresis. It may be stated, however, that it seemed to do but very little good in his case, and even the gastric crises and lightning pains, which it is claimed this treatment helps, were but little affected.

The second case has been diagnosed as cerebral spinal syphilis although it is my opinion that the patient is suffering from general paresis. This patient showed marked improvement, and left the hospital in a state of complete remission. However, it is well to remark that later she wrote me a note on a gorgeously emblazoned New Year's card, although the date of its sending was November 1st. Her judgment of the appropriate, at least, does not seem to have been restored to the normal.

The third patient was a case of precocious cerebral spinal syphilis who made a very good recovery. In his case, however, mercury and the iodides were used *ad lib.* and the part played by the neosalvarsan is in question. However, it undoubtedly helped, but the disease is one that does not resist treatment.

The fourth was a congenital tabetic who received only three treatments and cannot be included in this series.

The fifth was a paretic who stayed in the hospital for two treatments only. He showed no improvement, but is not here recorded because the time of treatment was insufficient.

Summary of Cases. Of these eight cases, all undoubted paretics, mostly under forty and only one over fifty, the following has been the fate:

Two died (Nos. 7 and 8 in the series).* Of these, one received five doses of intradural therapy, and the other three doses. The course of both was steadily "down hill," and there is nothing in their clinical histories to indicate that their treatment had the slightest effect upon the disease. In these two cases it is to be noted that there was no change in the Wassermann reaction.

A third (No. 6 in the series), although not definitely a paretic patient on onset of treatment, and having no definite physical signs during treatment, developed in its course the Argyll-Robertson pupils and differences in his tendon reflexes. The case is a critical one for the therapy because this patient was young, robust and received treatment very early in his disease. Far more important than the fluctuation of the Wassermann reactions in his history is the appearance of these ominous physical changes. They mark a distinct progress in the lesions of paresis. Despite the clearing up of the mental signs, his case can be said to have advanced steadily, despite intensified treatment. Moreover, the disappearance of the mental signs has to be considered more in the light of a remission than as due to treatment. It is to be noted that at the onset of his disease the Wassermann reaction in spinal fluid was negative. At the present time, it is positive, so that in this respect, too, he is worse than he was. Moreover, the patient, while maintaining a robust appearance, has a pallor which William N. Graves,[5] of St. Louis describes as cachectic, that is, a sickly look with no apparent loss of hemoglobin. He looks distinctly sicker than on entrance to the hospital and before the beginning of his treatment.

Another case (No. 2 in the series) was discharged unimproved. He received only three doses of salvarsanized serum intradurally, and four doses of salvarsan. His case may be dismissed as being indifferent in its application to the question whether or not salvarsanized serum is of benefit to paresis. It is true that the spinal fluid showed changes, but how far these are related to definite improvement is one of the points at issue.

The fifth case (No. 5 in the series) showed very definite serological changes. Wassermann reaction early became negative and remained negative, but it is to be remarked remained negative, although the intradural treatments had been discontinued and only neosalvarsan intravenously administered. There was no definite clinical improvement manifested. Patient said that the pains were less, but as a matter of fact this seems to have been due rather to euphoria than to actual diminution of the symptom, for at different times it was noted that he was suffering from pain. The salvarsan probably caused an enteritis in his case for a bloody diarrhea was noted several times. After the treatment was discontinued the deterioration and downward progress became marked. Nevertheless, the Wassermann reaction in blood at present is negative.

In a general way what has been said of the above case will apply to the next two cases (No. 1 and No. 4 in the series). In both of these cases the Wassermann reaction was exceedingly variable, in general favorably influenced by the treatment. Moreover, the cell count, the globulin and albumen all were reduced at various times by this treatment. There was, however, no abatement in physical or mental signs. The patients did not look better, feel better or act better. Following the discontinuance of the treatment, the progress downward was marked, showing that the treatment in no wise stopped the disease, although it may have checked it for a time. It would almost seem as if its discontinuance accelerated the normal progress, if such a term can be employed, of the disease. At any rate one cannot claim much for a treatment which when employed as consistently and frequently as in these cases, after it has been discontinued for three months, finds the patients far worse off than when the treatment was initiated.

The last case (No. 3 in the series) has shown what might seem to be the most favorable results of the treatment. A maniacal patient, deluded and hallucinated, all the reactions present in blood and spinal fluid, for a time showed a complete remission, and following the discontinuance of the treatment developed ony a few hypochondriacal ideas. Wassermann reaction at the present time is doubtful, cells and globulin almost vanished, albumen greatly reduced. At first glance this would seem to be a splendid recommendation for the treatment, but it is to be noted against this view that the remission started before the treatment was instituted and was almost complete when the first dose of neosalvarsan was administered. In a disease so eminently one of remissions, one must be exceedingly careful in interpreting what one finds as the result of treatment. There are cases on rec-

* Since this paper was written No. 1 of these cases has died, making a total of three deaths. This is a larger ratio of mortality than is usual in the first year of paresis.

ord in the Taunton State Hospital where the remission had lasted two and more years, and undoubtedly such histories can be more than duplicated by any other hospital Moreover, the patient looks worse than he did when treatment was first started His color is not so good—it is more yellowish than formerly He is more listless and despondent

CONCLUSIONS.

1. Patients receiving this form of treatment show changes probably as the result of it. These changes are mostly limited to the disappearance of the Wassermann reaction and alterations in chemical-cytological composition of the spinal fluid. On the whole, no clinical improvement can be recorded which cannot otherwise be accounted for.

2. As has been stated in a previous paper, the order of changes is somewhat as follows: The Wassermann reaction seems to be the most variable—the first to disappear, the least stable. The difficulty in evaluating the Wassermann reaction lies mostly in the fact that the results obtained by various laboratories vary according to the ability of the technician and serologist. In the case of these patients, all the work was done in one laboratory, the same method used throughout, and thus a fairly standard Wassermann reaction can be recorded.

The cell count seems to have been the next most variable constituent. It seems to be profoundly affected by the treatment, but a reduction must not be taken too optimistically. It will be noted that in the case of H. N. (No. 3 in the series) the cell count was 50 after treatment was discontinued. Later on, without treatment, it dropped to 0 for no well defined reason. Since the examiner was the same in both cases and used the same technic and care, it is probable that the record is faithful to the facts at each time.

The globulin is perhaps a little less variable than the cell count, that is it does not diminish so much under treatment, and it rarely completely disappears.

Finally, the albumen content is the most constant of all, and is least affected by treatment. (For details regarding the albumen test, see writer's paper in the *Journal of Nervous and Mental Diseases.*)

Homer Swift,[6] in a discussion before the New York Society of Neurology, stated that in his opinion the cell count was the most variable of the reactions, and the Wassermann next, both differing, however, very little from each other in their constancy. Next in permanency he found the globulin test. He does not record the albumen content. It will be seen that his results differ but little from my own, there being merely a transposition in relation between Wassermann reaction and cell count. Since the difference between the two is not very great, his findings and mine are essentially the same, except that I have added to the test recorded the total albumen content.

3. The Wassermann reaction probably is not nearly so important a criterion of improvement or recovery as it is frequently held to be. This statement is substantiated by the following facts:

First, It seems to be capricious in its appearance and disappearance. That is to say, there is no ascertainable relationship between it and the clinical conditions of the patient.

Second, As is shown in No. 4 and No. 5 of this series, the patients' condition may gradually grow worse both physically and mentally and the Wassermann reaction remain negative. This fact is perhaps the most important of those disclosed in the investigation of the treatment.

Third, It is generally assumed that a change for the better is accompanied by a Wassermann negative—a change for the worse, by a Wassermann positive. Whatever the Wassermann reaction may mean, it does not measure the full scope of the paretic process. It represents a diagnostic feature of great importance, but we must learn to separate the diagnostic facts from the pathogenetic facts.[7] The treatment here recorded changes the process of the disease in that part of it from which originates the alterations leading to the appearance of the Wassermann reaction, but unfortunately these alterations are but a part of those occurring in the total disease process.

4. What has been said of the Wasermann reaction applies in a lesser degree to the chemical and cytological changes. It is probably true that the criterion of recovery or progress at present must be in the field of the clinical manifestations.

5. Finally, it must be stated that the theoretical grounds upon which this treatment is based do not seem to me to be valid. It is assumed that because the Wassermann reaction is most constant an hour after the administration of salvarsan, therefore the blood at that time contains more anti-bodies. This, of course, is by no means certain, for the meaning of the Wassermann reaction is unknown. Furthermore, it seems to be the opinion, shared by Swift and Ellis, that the nervous system is inaccessible to medicament administered in the usual channels. One hears the term "inaccessibility of the nervous system" quite frequently, yet a little reflection shows there is no such thing. The effects of opium, chloral, bromide, alcohol, strychnia, and certain of the toxins of infectious diseases seem notably to affect the brain and nervous system, and to do this through the blood stream. The appearance of headache following all kinds of bodily disorders contradicts the assertion of the inaccessibility of the nervous system most emphatically. Further, it is assumed that the introduction of medicament into the cerebro-spinal space can affect the brain favorably and locally. Undoubtedly such administration does affect those local conditions,

which are largely meningeal, as, for example, cerebro-spinal meningitis, cerebro-spinal syphilis, gummatous conditions, etc. But in paresis the bulk of the lesions are deep and spirochetes have been discovered only in the cortical substance itself. Now the current of the spinal fluid, if there be a current, is not into the cortical substance or brain tissue. Whatever be the origin of this fluid, whether secreted by the choroid plexus, whether dialyzed from the blood stream as claimed by Metrazat, or the product of the pial endothelium, its direction is from the cortical substance and the brain tissue in general, rather than towards it. So that logically intradural treatment for paresis would fail, and the only reason that the salvarsan does not cure in the case of paresis is because there is either a lack of some intermediary substance to unite it with the spirochete or else because the spirochete has acquired new resistance by reason of its long stay in the body of its host.

Moreover, despite the discovery of Noguchi, that the spirochete pallida is present in the brain of paretics it is probable that the sum total of the paretic process is something more than chronic syphilis, or at least a degenerative process has been added, which it is difficult to stay.

There seems to be another reason for the failure of salvarsanized serum in this treatment. Granted that its theoretical basis be correct, and that the introduction into the intradural spaces can locally and favorably influence general paresis, the amount introduced seems utterly insufficient. Of all the blood in the body, 50 c.c. are removed one hour after salvarsan has been administered. Such an insignificant fraction of the total amount of the blood present can contain only a very small amount of salvarsan. Its introduction seems *a priori* to be adding but little of local treatment to that of the salvarsanized blood stream itself.

However, the treatment merits further trial. It should not be administered to every paretic in the hospital, as some men seem to feel, but should be used on selected groups of cases. It would be very wise not to hold out hopes to the relatives or to the patient, because the result will probably be disappointment. Experience with this treatment teaches much about paresis and leads to the hope that there is a cure for the disease since we now know that it can be profoundly affected, but as far as my experience goes, the Swift-Ellis method is not the looked-for cure.

I wish here to thank the Massachusetts State Board of Insanity for financing this research, and also to express my obligation to Drs. E. E. Southard, H. P. Frost, and A. V. Goss, in charge respectively of the Psychopathic, Boston State and Taunton State Hospitals, for their assistance. For a zealous coöperation that never failed in the midst of a heavy hospital routine, I hereby express my earnest gratitude to Dr. Roger R. Rupp, of Copley, Pa., formerly interne at the Psychopathic Hospital.

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HIP FRACTURES AND THEIR TREATMENT.*

By Frederic J. Cotton, M.D., Boston.

For a century past, at least, fracture of the hip has been the dread of surgical practitioners, and much has been written about treatment. What has been done, or claimed, of late years as to the treatment of hip fracture has, however, largely ignored an important distinction that our predecessors, beginning with Astley Cooper, understood pretty clearly. Let us put the distinction in this way—the danger of non-union applies only to fractures close to the head of the femur. (Figs. 3, 4, 5, 6, 14, 15, 16, 17.)

We know that impacted fixed fractures close to the head often unite, and may achieve bony union. (Figs. 10 and 11.) Loose fractures at this point stay loose. (Figs. 13, 14, 15.) How far the distinction between intra and extra-capsular fractures is important, we do not know even now, but the clinical rule as given above will hold.

What has confused the question of results so long is the fact that "inter-trochanteric" fractures proceed to bony union despite surgical pessimism, despite the worst treatment. (Figs. 21 to 25.) In such fractures the possibilities of deformity are grotesque, (Fig. 23) but non-union is negligibly rare.†

Non-union in fractures of the neck proper on the contrary is not rare, and even in cases showing apparent impaction at first, this impaction not infrequently gives way in the early weeks of treatment despite careful routine fixation. (Figs. 3, 6, 15, 16, 17.)

At best there is always some bone absorption in these cases, even when such absorption is associated with the repair process. The original impaction is modified, even though a serviceable entanglement of fragments persists. (Figs. 10 and 11.)

The methods of treatment advocated have, in a large measure, lost sight of the working classification here hinted at.

For practical purposes this classification, and

* Read for the writer by Halsey B. Loder, M.D., before the Essex North District Medical Society, October 8, 1913.

† Murphy has shown good plates of one case of non-union at this point. I have yet to meet with a case personally.

the results attained in the different classes, may be given as follows:

Fractures in the trochanteric region. These, as already noted, almost invariably unite by bone, though often with great deformity, and not rarely with some resultant disability, from sheer distortion. (Figs. 7, 8, 9, 21, 22, 23, 24, 25, 26, 27, 28, 29.)

Fractures of the neck proper.

(a) *Cracks*: They do well unless extraordinarily badly handled. (Fig. 1.)

(b) *Solid* Impactions: They unite with shortening and with more or less deformity in eversion, but solidly. The clinical results are fair to good. (Fig. 2.)

(c) *Imperfect* Impactions: The common type. In these cases, the impaction, more or less solid, tends to perpetuate a deformity in shortening and eversion, more or less extreme: in some cases the impaction gives away, or is broken up even without accident or obvious neglect of precaution. These cases then fall into the class of loose fractures to be considered presently. (Figs. 3, 16, 17, and 18.)

As a rule, however, these imperfect impactions hold until the break unites, and, in many cases at least, unites by bony union, leaving more or less disability but only *from distortion.*

This result, often the best we can hope for, is not ideal, and in the cases occurring in the more vigorous class of patients, young or old, the question, constantly recurring of late, is whether correction of deformity may not be attained without risking the prospect of firm union.

(d) *Loose fractures* of the neck. These cases differ in no way, to start with, from the impacted cases, save in the *accidental absence* of *impaction.* Unfortunately loose hip-fractures at the neck, ("sub-capital" fractures as Ruth calls them), do not unite by bone, are very apt to fail of even a serviceable fibrous union, and usually enough give a hip that is not very useful. (Figs 5, 12, 13, 14, 15, 18, 19, and 20.)

So much for the natural history of these cases, without treatment, or under average routine treatment.

The time available does not allow of proof of statements already made, but the statements rest not only on impressions, but also on the careful investigation of a considerable series of cases by the writer, (with the assistance of Dr. Andrew Cornwall) shortly to be published. Scudder's published results confirm our data.

Now, as to treatment: We have to choose from—

(a) The old routine; fixation, with or without traction.

(b) The Shaffer-Whitman method.

(c) Senn's pressure method.

(d) Phillips-Maxwell-Ruth method.

(e) Cotton impaction method with fixation in abduction.*

(f) Operative treatment.

There is something to be said for each method listed, though no one, apparently, is using Senn's scheme today. But not one of the six methods is a desirable routine for all cases. Routine must vary with the case.

There are cases occurring in feeble and aged individuals in which we must almost entirely neglect treatment of the fracture to save the patient's life, and many cases that are going to die under any treatment, or under no treatment. There is no doubt that this class of cases is real, but *over-regard* for the *patients' safety* is apt to lead to *under-regard* of the *problem* of *treatment.*

Most cases of hip-fracture can be treated with regard to the lesion—treated surgically—and are apt to be more rather than less comfortable, if furnished proper support. There can be no rule in this matter, and no statement may be made safely save that the number of cases in which surgical treatment may not be carried out is small.

Leaving this small class of cases aside, the factor *first* to be considered is the lesion.

First, as to the fractures of the base of the neck,—the extra-capsular type. In these, our problem concerns two things—avoidance or correction of deformity, and fixation of the fragments till repair is solid. We need have no fear in these cases of breaking up the impaction. The deformity to be guarded against is practically always: first, eversion; secondly, a diminution of the angle of the neck with the shaft,—a coxa vara deformity. (Figs. 21, 24, and 25.) Simple rotation takes care of the first, the second is to be corrected by traction alone, or traction with abduction. The success of this correction is to be appraised by measurement of the length of the leg taken from the anterior superior spine to the inner malleolus, or to the heel. These correction manoeuvres can hardly be done without anaesthesia—at least I have tried it but once, but the anaesthesia may be very light. If anaesthesia is not practicable, we must accept imperfect correction.

Now as to fixation: We have to guard not only against immediate recurrence of displacement, but against the tendency to slow yielding to muscle pull, even after union has begun. (Figs. 23, 24, 25.)

The usual routine, sand bags, or long splints, or moderate weight traction, do not accomplish this.

We may work effectively in this direction in three ways. We may adopt the method known as Whitman's, (though Shaffer originated it back in 1886), the abduction method. Shaffer

* Reported in *American Journal of Orthopedic Surgery*, May, 1911.

combined direct pressure on the trochanter with abduction. The method as now employed is pure abduction. It rests on the theory that if the femur is abducted far enough the limit of motion at the hip is reached, the upper fragment stops, and the shaft is further abducted till it comes into normal relation to the upper fragment. This is approximately true at least, and more than that, forced abduction brings the long, strong adductors taut, and so drives the fragments into contact. (Fig. 26.) This brings in another factor, the possibility of fragments slipping by under this pressure. (Fig. 27.)

I have felt safer, before abducting, in correcting the deformity by rotation and traction, then *impacting* lightly with a *mallet*, then carrying the leg into abduction. In this way the chance of slipping seems to be obviated. I have done it in a number of cases and it seems to work out well. (Figs. 28, 29.) These fractures are apt to be splintered more or less, therefore the force used in impacting must be guarded, but in no case has any harm been done. I do not claim that even in this way *perfect* reduction can be obtained, or that we have positive assurance against the slow development of coxa vara.

It is fair, however, to claim very satisfactory results from abduction alone. (Figs. 26, 27, 30.)

In favor of the abduction position is another fact little dwelt on, namely: the avoidance of contracture. In all hip-fractures, the tendency is for the leg to pull over into adduction, and when the patient begins to get about, the adduction contracture is a very serious and often permanent factor in the lameness. (Fig. 31.) This the abduction treatment avoids, a rather important item.

Now there is an altogether different way of going about the handling of these cases, namely,—the so-called "anatomic" method of Ruth of Des Moines, used earlier by Phillips and by Maxwell, a method we in the East know little about. I have lately had a chance to see Ruth apply it, and to discuss the matter with him. He applies it to everything, which seems irrational to me. As yet, all his specimens and tested results shown are of fractures at the *base* of the neck. There is something in the method; the results seem good, and it may be as good as the impaction-abduction scheme I am using *for these inter-trochanteric cases.*

The treatment consists of manual reduction in flexion, (to relax the ileo-psoas) then downward traction to do away with the shortening, then the application of substantial weight-traction in the line of the limb, and lateral traction on the thigh next the groin. There is no reason why this traction treatment may not be carried out in moderate abduction. It looks more comfortable than a plaster spica, and it may be that Whitman and I must abdicate in Ruth's favor for *this class* of *basal* fractures.

Now as to the fractures of the neck proper, the intra-capsular type. In this class of cases I am going to leave Ruth's method out of consideration; for this class it is *not* anatomic so far as I can reason, and it seems inevitable that lateral traction must tend to separate the fracture surfaces; a disadvantage in these cases far out-weighing the question of improved position, for our chance of union depends upon *fixed* and *absolute contact.* Moreover, I have not yet seen any real analysis of results in *this class* of cases under this routine.

Neither do I agree with Whitman entirely, so here is my notion of the matter.

There are cases in which there is only a crack, or a negligible displacement only; others, more often seen, in which there is deformity, but not enough to justify the anaesthesia almost essential to any accurate correction.

These cases I am perfectly content to let alone, holding the legs fixed (usually with sand bags) in an abduction sufficient to ensure against adduction contracture. Only in a minority of the cases has it seemed to me justifiable to use the plaster spica for fixation, except in cases calling for actual correction of position.*

There remain the many cases of true neck-fracture (so-called intra-capsular fractures) in which there was no real impaction at the start, or in which the impaction has given way spontaneously, or in which the x-ray shows the impaction to be poor and the surfaces badly fitted, or in which there is really considerable eversion, or shortening.

In all these cases I agree with Whitman—*the position should be corrected.* This does not usually mean "breaking-up" the impaction loosely. The impaction is remodelled, so to speak, becoming looser, but not really loose at any stage in the proceeding.

I also agree with Whitman that fixation in abduction is desirable but here is where I go further. After correction, before the abduction, I impact!

With the bone-surfaces accurately adjusted by proper traction and rotation, impaction is carried out with a large heavy mallet, slowly swung, striking the trochanter, which is protected with felt. The impaction *does* take place, corresponding to the accidental, primary impaction of the lucky cases, probably never very deep, but enough to ensure better contact. All we know about these fractures tells us that repair (slow at best, especially on the part of the poorly nourished upper fragment) depends on *accurate coaptation,* and *absolute fixation* of the broken surfaces. *This can be obtained with the mallet.* Whether it can be obtained by mere abduction we do not know. (Figs. 32, 33, 34.)

* Since the above was written, I am using the spica more frequently, because I find these old folks easier to handle and more comfortable, if treated in this way.

None of us can talk much about series of cases, accurately studied; these patients are curiously hard to follow, it is nearly impossible to get them back to an x-ray machine, and only by studying "push and pull" x-rays, can we ever be sure about the existence of bony union in any case. (Figs. 14, 15, 17, 18, 19, 20, 21, 22.)

About three years ago I first began taking these "push and pull" plates. If we have one plate taken while a traction of perhaps fifty pounds is exerted by hand on the foot, and another in which an upward thrust is exerted, there is even in the best fibrous unions, a perfectly definite difference in the pictures. Even where the up and down motion is so little as to be in doubt, the comparisons of the two positions show at least a rocking head. (Figs. 15, 17.) These pictures are easy to take; they are conclusive, and only after testing our fracture results in this way can we justifiably talk about *bony* union.

In the meantime, I regard impaction as at least an important safe-guard. In the extra-capsular cases it helps hold them (Figs. 28, 29), but is not essential. In the fractures of the neck proper I believe we have no right to leave the fracture without making sure there is impaction. The failure of bony union is too serious to take chances on. (Figs. 32, 33, 34.)

Open operation calls for only a short notice. Never in order in fresh cases, it is restricted to those cases of fracture of the neck in which the closed method has failed.

Radical refreshing of the surface of fragments through the anterior route of approach, and correction of position is the only method. When we have gone so far, it is probably best to nail the fragments. I have had successes with simple fixation in forced abduction and have tried impaction with good result, but the nail is probably always advisable. It must be a *temporary* nail, by choice a 4½ inch or 5 inch wire-nail spike driven in through a small incision through trochanter and neck till it appears in the gap between fragments, then driven forward three-quarters of an inch farther. Its head projects through the skin enough to get hold of it, comes out easily after three to six weeks, and leaves no irritant foreign body behind after it has done its work of fixation. (Fig. 35.)

In some cases (a minority, I fear) I have been able to demonstrate bony union.

In conclusion, I believe in the abduction principle, but not as a cure-all method; and I believe no less firmly in the principle of ensuring real fixation by artificial impaction, again, not as a cure-all, but as a method of real value.



Fig. 1.—Crack of femoral neck; displacement inconsiderable.

Fig. 2.—True impaction of femoral neck.

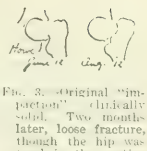


Fig. 3.—Original "impaction" clinically solid. Two months later, loose fracture, though the hip was fixed in the routine fashion, with a special nurse in charge.



Fig. 4.—Three different cases of "impaction" of the usual type: note the spur on the lower fragment—the *only* support.



Fig. 5.—Loose fracture: Two positions taken on the same day (not "push and pull" pictures).



Fig. 6.—Supposedly impacted fracture that "fell apart." The x-ray confirms the illusory sort of impaction present.



Fig. 7.—Types of basal fracture.

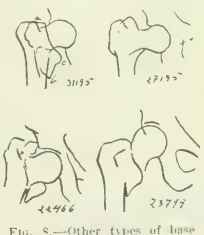


Fig. 8.—Other types of base fracture of not unusual occurrence.

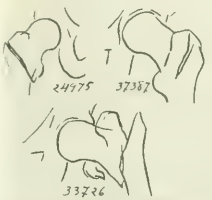


Fig. 9.—"Intertrochanteric" hip fractures.



Fig. 10.—Crack of femoral neck. Picture 18 days later, showing absorption, though union was in the end by solid bone.



FIG. 11.—Crack: absorption shown 44 days later. Admirable clinical result, probably bony union.



FIG. 12.—Non-union: note the sclerotic surfaces of the opposed bone ends.

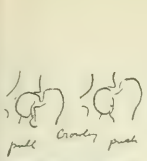


FIG. 20. — *Close* fibrous union, push and pull pictures.



FIG. 21. — Base fracture (old) with coxa vara. The "push and pull" pictures in this case were identical: *i.e.* union was by bone, as *always* in treated basal fractures.



FIG. 22.—Base fracture (old) showing "push and pull" composite. Outlines identical: *i.e.* union by *bone* as *always* in this type.



FIG. 13.—Fracture entirely loose from the beginning. Views four days apart.

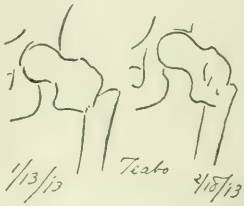


FIG. 23.—Subtrochanteric fracture. There was grotesque deformity but solid union. Later I took this fracture apart, spiked it and got a solid union with a very serviceable hip as a result.

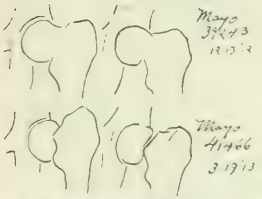


FIG. 14.—Progressive loosening; fibrous union; above, "push and pull": below, the same case three months later.

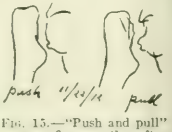


FIG. 15.—"Push and pull" x-ray five months after the accident. Here as in FIG. 17, rotation of the head is an important part of the displacement.

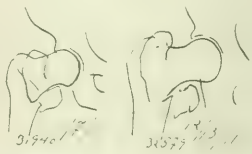


FIG. 24. — Base fracture, — typical. Shows the development of moderate coxa vara deformity during a month of treatment in *fixation without abduction*.



FIG. 16.—"Impaction" that broke up in bed under very careful treatment.

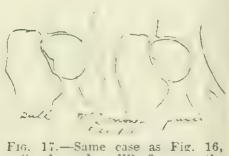


FIG. 17.—Same case as FIG. 16, "push and pull" five months later; close fibrous union; note that the displacement is hardly more than a *rotation* of the *head* of the femur.



FIG. 25.—Basal fracture: outline to the right shows the development of coxa vara deformity (slight) in four weeks of *fixation without abduction*.



FIG. 18.—"Impacted" fracture, see lower outline. Above, to the left is the "push" picture, to the right the "pull" outline. Obviously, there is only *fibrous* union. The clinical result is poor.

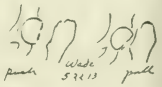


FIG. 19.—Absolutely loose fracture, a year after the injury. "Push and pull" picture. The clinical result was very poor.

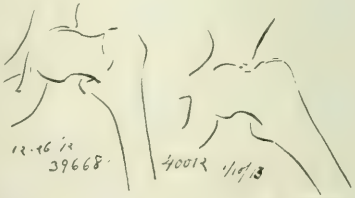


FIG. 26.—Basal fracture, abduction treatment (in plaster spica); results two weeks later, neck shortened, but angle of neck near normal.

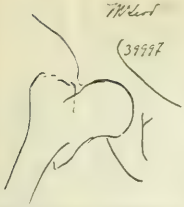


FIG. 27.—Basal fracture: abduction in plaster spica. Riding by of fragments under the abduction pull.



FIG. 28.—"Intertrochanteric" fracture. Reduction and impaction with the mallet. Distinctly improved position. Upper, right. Clinical results excellent.

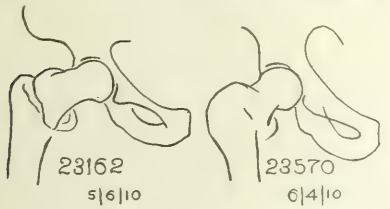


FIG. 29.—Base fracture before and after *impaction with the mallet.*



FIG. 30.—Neck fracture proper. Before and after forced abduction and application of a plaster spica. Note the betterment in angle and in shortening.

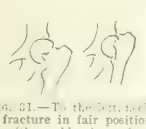


FIG. 31.—The left neck fracture in fair position with adduction from muscle pull; to the right abduction from actual bone deformity. I believe the two to be equally crippling.



FIG. 32.—Tracing to the left shows the original "impaction." The patient was discharged, but presently returned with the obviously loose fracture shown in the middle plate. Under ether, operation was performed with the mallet. Clinically the result was excellent; for detailed data see the outline at the right.

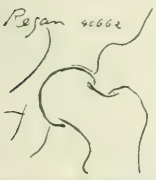


FIG. 33.—Loose fracture of neck, shown after impaction with the mallet. The patient died of lung edema after a month, but with the impaction still solid.

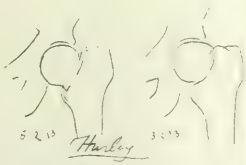


FIG. 34.—Much shortened neck fracture. Reduction under ether; impaction with mallet; plaster spica in abduction; result shown at two months. Union apparently solid. Later clinical result excellent.

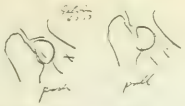


FIG. 35.—Operative case (temporary spike), six months after operation (14 months after the accident). There is a close union but it is a fibrous, not a bony union. Results of operation are good but operation does not ensure bony union.

THE EXPERIMENTAL METHOD AS UTILIZED IN THE CLINICO-PATHOLOGICAL CONFERENCE.

BY HOWARD T. KARSNER, M.D., BOSTON.

Experience with the experimental method as a regular part of the course in pathology has demonstrated its value. How much time shall be allotted to this type of work remains a problem for each director of the undergraduate work in pathology. The same is true in regard to the degree of participation by the student in such exercises. A scheme for the participation of students in the actual performance of experiments has been outlined in a previous paper[1] and has been operated successfully for three years in the Harvard Medical School. Criticism has been offered to the effect that much of the technique necessary to carrying on the work must be learned by some of the students and that they readily forget these details. This is probably true, but time limitations are such that a course of this kind cannot have as its function instruction in technical procedures to large classes. The participation of the students must have for its purpose contact with experimental procedures, not so much for the technique as for the point of view which it engenders. This point of view has its value not only in pathology but in all the work of the medical course and it is a point of view that cannot be gained by observation of the results of others nearly so well or so permanently as by actual participation, a truism that forms the basis for all laboratory training. In its ultimate analysis, experimental pathology means simply the adoption by the trained pathologist of the methods of physiology, chemistry, surgery, immunology and bacteriology. The teaching of experimental pathology then is simply the utilization of these methods in explaining the processes and products of disease. Properly applied this form of teaching does not ignore the anatomy and histology of the lesions; to the contrary, it emphasizes the importance of the lesions by showing the correlated functional change. It is difficult for the bio-chemist and physiologist to make extensive clinical application of their

[1] Karsner, H. T.: The Function of the Experimental Method in the Course in Pathology, BOSTON MED. AND SURG. JOUR., 1912, vol. clxvii, p. 531.

work in the undergraduate courses because the students at that stage in the graded course have little or no knowledge of pathological anatomy. Hence, the teaching of pathological physiology in its broadest sense devolves upon the experimental pathologist. The gap between the clinic and the fundamental sciences is one of the penalties of the graded course and even with the institution of work in experimental pathology it is not completely bridged. Unfortunately, from this particular point of view, much of the work in the fundamental sciences is taught with reference to pure science rather than to the applied science of medicine and in many respects this is necessary. To overcome this difficulty various schemes have been devised, such as the new method of examinations in the Harvard Medical School whereby it is necessary for the student to pass a general collective examination in all the subjects of the first two years at the end of that period and in all the subjects of the second two years at the end of his course. There can be no question of the value of this particular scheme. Uniformity of ideals on the part of teachers and close coordination of the teaching of the fundamental sciences and of the clinical branches can do much to aid the student in correlating in his own mind all the subjects of the medical curriculum. The necessity for such close coordination of teachers has been made the basis for the appointment to the Children's Hospital in affiliation with the Harvard Medical School of the heads of the departments of bacteriology, bio-chemistry, pharmacology, physiology and experimental pathology, the heads of these scientific departments to have rank on the visiting staff with the visiting physicians and surgeons. This cannot but react beneficially on the work of the school and the hospital and to the mutual advantage of physician, student and patient, in regard to diagnosis and treatment as well as teaching and investigation. It must have been the same spirit of cooperation that led to the establishment abroad and in this country of the various exercises in clinico-pathological correlation. With the modern development of the fundamental sciences and the institution of undergraduate work in experimental pathology such exercises have become inadequate and it becomes necessary to include in such conferences the related alterations of function. It would be well if the conferences could command the services of workers in the various special fields and it is hoped that the future will produce such a cooperative scheme, but at the present time the experimental pathologist is obliged to fill in the details of processes and functions which are necessary to make clear the relation between the pathological lesions (including their relations to each other) and the clinical case. That such a scheme is practicable is illustrated by the account of the exercises which have been conducted by the writer with the invaluable aid of Dr. Francis W. Peabody whose clinical material in the service of Dr. H. A. Christian at the Peter Bent Brigham Hospital has been utilized to the fullest degree, and whose sympathy and aid have made the fulfillment of the idea possible. As will be seen, Dr. Peabody has taken an active part in each exercise. The exercises outlined require the affiliation of the school with an active hospital, in which clinical cases are studied intimately, careful records kept and autopsies performed upon a large number of fatal cases. The exercises, as conducted, were irregularly interspersed in the course, necessarily so because they depended upon seizing opportunity as material came to hand. They can be arranged more regularly by the accumulation in the pathological department of gross material from suitable cases. Every large hospital usually has in its wards the clinical cases demanded in the exercises. The success of the first exercise, whose outline follows, stimulated the planning of the equally successful subsequent exercises. The exercises occupied about three hours, a rest period of ten minutes being provided at the end of each hour. They presuppose considerable preliminary work on the part of the students and it has therefor been considered unwise to attempt these exercises until the students have had eight weeks work in pathology as conducted under the concentration method of the Harvard Medical School.

EXERCISE 1. Aortic valvular disease.

A. Seven formalin preserved human hearts showing aortic disease were given to seven pairs of students: the hearts were studied and the students were quizzed by Dr. Karsner in the presence of their classmates, the entire class taking part in the conference on each specimen.

B. Demonstration of physiological tracing of pulse and blood-pressure from a dog with experimental aortic stenosis. The demonstration was by the five students who had participated in the experiment, and the students were reminded that they had listened with the multiple stethoscope to the murmur in this animal.

C. Demonstration by students of physiological tracing of pulse and blood-pressure from a dog with experimental aortic regurgitation.

D. Demonstration by Dr. Peabody of a human patient with double aortic murmur. Students listened to murmurs with multiple stethoscope.

E. Reading of case history of a case of aortic stenosis and summary by Dr. Peabody. Demonstration by Dr. Karsner of the fresh autopsy material from this case. Conference on the pathological anatomy, physiology and clinic of this case by Drs. Karsner, Peabody and class.

EXERCISE 2. Arterio-sclerosis.

A. Demonstration by students of ten gross specimens of arterio-sclerosis; conference.

B. Demonstration by students of adrenalin arterio-sclerosis in the rabbit. Conference on the theories of the development of arterio-sclerosis, including brief discussion of cholesterol sclerosis and lactic acid sclerosis.

C. Demonstration by Dr. Peabody of a case of syphilitic arterio-sclerosis (aortitis).

D. Case history and summary by Dr. Peabody of a case of syphilitic arterio-sclerosis with aortic regurgitation; demonstration by Dr. Karsner of fresh material from this case.

E. Demonstration by Dr. Peabody of radiographs from a case of peripheral arterio-sclerosis.

F. Case history and summary by Dr. Peabody of a case of peripheral arterio-sclerosis; demonstra-

Clinical Department.

THE VESALIANUM MISTAKEN FOR A FRACTURE OF THE FIFTH METATARSAL BY INVERSION OF THE FOOT.

one week before coming to the clinic. There had been considerable pain in the region of the left ankle for this time

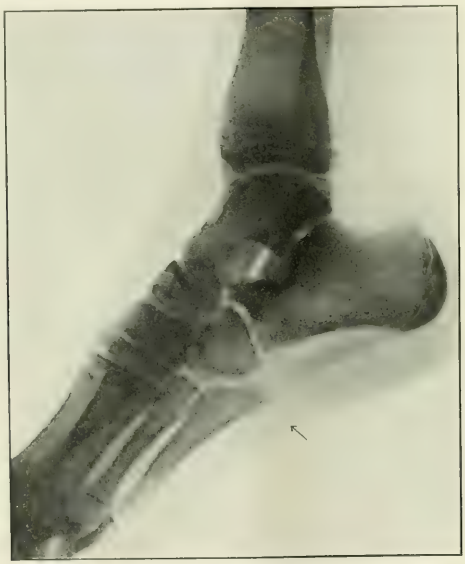
Examination, Nov. 23, showed a fairly well developed and nourished little girl, the left ankle, the seat of the traumatism, was not swollen. There was slight ecchymosis over the external lateral ligament region and pain on pressure over the region of the scaphoid. The motions of the ankle were free; the child walked with a limp. A provisional diagnosis of simple sprain, or a possible fracture of the scaphoid, was made. The foot was immobilized in plaster-of-Paris. The x-ray showed what seemed to

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work in the undergraduate courses because the students at that stage in the graded course have little or no knowledge of pathological anatomy. Hence, the teaching of pathological physiology in its broadest sense devolves upon the experimental pathologist. The gap between the clinic and the fundamental sciences is one of the penalties of the graded course and even with the institution of work in experimental pathology in the undergraduate courses the services of workers in the various special fields and it is hoped that the future will produce such a cooperative scheme, but at the present time the experimental pathologist is obliged to fill in the details of processes and functions which are necessary to make clear the relation between the pathological lesions (including their relations to each other) and the clinical case. That such a scheme is practicable is illustrated by the account of the exercises which have been conducted by the writer with the invaluable aid of Dr. Francis W. Peabody whose clinical material in the service of Dr. H. A. Christian at the Peter Bent Brigham Hospital has been utilized to the fullest degree, and whose sympathy and aid have made the fulfillment of the idea possible. As will be seen, Dr. Peabody has taken an active part in each exercise. The exercises outlined require the affiliation of the

VESALIANUM MISTAKEN FOR A FRACTURE. COLES.



Vesalianum or bone of Vesalius. Female, 12 years, November, 1913. Thought to be Jones' fracture of metatarsal, left foot. Right foot shows same variant.

section by Dr. Karsner of the fresh autopsy material from this case. Conference on the pathological anatomy, physiology and clinic of this case by Drs. Karsner, Peabody and class.

Exercise 2. Arterio-sclerosis.

A. Demonstration by students of ten gross specimens of arterio-sclerosis; conference.

B. Demonstration by students of adrenalin arterio-sclerosis in the rabbit. Conference on the theories of the development of arterio-sclerosis, including brief discussion of cholesterol sclerosis and lactic acid sclerosis.

C. Demonstration by Dr. Peabody of a case of syphilitic arterio-sclerosis (aortitis).

D. Case history and summary by Dr. Peabody of a case of syphilitic arterio-sclerosis with aortic regurgitation; demonstration by Dr. Karsner of fresh material from this case.

E. Demonstration by Dr. Peabody of radiographs from a case of peripheral arterio-sclerosis.

F. Case history and summary by Dr. Peabody of a case of peripheral arterio-sclerosis; demonstration by Dr. Karsner of fresh autopsy material from this case.

G. General conference.

Exercise 3. Diabetes mellitus.

A. Fifteen-minute review by one of the students of normal carbohydrate metabolism.

B. Discussion by five students on the basis of their own experiments of the influence on carbohydrate metabolism of pancreatectomy, subcutaneous injections of adrenalin, of morphin, of phlorrhizin and of puncture of the floor of the fourth ventricle.

C. Conference directed by Dr. Karsner on the pathological histology of diabetes mellitus on the basis of material studied during the regular course.

D. Resumé of the pathological physiology of diabetes mellitus in its relation to clinical medicine by Dr. Peabody and exhibition of case of diabetes mellitus of protein origin with complete correlated dietary and urinary charts.

Exercise 4. Nephritis.

A. Demonstration by students of seven specimens of chronic nephritis.

B. Reports by students of the acute nephritis of the rabbit produced by uranium nitrate, potassium chromate, cantharadin, diphtheria toxin, sodium tartrate.

C. Demonstration by students of the simultaneous record of kidney volume, blood-pressure and urine flow of a normal dog and discussion of the pathological variations in acute nephritis.

D. Discussion by Dr. Peabody of the phenolsulphonephthalein functional test.

E. Report by students on basis of their own experiment of retention of non-protein nitrogen in the blood in acute nephritis produced by sodium tartrate.

F. Demonstration by Dr. Peabody of case of chronic nephritis.

G. Case history and summary by Dr. Peabody of a case of chronic nephritis with heart hypertrophy; demonstration by Dr. Karsner of the fresh autopsy material from this case.

Similar, but necessarily somewhat briefer, exercises were conducted on the subjects of pneumonia and of serosis of the liver.

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Clinical Department.

THE VESALIANUM MISTAKEN FOR A FRACTURE OF THE FIFTH METATARSAL BY INVERSION OF THE FOOT.

By William Pearce Coues, M.D., Boston.

The occurrence of the Vesalianum in the foot is so unusual that no reference is made to it in such modern anatomies as Sobotta, Piersol, Gerrish, Morris, Macalister and Gray.

A very few of the x-ray experts with the greatest experience are familiar with its occurrence, and a very few surgeons, although the modern fracture books are silent on the subject of its occurrence and relation to fracture of the base of the fifth metatarsal.

An excellent description is given of this bone, however, in the late Professor Dwight's[1] "Clinical Atlas of the Variations of the Bones of the Hands and Feet." Its rarity may be judged from Professor Dwight's description: "The Vesalianum, corresponding to the bone of the same name of the hand, is the proximal and external part of the tuberosity of the fifth metatarsal. It is excessively rare. I have never seen it in the macerated foot of an adult. Spronck has seen it at birth, and I think I have probably made the same observation. I have once seen it in the skiagraph of a girl of twelve. The entire base of the fifth metatarsal varies much in size. The Vesalianum is usually more or less marked off by a groove on the plantar surface. Grueber has seen a proximal epiphysis not to be confounded with the Vesalianum distinct in the adult."

Professor Dwight shows a plate of the foot of a girl aged 13, showing a separate element very clearly. There was no suspicion of injury. This picture is an exact counterpart of the radiograph of the case reported in every detail.

Report of Case. G. L., 12 years of age, was seen in the surgical clinic of the Boston Dispensary, Nov. 24, 1913. The child was a healthy girl with no history of previous injury to the ankle. While running one week before, she slipped and fell, her left ankle turning under her. She was lame for one week before coming to the clinic. There had been considerable pain in the region of the left ankle for this time

Examination, Nov. 23, showed a fairly well developed and nourished little girl, the left ankle, the seat of the traumatism, was not swollen. There was slight ecchymosis over the external lateral ligament region and pain on pressure over the region of the scaphoid. The motions of the ankle were free; the child walked with a limp. A provisional diagnosis of simple sprain, or a possible fracture of the scaphoid, was made. The foot was immobilized in plaster-of-Paris. The x-ray showed what seemed to

be a fracture of the base of the fifth metatarsal bone, exactly the lesion first described by Robert Jones,[2] in 1902, and of which I have had two recent cases in adults. The occurrence in childhood seemed most unusual. After two weeks or more immobilization, the plaster was removed and an x-ray taken, which showed the supposed fragment in exactly the same condition as before, not united. There was distinct pain on pressure over the base of the fifth metatarsal, however, not present on the right, and it was supposed that the fragment was slow to unite. At the end of another two weeks, the plaster was removed, and another picture taken, which showed the same condition. A picture was now taken of the other ankle, as Dr. H. M. Chase had suggested the possibility of an epiphysis at this place. The radiograph showed the same shell-like bone united to the base of the metatarsal by cartilage. All tenderness had gone from the left foot; the bandage was removed, and weight-bearing begun, with perfect result as regards function. From the tenderness over this region at the time of injury and afterwards, an infraction of the cartilage, uniting the vesalianum to the shaft, could not be ruled out.

The importance of the recognition of this rare abnormality is obvious. Its relation to the cases of fracture of the base of the fifth metatarsal bone by inversion needs further study and elucidation. It is possible that some of the reported cases of this lesion have been this rare anatomical variant, and that others may have been fractures through the line of union to the metatarsal. A radiograph of both feet with a good view of each fifth metatarsal bone should be taken in all cases where the diagnosis of fracture of the base of the fifth metatarsal bone has been made.

REFERENCES.

[1] Dwight: Clinical Atlas of the Variations of the Bones of the Hands and Feet, 1907, p. 21.
[2] Jones, Robert: Annals of Surgery, 1902, vol. xxxv, p. 697.

New Instruments.

A NEW COMBINATION TONSIL KNIFE.

BY ROCKWELL A. COFFIN, M.D., BOSTON.

IN devising this instrument the author has combined several knives in one, thus simplifying the enucleation of the tonsil.

The broad flat blade may be used for the first incision along the anterior pillar. The curve of the blade conforms to the contour of the tonsil thus facillitating manipulation of the instrument in the supra-tonsillar fossa, the broad flat end acting as a dissecter if necessary.



While the instrument is made sharp for those who prefer it, the author dulls it slightly in order to prevent injuring the pillars after the field of operation is partly covered with blood and also to reduce the liability to hemorrhage. The instrument was made by M. Uhl, Boston.

Medical Progress.

REPORT ON OBSTETRICS.

BY ROBERT L. DENORMANDIE, M.D., BOSTON,

AND

JOHN B. SWIFT, JR., M.D., BOSTON.

PITUITARY EXTRACT IN UTERINE INERTIA.

Edgar[1] reports the use of pituitary extract in seventy cases. In these cases he used the preparations of Burroughs Wellcome & Company, Parke Davis & Company and Armour & Company. For decided action of the drug Edgar says 0.4 gram is the initial dose. Repetition of the dose may be called for as the action of the drug disappears in about twenty-five minutes. If no action is secured after the second dose given half an hour after the first, there is no good of further repetition.

Edgar says the extract should have no place in normal labor and its administration should be confined in obstetrics to instances of primary and secondary inertia, to post-partum hemorrhage and Caesarean section.

Theoretically the extract causes intermittent contractions of the uterus, practically with full or repeated doses the contractions approach the tetanic type and clinically must so be reckoned with. Given early in the first stage the extract is equivalent to the use of ergot and must not be used for premature separation of the placenta, fatal compression of the fetus and even uterine rupture have followed its use under these conditions.

In cases presenting a dilated or readily dilatable cervix with inertia existing, without too much resistance the extract renders valuable aid. Edgar observed that the drug acts best at full term in the second stage of labor and is more positive in multiparae than in primiparae. In nineteen cases the drug was used for post-partum hemorrhage and Edgar says the results were disappointing and that he considers its use in these cases unreliable. In Caesarean section the action of the drug was found to be much quicker than ergot. In all cases where it was used to induce labor it failed.

Edgar ends his paper with twenty-four conclusions based on these seventy cases.

PITUITARY EXTRACT IN OBSTETRICAL PRACTICE.

Watson[2] briefly reviews the anatomy and physiology of the pituitary body and then takes up the action of the extract. Watson says that when the extract is given to a woman in labor it quickly causes an increase in the strength of uterine contractions, the duration of contraction is increased and the intervals between the pains shortened. The first contraction he says may be tetanic in character, but they very soon resume their ordinary rhythmic character. Watson says when the drug is given during the first and second stage of labor the results are practically constant, that the results are always most apparent if the pains have been previously feeble occurring at long intervals.

Watson thinks there is little difference in the activity of the preparations now on the market. He advises giving the drug by intramuscular injection and he says no pain follows the injection. Given intravenously pallor, cyanosis, perspiration and a sense of oppression have been reported and therefore is not recommended. Watson also uses as a full dose one cubic centimetre which represents 0.2 gram of the gland substance. There apparently is no cumulative effect of the drug. The effect on the uterus is usually seen within ten minutes and the maximum result is so obtained in from half an hour to an hour and a half after injection. A second injection, Watson says, again stimulates powerful contractions.

Watson is enthusiastic over the action of the drug to accelerate labor when it is already in progress. He says the results are more certain in the second stage than in the first and that the lower the head is in the pelvis the more pronounced is the effect of the drug and that its timely use will save many a forceps operation.

Watson says the use of the extract is indicated in slight contraction of the pelvis, saying, even if forceps should ultimately be required, the more powerful contractions induced, help mould the head and make extraction easier, and that if the drug is going to act it will do so within ten minutes and so no time is lost. He quotes Linzenmeier as urging the use of the extract after pubiotomy. In the earlier part of the first stage the results are not quite so certain, but they are better in multiparae than in primiparae.

Watson says that in severe post-partum hemorrhage he has had no personal experience with it, but in bleeding of minor degree it has produced powerful contractions.

In the induction of labor Watson says there is more or less diversity of opinion but he reports three cases where he used pituitrin; one at the eighth month, one at full term and one three weeks post-term, which were successful. He feels that further trial of the extract is justified. The important point in this type of case he says is to administer a second dose before the effects of the first have passed off.

In placenta praevia, he says, a number of successful results have been recorded, by the extract stimulating strong contractions so that the presenting part is pressed down against the lower uterine segment, and hemorrhage is arrested. When given about two minutes before doing a Caesarean section pituitrin he says has a marked effect in diminishing the loss of blood.

Of the bad effects the drug may have he notes cardiac distress, vertigo, tachycardia, and respiratory difficulty. He suggests that these may have been due to the injection having unknowingly been intravenous. Watson says the drug may set up tonic contractions of the uterus and may cause a spasm of the internal os. The first contraction is usually a prolonged one, one writer having noted pains lasting from four to seventeen minutes. After this first powerful contraction the uterine action is usually normal.

Watson says that these prolonged contractions usually result in a marked slowing of the fetal heart, but that the child is seldom in real danger as the ordinary rhythmic contractions succeed the tonic opening one. One writer reports the death of a child after the injection of 1c.c. of the extract as the result of tetanic contraction, before delivery could be effected with forceps. He quotes Herz as reporting a rupture of the uterus as the result of giving 1 c.c. of pituitrin.

Several writers report spasmodic contractions of the os after the injection of the extract in cases where induction of abortion was desired. One writer reports he had to incise the cervix in one case. Watson says numerous cases have been reported where atony of the uterus followed the termination of the third stage.

The bad effects on the child are due to the prolonged contraction of the uterus.

There is a long bibliography at the close of the article.

ON THE USE OF PITUITARY EXTRACT IN OBSTETRICS.

Harrison[3] begins his article with a short resume of the development of the use of the pituitary extract in obstetrics. He says an examination of the literature shows at least 1650 cases where it has been administered. Harrison says that the use of pituitary extract is not without some danger to the child though danger to the mother seems very slight. He advises that the fetal heart sounds be kept constantly under observation. The danger he says undoubtedly is greatest when the drug is given in the first stage of labor. He states that the majority of observers have found that for the

production of abortion the extract alone is insufficient. He also feels that it is not of any great service in initiating premature labor. He says practically all observers are unanimous in declaring that it is of the greatest value after dilatation of the soft parts and during the expulsion stage of labor where uterine weakness supervenes. Harrison says that of the total number of cases he has found reported there are less than fifty cases of complete failures.

He reports two successful cases in his own practice to illustrate the use of the extract. He also reports two failures, one where the perineum did not relax and the second where the expulsion power of the uterus was not increased. In both these cases forceps delivery was necessary. They are reported without specific data in the most general terms.

Harrison agrees with others that the extract must not be used after the delivery of the child before that of the placenta, because of the danger of tetanus of the uterus and retention. He does not favor its use in post-partum hemorrhage but suggests along with other observers that its use may help the patient to empty her bladder after delivery and that it may prove of use in increasing the milk secretion.

There is a long list of references at the end of the article.

PITUITRIN.

Melville[4] says his purpose in writing this short paper is to direct the attention of every physician who engages in obstetrical practice to the importance of employing pituitary extract in properly indicated conditions. His experience is limited however to eight cases. He says that two of his cases were primiparae and no unusual lacerations of the soft parts were noted. He says it makes little difference whether the os is dilated or not; delivery follows with accuracy and dispatch. He also states no untoward effect has been noticed upon the child.

PITUITARY EXTRACT IN OBSTETRICS.

Lindeman[5] feels that in the use of pituitary extract there is the solution of many a difficult obstetric problem, that by its use many forceps operations can be entirely avoided, that inertia uteri can almost be excluded as an indication for forceps, that many "high forceps operations" will be converted into at least a "medium" and not infrequently into a "low" operation.

He says in the class of cases when the head is on the perineum for some time with infrequent and ineffectual pains, the use of pituitrin will almost invariably enable the patient to deliver herself to her great satisfaction and that of her family and the credit of the physician who has refrained from interference and has employed physiological rather than mechanical means to aid delivery.

Lindeman cautions against using the extract before the cervix is well dilated, for he says it acts sometimes with almost unbelievable violence. As an instance of this violence he mentions a case which occurred in the practice of a colleague when such violent contractions occurred that the patient assumed the position of opisthotonos. But he says no harm was done the mother or child.

In cases where the cervix is not over four fingers dilated he advises only using one half an ampoule (0.05 gm.) at a dose and for an initial dose he says one should never use more than 0.1 gm. If 0.2 or 0.4 gm. be used such violent labor may result that even the administration of chloroform may not control it.

He reports the following cases of his experience with the drug:

In Case 1 pituitrin had no effect.

In Case 2 three injections followed by post-partum hemorrhage and manual removal of the placenta. Patient collapsed and then made an uneventful recovery.

Case 3, one injection without effect. Labor then induced by Voorhees bag and delivery completed by forceps.

Case 4, three injections and labor spontaneously completed. In the convalescence developed severe sepsis but eventually recovered.

In these four cases, pituitrin was used to induce labor and two failures and two successes resulted. The remaining six cases which he reports are of cases where labor had begun. In two cases the cervix was fully dilated. In one case the condition of the cervix was not mentioned and in three it was two to four fingers dilated. In five of these six cases delivery was spontaneously accomplished but in the last forceps delivery was necessary. In this last case he first used a Voorhees bag then seven doses of pituitrin and finally delivered the patient by forceps with manual extraction of the placenta. In one case a contraction ring was found.

In no one of the reports is there mention made whether there were any tears of the cervix or perineum.

Lindeman says the contra-indications for the use of pituitrin are (1) In friable, rigid, or diseased cervices; (2) When there is danger of rupture of the uterus, in cases where fibroids are present or in cases where myomectomies have been done or there is a marked disproportion present. (3) Where there already is a too high blood pressure present. (4) The possible formation of a contraction ring. (5) The danger of asphyxia of the infant. Lindeman feels that this latter danger is not likely to occur unless excessive doses are used.

1. He concludes that the drug is of undoubted value in almost all cases of simple inertia, and fatigue.

2. It is of value occasionally for the induction of labor at or near term.

3. That it seems to be practically devoid of harmful effects and its dangers are few and easily guarded against.

PITUITRIN IN OBSTETRICS.

Litzenberg[6] says pituitrin has passed the first stage of neglect by physicians and is now in the second stage of exploitation and he hopes by a few words of timely warning that he will help in preventing the reaction which must inevitably come by too enthusiastic exploitation. He summarizes the findings of many writers who have had varying results and report absolutely contradictory facts.

Litzenberg reports thirty cases of his own with varying results. The reports are so meagre that a good idea of the cases is not obtained. In sixteen of the cases pituitrin acted promptly, slowly in two and no effect in two. Forceps were required in six cases. In one case tetanic contractions occurred; one child was asphyxiated but soon resuscitated; one extensive laceration due to the violent pains produced. Four times the drug was used in the first stage but only once with satisfactory results. In the twenty-two cases in the second stage seventeen responded promptly.

1. He concludes that pituitrin is a valuable stimulant to uterine contractions.

2. That it will not usually produce abortion.

3. That it will sometimes induce premature labor, but that with an undilated cervix it is not to be recommended.

4. That it is most efficacious during the second stage of labor.

5. That it is of some value during the third stage.

6. That after delivery it is of some value but not better than ergot.

7. That its proven value is limited to the second stage.

8. That the knowledge of its action is still limited and its use is not without danger and so must be used with caution.

In the past few years many reports of the use of preparations from the pituitary gland have appeared. The Germans have written much but with contradictory findings. The several pharmacological houses which have put these preparations on the market write most enthusiastically of its use and from the advertisement of one house the physician would gather that there are no contra-indications for its use and that all the problems in obstetrics will be solved if the extract of the pituitary gland is used. The preceding six articles are culled from the recent literature and show the contradictory reports that physicians give in regard to the use of the extract. Melville's enthusiasm based on an experience of eight cases is characteristic of many articles where the physician's apparent one idea is to obtain a delivery with despatch.

The papers based on many cases with a careful analysis of the cases reported show that the extract is most uncertain in its action and at times, not infrequently, is severe damage done. Premature separation of the placenta, tetanic contractions of the uterus, rupture of the uterus, fatal compression of the fetus, all have been reported as following the injection of the extract and yet more than one writer says it is a safe drug!

The consensus of opinion is that to induce premature labor its action is so unreliable that it should not be used. The more conservative and thoughtful physicians demand that it be not used until the os uteri is fully dilated, that there be absolutely no bony resistance to the delivery and that there be no scar tissue present. When these conditions are fulfilled and uterine pains are insufficient to accomplish delivery, then the use of the extract many times will accomplish surprising results.

If it is given, the physician must stay constantly with the patient for as yet there is no way of determining in any given case what action, if any, will result. As one of the above writers truly states the drug is at present being exploited and because of this exploitation much damage will surely result. The extract is a powerful drug and its indiscriminate use is to be fought. Carefully used it will prove a valuable aid in a small class of cases.

(*To be continued.*)

Reports of Societies.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of Wednesday, Mar. 11, 1914, at 8.30 p.m.

The President, Dr. William Duffield Robinson, in the chair.

INFLAMMATION OF THE GALL-BLADDER: ITS CAUSES, SYMPTOMS AND RESULTS.

Dr. James Tyson: The paper emphasizes the importance of the early surgical treatment of cholelithiasis, the most important consequence of inflammations of the gall bladder. Perhaps the most common cause of inflammation of the gall bladder is the typhoid bacillus which creeps into the common duct from the bowel. The favoring cause may be gall stones pre-existing in the bladder, or they alone may be sufficient to light up an inflammation. Adhesion of the gall bladder to adjacent viscera is a frequent cause of pain in the right upper quadrant. Cholelithiasis may develop entirely independently of gall bladder inflammation. Predisposing causes are sendentary habits, lack of exercise, tight lacing, child-bearing, abdominal tumors,

excessive use of fatty, starchy and saccharine food. The causal relation of stones in the gall bladder and biliary passages to carcinoma is unquestioned, and I believe that every case of well determined cholelithiasis should be promptly operated upon. Histories of three cases are given in support of this view. Among other terminations of cholelithiasis succeeding upon delay in operation which are scarcely less serious than carcinoma are suppurative cholangitis with involvement of the ducts of the liver and extension to the liver substance or gall bladder, and biliary fistulae. It cannot be denied that associated cancers of the gall bladder may have preceded the cholelithiasis, but there is equal reason to believe that they follow. Medical treatment of cholelithiasis is at best but palliative. In doubtful cases, exploratory operation is justifiable. At present operation upon the gall bladder, if done early, is as free from danger to life as is appendectomy.

THE TREATMENT OF GALL-BLADDER INFECTIONS; WITH A REPORT OF 26 RECENT CASES.

Dr. John H. Gibbon: I have substituted the word "infections" for "gall stones" as we now know that the primary cause of these stones is a microbic infection reaching the gall bladder either through the blood or directly through the bile passages from the intestine. The object of the paper is to consider operative indications, present some of the pathological complications arising when these indications are not heeded, and to say something about the post-operative mortality and its causes. The basis of the paper is a series of 26 gall bladder cases upon which I have operated during the past six months. The figures, though small, illustrate every point I would make. If one feels warranted in making a diagnosis of gall-stones or gall-bladder infection, one should also feel warranted in advising operation unless there be some definite contraindication. To await serious symptoms is comparable to awaiting glandular metastasis and malignant cachexia before making a diagnosis of cancer. The earliest and most persistent symptom of gall bladder infection is what the patient calls "indigestion" or "distention" in the upper abdomen, coming on especially at night and without any definite relation to the taking of food. Jaundice is not essential to a diagnosis; about 80% of operated gall-stone cases have not had this symptom. Gall-bladder symptoms may result also from other causes than the presence of stones and which demand operation.

In the present series there were two cases of acute cholecystitis without stone and three of chronic cholecystitis without stone. In my opinion both patients would have later developed stones had they not been operated upon. The brief series of cases here reported includes three cases of acute gangrenous cholecystitis, all of which recovered; two cases of acute cholecystitis without stone, one developing two weeks after typhoid fever, eight cases of stones in the common duct, one of stone in the ampulla of Vater requiring duodenotomy; one of calcification of the gall bladder, one of abscess formation in the liver and spleen, one of subdiaphragmatic abscess two weeks after operation in a case of acute cholangitis due to stones in the common duct, one of cirrhosis of the liver, one of stones ulcerating into the colon, twenty cases of stones in the gall-bladder alone or associated with some of the enumerated complications, and two cases of cancer of the gall bladder. The greatest number of stones, 771, was found in one of the malignant cases. In the cases in which the duration of symptoms is given the average is over six years. The youngest patient was 19 and the oldest 69 years of age. There were 5 deaths, all of which occurred in very ill patients. Regarding the probability of gall stones reforming after operation, I believe that if all are removed and the gall passages properly drained for about two weeks that recurrence is extremely rare.

THE ROENTGEN RAYS IN THE DIAGNOSIS OF GALL STONES AND CHOLECYSTITIS AN IMPROVEMENT IN TECHNIC.

Dr. George E. Pfahler: The improvement in technic consists, in addition to the special technic described by the author in 1910, in the use of (1) a second position by which the rays are directed through the substance of the liver, thereby eliminating the irregular shadow produced by the bowel and its contents; (2) that which is more important, the inflation of the colon, and at times of the stomach, by air, for the purpose of more definitely outlining the gall-bladder and under surface of the liver.

The lantern demonstration consists of a series of slides showing the borders of the liver, gall-bladder and spleen; also a series of 20 cases showing gall-stones, which were confirmed by operation.

As a result of these studies the following conclusions are drawn:—

1. Gall-stones can be shown only when they are composed of a substance of greater or less density than the surrounding tissue. This will usually mean that they must contain some lime salts, though this quantity may be small.

2. My records show positive findings in 74 per cent., but I believe that in general, one cannot count upon more than 50% being demonstrable. I believe a negative diagnosis at present has no value.

3. It is possible that with this improved technic, when we find the gall-bladder small, and still find no stone, it may become of some value in negative diagnosis.

4. The estimation of the value of this method of diagnosis must be based only upon the work of Roentgenologists who have mastered a good technic, and who are thorough in their work.

5. Definite information will be obtained only by continued coöperation of the surgeon and Roentgenologist.

6. I believe that in the future we shall obtain valuable information concerning the liver and spleen by the Roentgen method described.

DISCUSSION.

Dr. H. A. Hare (Discussion read by Dr. William E. Hughes in the absence of Dr. Hare):

I believe the following statements of Anderson express excellent views and are fairly warranted by our present knowledge:—

1. That while surgical procedure is frequently the best and often the only means offering a chance of relief, its advocacy, based on certainty of cure and assurance of non-recurrence, is not borne out by results.

2. That the main object of treatment is the relief of the infection and inflammatory changes, and not merely the removal of gall-stones. So long as

there is no recurrence of the inflammatory attacks, there will be no attack of gall-stones.

3. That recovery not infrequently occurs under non-operative treatment, especially in early and mild cases, and particularly after first attacks, before serious local damage has been produced by the infection.

4. Medical treatment should be given a fair trial in all cases where the patient's physical condition does not warrant operation, and with the numerous patients who refuse operation. In many such cases Anderson asserts he has seen complete and permanent recovery from all symptoms of the disease.

5. Medical treatment is indicated in many cases as a preliminary to operation, and in order to allow the acute infection to subside as far as possible.

6. Medical treatment is indicated in all cases after operation to allow of complete subsidence of the infection, and if possible, to prevent re-infection and recurrence.

7. Anderson believes that it would make for clearness of thinking and give definiteness to therapeutic aims if we adopted the suggestion of Naunyn and gave up the term cholelithiasis and classified these various infections of the biliary passages and cholangitis with such qualifiying terms as simple, catarrhal, suppurative, gangrenous, calculous, etc., according to the condition present in the particular case.

The paroxysmal nature of the symptoms, and the relief of pain temporarily upon eating are characteristics very suggestive in diagnosis. Probably the one symptom which is never lacking is that of indigestion.

Dr. Thomas R. Neilson: I think we cannot emphasize too strongly the danger of delaying operation with the diagnosis of cholecystitis fairly made. Although the attacks may subside there is always the danger of recurrence and of the development of malignant disease. The symptom of indigestion as indicative of a chronic lesion of the gall-bladder is important, and sometimes the only one upon which a diagnosis can be made. At operation pericholecystitis is one of the commonest associated conditions, and for this nothing but operation would be of avail.

Dr. W. Wayne Babcock: I would emphasize the value of local anesthesia in certain types of gall-bladder disease.

Personally, he never advises strongly against operation in any case, unless it is definitely contraindicated, but, after explaining the possibility of failure, and that operation may eventually be required, Anderson does not hesitate in early and mild cases, and especially after first attacks, to give medical treatment a thorough trial, and has found that in many instances, excellent and permanent results have been obtained.

To which I would add that occasionally we see cases die after operation that would have lived many weeks if they had been let alone surgically. Where there are evidences of septic trouble or gangrene, operation is, of course, imperative.

Dr. William E. Hughes: It is important to recognize the existence of gall-stones because, while they may lie quiescent through the normal life of the patient, they are there and are a possible source of trouble. Nine times out of ten in cases in which my attention has been called to "gall-stones" collected from the feces they have proved to be not gall-stones, but foreign matter.

We should realize that gall-stones represent a terminal condition. The patient may have had few symptoms for five or twenty years, but finally develops an acute condition. In such a case it would have been much better to try to prevent such an outcome by early operation. It is interesting to note what other symptoms may follow gall-bladder disease. Most surgeons have seen cases in which the most surprising results have followed operation upon the gall-bladder. Arthritis deformans sometimes disappears after a gall-bladder operation. In a patient with the tic douloureux who developed gall-bladder disease the pain of the former condition disappeared after removal of the pus and gall-stones. We know that neuritis may result from gall-bladder infection. There are also conditions in the intestinal tract and other remote conditions due to intoxication or passage of the bacteria to these parts of the body. It seems to me that within the next two or three years we are going to revise our conceptions of intestinal indigestion.

Dr. Robert N. Willson: I have seen more than one case of cholangitis and also gall-stone cases of necessity treated medically when the surgeon could not be reached. In such cases the symptoms have disappeared with the emptying of the intestinal tract. In gall-stone cases I have seen more than one case carried over year after year simply because the patient absolutely refused operation.

Dr. Gibbon, closing: As to the archaic conclusions of Anderson which Dr. Hare left—I would have left them, too, I think—I am sorry Dr. Hare is not here to defend them.

What Dr. Pfahler has shown us is of the greatest value and promises a great deal of help. Dr. Pfahler said that negative findings do not mean that the patient has not stones. It also does not mean that the patient has not an infected gall-bladder, which, as Dr. Babcock says, gives rise to all the trouble. I feel that the interpretation of the x-ray plate must be made by an expert as well as the x-ray picture itself. I regret that the treatment in Dr. Anderson's cases was not given. There are a lot of cases apparently cured which are not really cured.

HARTFORD MEDICAL SOCIETY.

At a meeting of the Society, held April 6, Dr. F. C. Wood, Professor of Clinical Pathology, Columbia University and Director of Cancer Research, George Crocker Special Research Fund, read a paper, illustrated by lantern slides on the subject

OUR KNOWLEDGE OF CANCER.

Dr. Wood gave a brief historical resumé, showing that while cancer had been recognized by the Hindus, Egyptians, and Greeks, from the earliest periods, and had been carefully studied since then, a limit had been reached for clinical investigation of the disease, and that nothing regarding the cause of cancer had been learned. About ten years ago the use of animal transplantation, first introduced by Jensen, placed in the hands of laboratory experimenters a powerful means of approach to the unsolved question, and more had been learned as to the cause of cancer in these ten years by laboratory investigations than in the preceding thirty-five centuries. Dr. Wood gave a short account of the vari-

ous discoveries which had been made by means of experiments on animals; some of these were of biological importance merely, while others had a direct application to the human race. He spoke of the question of hereditary transmission of cancer in mice, but stated that this occurred only in certain races, in which there had been an intense concentration of cancerous ancestry, and said that it would require two or three hundred years of in-breeding of cancerous human beings to duplicate the results obtained with the mice. Such a concentration could not occur under ordinary conditions in man, and it was, therefore, doubtful that heredity played an important part in the cause of cancer. He also pointed out that cancer is not contagious; that cancer can not be transmitted from animals to man; and that cancer houses and cancer districts do not indicate either contagion or hereditary transmission, but are due to accidental groupings which can be explained by the laws of probability. He illustrated the availability of animals for the study of cancer by detailing some of his own results in treating cancer in mice with radium, the effect being as unfavorable in animals with malignant tumors as it is in man. He strongly urged the wider education of the profession in the matter of the early diagnosis of cancer, preferably by the microscope, and stated that in his opinion nothing but early surgery was of any benefit in the cure of cancer.

Book Reviews.

Text-Book of General Pathology. Edited by M. S. Pembrey and J. Ritchie. New York: Longmans, Green and Company. London: Edward Arnold. 1913.

This book hardly lives up to its title of a text-book of general pathology. It consists of twenty chapters, written by different authors.

1. Introduction. By Ritchie and Pembrey.
2. Pathology of the Blood. By A. E. Boycott.
3. Information. By Ainley Walker.
4. Infection. By Ainley Walker.
5. Immunity. By C. H. Browning.
6. Degeneration, Necrosis and Calcification. By J. Lorrain Smith.
7. Hypertrophy and Atrophy. By J. Ritchie.
8. Tumors. By J. Ritchie.
9. Pathology of the Circulation. By A. E. Boycott.
10. The Nervous System. By F. W. Mott and S. V. Sewell.
11. Respiration. By J. S. Haldane.
12. Physiology and Pathology of Temperature. By M. S. Pembrey.
13. Pathology of Digestion. By A. F. Hertz.
14. Metabolism. By M. S. Pembrey.
15. Metabolic Disturbances Which Result from Hepatic Disease. By A. E. Garrod.
16. Anomalies of Metabolism. By A. E. Garrod.
17. Diabetes Mellitus and Some Other Changes in Carbohydrate Metabolism. By A. P. Beddard.
18. Gout. By I. Walker Hall.
19. Physiology and Pathology of the Kidney. By J. H. Ryffel.
20. Death. By J. Ritchie.

The reputations of the authors indicate the excellence of these chapters, most of which are very interestingly written. The physiological viewpoint is maintained by each author. The book contains a very few illustrations, and these few are of poor quality. The book can hardly be recommended as a student's text-book, but can be endorsed heartily for collateral reading in connection with a course in pathology or for graduates who wish to review their pathology or to get a knowledge of its recent advances.

Pathologisch-Anatomisches Praktikum. Für Studierende und Ärzte. Von Professor Dr. Med. Richard Oestreich. Urban and Schwarzenberg. 1913.

A German quiz compend in pathology, modeled after similar compends in anatomy. Possibly of use in preparing for examinations, but not where the examinations are intelligently given.

Practical Bacteriology, Microbiology and Serum Therapy. (Medical and Veterinary). A Text-Book for Laboratory Use. By Dr. A. Besson. Translated and adapted from the Fifth French Edition by H. J. Hutchens, D. S. O. pp. 892. New York: Longmans, Green & Co. 1913.

This is the most complete reference book of its size in bacteriology. It is thoroughly up-to-date on most subjects, and contains directions and formulae for practically every known bacteriological procedure. The principal bacteria are concisely and well described. The book also includes a section on spirochaetes and protozoa pathogenic for man and animals. The inclusion of Veterinary Bacteriology enhances the value of the book materially for the laboratory worker. The absence of theoretical discussions perhaps detracts from its value as a student's text-book. It is a book that has proved very valuable to laboratory workers, as a handy reference volume, and is the best book of this sort, of which the reviewer has knowledge. It makes an admirable text-book for advanced students. The one serious criticism is the failure to give the references to the different authors quoted.

THE BOSTON

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THE ADVANTAGES OF THE DE RIBES BAG IN OBSTETRICS.

It may be asserted with truth that with the advent of Barnes' dilators a new era was inaugurated in obstetrical practice, and it may also be truthfully stated that even now the many practical benefits to be derived from the method of procedure which this device exemplified are not at all adequately appreciated by the great mass of practitioners. The artificial dilatation of the os uteri, in imitation of its natural opening in labor, was first practised by Klüg, by means of the sponge tent; but this method had the disadvantage of occupying an indefinite time, the irritation produced was often painful and annoying, and, worse still, the tent sometimes became a source of infection. The Barnes rubber dilators therefore constituted a very marked advance. These, however, were not without their disadvantages, and from time to time various improvements have been introduced in the means for the production of dilatation, until we now have at our command one superior in every way to its predecessors. This is the hydrostatic dilator known as the modified Champetier de Ribes bag. For those not familiar with it, it may be stated that the de Ribes bags, of five sizes, are conical in shape and made of canvas (and hence inelastic), covered with rubber, and the stem, through which normal salt solution or sterile water is injected into the bag, is very strongly attached to the apex; making it possible to make moderate traction if desired.

The largest field of application for the bags is naturally in the induction of labor, and in 1912 Dr. George L. Brodhead, professor of obstetrics in the New York Post-Graduate Medical School, who is an enthusiastic advocate of their use, published in the *American Journal of Obstetrics* a series of 139 cases in which they were employed for this purpose, and in which the results were for the most part extremely gratifying. In 90% of these, labor was induced by the use of not more than two bags, while in nearly 70% one bag was sufficient. Anesthesia for bag introduction was usually unnecessary, as shown by the fact that an anesthetic was used in only 14% of private cases and 16.6% of all cases, including hospital cases, where it was deemed advisable for clinical purposes. The two chief causes for which labor was induced were contracted pelvis (41 cases) and toxemia, including albuminuria, nephritis and eclampsia (27 cases). In seven of the cases a change in the fetal position occurred after bag introduction, and while except in one instance the change in presentation made no difference in the outcome, the possibility of this accident should be kept constantly in mind when one is using the bag method.

At a recent meeting of the Medical Association of the Greater City of New York (before which also his first paper was presented), Dr. Brodhead read a second paper on the use of the modified de Ribes bag in obstetrics, and in this he expressed the conviction that in this device we were in possession of such a valuable aid in obstetric work that we might well consider whether more extensive application could not be made of it. Although it has now been in use for a considerable number of years, it is a matter of surprise to him that greater advantage has not been taken by the profession at large of a method at once so simple and of such great value. In addition to the well-known indications for the interruption of pregnancy, he has found the bag of great service in patients where the child is large and the pelvis normal or slightly undersized. Again, he believes that in a patient at term, especially a primipara, if pains have not begun within twenty-four hours after the premature rupture of the membranes, labor should be induced with the bag. Furthermore, in primiparae especially, the child is sometimes found to be too large to pass through the pelvis, and in his opinion many children now lost might be saved by the interruption of preg-

nancy. In the treatment of antepartum eclampsia he advises that medical treatment (in which he lays stress on the value of venesection in selected cases and of veratrum more generally) should be carried out as vigorously as possible, but also that pregnancy should be terminated by the induction of labor. Inasmuch as pregnancy is the direct cause of the eclampsia, he is convinced that the uterus should be emptied within a reasonable time, not by a radical procedure, such as vaginal or abdominal section, but by the slower and more physiological method. For this purpose he combines the use of the bougie, or rectal tube, with that of the bag. In this class of cases, as so many others, the latter affords an invaluable aid in the treatment, but the condition is so urgent that its employment should be supplemented by the introduction of the rectal tube, thus making the induction of labor more certain. Whatever result the ultimate statistics of the treatment by section may show, he believes that in the hands of the general practitioner the induction of labor, combined with vigorous medical treatment, will continue to give the best results. When eclampsia develops in the early part of the first stage of labor, the method of choice is the use of the bag for the dilatation of the cervix, and in the latter part of the first stage, the application of forceps, podalic version, or, when the child is dead, craniotomy. Vaginal section is indicated, if at all, in those cases in which the cervix is very rigid and where the bag and bougie have failed, after a reasonable time, to effect softening and dilatation. In a primipara at or near term, with a small, rigid vagina and a contracted pelvis, abdominal Cesarian section would be the operation of choice.

In a considerable number of conditions there is, in Dr. Brodhead's opinion, no method of procedure comparable in results to the use of the bag. For marginal placenta previa it offers an almost ideal resource. Here the problem is how to secure full dilatation of the cervix with the least violence and loss of blood, while in no way injuring the child. One of the larger sizes should be employed, and after the cervix has been well dilated version can be performed with much greater ease and with better results for both mother and child. In central placenta previa at term, and in the marginal variety at term in primiparae, abdominal Cesarian section in the hands of competent operators, with proper surroundings, will undoubtedly give the best results; but, on the other hand, Cesarian section as a routine procedure would give a much larger mortality than the conservative treatment with the bag and podalic version. So-called accidental hemorrhage often demands the interruption of pregnancy, and here, again, the bag may offer a solution of the problem. In this instance, however, the source of bleeding is too high up to be influenced by it; so that where the hemorrhage is very profuse, or continues moderately with the bag in place, some other method of procedure is indicated, the choice lying between manual dilatation, followed by forceps or version, and vaginal or abdominal section. Finally, the bag is useful in cases of tedious labor, especially in primiparae with breech presentation; and in prolonged first stage where the patient, after many hours of suffering, has made but little progress, its introduction will frequently cause the pains to become more effective. In breech cases the breech of the child is a very poor dilator, and when the labor is proceeding very slowly there is no better method of expediting matters than by means of the bag.

MEDICAL ASPECTS OF THE SITUATION IN MEXICO.

Without actual declaration of war there has already been American bloodshed in Mexico. Vera Cruz was seized on April 22 by United States marines in conjunction with the naval fleet, and is now occupied by American troops. On the following day, the medical department of the military government began clearing the wreckage of the local Naval Academy, which was destroyed by shells during the bombardment. Much of the clothing and other contents of the building have been transferred to the Charity Hospital, where the wounded will be cared for.

Provisions for nursing in field and base hospitals are being made by the American Red Cross, which on April 23 issued the following statement:—

"In view of the Mexican situation and the duties and responsibilities that may devolve upon the American Red Cross, the people of the United States are hereby informed that the Red Cross is prepared for whatever service the Gov-

ernment may require of it as the society created by congress to furnish volunteer aid to the sick and wounded of armies in time of war and to serve as a medium of communication between the people of the United States and their army and navy.

"Attention is called to the fact that under the provisions of the treaty of Geneva, by presidential proclamation any other society desiring to render similar assistance can do so only through the American National Red Cross. Immediate preparations for fulfilling these duties are imperative. The war relief board meets April 30 to adopt a definite plan of action. This will involve heavy expenditures and the Red Cross relies upon the public for generous contributions to enable it to meet these demands. Contributions may be sent to local or state treasurers or to the Red Cross, Washington, D. C."

As yet there has been no outbreak of disease among American troops in Mexico. Probably typhus is their greatest risk, since it is endemic over the Mexican plateau, where it is locally known as *tabardillo*. There is a great deal of typhus in Mexico City, but none along the seacoast. There the disease most to be dreaded is yellow fever.

At Vera Cruz every precaution is being taken against the outbreak of any infection. One case of smallpox was discovered among refugees in the city, and extensive vaccination of nonimmunes has been instituted. Over a thousand American refugees have arrived at Galveston, Tex., and report from that city on April 27 states that three cases of small-pox have occurred among those aboard the battleship *Connecticut*. Careful quarantine has been established.

At the present writing, the likelihood of mediation makes further hostilities seem improbable. In the event of their occurring, however, every preparation has been made by the army medical corps to establish hospitals in the rear of troops advancing inland. The plan of distribution of these hospitals will be as follows:—

"Each division, which is made up of four brigades, will have four field hospitals. In each hospital are 108 beds. In the rear of the field hospitals will be an evacuation hospital, which will hold twice as many beds as a field hospital. Behind the evacuation hospital, fifty or one hundred miles—it depends on the position—will be the base hospital. To each field hospital are five surgeons, to each ambulance corps three surgeons, to each regiment four medical officers and twenty-two members of a hospital corps, and to each division a chief surgeon and a chief sanitary inspector."

On the part of the Mexicans there is said to be considerable difference in degree of medical efficiency. The medical department of General Villa's constitutionalist army is in command of Dr. Andres Villareial, a graduate of Johns Hopkins. It has a well equipped hospital train, capable of caring for 1400 patients for 40 days, and a modern field hospital with an abundance of trained nurses. The medical department of General Huerta's federal army, on the contrary is poorly officered, ill-equipped, and inefficient.

In the event of war, the American loss from disease should be proportionally the lowest that has ever been observed. In the first Mexican War, of 1848, the total American loss from disease was 6408, while the loss from wounds received in battle was about 5000.

MEDICAL LEGISLATION. REORGANIZATION OF THE STATE BOARD OF HEALTH.

Governor Walsh, with the assistance of men eminent in public health work both in the state and in the nation, has drawn up a bill to create a state department of health and to modify the existing health laws in Massachusetts. This bill conforms closely to the suggestions made in the Governor's inaugural message and also to the general principles of certain recommendations made previously in these columns. The Governor's bill has the enthusiastic endorsement of a considerable body of medical men with whom he has been in consultation.

The bill calls for a single, highly paid commissioner of health with an advisory unpaid public health council. The Governor is wise enough to appreciate that mere organization, though important, is but the vehicle for the introduction and execution of health measures. Consequently his bill gives somewhat wider and better defined powers to the health department than the state board of health has enjoyed in the past.

Since the time has apparently come for a reorganization of the state health department, it is very gratifying that Governor Walsh has risen to the opportunity of attempting to create as good a department as is possible under the circumstances. The broad minded manner in which he has obtained the advice of eminent ex-

perts is particularly commendable. This bill, now in somewhat rough form, will be discussed in detail in subsequent issues of the JOURNAL. From present indications the bill should receive the hearty support of the medical profession.

MEDICAL NOTES.

ERADICATION OF UNCINARIASIS IN CENTRAL AND SOUTH AMERICA.—The Rockefeller Commission for the Eradication of Hookworm Disease, it is announced, is to extend its field of activity into Central and South America; and Dr. Joseph H. White, of the United States Public Health Service, is to superintend this work.

PNEUMONIC PLAGUE IN TOKYO.—Report from Tokyo, Japan, on April 24, states that pneumonic plague is at present epidemic in that city, and that many deaths from it have occurred.

BUBONIC PLAGUE IN CUBA.—Two more cases of bubonic plague were reported in Cuba on April 22, one in Havana, the other at Artemisa, a small neighboring town. This makes a total of 12 cases since the beginning of the outbreak several weeks ago.

INTERNATIONAL CONGRESS ON CHILD WELFARE.—The third International Congress on Child Welfare was held from April 23 to 25, inclusive, at Washington, D. C. At the opening session, Miss Julia C. Lathrop described the work of the children's bureau of the United States department of labor, and Mrs. Frederick Schoff, of Philadelphia, reported the work of the national congress of mothers and parent-teachers, of which she was president. On April 24, Professor E. A. Kirkpatrick, of Fitchburg, Mass., read a paper on "Training Children in Financial Responsibility"; and Dr. Helen C. Putnam, of Providence, R. I., on "Twentieth Century Motherhood." Mr. Nathan Straus of New York described the work of the milk stations in that city, whose infant mortality under five years has fallen from 96.5 per 1000 in 1891 to 37.3 per 1000 in 1913.

BOSTON AND NEW ENGLAND.

MEASLES IN NEWPORT BARRACKS.—Report from Newport, R. I., on April 26 states that 5 cases of measles have recently occurred among men in the naval training station barracks at that port.

A CENTENARIAN.—Patrick Welch, who died at Brighton, Mass., on April 23, is said to have been born early in 1814 in Ireland. He migrated as a boy to Montreal, and thence came to Brighton in 1842. He is survived by five of his eleven children. He attributed his protracted longevity and good health to his lifelong habit of total abstinence from tobacco and alcoholic liquors.

FITCHBURG BOARD OF HEALTH.—The recently published twenty-fourth annual report of the board of health of the city of Fitchburg, Mass., records the activities of that body for the calendar year 1913. It contains also the reports of the agent of the board, the bacteriologist, the school physicians, the school nurse, the inspectors of milk, plumbing, meats, provisions, and slaughtering. The total death-rate of the city was only 13.38 per 1000 inhabitants, and the infant death-rate, under one year, was only 103.3 per 1000 births.

VISIT OF FOREIGN SURGEONS TO BOSTON.—On Monday and Tuesday of last week, April 27 and 28, a number of foreign members of the International Surgical Association, whose fourth triennial convention has recently been held in New York, visited Boston as guests of the local members of the American Surgical Association. Operations, demonstrations and receptions were held at the various hospitals, at the Harvard Medical School, and at Harvard College, Cambridge. On Monday evening a dinner was given at the Copley-Plaza Hotel.

A MEDICAL MEMORIAL TO DICKENS.—On April 29 the All Around Dickens Club, of Boston, celebrated its twentieth anniversary by dedicating a free bed in memory of Charles Dickens at the new Children's Hospital.

HOSPITAL BEQUESTS.—The will of the late Eliza E. Hobbs, of Waltham, Mass., which was filed on April 25 at the Middlesex registry of probate, contains bequests of $5000 to the Waltham Hospital, $1000 each to the Waltham Baby Hospital and the Waltham Training School for Nurses, and $500 to the Waltham District Nurses' Association.

The will of the late Benjamin F. Keith, of Boston, which was filed on April 25, in the Norfolk Probate Court at Dedham, Mass., contains a bequest of $5000 to the Boston Floating Hospital.

Cases of infectious diseases reported to the Boston Board of Health for the week ending April 28, 1914: Diphtheria, 52; scarlatina, 101, of which 16 were non-residents; typhoid fever, 3; measles, 89, of which 2 were non-residents; tuberculosis, 51.

The death-rate of the reported deaths for the week was 17.22.

NEW YORK.

Pure Food Investigation.—At a meeting of the recently organized food and drugs department of the National Civic Federation, held on April 26, an investigation, embracing the entire country, into the methods of handling products as regards pure food principles, cleanliness, right labeling, and honest advertising, was decided upon, in order to determine the lines on which the federation can work to the best advantage in securing pure foods and drugs for the American people. The chairman of the committee which has charge of the proposed investigation is Vincent Astor, and among the members are Dr. C. A. Alsberg, chief of the bureau of chemistry, United States Department of Agriculture; Dr. S. S. Goldwater, commissioner of health, New York City; and J. H. Wallis, president of the Association of American Dairy, Food and Drug Officials. The plan of operations includes the sending out of a list of questions to federal and state food, drug and dairy commissioners, state and municipal health officials, professors of chemistry in universities and colleges, agricultural chemists, and representative dealers in foods and drugs throughout the country.

Election of Dr. Park.—On April 27 Dr. William Hallock Park, director of the research laboratories of the New York City Health Department, and a pathologist and bacteriologist of international reputation, was unanimously elected by the Council of New York University dean of the University and Bellevue Hospital Medical College, to succeed the late Dr. Egbert Le Fevre. For a number of years Dr. Park has been professor of bacteriology and hygiene in the college, and he was recommended for the position of dean by Prof. William H. Welch of Johns Hopkins University, Dr. Simon Flexner of the Rockefeller Institute, and other high authorities.

Death from Typhus Fever.—On April 27 the first death occurred among the typhus fever patients at Swinburne Island, Quarantine Station. The patient was a Greek who had embarked on the steamer *Madonna* at Naples. Since January 7, 19 typhus patients have been received at Quarantine, and all the cases are stated to have occurred among soldiers who had been in the Balkan wars.

Honor for Dr. Flexner.—Dr. Simon Flexner, director of the Rockefeller Institute, has been notified by the French ambassador at Washington that the Cross of Chevalier of the Legion of Honor has been conferred upon him by President Poincaré. This honor has been bestowed, it is stated, in recognition of the services rendered to medical science by Dr. Flexner through his own discoveries and his admirable administration of the institute. In the award special mention is made of the assistance given to France, at the time of the epidemic of cerebrospinal meningitis there, by the sending to the Pasteur Institute in Paris of a supply of the new anti-meningitis serum, which was successfully employed in combating the disease.

Award of Seaman Medal.—On April 28 the Louis Livingston Seaman medal of the American Museum of Safety was presented to Surgeon General William C. Gorgas, in recognition of his great sanitary work in the Panama Canal Zone. The speech of presentation was made by Prof. F. H. Hutton of Columbia University, and other speakers on the occasion were Arthur Williams, president of the museum, Dr. N. E. Ditman, and Dr. Seaman, the donor of the medal, as well as Gen. Gorgas himself.

Appointment of Dr. Janeway.—It is announced that Dr. Theodore C. Janeway, Bard professor of the practice of medicine in Columbia University, has accepted the professorship of medicine in Johns Hopkins University, Baltimore, recently offered him, under the full time basis made possible by the gift to the University of $1,500,000 by the General Education Board. It is stated that Dr. Llewellys F. Barker, who succeeded Sir William Osler in the chair of

medicine, was unable to remain in the position under the new conditions, but will continue his service at the Johns Hopkins Hospital.

Death-Rate for Week Ending April 25, 1914.—There were 1637 deaths and a death-rate of 15.30 per 1000 of the population reported during the past week as against 1677 deaths and a rate of 16.28 for the corresponding week in 1913, a decrease in the absolute number of deaths of 40 and in the rate of .98 of a point, a relative decrease of 105 deaths. The following causes showed material deductions: Measles, diphtheria and croup, whooping cough, diarrheal diseases under five years of age, acute bronchitis, lobar and broncho-pneumonia, pulmonary tuberculosis, Bright's disease and nephritis. The causes showing an increased mortality were scarlet fever (the mortality from this cause being double that of the corresponding week of last year), forms of tuberculosis other than pulmonary, diseases of the nervous system and violence. Viewed from the point of age grouping, there were 28 less deaths of infants under one year, 17 less between one and five years of age, 25 less between five and sixty-five years of age, and 30 more over the age of 65. The borough of Richmond showed the highest mortality, due in great measure to the unfavorable distribution of the age grouping of the population and the presence of several large institutions, the inmates of which are chiefly non-residents. The second highest mortality was that of the borough of Manhattan, then followed borough of Brooklyn, borough of Queens and the borough of The Bronx in the order mentioned. The death-rate for the first 17 weeks of this year was 15.46 per 1000 of the population as against a rate of 15.68 during the corresponding week in 1913, a decrease of .22 of a point.

A Good Veto.—Report from Albany on April 25 announces that Governor Glynn has vetoed the bill, recently passed by the state legislature, permitting unlicensed practise by Christian Scientists, chiropractors, and naturopathists. In his veto message the Governor said in part:—

"This bill is advocated by Christian Scientists. If it simply allowed Christian Science healers to practise among the followers of Christian Science, there might not be serious objection to it; but it opens the gates to all kinds of medical pretenders, who as a matter of fact 'administer to or treat the sick or suffering without the use of any drug or material remedy' and who, if this bill were approved, would swarm across our borders and pretend to practise medicine upon our citizens."

Research Work in Genetics.—At the meeting of the Eugenic Section of the American Breeders' Association at Palmer, Mass., in 1911, a research committee was appointed "to study and to report on the best practical means of cutting off the defective germ-plasm in the American population. This committee has recently issued from Cold Spring Harbor, Long Island, the headquarters of the Eugenics Record Office, two bulletins, one (No. 10A) on "the scope of the committee's work," and one (No. 10B) on "the legal, legislative and administrative aspects of sterilization." The committee is still working and no doubt other bulletins will follow. Meantime the organization has changed its name to the American Genetic Association.

New York State Medical Society.—At the 108th annual meeting of the Medical Society of the State of New York, held in New York Apr. 28-30, the following officers were elected: President, Dr. Grover Dende of Buffalo; first vice-president, Dr. Myron B. Palmer of Rochester; second vice-president, Dr. Samuel W. S. Toms of Nyack; third vice-president, Dr. Robert M. Elliott of Willard. Dr. W. R. Townsend of New York was reëlected secretary, and Dr Alexander Lambert of New York, treasurer. The annual dinner of the society was given at the Hotel Astor on April 29, and was attended by more than eight hundred physicians. The toastmaster was the retiring president, Dr. William F. Campbell of Brooklyn, and among the speakers was Dr. Wilfred Grenfell of Labrador.

Current Literature

Medical Record.

April 18, 1914.

1. Schroeder, H. H. *Syphilis in Relation to Life Insurance.*
2. Meyer, A. *Present Status of Typhoid Immunization in the Hospitals and Training Schools of New York.*
3. Neustaedter, M. *A Case of Facial Hemiatrophy.*
4. Palefski, I. O. *Visualization of the Upper Intestinal Tract by Means of Roentgen Rays in Conjunction with the Use of the Duodenal Tube.*
5. Austin, C. K. *On the Iso-Serum Treatment of the Incoercible Vomiting of Pregnancy.*

6. Benedict, A. L. *Cancer Statistics.*
7. Strauch, A. *Epidemic Icterus.*

New York Medical Journal.

April 18, 1914.

1. Syms, P. *Operative and Postoperative Treatment of Appendicitis.*
2. Kakels, M. S. *The Operative Mortality in Appendicitis.*
3. Ring, G. O. *The Association of Systemic Disease with Metastatic Ophthalmia.*
4. Palefski, I. O. *Pursestringing of the Small Intestines into a Distance of Fifty Centimeters.*
5. Smukler, M. E. *Cardiospasm, with Dilatation of the Esophagus.*
6. Smith, H. *Lymphosarcoma.*
7. Macwhinnie, A. M. *Two of the Present Day Fads.*
8. Kenerson, V. *Marked Improvement in Tabes.*
9. Todd, J. B. *Ventilation.*
10. Mayo, W. J. *Chronic Ulcers of the Duodenum.*

The Journal of the American Medical Association.

April 18, 1914.

1. *Harris, M. L. *Constrictions of the Duodenum Due to Abnormal Folds of the Anterior Mesogastrium.*
2. Dyas, F. G. *The Treatment of Acute Osteomyelitis of the Long Bones by Means of the Dental Engine and a Large Burr. Preliminary Report.*
3. *Hare, H. A. *Three Cases of Wiring with Electrolysis for Aortic Aneurysm. One Heretofore in Part Reported.*
4. Ulrich, H. L. *Some Notes on Hay-Fever.*
5. *Macleod, J. J. R. *Recent Work on the Physiologic Pathology of Glycosuria.*
6. Howell, A. A. *Possibilities in the Use of the Auscultatory Method of Determining Blood-Pressure in Pneumonia.*
7. Craig, C. F. *Variations in the Strength of the Wassermann Reaction in Untreated Syphilitic Infections.*
8. *Kilgore, A. R. *The Luetin Cutaneous Reaction for Syphilis.*
9. Nuzum, F. *Retro-Aortic Left Renal Veins.*
10. Craig, H. K. *A New Method of Preparing Museum Specimens.*
11. Goodman, E. H. *Hemothorax Caused by Rupture of a Dissecting Aneurysm. Recovery.*
12. *Eising, E. H. *The Disappearance of Sugar in Diabetics after Certain Pelvic Operations.*
13. Lavenson, R. S. *The Responsibility for the Failure to Diagnose Tuberculosis in Its Early Stages.*
14. Dodd, V. A. *The Protection of Granulations. A New Dressing Material.*
15. Fenger, F. *Distinction Between the Corpus Luteum of Ovulation and the True Corpus Luteum of Pregnancy. Preliminary Report.*
16. McCord, C. P. *The Frequency of Pregnancy in Slaughter-House Cattle in Relation to the Supply of Corpus Luteum.*
17. Smith, L. D. *A Simplification of the Gram Stain.*

1. Harris describes six very distinct cases in which a fold or band passed from the gall bladder down over and constricting the second part of the duodenum and produced a definite set of symptoms resembling those of duodenal ulcer. These cases were all permanently relieved by division of this band at operation. Harris describes this band as the abnormal remains of the caudal edge of the ventral mesogastrium, or by some called the great omentum hepatocolicum.

2. Dyas' use of a large dental burr in drilling out diseased bone in osteomyelitis seems like a very rational procedure and a decided advance in technic, as the operator can work more rapidly and at the same time with less danger of damaging normal bone and leaves no rough spicules or ragged edges.

3. Hare, after having operated on twenty-five cases of aneurysm by wiring and electrolysis, claims that this is the only method sure to give relief in aortic cases. He does not consider it a dangerous operation. He uses a yellow gold wire.

5. Macleod's article is not suited for abstracting, but is a very thorough review of experimental work on glycosuria.

7. Craig finds marked variations in the strength of the Wassermann reaction from day to day in untreated syphilitic cases and believes therefore justly that a single negative or doubtful Wassermann reaction is of no value in excluding syphilis. He goes into some detail to explain the reasons for this variation. The paper is a suggestive one.

8. Kilgore found the luetin test of practical value in a few cases of late syphilis (4 out of 36), in which it was positive when the Wassermann was negative.

12. Eising finds evidence that prostatectomy and hysterectomy in diabetes of long duration is occasionally followed by subsidence or total disappearance of the sugar output. No plausible explanation is at hand. [E. H. R.]

The Lancet.

April 4, 1914.

1. Oliver, T. *Medico-Social Problems from an Insurance Point of View.*
2. *Whitehouse, H. B. *Hunterian Lecture on the Physiology and Pathology of Uterine Hemorrhage. Concluded.*
3. *Crofton, W. M. *Some Causes of Failure of Vaccine Therapy.*
4. *Davies, H. M. *The Operative Treatment of Pulmonary Tuberculosis.*
5. *Jordan, A. C. *Some Points in the Diagnosis of Pulmonary Tuberculosis by the X-rays.*
6. Cooper, G. *A Case of Thoracic Aneurysm of Unusual Size.*
7. Keiller, D. W. *Extrathoracic Aneurysm of the Transverse Arch of the Aorta.*

2. In this second Hunterian Lecture, Whitehouse discusses pathological uterine hemorrhage, taking up the factors involved in excessive bleeding, the relation of the endometrium to this, and the importance of investigating the menstrual discharge. He then takes up hemorrhage at puberty and at the menopause, and then considers hemorrhage in relation with organic disease of the internal sexual organs and the treatment of such conditions.

3. Among the causes for the failure of vaccine therapy, Crofton mentions (1) failure of patient to react (2) failure to diagnose the infecting organisms, (3) incomplete immunization, (4) failure to give the doses at the proper intervals.

4. This is a very brief discussion of artificial pneumothorax in pulmonary tuberculosis, with a mention of other more radical measures.

5. Jordan, in his usual interesting, but somewhat over-enthusiastic view, urges the x-ray as the only means of making the true early diagnosis of phthisis, and argues in favor of this "peribronchial phthisis." Early diagnosis has been kept back for years, he states, because it has been the custom to use and depend on the stethoscope and to look at the apices for the initial lesion. (His remarks applied to children are of interest and value; in adults they are interesting, if true.—J. B. H.). [J. B. H.]

British Medical Journal.

April 4, 1914.

1. Russell, R. H. *Lister: The Laboratory and the Bedside.*
2. *Simson, H. J. F., and Bernstein, J. M. *Remarks on Infection by B. Coli in the Puerperium and on the Infective Conditions of Pregnancy.*
3. Castellani, A., and Philip, M. *Plague in Ceylon.*
4. Kisch, H. A. *An Instrument for the Detection of Slight Degrees of Nasal Obstruction.*
5. Ryland, A. *A Case of Temporo-Sphenoidal Abscess in the Course of Chronic Otitis Media.*
6. Tibbles, S. G. *Two Cases of Ocular Disease Associated with Pyorrhea Alveolaris.*
7. *Shufflebotham. *The Milroy Lectures on the Hygienic Aspect of the Coal-mining Industry in the United Kingdom. Lecture V. Beat Hand, Knee, Elbow and Buttock.*

2. The writers discuss the symptoms and diagnosis of puerperal infection with B. coli, and the prognosis and treatment of this condition. They are strong advocates of vaccine treatment, the details of which, with illustrative cases, they describe.

7. In the fifth Milroy Lecture, the writer describes "beat hand, knee, elbow and buttock." "Beat hand" is an acute inflammation of the subcutaneous tissue of the palmar surface of the hand and fingers, without history of injury, infection taking place through a slight abrasion often quite unnoticed. The course depends on its treatment, neglected cases often leading to a general septic condition of the hand. On the average 700 to 800 cases are reported each year. The treatment is that of any acute infection of a mild nature. Beat elbow, knee and buttock are similar conditions. He continues to discuss tenosynovitis of the wrist, and miners' itch or rash. This last consists of an erythematous or pustular eruption over areas chiefly exposed to coal dust and other sources of irritation. It occurs in certain pits or seams far more frequently than in others. In concluding his lecture, Shufflebotham discusses the Workmen's Compensation Act and further legislation needed to protect the miners' health. [J. B. H.]

Berliner Klinische Wochenschrift.

No. 6. February 9, 1914.

1. *Vulpius, O. *A New Bone Operation for Paralysis of the Forearm.*
2. Söderbergh, G. *Some Remarks on the Localization of Tumors of the Spinal Cord.*
3. Chaser, E. *An Epidemic of Poliomyelitis in the Spring of 1912 in Lindaas, Norway.*
4. Pfeiffer, H. *The Hypophysis and Its Active Elements.*
5. *Gilbert, F., and Siegfried, K. *Mesenteric Thrombosis in a Case of Latent Phlebosclerosis of the Portal Vein.*
6. Halberstaedter, L. *Experimental Work on the Effect of Radium on Trypanosomes.*
7. Piorkowski. *Experiences with the Serum Diagnosis of Cancer.*
8. Proskauer, A. *Chromophile ("Chromatophore") Cells in the Nasal Mucous Membrane.*
9. Rothfeld, J. *The "Oto-Ophthalmotrop," a New Instrument.*
10. Lazarus, P. *Present Status and Future Aims of Radium—and Mesothorium—Therapy.*

1. In order to overcome the pronation which ordinarily results from both flaccid and spastic paralysis of the forearm, and thus to enable the patient to perform acts otherwise impossible, such as putting a fork or spoon into the mouth, Vulpius has devised two operations for fixing the bones in a position midway between pronation and supination. The first consists in turning a bone flap across from the radius and suturing it firmly to an area on the ulna which has been denuded of periosteum, following which procedure the arm is held fixed for ten weeks. The other method is to use a graft from the tibia, the principle of the operation being the same as in the first-mentioned. The author has been successful in both methods, and the patients have been able to do much more with the arm.

5. This is an unusual and interesting case,—a man of 40, in presumably perfect health, strong and rugged, was seized with violent cramps in the upper abdomen, with no temperature, no spasm or tenderness, no palpable tumor, no mass of any sort, and no vomiting till just before death, which occurred in collapse three days after the onset. Perforating ulcer and obstruction were ruled out, and though it seemed in some respects like tabes, the history was negative for lues. The whole case was very obscure. He was not operated on because the indications were not at any time clear, and when he began to go into collapse it was too late. Autopsy revealed gangrene of about one meter at the upper end of the jejunum, with fresh mesenteric thromboses in the radicles of the superior mesenteric vessels supplying this part of the gut, and an old chronic proliferative pylephlebitis. This condition has been reported several times before, and its etiology is obscure. In this case the mesenteric thrombosis was directly due to the process in the portal vein. [R. H. M.]

No. 7. February 16, 1914.

1. Koch, J. *Investigations on the Localization of Bacteria and the Changes in Bone and Bone-marrow in Infectious Diseases in Childhood. (To be continued.)*
2. *Schüller, H. *The Effect of Radium on Tumors of the Spleen.*
3. Neumann, W. *The Cure of Complete Cleft Palate.*
4. Lehmann, R. *Acute Otitis Media with Secondary Meningitis and Paralysis of the Abducens Nerve.*
5. Braun, H. *Trypanosome Infections of Animals in German East Africa.*
6. Teichmann, E. *Experiments in the Transmission of Trypanosomes by the Glossina (Tsetse Fly).*
7. Rabinowitsch, M. *The Etiological Factor of Smallpox.*
8. Possek, R. *"Embarin" as a Therapeutic Agent in Ophthalmology.*
9. Wechselmann, W. *The Study of the Importance of Having the Proper Aqueous Vehicle for Salvarsan.*
10. Davidsohn, F. *Technic of Radium Treatment of Deep Tissues.*
11. Thomsen, O. *Experiments in Poliomyelitis.*

2. Schüller reports 4 cases of splenic tumor—2 of myelogenous leukemia, 1 of Banti's disease, and 1 of "aleukemic adenomatosis,"—treated by radium, mesothorium and rademanit, with distinct improvement in every case. The splenic tumor not only decreased in size, but the blood picture was more nearly normal and the general symptoms were alleviated. In the case of Banti's disease splenectomy was done following marked shrinkage of the spleen after the radium treatment. Besides claiming for radium the qualities above mentioned, the author states that it is active in cases where the Roentgen ray has failed; and that it causes so much decrease in the size of the spleen that it is a valuable measure to precede splenectomy. [R. H. M.]

Wiener Klinische Wochenschrift.

No. 2. January 8, 1914.

1. Elias, H. *Irritability of Nerves in Relation to Acids.*
2. *Kroiss. *Conservative Operation for Intermittent Hydronephrosis.*
3. v. Massari and Kronenfels, G. *Surgical Experiences from the Two Balkan Wars.*
4. Ruppert, L. *Cranial Heteroplastic Surgery with Celluloid; a Result of Twenty Years' Duration.*
5. Moczuiski, J. *Clinical Observations on the Inhalation of Tincture Strophanthus in Cardiac Insufficiency.*

2. The author states that the functional capacity of injured kidney tissue is usually very much underestimated and therefore leads to nephrectomy in cases where a conservative operation might restore the function of the organ. This is true especially in cases of intermittent hydronephrosis and pyelonephrosis, in which an operation establishing free drainage removes the pathological condition and restores normal function of the organ. The technic is difficult, but not impossible. He cites a number of operated cases with restored function, and no untoward secondary complications. Radical nephrectomy should be undertaken in his opinion only after an attempt and failure of the conservative, or in cases where the kidney parenchyma is so far destroyed as to make it useless. [F. S. K.]

No. 3. January 15, 1914.

1. Goldschmidt, W., and Philipowitz, N. *The Bassini Operation.*
2. *Stolper, S. *Atropin Treatment of Dysmenorrhea.*
3. Englemann, G. *The Relation Between Left Scoliosis in Infants and the Position in Which They are Carried.*
4. Ettinger, W. *Three Cases of Malaria with Unusually Severe Symptoms.*
5. Fruhwald, V. *Two Cases of Perichondritis of the Thyroid Cartilage.*

2. The author explains the failure of atropin treatment in certain cases of dysmenorrhea by their etiology. He distinguishes two groups of dysmenorrhea, those that show definite vagotonic symptoms, in which the blood pressure is normal or nearly so; those that show no vagotonic symptoms, but rather circulatory disturbances, with an increase in blood pressure. In the first group atropin is of use; it fails in the second. These must be treated according to the underlying cause. [F. S. K.]

Obituary.

CHARLES PICKERING PUTNAM, M.D.

Dr. Charles Pickering Putnam, who died on April 23 last in his seventieth year, was born in Boston September 15, 1844. He was the son of Charles Gideon Putnam, M.D., and Elizabeth Cabot Jackson, both of Boston, and grandson of Dr. James Jackson. He graduated from Harvard College in 1865 and from the Harvard Medical School in 1869; continued his medical studies for a time in Germany, and began the practice of his profession in Boston in 1871. Since that time he had carried on a general practice, though for many years he made a specialty of pediatrics and did some excellent pioneer work in orthopedics. He was a lecturer at the Harvard Medical School on diseases of children from 1873-75 and a clinical instructor on that subject 1875-79. He served the Boston Dispensary as district physician from 1871-1873 and as orthopedic surgeon 1873-76. In 1898 he was elected president of the American Pediatric Society.

Dr. Putnam had been since the beginning of his practice of medicine a leader in charitable and social work,—almost from the beginning the most important leader of such work in Boston, the first to take hold and the last to let go of each new and important enterprise.

Dr. Putnam was one of the founders, in 1873, of the little-known but extremely important Boston Society for the Relief of Destitute Mothers and Infants, which was a pioneer in establishing the policy of keeping mother and child together, and was president of the society from 1904 until his death. In 1875 he became physician to the Massachusetts Infant Asylum, and from 1898 to 1910 he was also president of the board of trustees. The ordinary death-rate in such institutions was at that time something over ninety per cent. a year. The Massachusetts Infant Asylum had already brought the rate down to less than a quarter of that figure when Dr. Putnam became connected with it, and he by his skill and devotion again reduced it by two-thirds or more. He was one of those who in 1879 took part in the movement for establishing the Associated Charities, the second charity organization society in this country: and he was always one of the sustaining members of that society in the real, not the conventional, sense, working in many capacities, as president of a conference, as director, as chairman of many committees, including the present important one on inebriety, and, since 1907, as president.

From 1892 to 1897 Dr. Putnam took a leading part in the very important movement for the reorganization of the Boston Institutions for the care of prisoners, of the poor, and of poor, neglected, and delinquent children, being on the special committee appointed by Mayor Matthews in 1892, chairman of the board of visitors of 1893-94, chairman of the standing committee on pauper institutions of the advisory board appointed by Mayor Quincy in 1896, a steady fighter for the reorganization bill of 1897. When the new system of separate unpaid boards of trustees was established he was appointed a member of the Board of Children's Institutions, and was its chairman from 1902 to 1911, performing in that capacity a great and harassing, though invisible and unappreciated, service to his fellow-citizens.

Dr. Putnam was among the earliest supporters of Dr. James R. Chadwick in founding the Boston Medical Library, of which he was an original member in 1875, an incorporator in

1877, and which he served upon important committees until his death. He helped to organize and carry on the Directory of Nurses. He was active in the campaign against tuberculosis and a director of the Mental Hygiene Association. He was one of the first to take up broad social questions from the legislative end, was the first experienced charity worker to enlist in the Massachusetts Civic League, and helped secure the establishment of the State Board of Insanity, the taking over of the Boston Insane Hospital by the state, medical inspection in the public schools of Massachusetts, playgrounds, better probation service, the juvenile court, better laws dealing with tramps, with drunkards, and many others.

In short, Dr. Putnam was for a generation the backbone of social work in Boston. We have all looked to him to do the hard things—to take up the new line at which the timid balked and which the unimaginative could not see, sustaining the old from which the glamor had worn off, stiffening up the weak places, making the hard decisions. He was here, as in all things, a man to accept responsibility, take the burden on himself, and carry it,—a patient and successful physician to the community as well as to the child.

Dr. Putnam's most distinctive characteristic was the power of enlistment. In each of the many services he undertook it seemed to those he served and to his fellow workers as if that must be the only thing he had to do. There are in every enterprise the helpful men, the wise, the brilliant men, the steady workers. And then there are the essential men, those without whom the thing will not be done. In an extraordinary number of instances Dr. Putnam was among these last. Whatever happened, however badly things might go, whoever else became lukewarm or discouraged, his associates knew that he, at least, would see the thing through, that he had enlisted for the war, intended doing as much, be it more or less, as might be necessary. The time at his disposal seemed always to be infinite, and he had no observable bias as to hours. There is no evidence, known at least outside his immediate family, that he ever ate or slept, and three in the morning was apparently the same to him as three in the afternoon.

Dr. Putnam was a remarkably resourceful man and would reconstruct his patients' world, physically as well as morally, by his calm assumption that anything needed could be done, and in hundreds of cases by doing the most impossible parts himself. Slower minds thought him slow at laying the first brick, whereas he had completed the whole structure in imagination, and was hesitating what kind of chimney-pot to use.

Dr. Putnam had a fairy godmother quality, as many of us know. I remember on my first visit to his much-loved shanty in the Adirondacks I came to believe that if, when walking up a mountain, you happened to want anything, from a piece of maple sugar to a volume of Shakespeare or a box of paints, you had only to look under the nearest stump and you would find that Dr. Putnam had anticipated exactly that need at that particular spot.

To many of those who saw him, Dr. Putnam's impersonation of the policeman at the Charity Workers' ball a year or two ago (I personally took him for a real cop), and of the very "disturbed" patient who brought down the house upon the same occasion, was a revelation of an unsuspected quality. His sense of humor, indeed, lived always just beneath the surface. I once saw him "cure" a small child's hands by putting on them a couple of envelopes as mittens.

And the best was the power behind it all in the great kind heart, that would see and know only the best, and, with a quality like the sun, could see only light wherever it was turned.

MEMORIAL.

DR. CHARLES PICKERING PUTNAM.

THE committee on library and finance of the Boston Medical Library, at its regular meeting on Monday, April 27, desires in behalf of the Library to place on record an expression of its profound sense of the great loss the Library has sustained through the death of Dr. Charles Pickering Putnam, which took place after a brief illness on Wednesday, April 22.

Dr. Putnam was one of the five surviving charter members of the Library, and the only one who had served it continuously from the time of its incorporation in 1877. He was a member of the executive committee and of the committee on library and finance from the beginning of the Library. In 1879 a committee was appointed to provide for the registration of nurses at the Library. Dr. Putnam was one of the two constituting this committee and continued this service, latterly alone, with rare persistency and self sacrifice up to the present time. He had served on other committees at one period and another, and at the time of his death was the second member of the library committee, of which the librarian is the chairman. He was not only a member of committees but, notwithstanding his various occupations, was diligent in attendance and in the discharge of duties.

Dr. Putnam's service to the Medical Library from the point of view of continuity and devotion is peculiarly comparable with his service to the Associated Charities of Boston, which he helped to establish in 1879, to incorporate in 1881, of which he was vice-president from 1881 to 1907, and president from 1907 to the present.

Dr. Putnam's highly useful and unselfish activities were extended in many directions, in

all of which they were much appreciated and will be greatly missed.

Resolved, That this memorial expressing our sense of loss at the death of our colleague be spread upon the records of the Library and that copies be sent by the secretary to the family of Dr. Putnam and to the BOSTON MEDICAL AND SURGICAL JOURNAL.

Miscellany.

AMERICAN SOCIETY FOR CONTROL OF CANCER.

A PUBLIC meeting was held in St. Louis on Friday evening of last week, May 1, by the American Society for the Control of Cancer in conjunction with the St. Louis Medical Society.

"The general subject of the evening was 'The Prevention and Control of Cancer.' Hon. Charles Nagel, formerly Secretary of Commerce presided and his introductory remarks dealt with the importance of educating the public in regard to this disease. The first address was given by Frederick L. Hoffman, LL.D., statistician of the Prudential Insurance Company of America, whose subject was 'The Menace of Cancer.' He was followed by Dr. William F. Rodman of Philadelphia who discussed the prevention of cancer by the correction or removal of irritated parts, the control of cancer by early recognition and treatment, and the value of radium as compared with surgery.

"Dr. Leo Loeb, vice-president of the International Association for Cancer Research, explained the importance of cancer investigation and research, and Curtis E. Lakeman, executive secretary of the American Society for the Control of Cancer, described the purpose and plans of this national organization and the educational methods employed."

Similar educational meetings have already been held in New York, Chicago, Pittsburgh, and Portland, Me., and others are to be arranged for in Boston and New Orleans.

"The Cancer Society has recently made special efforts to enlist the coöperation of nurses and nurses' organizations in its work. It is believed that the instruction of nurses as to the essential facts in regard to cancer, particularly in women, will be of special value in leading to a more general dissemination of information in regard to the symptoms, diagnosis, treatment and prevention of this disease, and the great importance of early recognition and operation. A circular letter was sent to all nurses' training schools, clubs and settlements in New York City, asking that lectures to nurses on this subject be arranged. Favorable responses were received and recently the first of a series of meetings and lectures for nurses was held at the Henry Street Settlement, of which Miss Lillian D. Wald is head worker. About eighty nurses of the settlement staff were present. Another meeting will be held in May for the benefit of the several hundred visiting nurses of the New York City Department of Health.

"These facts have been submitted by the Cancer Society to the three national nursing organizations now meeting in joint convention at St. Louis, namely, The American Nurses' Association, The National League of Nursing Education, and the National Organization for Public Health Nursing, and the official coöperation of the nursing profession throughout the country is hoped for."

TRANSFER OF SURGEON-GENERAL'S LIBRARY.

AT a stated meeting of the committee on library and finance of the Boston Medical Library, held April 27, 1914, said committee having under its by-laws entire charge of the finances and of the management of the Library, it was,

Resolved, That the Boston Medical Library, a duly incorporated institution of Massachusetts, having a membership of 700 physicians in Greater Boston, funds amounting to over $500,000, and a library of 80,000 volumes and 56,000 pamphlets, having learned of the proposed amendment to the Army Appropriation bill that passed the Senate March 28, 1914, providing for the transfer of the library of the surgeon-general's office to and to become a part of the Library of Congress, wishes hereby to express its opposition to this amendment because the library of the surgeon-general's office comprising the largest collection of medical and surgical books in existence is, with its index catalogue, an inexhaustible mine of scientific information which through the liberal policy observed in the past, has been at the service of the entire medical profession of the United States. Merging the library with the Library of Congress could not fail to destroy its identity and to injure its usefulness to the medical profession of the country. The Boston Medical Library has in the past had frequent recourse to the national library to provide its research scholars with books not in our collection, and has looked to it as the repository from which comes all that is best in medical literature. Therefore, the Boston Medical Library is unalterably opposed to the proposed transfer, and hopes that the amendment will not become law.

The Appropriation bill is now in the hands of the conference committee of the Senate and House, and may appear in the House for action at any time.

It was therefore voted that copies of this resolution be sent to the following: Hon. Henry Cabot Lodge, Hon. John W. Weeks, Hon. Andrew J. Peters, Herbert Putnam, librarian of congress; Surgeon-General, U. S. A.; Dr. Fielding H. Garrison, assistant librarian; Hon. James Hay, chairman committee on military affairs, House of Representatives.

A letter received since the above was printed, from Hon. James Hay, chairman committee on military affairs, says that the Senate amendment to the Army Appropriation bill providing for the removal of the Surgeon-General's Library to the Library of Congress was defeated. This news is confirmed in a letter from Senator John W. Weeks, dated April 30, whereas Senator Lodge wrote April 29 that he had taken up the matter with the committee in charge, but without result. Therefore it would seem that the library's protest arrived in Washington at an opportune time.

ILLINOIS STATE CIVIL SERVICE COMMISSION.

NOTICE OF EXAMINATION.

Applications must be on file in Springfield before 5 p. m., May 13, 1914.

Examinations will be held Saturday, May 23, 1914, at each one of the State Charitable Institutions where applicants appear, for the following positions:

GRADUATE NURSE.—Class B, Grade I. Open to men and women between ages of 21 and 45 years. Salary $40 to $55 per month with full maintenance. In this grade are all positions in hospitals for the insane, the duties of which involve the care of patients under the supervision of the Chief Nurse and the medical staff, together with the direction of Attendants when necessary; requiring education equivalent to graduation from a nurses' training school in an Illinois State Hospital for the Insane. Scope and weights: training and experience, 3; technical knowledge of nursing, 7.

MALE SUPERVISING NURSE.—Class B, Grade II. (*Promotional only.*) Open to employes who have served six months in Class B, Grade I, prior to examination, are on leave of absence, or are eligible for reinstatement. Salary $50 to $70 per month with full maintenance. The duties, under the supervision of the Chief Nurse and medical staff, involve the general overseeing of the Nurse and Attendant force, caring for the patients in a portion of an institution; requiring at least six months' experience as a Graduate Nurse and some administrative ability. Scope and weights: special subject, including questions on administrative duties and practical nursing, 8; seniority, 1½; efficiency, 1½.

Requests for information and application blanks should be addressed to W. R. Robinson, Chief Examiner, State Civil Service Commission, Springfield, Illinois.

NOTICES.

CONFERENCE ON THE STUDY OF EXCEPTIONAL CHILDREN IN OUR PUBLIC SCHOOLS.

Friday, May 1, 3 p. m., Assembly room (third floor), Psychopathic Hospital. "Methods of Studying the Exceptional Child." Dr. Yerkes and Dr. Puffer.

Friday, May 8, 3 p. m., Assembly room (third floor), Psychopathic Hospital. "A Study of Typical Cases," Dr. Puffer, Miss Hardwick, and Mr. Bridges.

BOSTON MEDICAL LIBRARY.

At the meeting of the Committee on Library and Finance of the Boston Medical Library April 27, the Directory for Nurses was placed in charge of the House Committee of the Library, the late Dr. C. P. Putnam having been a single sub-committee having the care of the directory.

Dr. Edward C. Streeter was appointed a member of the Committee on Library and Finance to fill the vacancy caused by the death of Dr. Putnam, and was assigned to the sub-committee on the Library.

SOCIETY NOTICES.

THE AMERICAN GYNECOLOGICAL SOCIETY.—The thirty-ninth annual meeting of the American Gynecological Society will be held in Boston Tuesday, Wednesday and Thursday, May 19, 20, 21, 1914. The scientific sessions of Tuesday and Thursday will be held at the Boston Medical Library and of Wednesday at the Country Club, Brookline. The headquarters of the Society will be at the Harvard Club, Boston.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—The sixty-fourth annual meeting will be held at the New American House, Hanover Street, Boston, on Tuesday, May 12, 1914. The business meeting will be at 5.30 p. m. and dinner will be served at 6.30. Tables seating eight will be used and members may arrange parties. Dinner tickets may be obtained from the secretary for $1.00 each. All members are urgently requested to pay their annual assessment of $5.00 at this meeting or forward it to the treasurer instead of making payments at The Massachusetts Medical Society meeting in June.

The Board of Censors will meet for the examination of candidates on Thursday, May 14, at 2 p. m., at Roxbury Masonic Temple, 171 Warren Street, Roxbury.

BRADFORD KENT, M.D., *Secretary.*

RESIGNATION.

Dr. Frederic M. Briggs has tendered his resignation as Professor of Surgery and Secretary of the Faculties of Tufts College Medical and Dental Schools, to take effect September 1, 1914.

RECENT DEATHS.

DR. HIRAM LUCE CHASE, who died on April 24 in Cambridge, Mass., was born at Boston in 1825. He received the degree of M.D. from the Harvard Medical School in 1846, and ever since that time had practised his profession in Cambridge. He was a member of the American Institute of Homeopathy and of the Massachusetts Homeopathic Medical Society. He is survived by one son, also a physician.

DR. WILLIAM J. O'REILLY, who died on April 24 in Roslindale, Mass., was born at Charlestown, Mass., in 1859. He studied medicine in New York and received the degree of M.D. in 1883 from Bellevue Hospital Medical School. He practised his profession for several years at Waltham, Mass., and then removed to Roslindale. He was a former member of The Massachusetts Medical Society.

DR. O. O. ROBERTS, who died on April 26, in Northampton, Mass., was born at Lyndon, Vt., in 1829. He received the degree of M.D. in 1853 from the Hahnemann College, Philadelphia. He settled at Northampton in 1857, and was the first president of the Western Massachusetts Homeopathic Medical Society.

DR. CHARLES EDWIN SANFORD, who died on April 26 at Bridgeport, Conn., was born in 1830. He received the degree of M.D. in 1853 from the Yale Medical School, and settled at Bridgeport in 1859.

DR. HARRY ATHERTON SMITH, who died on April 27, at West Roxbury, Mass., was born in Auburn, Me., on June 23, 1866. He graduated in 1886 from Colby College, and in 1890 received from the Bowdoin Medical School the degree of M.D. After serving as house physician at the Maine General Hospital, Portland, he practised his profession at Livermore, Me., for eight years, until he removed to West Roxbury in 1899. He was a former Fellow of The Massachusetts Medical Society.

Original Articles.

ON TERRITORIAL AUTONOMY IN CEREBRAL CIRCULATION AND ITS RÔLE IN THE GENESIS OF SYMPTOMS IN THE PSYCHONEUROSES.*

By J. W. Courtney, M.D., Boston.

In a paper on hysteria read before the American Neurological Association June 20th, 1884, Dr. Walton[1] makes the following statement; "Just what changes occur in the brain in hysteria, we do not know, and are not likely to decide for some time, but it will not be inappropriate, as bearing on the connection between hysteria and the ovaries, to present a few arguments here in favor of the vasomotor theory, by no means as underlying all hysteria or hysterical symptoms, but as best explaining that set, at least, of so-called hysterical cases in which hemianesthesia is the principal symptom.....

"It has been urged that the changes in cerebral activity, giving rise to these and all other hysterical symptoms, are dynamic, and not susceptible of explanation by so simple a physical phenomenon as contraction and relaxation of blood-vessels. To me, however, the explanation implicating the blood-vessels is by far the most satisfactory provided it meets all the requirements, and this it seems to do in at least the class of hysterical patients under consideration, ...; the sudden loss of function of the cortical cells of half the brain, as seen, for example, in hemianesthesia, may easily be imagined to supervene suddenly upon a more or less completed contraction of cortical blood vessels on that side from irritation of the sympathetic system in some part of the body. Loss of function would in this case persist as long as the contraction of vessels so continued, and at the same time the nerve cells would be ready to take up their duties instantly with the return of blood through cessation of the vascular spasm.....

"This theory by no means limits the cerebral disturbance to one side of the brain, nor on the other hand does it preclude a limitation of the vasomotor change to a small part of the cortex, as, for example, to that concerned in particular motions or sensations. At the same time it well explains the tendency of the symptoms to spread over an entire half of the brain and hence, of the body. To explain the predominance of sensory over motor symptoms, or the opposite, we have only to suppose the vascular spasm more complete over one than over another portion of the cortex."

In the discussion which followed the reading of the paper, the speakers, in the main, dissented from Dr. Walton's theory, but nobody brought forward the only insurmountable objection that could validly be raised to it, namely, that Dr. Walton's assumption of the existence of cerebral vasomotor nerves was entirely unsupported by any physiologic or anatomic researches up to that time made.

The history of the cerebral vasomotor nerves forms, to my mind, one of the most curious chapters in physiologic literature. As late as 1890. Sir Michael Foster,[2] in the third edition of his text book on physiology, says: "Moreover the flow of blood to, and consequent change in the bulk of the brain, as measured by the venous outflow, may be modified independently of changes in the general blood pressure. For instance, stimulation of the motor region of the cortex quickens the venous outflow, without producing any marked change in the general blood pressure; *this feature becomes very striking at the onset of epileptiform convulsions* when these make their appearance. It is difficult not to connect such a result of unctional activity with some special vasomotor nervous arrangement comparable to that so obvious in the case of a secreting gland."

From 1890 to 1897 no noteworthy contribution to the literature of the nerves in question was made. In the latter year Hill and Bayliss,[3] after much elaborate and painstaking experimental work came forward with the following ultimata:—first, that no evidence was found by them of the existence of cerebral vasomotor nerves, either by means of stimulatoin of the vasomotor centre, or central end of the spinal cord after division of the cord in the upper dorsal region, or by stimulation of the stellate ganglia—in other words, by stimulation of the whole sympathetic supply to the carotid and vertebral arteries; second, that evidence is not forthcoming of the existence of any local vasomotor mechanism; and third, that the cerebral circulation in normal conditions passively follows the changes in the general arterial and venous pressures.

Curiously enough, in the self-same year, Obersteiner,[4] by means of the gold-and-sodium chloride stain, was able to demonstrate the presence of vasomotor nerves in even the finer cerebral vessels. Hill[5] had admitted the presence of undoubted muscular tissue in the vessels of the pia, but Obersteiner[6] went a step farther and, having pointed out the presence of a fully developed muscular media in all intracranial vessels, down to the finest subdivisions (Uebergangsgefässe) regarded this finding as sufficient evidence in and of itself of their innate power of independent contraction and dilatation. He laid great stress, however, on the ease with which the cerebral vasomotors became paretic and lost their power to respond at a time when those of other organs responded readily.

During the next year the published work of both Gulland[7] and Morison[8] abundantly confirmed Obersteiner's observation, and the existence of a special cerebral vasomotor apparatus

* Paper read before the Boston Society of Psychiatry and Neurology, Feb. 19, 1914.

seemed to be an established fact. There have been subsequent observations made in this same field although they are relatively few in number. In the main they substantiate the opinions of Obersteiner, Gulland and Morison. Four in particular are interesting by reason of the method employed. As you probably well know, it is now an almost universally accepted fact among physiologists that a positive reaction to adrenalin is a trustworthy proof of the existence and nature of the sympathetic nerves of an organ, and in the four instances just alluded to, the adrenalin test was made. Spina[9] found, after intravenous injection of adrenalin extract, that the cerebral vessels were markedly dilated; to such an extent, indeed, that, with an incised dura, a hyperemia sufficient in degree to cause a brain prolapse could ensue. By direct application of the same substance to the same cerebral vessels, Biedl and Reiner[10] found that these vessels could be brought into a state of contraction, but they also noted that when the pressure increase in the general circulation had become established, the brain anemia gave way before the general high blood-pressure.

Protopopoff[11] noted that either immediately or within a few seconds after the intravenous injection of adrenalin, a very marked arterial anemia followed and continued for from two to five minutes according to the dose employed. If the latter were large, the anemia was followed by a hyperemia of shorter duration. At times the effect produced was undulatory in character, that is to say, successive cycles of anemia and hyperemia to the number of three or four were observed. The venous circulation of the brain was either not affected at all or showed merely a slight stasis. It is Protopopoff's opinion that only the capillaries contract and that the calibre of the visible arteries is not changed. This contraction he looks upon as the result of the direct action of the adrenalin upon the vessel walls rather than of excitation of the bulbar vasomotor centre. To this same contraction rather than to increased cardiac energy he attributes the heightened blood-pressure. Adrenalin introduced into the stomach, he found to be absolutely inefficacious.

The last observation to be mentioned, that of Wiggers,[12] is the most noteworthy. Before making his experiment this author carefully considered all possible sources of technical inaccuracy, and ingeniously contrived to eliminate them. His experimental material was the decapitated head of a large dog. His conclusions are as follows:—

"1. By perfusing the isolated brain under constant temperature and pressure with a suitable solution and continuously recording the entire venous outflow, the effect of influences which alter the size of the brain vessels can be definitely ascertained.

"2. The application of adrenalin solution to such a preparation in such a way as not to introduce factors themselves conducive to outflow change, caused reactions which corresponded to those obtained from the vessels of other regions.

"3. These reactions, if induced through the stimulation of vasomotor nerve ends, as claimed by certain workers, supply physiological evidence of the existence of such nerves."

In spite of certain rather marked discrepancies in the results obtained by the observers quoted, it seems to the writer that the bulk of the evidence unquestionably establishes the existence in the brain of a "special vasomotor nervous arrangement comparable to that so obvious in the case of a secreting gland."

When we take into consideration the highly differentiated functional value of the various brain areas and the wide variations in degree within which certain of these areas, either singly or in groups, are from moment to moment called into activity, while others either adjacent or remote, are practically quiescent, it is impossible to believe that the cerebral circulation passively follows the changes in the general arterial and venous pressures. Not only in the secreting glands but elsewhere throughout the economy, Nature has provided for local activity and local rest—in other words, for local waste and repair —in the form of circulatory autonomy. And it is entirely incredible that having thus endowed the vegetative organs, for example, she should freakishly have turned her back upon the brain.

In 1899, in a paper[13] on traumatic cerebral edema, I exploited what I believed to be the rôle played by the cerebral vasomotors in the production of this pathologic condition. At that time I was quite unaware that Dr. Walton had advanced the theory that these same nerves were the medium through which hysteric symptoms came into being. I was equally ignorant of the existence of his theory when the present paper —the outcome of long and careful independent consideration of the subject under discussion— was begun. It gives me, therefore, the greatest pleasure to announce at this time that, so far as the views about to be set forth relate to the pathology of hysteria, they are, in essence, identical with those published by Dr. Walton in 1884.

Directly we establish the existence of the power of independent dilation and contraction on the part of the vessels of the brain, we may logically assume that that organ, in common with other parts of the economy provided with an identical autonomic circulatory apparatus, receives, under normal circumstances, a supply of blood nicely proportioned in quantity to the functional activity of the moment. And when we consider that this activity is a constantly changing one with regard to both area and intensity, I think we may carry our assumption farther and safely postulate the existence of a territorial autonomy in cerebral circulation.

Physiologically, we have presumptive evidence of it on every hand. For example, when the muscular system is practically in a condition of absolute rest and the mind is intensely absorbed

in study, it is unbelievable that the Rolandic area and those which govern certain of the special senses, notably hearing and smell, are each receiving at the same time an amount of blood equivalent to that circulating through the prefrontal region of the cortex. It is equally unbelievable that in the cortex of a person walking along with hands in pockets, deeply engaged in pondering some perplexing problem, an equal volume of blood is passing through the prefrontal lobes and those which preside over the inert upper extremities and the automatically acting lower respectively. If it were necessary, examples of this sort could be multiplied almost indefinitely.

Pathologically, we have two forms of presumptive evidence of the existence of cerebral territorial circulatory autonomy—direct and indirect. The first is clearly manifest when the cranium is opened and certain portions of the cortex observed in cases where the brain has been contused by a diffused traumatizing force. Here one not infrequently finds in the absence of all discoverable pressure from within or without, cortical areas that are absolutely pulseless side by side with others which are pulsating normally. This fact, striking as it is, is easily paralleled in significance by the experience of surgeons who are constantly discovering, even in exploratory operations upon non-traumatized brains, that anything beyond the most gentle manipulation of the cortex is followed by cessation of pulsation in the regions palpated.

Indirect evidence on the point in question is derived from observations in regions other than the brain whose vessels are supplied by the autonomic system. Here, for the sake of brevity, will be mentioned only the striking and common examples of morbid local autonomic function, namely, isolated congestion of the ears, spontaneous ecchymoses upon the surface of the extremities, spontaneous edema and the various forms of akroasphyxiation. The last-named term is to be taken in its broadest sense and is meant to include manifestations ranging in severity from the more or less permanently cold and mottled extremities and the so-called dead fingers of the neurotic to the gangrene of the victim of Raynoud's disease.

The evidence thus far adduced may fail to bring about a universal admission of the existence of an autonomic, particularly of a territorially autonomic cerebral circulatory system. But it seems to me only fair to maintain that the facts brought forward in the hope of inducing belief in its existence are, to say the least, quite as material as those which underlie many of the generally accepted beliefs of neurologic and psychiatric science. And when it comes to a concrete conception of the pathologic substratum of the clinical phenomena observed in those nervous states broadly termed neuroses and psychoneuroses, it seems to me infinitely more scientific and more in harmony with the terms of pathology to designate it as a cerebral vasomotor ataxia, than to evade the issue with purely psychologic abstractions. When one speaks, for example, of hysteria as a dissociation of the personality, a limitation of the field of consciousness or a conflict in the unconscious it is tantamount to a begging of the question—to an attempt at explaining a pathologic process by a single symptom chosen arbitrarily from the great symptomatic complex to which the process gives rise.

The direct and absolute relationship of vasomotor activity to the normal functioning of a part has never been more strikingly shown than in the experimental work of Cannon[14] upon the alimentary canal of animals. This observer found that not only were the secretory activities of the stomach affected by the stronger emotions but that the movements of the stomach and, indeed, of almost the entire alimentary tract as well, were wholly stopped during excitement. If we had no other facts upon which to base an analogy it seems to me that Cannon's findings, in and of themselves, warrant the assumption that the disordered brain function underlying hysteria, is directly traceable to changes in vascular tension.

The mode of onset, the distribution and the general behavior of hysterical symptoms all accord with such a view. In the emotionally induced crises we see very clear evidence of the varying degrees with which different brain areas respond to the change in vascularity. Beginning with the small facial muscles the motor excitement affects progressively more numerous muscles and larger muscles and finally ends in sardonic laughter and violent contortions. When the motor storm is over we discover the havoc wrought in the vasomotors of certain brain areas by the pathologic stimulation of the emotion. This is usually in the form of anesthesia distributed in disseminated islets or involving an entire half of the body; of mono- or hemi-plegia, a contracture of a limb or an abolition of function of one of the sense organs. Nothing could more clearly indicate a territorial vasomotor paresis than this.

The same paresis is manifest when one or more of the above phenomena appear, as is sometimes the case, without any preceding emotional storm, and it is here that the notion of territorial circulatory autonomy gets its strongest support.

Phenomena in the intellectual sphere, such as changes in the personality, are explainable, I believe, on precisely the same ground. In recorded cases where hysterics have, through successive retrograde changes, dropped from the intellectual level of adult life to that of infancy, the extent of degradation noted in the successive changes is probably directly proportionate to variations in local vascular tension. If we seek for analogous phenomena elsewhere in brain pathology, we find them in the retrograde mental changes accompanying the cerebral anemia of atheroma and syphilis. In the two latter dis-

eases, to be sure, the anemia which produces intellectual retrogradation leads also to cellular decay. And it may properly be objected that no such cellular decay is found in hysteria. In the great majority of cases cellular decay is of course absent, because the extreme variations in the tension of the brain arteries in hysteria are almost never of sufficient duration to permit of such a pathologic process. That this is not universally the case, however, I hope to show in a subsequent paper where I shall report the complete microscopic findings in the brain of a case of hysteria of unquestionable genuineness.

Cellular degeneration does not take place in those brain areas whose perturbation of function is manifest by the so-called permanent stigmata, which, incidentally, are always sensory or sensorial in character; or by such apparently more or less persistent phenomena as hemiplegia, monoplegia and contracture, because these phenomena are in reality intermittent and do not persist during sleep.

It might pertinently be asked upon what grounds the rather wide variations in cerebral vascular tension, which are assumed to regulate the variations in the severity of the hysterical phenomena, are based. In reality, it is based in part upon the experimental work, particularly that of Protopopoff, quoted above, and in part upon analogy, since precisely the same variations are manifest in the akroasphyxiations where widely varying degrees of intensity of vascular spasm are betrayed, as has been said, by coldness and mottling of the skin, by the so-called dead fingers, by akrocyanosis and by actual gangrene. Analogous variations may also be found in the case of the stomach and bladder during states of emotional excitement.

Edema of brain tissue consequent upon vasomotor ataxia probably rarely ensues on account of the transitory character of the ataxia and the really moderate degree to which the ataxia is probably in most cases limited. In the rare cases in which it might occur it would naturally be limited in distribution and readily carried off through the sinuses.

The physiologic and pathologic principles above set forth seem to the writer to apply with equal force to the interpretation of the clinical manifestations of epilepsy and migraine.

In the former disease the territorial defects in arterial functioning are clearly manifest in spasms confined to limited groups of muscles and to sudden changes in the personality. The more diffused effects of vasomotor ataxia are probably responsible for the grand mal attacks. The difference between epilepsy and hysteria, pathologically speaking, lies in the degree of activity rather than in the nature of the provocative agent.

The same statement is also undoubtedly applicable to the relationship between the above two diseases and migraine. In the last named the vascular spasm is peculiarly territorial, as ophthalmoscopic examination made during the attack would seem to indicate. Parisotti,[15] for example, had the opportunity of making such an examination and found that, with the loss of the lower field of vision, there was marked narrowing of the arteries of the upper half of the retina, with normal calibre of those of the lower half. Subsequent to the attack the spasm had disappeared.

Quaglino[16] found narrowing of the calibre of the retinal arteries during attacks of scintillating scotoma lasting from five to fifteen minutes, during which there was transitory loss of vision, with bright elliptic figures bounded above by a radiating halo.

Seagrist[17] observed marked narrowing of the retinal arteries on the side of the hemicrania during the attack and was able to corroborate the observations during a second attack.

To those who welcome the abstruse, the nebulous and esoteric in theories concerning the pathology of the psychoneuroses, so simple a conception as that of a territorial vasomotor ataxia will make no appeal. There are, however, certain strong points in its favor which cannot be gainsaid. These have already been hinted at or specifically mentioned, but will, I think, bear recapitulation here: first, it is universally intelligible; second, it does not attempt to explain a pathologic process by a single clinical symptom, to which the process gives rise; and third, it harmonizes with the general concepts of pathology.

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[14] Cannon, W. B.: The Influence of the Emotional States on the Functions of the Alimentary Canal, Amer. Journal Medical Science, April, 1909.

[15] Annales d'Oculistique, t. cxix, p. 321.

[16] Annales d'Oculistique, t. lxv, 1871, p. 129.

[17] Mitteilungen aus Kliniken der Schweiz, 1 Reihe, Heft 10, 1894.

Deaths from Snake-Bite in India.—In the year 1908, 19,738 persons died of snake-bite in India; in 1909, 21,364; in 1910, 22,478. The number of persons killed by tigers in 1908 was 909; in 1909, 896; and in 1910, 853.

TEN TESTS BY WHICH THE PHYSICIAN MAY DETERMINE WHEN A PATIENT IS CURED OF GONORRHEA. A STUDY OF 1260 TESTS BY CULTURE AND SLIDE OF THE EXPRESSED PROSTATIC AND VESICULAR SECRETIONS.*

By Charles M. Whitney, M.D., Boston,

Professor of Genito-Urinary Diseases, Tufts College Medical School; Surgeon to the Genito-Urinary Department, Mt. Sinai Hospital.

That gonorrhea is a most serious and dangerous disease, is admitted by every physician who has observed its disastrous effects. It is responsible for one-fourth of all the blindness in the world, for thousands of deaths from secondary kidney disease following stricture, for many fatal cases of gonorrheal salpingitis and secondary peritonitis, and for metastatic gonorrhea (the so-called gonorrheal rheumatism) which results in temporary or permanent loss of function in one or many joints.

It is stated by specialists in that line that gonorrhea is the cause of 60-80% of all gynecological operations. We should add to our list of disasters sterility in both men and women.

From this brief review of the subject it is clear that all preventive measures which tend to lessen the spread of this disease should receive the thoughtful attention of every physician.

This paper will not discuss the ordinary clinical symptoms and treatment of this ailment, for it is wholly concerned in answering these very important questions, when is gonorrhea cured? How may we assure a patient who has had it that he may marry without danger of infecting his wife? It would seem at first sight that the answer was easy, that when the discharge stopped, and the urine was clear, and there was no return of the symptoms, that the case was well. This is usually the patients' view and because of this many serious and unfortunate results are observed. In spite of a clear urine and no discharge for months, gonorrhea may exist in an active and dangerous form. The explanation of this is found in the peculiar and complex structure of the urogenital organs. The urethra, in which the infection first occurs, is divided into the anterior and posterior portions by the compressor urethrae muscle. In the anterior portion there are along the urethra, the lacuna magna, and the follicles of Littrè and Morgagni, in all of which the gonococci may be concealed and give no symptoms.

In the bulbous urethra upon the floor are the two openings of Cowper's glands, the ducts of which are nearly two inches in length and end in small glands which are situated between the layers of the triangular ligament. Along this duct the infection may extend, giving rise to no symptoms until some cause starts it into activity, when it may infect the urethra and cause a profuse discharge. When we pass the compressor urethrae muscle we enter a portion of the urethra, which has many and important structures leading from it.

In the median line is the veru montanum, with the colliculus at its apex, on the walls of which the ejaculatory ducts are to be found. Along the floor are the prostatic sinuses, from which many glands lead into the prostate.

Connected by the ejaculatory ducts are the seminal vesicles, composed of tubules and blind cul-de-sacs.

It is possible for the gonococcus to enter these ducts and organs and remain latent many months or years. If the disease did not extend beyond the compressor urethrae muscle the danger of latency would not be as great, for probably 90% of relapsing cases are due to the prostate and vesicles, but the unfortunate fact is that from 60% to 80% of cases do progress beyond this muscle and become posterior, either with or without subjective symptoms. Hence it is obvious that before deciding upon a cure these organs should be carefully examined to determine that no organisms are present.

Assuming then, that a patient presents himself for examination as to whether he is cured and in proper condition to be married or to resume marital relation if already married, what steps should we take to assure him that the disease is no longer present?

Two classes of cases are seen: first, those in which the disease has been a first infection and has been acute and uncomplicated, and second, the chronic and protracted cases which have resisted treatment, are usually not primary infections and have resulted in some organic change in the anatomic structures.

In the first class there is less danger of latency than in the seconad.

1. *Discharge.* Regardless of which class the case belongs to, we should begin our examination by an inspection of the patient's urethra to find out whether any discharge is visible at the meatus and if not, the urethra should be gently stripped.

If present it should be looked at with suspicion and carefully examined for gonococci. If it contains only mucus, epithelium and an occasional pus cell it may be harmless, but a culture of it should be made to prevent any possibility of error. If no discharge is present inquiry should be made as to how long a time has elapsed since urination, and the patient should be told to carefully examine the meatus in the morning before urination and if discharge is present it should be placed on a slide for examination.

2. *Urine.* If no discharge is found we should now examine the urine as to its clearness and freedom from shreds. A turbid urine which

* Read before the Somerville Medical Society, March 4, 1914.

does not clear upon the addition of acetic acid, shows a chronic inflammation, and the examination need proceed no further for it is obvious that the disease is still present. If clear and shreds are present, their size and action in the urine should be noted. If they are large and sink quickly they contain a large amount of pus and indicate an inflammatory area somewhere along the urinary tract which must be located and treated. If small, or light and flocculent, they are chiefly mucus and epithelium and are not usually of diagnostic value, merely indicating a mild urethral catarrh.

Not a great deal of information is gained from the microscopical examination of these large shreds. Some years ago the writer investigated them by preparing over a hundred slides and several hundred fields were gone over with the result that gonococci were found in only two large shreds.

Therefore other means will tell us more quickly and accurately whether the disease is present.

3. *Instrumental Examination of the Urethra.* By the bougie-a-boule we should examine the urethra for stricture and for tender areas. If the meatus is small it should be divided to permit the passage of instruments.

If a 28 or 30 bougie-a-boule passes freely to the bulb and shows no stricture or tender spot, and if a 28 sound passes to the bladder easily and without causing bleeding we may feel fairly well assured that no stricture exists in the urethra which might cause a relapsing discharge.

4. *Urethroscopic Examination.* By this we can ascertain the condition of the urethral mucous membrane and can occasionally see the minute openings of inflamed follicles.

If localized congestions or erosions are present they should be placed under treatment by local application of silver nitrate, which will provoke a discharge which should be examined.

5. *Examination of the Prostate and Vesicles.* —With the bladder partially filled with urine or boracic acid solution, the prostate and vesicles should be examined and their size, consistency and sensitiveness should be noted. If boggy, enlarged or tender, it indicates the need of treatment, at any rate, and the possibility of latent disease in these organs.

Whatever the condition found may be, gentle massage should be done and the vesicles stripped. The discharge appearing at the meatus should be saved on a slide, or Petri glass, and examined later.

The urine or solution should now be passed and if many "snowflake" masses are present they should be examined microscopically. They almost surely mean vesiculitis, and a patient having this cannot be called cured.

The very important and vital examinations of this expressed secretion by culture and slide will be later referred to at length.

6. *Test by Alcohol.* If the patient has successfully passed the foregoing tests he should now be permitted to take malt liquors (the so-called "beer test") or spirits.

The results should be carefully noted and also the character of any discharge produced by them.

7. *Coitus.* This test cannot properly be included among those which should be used, because no physician would permit a patient to risk infecting anyone else. Nevertheless, there are patients who have no sense of moral responsibility and from their errors certain conclusions can be formed, provided a protective covering is used. In case the discharge returns we know it was a relapse and not a new infection.

8. *Discharge Induced by Irritating Antiseptics.* This so-called provocative method consists in irrigating the urethra with some irritating chemical substance producing a urethritis, and the resulting discharge may show gonococci in the pus cells which have come from the deeper layers of the urethra. Nitrate of silver is the best antiseptic for this purpose and should be used as an anterior injection in the strength of 1-4000 and also as a deep urethral irrigation in the strength of 1% in a Keyes-Ultzmann syringe.

I am in the habit of passing a full sized sound before using the injections to dilate the urethra and to express from the follicles any retained contents.

9. *Bacteriological Examination of the Expressed Vesicular and Prostatic Secretion by Culture and Slide.* It is very interesting to note that in 1878, one year prior to the discovery of the specific organism of gonorrhea, the attention of the medical profession was called to the possibilities of its latency by Emil Noeggerath of New York. At that time his conclusions were ridiculed but today it is generally admitted that this disease may remain latent for months or years. The discovery of the gonococcus by Neisser in 1879 and its growth in a culture medium by Bumm in 1887 were the beginnings of better days, for it is no longer necessary to grope blindly in the darkness of ignorance for the causative factor of the disease, but its presence or absence may be seen in the clear daylight of scientific accuracy. The work so ably started by these pioneers has been the means of helping us to recognize many obscure conditions due to this organism. The difficulty of determining whether or not a patient is the host of the gonococcus has not been lessened since the publication of my first paper in 1911 (Chronic Relapsing Gonorrhea and the Methods Used to Determine Its Cure), and the larger series of cases which are now reported have emphasized the facts then stated.

These cases, which have been studied by my colleague, Dr. A. C. Pearce, and myself, have made us realize more than ever the responsibility placed upon the physician who is called upon

to determine whether or not a man may safely marry.

In order to answer this question intelligently it is absolutely necessary that the patient should be under observation a sufficient length of time to allow various tests to be made, which require at least three weeks. We have been repeatedly called upon to determine whether or not a man is cured of his ailment and been told by him that he has made all arrangements for marriage in a week or ten days. He would certainly be placed in a very unpleasant position in case our examination showed the presence of gonococci The insidious character of latent gonorrhea has repeatedly manifested itself in our series of cases. Time and again a patient has been examined who has a clear urine, no visible discharge at any time, with few if any shreds, and upon stripping the seminal vesicles we have found them loaded with pus. Whether or not we find the gonococcus in the expressed secretion we consider this man a menace to the community and he should not be allowed to marry until we have improved his condition. The presence or absence of chronic seminal vesiculitis cannot always be made by rectal palpation alone. It can only be made in some cases by a physical and microscopical examination of the expressed vesicular secretion, because the vesicles are not always enlarged to touch.

Manifestly, then, such an examination is indispensable in ascertaining the presence of a latent form of gonorrhea. In considering the prostate as a harboring place for these organisms we believe that too much importance has been given to it. We know that the disease does infect the glands leading from the sinuses, the colliculus, and may enter the tissues of the gland itself, but these are reached by treatment through the urethra, while the seminal vesicles, with their honey-comb structure so ideal as culture media for organisms, can only be indirectly treated by stripping and in intractable cases by incision or excision of these organs. This means a severe and mutilating surgical operation, which may be dangerous to life. While this is rarely necessary, there are cases which will yield to no other means. The fact that so few patients who have a low grade chronic prostatitis are sterile would lead us to believe that its secretory action is not markedly disturbed, but it may still excite the motility of the spermatozoa and may also stimulate the testes in the formation of them. In the examination of a patient to determine the presence or absence of gonorrhea our methods are substantially the same as reported in our first paper.

The patient is instructed to report with a full bladder. Any secretion appearing at the meatus is obtained on a slide and reserved for future examination. The anterior urethra is cleansed with normal salt solution, which will not affect the growth of the gonococcus, and the glans penis is cleansed with alcohol, which causes a temporary burning sensation if it enters the meatus or comes in contact with the scrotum. The patient then assumes a crouching position with the knees slightly bent and the back parallel with the floor. The vesicles are then vigorously massaged and the strippings allowed to drop into a tube containing the culture medium. A series of slides is made and then the patient passes his urine into a clear glass. This is later centrifuged and examined for pus and cocci.

The culture tube is incubated for 24 to 48 hours. The slide gently fixed with heat and placed in a solution of equal parts of ether and alcohol, to be stained later by the Gram method. The examination of the unstained slide is done immediately and the addition of a weak solution of acetic acid aids in detecting the pus corpuscles.

The culture media described in my previous paper have been found fairly satisfactory and we have chiefly used the nutrient blood agar in the proportion of one part blood to two parts nutrient agar. The latter is prepared by extracting one pound lean beef by immersion in 500 c.c. cold water for twenty-four hours, and then bringing it to a boil and skimming the surface. Then we add 40 grams of agar, 10 grams sodium chloride and 1 litre of water. Titrate 8-10 of one per cent. to phenolpthalein. The growth of gonococcus outside of the body in even the most carefully prepared media is uncertain because of its low vitality. One or two degrees of temperature above or below 38° Centigrade is sufficient to make the test valueless. It is therefore necessary to have the patient examined near to the thermostat in which the culture tube is to be placed because it cannot be transported from a distance in the varying temperatures which occur in this climate.

Another difficulty is the frequent and rapid growth of other organisms than the gonococci, for it is rare to get a pure uncontaminated culture.

The series here presented consists of 1260 examinations by culture and slide.

To properly understand the importance of the results obtained it is essential to state that nearly all these cases had been treated thoroughly by all modern means before they were subjected to these tests. In acute cases the vesicles were massaged after apparent recovery and the urethra examined, and in the chronic ones where the disease when first seen had existed from six months to eight years they had been treated for months by urethral dilatation and local urethroscopic applications, as well as by thorough and repeated prostatic massage and vesicular stripping, with the usual antiseptic irrigations and instillations. Further, the majority of these cases were private patients of the writer, others were sent by their physician for these tests, and a very small proportion were from the clinic, where they had been subjected to thorough and careful treatment.

Let us see what the examination of these

well watched, carefully treated and apparently cured patients showed. Gonococci were found as follows: By slide alone, 63, or 5%; by culture and slide, 44 positive, or 3½%; by culture alone, 26 positive, or 2%. In other words, from two to five men in every hundred who were clinically well harbored active and dangerous gonococci. It is sad to think of what the effect of marriage upon innocent wives and future children would have been. No patient who has had gonorrhea even in the distant past should neglect the precaution of these careful examinations to protect his health and that of those who will be near and dear to him in future. None of these cases had less than three examinations and we should insist on that number of cultural examinations at least, and more if the slide contains much pus. Some of our positive results were obtained on the first examination, while in others they did not appear till the second or third one.

It is needless to say that every one showing positive results was again subjected to treatment which was continued until we obtained three negative results, and up to the present not one of these men who have been married have had any return of their discharge nor have their wives been infected.

Many interesting results have been obtained from the bacteriological study of these cases as to the other pathogenic organisms which follow the gonococcus and serve to keep up a urethral discharge in some cases, but the limits of this paper do not permit a description of them. With new culture media the more accurate will be our results and the greater our assurance that physicians may do a beneficent work in the community by educating their patients to have these tests made.

10. *The Complement-Fixation Test.* This new and apparently valuable addition to our methods of determining the presence of gonococci or their toxins was first brought into notice by Schwarz and McNeil in an article published in the *Journal of the Medical Sciences* for May, 1911. Prior to that work along this line had been done by Mueller and Oppenheim, but it was not sufficiently conclusive to attract the attention of the scientific world.

This is similar to the Wassermann test for syphilis and follows essentially the same technic. It has been found necessary to use a polyvalent antigen, that is, one made from several strains (usually twelve) of gonococci. By this we determine the presence in the blood of an antibody produced by the gonorrheal organisms in the blood current or in the tissues of some organ, like the prostate, vesicles, or the joints. In an acute case it is not found before four weeks, and apparently remains long after the disease has clinically disappeared. It has been found after all microscopical and cultural tests have proved negative. These facts are most startling and point to the possibility that gonorrhea is not so local a disease as we have supposed it to be.

Not enough evidence has yet been produced for us to say that a positive result shows the presence of living gonococci somewhere in the tissues of the body, nor have we any way of knowing how long the antibodies may persist after cure. This is a most important fact to find out as otherwise we cannot wisely advise those patients whose test has proved positive. The test is exceedingly delicate and can only be done in a well equipped laboratory, and even there strange variations in the results are obtained. A clinically clear case of gonorrhea may show negative results, while one which is well by other and better tests may show positive results. The time has not yet arrived when we can depend upon this test alone and we must therefore place our faith in the tests which are of proven value and which will assure safety to our patients.

These tests which have been described are those which the physician should recommend to his patient, and by so doing he may lessen the peril of latent gonorrhea. He will do more than that for he will awaken in the public mind a realization of the fact that an apparently cured patient is not surely well, but that the consequences of his folly and misfortune may follow him all his life unless he receives competent and skillful treatment from his physician until he is cured, clinically and bacteriologically.

With the treatment of gonorrhea thus placed upon a plane as high as other diseases of far less importance we will hear less silly talk of the physician prolonging a case for financial reasons, we shall see fewer and fewer patients applying to druggists for nostrums promising a quick cure, and we will soon find that men having gonorrhea will aid their physician in their conscientious efforts to rid them of this dangerous malady.

SOME HYGIENIC TESTS APPLIED TO ORTHOPEDIC CONDITIONS.

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AND
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IT IS rather interesting in view of the great dependence placed upon personal hygienic measures in treatment of so many diseases, that so few precise hygienic methods have come into general use, ones that can be employed in recording conditions and changes in normal healthy functions from time to time with exact quantitative degrees of accuracy.

If a mechanic attempts to regulate a complicated piece of machinery, he must know all normal actions of the machine, and the degrees that these actions are influenced by different defects which happen to exist in each instance; and if he does not possess means of measuring

such normal conditions, nor the changes in them in response to his manipulations, probabilities then are strongly in favor of bungling readjustments. And the question has been asked properly why the same probabilities for poor results do not exist when varying degrees of normal human functions are inadequately recognized, and when therapeutic procedures are crudely estimated, or are wholly unmeasured in the treatment of human maladjustments.

The writers have attempted to approach the problem of more accurate hygienic regulations for joint troubles in the following way: The individual heart has a certain functional capacity that depends upon its size, the strength of its muscular walls, the integrity of its valves, and upon other considerations. And by measuring the degrees and variations of blood pressure some quantitative idea can be obtained of the organ's efficiency as it is functionating normally under the special conditions which exist within it. Blood pressures accordingly may be used as rough indicators of normal cardiac functions.

In the lungs the total air capacity may be taken similarly as an approximate gauge of normal pulmonary function regardless of pleural adhesions, diseased areas in the lungs, and so on.

Volumes and specific gravities of urines suggest quantitative amounts of normal work that kidneys are doing at the times the quantities and specific gravities are measured, irrespective of whether casts, albumin, or other evidences of renal disease exist.

Varying degrees of muscular strength are measures of the varying normal functional activity of muscular tissue; and amounts of food, eaten as dictated by the natural appetite, can be taken as very rough quantitative indicators of normal digestive functions if twenty-four-hour quantities of food are weighed before being consumed.

The percentage of haemoglobin in the blood furnishes an idea of the efficiency of the blood with respect to its normal oxygen carrying functions; and also it is possible to judge whether a nervous system is very vigorous or very weak by the hours of sleep taken, when allowances are made for unusual amounts of exercise, worry, *et cetera.*

An individual's weight is a measure of the fluctuating balances which have existed in the past between activities of different organs; while weight fluctuations, from time to time, measure changes continually taking place in the complex physiologic balances among the related organs of every individual.

If all normal functions of all important organs could be measured simply and accurately by clinical methods, we should, have a precise way of stating personal idiosyncrasies and peculiarities that now are designated under vague terms of plethoric tendencies gouty diatheses, nervous temperaments, debilitated and auto-intoxicated states, and others. We would then have definite formulae showing ratios between normal activities of different organs in each individual, as well as absolute degrees of physiologic activity of each organ.

But if one examines a physician's report one usually finds particular emphasis laid upon existing abnormalities and defects without any stated estimation of their probable influence upon healthy relations and functions; although there may be perhaps some vague observations that the individual's general condition seems to be "fairly good" or "rather poor." A lung may be tubercular, however, or a heart may have leaky valves, or a kidney show evidences of nephritis, or a digestive tract exhibit various peculiarities, and the person as a whole may still be active and able to perform his ordinary daily work for a considerable period of time. It should be recognized that these abnormalities are of moment only as they influence present or future normal physiological functions; and the writers wish to emphasize this fact, yet at the same time it is not intended to minimize the other side of the situation, namely, the great importance of knowledge of pathological anatomical peculiarities.

Medical literature of the past shows scanty hygienic data applied to orthopedic cases. Practically none of the older records can be considered complete or adequate in showing quantitative variations which occur from time to time. An attempt has been made therefore in this paper to tabulate in more available form some of the more easily measured normal functions and conditions, arranging them in a way that they can be understood at a glance, and showing variable proportions among different combinations, as well as absolute degrees each measurement exhibits. The relation of each observed condition to the average figures for the same condition among collected large series also is roughly indicated.

Data has been obtained from various sources. From tables of physical measurements made in gymnasia it was found that five feet seven inches and one hundred pounds can be taken as fairly representative figures, respectively, for average heights and weights. Eight hours is commonly considered a fair average for the number of hours of sleep required. Text books have yielded other approximate normal averages as follows:

Average vital lung capacity for an adult, 3700 cc., W. H. Howell, Text-book of Physiology. Average brachial blood pressure in adults systolic), 110 mm. of mercury, Joseph Erlanger, quoted by W. H. Howell, text-book of Physiology. Average specific gravity of urine, 1.017-1.020. Olaf Hammarsten, text-book of Physiological Chemistry. Average volume of urine in patients treated in United States—1200 cc. for males and 1000 cc. females—C. E. Simon, Manual of Clinical Diagnosis.

Average amount of animal food—10 oz. Av-

erage amount of water—50-60 oz. Average amount of vegetable food—30-40 oz.—W. Gilman Thompson, Practical Dietetics. Other average amounts have been assumed less accurately for exercise, muscular strength, nervous reflexes, *et cetera*.

All these have been set down arbitrarily in a table at points marked off upon a straight line. Variations from these averages have been indicated in a convenient way upon perpendicular lines drawn through the straight line of averages, one for each average figure. Each perpendicular has been divided then into a scale to show degrees of variation possible for each separate condition.

Having selected this method of recording results, patients have been weighed, measured, tested with spirometers, blood pressure apparatus, dynamometers, etc.; and from results obtained a curve has been plotted for each individual. Using the table as the pattern for all records, sheets of thin paper have been placed over the table and straight lines drawn upon the blank sheets to coincide exactly with the straight line of averages of the table. Then various numbers obtained from each patient are marked off upon the individual sheets by looking through them to the right places upon the proper perpendiculars of the table. Points thus located then have been joined together into a continuous irregular line as is indicated in the diagrams below.

These irregular curves show easily the variable combinations, the deviations of each variable from the average, and the changes that occur from time to time.

There are many limitations to this graphic method, but before these are discussed a few cases will be cited to illustrate the advantages.

The first chart is that of a woman of thirty years. She was delicate as a girl, and appears now thin, flat-chested, and with poor muscular development. She is engaged at an indoor occupation, sits at her task of proof-reading, and gets outdoor exercise mainly from walking to and from her work.

Several physical examinations in the past have revealed no serious pathological lesions of her organs, and she has been cared for by a number of competent physicians. Fearing that she might become helplessly crippled she sought further advice, and came for treatment before she was seriously incapacitated.

She represents an under-developed woman who has been pushing herself to the limit of her vitality constantly in her daily pursuits. Her main complaints now are chronic dyspepsia, rheumatism, and muscular weakness. A routine physical examination shows no marked abnormality, apart from the poor general development, except obvious atrophy of the small muscles of the hands together with periarticular swellings of finger joints, and gastric symptoms of discomfort, sourness and belching after meals. There has been no history nor evidence of recent infections. Teeth, throat, tonsils, ears, nose, and genito urinary tract are apparently normal. No examination of gastric contents made at the time the hygienic data was tabulated.

The series of hygienic tests and measurements show a curve given in the first chart. This line runs generally below the average and sinks especially low at the points of lung capacity and amounts of fluids taken daily. There is a corresponding small volume of urine of rather high specific gravity. The patient was interested in seeing the graphic record, and could appreciate more readily from it the necessity for increasing if possible her lung capacity, also the desirability of getting more fresh air, and of taking more water. She has been given a few breathing exercises, and she rests an hour in bed in a room with open windows, after work, just before the heavy evening meal. A few tonic medicines and milk of magnesia have helped to relieve gastric symptoms, and by these various therapeutic measures the joint pains have diminished, her appetite improved and her strength has increased. It is not to be expected that a complete cure of such a case can be accomplished quickly after the condition has slowly come on in such a life-long delicate constitution, but the graphic method makes it possible to show to patient and physician clearly in a general way what needs to be done and what is being accomplished. In the past, in this particular instance, lack of such a method has been responsible apparently for the overlooking of the quantitative physiological defects which have been producing the anatomical abnormalities in the joints.

The second chart is of a healthy woman who is a sister of the first patient. The curve is different particularly because of the higher levels for body weight and amounts of fluids taken; but it shows a lung capacity of rather low degree like the patient.

The third record is one of a patient suffering with chronic gonorrheal arthritis. A general physical examination showed nothing very remarkable except the urethral infection. In the past the patient derived much temporary benefit from a course of baths at Hot Springs, Arkansas. After returning home, however, he was unable to take care of himself and the joint symptoms came back again. Then a trial of gonorrheal vaccines was made.

Vaccines, which were continued for a long period, produced slight relief at first, but later they wore the patient out so that he was worse than when he began this treatment. He also tried various rheumatic remedies.

When first seen by the writers he presented the condition so often seen in chronic patients, namely, the effects of too much and too varied therapeutic measures. After seven or eight months' rest from all stimulating or depleting procedures, and with observance of a few hygienic regulations, joint swellings and pains have

subsided greatly, muscular strength has partially returned, seven or eight pounds have been gained in weight and a secondary anemia has disappeared.

The curve which is shown was taken at this later period, and it does not demonstrate such striking deviations as that of the first patient. This single record, by itself, is of value mainly in revealing the absence of striking abnormalities. But if a record had been taken eight months ago, it would differ sufficiently from the present one to point out tendencies of the change taking place in favorable directions. Here again the value of greater precision and greater clearness of graphic representation of clinical data is obvious.

The fourth record is one of a healthy man who does little muscular work, and who leads an ordinary sedentary life. The curve in this case runs more frequently above the base line, and its general level is higher. The fifth chart is that of his wife, who has well-defined rational ideas about personal hygiene, and who is frequently engaged in showing others how to take care of themselves. In spite of all precautions, she slowly succumbed to a very obscure metabolic type of joint disease. Physical examinations have revealed nothing definitely abnormal, and now it is considered that she represents a type of disturbance analogous to gout. There may be in her case a backing up in circulation of some unrecognized substance, perhaps creatinin in too large amounts, and this normal product of metabolism may be producing pathological changes in the joints because of excessive amounts in the blood, similarly as excessive amounts of circulating urates produce pathological anatomical changes in gouty patients.

The sixth chart shows another infectious arthritic case originally of gonorrheal origin. Specific blood tests now are negative in reaction, and apparently the patient simply is in a run-down state. He has lost greatly in weight, and arthritic involvements are extending to new parts.

He has a history of having lived very well, has eaten heartily, worked hard, and has used some alcoholic stimulants. He exhausted himself finally and then tried unsuccessfully to restore his depleted vitality with bath and tonic treatments. At the time the hygienic data were taken he could barely walk with crutches, and ankle and knee joints were swollen and sore.

The curve is valuable in showing an individual generally below the average and without any marked abnormalities. The line rises above the base line only at two related points. He has been drinking water freely so that the amount of daily fluids taken and the volume of urine are above the line of averages. The urine represents the clear pale type of low specific gravity in latent chronic interstitial nephritis.

Such a chart helps to explain why there is so little chance of any single remedy, new or old, being found that will fit all different needs of the situation. It is difficult to conceive of any single drug or therapeutic measure being discovered, that will produce readjustments in all deviating factors correctly and in exactly right degrees in each to restore the most healthy complex proportions among them all. The only imaginable way that success can be attained in such a generally depleted condition is by means of a number of therapeutic procedures, each prescribed in individual ways with definite observations upon their separate effects. A graphic chart permits these combinations and slight variations to be estimated in the best manner.

DISCUSSION OF SOME OF THE ADVANTAGES AND LIMITATIONS OF THE METHOD.

The six illustrations that have been given hint at some advantages of the method, *e.g.* that patients' interests are aroused and sustained better; that greater precision and more completeness in estimation of patients' conditions become possible, and that therefore greater success in treatment results.

Many persons will see the defects of the scheme and some possibly will condemn the whole of it because there are many faults. For the latter an explanation is necessary,—that defects, although great, are less than those which are associated with total absence of hygienic data, as quite commonly is the case now with orthopedic patients. The method has not the accuracy of comprehensive physiologic experiments conducted in institutions, for example, like the Carnegie Nutrition Laboratory in Boston; and it is intended to be intermediate only between such careful scientific labors and the neglect, due to lack of time, shown frequently now among busy practitioners.

Criticisms can be advanced that the list of measurements is very incomplete, and that it does not include many important physiological functions. This is true, and if the number of individual tests was extended the curves would possess much more significance. As previously suggested, it would be advantageous to have all normal functions represented; but the element of ease has to be reckoned with, and the writers have selected only a few representative tests, that take but a few minutes of a physician's time. It may seem advisable perhaps in the future to add others, such as blood cell counts, ages, etc.; yet as now presented the records harmonize well in the degrees of reliability, which individual tests have shown and the significance which they possess in combination.

An objection may be raised that amounts of food vary greatly from day to day with varying appetites. However, experimentally it has been found that, rough as these measurements are, they are more precise than statements of patients. One individual may claim to have an unusually good appetite and to eat a large amount, and upon weighing the food it has been discovered occasionally that the reverse condi-

tion of affairs exists. Again another person says the appetite is poor and yet not infrequently the consumption of food actually is found to be excessive. These results of food weighings should be interpreted only to point out gross tendencies, and further weighings should be made to determine the lesser degrees and changes.

It is to be noted that work of weighing the food is relegated to patients themselves. Each is provided with a pair of scales with directions for weighing and eating each kind of food separately, and practically it has been found that the task arouses patients' interests, while simultaneously relieving the physician.

Regarding the accuracy of averages, it should be explained that only great deviations are to be considered significant in interpretation of results, so that these average figures do not have to be accurate to be useful. They depend upon so many elements that they can be only very roughly approximate; for example, body weights depend upon age, sex, occupation, etc., and vary within wide limits.

These figures, nevertheless, serve as a convenient *fixed base line* for comparisons. The two tests for muscular strength, *e.g.* the strengths of the forearm muscles and of pectoral muscles, are very incomplete, yet are better than descriptions of "poor," "ordinary," and "good," as these adjectives are used often in reference to muscular development. Moreover, patients find it interesting to watch the changes from time to time in degrees of muscular weaknesses of which they complain.

Averages do not have much significance for these particular tests unless many corrections are applied, and they are of use mainly as fixed points upon the base line of the table. This fact is made more clear by a statement of D. A. Sargent, director of the Hemenway Gymnasium at Harvard University, who has very kindly informed the writers that he has found that the average strength of forearm for the male is 55 kilos and for the female 25 kilos, while the average strength of chest for the male is 65 kilos and for the female 30 kilos.

No records are given in the article with repeated observations upon the same patient over extended periods. Single charts, however, differ greatly from each other and help to show the peculiarities which each patient exhibits. This fact justifies an early paper explaining the method.

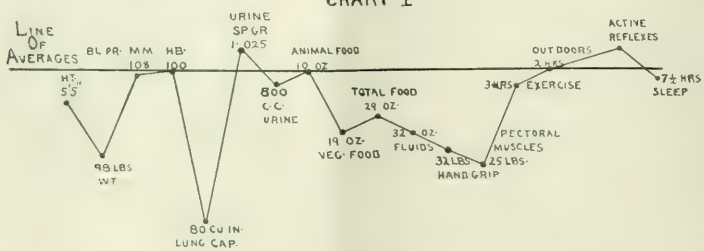
It does not seem appropriate to discuss further the significance of hygienic measures in their relation to orthopedics, because everyone understands that personal hygienic regulations mean vascular regulations, and that the latter are matters of extremely great importance in restoration of health of all tissues including bones and joints.

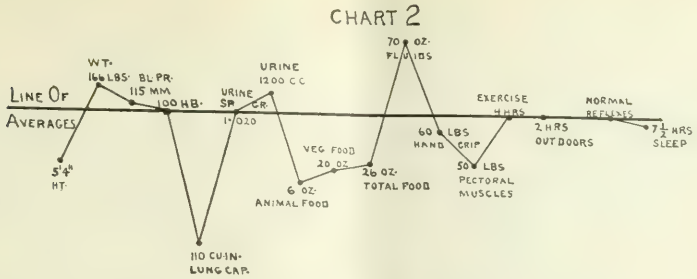
Orthopedics, as it is understood at present, deals at times with surgery, mechanical supports, corrective apparatus and internal medical measures in treatment of joint diseases, deformities and various anatomical weaknesses.

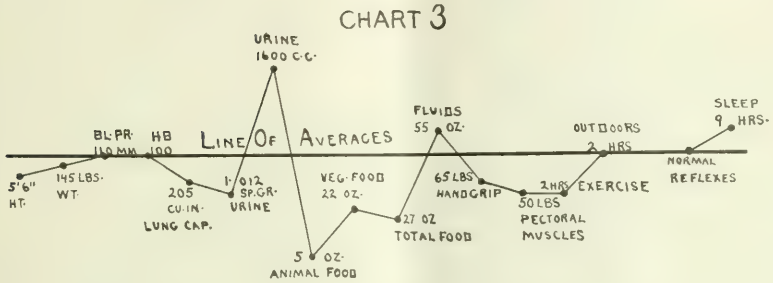
In progress it is recognized by every one that orthopedists must continually study their problems carefully in order not to lay too much or too little emphasis upon any one of the related, important phases of their specialty. Care has to be taken not to stretch surgical methods to limits beyond which they are more harmful than useful, nor to use them too exclusively. There has to be avoidance of the error of ascribing all benefits observed to them, or to mechanical supports when the latter are matters of greatest interest; for there always are existent less easily recognizable, and perhaps even more important, vascular peculiarities; vascular states can be regulated properly only through attention to personal hygiene.

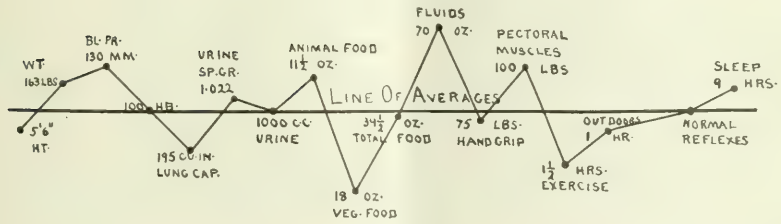
It can be said with truth, that surgery and mechanical therapeutic devices are simply aids, that are needed only occasionally to help personal hygienic regulations restore the health. The facts are, that sometimes surgery is indispensible, and at other times artificial supports are absolutely necessary, while vascular and hygienic conditions must always be compatible with health or otherwise the other measure will fail.

CHART I




CHART 2
LINE OF AVERAGES
WT. 166 LBS.
BL. PR. 115 MM.
100 HB.
URINE SP. GR. 1.020
URINE 1200 C.C.
70 OZ. FLUIDS
EXERCISE 4 HRS.
NORMAL REFLEXES
60 LBS. HAND GRIP
2 HRS. OUT DOORS
7½ HRS. SLEEP
5'4" HT.
VEG. FOOD 20 OZ.
6 OZ. ANIMAL FOOD
26 OZ. TOTAL FOOD
50 LBS. PECTORAL MUSCLES
110 CU. IN. LUNG CAP.


CHART 3
URINE 1600 C.C.
BL. PR. 110 MM.
HB 100
LINE OF AVERAGES
FLUIDS 55 OZ.
OUT DOORS 2 HRS.
SLEEP 9 HRS.
NORMAL REFLEXES
5'6" HT.
145 LBS. WT.
205 CU. IN. LUNG CAP.
1.012 SP. GR. URINE
VEG. FOOD 22 OZ.
65 LBS. HANDGRIP
2 HRS. EXERCISE
27 OZ. TOTAL FOOD
50 LBS. PECTORAL MUSCLES
5 OZ. ANIMAL FOOD


CHART 4
FLUIDS 70 OZ.
PECTORAL MUSCLES 100 LBS
BL. PR. 130 MM.
WT. 163 LBS.
URINE SP. GR. 1.022
ANIMAL FOOD 11½ OZ.
SLEEP 9 HRS.
LINE OF AVERAGES
100 HB.
5'6" HT.
1000 C.C. URINE
34½ OZ. TOTAL FOOD
75 LBS. HANDGRIP
OUT DOORS 1 HR.
NORMAL REFLEXES
195 CU. IN. LUNG CAP.
1½ HRS. EXERCISE
18 OZ. VEG. FOOD

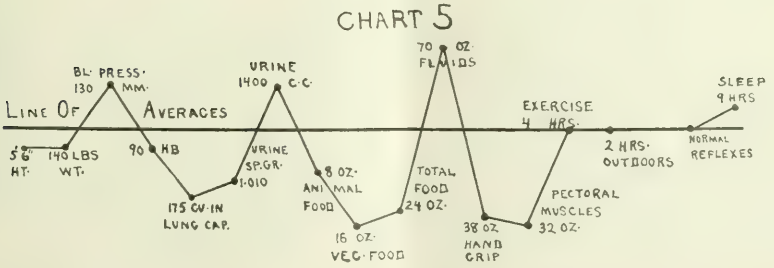
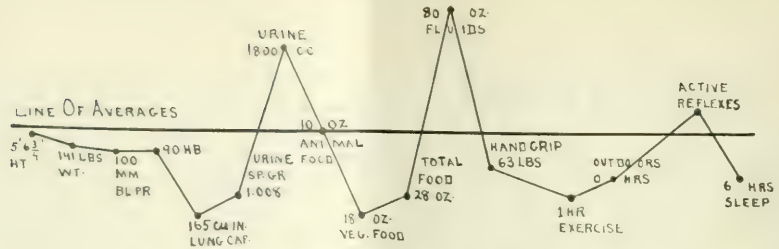

CHART 5
70 OZ. FLUIDS
BL. PRESS. 130 MM.
URINE 1400 C.C.
SLEEP 9 HRS
LINE OF AVERAGES
EXERCISE 4 HRS.
5'6" HT.
140 LBS. WT.
90 HB
URINE SP. GR. 1.010
2 HRS. OUT DOORS
NORMAL REFLEXES
8 OZ. ANIMAL FOOD
TOTAL FOOD 24 OZ.
175 CU. IN. LUNG CAP.
PECTORAL MUSCLES 32 OZ.
16 OZ. VEG. FOOD
38 OZ. HAND GRIP

CHART 6



FEET	INCHES	POUNDS	M.M. Hg.	MAX.	CUBIC INCHES	SP. GR.	C.C.	OUNCES	OUNCES	OUNCES	OUNCES	POUNDS	POUNDS	MAX.	HOURS	DEGREES OF ACTIVITY	HOURS
		290	250		435		3600					220	220		17		
		80	40		26		3600					210	210		16		
		70	30		405		3400					200	200		15		
6	6	60	20		90		3200					190	190		14		
	5	50	10		75		3000	20	60	80	100	180	180		13		
	4	40	200		60		2800	19	57	76	95	170	170		12		
	3	30	90		45		2600	18	54	72	90	160	160		11		
	2	20	80		30	1048	2400	17	51	68	85	150	150		10		
	1	10	70		15	44	2200	16	48	64	80	140	140		9		
6	0	200	60		300	40	2000	15	45	60	75	130	130		8		14
	11	90	50		85	36	1800	14	42	56	70	120	120	8	7		13
	10	80	40		70	32	1600	13	39	52	65	110	110	7	6	VERY	12
	9	70	30		55	28	1400	12	36	48	60	100	100	6	5	ACTIVE	11
	8	60	20	110	40	24	1200	11	33	44	55	90	90	5	4	ACTIVE	10
AVERAGES	5-7	150	110	100	265	1030	3000	10	30	40	50	80	80	4	3	NORMAL	9
	6	140	100	90	210	16	800	9	27	36	45	70	70	3	2	SLUGGISH	8
	5	30	90	80	195	12	600	8	24	32	40	60	60	2	1	VERY	7
	4	20	80	70	80	08	400	7	21	28	35	50	50	1	0	SLUGGISH	6
	3	10	70	60	65	04	200	6	18	24	30	40	40	0			5
	2	100	60	50	50	1000	0	5	15	20	25	30	30				4
	1	90	50	40	35			4	12	16	20	20	20				3
5	0	80	40	30	20			3	9	12	15	10	10				2
	11	70	30		105			2	6	8	10	0	0				
	10	60			90			1	3	4	5						
	9	50			75			0	0	0	0						
4	6	40			60												
		45			45												
		30			30												
		HEIGHT	WEIGHT	BLOOD PRESSURE	HAEMOGLOBIN	LUNG CAPACITY	SPECIFIC GRAVITY URINE	VOLUME URINE	ANIMAL FOOD	VEGETABLE FOOD	TOTAL FOOD	LIQUIDS	STRENGTH OF FORE ARM MUSCLES	STRENGTH OF PECTORAL MUSCLES	AMOUNT OF DAILY EXERCISE	HOURS SPENT OUT OF DOORS	NERVE REFLEXES	HOURS OF SLEEP

TABLE I

Medical Progress.

REPORT ON OBSTETRICS.

By Robert L. DeNormandie, M.D., Boston,

and

John B. Swift, Jr., M.D., Boston.

Concluded from page 721

PHARMACOLOGIC ACTION OF ECBOLIC DRUGS.

Feeling that the general practitioner has not been able to keep in touch with the recent advancement in the chemistry and pharmacology of the ecbolic drugs, Lieb[7] has reviewed briefly the more important papers, and gives the results of his own experiments on the use of oxytocics in the circulation and on the isolated uterus, and indicates their therapeutic employment.

Dogs anesthetized with morphine and chloretone were used for the blood pressure experiments and the isolated uterus of the guinea-pig was used for the experiments on the effects of oxytocics on the uterus.

A careful description of the method used accompanied the article, including some excellent

drawings and some of the blood pressure tracings.

Ergotoxine, isolated from ergot first by Tanret and later by Kraft, Barger and Carr, injected intravenously into a dog in doses of 1 mg. per kilo, causes almost immediately a pronounced rise in blood pressure with a considerable slowing and weakening of the heart. The rise occurs in a cat whose brain and spinal cord have been destroyed. It is, therefore, independent of the central nervous system and must be of peripheral origin.

Barger and Dale conclude that ergotoxine first stimulates and then paralyzes motor myoneural junctions and that this action is limited to those nerve endings which are connected with the true sympathetic system.

Therapeutically an isolated guinea pig's uterus treated with ergotoxine shows an increase in the rate and strength of contractions.

Ergotoxine used during labor has not been satisfactory. The pains are much more intense but much less persistent.

These therapeutic experiments suggest that ergotoxine does not represent the full action of ergot. Furthermore, the rise in blood pressure which follows the injection of an ergot preparation is much greater than can be explained by the ergotoxine present in the preparation. This blood pressure rise is due to several amines, the most important of which is para-hydroxyphenylethylamine. This causes a sharp rise in the blood pressure due to vasoconstriction. On the isolated uterus it may cause an increase in the rate of contractions or in addition a more complete contraction and a distinct increase in the tonus. Used therapeutically it seems to show a sharp but very transitory rise in the blood pressure, especially in patients in collapse when the rise in blood pressure was very short. It seems to have no effect on the frequency or strength of the contractions of the parturient uterus.

Ergotoxine and para-hydroxyphenylethylamine account for the effect of ergot preparations on blood pressure but do not explain the striking action on the uterus. This is believed to be due to beta-imidoazolyethylamine. This substance produces an immediate and prolonged fall in the blood pressure associated with peripheral vasodilatation. On the isolated uterus in concentration of a 1:600,000, it produces a marked contraction with cessation of rhythm in maximal tonus. Used during labor, doses of 1 to 2 mg. led to respiratory disturbances and convulsions with only a slight stimulation of the uterus.

The action of Galenical preparations of ergot may be explained as follows: The initial fall in pressure which often occurs after their intravenous injection is due chiefly to the beta-imidoazolythylamine, partly to the isoamylamine; the marked and prolonged rise is due almost entirely to the para-hydroxyphenylethylamine and only in small part to the ergotoxine. The action on the vaso-motor nerve cells and the bluing of the cock's comb are due solely to ergotoxine. The action on the uterus is referable to the ergotoxines, the para-hydroxyphenylethylamine, but essentially to the beta-imidoazolythylamine. There are also many other substances present, some of which are depressant, others inactive; chemical standardization of so complex a drug is out of the question. A well known English firm has put upon the market a preparation which is of constant composition. It consists of a certain amount of ergotoxine, obtained from ergot, to which are added definite quantities of synthetic para-hydroxyphenylethylamine and beta imidoazolythylamine.

Pituitary Extract. The intravenous injection of an extract of the posterior lobe of the pituitary gland is followed by a rise in blood pressure and a slowing and weakening of the heart. The slowing and weakening of the heart is due to direct stimulation of the vagus center. The rise in blood pressure is due to vasoconstriction, the drug acting directly on the muscular coats of the vessels. Diuresis is secondary to the rise in the blood pressure but a second dose does not increase the blood pressure but does increase the diuresis, so there must be some substance in the extract which directly stimulates the kidney cells.

On the isolated uterus pituitary extract 1:600 causes very complete contractions and then tetanus, broken by incomplete relaxations. Injected into pregnant animals, it produces abortions. Injected into a lactating animal a prompt secretion of milk follows probably due to stimulation of the smooth muscle of the breast, as the total quantity of milk secreted in twenty-four hours is not increased.

The active principle of pituitary extract has not been identified. Experiments would indicate that its action on the uterus is due to a substance closely resembling or identical with beta-imidoazolythylamine. Pituitary extract may be applied locally to stop oozing hemorrhages or to reduce congestion of mucous membranes. It is chiefly indicated in uterine inertia. It is said to be more valuable than ergot in post-partum hemorrhage and subinvolution. The chief dangers associated with its use are uterine tetanus and rupture, and fetal asphyxiation and impaction. It is contraindicated in cardiac disease or arterio-sclerosis when an abrupt rise in blood pressure would be dangerous.

It is readily destroyed by the alimentary ferments, hence it must be used subcutaneously or intramuscularly when stimulation of the uterus, kidney, and bowel result. Injected intravenously, it produces a prompt but transitory rise in blood pressure, slowing of the heart, diuresis and uterine stimulation.

Quinine. On the isolated uterus quinine

1:100,000 caused an immediate increase in the rate and strength of the contractions, with the tonus moderately improved, an increase of the concentration to 1:25,000, threw the uterus into spasm, which later showed signs of poisoning and then death. To induce labor quinine is administered in doses of from 0.5 to 1 gram. Maurer believed that in 87% of his cases he could ascribe to quinine a pronounced ecbolic effect within forty minutes of the first dose. Failures are probably due to either lack of absorption or to depression of the uterus from excessive doses.

Iso-quinolines. This group is composed of hydrastine, narcotine and landanosine, alkaloids having a strychnine-like action on the spinal cord.

Hydrastine is the least toxic of this group. In the author's experiments hydrastine produced a marked and prolonged fall in blood pressure without preceding rise. On the isolated uterus, solutions of 1:50,000 produces a temporary cessation of rhythm in maximum tonus soon broken by comparatively large relaxation. More concentrated solution after momentary tetanus causes death of the uterus in extreme relaxation.

Hydrastinine is less toxic than hydrastis with the same pharmacologic action.

Cotarnine, marketed under the name of stypticin or styptol is derived from narcotine.

Intravenously in doses of .5 mg. per kilo there is a momentary fall in blood pressure followed by a slight rise. The heart rate is unchanged. On the isolated uterus, there is an increase in the rate of contraction and in tonus.

Therapeutically the drugs can be employed in menorrhagia and metrorrhagia, though it has been suggested that they might be of value in post-partum hemorrhage. The drugs stimulate the uterine muscles directly, the organ contracts as a whole, the lumen of the intramural vessels is obliterated and the bleeding stops.

Viburnum. Small amounts of the fluid extract of viburnum caused a considerable increase in the rate and an improvement in the tonus of the isolated uterus.

Sodium valerianate failed to produce any stimulation on the uterus and in high concentration proved distinctly toxic. Its sedative action cannot be due, therefore, to its action on the uterus. Presumably it quiets the irritable central nervous system and the uterus is affected secondarily. Apparently its use is purely empiric.

His conclusions are as follows:

1. Ergot owes its pharmacologic action to several constituents; of these, ergotoxine alone is specific. Beta-imidoazolythylamine, para-hydroxyphenylethylamine and the other sympathonimetic amines are products of the putrefaction which occurs during the manufacture of the Galenical preparations. Each constituent has a distinct pharmacologic action; stimulation of the uterus is characteristic of them all. In obstetrics at least no single active principle can replace active preparations of whole ergot.

2. Extracts of the posterior lobe of the pituitary gland stimulate all smooth muscle. It has been suggested that the active constituent of the infundibulum is the hormone which initiates normal labor. The extract of the pituitary is the most reliable ecbolic which the obstetrician has at his command. Its promiscuous employment during labor cannot be too strongly condemned.

3. Because of the stimulating action of quinine on the isolated uterus it may be employed to induce or strengthen labor pains.

4. The improvement that follows the use of iso-quinolines in menorrhagia and metrorrhagia is due not to changes in the circulation or in coagulation time, but to a direct action on the uterus.

5. Fluid extract of viburnum stimulates the isolated uterus. Its action in dysmenorrhoea is therefore not due to an effect upon the uterus, but to a depression of the central nervous system.

PUBIOTOMY VERSUS CAESAREAN SECTION IN INFECTED CASES.

Rongy points out that a great deal of the work of the consulting obstetrician is in those cases where there is dystocia, due to disproportion of the size of the fetal head and the pelvis, in which attempt has been made at delivery by the general practitioner, and in which asepsis and antisepsis has not been scrupulously observed.

There are three methods of delivery at our command. First, high forceps; second, Caesarean section; third, pubiotomy. He believes that high forceps in the light of our present surgical knowledge is hardly justifiable, especially in primiparae. The effect on the mother is bad. Most of the plastic operations are a result of badly managed forceps cases. It is the only procedure in surgery where an attempt is made to pull a mass through an opening too small to admit of its easy passage without first enlarging the opening, or making the mass smaller. Its effect on the child is too well known to need discussion. Accordingly, we are left with either pubiotomy or Caesarean section.

Here Rongy distinctly states that he is not attempting to place pubiotomy in competition with Caesarean section. Pubiotomy he regards as an operation of emergency and not of election. He believes that pubiotomy is the only operation in border-lines cases that have been mismanaged or misjudged. It adds but little additional risk to the mother. The head should be somewhat engaged and forceps should have

been attempted and if then the child is alive, pubiotomy should be performed. He has followed the technic of Döderlein and he reports in detail nine cases in which he has done the operation. He feels that the operation should not be attempted except by a carefully trained gynecological surgeon as the injuries to the soft parts, the bladder and the urethra may be quite extensive. The sacro-iliac joint may be injured and if this possibility is not born in mind, permanent disability may result. Hemorrhage may be profuse. Communicating vaginal tears may take place. However, in cases that have been misjudged and neglected, with the child still viable, it is the only method of procedure, and only an experienced obstetrician should undertake its performance.

His conclusions are as follows:

1. A close study of statistics of Cesarean section of various operators compel us to assume that cases which are brought into the hospital with a history of a long and tedious labor, who were frequently examined or where delivery by forceps has been attempted, are supposedly infected and therefore abdominal section should not be the operation of choice.

2. In such cases pubiotomy becomes the operation of necessity, for it adds very little danger to the mother and it saves the child.

3. Pubiotomy is not an operation of election.

4. Cesarean section and pubiotomy never compete. In cases when Cesarean section is indicated, pubiotomy is contraindicated and vice versa.

THE TREATMENT OF THE TOXEMIA OF PREGNANCY WITH THE SERUM OF NORMAL PREGNANT WOMEN.

After suggesting the possibility of the use of serum obtained from normal pregnant women for the treatment of toxemias of pregnancy, the author[9] states that he has recently been injecting the serum intradurally rather than intravenously in cases of eclampsia. He was led to do this by the picture of severe poisoning of the central nervous system which the eclampsia presented. He has also tried the serum in cases of puerperal sepsis since many puerperae have hemolytic streptococci in their lochia without themselves being sick. One can assume that theoretically their serum is the same as that of convalescents. Three of his septic cases treated with injection of serum showed that this treatment had a bearing on the result.

PUERPERAL INFECTION.

Watkins'[10] paper is a summary of his experiences of one hundred cases of puerperal infection covering a period of eight years since operative interference was given up by him. Of these cases ninety-one recovered and nine died. Watkins feels that the attempt to classify puerperal infections complicates the study of the disease and the classification is of scientific interest but not of practical value.

The disease is essentially systemic and has ceased to be a local one when fever is present. He feels that the bacteriologic examination of vaginal and uterine secretions is of relatively small value as the results are often uncertain and misleading. The clinical findings usually determine the diagnosis, and if one relies entirely on the laboratory diagnoses by the examinations of the secretions the danger of making the wrong diagnosis is great.

Watkins says the important part of the treatment of puerperal infection is the use of remedies to increase the body resistance and the abandonment of measures that interfere with the development of immunizing substances. Food, sleep and good elimination are essential. The outdoor treatment is the most valuable remedy known in the treatment of puerperal infection. To promote elimination two quarts of fluid is the minimum amount given. Stimulants are not used. Anodynes and hypnotics are given in moderation to relieve pain and to procure at least six hours of sleep. An ice bag is kept over the lower part of the abdomen and the head of the bed is elevated to promote drainage. He says vaginal and intrauterine douches and medicinal applications are harmful, meddlesome and useless procedures. Retained products of conception should be left to escape spontaneously except in cases of hemorrhage, when gauze packing should be used to hasten separation of retained tissue. Pelvic exudates usually disappear entirely by absorption; only the exceptional case requires incision and drainage. Suspected cases of free pus in the abdominal cavity Watkins believes should have an exploratory vaginal section to determine the diagnosis and the indications for treatment.

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[9] Mayer, A.: The Treatment of the Toxemia of Pregnancy with the Serum of Normal Pregnant Women. München. Medizin. Wochenschrift, 1913, No. 25, p. 1411.

[10] Watkins, Thomas J.: Puerperal Infection. American Jour. of Obstetrics, Vol. 68, p. 462.

For a review of the recent literature on the sero-diagnosis of pregnancy, the reader is referred to the article by A. K. Paine, M.D., appearing in the Boston Med. and Surg. Jour., February 26, 1914.

Reports of Societies.

BOSTON SOCIETY OF PSYCHIATRY AND NEUROLOGY.

MEETING OF FEBRUARY 19, 1914, AT THE BOSTON MEDICAL LIBRARY.

D. H. FULLER, M.D., Secretary.

DR. J. W. COURTNEY read a paper entitled.

ON TERRITORIAL AUTONOMY IN CEREBRAL CIRCULATION AND ITS RÔLE IN THE GENESIS OF SYMPTOMS IN THE PSYCHONEUROSES.*

DISCUSSION.

DR. G. L. WALTON: It may at least be claimed for this theory that no more satisfactory one is at present forthcoming. As the reader has said, the expressions, "dissociation of personality," and the like, do not really go far towards explaining the symptoms under consideration. Again, when I presented the subject at the American Neurological Association in the paper to which Dr. Courtney refers in courteously crediting me with advancing the vasomotor theory, a favorite recourse of the disputants seemed to be the word "dynamic," as explaining the cerebral changes in hysterical monoplegia. This explanation also is vague and unsatisfactory, and presents nothing of which we have a recognized analogue in other parts of the body. There is a certain fascination in the proposition that separation of neurones may explain these transitory disabilities, but this is another purely theoretical proposition and on the whole less satisfactory than the vasomotor theory. It may fairly be assumed that: (1) Psychic processes are capable of producing mechanical changes in the organism. (2) The best recognized of these mechanical changes are vasomotor changes, of which need only be cited the pallor of fear and the blush of shame. (3) Such vascular changes certainly do occur at the periphery in hysteria, offering a visible analogue of the cerebral changes suggested in this theory. (4) The vascular changes in the periphery are hardly capable of explaining the symptoms under consideration, for hysterical anesthesia indicates not a simple loss of sensation, such as appears when the foot falls asleep, but involves a false interpretation which means cerebral disorder.

Dr. Courtney has added to the weight of the theory by citing recent advances in cerebral vasomotor control. At the time I presented the subject in 1884 it was assumed in my postulate that such vasomotor control existed, though there was at that time no tangible evidence to verify the supposition.

DR. A. MYERSON: Dr. Courtney's paper divides itself easily into two parts, one as to whether or not there are autonomic vasomotor centers in the brain, and secondly, whether vasomotor disturbances of a territorial kind are the cause of hysterical phenomena. For the first question, I think the answer is as Dr. Courtney has indicated, "Yes, there are such centers." Both by the experiments he has quoted, by analogy and by inference, we have a right to assume the existence of territorial regulation of the blood supply of any part of the brain. For the second question, the answer is not quite so certain. Dr. Courtney's explanation is simple, but it is almost too simple. Associated with the explanation are such obstacles as seem to me to be insuperable.

First of all, the mere fact that in the paralyzed limb of a hysteric, there is pallor and evidence of vasomotor disturbances, as well as paralysis, shows nothing concerning the origin of paralysis and its relationship to vasomotor disturbances. In the paralyzed limb of a patient suffering from anterior poliomyelitis, there are vasomotor disturbances, but no one assumes that the vasomotor disturbances have caused the paralysis. It is well understood that they are coincident and have a separate injury for their origin, a mechanism which is impaired at the same time that the motor cells are injured. So in hysteria, it may well be that the vasomotor symptoms are mere accompaniments and stand in no causative relationship to the other symptoms.

Secondly, if a cerebral spasm and anemia is responsible for paralysis in hysteria, that spasm lasts as many years, for example, as the paralysis, and then it is inconceivable to me that no permanent damage is done, that recovery can be complete and quick. Any part anemic for years, especially nerve cells, must be permanently damaged no matter what the cause of the spasm, and the limb which such cells innervate, would suffer correspondingly. The transiency, changeability of symptoms in hysteria makes the vasomotor explanation plausible until one looks deeper and then inadequacy appears.

Third, if vasomotor spasm or injury be responsible for symptoms, how does it then happen that the paralysis of hysteria practically never follows the known physiologic innervations, that it never corresponds to the cortical innervation, or peripheral nerve distribution, or the segmental arrangement, as in the spinal cord? It corresponds to an idea, the well-known glove paralysis or anesthesia. It includes surfaces not influenced in organic diseases. It is not accompanied by changes in the reflexes, such as organic diseases involving known territories bring about. In other words, it has no known relationship to territories as we now understand those territories. While the future may bring us knowledge of territorial innervation which we do not now possess, present-day theories cannot base themselves upon the future. Finally, as a pathologist, I sincerely seek physical explanation of mental phenomena. Vasomotor disturbance as a cause for hysterical symptoms appeals, but as I said at the commencement, its defects as an explanation are too apparent for my acceptance.

DR. C. K. RUSSELL: Regarding the characteristic distribution of the loss of sensibility in hysterics, namely, that which has been descriptively termed stocking or glove anesthesia, it may be of interest to refer to two patients who came under my observation when an interne at Queen's Square, in order to show that this distribution may not be merely due to the patient's conception of segmentation in the limbs. The first case I had the privilege of observing with Dr. Gordon Holmes; the second was under my own charge, and was very similar to the first. Both were cases of Jacksonian epilepsy, with the convulsions beginning in the left hand and face. Following the convulsion, in which there was little or no loss of consciousness, I noticed that besides the motor weakness of the affected side, there was a distinct loss of sensibility to pin prick

* See page 745.

extending over the half of the body and the corresponding limbs, a hemianalgesia. The recovery from this loss of sensibility was peculiar in that it began to be recovered from on the body, starting from the outside and progressing towards the midline in concentric circles. About the same time as it began to recover on the trunk, recovery was also noticed on the foot and at the shoulder, and progressed up the leg and at the same time down the arm, the hand from the wrist taking a relatively longer time to recover its sensibility. Observations following several attacks all corresponded in showing the same method of recovery of sensibility.

The results of brain disturbance which produce the march of a Jacksonian fit evidently, I imagine, are recovered from in a similar manner to that in which they are affected, viz., in receding concentric circles.

NEW ENGLAND PEDIATRIC SOCIETY.

The twenty-ninth annual meeting was held in the Boston Medical Library, Jan. 23, 1914. C. A. Pratt, M.D., President; Fritz B. Talbot, M.D. Secretary.

Dr. Charles G. Mixter read a paper entitled

A CASE OF LYMPH CYST OF THE MESENTERY.*

DISCUSSION.

Dr. J. L. Morse: I would like to speak of just one case which was on my service at the Children's Hospital, I think two years ago, which gave all the physical signs of a cyst of the mesentery, and which was, for all practical purposes, a cyst of the mesentery. It occurred in a small boy whom we had seen a year previously with tuberculosis of the mesenteric glands. In the course of the year these had broken down and he had a cold abscess about the size of an egg-plant which gave all physical signs of a cyst. Dr. J. S. Stone operated and removed it *en masse*, with good recovery.

Dr. Maynard Ladd read a paper entitled,

THE INFLUENCE OF ALKALIES ON THE GASTRIC MOTILITY IN INFANTS.**

The paper was illustrated by lantern slides of serial radiographs. Three infants were studied. Lime water in proportions of 25 and 50% of the total mixture, and bicarbonate of soda and citrate of soda, 2 grains to two ounces of the feeding, were given. The presence of lime water appeared to hasten the emptying time of the stomach by from one to two hours, if the casein was in the form in which it naturally occurs in milk. On the contrary, when the casein had been previously precipitated the addition of lime water had no material effect upon the gastric motility. Sodium bicarbonate had much the same effect as the lime water. Sodium citrate showed the least effect upon motility; its action was not at all marked. The rate at which the stomach emptied itself in the first two hours of digestion was only slightly accelerated, both with the lime water and the bicarbonate of soda, the effects of the alkalies being exerted chiefly in the latter part of the digestive period, probably due to their action in breaking up the casein curd so that the gastric protein digestion could proceed under the same favorable conditions provided in the case of precipitated casein mixtures.

DISCUSSION.

Dr. J. L. Morse: It is a pity to let such good work as this go by without saying something about it. I do not know whether all the gentlemen here realize how much confusion and uncertainty there is about the action of alkalies on the digestion of casein and the emptying of the stomach. If they did, they would appreciate better how important this work is and how much it may help us. Dr. Ladd has called attention to another important point and that is the question of the net energy value of the protein in relation to the time required for its digestion. As far as I know, no one has ever spoken of this point before, although Chapin of New York has called attention to the difference in the net energy value of the sugars, that of malt sugar being greater than that of milk sugar and cane sugar. Another point which he has brought out is the action of fat on the emptying time of the stomach. These results are rather surprising, as they are noticeably different from what we have learned as to the action of fat on digestion in adults.

Dr. John Lovett Morse read a paper entitled,

INFANTILE SCORBUTUS.

There has been both an absolute and relative increase in the number of cases of scurvy coming to the medical out-patient department of the Children's Hospital during the last few years. The per cent. of cases of scurvy to the total number of new cases during the last ten years is as follows: 0.11, 0.43, 0.17, 0.33, 0.24, 0.24, 0.47, 0.61, 0.67, 0.87. Analysis of the cases showed that 20% were fed on condensed milk or proprietary foods mixed with water. The milk was heated in at least 81% of the cases in which it was used either with or without proprietary foods. It would seem from these figures that proprietary foods, "stale" foods, or the heating of milk to the temperature of pasteurization or higher, may all play a part in the etiology of scurvy. The proportion of babies fed on the proprietary foods in 1913 was much smaller than in 1905. Boiling of the milk was much more common in 1913 than in 1905. Further analysis of the cases showed that the percentage of pasteurized milk used in Boston has increased very rapidly during the last six years coincident with the increase in the number of cases of scurvy. The figures are as follows:

Year.	Percent. of Cases.	Percent. of Pasteurized Milk.
1908	0.24	33.58
1909	0.24	30.68
1910	0.47	63.50
1911	0.61	73.02
1912	0.67	70.59
1913	0.87	80.00

* This paper was published in the Journal of April 2, 1914, p. 536.

** Published in the Journal of April 2, 1914, p. 518.

This, of course, suggests, but does not prove, some relation between the pasteurization of milk and the increase of cases of scurvy.

Analysis of the symptomatology of the cases showed that crying on handling was the first symptom noted in 69 cases, and paresis in 11. Tenderness of the legs and crying on being handled was found in every case, swelling in 25, paresis in 23, rigidity in 15 and inflammation of the gums in 37. The errors in diagnosis were numerous, which shows that in spite of all that has been written and said about infantile scorbutus during the past fifteen years, many physicians are still unfamiliar with the disease or unable to recognize it.

DISCUSSION.

Dr. Maynard Ladd: A good many children are practically getting a pasteurized or a boiled milk when, according to the history given by the mother, they are being fed on raw milk. I have seen three or four perfectly definite instances where, according to the mother's statements, the children were taking raw milk, and yet the children unquestionably had scurvy. Going into the cases farther, I have found that it was the custom of the mothers to take the bottle of milk, put it in boiling water, then prepare the child for the feeding, change the diapers tuck it up carefully, and then take the milk from the boiling water and cool it down to the proper temperature. That is a way of boiling milk, or pasteurizing it, which we do not ordinarily appreciate, and which I believe accounts for many cases of scurvy in babies who are fed supposedly on raw milk. Personally I believe that long-continued use of a milk pasteurized at a high temperature, or boiled milk, may, in a considerable number of cases produce scurvy, but if there is any reason for the giving of pasteurized milk for a long time, the danger can be materially reduced by giving orange juice. I have repeatedly fed children for many months on pasteurized milk where orange juice given in small amounts safeguarded against any tendency towards scurvy.

Dr. W. P. Coues: I would like to ask Dr. Morse if it is not true that the statement has been spread rather broadcast in the last two years since the epidemic of septic sore throat that pasteurization of milk is not harmful?

Dr. R. W. Hastings: I also desire to ask Dr. Morse if he still holds to his own opinion expressed not long ago that pasteurization or boiling of the milk does not injure babies. I would like to say just a word on this subject. At St. Mary's Infant Hospital some years ago, I should say seven or eight there were cases of scurvy undoubtedly. They were using heated milk. For perhaps six or eight years we used the fresh milk, not heated, and had practically no scurvy. Because of the opinion very positively stated by Dr. Rosenau, and not objected to by Dr. Morse, that possibly pasteurization might not have any such effect, for the last year, beginning just about a year ago, the babies there (there have been from 50 to 95 babies all the time) have had foods which were pasteurized. We try to make that a definite pasteurization at 145 degrees for thirty minutes, with all precautions, and to the best of our knowledge there has not occurred any case that could be called scurvy during the year. So far as the experiment has gone, and it is a pretty large experiment—something over 200,000 feedings—this degree of heating has not so altered the food (the formulae varying very much, of course, in different cases) as to bring about any cases of scurvy.

Dr. T. J. Eastman: (Dr. Morse's paper.) I was going to ask Dr. Morse if he has any idea to what temperature the pasteurized commercial milk is raised? I think they bring it up to 145 degrees, and I think it has been stated before that a percentage of 145 does not alter the characteristics of the milk, whereas the old percentage of 167 or more might alter the characteristics of the milk. The general tendency at the present time is for commercial milk to be pasteurized. The result of the lessening of the number of small dealers is for the large dealers to accumulate milk from a number of dairies and then pasteurize it before it is sold to the public. Along the lines of education which Dr. Morse mentioned it seems to me that if it is a question of the degree of temperature it might be wise to have the milk dealers informed, so that if they are going to pasteurize the milk it should be done at a low temperature.

Dr. Morse, in closing: I feel much complimented to find that some of you have read some of the things which I have written. I have felt for many years that the most important single factor in the causation of scurvy was the heating of milk, and when I was asked, two years ago, to read a paper at a meeting of the Massachusetts Medical Society on the effect of the heating of milk on babies, I started out with the idea that I was going to prove that heating the milk caused scurvy and probably rickets. On looking over the literature carefully I had to come to the conclusion, however, that there was no evidence, theoretical, experimental, or clinical, to prove that the heating of milk caused either scurvy or rickets. I have been over the literature even more carefully since then and have been compelled to come to the same conclusion the second time. In spite of these conclusions, I still feel that my own experience suggests, even if it does not prove, that the heating of milk does play a part in the causation of scurvy, malnutrition and rickets. I feel pretty confident that variations of a few degrees of temperature in the heating of milk does not make any special difference. It is comparatively unimportant whether the milk is heated at 140, 155 or 167 degrees Fahrenheit. More important changes occur if 167° F. is passed. Boiling milk has a very different effect from pasteurization. I think personally that we are going to see much more scurvy in the next five years than we have in the past because of the recent knowledge that boiling the milk makes the casein more digestible. A lot of people are going to boil milk for that reason and a great many are going to forget to give orange juice at the same time.

Dr. Arthur W. Fairbanks read a paper entitled

THE ETIOLOGY OF EPILEPSY.*

* Published in the Journal of April 2, 1914, p. 521.

The Italian Parliamentary Committee has unanimously adopted a report by Professor Casciani on the means of developing the thermal stations of Italy. Among these are the institution of special courses and of travelling professorships that will enable lecturers to go about to different universities carrying on a scientific propaganda.—*British Medical Journal.*

Book Reviews.

Studies in Cancer and Allied Subjects. The Study of Experimental Cancer; a Review. By William H. Woglom, M.D. Conducted under the George Crocker Special Research Fund of Columbia University. Vol. 1. Columbia University Press, New York City. 1913.

This is an imposing quarto sized volume of 288 pages, of which the printed matter of each page would easily go on an ordinary octavo page. The increased size is due to wide margins. The contents consist of chapters as follows:—

1. Brief Historical Review.
2. Attempts to Produce Tumors.
3. Earlier Observations on the Transmissibility of Cancer.
4. Transplanted Tumors.
5. Resistance.
6. Hypersusceptibility.
7. The Spontaneous Tumor.
8. Tumors of a Nature Still Undecided.
9. Therapeutics.
10. General Summary.

It is evident that the task of the author was a large one, and he has acquitted himself well, in spite of some omissions of work of importance and the inclusion of work of doubtful significance and reliability. It is worth while reading by those who wish to obtain an idea of activities and progress in cancer research. The extravagant manner of publication is to be deprecated.

Studies in Cancer and Allied Subjects. From the Department of Zoölogy, Surgery, Clinical

A collection of papers published in the same extravagant manner as the rest of the series.

Studies in Cancer and Allied Subjects. Contributions to the Anatomy and Development of the Salivary Glands in Mammalia.

A beautifully illustrated volume, similar to others of this series, containing the following papers; of interest only to embryologists and comparative anatomists.

1. A Contribution to the Anatomy of the Human Adult Salivary Glands. By Churchill Carmalt.
2. The Development of the Human Salivary Glands. By H. von W. Schulte.
3. The Anatomy of the Salivary Glands in the Lower Primates. By George S. Huntington.
4. The Genetic Interpretation of the Primate Alveolingual Salivary Area. By George S. Huntington.
5. The Anatomy of the Salivary Glands in the Carnivora. By Churchill Carmalt.
6. The Development of the Salivary Glands in the Cat. By H. von W. Schulte.
7. The Anatomy of the Salivary Glands in Some Members of Other Mammalian Orders (Marsupials, Insectivora, Rodents and Ungulates). By Churchill Carmalt.
8. The Mammalian Alveolingual Salivary Area with Special Reference to the Development of the Greater Sublingual Glands of the Pig, Together with a Review of the Literature. By H. von W. Schulte.

Urinary Diseases. By Stephen H. Blodgett, M.D. Boston: Whitcomb and Barows. 1914.

This book, as stated in its preface, has evidently been compiled in large part, from notes used by the author in his lecture for nurses. It is, therefore, a book of well-known facts connected with urinary diseases, stated simply and briefly for the use of nurses. Its nine chapters are followed by two supplementary sections, one of which is devoted to the consideration of recipes, suitable for the patient suffering from glycosuria, and the other to a tabulation of the starch and protein contents of various foods. The book is well printed on good paper, is adequately indexed, and should serve the puprose for which it was evidently written.

Genito-Urinary Diseases and Syphilis. By Edgar G. Ballenger, M.D., Adjunct Clinical Professor of Genito-urinary Diseases, Atlanta Medical College; Urologist to Westley Memorial Hospital, etc. Assisted by Omar F. Elder, M.D. The Wassermann Reaction by Edgar Paullin, M.D. Second edition revised. pp. 527, with 109 illustrations and 5 colored plates. Atlanta, Georgia: E. W. Allen and Company.

The first edition of this book, aimed "To present the fundamental principles, and to enter, at the same time, into sufficient detail when considering matters of prime importance." In other words, the book was designed to be better and more comprehensive than a quiz compend, and at the same time to stop short of the completeness and bulk of the larger text-books,—a difficult result to accomplish. It apparently succeeded, however, in its object for now appears the second edition, compelled by the many advances in our urological knowledge, during the last two or three years.

"The more satisfactory treatment of gonorrhea, vaccine therapy, Rowntree and Geraghty's test for functional activity; pyelography; the Wassermann reaction and leutin test; the cultivation of the spirochæta pallida,

the use of the dark field illumination in the demonstration of the spirochaeta pallida, the inoculation of animals with syphilis, and the discovery of salvarsan and neosalvarsan" are some of the many recent additions to the field of urology which made this edition necessary.

The increase of our knowledge of urology both in scope and in precision, has been so enormous in the last few years that a compilation of a real text-book into one volume has greatly increased in difficulty. How impossible must it be then to put that knowledge before the medical public in 500 pages! That is the task the writer set himself, and on the whole, he has succeeded fairly well. A very brief consideration of subjects which might seem worthy of a more extensive presentation is often evident, but for the most part, the author has maintained a just perspective and has given us a book of value, a book which carries its subject up to the year of its publication.

Type and paper are of fair quality, and some of the cuts and photographs are excellent, while others are far from being so.

Dorland's American Illustrated Medical Dictionary. A new and complete dictionary of terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Veterinary Science, Nursing, Biology, and kindred branches; with new and elaborate tables. Seventh revised edition. Edited by W. A. Newman Dorland, M.D. Large octavo of 1107 pages, with 331 illustrations, 119 in colors. Philadelphia and London: W. B. Saunders Company. 1913.

The seventh edition of this valuable dictionary does not differ in appearance or materially in size from its predecessor. The rapid growth of certain branches of medical science has demanded the addition of a large number of words and terms, particularly in the fields of serology, physiology, pathological chemistry and experimental medicine. A complete revision of the book has been undertaken and upwards of 5000 new terms defined. The volume is published as before in flexible covers, and in general it maintains its character of convenience, completeness and reliability.

Supplement to Illustrate an Operating Theatre in Private Practice. By C. Hamilton Whiteford, M.R.C.S., L.R.C.P. London: Harrison and Sons. 1914.

Mr. Whiteford's original monograph was reviewed in the issue of the Journal for Sept. 19, 1912 (Vol. clxvii, p. 402). This supplement has been prepared in response to requests for a plan and illustrations, which are here provided in three full-page plates. The author has also included a description of additions made to his operating theatre during the year 1913, consisting of a glove-drier, a needle for fascia and muscle, an apparatus for rectal seepage, an apparatus for maintaining Fowler's position, a surgical diet chart, and a list of instruments and linen. The pamphlet is a convenient complement to the unique and valuable original.

Pathology. General and Special. A Manual for Students and Practitioners. By John Stenhouse, M.A., B.Sc. Second edition, revised and enlarged. Illustrated with twenty-nine engravings and a colored plate. 1913.

This book is a quiz compend in pathology; essentially a book of definitions with questions appended to the various chapters. Of possible use in cramming for such examinations as might be given by state boards.

The Unexpurgated Case Against Woman Suffrage. By Sir Almroth E. Wright, M.D., F. R. S. New York: Paul B. Hoeber. 1913.

Admitting the general premise that women are inferior to men, physically, intellectually and morally, it is manifestly unreasonable to concede equality in the matter of the ballot. This is Sir Almroth's position. The work is written in an irritatingly patronizing style, and if the opinions expressed are widespread in England, our wonder grows less at the indignation of certain men and women as expressed in the outburst of militancy through which that country is passing.

The Elements of Bacteriological Technic. A Laboratory Guide for Medical, Dental and Technical Students. By J. W. H. Eyre, M.D., M.S., F.R.S. (Edin.). Second edition; rewritten and enlarged. W. B. Saunders Company. 1913.

This edition is a marked improvement over the first one. It contains very complete directions for the preparation of media and solutions used in bacteriological work, and the methods of procedures commonly employed in bacteriological research. Descriptions of bacteria are not included. The technic for the Wasserman reaction, opsonic index determinations, complement fixation and bacteriological analysis of water, milk, foodstuffs, sewerage and soil are included. There is a chapter on the testing of disinfectants and a series of useful tables. The book is to be heartily endorsed as adequate for the purposes for which it is intended, namely, a laboratory guide for medical, dental and technical purposes.

THE BOSTON

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FEDERAL OR MUNICIPAL QUARANTINE.

EARLY in his administration Mayor Curley, as part of his program of municipal economy, proposed that the quarantine service of the port of Boston be transferred from the local health department to the federal government, thereby saving this city an expense of about $20,000 a year. This plan was vigorously opposed by the Boston Chamber of Commerce and by the mercantile and shipping interests generally. It was favored chiefly by various public officials. To give both sides an opportunity to express their views, a public hearing was held on April 21, before the executive committee of the city council.

Prior to this hearing, Dr. M. Victor Safford, of the United States Public Health Service, had stated the supposed advantages of federal over municipal quarantine in a communication to the daily press, from which we may quote in part as follows:—

"There seems to be an idea prevalent here in Boston that in the matter of precautions against the introduction of exotic contagious diseases, ships arriving at this port are securing or can secure from a local municipal quarantine management dispensations that could not be obtained if the maritime quarantine officers at Boston were federal officials. Those who entertain this idea do not realize the fact that for all practical purposes the control of federal officials over the management of quarantine at Boston or any other port in the United States or its possessions, is absolute.

"The two diseases whose introduction into the country by foreign commerce are at present to be most dreaded by people in this latitude are cholera and bubonic plague.

"The introduction of either of these diseases or any other serious contagious disease at Boston is a matter which concerns the whole country. Only about one-half the passengers who arrive at Boston stay even in New England. It is through officers of the public health service, acting under the direction of the secretary of the treasury, that the federal government in a supposed emergency exercises its authority to prevent such an occurrence.

"In case of suspected danger of the introduction of cholera at this port, for example, there would be immediately sent to the local quarantine station an officer of the public health service with practical experience in handling cholera. If he should deem the sanitary interests of the country to be jeopardized by the manner in which local quarantine officials were handling the situation, an order of the secretary of the treasury requiring certificates of United States public health officers as a prerequisite for the entry of ships at the Custom House would at once follow. This, however, is not likely to happen. Unless a local quarantine official be a hopeless fool, he would welcome the expert assistance which such a public health officer could furnish him. Experience has shown that on these occasions the federal medical officer has found it advisable to mitigate rather than increase the severity of the measures that a local quarantine official is inclined to impose upon commerce.

"The proposition to turn the Boston municipal quarantine establishment over to the federal government has been made by the city officials. It has not been solicited by the government. With their present power of control over local quarantines the federal authorities are entirely willing that the city of Boston and the steamship companies should bear the expense incidental to the administration of the quarantine of the port if they care to do so. Under a federal quarantine management all costs, including those incidental to the removal from ships of passengers by the wholesale, as occurred here in 1911, fall on the federal government and not on the steamship companies.

"It is well known that the municipal quarantine at Boston has been intelligently managed in accordance with requirements prescribed by the federal government. The writer, who as a United States public health officer has been in close touch with the administration of the local quarantine for ten years, is able to testify to this. He also knows that no concessions to commerce have been granted by the local quarantine officials which would not have been obtained as a matter of course from a federal quarantine management, whatever the shipping interests may think they have been getting. Under their present management and with the power of practical control now possessed by the federal government, the actual administration of either

the Boston or New York quarantines is not regarded so important from a national public health point of view as the quarantines of many other ports already under federal arrangement. There is no reason, however, why the proposed transfer of the Boston municipal quarantine plant should not be advantageous to everybody concerned. Where municipal quarantines have been transferred to a federal management, local commercial interests have never thus far made known any desire to return to previous conditions."

At the hearing these views were reiterated by Dr. Safford. The representatives of the various business organizations in opposition to the proposed change summarized their objections essentially as follows: That the present municipal administration of the Boston quarantine service is highly efficient and satisfactory; that to transfer it to federal administration might interfere with present plans for the development of the port; that New York and Baltimore maintain their own quarantine service; that decisions can be more quickly obtained from local than from national authorities; and that a change would hamper shipping interests and divert business to other ports. Among those who spoke in favor of the change were Mr. George F. Babbitt, a former Boston health commissioner, and Mr. Edward F. McSweeney, chairman of the consumptives' hospital department.

Two days after the hearing, in a letter to the public press, Mr. John A. Sullivan, former chairman of the Boston finance commission, and now corporation counsel of the city, stated effectively the views of the advocates of federal control.

"As many persons must have received the impression that the city of Boston is trying to save $20,000 a year by discontinuing its local quarantine service and transferring the same to the federal government without regard to the interests of Boston shippers, or to the future development of our port, I think it only proper to state that every objection which has been raised by the shipping interests has been stated to the treasury department at Washington and that the department has assured the city authorities that all of these objections will be met in a satisfactory manner. This assurance was given to the Mayor before he took definite steps to have the quarantine service transferred to the federal government.

"The government is willing to station an officer in Boston and clothe him with authority to adjust all matters in relation to quarantine without the delays incident to referring such matters to Washington. It has agreed to arrange for the boarding of vessels from daybreak to dark, or earlier or later, if required, an arrangement similar to the one which it has made for the port of Philadelphia, which is now under federal jurisdiction. It has also agreed to reserve at the quarantine station all existing facilities for the care of smallpox patients or persons affected with other dangerous diseases. In short, it stands ready to maintain a service equal in every respect to that now maintained at this port.

"It is true, of course, that the successor of the present secretary of the treasury might, after the Boston service had been transferred to the federal government, change the regulations to the detriment of shipping interests, but he is not likely to do so any more than Boston health officials in the future would be likely to change the regulations made by the present health officials of the city. The fact that the United States government has since 1893 waived the requirement of local inspection of vessels from Canadian ports, although it might have insisted upon such inspection during the intervening years, should be taken as a sufficient indication of the good faith of the government.

"At present only three important ports in the country are under local control—New York, Baltimore and Boston. In all the other Atlantic ports under the control of the federal government, as well as the ports on the Pacific, all of which are under federal control, the service is performed in a satisfactory manner.

"Quarantine service is not local but national in character. The national authorities have the power to follow suspected cases into any part of the United States and to isolate them for the public protection. Local authorities, whether state or municipal, have no jurisdiction beyond their own boundaries. In this respect municipal or state control of quarantine is inferior to national control. The health of the entire community should be regarded as paramount to the interests of shippers at any port; but where, as in the present case, the shipping interests will be fully protected and public health better conserved, there would seem to be no sound reason for opposition to the proposed transfer.

"It has been suggested that Boston should not take the step until New York and Baltimore have come under federal control. If New York and Baltimore take the same position all three ports will forever remain outside of federal control. If, on the other hand, Boston comes under federal control, and the service proves satisfactory, it is probable that New York and Baltimore will ask that their services be transferred to the federal government.

"Any stranger who attended the hearing at the City Council yesterday would have come to the conclusion that the shipping interests were opposing the transfer because of the ultra-conservatism which fears any change simply because it is change, or because they were now enjoying illegal privileges which they feared they

would lose if placed under federal control. The chairman of the city's Board of Health is authority for the statement that no illegal privileges are given, therefore there seems to be no reason why the shipping interests should oppose the transfer.

"Of course the saving of $20,000 or $25,000 a year is not a matter of great importance. The city can afford to waste this amount of money just as well as it could afford to waste money for any other unnecessary purpose, but if, as the hearing of yesterday clearly disclosed, the service will be at least equal to that now rendered, there ought not to be any opposition to the saving of $20,000 or $25,000 a year by the city, for there are many useful purposes for which this money is needed."

In rejoinder to Mr. Sullivan's communication, the following letter from Mr. William C. Brewer was published in the daily press of May 2:—

"The principal objection advanced by the shipping interests against federal quarantine is that it entails a final decision from Washington on any matters which the local federal doctor feels he must submit to the department. Any one conversant with departmental routine knows what delays this may entail. Under city quarantine an opportunity is given to the interested party to lay his case before the health department and obtain a ruling without any delay.

"Mr. Sullivan perhaps unconsciously supports the position taken by the shipping interests when he writes that the treasury department is willing to clothe their representative in Boston with authority to adjust matters 'without the delays incident to referring such matters to Washinton.' Does not this appear an admission on the part of the federal authorities that the argument of the shipping interests, as to probable delay, is well founded. Even further, Mr. Sullivan admits that a future secretary might modify these concessions 'to the detriment of shipping interests.' And yet the state of Massachusetts is spending $9,000,000 to develop the port of Boston. It is difficult to reconcile the attitude of the city and the state.

"It is not my desire to discuss here the relative merits of federal and local quarantine, suffice it to say, that our local quarantine is subject to federal supervisory control and regulations and that it was conceded that our city quarantine was efficient and able to safeguard the public health.

"I think that the 'fears' of our local shipping, as to any change in the present system, have some justification when the following figures of the transatlantic passengers passing through the principal ports of the United States are noted and their system of quarantine:

New York—State control	1,708,358
Boston—City control	134,318
Philadelphia—State-Federal	87,044
Baltimore—City	47,533
Portland—Federal	15,816
Galveston—State	10,459
New Orleans—Federal	1,491

"Last, and by no means least, as the proposed transfer of our quarantine is based on economy for the city, it is a fact that the arrangement suggested by the treasury department carries with it the proviso that the city shall continue to send down to quarantine and pay the federal government for their maintenance, all cases of infectious diseases and that the city shall agree to maintain a means of transportation to carry such cases to and from quarantine. It would seem as though this arrangement will still cause the city considerable expense, especially as the cost of transportation, particularly in the event of an epidemic, is problematical.

"When all the ports competitive to us pass entirely under federal control, then and not till then, should Boston seriously consider the proposition and even then we must not forget our Canadian rivals, who are advancing by leaps and bounds and successfully catering for a large share of the passenger travel."

It seems that probably both the opponents and the advocates of the change speak from a slightly biased point of view. The latter are public officials and tend to speak *ex parte*: the former, as business conservatives, are prone to object to any change on general principles. As a matter of fact, there seems no urgent need for making the change at present, and again if it were made probably no serious disadvantages would follow.

At the meeting of the city council on May 5, Mr. Sullivan requested more time to investigate the problem, and definite action on the proposal was postponed for another week.

As the JOURNAL goes to press we learn that at its meeting on May 12 the City Council rejected the proposal to transfer the quarantine, but that the plan will probably be revised in connection with the proposed reorganization of the State Board of Health.

THE RELATIONSHIP OF HYSTERIA TO OTHER CONDITIONS.

HYSTERIA is now generally conceded to be a psychoneurosis, in which the primary etiologic factor is mental. Viewing the disorder from this psychic aspect we find that hysteria has most intimate relationships to various other psychic states, normal and abnormal.

In order to understand the more clearly the relationships to which we shall refer, it would be

advisable to review here the two definitions of hysteria which have received the widest recognition. According to Binet, hysteria is a condition of double consciousness, with two streams of consciousness flowing side by side, relatively independent and separated by amnesia. Janet would define hysteria as a form of mental depression characterized by the retraction of the field of personal consciousness and by the tendency to the dissociation and the emancipation of systems of ideas which by their synthesis constitute the personality. From these two definitions as a starting point, various correlationships between hysteria and other allied conditions may be built up. The relationship between hysteria and various other states of mental dissociation at once comes to mind. And, as one would expect, this similarity did not escape the attention of neurologists, psychopathologists and psychiatrists who have concerned themselves with the problem of hysteria.

Janet tells us that to be suggestible is to be hysterical, and that only hysterics can be hypnotized. He believes in the identity of the hysterical and the hypnotic states, based upon the common factor of suggestibility. Sidis has called attention to the so-called hypnoidal state, a mental state or state of consciousness between waking and sleep on the one hand and hypnosis on the other, which is thus a semi-waking state, which is believed by Sidis to be the primitive rest state of animals, and from which both sleep and hypnosis are developed. There is thus a relationship between hysteria and the hypnoidal state, as well as between hysteria and hypnosis. Claparède reminds us that both sleep and hysteria are biological defense reactions. Bernheim asserts that the state of hypnosis is allied to that of sleep. And McDougall points out the similarities between sleep and hypnosis. Prince and others have shown the close relationship between hysteria and the cases of multiple or dissociated personalities. And latterly the results obtained by psychoanalysis have proved the intimate association of hysteria to the so-called psychopathological acts of everyday life, such as slips of the tongue and pen, acts of forgetfulness and the like. Snyder laid stress upon the naïve, simple, infantile, primitive mentality which we find in so many hysterics, and its possible relation to the infancy of the race at once comes to mind. Others have noted certain points of similarity between hysteria and mental enfeeblement.

The most important advance in this direction in the past few years has been given to us as a result of intensive studies in dementia precox. So noteworthy has been the progress that it should be touched upon at somewhat greater length. Psychopathologists look upon dementia precox as an inadequate biological reaction due to internal ideas or external experiences. It is to be noted that this conception had previously been applied to the study of the elucidation of the mechanism of hysteria. It has been found that dementia precox shows many features strongly resembling hysteria. The most prominent features of this type are the delirious episodes, the irrelevant replies to questions, the stupor, the vasomotor disorders and peculiar disturbances of consciousness. It is also known that many of the features of katatonic stupor resemble hypnosis. It was this which led Evenson to regard dementia precox as a narrowing of the field of consciousness, thus corresponding quite closely with the view of the psychogenesis of hysteria as defined by Janet. It has been discovered that both dementia precox and hysteria show phenomena pointing to a profound mental dissociation, the latter causing a curable hysteria in one case, and an incurable dementia precox in another.

In a recent paper entitled "Recent Trends in the Psychopathology of Dementia Precox," Coriat tells us that Evenson observed a close similarity between some of the prominent symptoms of dementia precox, such as negativism, stereotypy, peculiar attitudes and the reaction of a normal person who has become preoccupied by a thought. Evenson went so far as to suggest that the essential symptoms in both the preoccupied individual and in the katatonic were due to a narrowing of consciousness around a central content. He further declared that there existed a close analogy between hypnosis and katatonic stupor.

It is due, however, to the very splendid work of Jung and Bleuler, the so-called Zurich school, that the most remarkable advance in the psychopathology of dementia precox has been obtained. Jung states that the psychological mechanisms of dreams and hysteria are most closely related to those of dementia precox. As Coriat says, when the underlying complexes control the entire mental life we have dementia precox, whereas when they merely lessen the amount of energy at the disposal of the patient we have hysteria.

REORGANIZATION OF THE BOSTON BOARD OF HEALTH.

In the issues of the Journal for Jan. 22 and Feb. 26 we published editorials on the "Reorganization of the Massachusetts State Board of Health." What was then said of the desirability of a single highly paid commissioner of health in authority, with an unpaid advisory board, is equally applicable to the problem of local health administration in large cities.

In Boston the term of one of the three members of the local board of health expired last month. His place has not yet been filled and the time seems opportune to consider the possibility and desirability of reorganization of the board on the basis which we have approved for the state board. In a recent letter to the daily press on this subject, Dr. Richard C. Cabot said in part:—

"Those of us who followed the work of the board of health for a number of years have reason to believe that the work of that board was never so good as it is today. Despite all of the drawbacks and political interferences to which it has been subjected, it has been and is doing a good work.

"But it ought to do far better work, and it is not at all likely to do so under its present faulty organization. It certainly ought to be a single-headed board and not a three-headed board, as at present. It certainly ought to be free to discharge or pension off its superannuated employees."

What is most important of all is that the reorganized board should be free from political control. The supervision of public health is a business, and should be administered by a competent expert for the benefit of the public.

THE AMERICAN GYNECOLOGICAL SOCIETY.

The thirty-ninth annual meeting of the American Gynecological Society is to be held next week in Boston, and the medical profession is cordially invited to its sessions. The headquarters of the Society will be at the Harvard Club. The scientific meetings on Tuesday and Thursday, May 19 and 21, are to be held at the Boston Medical Library. Wednesday, May 20, will be spent at the Brookline Country Club.

For the morning session on May 19, four papers are announced, by Drs. Manton of Detroit, Clark of Philadelphia, Byford of Chicago, and Higgins of Pittsburgh. The afternoon session on this day will be devoted to a symposium on anesthesia. In the forenoon of May 20 will be the president's address, by Dr. J. Whitridge Williams, of Baltimore; a memorial of Henry J. Garrigues, by Dr. Brooks H. Wells; and papers by Dr. Robert L. Dickinson of New York, Dr. E. A. Codman of Boston, and Dr. Reuben Peterson of Ann Arbor. In the afternoon the principal paper will be by Dr. Wilhelm Nagel, of Berlin, on "Operative Treatment of Prolapse of the Vagina." Eight papers are announced for the sessions on May 21.

The American Gynecological Society last met at Boston in 1904. The immense progress of the past decade in medical science has affected its specialty as importantly as it has the other branches of medicine, and will be reflected in its proceedings, which will be reported in subsequent issues of the Journal. The cordial welcome of the Boston profession, as well as of the local members of the Society, awaits the members from other cities and the distinguished guests.

MEDICAL LEGISLATION. THE DENTAL NURSE BILL.

In the issues of the Journal for Jan. 1 (p. 24), and Jan. 22 (p. 139) we commented editorially on the so-called "dental nurse bill," submitted to the General Court by and with the approval of the Massachusetts Civic League, providing for the appointment of a state board of dental examiners in this Commonwealth, and defining their duties. After prolonged discussion, this bill was on May 6 favorably reported to the House by the committee on public health, but with five of the eleven members of this committee dissenting. The fate of this bill in the legislature will be watched with interest by both advocates and opponents. We have only to reiterate our approval of its purpose and our hope that it may be enacted into law.

MEDICAL NOTES.

BUBONIC PLAGUE IN CHINA.—Report from China states that, during the week ended April 29, 193 cases of bubonic plague were notified at Hongkong.

A VERSATILE AND VIGOROUS CENTENARIAN.—Robert Crichton, of Caterham Valley, England, is said to have been born on April 3, 1812, at Alyth, in Perthshire, Scotland. While studying law, he served for a time as clerk to Sir Walter Scott, when the latter was sheriff of Midlothian. In 1839 Crichton sailed for Australia, and spent his active life there as a pioneer in New South Wales. Since his return to England in 1894, he has travelled extensively in Egypt, Italy, and Palestine. In 1910 he renounced his lifelong use of alcoholic beverages, having become convinced that they were injurious to his health. He continues, however, to take snuff, which he believes harmless.

COMPARATIVE MORTALITY OF MEASLES.—Statistics recently published show that the mortality of measles per 100,000 is 48 in Chile, 44 in Hungary, 38 in Spain, 35 in Belgium, 33 in Austria, 29 in England and Wales, 10.8 in the United States, 6 in Sweden, 3.4 in New Zealand, and 2.4 in Australia.

BUBONIC PLAGUE IN HAVANA.—Report from Havana states that another death from bubonic plague occurred in that city on April 30. This makes a total of 16 cases and 3 deaths of the disease since the recent introduction of the infection.

A MUNIFICENT HOSPITAL GIFT.—It is announced that Mr. James Deering, of Cleveland, Ohio, has made a gift of $1,000,000 for the endowment of the Wesley Hospital of that city, with the provision that it shall be a teaching hospital under control of Northwestern University. This munificent gift is made in memory of the donor's father and sister.

GEORGIA MEDICAL HALL.—On Tuesday evening, March 31, the new building of the Georgia Medical Society was formally dedicated at Savannah, Ga., with appropriate exercises. The principal address was by Dr. J. Ewing Mears, of Philadelphia, who spoke on "The Significance of Construction and Opening of the Medical Hall." Dr. Mears has established a foundation in the society's library for the purchase of books.

BOSTON AND NEW ENGLAND.

AN IMPORTANT OPPORTUNITY FOR RESEARCH.—Report from Washington, D. C., on May 4 states that, in response to a letter from Dr. J. Collins Warren, of Boston, Surgeon-General Blue, of the United States Public Health Service, has directed that ten beds in the Marine Hospital at Chelsea, Mass., be placed at the disposal of the Harvard Medical School, for co-operative work in the study of tropic diseases.

TRUSTEES OF BOSTON CITY HOSPITAL.—At the recent annual organization of the board of trustees of the Boston City Hospital, Mr. A. Shuman was re-elected president, and Dr. John J. Dowling, recently appointed, was duly qualified as a member.

NEW HAMPSHIRE MEDICAL SOCIETY.—The one hundred and twenty-third annual meeting of the New Hampshire Medical Society was held at Concord, N. H., on Wednesday of this week, May 13. Among the papers presented by invited guests was one on "The Conduct of a Case of Labor," by Dr. Franklin S. Newell, and one on "Fractures of the Spine and Pelvis," by Dr. Frederic J. Cotton, of Boston. Dr. George W. Crile of Cleveland, spoke on "Anoci-Association."

FOXBOROUGH STATE HOSPITAL.—The recently published twenty-second annual report of the trustees of the Foxborough State Hospital, administering also the Norfolk State Hospital, records the work and progress of these two institutions for the year ended Nov. 30, 1913. During this period the total number of inebriate patients under treatment was 1437, and of insane 237. The out-patient department, during the four years since its establishment, has followed 2261 cases. The new buildings at Norfolk were completed and ready for occupancy on Jan. 1, 1914. Among the urgent present needs of the institution is an appropriation to enable the foundation of a farm-colony for the treatment of women inebriates.

WORCESTER CITY HOSPITAL.—The recently published forty-third annual report of the trustees of the Worcester (Mass.) City Hospital records the work and progress of that institution for the year ended Nov. 30, 1913. During this period 5390 patients were treated in the wards, 23,278 treatments were given in the out-patient

department, and 1069 in the accident room. From the training-school 32 nurses were graduated. New buildings are in progress of construction for the children's ward and the nurses' home.

Office of Vital Statistician Restored in Boston.—In a recent issue of the Journal we noted the abolition by Mayor Curley of the office of vital statistician in Boston. As a result of numerous protests, this order has been rescinded, and Dr. William H. Davis will continue to hold the position.

Scarlet Fever at Bedford.—Report from Bedford, Mass., states that 15 cases of scarlet fever have occurred in that town during the past six weeks, and that the local public schools have been ordered closed for ten days to prevent further spread of the infection.

Smallpox Case in Amesbury.—Report from Amesbury, Mass., states that a case of smallpox was discovered in that town on April 30. The patient, who had been on a recent visit to Boston, has been quarantined, and all contacts have been vaccinated.

A Living Centenarian.—Ralph Butler, of Dorchester, Mass., is said to have been born on May 5, 1813.

A Prolific Centenarian Slave. — Mrs. Thomas Spence, a negress who died recently in Boston, is said to have been born in 1801 at Camden, Me. She was sold into slavery, and all of her sixteen children, three of whom survive her, were born slaves. She was twice married.

Women in Foreign Medical Work.—The annual meeting of the Women's Medical Association for Aiding Women in Medical Work in Foreign Countries was held last week in Boston. The principal speaker was Dr. Katharine B. Scott, who has been working for several years in Madura, India. The following officers were elected: President, Dr. Emily R. Howard; first vice-president, Dr. Elizabeth E. Ritter; second vice-president, Dr. Blanche A. Denig; secretary, Dr. Marian Coon; treasurer, Dr. Helen I. Woodworth; auditor, Dr. Anna O'Sullivan; chairman of China work, Dr. Frances Morris; of India work, Dr. Alice H. Bigelow.

Brockton Board of Health.—The recently published thirty-second annual report of the department of public health of Brockton, Mass., records the activities of that body for the calendar year 1913. During this period the death-rate was only 10.88 and the birth-rate 36.23. The usual tables and departmental reports are appended.

Cases of infectious diseases reported to the Boston Board of Health for the week ending May 5, 1914: Diphtheria, 24; scarlatina, 93, of which 18 were non-residents; typhoid fever, 3; measles, 88, of which 2 were non-residents; tuberculosis, 58, of which 2 were non-residents.

The death-rate of the reported deaths for the week was 15.49.

NEW YORK.

American Association of Medical Jurisprudence.—The annual meeting of the American Association of Medical Jurisprudence was held at the New York Academy of Medicine on May 2, and among the questions discussed were the sterilization of mental defectives and medical experimentation upon condemned murderers. Dr. Charles A. Boston, a prominent member of the New York Bar, was elected president; succeeding Dr. Reynold Webb Wilcox, the first president of the association. San Francisco was selected as the place for holding the next annual meeting.

New Cancer Hospital.—It is announced that arrangements have been effected for the control by the Cornell University Medical College of the largest cancer hospital in this country. The buildings for this are those of the General Memorial Hospital, at 105th and 106th Streets and Central Park West, an institution which was originally intended for the treatment of cancer. A fund of over $1,000,000 has already been secured, and $500,000 of this is stated to have been contributed by Dr. James Douglas, head of the house of Phelps, Dodge and Company, through whom also the hospital will receive a large supply of radium.

Resignations at Columbia.—At the monthly meeting of the trustees of Columbia University, on May 4, the resignations were accepted of Prof. F. J. Goodnow, who has been made president of Johns Hopkins University; Dr. Theodore C. Janeway, Bard professor of the practice

of medicine; and Frederick Peterson, professor of psychiatry. Dr. J. Ramsay Hunt having resigned the professorship of neurology, Dr. Frederick Tilney, now associate in anatomy, was appointed to succeed him in that position. Among the gifts announced at the meeting was one of $500 from H. E. Sargent of Chicago for research work in anthropology.

Results of Friedmann Treatment.—Health Commissioner Goldwater has published in the department's *Weekly Bulletin* a report of an investigation of the cases of tuberculosis treated in New York by the Friedmann remedy, showing the entire failure of the treatment. Of the total of 77 patients, 19 could not be found, while 11 were reported to have removed from the city permanently, so that nothing could be learned of their condition. The department was, therefore, able to obtain reports on but 47 of the 77 cases. The reports are summarized as follows: At home, 5; in hospitals (indicating failure to cure), 22; attending clinics (showing need of further treatment), 7; attended by private physician, 1; died, 12. The report concludes with the words, "Comment is unnecessary; the figures tell their own story."

Death-Rate for the Week Ended May 2.—There were 1593 deaths and a death-rate of 14.89 per 1000 of the population reported during the past week, as against 1532 deaths and a rate of 14.88 for the corresponding week of 1913, an absolute increase of 61 deaths, and an increase in the rate of .01, which is equivalent to a relative increase of 1 death. The causes which showed a decreased mortality were diphtheria and croup, cerebral spinal meningitis, organic heart disease, pneumonia, tuberculous diseases other than pulmonary, Bright's disease and nephritis, and deaths from violence. The causes showing an increased mortality were measles, scarlet fever, whooping cough, typhoid fever, diarrheal diseases under five years and pulmonary tuberculosis.

Viewed from the point of age grouping, the mortality of infants under one year of age was approximately the same, while that between one and five years of age was considerably below that of the corresponding week of 1913. The mortality between five and sixty-five years of age showed very little change over the figures of 1913, while that of the age over sixty-five years a considerably increased mortality was recorded.

The borough of Richmond showed the highest death-rate for the week, due to the presence of several large institutions, the inmates of which come from other parts of the country, and to the unfavorable age distribution of the population. The next highest rate was found in the borough of Manhattan, followed by the borough of Brooklyn, borough of The Bronx, and the lowest mortality being recorded in the borough of Queens.

The death-rate for the first eighteen weeks of 1914 was 15.43 per 1000 of the population as against a rate of 15.63 during the corresponding period of 1913, a decrease of .20 of a point.

Current Literature

Medical Record.

April 25, 1914.

1. Mendel, L. B. *The Nutritive Significance of Different Kinds of Foodstuffs.*
2. Lusk, G. *Food from the Standpoint of Energy.*
3. Berkeley, W. N. *Results of Three Years' Clinical Work with a New Anti-serum for Cancer.*
4. Bradford, S. S. *The Rôle of Exercise in the Treatment of Visceroptosis, with Special Reference to the System of W. Curtis Adams.*
5. Mays, T. J. *Has the Tuberculosis Death-Rate Declined Recently?*
6. Knox, H. A. *A Comparative Study of the Imaginative Powers in Mental Defectives.*
7. Sittenfield, M. J. *Recent Advances in the Study of the Pathogenesis of Cancer.*
8. Robinson, B. *The Value of Accurate Diagnosis in Disease.*
9. *Boehme, G. F., Jr. *"Tango-Foot."*

9. Under the name "tango-foot," Boehme describes a condition which he has observed frequently of late and which he ascribes to the extraordinary flexibility of the ankle which the new dancing requires. The strain comes especially on the tibialis anticus, the extensor communis digitorum, and the extensor proprius hallucis, and the result is a teno-synovitis of this muscle group. The symptoms are stiffness of the ankle joint and pain along the outer anterior aspect of the lower third of the leg. Abstinence from dancing is often sufficient treatment, but complete rest of the foot may be necessary. Counter-irritation and baking give relief in severe cases. [L. D. C.]

New York Medical Journal.

April 25, 1914.

1. Ruhrah, J. *The Prophylaxis of Measles.*
2. Porter, W. H. *The Value of Cocaine in Disturbances of Metabolism.*
3. Boston, L. N. *Private Cases of Diabetes and Glycosuria Treated in* 1913.
4. Kennedy, J. W. *The Surgeon as the Autocrat of the Operating Room.*
5. Bartholow, P. *Medical Testimony and Legal Supervision.*

6. Crothers, T. D. *The Effects of Alcohol and Tobacco on Life Expectancy.*
7. Baketel, H. S. *The Army Medical Corps.*
8. Brill, A. A. *The Psychopathology of the New Dances.*
9. Stimson, C. M. *A Magnetized Needle Holder.*
10. Pabst, C. F. *Dangerous Medical Legislation.*
11. Carrel, A. *The Transplantation of Organs.*

The Journal of the American Medical Association.

April 25, 1914.

1. Tyson, J. *Inflammation of the Gall-Bladder. Its Causes, Symptoms and Results.*
2. Mosher, C. D. *A Physiologic Treatment of Congestive Dysmenorrhea and Kindred Disorders Associated with the Menstrual Function. Third Note.*
3. Strouse, S., and Beifeld, A. H. *A Case of So-called "Renal Diabetes" Possibly Traumatic in Origin.*
4. *Pfahler, G. E. *The Roentgen Rays in the Diagnosis of Gall-Stones and Cholecystitis. An Improvement in Technic.*
5. Phillips, W. G., Jr. *The Absorption and Tensile Strength of Certain Absorbable Animal Ligatures. A Preliminary Report.*
6. Kleiner, S. B. *A Clinical Method for the Rapid Estimation of the Quantity of Dextrose in Urine.*
7. Smithies, F. *A New Fluoroscopic Sign for the Differentiation of Pyloric Spasm of Extragastric Origin from That Associated with Uncomplicated Gastric Ulcer on or Near the Lesser Curvature.*
8. *Block, F. B. *The Effect of Operation on Kidney Excretion as Indicated by the Phenolsulphonephthalein Test.*
9. *Pardee, H. E. B. *Form of the Electrocardiogram. Diagnostic Significance of Its Variations.*
10. *Davis, G. G. *Roentgen Ray as a Diagnostic Measure in Tuberculous Lymphadenitis.*
11. Sutton, R. L. *An Extensive Case of Plantar Warts.*
12. Truesdale, P. E. *Cancer of the Splenic Flexure.*
13. Hitchings, F. W., and Sloan, H. G. *Appendicitis Following Ingestion of Shot for "Cuban Itch."*

4. Pfahler states that gall-stones can be shown by x-ray only when they are composed of a substance of greater or less density than the surrounding tissues. This will usually mean that they must contain some lime salts, though the quantity may be small. The author's records show positive findings in 74%, but in general not more than 50% can be counted on being positive.

8. Block finds that the effect of ether anesthesia on healthy kidneys is practically nil so far as reducing the excretory power of these organs is concerned. Traces of albumen before operation should not give much concern, but larger amounts should cause concern if accompanied by casts. The duration of anesthesia in any given case does not in itself signify the amount of injury which the kidneys will sustain. The position of the patient on the table, the character of the operation and the administration of proctoclysis have not shown any effect on the percentage of phenol-sulphonephthalein excretion after as compared with that before operation. In one-third of the cases there is increased excretion after operation.

9. Pardee's article on the use of the electrocardiogram is of value and interest.

10. Davis finds that roentgenoscopy is valuable in making a differential diagnosis of enlargement of cervical lymph nodes. This is possible only when tuberculous nodes have become necrotic and caseous and calcification later takes place. It is the calcium salt which shows in the x-ray. [E. H. R.]

The Lancet.

April 11, 1914.

1. Jones, F. W. *The Arris and Gale Lectures on the Morphology of the External Genitalia of the Mammals.*
2. Dreyer, G., and Walker, E. W. A. *An Analysis of the Problem of the Minimal Lethal Dose and Its Relationship to the Time Factor.*
3. Glynn, E. E., Rees, A. A., Powell, M., and Cox, G. L. *Improved Methods of Standardizing Bacterial Vaccines in Hemocytometer Chambers.*
4. *Thiele, F. H., and Embleton, D. *A Method of Increasing the Accuracy and Delicacy of the Wassermann Reaction.*
5. West, S. *Notes on Diabetic Retinitis.*
6. Howard, H. C. *The Therapeutic Value of the Potato.*
7. Brock, B. G. *The Mortality on the Rand: Some of Its Causes.*

4. The writers describe a method for performing the Wassermann reaction which they believe to be simple, quick, and absolutely controlled. This may prove of interest to those engaged in this special work. [J. B. H.]

The Indian Medical Gazette.

April, 1914.

1. *Neve, A. *The Surgery of Tubercular Glands.*
2. Ewens, G. F. W. *Insanity from Exhaustion.*
3. Berkeley-Hill, O. *A Short Analysis of Eighty-Nine Cases of Epilepsy in the Punjab Lunatic Asylum.*
4. Haughton, S. *The Prophylaxis and Treatment of Pre-Eclamptic Toxemia and Eclampsia.*
5. Bradfield, E. W. C. *Anuci-Association and Cancer of the Cheek.*
6. Hingston, C. A. F. *An Analysis of Seventy-Seven Cases of Placenta Previa at the Government Maternity Hospital, Madras.*
7. Newman, E. A. R. *A Bismuth Paste Injector.*
8. Pratt, D. E. *Two Cases of Abdominal Tumors with Curious Complications.*
9. Roberts, J. M. *Zinc Rod in the Uterus.*

1. Neve's report is based on the history of 800 operations in the Kashmir Mission Hospital. Of these 75% were cured, 15% improved, and 10% had sinuses or recurrence. The author believes in the efficacy of this method of treatment rather than in the use of tuberculin injections. [R. M. G.]

British Medical Journal.

April 11, 1914.

1. *Thomson, St. C. *Three Years' Sanatorium Experience of Laryngeal Tuberculosis.*
2. *Wilkinson, W. C. *Tuberculin Treatment as the Essential Method of Dispensing Sanatorium Benefit.*
3. Sahli, H. *A Contribution to the Critical Study of Therapeutic Statistics.*
4. *Renton, J. M. *Some Observations on Tuberculosis of the Kidney.*
5. *Neve, A. *The Surgery of Tuberculous Glands.*
6. Champtaloup, S. T. *Multiple Subcutaneous Tuberculosis Following Circumcision and Treated by Tuberculin.*
7. Jessel, G. *The Possibilities of Domiciliary Treatment in Phthisis.*

1. Thomson, in an interesting and valuable paper, finds the larynx involved in 25.6% of selected sanatorium cases; a considerable number, however,

showed *no active lesions*. This occurs much more frequently in early cases than is generally supposed. The prognosis is much worse with such a complication. There may be no symptoms of laryngeal trouble and therefore the larynx should be inspected in every case. Improvement of lung and larynx generally go on together, but rarely the larynx gets better while the lung gets worse. Arrest of this condition can be effected in 20.7% of all cases. The galvano-cautery is the best method of treatment locally, but sanatorium treatment is by far the best in all cases; local measures are far more promising in such instances.

2. This is a typical article by this well known ardent believer in tuberculin in phthisis. As usual, he reports remarkable cures of advanced cases of consumption under tuberculin and dispensary treatment. His claims are too remarkable to be taken at their face value, but in England at least, his ideas seem to be slowly but surely gaining credence. The article is of distinct interest.

4. This is a short paper based on five cases with valuable reference to the work of others on the subject. While nothing new is presented, the article is of value.

5. Neve bases his work on the surgery of tuberculous glands in 800 cases operated on in Kashmir, India: 75% were cured, but of these in 10% a recurrence might be expected. (This 10% is probably too low a figure.—J. B. H.) He emphasizes preliminary treatment of teeth, tonsils, ears, etc. In this class of patients radical measures are needed in order to keep control of the patients. Considering the class of patients, his results are remarkably good. [J. B. H.]

Edinburgh Medical Journal.

April, 1914.

1. *Ross, T. A. *The Nature and Treatment of Neurasthenia.*
2. *Mitchell, A. P. *The Milk Question in Edinburgh.*
3. *McNeil, C. *Scrofula or Hypersensitiveness to Tuberculous Infection.*
4. *Barcroft, D. M. *Modern Treatment of Consumption.*
5. *Watson, D. C. *Manifestations and Treatment of Intestinal Toxemia.*

1. This is a long and practical article on the treatment of neurasthenia and its nature. Ross discusses its symptoms, mental and physical, the need of a careful history, going deeply into underlying causes and the need of getting the patient's confidence. He discusses the work of Dubois and Mitchell and others and then goes into details of treatment, rest in bed, diet, massage, baths.

2. This article is a striking account of the milk situation in Edinburgh with valuable suggestions as to prevention of tuberculosis among cattle, and how to procure a supply of clean milk, butter, etc. He is an ardent advocate of the sterilization of milk and believes that the danger of infantile rickets and scurvy has been greatly exaggerated.

3. In this paper McNeil attempts, but without success, to describe scrofula as a definite clinical entity. He discusses the clinical features, which are simply those of the weak, poorly-nourished and tuberculous child, and evidently believes in the old saying (which has done much harm) that scrofulous children later on rarely develop pulmonary tuberculosis. According to him scrofula is something more than a variety of tuberculous infection and is allied to the status lymphaticus. (The reviewer is strongly of the opinion that such discussion as this are utterly futile.—J. B. H.)

4. Barcroft urges individualizing in each case of phthisis as to treatment. Tuberculin in experienced hands is of great value. Artificial pneumothorax is beyond the scope of general practitioners. Intensive iodine treatment is still on trial. The sanatorium is of value and particularly as an educative agent.

5. In the treatment of intestinal toxemia, Watson discusses rest, diet in great detail, treatment of the bowels, stimulation of renal excretions, hydrotherapy, massage and exercise, and vaccines.
[J. B. H.]

Münchener Medizinische Wochenschrift.

No. 14. April 7, 1914.

1. Stühmer, A. *Salvarsanized Serum.*
2. *Eskuchen, K. *The Treatment of Cerebro-spinal Lues According to Swift and Ellis.*
3. Ponndorf. *The Cure of Tuberculosis.*
4. Kahle, H. *Silicic Acid Metabolism in Cancer and Tuberculosis, and Its Significance in the Treatment of Tuberculosis.*
5. Rössle, R. *The Silicium Treatment of Tuberculosis.*
6. Pringsheim. *The Diagnostic and Prognostic Value of Repeated Local Tuberculin Reactions in Adults.*
7. Stumpf, J. *The Prophylaxis and Treatment of Cholera from Personal Experience in Belgrade.*
8. Löffler, C. *The Liver and Spleen in X-ray Plates.*
9. Abderhalden, E., and Fodor, A. *Further Investigations on Proteolytic Ferments in the Blood of Pregnant Women. Studies on the Dialysate by Ninhydrin and Estimation of Its Nitrogen Content by Micro-analysis.*
10. Abderhalden, E., and Grigorescu, L. *Biological Tests with the Dialysis Method.*
11. Schiff, E. *The Value of Abderhalden's Reaction in the Diagnosis of Pregnancy.*
12. Schubert, M. E. *The Treatment of Furunculosis in Infants with the Thermo-cautery.*
13. *Obmann, K. *A Case of Generalized Vaccinia with Eczema Capitis.*
14. Mendl, J. *The Diagnosis of Cerebral Hemorrhage.*
15. Wiesel. *Cumarin, a New Heart Tonic.*
16. Alter. *The Toxicity of Salvarsan.*
17. Gans, O. *The Technic of Bleeding and Intravenous Infusions.*
18. Oelze, H., and Stephan, R. *Clinical Studies with Abderhalden's Dialysis Method.*

2. Eskuchen has given the Swift-Ellis intraspinous salvarsan treatment in nine cases of tabes, in two of cerebro-spinal lues, and in five cases of dementia paralytica. Eskuchen concludes that by this form of treatment, the pleocytosis of the cerebro-spinal fluid was diminished rapidly, the Wassermann reaction was but slightly weakened, and that the colloidal gold test remained unchanged. Subjectively, various symptoms were quickly and markedly bettered and the progression of the disease was arrested.

13. Obmann reports the case of a child who developed fever and a generalized eruption after vaccination. In the rare similar cases which have been reported, there has been discussion as to whether this complication was due to auto-inoculation or to a general infection. Obmann believes that in his case a general infection took place, since the eruption developed in areas where auto-infection seemed impossible, and because the patient showed such symptoms of a systemic disturbance as high fever, an enlarged spleen, leucocytosis with relative lymphocytosis and inflammation of the mucous membanes of the nose and mouth. [R. F.]

Berliner Klinische Wochenschrift.

No. 8. February 23, 1914.

1. *Moro, E. *Concerning the Recurrent Umbilical Colic in Older Children.*
2. *Friedjung, J. K. *The So-called Recurrent Umbilical Colic of Children.*
3. Rosenthal, F. *Impressions of an Expedition to Bulgaria, with a Contribution to the Diagnosis and Treatment of Asiatic Cholera.*
4. Zypkin, S. M. *The Treatment of Cirrhosis of the Liver with Keratin.*
5. Rautenberg, E. *Miliary Tuberculosis and Bacillaemia.*
6. Friedemann, M., and Schönfeld, A. *On the Theory of the Abderhalden Reaction.*
7. Schultz, F. C. R. *A Contribution on Serum Sickness.*
8. Engel, C. S. *A Demonstration of Colored Photomicrographs (Lumière) Showing the Development of Blood Cells.*
9. Hofmann, W. *On Leaving the Bed Early after Operation.*
10. Jüngerich, W. *Acetone in the Treatment of Proctitis.*
11. Fränkel, E. *The Use of the Abderhalden Test in Carcinoma and Tuberculosis.*

1. Moro's original article, describing a "recurrent umbilical colic" in children, of a more or less neurotic etiology and curable by medical and suggestive therapeutics, was recently refuted by Küttner, who reported several such cases, all of which, he claims, were cured by appendectomy. In an answer to Küttner's statements, Moro reasserts his former opinions which are briefly as follows: Children are subject to these attacks; (1) the pain occurs with great regularity in the region of the umbilicus; (2) the attacks are always without fever and recur often; (3) the patients are usually hypersensitive, of a sort of angioneurotic nature, and have usually been improperly trained and brought up; and (4) they can be cured by dietetic and pedagogic reforms, together with suggestion.

2. This is another article on the above subject contradicting Küttner's statement that the appendix is the cause of this so-called umbilical colic. Friedjung had, even before Moro, described some years ago in an exhaustive article an hysteric or neuropathologic condition in childhood which manifested itself in this way. He says that the appendix is not at fault, and that he has been able to cure them with such treatment as tincture of valerian and suggestion, as thoroughly as Küttner has with appendectomy.

[R. H. M.]

Obituary.

THOMAS DRUSLYN GRIFFITHS, M.D., LOND., D.Sc. OXON.

Dr. Thomas Druslyn Griffiths, of Swansea, Wales, who died of pneumonia on April 17, in Bournemouth, England, was born at Hên Plâs, Llan-y-bythyr, Cardiganshire, in 1837. He obtained his preliminary education at the Normal College Swansea, and then was apprenticed for a time to Dr. Michael, a leading practitioner of that city. Later he entered the University of London, where he had a brilliant career as a student, winning medals in anatomy, physiology, and medicine, gold medals in botany and comparative anatomy, the Filliter prize in pathology, and the Atkinson Morley scholarship. In 1862 he received the degree of M.B. with honors in medicine, surgery and midwifery, and in the same year qualified as M.R.C.S. and L. S. A.

In 1863 Dr. Griffiths settled in the practise of his profession at Swansea, where he won an extensive reputation as one of the first exponents in Wales of the new principles of Listerism, and was the first surgeon in that country to aspirate for pleurisy. In 1872 he received from the University of London the degree of M.D. From 1880 to 1885 he served as ophthalmic surgeon to the Swansea General Hospital and was a governor of the University of Aberystwith. He published papers on the pathology and treatment of intestinal wounds, on dermoid ovarian tumors, on the causes and pathology of acquired malpositions of the uterus, and on the treatment of gastric ulcer.

In 1903 Dr. Griffiths was elected president of the British Medical Association, and in 1904 received from Oxford University the honorary degree of D.Sc. He retired in 1913, after fifty years of practice, during which he had been the foremost Welsh surgeon of his day. He is survived by his widow and by several children.

Miscellany.

A COLLECTION OF GREEK SURGICAL INSTRUMENTS.

There has recently been presented to Johns Hopkins University a very valuable set of 37 ancient Greek surgical instruments, originally discovered near the site of Kolophon, in Ionia, and for some time in the possession of the Dutch vice consul at Smyrna. These instruments, now on exhibition in England, prior to being sent to Baltimore, are thus described in a recent issue of the London *Times*.

"The instruments show a type of workmanship unequalled in any other extant specimens and generally reveal the very great progress in surgery which the ancients achieved. The date, though somewhat uncertain, is probably the first or second century A.D.; it is possible, however, that it may have been before the Christian era.

"With two exceptions all the instruments are of bronze. The blades of the knives were originally of steel, but in each case this metal has been almost completely destroyed by oxidation. Among the collection is a large 'beaker,' made of purple glass and decorated. When discovered, it was broken into fragments; these, however, have now been united. The idea entertained is that this was the drinking cup of the physician, or possibly the vessel used for pouring libations at his tomb.

"It is an interesting fact that in ancient times knives were made either of stone or bronze. This custom was followed, not because iron was unknown, but because that metal was held in superstitious fear,—a fear which lingered into the Christian era. According to Plutarch it was actually unlawful to introduce any iron implement into a Greek temple, and no Roman priest might be shaved by an iron razor or iron scissors. Surgical knives however, had steel blades. Nevertheless, even these bore, on the opposite side from the actual blade, a leaflike projection of bronze with two edges,—a survival of the earlier bronze blade, preserved, apparently, for ceremonial reasons. Each of the six knives (or rather knife handles) in the collection shows a groove for the steel blade which it originally possessed. It is probable that, as in modern instances, the shapes of the blades differed considerably to suit different operations.

"Among the five pairs of forceps is a large and beautifully made instrument, the handles of which are shaped to represent two dolphins. This is probably a pair of polypus forceps. The 'bite' of the teeth is strong and close. Another interesting pair of forceps is that used for extracting arrow and lance heads from wounds. This pair somewhat closely resembles modern bone forceps, and has artistically modelled handles and blades which possess strong teeth for gripping.

"An elevator for raising depressed bone is another interesting exhibit. Its presence in the collection would seem to prove that after battle efforts must have been made to treat surgically even the most serious wounds of the skull.

"Another and still more remarkable brain instrument is the drill-bow for operating a skull trephine. This instrument proved a very great puzzle at first, and was supposed to represent some sort of measuring appliance. Research, however, has shown that it is a bow, which, when fitted in a string, was used to rotate a bone drill or skull trephine—very much as drills and trephines are still, occasionally, rotated. The British Museum possesses the only other specimen of the drill-bow extant; until the discovery at Kolophon was made, the nature of that instrument was not known.

"Far from being a triumph of modern surgery, skull trephining or trepanning is a very ancient manoeuvre. Skulls have been discovered again and again showing trephine openings, and the natives of the South Sea Islands are actually known to practise the operation. In classic times this was not undertaken, as at present, to relieve pressure, but to allow exit to the evil spirit supposed to be troubling an insane or epileptic patient.

"The collection also includes a tenaculum, or sharp hook, similar to those in everyday use, a number of catheters of beautiful workmanship and shaped like modern instruments of the same type, a scoop, or curette, for gynecological and other work. Hippocrates speaks of such an instrument), a cautery for burning wounds, a couple of probes exactly like the modern ones, a couple of spatulae or spoons, a needle-holder, and a bronze box intended, evidently, as an instrument case. In addition there is a slab of Egyptian porphyry for mixing ointments upon, and a well-constructed pair of scales, still in excellent equipoise.

"Some cupping vessels were also discovered. The method of using these was to ignite a piece of dry linen placed inside of them and then apply them to the skin. As the heated air within cooled it contracted and sucked the skin into the neck of the cup."

THE MAGGOT TRAP A POSSIBLE SOLUTION OF THE FLY PROBLEM.

A trap to destroy the maggots of the typhoid or housefly before they develop into winged insects, is a possible solution of the fly problem and one that should interest health officers, sanitarians and others who might make use of it on manure heaps, where this common pest breeds. The Department of Agriculture's scientists in their preliminary experiments with such a trap have succeeded in destroying from 70 to 99% of the maggots in a pile of manure. This method of attack differs from those which have been generally used. Fly poisons have been made to tempt the appetite of the adult fly, or fly-tight receptacles have been used to keep the adult female from laying her eggs in manure. The newer method is based on the knowledge of certain habits of the undeveloped fly maggot.

The maggots of the typhoid fly, it has been discovered, have a habit of migrating from their breeding places into drier portions of the manure heap. This seems a distinct move on their part to permit the adult fly to issue from the refuse in the easiest and quickest manner. The efficiency of the new trap is based on the regularity of this deep-seated habit.

The experiments of the department's entomologists showed that with the trap from 98 to 99% of all the maggots in the manure pile were destroyed, if the manure was kept moist. From comparatively dry manure about 70% were destroyed.

These experiments, as yet, have been tried only on a comparatively small scale. The question immediately arises whether the trap, which appears so successful on a small scale can be adapted to the handling of manure in a practical way on a large scale. Every consideration points to the probability that it can and that it will afford "an additional weapon of great value." However, the final verdict as to the value of the maggot trap must wait upon the solution of certain practical problems. To point out some of these here is to suggest lines for further investigation.

ITALIAN DENTISTS AND DENTISTRY.

The following item from a recent issue of the New York *Times* describes the present status of dentistry and dentists in Italy.

"With general progress and consequent increase in wealth, the practise of modern dentistry is growing throughout Italy. The United States is looked to there, as in all foreign countries, as the alma mater of this profession. The Italian dentist has supplied himself with the latest and best instruments and appliances. All of them prefer American-made supplies, though, by reason of higher cost, American instruments and appliances are not yet general, but the demand is increasing, as few such instruments and appliances are made in Italy.

"Italy has only one school, the Istituto Stomatologico Italiano, in Milan, where dentistry is taught. The laws now regulating the practise of dentistry in Italy were passed in 1912, and they provide that no one shall be permitted to engage in this profession who has not received a diploma in medicine and surgery. Therefore, to matriculate at this school the appplicant must have graduated in medicine and surgery from one of the recognized universities. As the minister of public instruction is authorized by these enactments to establish departments for the study of dentistry in all schools where medicine is taught, Italy may soon have a number of dental colleges. Under these laws any person who, on March 31, 1912, had been engaged in dentistry in Italy for eight years or more, is permitted to continue in the exercise thereof for one year, but is prohibited from doing so thereafter, unless within this year he passes the prescribed examination in dental pathology, anatomy and physiology.

"There were in all Italy in the year 1906 only 750 dentists. This number increased to 1200 in 1912. At Leghorn, with a population of 100,000 inhabitants, there were only four dentists in 1903; now there are twice that number there.

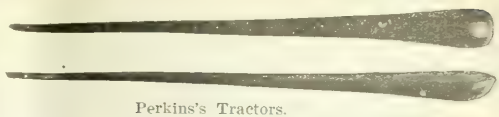
"Dental inspection and treatment is provided free for the children attending the public schools of some of the larger cities. An examination made in the public schools of Leghorn by a local dentist resulted in a report that sixty per cent. of the attending children needed treatment."

Correspondence.

PERKINS'S TRACTORS.

New York, May 1, 1914.

Mr. Editor: These metallic tractors gave rise to a medical delusion which prevailed in this country and Europe about a hundred years ago. They were used for the relief of pain and disease by Dr. Elisha Perkins (1745-1799), an eminent physician, president for a long time of the Connecticut Medical Society. They were hammered out of iron and brass, flat on one side and half round on the other, and came in pairs, "the white" and "the yellow." The accompanying photo-engraving shows very nearly their size. It was reported that many cures were effected by drawing them over the affected part, and the inventor believed that he had made an important medical discovery. After his death the treatment was widely advertised, and the tractors were sold in large numbers, the price in London in 1802 being five guineas. They gave rise to the poem, "Terrible Tractoration," and also to a number of books discussing at great length the merits of the new treatment. In 1884 four of them were found in the house of my grandfather at Plymouth, Massachusetts, where he was a minister, early in the last century. They had lain undisturbed for many years in a cupboard, and were tied up with old-fashioned hat pins and hair pins. I kept them several years without knowing their significance till I happened to see a pair framed and carefully preserved in the library of the New York Academy of Medicine. It seems desirable to print a picture of these curios as doubtless specimens are to be found in cupboards and bureau drawers of old houses in this country and England. I am told that those first made were stamped with numbers, and that letters patent to Dr. Perkins, signed by President Washington, are held by descendants of the inventor residing at Springfield, Mass.



Perkins's Tractors.

Yours truly,

A. B. Judson, M.D.

MEDICAL JUDGES.

Boston, Mass., May 5, 1914.

Mr. Editor: In the issue of the Journal for April 16 you commented on a bill that was before the Senate at Albany, "providing for a medical judge in each county whose duty it shall be to attend any trial at which medical evidence is taken concerning the sanity of a party to an action and give medical advice to court and jury. The medical judge's instructions are to have the same weight as those of a trial judge."

It would seem that such a measure would make for expediency and justice in the trial of cases involving the question of the sanity of the transgressor. The physician-judge, by limiting the technicalities that are so often injected into such trials, would increase the advantageousness of the alienists' expert testimony. The result would be a speedy crystalization of the facts concerning the case followed by a just and humane disposition of same.

Medical judges might sit not only in the above type of case in which there is a question as to whether or no the criminal is feigning insanity to evade due punishment, but he might also sit at commitment cases. At the latter cases his services might be of especial value in detecting cases not suitable for commitment.

I do not wish it inferred that I mean to insinuate that our judges are not men of high moral integrity and of alert and vigilant mentalities, but I do contend that the physician (other requirements such as maturity, age, etc., being equal, of course) by virtue of the pertinent training and experience he has received, is inherently and eminently qualified to do justice to this sort of work.

To be sure, this would be a new field for the physician, but there is not any reason why he would not be superbly successful in it.

Very respectfully and faithfully yours,

Gaetano Praino, M.D.

UNITED STATES CIVIL-SERVICE EXAMINATIONS.

TECHNICAL ASSISTANT IN PHARMACOLOGY (MALE).

June 1, 1914.

The United States Civil Service Commission announces an open competitive examination for technical assistant in pharmacology for men only. From the register of eligibles resulting from this examination certification will be made to fill vacancies in this position in the Division of Pharmacology, Hygienic Laboratory, Public Health Service, at salaries ranging from $1800 to $2000 a year, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The duties of this position will consist of research work in pharmacology, including original investigations in the physiological assay of drugs and of the action of drugs by means of the electro-cardiograph.

Applicants should have a reading knowledge of French and German.

An educational training, including a degree of Doctor of Medicine from an institution of recognized standing, and at least two years' subsequent experience in experimental pharmacology and physiology, such experience to have included the study, by means of experimental methods, of the action of drugs, are prerequisites for consideration for this position.

Applicants must have reached their twenty-fifth but not their fortieth birth day on the date of the examination.

Persons who meet the requirements and desire this examination should at once apply for Form 304 and special form to the United States Civil Service Commission, Washington, D. C.; the Secretary of the United States Civil Service Board, Post Office, Boston, Mass.; Philadelphia, Pa.; Atlanta, Ga.; Cincinnati, Ohio; Chicago, Ill.; St. Paul, Minn.; Seattle, Wash.; San Francisco, Cal.; Customhouse, New York N. Y.; New Orleans, La.; Honolulu, Hawaii; Old Customhouse, St. Louis, Mo.; or to the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R. No application will be accepted unless properly executed, including the medical certificate, and filed with the Commission at Washington, with the material required, prior to the hour of closing business on June 1, 1914. In applying for this examination the exact title as given at the head of this announcement should be used.

DENTAL INTERNE (MALE).

June 3, 1914.

The United States Civil Service Commission announces an open competitive examination for dental interne, for men only, on June 3, 1914. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position, at $600 per annum, with maintenance, in the Government Hospital for the Insane, Washington, D. C., and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The department states that it reserves the right to terminate the appointment at the expiration of one year of service if it is deemed advisable to do so.

In addition to many interesting cases presented, the dental interne is given an excellent opportunity for study and for doing experimental and research work in the pathological, histological, and other laboratories of the institution.

Applicants are required to be graduates or senior students or regularly incorporated dental colleges, and applications will not be accepted from persons who have been graduates for more than two years. The names of senior students will not be certified for appointment until they have furnished proof of actual graduation.

Applicants must be unmarried.

Persons who meet the requirements and desire this examinations should at once apply for Form 1312 to the United States Civil Service Commission, Washington, D. C. No application will be accepted unless properly executed, including the medical certificate, and filed with the Commission at Washington in time to arrange for the examination at the place selected by the applicant. In applying for this examination the exact title given at the head of this announcement should be used.

NOTICES.

AMERICAN SOCIETY FOR THE CONTROL OF CANCER.

Under the auspices of the Boston City Federation, the American Society for the Control of Cancer will conduct a meeting at Huntington Hall, 491 Boylston Street, on Tuesday, May 19, at 3 p. m.

PROGRAM OF MEETING.

Subject: "The Prevention and Control of Cancer." Addresses by:

Mr. F. L. Hoffman, Newark, N. J., Statistician, Prudential Life Insurance Co., "Prevalence and Increase of Cancer in the United States."

Dr. F. S. Simpson, Pittsburgh, Pa., Alleghany General Hospital, "Work and Purposes of the A. S. C. C."

Dr. J. C. Warren, Boston, President of the Harvard Cancer Commission, "Education of the Public on the Cancer Problem."

SYMPOSIUM.

What the Public should know about Cancer in order to avoid its suffering and mortality:

About "Cancer of the Digestive Organs," Dr. S. J. Mixter, Surgeon, Massachusetts General Hospital.

About "Cancer of the Breast," Dr. W. W. Chipman, Surgeon, Royal Victoria Hospital, Montreal.

About "Uterine Cancer," Dr. H. C. Taylor, Surgeon to the Roosevelt Hospital, N. Y., Chairman, Publicity Commission, A. S. C. C.

About "External Cancer," Dr. David Cheever, Surgeon to the Peter Bent Brigham Hospital.

Closing remarkes by the Rev. George A. Gordon.

RECENT DEATHS.

DR. NEWTON F. CURTIS, who died recently at Milton, Mass., was born in Camden, Me., on July 13, 1849. He graduated from Bowdoin College in 1871, and in 1873 from the New York College of Physicians and Surgeons. He immediately began the practise of his profession at White Plains, N. Y. He had lived at Milton since his retirement in 1910. He was a member of several New York Medical societies. He is survived by one daughter and by one son.

DR. PAUL EHRHARDT, of New York, died on April 30, in his 59th year. He was a native of Pennsylvania, and was graduated from the medical department of New York University in 1878. He practised first at Lauden, Iowa, and in 1883 removed to New York.

DR. EUGENE F. PEARCE, of Brooklyn, N. Y., died on April 30, in his 56th year. He received his academic education at New York University, and was graduated from the Long Island Medical College in 1883.

DR. JOHN MACCONNELL, who died recently in Boston, was born at Belfast, Ireland, in 1839. After graduating from Trinity College Medical School, Dublin, he migrated to Boston in 1868. In 1872 he became superintendent of the local smallpox hospital, and later was transferred to the board of health, where he became its first vital statistician.

Original Articles.

FEEBLE-MINDEDNESS AS A LEADING SOCIAL PROBLEM.*

By E. E. Southard, M.D., Boston,

Director, Psychopathic Hospital, Boston; Pathologist, State Board of Insanity, Massachusetts; and Bullard Professor of Neuropathology, Harvard Medical School, Boston, Mass.

Should I declare that the problem of the feeble-minded is the largest single practical problem before Massachusetts at the present day, you might be disposed to wonder how practical a person I might be. Is not insanity a larger problem? Or alcoholism? Or syphilis? Or even that narrow circle of diseases dealt with by boards of health, the so-called public health problem? Are not crime, graft, undesirable immigration, illiteracy larger problems? What also of the high cost of living, classes *versus* masses, anarchistic socialism? On still broader planes, one might pause to contemplate the lowering of moral standards, and the decay of religious thinking by the people at large. What chance has the problem of the feeble-minded with such problems as these and countless other problems of civilization?

Perhaps I may justify my declaration, which smacks at first of such superlatives as are sometimes fed to legislative committees, as follows: By "problem" I do not mean an unsolvable problem or a set of conditions working out in *saecula saeculorum*, so that, if there be a problem, it would require philosophical or even divine wisdom to solve. By problem I mean something concrete, finite, practical, a set of conditions whose dimensions and quality are known or can shortly be known, for us in Massachusetts as well as for the angels in the sky. A problem, as I somewhat narrowly use the term, means a problem for solution, a problem that can by human means be solved.

Insanity is a larger problem financially, perhaps, than feeble-mindedness. Within ten years or much less time, we shall know the comparative costs of the insane and the feeble-minded. Yet the facts of mental disease are of infinite complication beside those of feeble-mindedness. The problems, so-called, of paranoia, of Booth, of Guiteau, of Czolgosz, of Schrank; or the problems of genius and psychopathic states, of Mohammed say, or of Rousseau, or of Nietzsche, or of Roosevelt,—these problems are not to my mind as yet problems; the would-be solvers of such problems cannot agree even on definitions. We may put away as many psychopaths as we like here in Massachusetts; is any one so skilful as to catch up them all as they pass? So much of the insanity-field as, in the present state of knowledge, can be regarded as a problem is either solved or is on the road to solution shortly. Shortly we may say perhaps, as I was told in the Berlin district in Prussia, "There are beds enough for the insane; the numerical question is settled, at least for the present output of insane about Berlin." We may, it is true, need more psychopathic hospitals, that is, clearing-houses where the diagnosis can be made days earlier than by former methods and to which patients will be brought so that diagnoses can be officially made months earlier than was formerly the case. We may need sanatoria for mental cases, where people who can pay less than $25.00 a week can be safely brought through their early attacks or through conditions falling short of frank insanity. We may need extensive developments of the colony system for the able-bodied insane and of the family-care system for the harmless insane. Yet most, if not all, of these developments are officially under way and in a state to be appreciated and furthered by the interested public, that is, by the social workers. That is to say, as I see it, what the state can do has been done or is about to be done for the insane; we must now wait for science to make for us new practical issues, real problems, such as seem to be coming in the science of the nervous system at about the rate of one in five years.

You will readily see how I should logically dispose of such so-called problems as those of alcoholism and syphilis. Much of each so-called problem is in no condition for practical effort. We can readily calculate the cost and human effects of alcohol and syphilis. We lightly say they are preventive problems. But who has anything concrete and universally convincing about ways to head off the desire to get drunk and the desire for sexual intercourse when that desire has no justification in morals, art, or even pride? To be sure, the alcohol problem is being approached on its reform aspect, and a clearing-house for all alcoholics with a follow-up system for each case has been dreamed of. Yet the psychological problems lodging therein, as well as those surrounding the sex instinct, are in no condition for public propaganda. Preaching against alcohol and sex indulgence is in my experience often pointless. Drunkards, prostitutes, and their associates may present a dire "condition"; they do not promise to yield a "theory" for many years.

Those partial aspects, then, of the huge complexes of conditions which I have mentioned (alcoholism, syphilis, tuberculosis, and typhoid fever, in the public health field, crime, etc.), which have been really and seriously reduced to the simplicity of "problems" are either tolerably well met or do not in my opinion meas-

* Psychopathic Hospital Contribution, 1914.4, being contributions from the Psychopathic Hospital, Boston, No. 38. The previous contribution 1914.3 was by Dr. H. R. Stedman, entitled "The Art of Companionship in Mental Nursing," published in the Boston Med. and Surg. Jour., Vol. clxx, No. 18, April 30, 1914, p. 653. The present communication was read at Haverhill before the Annual Massachusetts Conference on Charities and Corrections, in October, 1912.

ure up to the size of the feeble-mindedness problem. So far as insanity is understood, Massachusetts has met or is about to meet the problem well. The same may be said of alcoholism and of crime in general. The psychology of the alcoholic, the sex offender, the criminal, hardly presents the aspect of a problem. It is the same with precisely that portion of insanity that interests us most. Was Mohammed an insane epileptic? Doubtless the Mohammedans are the better for their belief in God which Mohammed drove in. Was Rousseau a madman? With more like him, education would present more real problems. Was *Also Sprach Zarathustra* indirectly an outcome of syphilis? With more Nietzsches, much more good German would have been written. A melodramatic thrill runs down our backs when somebody says Roosevelt is crazy, but only on the erroneous hypothesis that "crazy" means he should be locked up. If crazy means genius, and really means it, if we knew enough about genius to say that it is a form of insanity and really think so, then to call Roosevelt crazy would be campaign ammunition for Roosevelt.

As a fact, the psychology of alcoholism, of the sexes, of crime, of genius, of many borderland and complex types of insanity is so far virtually devoid of problems in the perhaps narrowly social and practical sense in which I have applied the term.

The problem of the feeble-minded is a practical one for us for many reasons.

In the first place, our social sense concerning feeble-mindedness has been aroused. We look sharply at each other nowadays to see if we are not in some degree feeble-minded. To be a moron or high grade feeble-minded person is getting to be as common as having a Darwinian tubercle on one's ear. We look suspiciously at persons of other races and religions to see if they be not feeble-minded. Our friends even are thought often to be contracting imbecile marriages. I often excuse myself for social errors by considering that such and such factors have been left out of my composition. Even officials are interrupted in their conservative tasks by eager social workers who want something done with this or that person who ten years ago would never have been termed—with safety—an imbecile.

With this arousal of our social sense concerning the true range of feeble-mindeness has come a certain pessimism. Are we not all a little weak as well as a little queer? Are we not all fit subjects in some sense for commitment to a school for the feeble-minded, if not for commitment to a hospital for the insane? Where shall the line be drawn?

As a matter of fact, our laws concerning the commitment of the feeble-minded as concerning the commitment of the insane are effective enough. As with the insane, so with the feeble-minded, the present problems no longer touch those legal processes involving judges. Little or no doubt attaches to cases suitable for commitment by the court.

More doubt attaches to the proper fate of those considered by some as suitable, by others as not suitable, for admission to institutions without court process. The line of distinction roughly runs between custodial cases adjudged by a court suitable for commitment and what might be termed educational cases which the institution sees fit to receive as mentally deficient.

The ground for optimism here is the popularization of the Binet-Simon tests which, combined with common sense and some medical knowledge, make it possible for a comparatively inexperienced examiner to do in a short time what formerly depended on the teacher's trial and error. The intellectual educability within well-defined limits can now be safely declared for a given case by scores of workers,—scores as compared with a handful twenty years ago.

But intellect is not all. Will tests and tests for capacity to do things remain to be placed on the same plane with the Binet-Simon intellectual tests? Here is where inexperience in the examiner counts and where the off-hand Binet-Simon diagnosis of the psychologist and social worker meets shipwreck at the institution. Aside, however, from the complex and high-grade cases, where will disorder and criminal tendencies enter, the popularization of the new tests has rendered much more easily possible the winnowing of cases for the new beds which the legislature has granted and will surely continue to grant.

Psychopathic hospitals and out-patient departments, which naturally go therewith—it is a question whether every great district hospital for the insane should not support an out-patient department for these and other appropriate cases—will aid extensively in the solution of the problem along the lines of the out-patient department conducted at Waverley for many years. Already, before its formal opening, the out-patient department of the Psychopathic Hospital in Boston had had a large number of such cases brought for diagnosis—a majority, in fact, of all out-patient cases there.

What is the size of the problem? A conservative estimate in 1911 stood at 6,700. A special study now being made by Dr. William Noyes*

* A sample of Dr. Wm. Noyes' work done under the State Board of Insanity has been published in the Fourteenth Annual Report of that Board, being Document No. 63. A summary is as follows:

KNOWN FEEBLE-MINDED IN MASSACHUSETTS.

By present census:		
Males		2640
Females		2367
		5007
Reported by overseers of the poor		245
Total not in institutions		5252
In School for the Feeble-minded (at Waltham)	1497	
In Wrentham School	418	
	1915	
In State hospitals and asylums	672	
Total in institutions		2587
Total in State in feeble-minded status		7839

under the Board of Insanity, taking account of undoubted cases (so as not to cloud the issue with mental and criminalistic cases), has not approached this number as yet, but over a third of the number have been found almost at the outset by carefully guarded inquiries.

The result of such inquiries is at first sight pessimistic. I get the impression that the majority of people regard feeble-mindedness as a necessary affliction of society, classing feeble-mindedness in this respect with poverty and crime.

I have to observe in this direction that, whereas a certain minimum of feeble-mindedness may be constantly found in different societies, there is much to be said that the problem is in large part a preventive one.

I have myself of late spent much time upon the geographical distribution of degeneracy and defectiveness in Massachusetts and have to report a surprising *chiaroscuro* in that distribution. I cannot as yet assign definite values to the correlations being studied. It seems, however, that the movement of insanity and other forms of mental defect corresponds rather with the movement of physical disease than with that of crime and pauperism. The mental problems as a whole appear to be rather medical matters, to be attacked by a philosophy of prevention. The crime-pauperism complex statistically appears rather more an economic matter. There is probably a middle ground where feeble-mindedness especially approaches criminalism and where a change of economic status might be the reverse of an aid to society. Mayhap all these tentative conclusions of statistical study will be overthrown.

I should suppose, however, that statistics as a whole and the special kind of analytical statistics known as eugenics has gone far enough to prove that the social philosophy of prevention has wide scope.

To be sure, studies in Massachusetts seem to show that many a case of feeble-mindedness is due in some sense to encephalitis, congenital syphilis, or meningitis in the childhood of the case, so that the particular warnings of eugenics have not a universal scope. Still the practical problems remain preventive. It is probable that there is an interplay of hereditary and somatic factors at work in many cases, not yet sufficiently studied.

What the eugenics workers have abundantly demonstrated is the old law of assortative mating. Part of the statistical *chiaroscuro*, which shows far more defectives in some places than in others is doubtless due to such assortative mating, combined with the propinquity entailed by barriers.

Society, therefore, can readily find out statistically where to work: it can start such preventive mechanisms at work as the somewhat threadbare experiences of public health workers afford: it can thwart assortative mating of the unfit: it can educate: it can transplant: it has means of determining which persons belong undoubtedly in institutions (whatever doubt may rage in criminalistic cases); it knows where to study further; it sees a sufficiently large, if not the largest single, practical problem before it.

I will sum up and conclude as follows:—

1. The status of the feeble-minded in Massachusetts is such as to offer a large and immediate practical problem.

2. The availability of Binet-Simon and other intellectual tests makes desirable the establishment of numerous dispensary centers for preliminary diagnosis, so that cases suitable for well-tried educational methods in our state schools may be winowed out.

3. The criminalistic group has been singled out, hardly so far as a problem of the present, but as a problem of the future, dependent for solution on psychological data not yet available.

4. Estimates of the numerical size of the problem are available, and a promising preliminary survey is being made by the Board of Insanity.

5. Social sense of the importance of the problem has been aroused, though not, it may be hoped, to the point of impatience with the degree of progress humanly possible.

6. The interest of specialists in children's diseases has also been aroused, and the eventual results of certain children's diseases are being shown in the concrete case.

7. Workers in eugenics are being enlisted to study the hereditary factor in some of these so-called "acquired" cases, and, it is hoped, will solve the problem of the interplay of heredity and somatic factors in the pathology of feeble-mindedness.

8. Statistical inquiries seem to justify the idea of a *chiaroscuro* of distribution, which means that society is not just generally degenerating and that the places to begin preventive work can be chosen scientifically.

9. Statistics tend to indicate that the problem is rather a medical than an economic one, or perhaps better, more medical than economic, standing a bit one side perhaps from crime, some part of which is economic.

10. The interplay of hereditary and somatic factors promises to show lines of prevention both eugenic and environmental.

11. We can educate communities in eugenics and we can conceivably transplant, by a proper family-care system, feeble-minded persons from neighborhoods where they would unite with others of their kind to regions where they would either not marry or would marry normal persons, thus diluting the strain (feeble-minded males are probably less dangerous in the community than feeble-minded females, which latter should be segregated by preference in institutions).

12. Socialism of the Fourier-Marx type will have to reckon with this problem; it would not appear that communism has any ready solution

for the problem of those who, being feeble-minded, are by nature neither free nor equal. On the other hand, some form of socialism of the St. Simon type, or what may be termed state socialism, is the most practicable form to cope with this problem. Indeed the practical solution of these problems of feeble-mindedness and allied defects is fast leading us to something of the sort, whether we choose to call it socialism or not. Yet how many would-be socialists face the congenital or acquired inequalities of men with frankness and clear understanding!

UNDER WHAT CONDITIONS IS THE DIAGNOSIS OF "TUBERCULOSIS" IN CHILDREN JUSTIFIED?*

By John B. Hawes, 2nd, M.D., Boston.

The question raised in the title of this paper is an important and pertinent one. There are many who believe that the theory of childhood infection is being carried too far. However opinions may differ as to this, everyone will agree that the diagnosis and treatment of tuberculosis in childhood is one of the most important, if not the most important problem, not only in tuberculosis and its prevention, but in the entire field of preventive medicine. The children of today are the men and women of tomorrow; the weak and sickly children of this decade are the consumptives of the next, whether or not scientists still wrangle over the problem of the path and the exact time of infection. It is, therefore, urgently necessary that some definite standard be adopted and recognized by every one as to the exact signs and symptoms, or group of signs and symptoms on which it is just to make such a diagnosis. Of course I do not refer in this paper to children with advanced pulmonary tuberculosis, with or without a positive sputum.

It is indeed a step which demands the utmost consideration to stamp a young child as tuberculous and to cast on him and on the family the stigma, however slight this may be, that the name carries with it. Tuberculous infection is one thing,—tuberculous disease is another. Statistics, based on careful pathological investigation, as well as on the results of tuberculin tests, offer clear proof that a large proportion of children, 60% to 90%, according to different observers, are infected with tuberculosis by the time the fifteenth year is reached. This does not mean tuberculous disease, or what we generally term "clinical tuberculosis." Many of these children, indeed the great majority, are perfectly well and without symptoms. How to recognize and do justice to the comparatively small proportion in whom the disease is active and is causing symptoms, what should be their treatment, and how radical steps should be taken in reporting and segregating these patients are most important and ever-present problems.

In Boston, and I presume elsewhere, there is at the present time a great diversity of opinion among doctors at the various clinics as to diagnosis and treatment of this class of children. It is perfectly possible for an anxious mother to take her small boy of ten to one large clinic and be told that he has consumption and must (and is made to) leave school; at the earliest opportunity she takes him to another clinic where the boy is again examined by equally skillful and conscientious physicians, who tell her that her boy has a cold, but certainly has not "consumption." Much relieved, but still anxious, she takes him to a third clinic, where an x-ray of the chest is taken. This discloses a few "bronchial glands and peribronchial thickening with a slight haziness at the right apex." The x-ray expert reports his diagnosis as "Bronchial Glands. Ph?" Exactly what this means may be, but usually is not, explained to the mother, and in any event, as can be readily imagined, fails to relieve her worry over her boy. And so the case drags on, the mother naturally (and quite properly) refusing to allow her son to be sent to a sanatorium or hospital for consumptives, and the physicians at one, at least, of the three clinics visited, still firm in the belief that here is a case of tuberculosis which needs radical treatment.

The following case is a striking example of this state of affairs:—

L. R., a little Armenian girl of 7, living in the thickly settled Armenian quarter, was sent to me for examination from one of the settlement houses of that district. There was a doubtful history of exposure from a grandmother, who had recently died of tuberculosis, and from a brother in whom such a diagnosis had been made, but later not substantiated. The exposure from the grandmother was also eliminated as a factor, to my satisfaction at least. The child had been examined on the morning of the day she was sent to me at a local tuberculosis clinic by two leading authorities in tuberculosis in this city, and pronounced tuberculous on the following evidence. Cough at night, morning temperature, night sweats, and history of exposure,—the last somewhat doubtful, as shown above. Examination at this clinic showed "a definite active process at the right apex, with a limited right basal expansion and well-marked signs of bronchial glands." The mother was told that her child had consumption, and that she must leave school. My examination in the afternoon showed a strong, well-developed and nourished, healthy-looking child. The tonsils were very much enlarged,—sufficiently so to account for any cough or fever which she might have at night or any other time. In the lungs aside from very slightly increased signs at the right apex, I could find nothing abnormal in any way. No râles were heard at any time.

* Read before the New England Pediatric Society, March 27, 1914.

The d'Espine sign was negative. There were no glands. One tooth was carious. I definitely committed myself in writing as being unable to find any evidence of active or clinical tuberculosis in this case, and that I could see no reason why she should not go to school.

A few days later the child was taken to the children's department of another large general hospital, where she was carefully examined by several leading pediatricians, and where I again went over her. Here, in the morning, she had a slight temperature of 99.2°. The lungs were pronounced negative. The d'Espine sign at this visit was negative. A careful skin tuberculin test, done at two separate occasions, was entirely negative each time. An x-ray was taken which was inconclusive, while a later one showed a few enlarged bronchial glands. At this later visit also the child had a cold, and the d'Espine sign became a positive one until the cold subsided, when it returned to normal limits.

The case was not considered one of clinical tuculosis.

Later the child was taken to another dispensary and pronounced normal. The mother, naturally enough, has refused to take her to any more doctors, but is still greatly worried over the question as to whether or not her child has consumption.

This case represents an unfortunate state of affairs. Others similar to this are not uncommon, and are bound to increase as time goes on, unless some definite standard is reached and agreed upon by all. The physicians who saw this patient, whether they regarded her as a case of tuberculosis or not, were sincere in their desire to do what each thought was right; treatment advised was practically the same at the different clinics visited, except that one group of doctors thought that the child's condition warranted the use of the term "tuberculosis," while the other group did not. The two negative von Pirquet reactions in a child of seven are the only features which those who took the more radical stand must find it hard to satisfactorily explain.*

Everyone will agree that the diagnosis of early tuberculosis in children (advanced pulmonary disease offering no difficulties in diagnosis) must be based on:

(*a*) Bad family history or a history of exposure to tuberculosis.

(*b*) Constitutional signs and symptoms, such as fever, rapid pulse, loss of weight and strength, malnutrition, debility, undue fatigue, anemia, frequent protracted "colds," etc.

(*c*) Local signs and symptoms referred to the lungs, such as cough, often paroxysmal, dry, throaty or even brassy, usually without sputum, hoarseness, unequal pupils, slight substernal dullness with high-pitched intense expiration and whispered voice at the right apex, intense bronchial whispered voice over the spine lower than the third or fourth dorsal vertebrae (d'Espine's sign) and rarely paravertebral interscapular dullness.

(*d*) Evidence of enlarged bronchial glands as shown by the x-ray.

(*e*) A positive tuberculin reaction.

Any child who has constitutional and local symptoms, a positive tuberculin test and confirmatory x-ray evidence, should quite justly be considered as a case of active clinical tuberculosis and be so designated and treated. This is easy enough. The great difficulty lies in the fact that "type" cases are rare, and that in 99% of such children the physician must base his diagnosis and treatment on much less than the above-mentioned symptom complex; he must "size up" and accord their value to the symptoms as they present, balancing in his mind what is lacking here against what is present elsewhere, and finally, he must base his decision on the picture he has so formed. His decision in each case should answer the following questions:

(*a*) Has the child tuberculosis?

(*b*) If so, is tuberculosis the cause of the present symptoms?

(*c*) Is the child a danger to the community?

(*d*) Does he need radical, aggressive treatment in a sanatorium, hospital or other institution for consumptive children?

(*e*) Should he be definitely considered as a case of tuberculosis, reported as such, and his parents or relatives informed of this fact?

(*f*) If not, how can he be kept under supervision and control, and should he be removed from school?

(*g*) If he is taken out of school, what do you offer in its place?

(*h*) If he has not tuberculosis, what is the matter with him, and what are you going to do about it?

What, then, is the relative value of the various points mentioned above, on which the diagnosis must rest? The first, a bad family history or exposure to tuberculosis, is an important factor, if present, but one whose absence need not interfere with a positive diagnosis. While it can be said that for all practical purposes, tuberculosis is not inherited, there is no doubt but that weak constitutions and a lessened resistance to tuberculosis may be and often are inherited. In regard to exposure to tuberculosis, the weight to be given this point depends on the length and intimacy of such exposure. These points should be carefully investigated in every case.

Next in order come the constitutional signs and symptoms. In my opinion, a diagnosis of early clinical tuberculosis in childhood is rarely justifiable, unless such constitutional signs and symptoms are present. Without these, except in very occasional instances, no matter what the x-ray may show, and what the signs in the lungs may indicate, I doubt if it is safe or just to stamp the case one of consumption. On the other hand, I have many times made such diag-

* It is interesting to note that a recent von Pirquet test gave a positive reaction. This may or may not mean that the patient was sensitized by the two former ones.—J. B. H.

noses and occasionally sent children to a sanatorium on constitutional signs alone. There is no field of evidence which better repays careful study than this.

Third in the symptom-complex, I have placed signs and symptoms referred to the lungs. Cough and sputum speak for themselves, and have many causes other than tuberculosis. Marked dullness, râles, etc., are easy enough to find, and require no special skill. The detection of finer shades of dullness, or rather diminished resonance, resistance under the finger, the significance of harsh or puerile breathing, prolonged high-pitched expiration, bronchial whispered voice, substernal and paravertebral dullness, require long experience, constant daily practice with such cases, and the greatest of skill to interpret properly. At present much weight is placed on a positive d'Espine sign. When we analyze what this sign really means, we find that it simply suggests that something is present which transmits the whispered voice and breath sounds from the trachea and larger bronchi through to the dorsal vertebrae at a lower level than is usually the case in normal healthy children. It has been taken for granted that this "something" is usually enlarged bronchial lymph nodes, and it has been further taken for granted that these enlarged lymph nodes are necessarily tuberculous, and further still, that they must be the cause of the child's symptoms. All these hypotheses are interesting if true. I do not think that we yet fully understand just what this phenomenon really does mean. It has been found present in perfectly normal individuals a sufficient number of times to show that, like a tuberculin reaction, while it may mean infection, does not always mean disease; again, it has been found present following various acute diseases, especially measles, often enough to show that it does not always mean tuberculosis. I am strongly of the opinion that further investigation must be made before we can attach much significance to a positive d'Espine sign alone as pointing to a tuberculous infection.

Coming to x-ray evidence, here again we are dealing with something which taken alone is not of great value, but which in conjunction with other features may be of grave significance. It must be remembered at all times that the x-ray picture is one of lights and shadows: that such evidence is dumb, and cannot tell us whether the shadows of the glands we see in the picture mean tuberculosis or not, and, if the former, whether the infection is old or recent, active or latent. Whenever possible the x-ray should be interpreted by an expert and by one who recognizes the limitations of his specialty. Such men do exist, but they are rare.

Finally, what does the tuberculin test offer us in such cases? To me the answer is clear and definite. A negative skin tuberculin test (the only one which should be used in children), in the absence of factors which might cause a negative reaction, if carefully performed and confirmed by a subsequent negative reaction, is as good evidence as there is that tuberculosis can be ruled out. A positive test is not so conclusive, but, like the x-ray, is only a small bit of confirmatory evidence to be taken in conjunction with other features of the case.

In conclusion, then, in answering the question asked in the title, "Under what conditions is the diagnosis of 'tuberculosis' in childhood justified?" I would state my opinion as follows:

1. Let it be clearly understood that by the term "tuberculosis" I mean clinical tuberculous disease which presents a definite picture and which requires definite treatment.

2. In the absence of advanced tuberculosis or a recent infection with some acute disease which might cause a negative reaction, a diagnosis of tuberculosis is rarely justified unless there is a positive skin tuberculin reaction.

3. Constitutional signs and symptoms are usually present and require careful study and investigation. If such symptoms are absent, a definite diagnosis is unwise, although this should not interfere with placing the child under proper treatment.

4. Signs referred to the chest and lungs are of interest and value, if present; if absent, their absence should not preclude a definite diagnosis. If present without constitutional disturbance, look out for chronic influenza and pneumococcus infections.

5. Positive x-ray evidence is of value in conjunction with other evidence. Diagnoses based on the x-ray alone are apt to be wrong, and are unjust to the patient.

THE CAUSES AND THEIR RELATION TO THE TREATMENT OF LATERAL CURVATURE OF THE SPINE.

By Z. B. Adams, M.D., Boston.

Many will remember the work on numerical variations of the spine done by Dr. Max Böhm. He made the statement that the upper surface of the sacralizing vertebra might be tipped and thus cause scoliosis. This may rarely be true. Some three years ago in checking up this work of Dr. Böhm the conclusion was reached that so far as the cause of scoliosis is concerned, lesions of the articular processes were of far greater importance than asymmetrical sacralization.

The x-rays of any clinic show that asymmetrical sacralization is of frequent occurrence in cases radiographed for pain in the back, or loin, etc., where no scoliosis existed. The Dwight collection of spines bears this out for it contains many examples of asymmetrical sacralization, but few of scoliosis. In the few with scoliosis, a lesion of an articular process is present and the transverse processes are normal. There is one

spine, however, which has scoliosis and one broad transverse process, but there is in that spine an absence of the left posterior centre of ossification, of the first sacral segment, which seems the cause of the scoliosis, rather than the broad transverse process.

There are a few pertinent facts to be noted regarding the spine and the base on which it rests.

The column of centra and intervertebral discs obeys the laws of physics for flexible rods. The motions are somewhat limited in certain directions by the shape of the vertebral bodies. By the attachment of ribs and posterior columns *i.e.* the columns of articular processes, the motions of this flexible anterior column are still further limited; they not only govern the motions, but in extension their articular facets are in close contact and they share in the function of weight-bearing. The support of the column is then tripedal. In moderate flexion their surfaces are separated and motion is most free.

The usual ossification of a vertebra is from three primary centres, one for the centrum and one for each lateral mass. In a certain number of individuals the fifth lumbar vertebra is laid down by five centres of ossification instead of three, the posterior lateral mass being divided into two parts. One part forms the pedical, transverse and superior articular process and the other part the inferior articular process, lamina and one-half the spinous process. Sir William Turner has found that in five per cent. of all subjects the posterior part fails to fuse with the anterior part of the lateral mass.

The facet on the upper surface of the sacrum on which the spine rests, faces downward and forward, and in the average female has an inclination downward from the horizontal of forty degrees, and in many individuals this inclination is much greater. The under surface of the fifth lumbar vertebra faces downward and backward, hence, by a forward movement of this body on one side, that is, a rotation of one surface on the other, a lateral tilting of the base occurs. At forty-five degrees of inclination, a movement forward of one-fourth of an inch gives a drop of one-fourth of an inch.

The only bony obstacles to this one-sided spondylolisthesis are the articular process on the top of the sacrum and the inferior articular process of the fifth lumbar vertebra, which are not attached to the vertebra in one out of every twenty subjects. Nowhere are bony anomalies more frequent than in the low lumbar spine and in the sacrum.

The ligamentous supports are the anterior and posterior common ligaments, the intervertebral disc, the ilio lumbar and lumbo-sacral, the interspinous and superspinous, the capsular and subflavel ligaments.

When there is an overgrowth, underdevelopment or deformity of the articular processes, one of the legs of the tripod of support of the spine becomes longer or shorter or unstable. We then have a condition analogous to a camera on a tripod, with one short, long or loose leg.

From an analysis of the twenty-two cases in the scoliotic clinic, of which careful x-rays, many of them stereoscopic, have been taken and interpreted, the results are as follows:—

They are not 22 selected cases which show interesting x-ray lesions, but are all the cases of which we have thus far been able to get good x-rays.

The following list, consisting of four boys and eighteen girls, comprises 2 dorsal cases, 4 between the fourth and fifth lumbar, 14 lumbo-sacral, 1 sacral and 1 infantile.

Deformed third and fourth dorsal vertebra (Bell).

Slipping of seventh on eighth dorsal vertebra (Thomas Judge).

Deformity of right inferior articular process, fourth lumbar (McBride, Case I).

Distortion of right superior articular process, fifth lumbar (Pearson, Parmenter, Connors, broad wing).

Faulty fusion of left inferior articular process of fifth lumbar (Cate, Tuttle, Oakley, White, Gordon).

Faulty fusion of left pedicle with body of fifth lumbar (Morrison).

Spina bifida of first sacral segment, sacral articular processes asymmetrical (Guillette, Moore, Kelley, Shapiro, Neilly).

Overgrowth of right superior articular process of sacrum (Swartz).

Absence of neural arches throughout sacrum, its articular processes diminutive (Callahan).

Failure of first posterior segments of sacrum, first sacral centrum deformed (Briggs, Case 2).

Faulty fusion of second and third sacral segment on left (K. Judge).

Infantile paralysis, no deformities (Hadgi).

Treatment. The relation of these findings to treatment are as follows:—

From the time of Hippocrates, and perhaps before, various racks, ladders and frames have been used in an effort to reduce or correct the deformities of scoliosis. The deformities often are made worse, or if temporarily corrected they recur. The lateral deviation has been improved in some cases at the expense of an increase of the rotation. Many times the scoliosis is attacked with no regard to the cause of the deformity.

The flexed position, as employed by Drs. Forbes and Abbott, is an undeniable advance, it relaxes the spine with the articular processes separated, thus allowing the freest possible motion. In no other respect are their methods similar. Abbott pulls with the old brute force, in the same direction which has been found in the past, when the spine was locked in extension, would increase the rotation. Forbes, with a thoroughly scientific method based upon a careful research into the physiology of the human spine and the spine of a scoliotic, rotates his case in



CASE I. McBride.



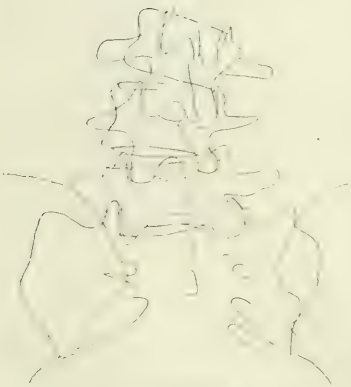
CASE II. Briggs.



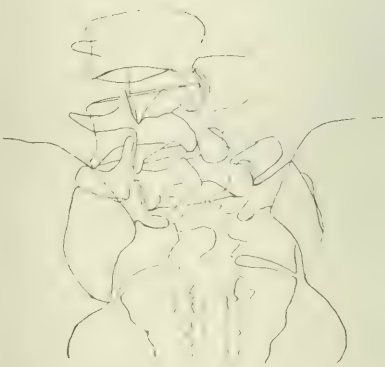
CASE I. McBride.



CASE II. Briggs.



CASE I. McBride.



CASE II. Briggs.



Case I. Upper Spine.



Case I. Lower Spine.

Case I. Albino McBride, age 14. July 17, 1913. (First visit O. P. D.

Curve noticed in April, 1913, by school physical training teacher. Bad posture not noticed before this. Diagnosis: *Scoliosis*, right lower dorsal; left lumbar. Right inferior articular process of fourth lumbar is underdeveloped.



Case II. Upper Spine.



Case II. Lower Spine.

Case II. Ernest Bridge, age 17. August 29, 1913. First visit O. P

Complaint: back and chest. Duration, four years. Cause: fa

Present symptoms: pain in lower. Diagnosis: Scoliosis.

"Four years ago fell, about 6 feet, striking on his side and ba apparently not hurting himself. About three years later he began to that he was getting humped and began to have pain in his back, began a short time before graduating from college. The pain is also when he lifts or bends forward."

"Examination shows very well marked lesions of posture.

The pelvis is not rotated for the spines of the ilia [illegible] lower sacrum is but slightly rotated. The [illegible] throughout the sacrum, the first sacral segment is shortest and to the left, and its articular [illegible] to the left and to the rear and to th line. Fifth lumbar vertebra rotated to left and to rear and to th

exactly the opposite direction from Abbott, and all other operators. The two methods are diametrically opposed to one another, hence cannot be combined. Strangely enough, either method may correct, and overcorrect in certain cases. In certain cases one method is better than the other. Can we not say that in certain cases relapse will occur and in certain other cases that neither method will correct?

The x-ray findings show that some of these cases cannot be corrected by any method until a bony obstacle is removed surgically. Some of them if they are corrected will certainly relapse unless the defective articular processes are locked together.

Where one side of the fifth lumbar vertebra has slipped forward it must be fastened back in place or it will again slip forward. In the cases where there is a double rotation, the fifth lumbar vertebra rotated to the right, the fourth rotated to the left, the condition cannot possibly be corrected by any method of lateral pulling or rotation.

In cases where there is faulty fusion of the neuro-central suture the fifth lumbar body must be surgically pinned to the sacrum. There is no harm in sacralizing the fifth lumbar body.

Many of the cases due to deformity of the sacrum may be inoperable and best treated by a supporting corset to transmit part of the weight of the body trunk to the iliac crests.

Another fact brought to mind is the danger of treating some of these cases by head suspension, which increases the forward inclination of the pelvis, hence the tendency of the fifth lumbar body to slide forward on the sacrum.

Where the defect is in the articular process of the sacrum or fifth lumbar, these children should be taught to sit with a rounded lower back and stand in the flat-backed position, for this will keep the sacrum under the spine.

CONCLUSIONS.

1. A careful x-ray study in each case is indispensable before treatment.

2. Fourteen of the twenty-two cases in the clinic show a congenital lesion at the lumbosacral junction.

The fact that the age (ten to fourteen) when the anterior lumbar curve becomes constant, is the age when scoliosis develops in a large number of cases is interesting. At this age the weight of the upper trunk is increasing most rapidly and the epiphyses of the iliac crest have not appeared.

The vertebral sacral angle varies widely, but is great in females.

The increased tipping throws greater strain (both downward and forward) on the articular processes, and as the angle of inclination increases the horizontal thrust becomes more vertical and the strains tend to unite. Hence, when these processes are defective scoliosis develops.

3. Many of the cases should be operated on either before correction is attempted or after correction is obtained.

4. A knowledge of the character of the lesion allows a prognosis.

5. This knowledge explains some of the many failures of the past.

It is obvious that in this paper some of the true causes of scoliosis have not been mentioned, but from an inspection of the cases in our clinic attention has been drawn to some of the very frequent causes hitherto overlooked.

NITROGENOUS METABOLISM IN A CASE OF CHRONIC MYELOGENOUS LEUKAEMIA.

By Harry W. Goodall, M.D., Boston,

Assistant in Biological Chemistry, Harvard Medical School; Associate in Medicine, Peter Bent Brigham Hospital; Physician to Boston Dispensary.

In any condition associated either with a considerable increase in the number of leucocytes in the blood or with the destruction of large numbers of leucocytes, such as occurs in Leukaemia, it would be expected that such a change might be indicated by the excretion of urinary nitrogen and more especially by the uric acid nitrogen, in as much as leucocytes are bodies rich in nucleins.

From a review of the rather extensive literature of the subject, it is to be concluded that during the ordinary course of the disease the total urinary nitrogen, as a rule, correspond closely to the protein of the diet and the excretion of uric acid varies only within normal limits. During periods of rapid leucocyte formation or more especially during periods of rapid leucocyte destruction the change may be indicated by the nitrogen output but this is by no means the rule. When such a change does occur it is especially indicated by the increased output of uric acid. No definite relationship, however is found to exist between the number of leucocytes and the quantity of uric acid excreted.

Instances are recorded in which periods of marked leucocyte destruction are accompanied by a diminished or normal excretion of uric acid as well as an increased excretion. Even the rapid dissolution of leucocytes following x-ray exposure may not influence the urinary nitrogen. These varying results have been explained in part by the supposition that there is a retention of some of the intermediary bodies for the purpose of forming new leucocytes and in part by the supposition that the destruction of nuclein is carried beyond the stage of uric acid. In a large measure, however, the variations are to be explained by the shortness of

the period of observation and the failure of the observer accurately to determine the food intake.

In the following case special attention was given to the food intake. The "starch and cream" diet employed by Folin in studying the urine of normal individuals was selected since it is practically free from protein, and fulfills the caloric requirements. At the same time it permits of comparison with normal protein metabolism. The case is of special interest inasmuch as the patient was passing through a period of rapid leucocyte dissolution during the time she was under observation.†

Briefly, the case is that of a Jewish woman, 32 years of age, with a typical myelogenous leukemia which had existed three and a half years previous to this study. For two months, the time previous to and including the period of this observation, she was given Coley toxins nearly every day.

On June 7 (see table below) she was given the "starch and cream" diet for a period of seven days. Previous to this there had been no change in the leucocyte count, but during the period of observation there was a pronounced and rapid fall. It is probable that this fall was entirely independent of the diet, since a second case of leukemia placed under exactly the same conditions failed to show any decrease in the number of leucocytes. Unfortunately the results of the second case are valueless, owing to mistakes in collecting the urine.

Date.	Leucocyte count.	Vol. urine.	Total N.	Uric acid.	Uric acid N.	Per cent uric acid N.
May 31	161,600					
June 7		1815 c.c.	9.9 gm.	0.72 gm.	0.24 gm.	2.5%
June 8		2055	6.2	0.65	0.22	3.5%
June 9	29,800	2676	3.1	0.99	0.33	10.6%
June 10	18,450	1920	7.3	0.74	0.25	3.4%
June 11	14,700	1790	6.1	0.32	0.11	1.8%
June 12		1690	5.9	0.68	0.23	3.9%
June 13	9,550	1500	7.1	0.78	0.26	3.6%
Total			45.6 gm.	4.88 gm.	1.64 gm.	
Daily average			6.5	0.69	0.23—	3.6%
Normal average			5.2	0.33	0.11—	2.1%

The methods employed in making the determinations are those described by Folin.

Subsequent History. Toxins were continued for one month after these observations were made, at the end of which period the leucocytes counts reached a minimum of 3,300. After the omission of the toxins the leucocytes began to increase and reached 45,000. The patient developed a membranous stomatitis and broncho-pneumonia and died in about ten weeks after the end of the period of observation.

In comparing the average daily excretions with the normal there can be no doubt as to a considerable increase in the output of total urinary nitrogen and of uric acid. This increase is more clearly seen if we compare the total excretion of the last six days, the first day being omitted because of its close dependence upon the protein in the diet of the day previous, with four of Folin's normal urine at a corresponding period.

	Total N.	Uric Acid N.
Leukemia case	35.7 gm.	1.40 gm.
Normal person	32.9 gm.	0.70 gm.
Dr. H. B. H.	32.3 gm.	0.59 gm.
Dr. E. A. S.	24.2 gm.	0.56 gm.
Dr. Aug. H.	30.1 gm.	0.82 gm.

Analysis of the table brings out two points of special interest; first, that the daily excretion of uric acid N. shows a wide range of variation, 0.11 gm. to 0.33 gm. without any constant relation to the total nitrogen, and secondly that the day (June 9) when the largest quantity of uric acid was excreted the minimum quantity of total nitrogen was excreted. This suggests the possibility of some error, especially so inasmuch as the urinary nitrogen does not normally sink to this low level with this diet as early as the third day, but constant results were obtained with repeated determinations. It is interesting to note, in connection with the increased nitrogenous metabolism, that the daily quantity of urine excreted was approximately a little in excess of the quantity excreted by normal persons on this diet, and that on the particular day in which the disturbed relation between the uric acid nitrogen and the total nitrogen was the greatest an excessive quantity of urine was passed.

An inference from these observations relative to the metabolism during rapid leucocyte destruction would favor the hypothesis that the destruction can be carried beyond the uric acid stage.

Such a supposition would explain the marked variations which are here shown. Retention for the purpose of new leucocyte formation, while possible, seem improbable in view of the fact that the white count continued to fall and that no increased was noted within four weeks after this period of observation.

† I am indebted to Dr. Ralph C. Larrabee for the privilege of tabulating the total data of the leucocyte counts herein tabulated.

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AURAL VERTIGO.*

By D. Harold Walker, M.D., Boston.

The subject of aural vertigo was first brought to my attention by coming in contact with a remarkable family, eleven members of which, during four generations, were affected with vertigo of the apoplectic type. This series I reported in the Transactions of the American Otological Society in 1910. Since that time I have observed a number of similar cases, and recently I had the opportunity of attempting the relief of the distressing symptoms by operation, upon a case kindly referred to me by Dr. Clarence J. Blake.

Aural vertigo is a symptom common to a number of affections such as the more or less transitory vertigo, due to toxaemia, to gastric, or to ocular causes; but at this time I wish to discuss the form of vertigo which is often called Pseudo-Meniere's disease. It is an affection that occurs most commonly in persons of middle age; persons usually healthy in every other respect, the attacks occurring at almost any time, often with no regard as to whether the patient is active or at rest.

That the labyrinth is a closed cavity is the opinion of all observers. Although there are the aquaeductus vestibuli and the aquaeductus cochlae, they are not patent for the free passage of fluid, according to the researches of Schwalbe and Schonemann. The aquaeductus vestibuli contains the ductus endolymphaticus, which ends in the saccus endolymphaticus, an organ which has long been overlooked, yet a constant in all animals where hearing is a sense. One cannot here enter into a description of the important part it plays in the lower animals, nor its prominence in the development of the human ear.

Suffice to say that it is always present, and from the experience of Kummel, its preservation is necessary for hearing.

When one appreciates the extreme sensitiveness of the equilibrium, which must be maintained in the labyrinth to enable the perception of delicate sound waves, it is reasonable to believe that, if there were an intimate relation between the cranial cavity and the labyrinth, the constantly varying intracranial pressure would destroy that equilibrium. The experiments of Lafitte-Dupont showed that variations in intracranial pressure cause similar changes in arterial pressure. Also, the yet unpublished work of Dr. Ayer of this city shows the enormous variations, which may occur in intracranial pressue, and that the withdrawal of varying amounts of cerebrospinal fluid does not, necessarily, cause vertigo or deafness.

It is a recognized fact that there exists in the organism, in the normal state, an energy or a principle which determines and preserves the amount of fluid in serous cavities. This is true whether it be the pericardial, the pleural or the cranial cavity, the eye and probably the labyrinth. If the venae Galeni in the brain becomes closed, hydrocephalus results. If the canal of Schlemm is closed, glaucoma is the result. Is it not possible that pathological changes may occur in the labyrinth, causing an increase in pressure, and vertigo be the result?

It is generally admitted that true apoplectic vertigo is caused by increased labyrinthine pressure, and this belief is justified by the fact that what relief has been obtained has been through agencies which cause either a lymphatic or a circulatory depletion, such as pilocarpine, adrenalin, purgatives, lumbar puncture, the use of setons or, by the surgical destruction of the labyrinth. Again the theory is strengthened by the results of the removal of the stapes, with a transient relief of the attacks of vertigo, and the recurrence of attacks after the foramen ovale has become closed.

Patients affected with this type of vertigo nearly always have diminished hearing, to a greater or less degree. This is true without respect to age. In the cases which have come to my attention, there is little objective evidence of middle ear change, so that the conclusion drawn is that there is a degree of osseous change, which in the first place would destroy the extrinsic mechanism for the control of labyrinthine pressure, as shown by Blake and Wales. Secondly, is there any reason that the process be limited to that portion of the labyrinthine capsule? Could not that osseous change involve the region of the aquaeductus vestibuli, causing a cessation of any function the saccus endolymphaticus may have, acting as an intrinsic organ of equilibrium? Also, could not that same change affect the lumen of the aquaeductus cochlae and of the aquaeductus vestibuli, resulting not only in impeded drainage, but possibly in a passive congestion, by retarding the venus flow? If the foregoing suggest a possible hypothesis, it would explain the reason for the gradual increase of pressure, until a maximum is reached where relief is obtained by a sudden decrease in tension, due to the forcing of fluid through the lymph spaces in the aquaeductus cochlae or a rupture of some part of the membranous labyrinth. The sudden lowering of the labyrinthine pressure would occasion the apoplectic attack of vertigo.

Attacks would recur when the anatomical conditions were reestablished, and after a period of time depending upon the rapidity of internal secretion.

The case I wish to present is that of a man about thirty-five years of age. Previous history of any affection of importance is negative. Habits good. There has been a gradual decrease in hearing, with tinnitus, for several years. The first attack of vertigo occurred eight years ago; since then they

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have varied in severity and are often accompanied with nausea and vomiting. No noticeable change in the tinnitus after an attack. The usual therapeutic measures were of no avail, and lumbar puncture, with the withdrawal of from 15 to 20 c.c. of fluid was performed six times without any relief. I may add that there were no unpleasant after-effects due to the withdrawal of the fluid. The hearing is as follows:

Rinne Test.		
Right.	Left.	
25" a.c.	20" a.c.	35" Blake fork used, 256 v. d.
10" b.c.	8" b.c.	12"

35" 8
—— = ½ = Normal.
12" 16

d. v. 128 c low limit c.
d. v. 8128 c high limit c monochord, same for a.c. and b.c.

Whisper heard in the right ear at a distance of 6 feet, and a low spoken voice heard in the left ear at a distance of 1 foot. Blood pressure about 135 mm. of Hg. Spinal pressure 30 mm. Because of extreme vertigo, vestibular tests were not performed. It was desired to preserve the hearing, if possible, and it was decided not to do the complete labyrinth operation as performed by Lake, but to destroy the ampullae of the horizontal and the posterior semi-circular canals, without destroying the cochlea. The usual antrum operation was performed, exposing the external horizontal canal. The cortex was partially sclerosed and very vascular. Whether the vascularity was indicative of an osseous change is questionable. The antrum was enlarged sufficiently to allow access to the vestibule without doing a tympanomastoid exenteration. The right semi-circular canal was entered with a dental drill, with absolutely no flow of perilymph as a result.

The vestibule was gently curetted through the anterior limb of the horizontal canal, and the lower limb of the posterior semi-circular canal was followed into the vestibule with a curved probe. The wound healed by first intention, and the patient was discharged from the hospital in about ten days. There was no tympanic reaction from the operation. There was marked lateral nystagmus towards the affected ear. I have not seen the patient recently, but he states in a letter that he had returned to work, that the vertigo had disappeared, but that the tinnitus persists, and that he staggers when he walks. As the operation was performed but eight weeks ago, it is probable that compensation has not yet been established.

The fact that true aural vertigo causes such great prostration and is such a great inconvenience to the sufferer makes it essential that we do all that is possible to alleviate the symptoms or cure the affection. In mild cases, where there is a more or less constant feeling of disturbed equilibrium and fear of impending attacks, depletion in the various ways in which it has been practised, as reported in literature, is recommended. Randall proposed in 1902 the use of small doses of adrenalin, as a capillary depressent, and his results have been very favorable.

Lumbar puncture, as first performed by Babinski, the French observers as reported by Molard, and by Blake and Putnam, should be tried. There is no doubt but that in certain cases alleviation and even complete relief has been effected by lumbar puncture, with the withdrawal of the fluid, and if done fairly soon after an attack, the labyrinthine pressure might be sufficiently reduced to give immunity from future attacks for a long time.

In just what way lumbar puncture may effect the intra-labyrinthine pressure is not known. In the above case it was performed six times with no effect upon the symptoms. The fact that there was absolutely no flow of the perilymph at the time of operation is in accordance with the theory of the closure of the aquaeducti. Dr. Ayer in the work already mentioned, performed lumbar puncture upon a series of about twenty cases and in one case only was there a complaint of temporary deafness and slight vertigo. The symptom most common to all was more or less headache. It is reasonable to suppose that withdrawal of any amount of fluid from the cranial cavity, in normal persons, would be immediately reformed. It is possible, that where beneficial results are obtained, they are probably due to a permanent lowering of the hypertension of the cerebrospinal fluid.

In most severe forms of the disease, destruction of the labyrinth, as first performed by Milligan and later by Lake, seems to be justifiable.

REPORT ON LEUCOCYTIC INCLUSION BODIES.*

By Lewis Webb Hill, M.D., Boston,

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Döhlé's leucocytic inclusion bodies are small coccus- or bacillus-shaped bodies occurring in the polynuclear leucocytes of the blood in a number of diseases, especially in scarlet fever, and were first described by him in November, 1911. Since then, many articles have been written about these bodies so that another one would perhaps seem superfluous, but it may be of some value to report 100 cases studied at the South Department, Boston City Hospital. There will be no attempt made to give an extensive review of the literature as this has already been done in previous publications.

Döhlé himself first considered these bodies to be fragments of a disintegrated spirochaete which had been ingested by the polynuclear blood cell and called it the spirochaete of scarlet fever, believing it to be specific. This has, however, been discredited. Kretschmer, in 1912, examined 85 cases, 15 scarlet fever and 70 con-

* Read before the New England Pediatric Society, March 27, 1914.



Four Leucocytes Showing Characteristic Inclusions.
A shows prolongation of nucleus.
B shows most characteristic position of inclusions at periphery of cell.
C and *D* show variations in morphology of inclusions.

trols consisting of various diseases, and found the inclusions present in all the scarlet fever cases and in only four of the controls, those positive being two cases of diphtheria, one of tuberculosis and one of pneumonia. He was not able to reproduce the bodies in the blood of animals after injection with scarlet fever material.

Nicoll and Williams examined 51 cases of scarlet fever and 25 controls of diphtheria, erysipelas, pneumonia, tonsillitis and German measles, 45 of the scarlet fever being positive and only 3 of the others positive. These were one case of pneumonia, one of erysipelas and one of measles. Nicoll later reported a new series of 115 scarlet fever cases and found positive results in all but 16, all except 3 of these negative cases having been ill for over 7 days. 8 cases of erysipelas were all positive, as well as 7 cases of sepsis, most of them of puerperal origin.

Ahmed believes that the inclusions have a definite relation to the amount of fever and is of the opinion that they are fragments of the nucleus. Kolmer examined 214 cases of scarlet fever and found bodies present in nearly all of the early cases and in a few of the late cases, one as late as the 44th day. He also found them in 13 out of 50 cases of diphtheria examined in the first few days of the infection. Of 30 cases of serum sickness, developing a rash, none showed inclusions. Kolmer also examined bloods from a number of other diseases and concludes that the inclusion bodies bear a definite relation to the streptococcus toxin and that they are present in 94% of all scarlet fever cases during the first three days. He believes that they represent a degenerative process in the cell cytoplasm. He could not reproduce them in rabbits by the injection of scarlet fever material.

Granger and Pole had 191 cases of scarlet fever, 37 of measles, 27 of diphtheria, 24 of tonsillitis, 20 of pertussis, and 20 of serum rash, besides a number of other diseases. They found bodies present in 17 of the measles cases, in 27 of the diphtheria and in 14 of the tonsillitis cases. All of the scarlet fever cases examined before the fourth day were positive, but all except one of the pertussis cases were negative and all of the cases of serum sickness were negative. They conclude that the absence of inclusion bodies during the first four days of the sickness practically excludes scarlet fever.

Lippmann and Hofschmidt reached practically the same conclusions as the other authors cited concerning the occurrence of the bodies, but they believe them to be a product of excessive cell destruction in the body, which has been taken up by the polynuclear leucocytes. They consider that there is a parallelism between urobilinogen excretion in scarlet fever and the occurrence of the inclusion bodies, both being indices of cell destruction due to toxemia and fever. Bongartz regards them as products of the cell nucleus, which have been broken off by the action of bacteria, not specifying any particular group.

Schippers and de Lange were able to reproduce inclusion bodies in the blood of a dog after the injection of a streptococcus culture. They say, "The inclusion bodies are certainly not derived from the nucleus because they have different staining properties. For example, they stain red with methyl green and pyronin while the nucleus stains green."

Cummins believes that they are to be found in practically all febrile diseases, in chronic pyogenic conditions of afebrile character, in severe injuries without febrile disturbance, and in some normal individuals. He was not able to reproduce them in laboratory animals and believes that a nuclear origin is probable. Glomset found inclusions in the blood of normal individuals, 2 to 4% of the polynuclear leucocytes containing them. After the blood had been shaken vigorously with citrate solution, the percentage of leucocytes containing inclusions rose to 15 to 20%. He regards them as detached portions of the nucleus and says that in many cases the nuclei of the polynuclear leucocytes show partly detached fragments, similar in outline to the free bodies.

All of the scarlet fever bloods to be reported in this communication were obtained at the South Department of the Boston City Hospital, at the City Hospital proper and at the Massachusetts General Hospital. Four stains were used:

1. Granger and Pole's modification of Manson's stain prepared as follows: Methylene blue 1.5 grams; absolute alcohol 10 cc.; 5% solution of phenol in water 100 cc. Methyl alcohol was used as a fixative, it being sufficient to dip the slide into the alcohol, wash with water and immediately stain. This was

a very satisfactory stain. With it the inclusions stain a deep blue, the cell nucleus deep blue and the cell protoplasm a pale homogeneous blue.

2. Pappenheim's pyronin and methyl green (2 parts of pyronin to 4 parts of methyl green in saturated aqueous solution) was also found very satisfactory. This stain makes the prettiest preparations, the inclusions staining bright red and the cell nucleus a greenish blue.

3. Wright's blood stain.

4. 1% aqueous solution of pyronin.

Of these stain 1 and 2 are the most satisfactory.

One hundred bloods were examined as follows:

	Positive	Negative	Total
Scarlet fever	43	29	72
Erysipelas	5	0	5
Pneumonia	4	1	5
Syphilis	0	2	2
Empyema	0	1	1
Secondary anemia	0	1	1
Serum rash	0	1	1
Normal	0	13	13

A case was not called positive unless well-defined and well-marked inclusions of fair size and characteristic appearance were seen in at least two or three leucocytes. Of the 29 negative scarlet fever bloods, all except 6 were after the tenth day. Three of these six were on the second day, one on the fourth and the other two on the eighth and ninth days. Of these six cases it is interesting to note that the temperature was normal and there was only a very scanty rash. All of the three which were negative on the second day were positive when examined again on the third day. Of the positive scarlet fever cases, 25 were before the tenth day and eighteen after it, the latest being on the 45th day.

The inclusions are perfectly definite, small, irregularly-shaped masses which stain homogeneously. Their average length is about one micron. They may be pyriform, ovoid, coccoid or bacilliform in shape. They usually lie at the periphery of the cell and in some cells there may be as many as five or six. The most characteristic ones are of the shape of a rather short, thick bacillus, usually with rounded ends and lie on the periphery of the cell with their long axes parallel to it. In any normal blood, there may be seen small granules which may superficially resemble the inclusions, but a blood should not be called positive unless absolutely characteristic and undoubted forms are seen. I have not been able to find inclusions in normal blood. It has been my experience that the sicker the patient, the higher the temperature and the more abundant the rash, the larger and more abundant are the inclusion bodies. In many of the polynuclear leucocytes may be seen small prolongations of the nucleus, as observed by Clement, sometimes these are attached to the nucleus only by a very narrow strand and resemble in every particular the free bodies. It seems reasonably clear that the inclusion bodies are products of the nucleus and that they are in the nature of a reaction of injury by the nucleus to the bacterial toxin, usually that of the streptococcus. When these bodies are broken off from the nucleus it is reasonable to suppose that they are moved towards the periphery of the cell by centrifugal force, for the blood cells are in a continuous rotatory motion in the blood stream. As the disease progresses, in the course of time the inclusion bodies disintegrate and are absorbed by the protoplasm of the leucocyte. The fact that the bodies stain differently from the nucleus with certain stains does not argue against their nuclear origin, for once a fragment has been detached from the nucleus, it is no longer an integral part of the living cell. It is possible that it may undergo chemical changes and may act as a foreign body in which case it would be natural for it to show a different staining reaction from that of the nucleus. I was not able to reproduce inclusion bodies in the blood of a guinea-pig by the injection of a mixed culture of staphylococcus and streptococcus taken from the throat of a scarlet fever patient whose blood showed inclusions.

From my own observations and from those of other writers it seems fair to draw the following conclusions:

The inclusion bodies are present in a majority of cases of scarlet fever up to the tenth day; in nearly all cases before the fourth day.

They are not specific for the disease, being found in a number of other infections, most particularly erysipelas, sepsis, pneumonia and tonsillitis. They are more likely to be found in diseases with which the streptococcus is associated.

They have the following diagnostic value: If they are not found in a doubtful case which has a rash and a marked fever, the case is probably not one of scarlet fever. They are never found in cases of serum sickness (uncomplicated.)

They are probably in the nature of a reaction of injury of the cell nuclei, caused by bacterial toxins and are small fragments broken off from the nuclei.

I wish to express my indebtedness to Dr. Edwin H. Place, Physician in Chief of the South Department for permission to use the material in the wards and for his interest throughout the work.

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POOR HEALTH IN THE CHILD: SOME DEVELOPMENTAL INFLUENCES AND THEIR IMPORTANCE TO THE ADULT.*

By John Bryant, M.D., Boston.

OUTLINE.

I. Introduction.
II. Developmental influences classified.
  A. Variations in type forms.
    1. Herbivorous.
    2. Intermediate. (Normal human.)
    3. Carnivorous.
  B. Variations common to all types.
    1. Abnormal psersistence of normal fetal structures.
    2. Alterations in development of normal fetal structures.
      a. Arrest of development.
      b. Excessive development.
    3. Absent development and malformations.
  C. Variations in development of the ductless glands.
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III. Observations on post-mortem material.
  A. Method.
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    1. Stomach.
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IV. Clinical observations.
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VI. Treatment.
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I. INTRODUCTION.

What per cent. of ptoses, adhesions, and other abnormalities of the adult are congenital? What proportion of the community suffers from them? What is their influence upon health? What is the proper treatment of these conditions? What is their influence upon the health of the children of the future?

These and other questions are the results of experience with the often unsatisfactory medical and surgical treatment at present applied to a large class of semi-invalid children and adults included under terms such as sickly, congenitally unfit, asthenics, visceroptotics, and neurotics.

The present paper outlines the first steps in a systematic attempt to put some of these questions on a basis which will permit of a satisfactory answer, and is in the nature of a preliminary note on some two years of work, more detailed reports of which will appear later. Much of it is from a period of sixteen months at clinics and post-mortem rooms in Europe; the remainder is more recent, especially certain observations from the children's department of the Massachusetts General Hospital Out-Patient Department, some findings during the new second year course in cross-section anatomy at the Harvard Medical School, and a rather extensive review of the literature, a summary of which may be found in the form of a bibliography which has recently appeared.*

My belief in the importance of the pediatric end of this developmental problem results from post-mortem work upon the adult, for it soon became evident that many of the peculiarities found in adults could also be demonstrated in children, in infants, and often even in the fetus. In such a case, it is obvious that the primary problem lies not in an adult, but in the child or infant in whom this adult has his origin; conversely, it has seemed probable that many an adult could have been spared years of misery and inefficiency, and have had much added to his productive power by adequate attention during his period of growth.

The world is full of people who from the point of view of the efficiency expert are below par; who as hypo-producers and often as hyper-reproducers become to a variable degree a burden upon the resources of others. Having excluded such extraneous causes as alcohol, syphilis, hookworm, and faulty habits, there will remain many cases for whom some other explanation than a neurosis must be found. Of these, many may be traced to demonstrable physical defects. But it is not enough to call the sufferer bilious, or weakminded, or tubercular, or rheumatic; for constitutional differences largely determine the diseases to which the individual is liable. Tuberculosis is a marked example of a disease which thus becomes a symptom by which we may state the developmental type of its victim.

The developmental influences to be discussed may be considered under the following three groups.

II. DEVELOPMENTAL INFLUENCES CLASSIFIED.

A. *Variations in Type Forms.* From a developmental point of view, man, judged by his intestine, belongs between the carnivorous and the herbivorous animals, and is more nearly related to the latter than to the former (Treves). Consequently the race falls into three type groups: (1) the herbivorous, (2) the intermediate, and (3) the carnivorous. It has long been known that type 1 has a wide short body form and a relatively long intestine, and that type 3 has a thin long body form and a relatively short intestine. This relationship between body form

* Read in part at the meeting of the New England Pediatric Society, May 1, 1914.

* *Surg., Gynec. and Obstet.*, May, 1914.

and intestinal length has been traced as far down in the scale of life as the reptiles and the insects (Dreike). Type 2 is of course less sharply defined, being as it is intermediate between the two extremes. More recently Bean has distinguished three groups on the basis of the germ layers, and has not only been able to recognize them by body form and the shape of the ear, but has made a rough classification of the diseases to which each type is subject. Also, and with reason, there have been many reports on the effect of the upright posture upon the viscera, a change which bears hardest upon the long, loose jointed, trumpet eared, carnivorous type of individual, since his loosely adherent viscera, so well adapted to his four-footed manner of life, work at a great disadvantage in his new attitude; and Goldthwait has found that these type differences apply to the shape of the lumbar vertebrae no less than to the other components of body form.

B. *Variations Common to All Types.* In this group belong many variations of the viscera, which may be roughly classified as follows:

1). Abnormal persistence of normal fetal structures.

2). Alterations in development of normal fetal structures: (*a*) Arrest of development. (*b*) Excessive development.

3). Absent development and malformations.

As an example of 1 may be mentioned the persistence of the caudal edge of the ventral mesogastrium, causing constriction of the duodenum, just reported by Harris; 2a is represented by the undescended cecum or by a common mesentery for the whole intestine, and 2b by such formations as Lane's kink. Under 3 would come such abnormalities as absence of a segment of intestine, or of the abdominal wall, or the presence of a true megacolon, as recently observed in a stillborn infant at the Harvard Medical School.

C. *Variations in the Development of the Ductless Glands.*

1). Metabolic disturbances. (*a*) Organic. (*b*) Inorganic.

2). Trauma.

3). Other causes.

There is less known about this group than about the other two, but that the effects of varied diets upon the development and activities of the ductless glands is of real importance, with the resultant possibilities of alterations in function of the whole organism, is sufficiently evidenced by reports in the literature.

III. OBSERVATIONS ON POST-MORTEM MATERIAL.

Largely in Group IIB fall my observations on material obtained in Berlin through Prof. Pick at the Friedrichshain Krankenhaus and through Prof. v. Hansemann at the Virchow Krankenhaus during the fall of 1912 and the spring of 1913. Although more than three hundred autopsies were followed during the year in Berlin, Prague, Vienna, Hamburg, and other places, it was difficult to obtain the freedom desired, and even in Berlin various circumstances combined to prevent my obtaining satisfactory records in more than 218 cases. Undertaken as an orientation in the study of ptosis in the adult, the literature was avoided in order that any conclusions might be unprejudiced. Having reached certain conclusions, and having now reviewed the literature, it is hoped that by a study of an additional 300 cases in Europe during the coming six months, some valuable results may be obtained; for though it is doubtful if many new combinations will be recorded in a further series, a total of 500 autopsies should give a sufficient basis for establishing the normal limit of variations in unselected material,—a standard now sadly needed by which to judge findings in small groups of cases.

A. *Method.* To use a metaphor from deep-sea dredging, it seemed probable that from the application to the problem of a mental drag-net, in the form of a record of as many different facts as possible concerning a given case, whether seemingly related or not, there should result some light on the questions of cause and effect within the abdomen. The necessity of such a method of attacking the question is made the more obvious by a review of the literature. One may find nearly all the single facts of interest recorded, but thus far it seems that no one has attempted a correlation of the whole. The material was unselected, including men, women, and children, infants, and feti, from a length of 12 cm. to an age of 89 years, and the following observations are based for the most part on the first hundred of these cases. Notes were found valueless unless written in the interval between the examination of one case and the next, and it was necessary for purposes of comparison to record the observations obtained under 58 different headings. The work was done without interfering with the routine post mortems, the external measurements and observations being made before the autopsy commenced, and the viscera examined *in situ* during the routine examination of the thorax, the intestine being measured after removal from the body. After experience with about 30 cases, the following system was arrived at:

Four sets of cards were used: 1. External measurements, etc.; under this heading were recorded the case number, sex, age, occupation, disease, and height; also two measurements of the thorax, three of the abdomen, two of the diaphragm, the length of the small intestine and of the large intestine, and the condition of the rib cartilage and of the cartilage of the kneejoint. 2. General observations; such as development, nutrition, the amount of external fat, peculiarities of the thorax, abdomen, extremities, heart, lungs, and diaphragm, the presence of jeterus, or ascites, the condition of the omentum, and the amount of intra-abdominal fat. 3. General intra-abdominal; as adhesions, presence of gall-stones, and remarks on the gall-bladder, liver,

spleen, pancreas, kidneys, adrenals, and genitalia. 4. Gastro-intestinal: adhesions, apparent length and disposition of the transverse colon, and notes on the condition of the stomach, pylorus, duodenum, ileo-cecal valve, appendix, ascending colon, hepatic flexure, transverse colon, splenic flexure, descending colon, sigmoid flexure, and rectum. It was not possible to obtain notes under every heading on each case, but even an average of notes under some 28 headings per case has supplied some interesting correlations. The adhesions proved difficult to record, and resulted in a mere note of presence or absence on card 4, while on card 3 a detail was given by means of numbering the organs from 0 to 17; thus in case 73, a man of 87, the figures 0-1-2-3-4-9-11 signify a mass of adhesions, including the liver, peritoneum, omentum, gall-bladder, duodenum, ascending and transverse colon. Case 54, a man of 60, with adhesions numbered 3-4-11, 2-4-11, is interpreted as a band from the gall-bladder across the duodenum to the transverse colon, and a band of omentum across the ascending and transverse colon, thus giving in this case practically the lesion to which Harris recently referred, and a form of Jackson membrane. In case 87, a man of 76, under 3-4-11, 1-7, and 2-13-14, we have three lesions, the band across the duodenum from the gall-bladder to the transverse colon, the appendix bound to the peritoneal wall, and a band of omentum across the descending colon and sigmoid flexure, or more properly speaking, the iliac colon.

B. *Thorax.* In measuring the thorax, two levels, determined by convenience, were used for the purpose of recording variations in the size of the lower thorax. In all newborn infants measured, the circumference at the tip of the eighth rib equaled or exceeded that at the lower border of the sternum; the upper level falls below the breasts of the female, and the lower is at a natural angle of the ribs, below which it is difficult to use even a steel tape with accuracy owing to the rapid decrease in size of the thorax as it merges with the abdomen. One does not often find the lower measure less than the upper until about 5 years of age, after which the narrowed chest increases in frequency, so that in the total of 9 children in which this double measurement was recorded in this first series, only 57% have the full normal infantile type, and in the total of 43 adults one finds the normal in only 33% of males and 37% of females. Thus we see that the full infantile thorax, at least in the working class from which this material is drawn, is slightly more common in the adult woman and the so-called tapering feminine thorax of the artist is rather more common in the grown man; in other words, the male thorax is abnormal in 67% and the female in 64% of these cases. In using these thoracic measurements, it is observed that all complicated calculations are avoided, and that, first, although both measures may be the same, both may be above or below the normal for a given height; second, when the upper measure is normal for a given height, the lower measure is really the more important, since it is a better indicator of internal derangements.

What is the significance of this change in the thorax form? Harris, as later discovered, has concluded that nephroptosis in the adult runs parallel with this narrowing lower thorax, and that he can predict the position of the kidney by his measurements. He finds the kidney low in 56% of 126 adult women, and considers the low kidney the result of the narrowed body form. He believes that owing to the lessened capacity of the thorax, attributed by Goldthwait partly to postural depression of the diaphragm, the liver is forced downward, it in turn acting directly to depress the kidney; this is soon sufficiently low so that all further downward pressure acts above the centre of this organ, to force it still further downward, and thus such trauma as coughing tends always to increase the nephroptosis.*

Osler considers nephroptosis four or five times as common in women as in men. If this is so, according to Harris the narrowed chest should be much more frequent in women than in men; but from my figures the narrow chest is even more frequent in men than in women; also, a low liver is not incompatible with a high, firmly fixed, apparently normally placed kidney, and conversely, the kidney may be found low with the liver high. Therefore it would seem unlikely that Harris is wholly correct. Is it not more probable that ptosis is rather a cause than an effect of the narrowed thorax, since the incidence of the narrowed chest in the adult is only 65%, while ptosis may be put at 75%, with adhesions yet higher at 84%, and since this difference in relative frequency is even more striking the younger the child?

The causes of this narrowed chest would seem to me to be multiple, as for instance the limitation of body type, an unusually low attachment of the diaphragm on one or both sides, and intra-abdominal conditions such as ptosis and adhesions, in addition to the usual trauma of life, which include occupations, bad habits, and fatigue.

C. *Diaphragm.* In addition to the usual note on the highest level of the dome of the diaphragm on both sides, a second measurement was possible owing to the routine manner of the thorax examination employed by Prof. Pick. Since the thorax was always opened with a knife by a cut along the junction of rib cartilage and bone, it was possible to observe at what level this incision intersected the diaphragm, in other words, to register its height of attachment in this anterior location. A considerable number (40) of observations gave an average height of attachment on both sides at this point, of the seventh rib, with a variation from the sixth to the eighth, on one or both sides, and it seemed

* As a possible source of error in the [illegible] nephroptosis in the adult is suggested the [illegible] caudate lobe of the liver, often thick [illegible] which, post-mortem at least, would [illegible] like a not improbable source of [illegible]

that this irregularity had some influence on the shape of the lower thorax.

D. *Adhesions.* Adhesions of some sort were present (including frank peritonitis) in about 86% of 77 adults, and 71% of 20 children: excluding peritonitis cases, adhesions or bands were present in 83% of 46 male and 86% of 27 female adults; in children, adhesions were present in 77% of 9 males, and 50% of 8 females, the youngest child in this group being 1 month and the eldest 16 years old with 50% of them between 1 and 8 years of age. Thus, though the initial rate is 22% higher, the adult male has increased his rate only 6% as against an increase of 36% in the female, and in the end the male has a 3% lower rate of frequency than the female. These figures are, of course, from a small number of cases, but they are suggestive in two directions: the female children average younger than the male, and it may be that part of the percentage difference in children is due to age, but this would not account for the final male ratio. On the other hand, even if the female child ratio were for age equal the male ratio, it would make even more striking the fact that at the age of 16 years this series of 100 cases had acquired 85% of its total supply of adhesions. Unfortunately, I have found no figures with which to compare these.

Morris, in a discussion of the location of adhesions, gives four groups in the following order of frequency: Gall-bladder, cecum and appendix, pelvis, and sigmoid. Robinson, giving a longer list of locations reverses this order, *i.e.* mesosigmoid 82%, pelvis 80%, ceco-appendix 72%, and gall-bladder 68%. My results correspond with those of Morris: In detail, the gall-bladder was involved in 58 cases, the transverse colon in 55, duodenum 39, omentum 31, ascending colon 29, hepatic flexure 23, peritoneum 23, liver 21, appendix 14, right kidney 6, cecum, splenic flexure and desecending colon 4, adnexa 3, sigmoid flexure 2, terminal ileum and rectum 1, small intestine, 0. Frank peritonitis from any cause was excluded from this list, and almost no cases except those of peritonitis had been operated upon. In a word, the upper right quadrant was the most common seat of trouble in the proportion of 140 to 19, which number is for the right lower quadrant.

Two other points of interest in regard to adhesions may be mentioned. First, in those cases in which the appendix seemed normal, the various adhesions were fewer, of a simpler type, less often multiple, and less often situated at the flexures; there were fewer gross changes in the gall-bladder itself, but more gall-stones *i.e.* 19% of 42 abnormal, vs. 8% out of 24 with normal appendices), and slightly more abnormal knee joints (50% of 6 vs. 40% of 14 normal cases). Second, adhesions were absent in only three cases in a series of 25 adults. In two of these the double thoracic measurement was recorded, and in both the thorax was of the full infantile type with the nutrition good.

E. *Ptosis.* In my consideration of ptosis, the transverse colon was eliminated as being too loosely attached. Four organs were chosen for record,—the stomach, ileo-cecal valve, liver and right kidney. It was found that with slight pressure and a downward sweep of the extended hand from the cardiac toward the pyloric orifice, the lower border of the stomach could be closely approximated to the level obtaining in the upright position; the stomach was then called low if the greater curvature came below the level of the umbilicus, and in addition it was noted when the greater or the lesser curvature of the stomach came to the level of the promontory of the sacrum, about half way from the umbilicus to the pubes. The ileo-cecal valve, taken as a more definite point than the cecum, was considered low when its lower border came below the brim of the true pelvis, and the liver when its lower border came below the costal border. The kidney was considered low or loose when it could be moved freely for more than three or four cm. in a vertical direction.

Under these conditions, ptosis was absent in 10% and general in 22%, while one or more of the organs named were low in 75% of 30 cases. In 40 cases the liver was low in 45%, and in 50 the kidney low in 42%. The stomach and ileo-cecal valve were low in 50% of 63 cases, and in these the greater curvature of the stomach reached the sacral promontory in 27%. In another small series, the position of the stomach was recorded in 17 children and 71 adults as follows:

Children.	No.	% Low.	% to Promontory of the Sacrum.	
Male	8	63	0	
Female	9	88	44	
Adults.	**No.**	**% Low.**	**% to p. s.**	**% Lesser Curvature to p. s.**
Male	42	74	17	2.38
Female	29	90	53	3.48

In all newborn children examined the stomach itself was above the level of the pylorus. In one adult woman and one adult man, the lesser curvature had reached the promontory of the sacrum. Between these two extremes, it will be seen that dilatation of the stomach, for true ptosis of the cardia and the pylorus is not very frequent, is not only distinctly more common in the female at all ages, but of a decidedly more severe type than in the male. This increased frequency in the female applies no less to the position of the ileo-cecal valve, as shown by the following:

Children.	No.	% Low.	% in Pelvis.
Male	9	22	0
Female	7	86	28
Adults.	**No.**	**% Low.**	**% in Pelvis.**
Male	41	41	0
Female	27	66	25

The extreme per cent. in female children is doubtless due to the small number of cases recorded, yet it goes to show that the low ileo-cecal valve is in the female congenital to a much greater degree than in the male. Smith, in a series of over 1000 infants less than three months of age, found the cecum in the pelvis in 10%, but in this 10% there were 34% males and 66% females; thus he found the condition about 100% more frequent in female than in male infants. There is an obvious discrepancy between my figures and those of Smith, but it is at least in some measure due to age differences. As previously stated, the stomach is always small and high at birth; in the same way, the kidney is always high and firmly fixed at birth, and it seems not improbable that some of these recorded differences are due to developmental adjustments of the peritoneum and mesentery, continuing during the first year or more after birth. In any event, it is certain that prolapse of the ileo-cecal valve is much more common in the female than in the male, and that there is less increase with age. In other words, a low, loose cecum is a female characteristic, and it has been explained by several writers on the basis of a physiologic adaptation for pregnancy.

Appendicitis in my series was no more frequent with than without ptosis, which suggests that in such cases it is less often a primary offender than is commonly supposed. It was also noted that the fulminating cases of appendicitis seemed to occur chiefly in children with particularly good health and general development, who showed no sign of pre-existing adhesions about the appendix or elsewhere in the abdomen. Turning back for a moment to the figures on adhesions, it will be seen that in point of frequency for age, adhesions precede the ptoses in the male, while the reverse is true in the female.

F. *Nutrition.* In the field of developmental adhesions about the intestine, my observations have been in accordance with the work of Eastman, Flint, Gray and Anderson, Harris, Konjetzny, Rjesanoff, and others, and there is one new point to add to the subject of duodenal obstruction. In addition to the cause mentioned by Bloodgood, and Codman, and the adhesions demonstrated by Gray and Anderson, one may not infrequently find on careful examination of the duodeno-jejunal juncture a slight anomaly of the ligament Treitz. Usually this ligament is so arranged that the first portion of the jejunum crosses the vertebral column from right to left before turning downward toward the pelvis; but in the cases in question, due apparently to a slight prolongation of the inferior aspect of this little ligament to the right, the duodenum terminates in a jejunum which may reach part way across the vertebral column, only to turn sharply on itself toward the right, following the direction given it by the anomalous ligament of Treitz. The result is obvious: there is provided in this developmental kink an excellent opportunity for the blocking of the duodenum by moderate pressure from a loaded stomach or other cause.

Dilatation of the duodenum was observed with constriction of the lumen by adhesions in 1 or 17.6% of 6 male, and in 1 or 20% of 5 female children; also in 5 or 8% of 65 adults. In 38 male adults dilatation was present in 16% and dilatation with constriction in 6 or 2.6%. In the female adult, dilatation occurred in 40% of 27 cases with constriction in 18.5%. This is in line with the increased frequency of the other intestinal conditions in the female.

Nutrition is apparently in some degree related to the narrow chest, since it is always good in the cases with a normal thorax and usually bad in proportion to the narrowing of the chest in the other cases, that is, with a decrease of the lower thoracic measure below that of the upper of 1 cm. or more. The position of the diaphragm may also play a part here, for out of 8 cases, it is recorded as low in 7 narrowed cases, and as normal in the only normal case. Thus it is possible that variation in the level of the attachment of the diaphragm may be a predisposing cause to ptosis and poor nutrition as well as to the narrowed chest.

My cases confirm the previous observations of others on the existence of a relatively short length of intestine in the tubercular and the asthenics (or static lymphaticus type), the hyperonto-morphs as Bean would call them. It has also seemed that in the absence of constricting adhesions an added length of intestine for a given body height is an advantage; but that in the presence of adhesions interfering with bowel function, added intestinal length becomes a positive disadvantage in proportion to its excess. Consideration of intestinal length is, however, always subject to the finding of almost 100% difference between maximum and minimum length in any unselected series of cases, thus requiring some care in interpreting results.

In a group of children in whom only three were noted as emaciated, these were the only three recorded as having adhesions about the hepatic flexure; they also had very short intestines, that of a boy of 16, for instance, being shorter than that of a healthy girl of only 8 months of age in the same group. These hepatic adhesions were of the developmental type. Is it not possible that in these cases the adhesion determined the lack of growth of the intestine through impairment of nutrition, and that in turn, nutrition was interfered with by the short intestine, thus establishing a vicious circle which could only be broken by relieving the adhesion?

In view of an equal sex distribution of joint lesions and of the preponderance in these lesions of liver and gall-bladder troubles, the sex distribution of gall-bladder changes may be mentioned. No stones were found in children, but the gall-bladder was noted as thick in two of four males, and all of four females. In adults, the gall-bladder was noted as thick in 50% of 26

males and 20 females, but stones were present in 23% of the males and 35% of the females, an increased frequency of 13% in the latter.

It is perhaps admissible to consider here a little end result evidence, as a side light on bodily function, in the shape of late changes in the cartilage in the ribs and of the knee joint. In 53 adults, the rib cartilage was normal in only 4, or abnormal in 92.5%, with 100% abnormal above 35 years of age. The youngest positive case was an emaciated boy of 16, dying from carbuncle of the lip, with the meninges of his brain afloat in pus. There were the usual calcium deposits above the vessels in the rib cartilage. The oldest normal adults were a thin man of 34, with tuberculosis, and a fat woman of 35 with acute post abortive peritonitis. Aside from the calcium deposits about the vessels above mentioned, the common early change in the cartilage was an apparent drying and granulation of the whole cartilage substance.

The changes in the knee joint were of the type variously called senile, degenerative (Nichols), or hypertrophic (Painter). Occasionally, a slight hemorrhagic area was observed, but usually the change consisted in erosion or fibrillation of the cartilage, sometimes slight and superficial, and sometimes exposing the bone, allowing the formation of exostoses of varying size. The cartilage looked like the end of a twig which had been pounded with a hammer. Below the surface this cartilage almost invariably contained small millet-seed sized white granules, apparently of calcium. When slight, the cartilage changes always appeared first on the patellar surface, suggesting that the process involved the femoral and tibial surfaces only in the more advanced cases.

The knee joint cases are more interesting than those of the rib cartilage, showing as they do more apparent relationship to derangements of the biliary, respiratory, and circulatory systems. The joints were examined in 35 cases of the series of 100 on which this paper is based. If one joint was positive the other was examined, for both joints were always normal or always affected in more or less degree. Children were negative unless tubercular or otherwise clearly infectious. The youngest positive case was a woman of 21, and the oldest negative case a woman of 76. The sexes were affected equally, with about 62% positive, and 75% positive in 20 cases above 50 years of age. The most frequent age period was between 60 and 65, which included 25% of 33 cases. The following associated conditions were noted:—

	Knee joints			
	Negative		Abnormal	
	No. of cases	%	No. of cases	%
Adhesions	9	100	24	87
Total liver changes	9	11	23	52
Gallstones	6	17	6	83
Gall-bladder changes	8	12.5	17	70
Intestines low or loose	9	89	24	38
Kidney low	9	11	17	41
Liver very low	9	11	23	26
Cirrhosis	9	0	23	13
Perihepatitis	9	0	23	13
Flexures involved	9	44	24	54
Adhesions, simple	9	56	24	29
Nutrition:				
Good	8	50	22	45
Poor	8	37.5	22	41
Emaciated	8	12.5	22	13
Intra-abdominal fat plus	8	12.5	22	9
Disease:				
Lung	9	33	23	48
Heart-Kidney	9	11	23	35
Other causes	9	56	23	17
Rib cartilage abnormal	9	77	24	96

In height the positive cases averaged less than the negative, and yet the total intestine measured longer. In other words, the intestine relatively was distinctly longer in the positive cases. It may also be noted that this extra length was in the small intestine, for the large intestine was slightly shorter in the positive cases. Likewise the positive group contained the two extremes in intestinal length.

It will be observed from the above table that chronic degenerative or hypertrophe arthritis is more common in a rather short, somewhat thin type of individual, with a relatively long small intestine and rather short large intestine, a type of intestine likewise proved undesirable as the result of studying the nutrition of a group of young children. The joint case has also a high proportion of biliary troubles, of adhesions of the severer grade or those about the flexures, and of low kidneys. Apparently uncomplicated ptosis and simple adhesions are matters of slight consequence. In addition, the positive case shows more rib cartilage changes and a higher incidence of respiratory and especially of cardiorenal complaints.

G. *Ductless Glands.* Two notes on the suprarenal gland may be of interest. 1. Severe extensive hemorrhages were seen in newborn children at the Virchow Hospital. It is suggested that in a non-fatal degree such suprarenal hemorrhage with consequent glandular tissue destruction may be a factor in the suprarenal deficiency of some adults. 2. In later childhood or adult life, as recently observed at the Harvard Medical School, the right adrenal, especially in proportion to the degree of narrowing of the thoracic outlet with the usual low position of the liver in these cases, is exposed to direct pressure between the firm liver and the much firmer vertebral column. This follows upon the fact that the right adrenal, almost wholly unprotected by fat, even in stout people, lies in a thin strip between these two firmer organs; the left adrenal, on the other hand, more triangular in shape, rests in a protective pad of fat, safe from pressure by any heavy organ.

Questions of diet in the control of the ductless glands, as illustrated by the work of Hunt, Schiotz, and others, are certain to engage increasing attention no less than a study of the effects of the action of the different elements

contained in the various drinking waters. It has, for instance, been noted in examining the records of 40 cretins at the Massachusetts General Hospital O. P. D., children's department, that many cases have developed in children who have been breast fed for unusually long periods of time, *i.e.* from one to two years, and that these children have been habitually constipated from birth, sometimes in extreme degree. In a total material of 231287 cases, cretins occurred with a frequency of about 0.06%. One family history may be quoted.

A short stout healthy-looking intelligent Jewess who at the time of inquiry was engaged in getting a divorce. She was the mother of two cretins, the younger of whom was about five years of age. Both of these children were habitually constipated and both had been breast fed for more than one year. She stated with conviction that the whole cause of her misfortune was her long-continued ever-present sexual hatred of her husband. In view of the action of psychic effects upon secretion of the stomach, it is certainly not impossible that intense sexual aversion may act to depress the function of the ductless glands during pregnancy, and various workers on animals have found that a small thyroid or other gland in the mothers always determines the presence of a small or deficient gland supply in the fetus.

IV. CLINICAL OBSERVATIONS.

On the evidence of some 300 O.P.D. records from the children's department of the Massachusetts General Hospital, is presented the following well-known type of sickly child with which clinics are overrun. Though in one the nervous system, and in another the circulatory or respiratory system may seem the chief offender, the gastro-intestinal tract appears always to be involved if only in as mild a form as constipation or diarrhea, and underneath these more or less superficial manifestations, there seems to run a family resemblance in the form of an ill-adjusted or defective organism. Something is out of tune, off color, and the result is bad. One very constant finding is an excess of soaps and fatty acids in the stools, especially in the group of chronic intestinal indigestion cases. These are usually difficult to treat, always have an excess of certain food components in the stools, usually fat, and on examination the pronounced big belly is in marked contrast to the small chest and extremities.

The composite history of these children reads like the index to a standard system of medicine: there is almost always something going on, but there are certain critical periods. Usually marked gastro-intestinal symptoms appear before the age of two months. The child may then disappear until perhaps at two years of age it returns with glands of the neck and a history of frequent coryza, colds, coughs, and middle ear trouble. Then come adenoids, and tonsils, and by five years of age it is almost sure to have added dental caries and perhaps pyorrhea alveolaris to the list. Meantime, it is likely to have had severe pertussis, bronchitis, furunculosis, eczema, or several of these complaints in addition to the usual exanthems; and in spite of all it continues to live and acquire yet more diseases.

On examination this child is pale and pasty if fat, or if thin, sallow with a yellowish tint to the eyes and the dry skin. The liver is felt 1 to 2 cm. below the costal border, with possibly some tenderness over the gall-bladder. The spleen may be enlarged and some degree of anemia is usually present. A blood examination may show in addition to the anemia a slight leucocytosis, with perhaps a relative increase of lymphocytes. Appetite is capricious, sleep poor, and enuresis frequent. The stools will show constipation or diarrhea, frequently with a foul acid or sour alkaline character. Tuberculosis is frequently suspected. The extremities are negative unless cold and purple, and the thorax, excepting active processes of the lungs or heart, is negative if not flattened throughout or diminished below. There is a curious absence of abdominal palpatory findings, which is in marked contrast to the habitual constipation or diarrhea, and the usual report is: abdomen flat, negative. This absence of local symptoms has often been reported in the study of chronic adult sufferers presenting positive intra-abdominal Roentgen findings. When one adds to the previous ailments those of the nervous system, from tic to epilepsy, the list becomes truly formidable; but it is surprising to see how many of these diseases can be accumulated by one child before it graduates from the pediatric department; and with a little trouble one may follow some of these sickly children through the intervening years to the operating table at the age of 20 or 30 for some intra-abdominal, usually gastro-intestinal complaint.

Compare for a moment the clinical and post-mortem findings. Which would seem to be the more primary, the widespread pathological intra-abdominal lesions of varying degree common to all ages and both sexes, or the multitudinous often evanescent diseases of the child? A consideration of the preceding paragraphs would seem to indicate that the definite pathological findings may act to interfere with nutrition and bodily function to the extent of producing a marked lessened resistance, and consequent increased susceptibility to the diseases to which these children are always exposed.

V. DIAGNOSIS.

Knowledge which will permit of relieving some of the underlying conditions affecting the health of the sickly child or the semi-invalid adult depends upon an appreciation of the significance of body form in its differing types, and of the characteristic postures assumed by these sufferers no less than upon the accepted laboratory methods. In addition there is presented, in

the form of a simple double thoracic measurement, a new, and it is believed a valuable aid, in the recognition of the probable existence of definite intra-abdominal lesions which might otherwise go unsuspected until the application of better known diagnostic methods.

VI. TREATMENT.

The treatment of these cases is essentially non-surgical, in that though an operation may be imperative for the relief of a constricting adhesion or other definite lesion, any approach to a cure is only reached through weeks and months of pre- and post-operative medical or orthopedic care, during which body form must be altered, posture corrected, and diet regulated to stimulate a natural organo-therapy. Failure with milder methods is, of course, the indication for the use of gland extracts or other more radical attempts at cure, but it is certain that no cases are so hopeless as to be incapable of some measure of improvement. The most important single point of attack is the norrowed lower thorax. If this can be restored to the normal full infantile type, the case will show improvement no matter what the intra-abdominal complications. The second indication is to provide the patient with a natural abdominal bandage, replacing the familiar "clam-belly" by firm and efficient oblique and transverse abdominal muscles which will hold his loose viscera where they belong in the now enlarged upper abdominal cavity. In this connection it may be observed that the rectus is less efficient for the purpose than the muscles just referred to, and becomes still less efficient as a binder in proportion to the increased depth of the thorax. The third point of importance is to provide the patient with back muscles strong enough to maintain the normal shape of the thorax under any and all stresses of life to which he may be subject.

A more complete consideration of diagnosis and treatment is reserved for the future.

VII. CONCLUSIONS.

1. Adhesions, ptoses, and other demonstrable physical defects are of very common occurrence at all ages in both sexes, but the frequency of these defects in the adult is not markedly greater than in the child.

2. It is not improbable that such defects may stand in a causal relation to some at least of the disabilities of the child and the adult.

3. An anomalous ligament of Treitz may be a factor in obstruction of the duodenum.

4. A simple double measurement of the thorax is presented, which is likely to prove an aid in the recognition of certain intra-abdominal abnormalities. This measurement is in a variable degree an indicator of physical efficiency, and is useful after the age of five years.

5. The treatment of developmental defects is primarily non-surgical, and if properly carried out in the child is preventive, in that it will result in creating an adult not only personally more efficient, but one who may entertain the hope of having physically more perfect children.

6. "The problem is comprehensive enough to accept all the assistance it can through gymnastics, bandages, regulation of diet, and habits, and still furnish an abundant per cent. of human wreckage (Lane) for the surgeon to attempt to reclaim" (Schachner).

In closing it is a pleasure to express my indebtedness to Prof. Charles S. Minot and to Dr. Goldthwait for their continued interest and valuable suggestions during the progress of this work.

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Reports of Societies.

NEW ENGLAND PEDIATRIC SOCIETY.

The Thirtieth Meeting Held at the Boston Medical Library, March 27, 1914.

Fritz B. Talbot, M.D., Secretary.

Dr. Marshall Fabyan read a paper entitled,

BACILLUS OF CONTAGIOUS ABORTION.

Abstract: The present efforts being made for the production of clean milk. As scientific investigation advances other factors of unknown importance appear. Dr. Theobald Smith nearly twenty years ago reported lesions occurring in guinea-pigs inoculated with cow's milk, as due to some unknown cause. The close similarity of these lesions to those produced by tuberculosis in the guinea-pigs, was remarked upon. In 1910 we met with similar lesions in guinea-pigs inoculated from the placentae of aborting cows. After much difficulty an organism was isolated which proved to be identical with the bacillus of contagious abortion discovered by Bang and Stribolt in 1895.

The lesions occurring in guinea-pigs are of extraordinary character, involving the spleen, lymph-nodes, liver, lungs and in fewer instances, the kid-

ney, testes, bones and special organs,—eye. These lesions are composed of tubercles made up of large epithelioid cells, having large poorly staining nuclei, containing little chromatin, and a small amount of protoplasm. Small round cells, giant cells and occasionally leucocytes may be present. The bone lesions occur in about 25% of inoculated animals. These include enlargement of the extremities about the joints, and general enlargement of one or more ribs. The process apparently starts in the marrow and stimulates the bone to an extraordinary proliferation. A diseased rib may be two or three times the size of a normal one. No pain seems to accompany the enlargement.

Isolation of the organism from material: When in small numbers or where probable contamination, best to inoculate guinea-pigs. Pure cultures may be obtained from the spleen of such animals after a period of two or more months. Peculiar cultural conditions required. Partial tension of oxygen. Nowak's method,—utilizing the absorptive power of Bacillus Subtilis in a sealed jar. Successful growth by sealing the culture tube itself. After a few transfers the organism becomes aerobic, a property not lost by further animal inoculation. The peculiarity of growth prevents its detection in the usual methods of enumerating the number of bacteria per cubic centimeter of milk.

Milk is a constant source of supply for further infection among dairy herds. Examination of samples of milk from twelve cows in a prize herd, including two which had recently aborted. The abortion bacillus was found in the milk of one which had aborted two weeks before at the eighth month, and in the milk of another which had dropped a normal calf eleven months previous, and had therefore probably given infected milk continuously for nearly a year. Other investigation has shown that only one teat may be shedding the organism. Macroscopically, the udder may appear entirely normal on section.

Schroeder has stated that 10% of market milk is infected with the abortion bacillus.

Method of testing for the presence of the abortion bacillus or its antibodies in cows: Guinea-pig inoculation, agglutination, complement fixation, and the inoculation of a filtrate similar to tuberculin, called "Abortin." Complement fixation has been tried with human serum with some success. Larson and Sedgwick have recently reported having tested by this method, the sera of a number of women who had aborted. They obtained more positive results to the abortion bacillus than to syphilis. They examined the blood of 425 children and found 73, or 17%, positive to the abortion bacillus. They speak of this 17% as having lesions of the osseous system, and in most of them the clinical diagnosis of tuberculosis and rickets had been made.

Undoubtedly the opportunity for the frequent ingestion of the abortion bacillus by man is fairly well established. The question remains as to whether under certain special conditions, such as pregnancy or lowered resistance, this organism is able to gain entrance and produce pathological lesions.

DISCUSSION.

Dr. Marshall Fabyan: In my conclusions I said it is a question whether this organism is able to gain entrance, and produce pathological lesions. I think both of these points should be considered.

Of our laboratory animals experimented upon, the guinea-pig, rabbit and mouse all showed some pathological changes. We were able to reisolate the bacillus from the rat after nine weeks, from the pigeon after eighteen weeks and from the monkey after a period of thirteen weeks, although in none of these animals were any lesions subsequently observed either macroscopically or microscopically. It, therefore, seems apparent that the bacillus abortus may exist and multiply in the body of certain laboratory animals for weeks without producing evident pathological lesions.

Dr. Lewis W. Hill read a paper entitled,

REPORT ON LEUCOCYTIC INCLUSION BODIES.*

Dr. John B. Hawes, 2nd, read a paper entitled,

UNDER WHAT CONDITIONS IS THE DIAGNOSIS OF "TUBERCULOSIS" IN CHILDREN JUSTIFIED?†

DISCUSSION.

Dr. Cleaveland Floyd: I think this is a very important subject and that we should be very grateful to Dr. Hawes for bringing it up. With regard to this particular case, I think it is always of value to make discussions pointed and definite, and I see no reason why we should not so discuss the case which he has presented tonight. I happen to be one of the men to disagree with Dr. Hawes in this particular case on account of the evidence we gathered, which was as follows: A child, as he says, coming from a poor quarter, with a grandmother who has been sleeping with the child for some weeks or months, who later died with tuberculosis in Tewksbury. The child, according to my point of view, was somewhat under-developed and undernourished. The mother at the first examination denied that the child had night sweats, that the child had a cough or any other sign of the disease, but on urging, she admitted what previously she had denied,—that all these symptoms were present. It seems to me that there was definite evidence of consolidation at the right apex, paravertebral dullness and d'Espine's sign, with faulty expansion on the right side, all of which seemed important evidence of a process going on in that lung. This child's temperature was taken a number of times in the afternoon as well as in the morning and there has always been a temperature, varying from 99 to 99.4° F. With regard to the von Pirquet test, this is a very interesting point. Two tests were done at other clinics and were negative. I did one myself subsequent to these and got a perfectly positive result, the diameter of the inflamed area being 1½ c.c. I do not believe that there was any sensitization of the child as the previously inoculated areas did not show renewed inflammation. A number of German observers believe that we have no right to call a von Pirquet test negative unless we have done the test at least three or four times with a negative result in each. This child has been followed by the Boston Consumptives' Hospital since she was first examined. She has been excluded from school on our diagnosis, has been out of school now for three months, has gained six or seven pounds in weight, looks very much better.

The mother is interested in the child and is now doing something for her. From my point of view that child had tuberculosis of the lungs; I think she

* See page 797.
† See page 784.

also had enlarged bronchial glands. I think the d'Espine sign is not one on which to place too much importance. In a recent study of some hundred cases to demonstrate what signs are met with in the bronchial glands, I have about come to the conclusion that the d'Espine sign is one of minor importance. In regard to the importance of the x-ray, I believe that where the x-ray man who knows something about lungs tells you that the case is a questionable one, you had better put it down as tuberculosis. I have seen a number of men working in this particular field, and their ideas of what constitutes a normal lung and normal glands are very variable. In other words, I do not believe that their standard of normal is a correct one. I agree with Dr. Hawes that the early diagnosis of tuberculosis is one of prime importance. I am sure the child is much better today than she was three months ago.

DR. WALTER C. BAILEY: After looking at this subject from the point of view of adult tuberculosis and realizing the lack of progress that we are making in the cure of pulmonary tuberculosis in adults and seeing the constantly increasing numbers coming to us each year with pulmonary tuberculosis and wondering what is to be done, I got interested in the question of tuberculosis in children and childhood infection, and again in reading and finding a good deal of evidence for the theory that practically all adult tuberculosis is the result of infection in childhood, it therefore becomes a general question, and I wouldn't go into this case excepting for one aspect of it, and that is the contact, the chances for this child to become infected. Now the grandmother, who had lived with the family, had died, and the hospital report at Tewksbury gave the diagnosis as acute miliary tuberculosis. An uncle has died in Syria within a few years, who lived with this family for a period of four or five years, and during this time had one or two hemorrhages, so that he was an active tuberculous source. The father looks very much as if he had tuberculosis, although after one examination the diagnosis was negative. He had a chronic cough at least, and he looks as if he had tuberculosis. I personally believe from clinical experience that it is impossible for a child to become associated for any length of time in a tenement house with an open case of tuberculosis and not become infected. To back up this statement you have the figures published by the Royal German Board of Health, work done under the leadership of Dr. Weber, and very likely some of you have seen it. He published a series of 171 unselected cases coming to autopsy. In 22.5% of these cases viable tubercle bacilli were recovered. Between the ages of two and three, 58.8% gave viable tubercle bacilli. If you get such a large percentage of cases with viable bacilli in unselected cases, what must you get in selected cases? So it seems that we must look at this thing, not as an individual diagnosis, but as an epidemic disease. We all know that in a typhoid epidemic when one is called to see a person who has a fever, rose spots, enlarged spleen, etc., he does not want to stop and make all the tests, but you would say right off, it is typhoid and take all precautions and make your further tests afterwards. Now I think it is only fair to do the same thing in tuberculosis. It is much more of an epidemic than typhoid, and we are never going to get anywhere in stamping out the disease unless we tackle the child problem. This is my idea and very strong feeling. As regards keeping the children out of school, I think here we have one of the most valuable clubs, because you can talk to the mothers and fathers until you are black in the face about bringing the child to the clinic, etc., but when you take that child out of school, they sit up and take notice, and it will surprise you, I think, to learn that up to two or three years ago, it was impossible to make a diagnosis of tuberculosis in a child at the Boston Consumptives' Hospital unless an active process was found in the lungs,—tubercular râles. Now that has been changed and we are making that diagnosis more frequently,—perhaps we are not hitting the bull's eye every time, although I think we did in this case, but at least we are not going backward and we are not standing still. We are calling attention to these facts. We are working toward keeping these sick children out of school. We are going to raise a rumpus among the parents and we are going to try to establish open-air schools. Although we make mistakes occasionally, the principle is right that we ought to be able to make a diagnosis in children with the signs and symptoms which have been spoken of tonight, especially with a history of contact. I want to say a word or two for the derided d'Espine sign. I believe myself it is a valuable sign if you include not only the increased voice sounds over the dorsal vertebrae, but also along the paravertebral lines. We know we can get enlarged glands from measles and whooping cough, etc., but if enlargement persists for six months or a year and the child is going down hill, I think you are fairly safe in calling it tuberculosis. One word with regard to nomenclature. We never will get anywhere unless we throw out the old teachings and call the disease by its right name. We would have been much farther ahead today if the word tuberculosis had been used years ago instead of scrofula. The same is true of the term physiological apex. These two terms belong in the same waste basket.

DR. W. B. SWIFT: I would like to ask Dr. Bailey if in the cases mentioned, where 28% were found to have viable tubercle bacilli, whether there had been any history of exposure previously in those cases.

DR. BAILEY: (Answering Dr. Swift.) The figures given were from a series of unselected cases. There was no statement made whether or not these children had been exposed to infection.

DR. R. M. SMITH: I would like to say a few words, as I was one of the physicians to examine this child. I am perfectly sure that the technic of the von Pirquet tests that were negative was performed as carefully as could be done, and was the same as was used in other cases which proved to be positive, that is, we had really negative von Pirquet tests. The child is getting better, and I believe that she would have gotten better if the diagnosis of tuberculosis had not been made. The treatment is very much the same as in any case of a child in a poor general condition. I think she has suffered perhaps from being deprived of three months of school. Not too much importance can be attached to the interpretation of x-ray plates. The presence of enlarged bronchial glands does not always necessarily mean that the child has tuberculosis. If we accept this sign as positive evidence, I think we are going one step farther than we are justified. I remember a child who had evidence of enlarged bronchial glands, later proved to exist by autopsy, but on physical examination and x-ray examination

showed no tuberculosis. That child had an acute endocarditis with bronchial glands. I have seen cases of chronic influenzal infection which have been followed for from five to seven years, which showed persistent enlarged bronchial glands. I think the d'Espine sign as an evidence of enlarged bronchial glands is very much worth while, but it does not seem enough to me to justify the diagnosis of tuberculosis. There is one other point about the x-ray. It does not seem to me that a positive x-ray plate is sufficient evidence upon which to base a diagnosis of tuberculosis. I saw a patient today who is interesting in this connection. The child came to us six months ago,—she had been exposed to tubercular infection. We went through all the usual procedures and decided that she did not have tuberculosis although the x-ray interpretation of the plate said she had a tuberculous process in her lungs. She was given the ordinary directions as regards hygiene and food which have not been followed very well. She reported today, six months later. She has gained seven pounds in weight and is in perfect general condition. Three of us examined her today and found her lungs absolutely negative in every way. I think in the end it will really be better if we say very frankly that many of the doubtful cases are not tuberculosis and treat them according to rules of general hygiene. It is not quite fair to say that every suspicious case has tuberculosis, and in the long run we are going to lose the confidence of the community if we continue to make the wrong diagnosis.

Dr. F. B. Talbot: I think the trend of this discussion is very promising for the diagnosis of tuberculosis in the future and I am very glad to see that the men who are dealing with tuberculosis in childhood and infancy believe it plays an important part in adult tuberculosis. I think that more and more diseases of adult life will be found to originate in childhood. The various points about this particular case have been discussed so completely that there is no necessity for my saying any more about it, but the discussion has been entirely about tuberculosis contracted by one person from another, and I would not have us leave here tonight without mentioning the fact that it can be gotten from milk, and I have seen a number of cases where the disease has come from the milk taken by young children, and think that this is a very important factor in tuberculosis in children under four years, in fact as important as tuberculosis caused by personal contact.

Dr. H. I. Bowditch: I would like to say one thing in regard to the d'Espine sign which may be of interest to you. About five years ago I began marking charts of patients at the out-patient department of the Boston Consumptives Hospital, with especial relation to d'Espine's sign in childhood. Since then I have with very few exceptions found that when that sign (as I make it) was strongly positive and remained present, that tuberculosis did not exist. The child usually showed some sign of pulmonary tuberculosis later and the diagnosis became positive. Of course this sign varies under different hands. What one man calls positive another may say is negative.

I think when we have an agreed on nomenclature of what these signs and symptoms mean in a child that we will be much farther on the road than we are at present. I should like to ask Dr. Smith what the treatment would have been in the case under discussion if it had not been diagnosed as tuberculosis.

Dr. R. M. Smith: (Answering Dr. Bowditch.) It is a question of general hygiene and supervision. Many children who present evidences of being below par and who are treated by cooperating with the school nurses and by frequent visits to see if the rules laid down are carefully followed, get back soon into a favorable condition. It is very much the same kind of treatment as for tuberculosis, but does not involve exclusion from school.

Dr. J. L. Morse: I came here tonight without the slightest idea of what this paper was to be about and without ever having exactly formulated my ideas on the subject. If I had written the paper myself I could not, however, have expressed them as well as Dr. Hawes has expressed them for me. My attitude in dealing with students has come to be much the same regarding tuberculosis as syphilis. Every time a student sees a baby with snuffles from a cold in its head, a pimple on its face, or an erythema from wet diapers, he says it has syphilis, and every time he sees a child with a cough or a temperature above normal he says it has tuberculosis. I find it necessary, therefore, to devote a great deal of time to prove to them that these symptoms do not necessarily mean that they have either one or the other. In my own experience, when a child sweats at night, instead of thinking of tuberculosis, I find out whether the windows are open or not, how many blankets it has over it, whether it has adenoids, and a few other things of that sort. Now as to fever, and whether a temperature of 99 or 99.4° F. is a fever. I am inclined to think that if we took a series of normal children and took their temperature right through the day we would find, especially if they had been playing hard or had been excited, that they had a temperature above 99° F. a good deal of the time. That is, a slight elevation of temperature is a very common thing from minor causes, and a little temperature does not necessarily mean tuberculosis. My point is that when a child has a slight temperature, the chances are that there is some other explanation for it than tuberculosis and that tuberculosis should be thought of only when every other cause has been excluded. The cause of the temperature is much more likely to be a little adenoid infection, some infection in a sinus, a mild pyelitis, trouble in the ears, or something of that sort, than tuberculosis. A word as to d'Espine's sign. This almost always means enlargement of the tracheobronchial lymph nodes. The fact that they are enlarged does not, however, necessarily mean that they are tubercular. X-ray pictures do not always prove positively that they are enlarged, for unless the observer understands how to interpret the findings correctly, much confusion is likely to result. Coming to the tuberculin test, I have always felt that a negative tuberculin test, carefully done, was pretty good proof that a child did not have tuberculosis, and I am still inclined to feel so. Another thing to be remembered in connection with the tuberculin test is that the combination of signs in the lungs and a positive tuberculin test does not prove that the process in the lungs is tuberculosis. I have seen a large number of children condemned to death by house officers on account of such a combination, and the children recover completely afterwards.

Dr. Marshal Fabyan: Apropos of what Dr. Talbot has said about infection from milk, perhaps it

would be of interest to the society to know that in the last few instances of the tuberculous material sent us, consisting of tonsils and cervical glands of young children, the bovine strain has been isolated.

In regard to what Dr. Morse has said concerning the tuberculin test, I would mention that we recently received a large tuberculous gland which had been removed from the neck of a cow. This cow was three years old and had received the tuberculin test twice yearly without ever giving a positive reaction.

DR. CLEAVELAND FLOYD: I think a recent article by Dr. Hess of New York is pertinent here. A series of babies in a ward, were tested on entrance with tuberculin and were found to be negative. They were under the care of a nurse, who was later found to have a well marked case of active tuberculosis. She was discharged. These children were again tested at the end of three months, and a large proportion of them, who had been under that nurse's care, gave a definite positive reaction, showing how soon, at least in this series of cases, these children were sensitized to tubercle bacillus.

I was much interested in Dr. Morse's remarks about temperature. I think it is quite an important sign where it occurs in the morning and afternoon, and especially if you can rule out infection of the urinary tract, ears, etc. Again, you see a large number of children who in spite of overexcitement do not have a temperature. We have felt that persistent temperature in the afternoon, and frequently mornings, was of considerable importance as pointing to an active process in the lungs.

In the work that I have been interested in, the x-ray man has not known what the clinical ideas were on the patient at all. The case has been brought to him to x-ray. We have gotten his opinion before he knows about the case. This is the only way to get a fair and impartial interpretation of the plates. In some cases the d'Espine sign may be due to enlarged thymus glands.

DR. J. B. HAWES, in closing: I have little further to add to the discussion, except that I feel justified in having presented this paper in that it has brought up such valuable discussion, which, after all, is the important part of any paper. Dr. Bailey has a very broad and idealistic point of view in this entire matter; he goes rather further than I can at the present time, at least. Dr. Richard Cabot has said that if you want to get attention drawn to any one subject, "you must raise the devil of a row" about it. I think, therefore, we owe a vote of thanks to the little patient who has been the innocent cause of bringing up this matter before us.

DR. W. B. SWIFT read a paper entitled,

A VOICE SIGN IN CHOREA.

ABSTRACT: A definite and final description in literature of the choreic voice found absent to date. Methods of approach unscientific. Review of literature from 1841. Brief presentation of what the vocal kymograph can register. Demonstration of voice curves. Deductions therefrom as evidence of a new sign in chorea elicited quickly with an easy technic. (For full report see *American Journal, Diseases of Children*, 1914.)

DR. W. B. SWIFT, in closing: I wish to add in closing that the length of the test is merely to bring out more noticeably the voice change. In the talking voice the same change is so short in duration as hardly to be observed without difficulty. This may account for the vagueness in description and the absence of its observation up to date in the literature, and the reason it was found more definitely here was on account of the new method which was used,—the prolongation of the sound and the vocal kymograph.

Book Reviews.

Orthopedics in General Practice. By PROF. ADOLF LORENZ, Regierungsrat, director of the Imperial University Ambulatorium for Orthopedic Surgery in Vienna, and DR. ALFRED SAXL assistant surgeon in the Imperial University Ambulatorium for Orthopedic Surgery in Vienna. Authorized translation from the German by L. C. PEEL RITCHIE, Ch.M., M.D., F.R.C.S., Edin.; late voluntar arzt in the Imperial University Ambulatorium for Orthopedic Surgery in Vienna; tutor in clinical surgery, University and Royal Infirmary, Edinburgh. New York: William Wood and Company. 1913.

The preface by Prof. Lorenz points out many of the conditions in which a knowledge of what may be called orthopedic pathology may be of great help to the internist. Lorenz says that his friend, Prof. Lothar von Frankl-Hocwart, has expressed a wish that some book be written on the subject of Orthopedics in Medical Practice, and that with the editorial collaboration of Prof. Lorenz, Dr. Alfred Saxl has undertaken the fulfillment of this wish.

There follows a discussion of the various orthopedic conditions which may accompany or predispose to diseases of the different systems of the body, namely, respiratory, circulatory, digestive, urinary, nervous, locomtor, etc.

The book serves to call attention to a wide range of diseases in which familiarity with the commoner orthopedic lesions may be of great value to the internist. One gains the impression that the authors believe that these static conditions and structural skeletal changes may actually be the remote cause for diseases heretofore supposed to be primary in the organs affected. There is a growing tendency of orthopedic surgeons to agree with this belief.

The book is intended chiefly for internists, and the orthopedic conditions concerning which there is a difference of opinion as to treatment, etc., are not dogmatically discussed. The wide familiarity with the literature, chiefly European, is shown. We commend the book to the internist

and general practitioner. We should be grateful to Dr. L. C. Peel Ritchie for his careful translation of the book into English.

A Clinical Manual of Mental Diseases. By Francis X. Dercum, M.D., Ph.D., professor of Nervous and Mental Diseases, Jefferson Medical College, Consulting Neurologist to the Philadelphia General Hospital, etc. Philadelphia and London: W. B. Saunders Company. 1913.

This work has been prepared from a purely practical point of view to enable the general practitioner, the family physician, to recognize mental diseases in their early stages, to know what to do under given conditions, when to commit and when not to commit the patient to a hospital and how to treat him at home or elsewhere outside of an institution, when this is practicable. In this the author has been unquestionably successful, giving excellent clinical pictures of the different forms of the disease and many details of treatment, all of which cannot fail to be of real help in diagnosis, prognosis and treatment, including a number of important points which have escaped other writers. His nosology, however, adds more new and unnecessary terms to confuse the learner, his diagnosis is not wholly complete, as in the matter of the differentiation between manic states and dementia precox, and in his attack upon the teachings of Freud he fails to credit psychoanalysis with many of its advantages in diagnosis and treatment. A chapter on methods of mental examination, also, would not have come amiss. But these are minor defects beside the real and practical merits of this useful manual of mental diseases.

Operative Surgery. For Students and Practitioners. By John J. McGrath, M.D., clinical professor of surgery, Fordham University; professor of operative surgery, New York Post-Graduate Medical School; consulting surgeon to the People's Hospital; visiting surgeon to the Harlem and New York Foundling Hospitals; Fellow of the New York Academy of Medicine; member of the American Medical Association. Fourth revised and enlarged edition, with 364 illustrations, including full-page color and half-tone. Philadelphia: F. A. Davis Company, Publishers. 1913.

Since the previous edition many new illustrations appear and much new matter has been added to the text. It is probably true that every teacher of medicine develops, in the course of time, certain individual methods in the presentation of his particular subject, which appeal to him more than the methods of other teachers. He, therefore, finds it desirable to assemble in a text-book the facts and theories in the manner in which he has been able to present them most convincingly to his students. This is the reason why many text-books on both medicine and surgery appear: not because they add anything definitely new nor that they contain essentially new procedures, nor even at times that they represent a ripe personal experience. Dr. McGrath has caused to be published a compact, well printed and well illustrated volume of eight hundred pages. It seems to contain all that is essential for the average student. Operations which come under the general class of emergencies are described with much detail. The book is divided into ten parts, based on an anatomical classification. On the whole, the volume does not present features which distinguish it particularly from a considerable number of well known text-books.

The Operating Room and the Patient. A Manual of Pre- and Post-Operative Treatment. By Russell S. Fowler, M.D., chief surgeon First Division German Hospital; surgeon, Methodist Episcopal Hospital; consulting surgeon, Hebrew Orphan Asylum, Brooklyn, N. Y. Third edition. Philadelphia and London: W. B. Saunders Company. 1913.

Dr. Fowler has in this edition written a volume of six hundred pages, profusely illustrated. It includes a list of instruments and dressings commonly employed in some eighty surgical procedures and completed by an extensive index. The numerous illustrations, most of them taken from the author's text-book on surgery, are in a very large measure half-tones, well chosen and satisfactory. The printing is clear and sharp and the book is of convenient size. The illustrations of bandaging are particularly to be commended. In his preface he says, "It has been my purpose to simplify the technic as much as is compatible with careful work and to present the subject in a terse, yet I hope, readable manner."

He summarizes the underlying principles of surgical treatment as follows: "Careful anesthesia, exact hemostasis, asepsis, rest of the injured part, use of the rest of the body, feeding advanced to normal as fast as the anesthetic weakened stomach can care for it, and the following of the general rules of hygiene."

These underlying principles are unquestionably correct. The author has been unusually successful in his effort to make the book terse, and it may be unhesitatingly recommended to students and to young surgeons.

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MEDICAL LEGISLATION. ANTI-VACCINATION AND THE BAGSHAW BILL.

IN the issue of the JOURNAL for April 2 (p. 559) we published a communication from Dr. George W. Gay, in behalf of The Massachusetts Medical Society, on "Anti-Vaccination and the Legislature"; and in the issues for April 23 (p. 664) and April 30 (p. 697) we commented editorially on the Bagshaw vaccination bill (House No. 1018), which has been passed by the Senate of the General Court. In another column of this week's JOURNAL we publish a second letter from Dr. Gay, describing in the recent experience of Niagara Falls the inevitable result of anti-vaccination legislation of the type of which the Bagshaw bill is an example. Another instance of such experience may be cited in the case of the state of Minnesota, which, with voluntary vaccination and a population of 2,000,000, had in 1912 2320 cases of smallpox, while Massachusetts, with compulsory vaccination and a population of 3,400,000, had in the same year only 218 cases.

Meantime the passage of the Bagshaw bill by the House has fortunately been delayed. At its session on May 7 the House voted to postpone action for one week in order that the replies made by the State Board of Health to a series of questions on vaccination, addressed to it by the legislature, might be printed and examined by the members. In these replies the board states that if any legislation affecting vaccination be needed, it should be more, not less, stringent than at present. The board also says that it is emphatically not desirable to enact a law requiring any particular method of vaccination to the exclusion of other methods. To the question whether vaccination is a harmful procedure, and if not, what is its chief danger and how may it be obviated, the board replies:—

"Vaccination is not in itself a harmful procedure, but the wound may be susceptible to infection from without if it is not properly cared for and protected. Vaccination is always to be considered as a minor surgical operation to be carried out under conditions of strict asepsis."

At a recent meeting of the Boston district of the Massachusetts Homeopathic Medical Society the following resolution relative to the anti-vaccination bill was unanimously adopted:—

"Resolved, That this society is strongly opposed to the bill now before the legislature allowing unvaccinated children to attend the public schools, knowing that such a law would be a serious menace not only to such pupils, but to the public at large."

The attitude of the regular profession on the subject is of course unquestioned. It is earnestly to be hoped that the House will not enact into law the pernicious provisions of the Bagshaw bill.

Since the above was in press, the House has defeated the Bagshaw bill by a vote of 132 to 53.

FOUR NATIONAL MEDICAL MEETINGS.

THE tenth annual meeting of the National Association for the Study and Prevention of Tuberculosis was held on May 7 and 8 at Washington, D. C. At the opening session, Dr. Charles J. Hatfield, of Philadelphia, reviewed the progress of the past decade, since the organization of the society. During this time there have been established throughout the country over 2000 anti-tuberculosis agencies, including 1200 anti-tuberculosis associations, 550 sanatoria and hospitals, 410 dispensaries, and 250 open air schools and classes. At the session on May 8, Dr. Edward Archibald, of Montreal, read a paper on the application of pulmonary surgery to the treatment of tuberculosis; and the Massachusetts method of caring for consumptives was described in papers by Dr. Walter C. Bailey and Dr. John B. Hawes, 2nd, of the

board of trustees of the state hospitals. Dr. W. L. Moss, of Baltimore, and Dr. S. H. Gilliland, of Marietta, Pa., described their experimental investigations on the possible immunization of cattle and children against tuberculosis. At the closing session the following officers were elected for the ensuing year.

"Dr. George M. Kober, Washington, D. C., was elected president and Surgeon-General Rupert Blue of the public health service was made a member of the board of directors. Other officers elected were: Dr. Lee K. Frankel of New York and Dr. Jarvis Barlow of Los Angeles, vice-presidents; Dr. Henry Barton Jacobs of Baltimore, secretary; and William H. Baldwin of Washington, D. C., treasurer. Seattle, Wash., and Chicago were urged for the meeting place next year, but no decision was reached."

The American Neurological Association held its yearly meeting from May 7th to 9th, inclusive, in Albany under the presidency of Dr. Henry Hun. Papers of importance were read on surgery of the central nervous system and on more recent methods of treatment of late nerve syphilis.

The annual meeting of the American Society for the Advancement of Clinical Investigation was held in Atlantic City, N. J., on May 11 and 12. Papers were presented by Dr. George Draper, of New York, on the treatment of tabes by intravenous and intraspinous injection of salvarsan; by Dr. O. M. Schloss, of New York, on blood changes produced by feeding foreign protein; and by Dr. E. W. Bridgman, of Baltimore, on the third heart sound.

The annual meeting of the American Association of Physicians was held in Atlantic City on May 12 and 13. Papers were presented by Dr. Simon Flexner, of New York, on the isolation of the organism of poliomyelitis; by Dr. Franklin W. White and Dr. Ralph D. Leonard, of Boston, on the use of the x-ray in the diagnosis of cancer; by Dr. Julius Fridenwald, of Baltimore, on the results of a series of one thousand cases of cancer of the stomach; and by Dr. Richard P. Strong, of Boston, on the transmission of the virus of verruga to the lower animals. At the closing session, Dr. S. J. Meltzer, of New York, was elected president of the Association for the ensuing year, and Dr. Henry Sewell of Denver, Colo., vice-president. The remaining present officers were reëlected. A full report of the proceedings of this Association will appear in a later issue of the JOURNAL.

THE MEDICAL SITUATION IN MEXICO.

DURING the uncertainty pending mediation in Mexico active hostilities continue between the federal and constitutional forces about Tampico, with considerable casualty on both sides. The United States occupation of Vera Cruz is complete, and comprehensive plans for the sanitation of the city are already being carried out. Surgeon-General Gorgas has detailed Major T. C. Lyster and Major Robert A. Noble to undertake this work, both of whom have had experience in the Panama Canal Zone. The Public Health Service has detailed Dr. Gregorio Guiteras to Tampico and Dr. R. H. von Ezdorf to Vera Cruz. Twenty American Red Cross nurses have also been ordered from Washington to take charge of the nursing in the military hospital at Vera Cruz. At Mexico City the American civil hospital is still open, and the American physicians and nurses remain in charge of the patients. At Galveston, Texas, the United States government has conditionally leased a large bathing pavilion to be remodeled into a hospital.

"The house is three stories high, 100 by 150 feet, and has room for 1400 persons now. The government option provides for another story, if that is needed, so the remodeled structure could accommodate 2000 wounded. In case more troops are moved to Mexico and there is hard fighting, all the wounded would be brought to this hospital for treatment."

Meantime, the United States naval hospital ship *Solace* was lying off Vera Cruz, under command of Dr. L. W. Spratling of the navy medical corps, ready to receive immediately any wounded sailors or marines for care or transport.

"The *Solace* has three isolation wards for contagious diseases with a capacity of 30 patients, rooms for nine officer patients, and wards accommodating 68 medical patients and 76 surgical patients. It has an operating room with two operating tables, an eye, ear, nose and throat examining room, a bacteriological and chemical laboratory, a dental laboratory, a cooled morgue in the after end of the ship, and quarters for the medical staff and crew."

On May 14 the *Solace* brought to New York 101 sick and wounded sailors and marines, 68 of whom were landed and sent to the Naval Hospital. After refitting, the *Solace* will sail again on June 9 to return to Vera Cruz.

MEDICAL LEGISLATION. REORGANIZATION OF THE MASSACHUSETTS STATE BOARD OF HEALTH.

In another column of this issue of the JOURNAL we print in full the text of the proposed bill for the reorganization of the Massachusetts State Board of Health, as drafted by Dr. Rosenau, and submitted by the Governor with a special message to the General Court. This bill has already been reported favorably by the legislative committee on public health, five of the eleven members, however, reserving their right to dissent. On Friday of last week, May 15, the councillors of the Massachusetts Medical Society, and other physicians interested in public health matters met Governor Walsh at the Boston Medical Library to discuss the bill. In connection with this discussion the name of Dr. Victor G. Heiser, of the United States Public Health Service, was mentioned as a probable candidate for the position of Health Commissioner.

DR. WALCOTT'S RETIREMENT FROM THE BOARD OF HEALTH.

On May 19 Dr. Henry P. Walcott's term of office as a member of the Massachusetts State Board of Health expired. After thirty-three years of faithful and distinguished service on this important board, much of the time as its chairman, Dr. Walcott is unfortunately not a candidate for reappointment. Indeed the personal sacrifice he has already made for the welfare of the community is greater than might be asked of any man, and merits the appreciative and lasting gratitude of the public and of the profession.

Upon this occasion of Dr. Walcott's retirement, an address, signed by about twenty-two hundred Massachusetts physicians, was presented to him expressing their grateful sentiments and regard. This address, which is published in full in another column of this issue of the JOURNAL, so adequately states the feelings of the profession and the merit of his service that nothing can here be added to its deserved tribute. The standard set by Dr. Walcott's predecessors in affairs relating to public health was greatly creditable to this Commonwealth, and was everywhere recognized by sanitarians; his own discharge of the duties of the office not only has been worthy of them, but makes increasingly difficult the responsibilities of his successors. His was a type of fidelity and devotion not always manifested in unpaid public office, the type

> "in which appears
> The constant service of the antique world,
> When service toiled for duty, not for meed."

MEDICAL NOTES.

HONOR FOR DR. FLEXNER.—It is announced that the President of the French Republic has recently conferred the cross of chevalier of the legion of honor on Dr. Simon Flexner, director of the Rockefeller Institute for Medical Research, for his services to science in the treatment of epidemic cerebrospinal meningitis.

AWARD TO DR. GORGAS.—It is announced that the American Museum of Safety has recently awarded the Dr. Louis Livingston Seaman medal to Dr. William C. Gorgas, surgeon-general of the United States Army, for his work in making the Panama Canal Zone sanitary and habitable.

A WELSH CENTENARIAN.—Thomas Morris, of Westernville, Neb., is locally reputed to have been born on Jan. 15, 1794, at Berriew, Montgomeryshire, Wales. He followed the cobbler's trade in his native village until 1871, when he migrated to the United States and became a farmer. He drinks tea and coffee, is still able to walk, and reads with the aid of glasses.

LONDON DEATH-RATES IN MARCH.—Statistics recently published show that the total death-rate of London in March was 152 per 1000 inhabitants living. Among the several districts and boroughs the highest rate was 20.3 in the old city, and the lowest was 10.1 in Lewisham, a populous southern residential region.

BOSTON AND NEW ENGLAND.

TWO LIVING CENTENARIANS.—Mrs. M. J. Lavin of Melrose, Mass., is said to have been born on May 9, 1814, in Prince Edward Island. She was married in 1837 and has had six children, of whom three are living, with 15 grandchildren and 6 great-grandchildren.

Benjamin Priest, of Canaan, Somerset County, Maine, is said to have been born on May 12, 1811. He is the oldest living veteran of the Civil War.

Long Island Hospital.—The Long Island Hospital, Boston, is in need of new buildings.

"Two years ago the city council appropriated $77,000 for new buildings, and last year $210,000. The construction of a new central kitchen with connecting subways to the different buildings, an addition to the men's dormitory and alteration of the women's dormitory have been undertaken. These building operations will give much relief to the crowded conditions, but further construction, in the opinion of the trustees, should be undertaken at once.

"The institution suffers from lack of sufficient nurses. The present nurses' home will not permit an increase in the number of tenants and, until a new building is constructed, the trustees will be obliged to get along with the present number. Another need is a maternity hospital and nursery separate from the main hospital, and to this use it is planned to put the present nurses' home. The plans already adopted call for a nurses' home and for hospital and dormitory pavilions. The architects estimated that these buildings could be erected within the appropriation of $287,000, but this was found impossible. The amount of money now demanded for the new buildings is $111,951."

Scarlet Fever in Bedford.—Report from Bedford, Mass., on May 10, states that the epidemic of scarlet fever in that town is ended and the quarantine raised.

Jubilee of Massachusetts Dental Society.—The fiftieth anniversary and annual meeting of the Massachusetts Dental Society in Boston on May 7 were attended by about sixty members. The history of the society was reviewed in a paper by Dr. Waldo E. Boardman, of Boston; an address was delivered by the outgoing president, Dr. Aurelius F. Wheeler, of Worcester; and one on "The Relation of the State and District Societies," by Dr. Thaddeus P. Hyatt, of New York City. The following officers were elected for the ensuing year: president, Dr. Henry H. Piper, of Somerville; secretary, Dr. A. H. St.C. Chase, of Everett, and treasurer, Dr. Joseph T. Paul, of Boston. The society voted to raise the sum of $10,000 towards the national fund for establishing and directing oral and dental research.

Recent Mortality Rates in Boston.—The Boston health department's mortality report for the first four months of this year shows an increase of 69 deaths over the corresponding months of last year, but the death-rate shows a drop from 17.90 to 17.81 of 1000 population. The infant mortality for the same period this year shows a decrease of 77.

Deaths thus far this year number 4396 against 4327 last year. Of that number 439 were victims of tuberculosis in all forms, a decrease of 16 compared with the figures of the first four months of 1913; typhoid 30, a gain of 14.

Of 58 diphtheria victims, six were non-residents, while the same number of scarlet fever victims were residents of other municipalities.

The number of children under one year who died during the first four months of this year was 651, against 728 for the corresponding period of last year.

From broncho-pneumonia there were 85 deaths, a decrease of 22; pneumonia, 60.

Hospital Bequests.—The will of the late Mrs. John M. Harlow, of Woburn, Mass., which was filed on May 7 for probate at Cambridge, Mass., contains considerable bequests to the Massachusetts General Hospital and the Boston Medical Library. To the Woburn Charitable Association is left a fund of $20,000 for erecting a surgical building to be known as the Dr. John M. Harlow Surgery, and to be used in conjunction with the Charles Coate Memorial Hospital of Woburn.

The wills of the late Emily and Eliza A. Conant, of Concord, Mass., who died on April 28 and May 2, respectively, were filed simultaneously last week for probate. They contain a bequest of $5000 to the Deaconess Hospital, of Concord, for a free bed, to bear the names of both testatrices.

The will of the late Esther F. Hannum, of Cambridge, Mass., who died on May 5, was filed on May 13, in the Middlesex probate court. It contains bequests of $2000 each to the Cambridge Hospital and the Cambridge Visiting Nurses Association, and $1,000 to the Holy Ghost Hospital, Cambridge.

Roentgen Society of New England.—The Roentgen Society of New England was formed at a meeting of about twenty roentgenologists, held at the office of Dr. A. W. George of Boston, May 6, 1914. An organization was effected and the regular program will begin in the fall. The officers elected were, the executive committee: chairman, Dr. A. W. George; Dr. Walter J. Dodd, Dr. Samuel W. Ellsworth; secretary, Dr. Ralph B. Leonard, all of Boston.

Massachusetts College of Pharmacy.—The annual graduating exercises of the Massachusetts College of Pharmacy were held in Boston on Thursday of last week, May 14. The principal address was made by Mr Samuel W. McCall. Diplomas were awarded to 39 students, 4 of whom are women.

Cases of infectious diseases reported to the Boston Board of Health for the week ending May 12, 1914: (Diphtheria, 45, of which 2 were non-residents; scarlatina, 107, of which 18 were non-residents; typhoid fever 6; measles, 114, of which 2 were non-residents; tuberculosis, 59, of which 5 were non-residents.

The death-rate of the reported deaths for the week was 15.49.

NEW YORK.

New York Botanical Garden.—May 7 was a field day at the New York Botanical Garden, Bronx Park, in honor of the Woman's Auxiliary of the Botanical Society. On the reception committee of the board of managers were Drs. W. Gilman Thompson, Frederic S. Lee, and Lewis Rutherford Morris, and after the members and guests had visited all parts of the extensive grounds, riding and walking alternately, tea was served and an address of welcome given by Dr. Thompson in the museum building. The tea was made from the leaves of plants actually grown in the garden, and an interesting feature of the occasion was the presentation by Dr. Reginald H. Sayre of a series of old Chinese paintings showing the process of preparing tea. In addition, Dr. N. L. Britton, director-in-chief of the garden, gave, in concise form, some idea of what the New York Botanical Garden is, with its 250 acres of land, 4 miles of driveways, 8 miles of footpaths, 75 acres of natural forest (including the wonderful hemlock forest), 100 acres of shrubs, 20 acres of lawns and meadows, over a mile of herbaceous beds, 6 to 10 feet wide, with 3,000 varieties of plants; in addition to the immense greenhouses containing more than 8,000 kinds of plants, and the palm house, with 130 varieties of palm.

Beth Israel Hospital.—The Beth Israel Hospital, now located at Cherry and Jefferson Streets, far down on the east side, has purchased for the erection of a new hospital building a site on Livingston Place, fronting on Stuyvesant Square. The plot has an area of some 14,000 square feet, and, in addition to the price of the land, the cost of the new structure will be about $1,000,000. The institution, which was founded in 1890, has outgrown its present quarters, and in the building on Stuyvesant Square there will be 500 beds, besides ample provision for dispensary service.

Bronx Contagious Hospital.—A hospital for contagious diseases in the borough of the Bronx, the population of which is approximately 600,000, is now assured, the board of aldermen having authorized the purchase, as a site for the purpose, a tract of thirty-three acres in the upper part of the borough, known as "Seton Falls Park." In July, 1911, the Board of Estimate and Apportionment voted an appropriation of $125,000 corporate stock for such a hospital, but in consequence of vigorous protests made by local taxpayers, action was deferred. This appropriation is now available for the construction of the first hospital building. The Health Department has arranged to have smallpox vaccination performed daily at all its children's clinics, and also, on two days of the week, at each infants' milk station. This action will create 62 offices of the department where vaccination may be obtained free of charge. In view of the mutual interests existing between the health authorities and life insurance companies in the promotion of public health, these companies have been found willing to coöperate cordially with the Health Department in carrying on an extensive educational campaign among the people of the city. Already, the Metropolitan and Prudential companies have placed the services of their agents at the disposal of the department for the distribution of public health literature. The department has often found it difficult to quickly reach large numbers of persons, but the action of these two companies alone means approximately 3,000 agents visiting 750,000 families weekly.

Fund for New York University.—It is announced that a donation of a trust fund of $10,000 has been made to New York University by Mrs. Helen H. Le Fevre, widow of Dr. Le Fevre, the late dean of University and Bellevue Hospital Medical College. The trust is to be known as the Egbert Le Fevre Deanship Fund, and the terms provide that the income is to be applied toward the salary of the incumbent of the deanship of the school. Although it is definitely so stated, the income of the fund may be added to the salary at present received by the dean. In

making the gift, Mrs. Le Fevre stated that she wished in some way to assist in perpetuating the memory of her husband, and expressed the hope that the fund would prove of material benefit to the institution in which Dr. Le Fevre was so deeply interested, and to which he devoted so much work and time during the best years of his life.

Current Literature

Medical Record.

May 2, 1914.

1. Sutter, C. C. *The Development of Complement-Fixation Tests.*
2. Stephenson, J. W. *The Intensive Treatment of Syphilis of the Nervous System by Neosalvarsan Intravenously and Mercury by Inunction.*
3. Dwight, E. W. *The Value of Small Classes.*
4. Webster, D. *A Case of Endophlebitis Obliterans of the Central Retinal Vein, with Resulting Acute Glaucoma.*
5. Ford, J. S. *Treatment of Pulmonary Tuberculosis by the Induction of Artificial Pneumothorax.*
6. Epstein, S. *Arteriosclerosis as the Orthopedist Views It.*
7. Pendexter, S. E. *A Simple Efficient External Nasal Splint.*
8. Ballard I. W. *Lacerated Cervix Uteri and Reflex Irritation.*
9. Best, W. H. *Salvarsan in Non-Syphilitic Diseases.*

New York Medical Journal.

May 2, 1914.

1. Mills, C. K. *The Different Theories of Aphasia.*
2. Dercum, F. X. *The Clinical Interpretation of Aphasia.*
3. Pedersen, V. C. *Tuberculosis of the Right Testicle Secondary to Removal of the Left Testicle for Tuberculosis.*
4. Clark, L. P. *Cerebrocerebellar Diplegia.*
5. Alexander, R. M. *Dermatitis Exfoliativa in an Insane Patient.*
6. Smith, H. *Larymgeal Cancer.*
7. *Rongy, A. J., and Arluck, S. S. *Pituitrin.*
8. MacGowan, G. *A New Urethroscope.*
9. Telfair, J. H. *Complete Inversion of the Uterus Following Delivery.*
10. Gregory, W. M. *Variation in Drugs.*

7. Rougy and Arluck discuss the clinical use of pituitrin, its abuse and its dangers, as they view them in the light of their experience with some three hundred cases. They advise conservatism in using the drug. It does not induce labor pains, but does increase their intensity and frequency after labor has started. A single dose may be used as an adjuvant in cases where pregnancy is interrupted by catheter or bag. Pituitrin should not be used early in the first stage, as its action is too transient. It is contraindicated when inertia is complete, on account of the danger of uterine rupture, also in cases of dystocia due to malposition or obstruction. The cervix must be dilatable, the presenting part engaged, and a general anesthetic at hand. The drug should not be used in cases where a sudden rise in blood-pressure may prove dangerous, and should be used with caution when the fetal heart sounds are feeble or irregular.

[L. D. C.]

The Journal of the American Medical Association.

May 2, 1914.

1. *Russell, F. F. *Antityphoid Vaccination in the Army During* 1913.
2. *Crile, G. W. *Drainage versus Immediate Suture of the Common Duct.*
3. Henson, G. E. *Man, the Principal Etiologic Factor in the Perpetuation of Malaria, with Special Reference to the Endemicity of the Disease in the Temperate Zone.*
4. *Smyth, H. F. *The Cultivation of Tissue Cells in Vitro and Its Practical Application.*
5. McLester, J. S. *Benzol in the Treatment of Polycythemia Rubra, with Report of a Case.*
6. Druskin, S. J. *Extraperitoneal Cesarean Section, with Report of a Case.*
7. *Cadwalader, W. B. *A Comparison of the Onset and Character of the Apoplexy Caused by Cerebral Hemorrhage and by Vascular Occlusion.*
8. Brown, W. L., and Brown, C. P. *Technic for Arthroplasty of the Shoulder-Joint.*
9. Eisendrath, D. N. *The Effect of Injecting Collargol into the Renal Pelvis. Preliminary Note.*
10. Crispin, A. M. *Argyrism Following the Use of Collargol.*
11. Bassler, A. *A New Technic of Roentgen Ray Examination for Early Diagnosis of Cancer of the Esophagus.*
12. Watkins, T. J. *Treatment of Infected Wounds.*
13. Underhill, E. C. *Report of a Case of Quinin Poisoning.*
14. Huntoon, F. M. *A Simple and Reliable Method of Staining Sporcs.*
15. Dryer, J. L. *Boils.*

1. Russell states that the prophylactic antityphoid vaccination as used in the army has given almost absolute protection against typhoid without producing untoward effects of any character.

2. Crile advocates immediate closure of the common bile duct after removal of stone, instead of drainage, and believes if this is carefully done both morbidity and mortality will be lessened.

4. Smyth's article is a detailed and interesting review of the very important subject of the cultivation in vitro of tissue cells. It is an interesting article.

7. Cadwalader finds the following in regard to cerebral hemorrhages: Spontaneous intracerebral hemorrhages are apt to be large; very small hemorrhages are rare. Large hemorrhages are always fatal; small ones may be, and it seems probable that hemorrhages are always fatal whether large or small. When repeated attacks of apoplexy with hemiplegia occur in the same patient at different times, the final or fatal attack may be due either to softening or to hemorrhage, but the former non-fatal attack is invariably caused by vascular occlusion and softening, not by hemorrhage.

[E. H. R.]

The Lancet.

April 18, 1914.

1. *Shaw, H. B. *Gangrene of the Lung.*
2. Jones, F. W. *The Morphology of the External Genitalia of the Mammals. Lecture II.*
3. *Mapother, E., and Beaton, T. *Intraspinous Treatment (Swift-Ellis) of General Paralysis: A Preliminary Note on Four Cases Treated by This Method.*
4. *Layton, T. B. *Tonsils and Adenoids in Children: a Plea for Fewer Operations.*
5. Cunning, J. *Partial Gastrectomy for Gastric Ulcer Recurring after Gastro-jejunostomy.*
6. Pannett, C. A. *Contribution to the Treatment of Duodenal Fistula, with the Report of a Successful Case.*
7. Rischbrith, H. *Traumatic Dislocation of the Hip-joint Occurring in a Boy Ten Years Old.*

8. Morton, W. C. *Plea for an International Anatomical Terminology Based upon the B. N. A.*
9. Warner, F. *Elementary Training of Children.*

1. This is an interesting clinical lecture on gangrene of the lung, in which the writer briefly discusses causation and presents 17 pathological specimens of this condition due to different causes. He describes the bacteriological flora, symptoms, importance of elastic tissue in the sputum, complications such as empyema and pneumothorax, prognosis, diagnosis and treatment.

3. The writers present four cases of general paralysis treated by the Swift-Ellis intraspinous method of injecting salvarsan. They do not feel encouraged from the results they have obtained up to the present time.

4. Layton urges a more conservative attitude in regard to operations for removal of tonsils and adenoids. Many such operations he believes to be unnecessary: others he believes do good but draw the physician's attention from the care of carious teeth and the general hygiene of the child. [J. B. H.]

British Medical Journal.

April 18, 1914.

1. Shaw, H. B. *Some Diagnostic Failures.*
2. Saint, C. F. M. *A Comparison of Inflammation and Tumor Formation.*
3. Radcliffe, F. *Three Cases of Traumatic Rupture of the Small Intestine.*
4. Maddock, C. *Rupture of the Duodenum Caused by a Blow.*
5. Mort S. *Condensation Obstruction in Relation to Pericolitis and Intestinal Kinking.*
6. Russell, E., and Parker, G. *Fatal Case of Veronal Poisoning.*
7. Munro, J. M. H. *Veronal Poisoning.*
8. Dick, M. I. *A Case of Veronal Poisoning.*
9. Billington, W. *The Results of Nephropexy.*
10. Porter, R. R. M. *Heart-block in a Case of Pneumonia.*
11. Jerns, J. J., and Martyn, V. C. *Two Cases of Diphtheria.*

Münchener Medizinische Wochenschrift.

No. 15. April 14, 1914.

1. Stephan, R. *The Nature of Protective Ferments.*
2. Abderhalden, E., Holle, H., and Strauss, H. *The Action of Proteolytic Ferments in Blood Serum as Demonstrated by De-albuminization and by the Determination of Substances Reacting with Ninhydrin in Relation to the Filtrate Nitrogen (Preliminary Communication).*
3. Abderhalden, E., and Paquin, M. *The Action of Proteolytic Ferments in Blood Serum as Demonstrated by De-albuminization and by the Determination of Substances Reacting with Ninhydrin in Relation to the Filtrate Nitrogen. (Second Communication.)*
4. Heineke, H. *The Theory of the Mechanism of Raus and Especially of Their Period of Latency.*
5. Meyer-Betz, F. *A Method for Illustrating the Liver in X-ray Plates and Its Clinical Significance.*
6. Gottlieb, R. *A Method for Determining the Potency of Digitalis Preparations on the Frog.*
7. Poland, O. *Further Studies with Posterior-cervical Cesarian Sections.*
8. Jessen, F. *Artificial Pneumothorax and Pleurolysis.*
9. *Klausner, E. *Contraluesin in the Abortive Treatment of Syphilis.*
10. *V. Schubert, E. *Intraspinous Neosalvarsan Treatment.*
11. *Gennerich. *Intraspinous Salvarsan Treatment.*
12. Neumayer, V. *A Fatality after Neosalvarsan.*
13. De Faveno, P. *A Case of Multiple Hemorrhages Following the Injection of Calomel.*
14. Berner, K. *Absorption Phenomena in Abderhalden's Dialysis Method.*
15. Deetjen H., and Fränkel, E. *The Effect of Concentration of the Ninhydrin Reaction.*
16. Ponndorf. *The Cure of Tuberculosis.*
17. Reiche, F. *Doctor Fritz Delius.*

9. Contraluesin is a proprietary combination prepared by Richter, of salicylic acid, sozojodol, quinine, corrosive sublimate, arsenic, phosphorus, and colloidal mercury. It is administered by intramuscular injection. Klausner has used this drug on 300 patients, making about 2000 injections. From this series he concludes that contraluesin reacts favorably on syphilis in all its stages and is of especial benefit in abortive treatment if combined with salvarsan. The preparation has no bad effects on the kidney, is non-irritating locally and has only trivial accessory effects.

10 and 11. V. Schubert and Gennerich describe a technic, which is essentially the same, for injecting salvarsan or neo-salvarsan into the spinal cord in a dilute solution of cerebro-spinal fluid or saline. Both authors believe that if this form of treatment is given properly as good results are obtained as with the Swift-Ellis method, without ill consequences, and with the advantage of greater simplicity. [R. F.]

Berliner Klinische Wochenschrift.

No. 9. March 2, 1914.

1. Izar, G., and Nicosia, R. *Chemotherapy in Malaria.*
2. Gins, H. A. *A Contribution on Experimental Vaccines.*
3. *Stern, H. *On the Diagnosis of Hypothyroidism.*
4. Halpern, M. *Morphologic Peculiarities of the Blood in Diabetes Mellitus.*
5. Engel. *The Feeding Cure (Weir Mitchell) in Childhood.*
6. *Aumann and Storp. *Experiments with "Grotan," a New Disinfectant.*
7. Simon. *On the Occurrence of Multiple Symmetrical Lipomata.*
8. Schulz, F. C. R. *A Contribution to Serum Sickness. (Concluded.)*
9. Zänker, W., and Schnabel, K. *Modern Surgical Dressings.*

3. Stern describes, as a not uncommon finding in hypothyroidism, an edematous infiltration of the mucous membrane of the lower urinary tract, this condition giving rise to polyuria, tenesmus and strangury. Frequent and painful micturition may be the only subjective symptom of the condition in its early stages, and this, together with intractable enuresis, either in children or adults, should indicate cystoscopy and investigation of the functioning of the thyroid. These symptoms are relieved by the administration of thyroid extract.

6. Grotan is a complicated synthetic compound of cresol, chlorine and sodium. It is easily soluble in water, of an alkaline reaction, has no injurious action on skin, does not corrode instruments or destroy cloth, and experiments with guinea-pigs have shown that it has practically no poisonous action. The authors claim that in a 0.33% solution it rapidly kills the ordinary pyogenic organisms,—in a series of ten experiments with a solution of this strength the staphylococcus aureus was in each instance killed at the end of two minutes. It is put up in tablets, and for ordinary purposes four are used to a liter of water. If the authors' claims are true this should prove a useful and valuable disinfectant. [R. H. M.]

No. 10. March 9, 1914.

1. v. Zeissel, M. *Observations on the Pathology of Syphilis and the Therapeutic Action of Salvarsan.*
2. *Klemperer, F. *Tubercle Bacilli in the Blood Stream.*
3. *Hallas, E. A. *Shellac Concretions in the Stomach and Duodenum.*
4. Unna, P. G., and Gaus, O. *On the Chemistry of the Cell. IV. The Nissl Bodies.*
5. Münger, A. *Precocious Puberty and Psychic Development.*
6. Faginoli, and Fisichella, V. *Further Observations on the Intracutaneous Reaction of Noguchi's Luetin.*
7. Bleichröder. *Concerning the Increase in Miscarriages in the Berlin Municipal Hospitals.*
8. Izar, G., and Nicosia, R. *Chemotherapy in Malaria. (Continued.)*
9. Söderbergh, G. *A Supplement to "Some Observations on the Localization of Tumors of the Cord."*

2. The author has examined with great care the blood in a series of cases; in 24 with pulmonary tuberculosis he has in 21 isolated an acid-fast bacillus which he feels confident is the tubercle bacillus. He rules out carefully the possibility of contamination or artefacts. In 26 non-tuberculous patients he was unable to isolate any acid-fast bacilli whatever. As a result of his own work, and a careful review of the literature, he concludes that clinical, anatomical and experimental findings all make it in the highest degree probable that tubercle bacilli can at one time or another be found in the blood in all sorts of tuberculous cases.

3. The author reports two cases of alcoholics,—one a chair-maker and one a painter—both of whom died with gastric symptoms, and in each there was a huge shellac cast of the stomach, resulting from drinking polish or other articles of their trade.

[R. H. M.]

No. 11. March 16, 1914.

ON THE 60TH BIRTHDAY OF PAUL EHRLICH AND EMIL VON BEHRING.

1. Lazarus, A. *Paul Ehrlich.*
2. Much, H. *E. von Behring.*
3. Richet, C. *P. Ehrlich; Medicine and Science.*
4. Heubner, O. *The Introduction of v. Behring's Diphtheria Antitoxin in the Clinic and in Private Practice.*
5. Salomonsen, C. J. *Memories of the Summer Term in Breslau in 1877.*
6. Pel, P. K. *Is Smoking Harmful?*
7. *Lesser, E. *Progress in the Treatment of Syphilis.*
8. v. Zeissl. *The Treatment of Syphilis with Salvarsan and Mercury.*
9. Calmette, E. *On the Demonstration of Free Lipoids in the Serum by Activation with Cobra Venom, Especially in the Course of Tubercular Infection.*
10. Bordet, J., and Delange, L. *The Question of the Rôle of Lipoids in the Coagulation of the Blood.*
11. Bares, V. *On the Occurrence of Meta-Chromatic Bodies in Acid-fast Bacilli.*
12. Römer, P. H. *Studies in the Bacteriology of Diphtheria.*
13. Flexner, S. *Contributions to the Epidemiology and Pathology of Poliomyelitis.*
14. Carrel, A. *Present Condition of a Two Years' Old Strain of Connective Tissue.*
15. Noguchi, H. *On the Application of Certain Cultivation Methods to the Study of Infectious Diseases.*
16. Pawlow, J. P. *The Peculiar Instability of the Internal Inhibition of Certain Reflexes.*
17. Mestscherski, H., and Grintschar, F. *A Case of Scleroma of the Nose and Pharynx Treated without Result by Vaccines, and Improved by Local Physical Measures.*
18. *Laache. *Acute Parotitis Following Abdominal Affections.*
19. *Hedinger, E. *On the Importance of Pre-senile Involution of the Mammary Gland.*
20. Jadassohn and Rothe, L. *On the Pathogenesis of Urticaria.*
21. Edinger, L. *Pain Arising from Veins.*
22. Maragliano, E. *Vaccination as a Preventive of Tuberculosis.*
23. v. Wassermann, A., and Lange, C. *On the Question of the Origin of the Reaction Products in the Serum Diagnosis of Lues.*
24. Roux and Metchnikoff. *The Work of Paul Ehrlich.*

7. Lesser believes in early and energetic treatment of syphilis by the combination of mercury and salvarsan in all forms of the disease, including tabes, though he says that good results have not as yet been attained in general paralysis. He gives 3 or 4 injections of salvarsan at intervals of 10 to 14 days. He thinks that in the acute secondary stage with general symptoms salvarsan may cause severe toxic symptoms, and should be preceded by several days of mercury alone. Intermittent treatment is advisable. He states that severe toxic symptoms from salvarsan undoubtedly arise in some cases,—Mentberger collected 87 cases, up to August, 1913, which had either very severe after-effects or else died.

18. Laache reports three interesting cases as follows: One, parotitis (right) in the course of an acute bleeding gastric ulcer; two, double parotitis associated with an acute appendix; and three, suppurative parotitis (left) with paralysis of the facial nerve, in a case of salpingitis. He mentions several theories, but can advance no good explanation of these associated conditions.

19. The author presents five cases of a large series of breasts, which were removed for constant and intractable pain, and which on pathological examination showed more or less complete senile atrophy of all the glandular elements, though none of the patients were over 44, and two were under 40. Histological examination revealed no definite cause for the pain. In conclusion he suggests that pre-senile involution must be considered a definite clinical and pathological condition, associated with severe pain, and hopes for a more extensive and detailed knowledge of the condition as soon as more cases are collected. [R. H. M.]

Deutsches Archiv für Klinische Medizin.

Band 113. Heft 3 and 4. January 31, 1914.

1. Roemheld, L. *Concerning False Heart Block.*
2. Becker, T. *Analysis of the Electrocardiogram by Means of Roentgenkymography.*
3. Veil, W. H. *Clinical Importance of the Determination of Blood Concentration.*
4. Elfer, A., and Geber, H. *Nitrogen and Mineral Metabolism Changes in Scleroderma Diffusum.*
5. *Kahn, J. *Test of Heart Function.*
6. von den Velden, R. *Clinical Experimental Work on the Knowledge of Temperature Lowering Substances.*
7. *Dorner, G. *Diagnosis of Uremia by Means of the Indican Determination in the Blood Serum, Transudates and Exudates.*
8. Caronia, G. *Fever Curves in Youthful Leishmaniasis.*
9. Baetge, P. *Growth and Perforation of Aneurysm.*
10. Behrenroth, E. *Effect of Pituitary Extract upon Blood-Pressure in Man Besides Remarks on a Few Injection Experiments in Growing Animals.*
11. Schulz, F. *Intra-abdominal Pressure and Blood Distribution in Enteroptosis.*

5. Kahn has worked with the method for testing heart function that was instituted by Waldvogel. The method consists in noting the difference in systolic blood-pressure in the same patient between lying and standing. He has tried the test out on a good many normal and pathological conditions and has charted the cases to show the difference in pressure dependent upon the initial height of the pressure. He feels that this method is practical and of a good enough accuracy for clinical purposes. The chief feature is that it can be used in the office as well as in hospitals. The normal limits are a rise of from 5-15 mm. in pressures that are from 60-100 mm. In pressures from 100-130 mm. the normal variation is from an increase of 15 to a drop of 5 mm.

7. Dorner has studied the importance of indican in the blood and body fluids as a diagnostic aid in diseases of the kidney. The test is a simple one and only requires from 10-20 c.c. of blood. Considerable amount of indican in blood serum means marked uremia. If present in the blood it is also present in the fluids from the pleural cavity and other edematous fluids, but not in the cerebro-spinal fluid. The indican apparently does not play a factor in the toxicity of the blood serum in uremia. With large amounts of indican in the urine none will appear in the blood when no nephritis exists. The liver is not the only place in which urinary indican is formed. Apparently the kidneys take part in its formation. Usually the detection of this substance in the blood means that death is near, but some cases improve after the demonstration of it. [C. F., Jr.]

Deutsche Zeitschrift für Chirurgie.

Band 126. Heft 5-6. February, 1914.

1. *Härtel, F. *The Treatment of Trigeminal Neuralgia with Intracranial Alcohol Injections.*
2. Thorbecke, W. *The Familial Appearance of Intestinal Polyps.*
3. *Fromme, A. *Intestinal Invaginations and Spastic Ileus.*

1. On the basis of 25 personal cases, which he reports from Bier's clinic at Berlin, Härtel believes his method of treatment indicated in fresh cases, in chronic cases limited to individual nerve-twigs, and in severe, extensive, recurrent cases. Secondary neuralgias should be treated etiologically. In hysteric cases, the alcohol treatment is contraindicated.

3. Fromme reports from Stich's clinic at Göttingen 22 cases of acute and 10 of chronic intussusception associated with spastic ileus. There is an excellent alphabetic bibliography of 113 titles. [R. M. G.]

Die Therapie der Gegenwart.

February, 1914.

1. Salge, B. *The Treatment of Rachitis.*
2. Schmidt, H. *Radium Therapy in General Practice.*
3. *Janssen, W. *The Medicinal Treatment of Articular Rheumatism, Especially with Apyron, an Acetyl-Salicylic Acid Preparation Soluble in Water.*
4. Opitz, E. *The Treatment of Sterility in the Female.*
5. Focke. *Digitalis in Uterine Bleeding.*
6. Meidner. *New Remedies: V. Animal Extracts.*

3. Jansen tested the value of apyron in articular rheumatism. He finds it a safe, palatable and easily soluble salicyl preparation, acting promptly as a diaphoretic, antipyretic and antineuralgic. On account of its solubility it is well suited to injection as well as to ingestion. [L. D. C.]

Annales De L'Institut Pasteur.

No. 3. March, 1914.

1. Dumas, J. *Studies upon the Staphylococcus Aureus. Relation between Animal and Human Staphylococcus Aureus.*
2. Nicolle, M., and Cesari, E. *Studies upon the Staphylococcus Aureus. Toxicity of the Strains Studied in the Preceding Work.*
3. *Manonélian, J. *Histological Studies upon the Salivary Glands in Rabies.*
4. *Danyse, J. *Work in Chemical Therapy. Combinations of Silver Salts and Arsenic Compounds in the Treatment of Experimental Trypanosomiasis and Syphilis in Man.*
5. Ventre, J. *Influence of Artificial and Natural Media on Different Species of Saccharomyces.*
6. D'Herelle, I. *The Cocco Bacillus of the Grass-Hopper.*

3. Manonélian has been working at the Pasteur Institute on the presence of the typical negri bodies of rabies in the nerve ganglions of the salivary glands. As a result of his studies he concludes that these bodies exist in the cytoplasm of the nerve cells in these intraglandular ganglions, but that they never appear in the parenchymatous cells of the acini or of the excretory ducts. The acini undergo, however, profound changes with necrosis and absorption of the necrotic material by endothelial phagocytes so that the glands may be replaced by the phagocytic cells. The phagocytic cells are seen in the saliva.

4. Danyse has been endeavoring to improve the toxicity of chemical bodies for certain human parasites without increasing the toxicity for the human host. For this purpose he has been adding salts of silver to different arsenic compounds and studying the effect experimentally and in certain human cases, especially general paresis. He gives a list of the results of these different compounds upon several types of spirilla and trypanosomes, and also upon lesions from the treponema pallidum in men and in rabbits. He concludes that the addition of bromide and iodide of silver to dioxydiaminoarsenobenzol increases the antiseptic and curative properties of all three without augmenting their toxic properties. He feels that these chemical compounds are not the only antiseptic power at work, but that the phagocytic power of the host is most important in destroying the microbes. [C. F., Jr.]

Revue de Chirurgie.

February, 1914.

1. Quénu, E., and Mathieu, P.. *Lithiasis of the Branches of Bifurcation of the Hepatic Duct.*
2. *Duval, P. *Conservation of the Superior (Fronto-Palpebral) Branches of the Facial, in Total Extirpation of the Parotid Other Than for Cancer.*
3. Morestin, M. H. *Treatment of Extensive, Diffuse, or Pulsating Angiomata of the Face by Vascular Ligatures and Formolated Fixation.*
4. Moty, F. *Accidents of the Wisdom Tooth.*
5. Brulé, M. *The Sterilization of Water by Ultra-Violet Rays and Its Application in Surgical Practise.*
6. Walter Sullis, J. *The Liver in Appendicitis. (To be continued.)*

2. Duval describes, and illustrates with four anatomic plates, his operative technic in total removal of the parotid, and reports a case whose photographs represent the advantage of saving the upper of the three principal branches of the facial nerve at the *pes anserinus.* [R. M. G.]

Miscellany.

AN ACT TO CREATE A STATE DEPARTMENT OF HEALTH AND TO AMEND THE PUBLIC HEALTH LAWS.

The following is Governor Walsh's message transmitting to the legislature his bill for the reorganization of the State Board of Health.

To the Honorable Senate and House of Representatives.

In my inaugural address I emphasized the fact that in the multitude of legislative matters which come before the State Legislature, there are none of greater significance or importance than those which are planned with the purpose of protecting the public health, for upon a sound, healthful and vigorous population depend in the greatest measure the prosperity, safety and welfare of the Commonwealth.

There is no greater service than the prevention of sickness and premature death, with all its concomitant sorrows and miseries. The human body is the most wonderful machine that is known and the maintenance of this delicate mechanism in full vigor, for its allotted time, is the end for which health officers, physicians, social workers and others are striving. The government should lead in this great work.

Most legislation is directed towards objects which interest only a certain percentage of the population of the State. Public health legislation is necessarily of interest to every man, woman and child in the Commonwealth. Even recognizing the wonderful advance in health conservation which has taken place in the past few decades, it is still obvious that preventable disease is the main cause of death. Massachusetts may well point with pride to its early recognition of the public health problems and the creation, in consequence, of a State Board of Health.

Without detracting from the past accomplishments of the State Board of Health, it has become obvious to many, including those who are in a position to recognize the State Board of Health's service, that the Board does not possess the necessary organization to cope with the present health problems of the Commonwealth. In a word it is in some ways seriously handicapped in being able to reach the highest efficiency that the people have reason to expect of a department of health.

In recent years tremendous strides have been made in public health work, yet Massachusetts is conducting this work under administrative machinery provided many years ago.

Other States have recognized defects similar to our own, and as a result we note the passage of acts in various States reorganizing the State health service along the most modern and effective lines.

Massachusetts must not lag in the forward march and in order that the citizens of the Commonwealth might have the greatest possible protection I have deemed it my highest duty to suggest a reorganization of the public health activities of the State.

The time has come in Massachusetts for a salaried Health Commissioner to superintend that work of the government which deals with public health administration. He should be a man who will devote his whole time, strength and energy to this problem, and should be a man "skilled in science and experienced in public health administration."

The accompanying bill is designed to give Massachusetts a most effective type of public health organization. It has been drawn up after consultation with experts from the United States Public Health Service, the Commissioner of Health of New York State, and many others, qualified by experience and training, who have given freely of their advice, in order that the proposed legislation might represent the very best thought in this vital matter. This proposed legislation calls for the abolition of the State Board of Health and requires the appointment of a State Health Commissioner who shall be directly responsible to the Governor. A Public Health Council is created, but following out modern beliefs in effective administrative work, this council has no administrative or executive powers.

Provision is also made in this bill that the district health officers be required to give their entire services to the Commonwealth and that the present unsatisfactory arrangement be discontinued, —namely, health officers half-paid and expected merely to give such time as they choose in their respective districts to this work.

Your especial attention is invited to the creation of three new divisions, one dealing with infant and child hygiene, the second with communicable diseases, and the third an administrative department for educational and publicity work. The need of special activities in the prevention of infant mortality is evidenced by the fact that in Massachusetts in 1912, out of a total of 52,250 deaths, 12,273 were under two years of age. It is well recognized that many of these infant deaths are preventable, and an active division of the State Department of Health should do much to cut down this enormous wastage of life.

Similarly the tuberculosis problem is of great magnitude, even though noteworthy decreases in its mortality rate have been apparent in the past; 5,151 citizens of of Massachusetts succumbed to this disease alone in 1912, or almost 10 per cent. of the total mortality.

Modern sanitary science recognizes that a great deal of preventable disease cannot be wiped out by the introduction of water purification plants or the enforcement of milk pasteurization, or similar public acts, but requires the *individual* cooperation of all persons. This makes it necessary that proper publicity work, especially by the State cooperating with local health authorities, be undertaken to bring before the people the simple facts, which they must know if they are to avoid contracting an unnecessary sickness. This important function is required in the proposed reorganization.

There should be no half measures in the fight for better public health conditions. This is a clear case where the best is none too good and it is believed that the passage of this bill will make it possible for Massachusetts to adopt all the latest modern methods of health conservation and possess the strongest and best Health Department in the country. I know of no greater service that this Legislature can render to those who have delegated to it the power to contribute to their happiness and welfare through the agencies and activities of government, than by adopting the proposed legislation.

Neither partisanship nor personal considerations can be permitted to move our minds when the well-being, the health, the very life of our people are at stake.

DAVID I. WALSH.

Be it enacted by the Senate and House of Representatives, etc., as follows:

Section 1. There is hereby created a State Department of Health which shall exercise the powers and perform the duties now conferred and imposed by law upon the State Board of Health and Section 1 of Chapter 75 of the Revised Laws is hereby repealed. The State Department of Health shall consist of a Commissioner of Health and a Public Health Council. There shall also be directors of divisions district health officers, and other employees as hereinafter provided.

Section 2. The Commissioner of Health shall be appointed by the governor, by and with the consent of the executive council, and shall be skilled in sanitary science and experienced in public health administration. The term of office of the Commissioner of Health shall be five years; he shall receive an annual salary of seventy-five hundred dollars and his necessary traveling expenses, and shall devote his whole time to his official duties. The Commissioner of Health shall be the administrative head of the State Department of Health. His duties shall be to administer the laws relative to health and sanitation and the regulations of the Department; to prepare rules and regulations for the consideration of the Public Health Council; to appoint and remove directors of divisions, district health officers, inspectors, and other necessary employees, and fix their compensation within the limitations of appropriations therefor. Directors of divisions and district health officers shall be exempt from civil service regulations. The Commissioner of Health shall further submit annually to the Public Health Council a report with recommendations as to needed health laws, shall perform all executive duties now required by law of the State Board of Health, and other duties incident to his position as chief executive officer. He may direct any executive officer or employee of the State Department of Health to assist in the study, suppression or prevention of disease in any part of the Commonwealth.

Section 3. The Public Health Council shall consist of the Commissioner of Health and six members, hereinafter called the appointive members, at least three of whom shall be physicians to be appointed by the Governor, by and with the advice and consent of the Council. Of the appointive members first appointed, two shall hold office until May 1, 1915, two until May 1, 1916, and two until May 1, 1917, and the terms of office of the appointive members thereafter appointed, except to fill vacancies, shall be three years. Vacancies shall be filled by appointment of the Governor and Council for the unexpired term. The Public Health Council shall meet at least once in each month, and at such other times as they shall determine by their rules or upon the request of any two members. The appointive members shall receive $10. per diem while in conference and their necessary traveling expenses while in the performance of official duties. It shall be the duty of the Public Health Council to make and promulgate rules and regulations; take evidence in appeals; consider plans and appointments required by law; hold hearings; define the qualifications of local health authorities; submit annually to the Legislature through the Governor a report, including recommendations as to needed health laws; and to discharge other duties required by law; but it shall have no administrative or executive functions. The Public Health Council shall have power, by the affirmative vote of a majority of its members, to establish, and from time to time amend rules and regulations under the public health laws, the enforcement of which devolve on the State Department of Health. Every regulation adopted by the Public Health Council shall state the date on which it takes effect, and a copy thereof duly signed by the Commissioner of Health shall be filed in the office of the Secretary of the Commonwealth, and furthermore shall be published in such manner as the Public Health Council may determine. Rules and regulations so promulgated shall have the force and effect of law, and any violation thereof may be declared to be a misdemeanor, and punished by a fine of not less than one dollar nor more than one hundred dollars, or by imprisonment in the house of correction for a term not exceeding thirty days, or both. Upon request of the Public Health Council, the Governor is authorized to require the District Police to assist the State Department of Health in enforcing its rules and regulations.

Section 4. There shall be in the State Department of Health the following divisions, together with such other divisions as the Commissioner of Health may from time to time determine:—

1. Division of Administration.
2. Division of Communicable Diseases.
3. Division of Sanitary Engineering.
4. Division of Food and Drugs.
5. Division of Laboratories.
6. Division of Child Welfare.

The Commissioner of Health shall appoint and may remove, with the approval of the Public Health Council, a director to take charge of each division, and shall prescribe the duties of each division. The compensation of directors of divisions shall be fixed by the Commissioner of Health, within the limits of appropriations therefor, and subject to the approval of the Governor and Council.

Section 5. The Commissioner of Health shall, from time to time, divide the state into eight sanitary districts, and shall appoint a district health officer for each district, with the approval of the Public Health Council, at a compensation not exceeding $3500 per annum and necessary traveling expenses, and may remove the said officer. Said district health officers shall not engage in any other occupation and shall give their entire time to the performance of their duties. The Commissioner of Health may from time to time order two or more of said district health officers to work in one sanitary district in order to study, suppress or prevent disease. Each district health officer shall, under the direction of the Commissioner of Health, perform the following duties:—

1. Keep himself informed as to the work of each local health authority within his sanitary district:

2. Aid each local health authority within his sanitary district in the performance of his duties, and particularly upon the appearance of any contagious or infectious disease;

3. Assist each local health authority within his sanitary district in making an annual sanitary survey of the territory within his jurisdiction, and in maintaining therein a continuous sanitary supervision:

4. Call together the local health officers within his district or any portion of it from time to time for conference;

5. Adjust questions of jurisdiction arising between local health officers within his district;

6. Study the causes of excessive mortality or morbidity from any disease in any portion of his district;

7. Promote efficient registration of births, deaths and notifiable diseases;

8. Inspect, from time to time, institutions, schools, public conveyances, and labor camps within his district, and enforce public health laws and regulations in relation thereto;

9. Endeavor to enlist the cooperation of all physicians and welfare organizations within his district in the improvement of the public health therein:

10. Promote the information of the general public in all matters pertaining to the public health;

11. Act as the representative of the Commissioner of Health, and under his direction, secure the enforcement within his district of the public health laws and regulations.

Section 6. When in the opinion of the Public Health Council any local health authority shall fail or refuse to enforce the laws and regulations to prevent the spread of contagious or infectious disease declared by the Public Health Council to be dangerous to the public health, or when, in the opinion of said Council, a public health emergency exists, the Commissioner of Health may enforce the rules and regulations of the State Department of Health within the territorial jurisdiction of such local health authorities, and for that purpose shall have, and may exercise all the powers given by statutes to local health authorities; all expenses so incurred to be a charge against the cities and towns concerned.

Section 7. Towns and cities may cooperate for promotion of the public health, either by special vote or by vote of their respective boards of health. They may participate in the employment of trained health officers or other agents, and in the installation and maintenance of a common laboratory or other equipment. Funds may be appropriated and disbursed for this purpose either by a special vote of a city or town, or by vote of a board of health of a city or town from appropriations or other funds at its disposal. Whenever two or more towns shall thus combine or cooperate for more efficient health service, and shall appropriate a sum or sums of money for such joint or cooperative action, a sum equal to two-fifths of the total amount contributed by the cooperating towns shall be paid over and added thereto from the Treasury of the Commonwealth; provided, that the general plan of cooperation, as well as the principal health officer, executive agent, or laboratory director employed by the cooperating towns, shall have been approved annually by the Public Health Council; and *provided, further*, that no sum so paid to any such group of cooperating towns shall exceed $1000, in any one year.

Section 8. An annual conference of health officers shall be held under the supervision of the Commissioner of Health, and necessary expenses of health officers attending said sanitary conference shall be paid by individual boards of health respectively, or by the selectmen acting as boards of health.

Section 9. For carrying out the purposes of this act there shall be appropriated for the purposes of the State Department of Health, over and above the amount already appropriated for the State Board of Health for the year 1914, the sum of

Section 10. All acts and parts of acts inconsistent with this act are hereby repealed.

AN ACT TO REORGANIZE THE MASSACHUSETTS STATE BOARD OF HEALTH.

In response to an invitation extended by the Massachusetts Medical Society, ninety physicians of the Massachusetts Medical Society, the Homeopathic Medical Society and the Massachusetts Eclectic Medical Society, met at the Boston Medical Library, May 15, 1914, at 3 p.m., to discuss the act to reorganize the Massachusetts State Board of Health (House No. 2590) introduced into the Legislature May 12. Representatives from at least ten counties of the state were present.

The meeting organized by the election of Dr. W. P. Bowers of Clinton, chairman, and Dr. W. L. Burrage of Boston, secretary.

Governor Walsh explained the provisions of the act at length, and Dr. M. J. Rosenau, a member of the State Board of Health, who drafted the bill, sketched its chief purposes. Twelve different physicians present took part in the discussion and the Governor and Dr. E. H. Bigelow and Dr. Rosenau answered questions. Dr. Trowbridge of Worcester proposed the following amendment to Section 5, line 3: Insert after the word *officer,* "Who shall be a physician in good standing." On motion of Dr. Duggan of Worcester it was *Voted:* That the meeting indorses the recommendations and the bill of Governor Walsh as to the creation of a State Department of Health (House Bill No. 2590) with the amendment above noted. The vote was unanimous.

Adjourned at 4.53 p.m.

Walter L. Burrage,
Secretary of the Meeting.

ADDRESS TO DR. WALCOTT.

The following is the text of the address presented to Dr. Walcott on his retirement from the State Board of Health.

To Henry P. Walcott, M.D., LL.D., Chairman, Massachusetts State Board of Health, from Twenty-two Hundred Members of the Medical Profession of the State, Greeting:

Sir: On the 19th day of May, 1914, your term as a member of the State Board of Health ends, and we understand you are not a candidate for reappointment.

Such an occasion cannot be allowed to pass unnoticed, at least by those citizens who as a class should be most competent to gauge the value of such services to the State as yours have been.

The best appraisal of those services is the mention of some of them, with a brief statement of your relations to the Board.

Your connection with the Board began in 1880, 33 years ago, when, after ten years of independent existence, it had been merged with the conjoined Board of Lunacy and Charity, and you were unanimously elected its Health Officer. At this time, you served on a commission for the sanitary im-

provement of the Blackstone river, a precursor of your subsequent labors on similar problems.

In 1886, by an act of the legislature, the Board of Health once more entered upon an independent existence. You were appointed a member for a seven years' term by Governor Robinson, a Republican, with the advice and consent of the senate, and became the chairman. You have since been reappointed three times for terms of seven years: once by Governor Russell, a Democrat, in 1893; once by Governor Crane, Republican, in 1900; and once by Governor Guild, Republican, in 1907. Since 1886, you have always continued as chairman of the Board.

Early in 1894, you began to consider the advisability of establishing a laboratory for the free production and distribution of diphtheria antitoxin; and such curative serum was actually distributed early in 1895, being the first so distributed in any state. This was made possible through the cooperation of Harvard University, secured by your influence, at the Bussey Institution, and was carried on for nine years—during this time as well as later under the personal direction of Dr. Theobald Smith—until 1903, when the legislature enacted a law authorizing the State Board of Health to produce and distribute antitoxin and vaccine virus. Again through your influence, a laboratory was built on the grounds of the Bussey Institution where the preparation of antitoxin and animal vaccine was carried on together.

Within the last four years, you have served as chairman of two State Commissions appointed to consider various important tuberculosis problems: one in 1910, and one in 1912. Reports were made to the legislature and printed as public documents.

It is impossible to separate your work in connection with the Board of Health from that in connection with the North and South Metropolitan Sewerage Systems, the Charles River Valley System, the Charles River estuary improvement, the Metropolitan Water Supply, and numerous other similar problems of perhaps secondary importance, such as the improvement of the Neponset River Valley, of the Concord and Sudbury Rivers, of the sanitary conditions as respect water supply, sewerage and sewage disposal of many other cities and towns which have been devised by the committee on water supply and sewerage of the Board of Health, of which Mr. Hiram F. Mills is chairman, and carried out in connection with its recommendations under your chairmanship of the Board.

Since the re-establishment of the State Board of Health in 1886, under your chairmanship, it has been the custom of the legislature to refer all important sanitary questions to that Board for investigation and advice, instead of creating special commissions, as obtains in many states. This custom, under your wise administration, has doubtless saved much money to the State and, at the same time, secured sanitary improvements recognized in all civilized countries as the best of their class.

The investigations and recommendations of the Board have commended themselves to the legislature and in general have been carried out ultimately as presented.

From 1886 to the present time, you have been constantly and steadfastly facing these great and grave problems. Since 1895, when the State Board of Health made its report to the legislature, presenting a plan for the water supply of the City of Boston and the surrounding cities and towns, have been added to your responsibilities those of a commissionership on the Metropolitan Water Board. You have borne the responsibilities both of recommendation and of execution.

You have succeeded on the Board of Health such men as Henry I. Bowditch, George S. Derby and Charles F. Folsom, whose services to State medicine were widely known and recognized, and honorable to Massachusetts.

You have met the responsibilities then assumed with such wisdom, discretion and rare modesty, as to make the task of your successor who would uphold the standards bequeathed to him a difficult one indeed.

Correspondence.

ANOTHER LESSON IN ANTI-VACCINATION.

BOSTON, May 11, 1914.

Mr. Editor: The recent experience of Niagara Falls, a tourist city of about 35,000 inhabitants, is interesting as showing the harm that a persistent, fanatical anti-vaccinationist is capable of doing even in these enlightened days. Being refused admission to the local press, this physician has been publishing and distributing pamphlets decrying vaccination for years in the untruthful, exaggerated manner peculiar to this cult. About 90 per cent. of the inhabitants had become lukewarm toward vaccination and about 60 per cent. were distinctly opposed to it. Now for the results.

In 1912 smallpox made its appearance in the city in a sporadic form. Little attention was paid to the situation until late in 1913, when the epidemic blazed up and became so serious that Buffalo and other adjoining towns began to interfere. Business was affected, which is one of the most potent factors in these conditions.

As the local authorities could not or would not take the necessary measures to stop the epidemic, the Health Commissioner of the state, Dr. Hermann M. Biggs, was called upon to take a hand in the situation. The authorities were given to understand that unless they took the usual means immediately to stamp out the disease, the city would be placed under quarantine. The commissioners' suggestions were accepted and carried out. The epidemic was under control in a short time.

During 1913 the cities of New York, Rochester and Buffalo, with 6,000,000 people had 39 cases of smallpox. Niagara Falls had 196. The law excluding unvaccinated children from the public schools is rigidly enforced in the three cities above noted. The aforesaid anti-vaccinationist had made his brags that Niagara Falls had a larger percentage of unvaccinated citizens than any other city in the country. The result of this epidemic would seem to justfy his claim.

When the city took hold of the situation in an intelligent manner, the people tumbled over each other to get vaccinated. About 22,000 were vaccinated in a short time. Churches, theatres, libraries and all other places of public assemblage were closed. The schools were not closed, but all unvaccinated children were excluded. Inspectors were sent to every house to ferret out concealed cases. The sick were isolated. The usual results of the proper management of these epidemics were soon in evidence and the danger was over. The epidemic was easily preventable. The city has only itself to blame for the prevalence of the scourge. It is to be hoped that the lesson will not be forgotten in a hurry. Massachusetts may well take warning from this fresh example of neglecting plain and safe measures of protection against this loathsome disease.

Very truly yours,

GEORGE W. GAY, M.D.

Address.

IN MEMORY OF SILAS WEIR MITCHELL, M.D., LL.D.*

Born Feb. 14, 1829; Died January 4, 1914.

By James J. Putnam, M.D.,

Professor of Diseases of the Nervous System, Emeritus, Harvard University.

It is not my purpose to attempt tonight an adequate characterization of the personal qualities or of the scientific and literary standing of the late Dr. S. Weir Mitchell. All that I propose to do is to offer, in the name of this society, some slight tribute of affection and respect.

No one can doubt that Dr. Mitchell will be remembered as among the foremost of American physicians, and as taking a high place among American literary men. The testimony of his innumerable and deeply grateful patients and of the vast circle of his professional friends, the long list of his medical and scientific publications, the still longer list of his literary works, and the many honorable tokens of appreciation bestowed on him by American and foreign societies and institutions, place this statement beyond question. He felt also the obligations entailed by his powers and opportunities, and kept his torches burning until the very last, so much so that the issue of *Science* published on December 12, 1913, only three weeks before his death, contained a memoir by him of his friend, the late Dr. John Shaw Billings. So predominantly characteristic was this endurance, until the last, of his vivacity, his eagerness and his activity, that one saw at once, in him, a man of the type made deathless by Tennyson's "Ulysses," longing, even in his closing years, to re-live the days that had been so full of joys and combats among his peers, and seeking to the very last new friendships and new worlds.

"... I will drink
Life to the lees: all times I have enjoyed
Greatly, have suffered greatly, both with those
That loved me and alone: ...

. . . . .

"For always roaming with a hungry heart
Much have I seen and known; cities of men
And manners, climates, councils, governments,
Myself not least, but honour'd of them all.

. . . . .

"I am a part of all that I have seen;

. . . . .

"Tho' much is taken, much abides; and tho'
We are not now that strength which in old days
Moved earth and heaven; that which we are, we are,
One equal temper of heroic hearts
Made weak by time and fate, but strong in will
To strive, to seek, to find, and not to yield."

* Read before the Boston Society of Medical Improvement, March 23, 1914.

But if Dr. Mitchell was distinguished for his talents, his industry, and his achievements, it is equally true of him that he was a warm-hearted lover of mankind both in a narrower and a broader sense. To all who cared for them he was generous of his time, his interest, and his affection, recalling, in this respect, his close friend, Sir William Osler. Such failings as he had were of a very human sort, tending to intensify the sense of relationship to others, and inducing him to make himself felt by them as a warm and living person. These genuinely human interests may have furnished one deep root for his strongly religious tendencies, and for the courtliness of manner which contributed to his charm. They also explain Sir William Osler's saying: "Of no man I have known are Walter Savage Landor's words more true, 'I have warmed both hands at the fire of life.'"

Endowed with an affectionate and highly social temperament, a brilliant mind and quick wit, he went on through life continually forming new friendships of the best sorts, as with such men as Phillips Brooks, and drinking forever at the self-renewing fountains of youth. Some men seem built to run smoothly in some one groove alone, and are driven by their destinies to become, this one a poet, that a man of science, and so on. But Dr. Mitchell's main desire, I think, was not so much to become eminent in any special lines as to leave no well-marked line of human interest untouched. The great variety of the subjects dealt with in his stories and his poems, the great variety—all things considered—of his scientific attainments, the great variety of temperaments to be found among those who could call themselves his friends, illustrate this point.

To Dr. Mitchell's friendliness I can bear personal witness. For though he was at the top of the ladder when I was at the foot, he went out of his way, at that period, on several occasions, to receive me as an equal and friend. Well do I remember dining at his hospitable table while still in the greenness of relative youth, and eating there the fatted terrapin, fatted, as I remember, in his own cellar, and served up with as good a sauce as any self-respecting terrapin could desire. My first acquaintance with him was, however, of still earlier date, for it is well-nigh forty years ago that he came as a consultant to visit a life-long invalid who had the distinguished honor of being almost my first patient. I can recall with perfect distinctness his pleasant manner on that occasion, and the dew of soothing encouragement which his visit left behind for both of us.

It is with great pleasure also that I recall a visit made in company with Dr. Mitchell to the Orthopedic Infirmary, which, if I am right, he transformed from a no doubt useful, but somewhat unknown, institution of one kind into a real scientific centre of quite a different kind, its old name, however, being retained. It was

here that many of his scientific researches on a clinical basis and many of his therapeutic studies were instituted, with admirable results.

These reminiscences of my youth may be capped by a story which he told me of his own, and which I re-tell with the greater pleasure that it seems to me to describe certain of his strongest traits. He had just become, he said, the assistant of his father, the eminent Dr. John K. Mitchell of Philadelphia, and was left by the latter, who had gone on a vacation, to hold the fort during his absence, with instructions to keep the practice going, and the patients alive, if possible, until his father should return. Dr. Weir Mitchell was then the rawest of young doctors, but already conscious of that undying well-spring of courage and resourcefulness which remained with him through life. Who should the first patient be with whom he had to deal, during this important interregnum, but a gentleman with an inveterate psoriasis, who had traveled the world over in the elusive search for health, and had come at last, as Naaman came to Elisha, to seek the senior Dr. Mitchell! What should be done? The improbability of a cure simply by repetition of old methods stared Dr. Mitchell in the face, and the fashion of that particular period was not favorable to the recommendation of dipping just seven times in Jordan. But his courage and his inventive genius stood him in good stead. He put the patient to bed, under the care of a trained nurse, and bled him copiously, at first daily, then less often, hoping almost against hope that the disease would admit itself starved out before the patient should succumb. Not without grave anxiety he watched the distinguished invalid growing weaker day by day. But at last, when even his hopefulness threatened to give way, the spots began to fade, and finally disappeared. Then came the fattening-up, and after this had reached the proper point he sent his patient off, well satisfied with the treatment he had had.

It is easy to see indications that these qualities of resourcefulness and daring played a part in Dr. Mitchell's career on many an occasion, and to imagine their influence where it was not visible. One might have thought that they would have tempted him to surgery. It is, however, an interesting fact that although at the request of Surgeon-General Hammond, and with the valuable aid of Drs. Morehouse and Keen, he organized an excellent hospital during the Civil War, where he gathered the large material to be used later for the classic work (by Mitchell, Morehouse and Keen) on "Gunshot Wounds and Other Injuries of the Nerves," and although he actually tried surgery, yet he found it to be distasteful, and soon abandoned it. My warrant for this statement is an interesting letter very kindly written to me by Dr. John K. Mitchell, in which he says that Dr. Weir Mitchell's father at first tried to dissuade his son from studying medicine at all, "as not being of the disposition or having the studious and persevering kind of character that would make him successful in it." Finding him determined to persist, however, he urged him to take up surgery by preference, as being better paid than medicine, and more in the way of development at that period, which was about 1850.

> "In consequence, in spite of a great distaste for surgical operations and even for bloodshed, my father worked at it, and worked in Paris as well as here, and even for a while performed operations. He saw the end of operations without anesthetics and the beginning of operations with anesthetics, but he soon proved to himself and convinced his father that he was not likely to make a surgeon."[1]

The hospital, it should be said, was planned for soldiers suffering from nervous diseases. But its scope

> "was soon enlarged to include men suffering from injuries of the nerves. Before long it was found necessary to build a new hospital with accommodations for 400 patients. Here a vast number of cases representing almost every conceivable type of obscure nervous disease was received. Few persons have at any time had such a field for the study of these maladies, and Dr. Mitchell and his colleagues made full use of their opportunities."[2]

The book on injuries of the nerves, written in 1864, has always seemed to me a contribution of high merit. It was no mere restatement of the views of others, but embodied personal observations giving evidence of keenness and originality. This experience in the army secured to Dr. Mitchell the opportunity to obtain consultations in neurological cases and led him to devote himself for the most part to the study of that subject, which held his interest until his death.

The subject of Dr. Mitchell's medical and scientific labors is soon to be reviewed by one well qualified to do the subject justice, and cannot be discussed here in detail. To those whose memory stretches back so far, the very titles of some of his original communications, as "Reflex Pain," and "Erythromelalgia," arouse stimulating recollections.

It was this same self-confidence to which I already have referred that led Dr. Mitchell, about fifteeen years ago, to deliver his bold broadside against the system then prevalent in hospitals for the insane, under which the superintendents had become to a great extent mere administrators, neither doing nor expected to do much of anything in the way of scientific work. The criticisms thrown out in this address

[1] Letter from Dr. J. K. Mitchell.
[2] *Brit. Med. Jour.*, January 10, 1914.

may have been felt as unjust by this person or by that. But the stand taken went a long way toward modifying for the better a custom which had become very much of a reproach, and made it easier for the superintendents, whose task had truly been a hard one, to demand laboratories and to set the machinery of research in operation.

I will add another trifling, but amusing character-story, given me by Dr. F. C. Shattuck, in which similar traits appear. Dr. Mitchell was, it seems, just leaving Milan after a temporary visit, when a gentleman came up to him in the hotel, asking if this was Dr. Weir Mitchell of Philadelphia and saying that he greatly wished to consult him, as he was a serious sufferer from insomnia. Dr. Mitchell declared that the carriage was at the door, and that his departure could not be delayed. But while talking with the would-be patient he noticed a brown stain at one corner of his mouth, and observed the ends of a number of big cigars sticking out of his vest pocket. Taking advantage of these hints he ventured the opinion that his insomnia was due to too much tobacco, adding the guess that he both smoked and chewed heavily. The astonished patient admitted the soft impeachment, and wrote to him a month later that his opinion and the treatment based upon it had been poductive of excellent results.

In some respects the mental attributes of the scientific student were as prominent in Dr. Mitchell as his genius for therapeutics; nor was he less competent in literary research. His interest in problems of physiology never slept, and the questions that presented themselves in the course of his clinical studies provided an ample field for its operation. One may get a good idea of the range of these studies from reading the Presidential Address before the American Neurological Association, delivered in 1909, where Dr. Mitchell runs over and in a measure sums up his views on some of the topics that had been before him earlier. It was, however, his elaborate studies on rattlesnake poisoning that mainly won for him praise and fame as a student of physiology. His first contribution on this subject was published in 1860, the last in 1886, both being brought out by the Smithsonian Institute. I believe it is true, however, that his interest in the matter was a continuous one, and if I am not mistaken, he made a visit to India in prosecution of his researches. Dr. John K. Mitchell writes to me, "I think the interest in snake poisoning began with some physiological investigations which he and William A. Hammond made together in respect to two South American poisons—corroval and vao,—both of which were said to have serpent venom mixed with them."

Toward the close of this investigation he sent to Dr. Oliver Wendell Holmes, who had long been a close friend, the skin of one of his largest reptiles, and received in return some witty acknowledgments, one of which I quote:

March 1, 1883.

My dear Dr. Mitchell,—

I am reminded of Pope's line:—

"Pleased with a—rattler—tickled, etc."

I don't think I have it quite right, but anyhow I am both pleased and tickled with my rattler's integument. It is magnificent,—not Tofana or Madame de Brinvilliers in all her glory of silks and satins, was clad like one of these. But what a parlous worm it was, to be sure! I didn't know that pizon sarpents ever grew so big as that. He must have shed venom as a milch cow does her amiable secretion. I have got him hung up on my revolver (book-shelves, that is), and he hides a library of volumes. And when he rattled, how he must have waked the slumbering watchmen, if any such were within range! I should greatly enjoy a short biography of this individual specimen of a race which owes so much to your pious labors.

Well, well,—asps and vipers and copperheads, and cobras and rattle snakes of reasonable dimensions I know, but a crotalus with the length and circumference of a boa-constrictor is a new acquaintance, whose *bark*, if I may so call his integument, is much more welcome than his bite would be.

Always, and this time thankfully, yours,

Oliver Wendell Holmes.

In 1906 Dr. Mitchell read, also before the Association of American Physicians,[1] the report of a number of interesting experiments of poisoning by the mescal button, which he said produced optical phenomena suggesting those occurring in migraine.

Psychologically speaking, there is considerable similarity, after all, between the tendencies that lead men to show energy and skill in research of scientific sorts, and those that draw them into investigations in literary fields. These latter fields were wandered over widely by Dr. Mitchell, and my attention has been called, in illustration, to the fact that he did at one time an excellent piece of work in retouching with new illumination the time-worn topic of the great Harvey, and that he succeeded in finding two hitherto unpublished Harvey letters.

As a practising physician Dr. Mitchell found himself constantly in situations where his interest in his fellow-men, harnessed to his courage, his originality and his scientific knowledge, made a strong team. We all remember the stirring breeze, one might almost say Northwester, excited by the publication of his series of little books beginning with "Wear and Tear" and "Rest in the Treatment of Disease," published in 1873 and 1875, respectively, and reaching its climax with "Fat and Blood," in 1877.

[1] Transactions, 1906.

His interest in these matters did not then cease, however, and as late as 1908 he published what may be called the last of the series, on "Rest Treatment and Psychic Medicine."

No one who recalls the earlier booklets of this series and was a living witness of the effect that they produced on the minds of the many toilers with the problem of neurasthenia, can fail to remember how strikingly the lesson was impressed, that when it comes to actually curing patients, the value of a certain amount of very important theoretical information pales into insignificance by the side of a system well worked out in its details. Rest is good, and food is good. But it is by no means always clear how to make these benefits available. Something else is needed. We know now, as we did not know in those days, when suggestion had not been adequately studied, that one or both of two influences must be present if one would really cure a nervous patient. Either he must be made to believe in the doctor, or he must be trained—slowly and painfully, if need be—to believe thoroughly in himself. Dr. Mitchell really used both of these means; for therapeutist of high order though he was, he fully appreciated, too, the value of independence, and sought faithfully to encourage it among his patients. Nevertheless, it seems clear that what his instinct felt to be the main need of the hour was that each invalid should have demonstrated to him, by the logic of facts, that his indigestion was not invincible, but that his physician's command of the situation was. What hungry person, even though a neurasthenic, could fail to welcome, without complaint of indigestion, the slender portions of skimmed milk with which the treatment started in? Or what fatigue-fearing patient could venture to speak longer of fatigue when the only effort allowed to him was that of brushing his own teeth?

Sir William Osler, in a letter to the *British Medical Journal* concerning Dr. Mitchell, writes interestingly of the clinical emergency which was the occasion of the theory of the rest cure. In Dr. Mitchell's own graphic terms he gives the history of the patient, a Mrs. S. of Bangor, Maine, telling of her school life, her marriage and nervous breakdown, and of the conflicting thoughts that passed through Dr. Mitchell's mind as he stood at the foot of her bed, doubtful what course he should pursue. The story ends with the statement that the patient was sent back to Bangor perfectly well, that she afterwards bore many children, and had been the soul of many enterprises in her native town. Dr. John K. Mitchell, in the kind letter above alluded to, tells me that this lady from Bangor, who was treated in February, March, and April, 1874, has recently written him a pleasant note accompanied with a portrait of herself.

Dr. Mitchell never taught in either of the great medical schools of Philadelphia, but he did excellent work for many years as trustee of the Carnegie Institute, and performed conspicuous service in securing the endowment for the splendid building of the College of Physicians in Philadelphia, now an important medical centre, containing a collection of books equalled, I believe, only by the Surgeon-General's Library at Washington. In this latter undertaking, as in so many others, his co-worker was the genial, single-minded, and public-spirited Dr. William W. Keen, who, from being his valued assistant in the army, became his life-long friend.

As a literary man, Dr. Mitchell has a large number of admirers, as we all know, and there are doubtless many members of this society who would be far better able to give a just estimate of his work than I can do. His output of stories and poems was very large, and I can aver that many of the poems are full of interest and charm. Those who are interested will find some account of Dr. Mitchell as poet in an article written by Robert Haven Schauffler and published in the *Century* for December. The poems dealt with there are finer specimens of his work than those which I shall quote, but in glancing over one small volume I was much struck with his power of endowing with the delicacy of his own feeling the sights and sounds of nature of which he was so fond. How the soul of the wave and fog and the soul of the man seem to interpenetrate, for example, in these lines:

STORM-WAVES AND FOG ON DORR'S POINT, BAR HARBOR.

The fog's gray curtain round me draws,
And leaves no world to me
Save this swift drama of the stirred
And restless sea.

Forth of the shrouding fog they roll,
As from a viewless world,
Leap, spectral white, and, pausing, break,
In thunder hurled.

Ever they climb and cling anew,
Slide from the smooth rock wall,
With thin white fingers grip the weeds
And seaward crawl.

In rhythmic rote o'er shivering sands
They glide adown the shore
With murmurous whispering of "Hush!"
And then no more.

Equally sympathetic is his appreciation of the harsh and tuneless but thrilling note of the sea-gull, as shown by the following verses selected from a much longer poem:

The woods are full of merry minstrelsy;
Glad are the hedges with the notes of spring;
But o'er the sad and uncompanioned sea
No love-born voices ring.

Thou silent raider of the abounding sea,
Intent and resolute, ah, who may guess
What primal notes of gladness thou hast lost
In this vast loneliness!

Where bides thy mate? On some lorn ocean rock
Seaward she watches. Hark! the one shrill cry,
Strident and harsh, across the wave shall be
Her welcome—thy reply.

Home! for the night wind signals, "Get thee home";
Home, hardy admiral of the rolling deep;
Home from the foray! Home! That silenced song
Love's endless echoes keep.

For more than one cause then, Dr. Mitchell, whose achievements kept him in the forefront of a large band of distinguished men throughout a big and brimming half century, and made him almost as well known as the city with which he was so intimately identified, deserves to be remembered as a great man, and one filled abundantly with the wine of the intellect and of the spirit. Always eager, always virtually working even when nominally resting, warmly sympathetic, and in the best sense self-forgetting, his eighty-five laborious years were spent in the courageous service of the truth as he saw it, and in the constant presence of ideals and visions, of which his books and poems, his estimate of Phillips Brooks and of his own invalid sister, and the admiring voices of his friends, give willing evidence. Very different though his life was, in its external features, from that of the Canadian poet, William Henry Drummond, in memory of whom he wrote some charming and warm-hearted lines, published in 1910, these lines well describe a side of himself that was perhaps not the one most widely known, and with them this slight sketch may close:

In Memory of William Henry Drummond.

Peace to his poet soul. Full well he knew
To sing for those who know not how to praise
The woodsman's life, the farmer's patient toil,
The peaceful drama of laborious days.

He made his own the thoughts of simple men,
And with the touch that makes the world akin,
A welcome guest of lonely cabin homes,
Found, too, no heart he could not enter in.

The toil-worn doctor, women, children, men,
The humble heroes of the lumber drives,
Love, laugh, or weep along his peopled verse,
Blithe mid the pathos of their meagre lives.

While thus the poet-love interpreted,
He left us pictures no one may forget—
Courteau, Baptiste, Camille mon frère, and, best,
The good, brave curè, he of Calumette.

With nature as with man at home, he loved
The silent forest and the birches' flight
Down the white peril of the rapids' rush,
And the cold glamour of the Northern night.

Some mystery of genius haunts his page,
Some wonder-secret of the poet's spell
Died with this master of the peasant thought.
Peace to this Northland singer, and farewell!

[Since this hasty sketch was written, Dr. Mitchell's exceedingly interesting Chicago address has been published (*Journal of the American Medical Association*, May 9, 1914), telling of the work of the Medical Department of the United States Army during the Civil War, and something more of his own labors and those of his personal colleagues than was within my knowledge. In many respects this warm and able essay, written hardly more than a year before Dr. Mitchell's death, helps to place vividly before us the personality of its intensely human, life- and labor-loving writer.]

Original Articles.

REMARKS ON DIAGNOSIS AND TREATMENT OF DISEASE OF THE STOMACH.*

By Franklin W. White, M.D., Boston,

Instructor in Medicine, Harvard University; Assistant Visiting Physician, Boston City Hospital.

I will speak first of some new methods of diagnosis and some old methods which have new values. The history has always been the most important factor in diagnosis and still is, in spite of the development of new methods The history holds first place and the x-ray and the chemical tests divide the second and third places between them. No one symptom is distinctive however. Moynihan's statement, that "hyperacidity is ulcer" is not strictly true. Hyperacidity is one of the most common conditions of the stomach, due to a variety of causes and as seen in our Out-Patient Department and in private work most cases recover under careful treatment and show no signs of ulcer. There is always a small group which do not yield to medical treatment and which are sent to the surgeon. These are the most severe and trying cases and the only ones which the surgeon ordinarily sees. Here the per cent. of ulcer is high and prompts the statement which Moynihan has made. We must remember, however, that cases are carefully sifted before reaching the surgeon and surgical statistics are only of value for the class of cases seen by the surgeon.

TESTS OF SECRETION.

The stomach tube still holds its own as a means of testing gastric secretion. The Desmoid test, Einhorn's bead test, the string test of secretion, are comparatively unreliable and are little used. Chemical tests were formerly far too highly valued and now have been put in their proper place. The old days when a physician sent a specimen of stomach contents to a laboratory or consultant for complete diagnosis have passed, never to return. We are no more able to make a complete diagnosis from the stomach contents *alone* than we are from the examination of the urine. The tests have much value and we could not do without them, but they rarely make an in-

* Read at the Boston City Hospital, Clinical Meeting, Feb. 12, 1914.

dependent diagnosis and in some cases like duodenal ulcer they show surprisingly little.

There has been little change in the tests used in the last ten or fifteen years with the single exception of tests for blood. Here we may say that too much activity has been shown. Starting with the old Guaiac test, new tests have been brought out each more delicate than the last, such as the Benzidin, Phenolphthalein and Toluidin tests. Extreme delicacy is not desirable in these blood tests, any more than in a test for lactic acid or for mucus. It is possible to find blood so frequently with a very delicate test that it has no value in diagnosis. Blood tests are used everywhere nowadays to detect and rule out gastro intestinal ulceration and the ideal test should be simple and easy and not too delicate or too coarse.

In my opinion the ordinary Guaiac test is a rough test, not delicate enough for clinical purposes. Since it will not show blood in the feces with an ordinary meat diet, how can we expect it to show traces of blood which come from an ulcer? A recent report from the Mayo Clinic shows that the Guaiac test did not detect blood in the stomach contents in more than half the cases of gastric cancer In my opinion the Benzidin test is the best test. It is recommended by all the recent text books: I have used it for years and found it simpler and easier and far more reliable than the Guaiac test for detecting traces of blood. Pure reagents clean glassware, and a proper technique are necessary for satisfactory results.

This test like most others which are used for blood can be made too delicate for clinical work. I think Schlesinger and Holst's modification of the test is the best, using two drops of gastric contents or two drops of a mixture of feces and water for making the test. The technique has been fully described by the author in previous papers.[1]

This test has been slow in reaching Boston for some reason, but I am glad to see it in routine use here at the hospital at the present time. I have given both the Phenolphthalein and Toluidin tests a thorough trial and find them less satisfactory for clinical work.

TESTS OF MOTILITY.

This is the most important gastric function or at least the one which makes the most trouble if deranged. The stomach tube has been our reliance in making this test by finding fasting residue in the morning, of a test supper given 12 hours before, but now the tube comes in for its share of criticism. The x-ray shows that the tube may coil up in the stomach and avoid the residue and make the test useless and misleading; in other words, the radiologist says,[2] "When we pass the tube in the morning to recover fasting contents and find none, we do not know whether none is there or whether we have simply missed it." Such a poor result may occur without doubt, but I believe it may be avoided by proper technique. In the first place the stomach tube should be a straight one, kept straight by being hung up by the tail. It is often kept coiled by the maker and often kept coiled by the physician who uses it. This is a mistake. The coiled tube is much more likely to kink and curl up in the stomach while the straight tube has little tendency to do so. In the second place it is very desirable to use gentle aspiration in obtaining fasting contents and not to trust to syphonage or expression through the tube. It is obviously impossible to start a syphon with only a few teaspoons of stomach contents. A soft Pollitzer bag of the type made by the Davol Rubber Co., easily detachable is the best aspirator and will, if the stomach tube is moved back and forth during aspiration, recover even small traces of fasting residue. Finally if the stomach is washed out at the end of this process with a bulb full of water I think we are practically sure to detect traces of food if they are present in the stomach. This test of the stomach motility with the tube is in my opinion a very reliable one and not easily replaced by any other method.

Tests of motility made with the stomach tube and by the x-ray after a bismuth meal are not exactly comparable. They run parallel to one another in a general way, but the natural meal may leave the stomach either earlier or later than the bismuth meal. The cause for this we do not know. It may be that sometimes the bismuth acts as a foreign body and hastens emptying of the stomach or that in other cases it sticks to the wall and remains longer than food. The time of passage of natural meals is what we really wish to know.

In diagnosis of the motor power of the stomach the tests probably have equal value. The difference is that for many years, thousands of men all over the world have used the tube test. We have had enormous experience with it and know how to interpret its results; we have had much less experience with the x-ray method at the present time.

THE X-RAY.

The x-ray has been a very great help in diagnosis of diseases of the stomach. It shows the position, size and shape of the stomach as no other method will do, and most important of all it shows constant deformities in outline, due to ulcer, tumor or adhesions. It has been a great help in separating the medical from the surgical stomach cases. So much new data about the stomach has been obtained by the x-ray that at present it is in a somewhat undigested state and rather confusing. Some men use chiefly plates and give us one set of results, other men use chiefly the screen and give another set of results. The bismuth meals used are quite different in both

size and quantity. Different amounts and kinds of foods are used and different salts of bismuth and barium so that the results obtained by different men are not comparable. It seems as if a standard bismuth meal just as we have a standard Ewald-Boas test breakfast would be a great advantage.

In addition the x-ray men are not entirely in accord among themselves on important points of technique and diagnosis. To speak of one or two specific instances: Some men lay great stress on the importance of diagnosing a six hour bismuth residue in the stomach. Holzknecht has developed an elaborate scheme based on such observations as, "Atony never gives a six hour residue," "Gastric ulcer always gives a six hour residue." This is too dogmatic and is not true with the bismuth meals generally used. Atony may give an eight or ten hour residue and in fully half the gastric ulcers the stomach may empty in six hours. Other x-ray men consider a six hour residue the least important factor in diagnosis, merely a symptom depending on a great variety of causes.

Spasm of portions of the stomach has been a great source of error in diagnosis. They come from too many causes outside the stomach such as the gall-bladder, appendix, renal calculus, tabes and drugs, to be of much value in the diagnosis of gastric ulcer.

The x-ray appears to be somewhat in the position of the chemical tests ten or fifteen years ago, when it was said "lactic acid means cancer," "free HCl and a trace of blood means ulcer." These things have not proved to be true; there is a danger in being too dogmatic with too little experience.

On the other hand direct evidence of constant deformities has great value, as for example in duodenal ulcer. In a modest series of private cases in which an x-ray diagnosis of duodenal ulcer was made, the cases which came to operation proved the x-ray diagnosis to be correct in every instance. (I must admit that all these cases were typical and a definite diagnosis was made by older methods before sending them to the radiologist for confirmation.) Whether the reverse is true, or not, that is, whether a negative x-ray examination means no ulcer, I cannot say. My experience does not go so far. It is not easy to prove since the cases are less likely to be operated upon.

With adhesions about the pylorus it does not seem fair to expect the x-ray to show the cause, such as a previous ulcer, or gall bladder inflammation, but simply to show their presence by the deformity they produce, and let other clinical methods decide about their origin.

There is some doubt whether or not the x-ray can make a diagnosis of cancer of the stomach earlier than other methods, except in an occasional case. It certainly seems possible that it may detect mechanical changes in the wall of the stomach due to cancer of the fundus, or away from the pylorus, before changes in secretion have occurred or any considerable disturbance of the general health. I am sorry to say that I have had little experience with early cancer as most of the cases that are sent to me for diagnosis have already passed the early stage.

The x-ray is not an independent method of diagnosis. It should be used with the history and the chemical tests to get the best results in difficult cases. One x-ray man of this city said to me recently, "I have to urge men to make the chemical tests in the stomach cases which they send to me for diagnosis. They apparently feel that if an x-ray examination is made, nothing more is necessary." This attitude is wrong and shows that the pendulum is swinging too far toward the new method.

SYPHILIS.

The relation of syphilis to ulcer of the stomach is important. Syphilis has been always considered one of the rarest diseases of the stomach. We may have to change our opinion about this. The Wassermann reaction has detected an enormous amount of latent syphilis in heart, vascular and renal cases and may perhaps do the same with regard to the stomach. My attention was called to the importance of syphilis by having several successive cases of peptic ulcer this fall with a triple positive Wassermann reaction. This may be simply a coincidence, but it may be more than this. Any patient who has syphilis may develop a peptic ulcer as an independent disease, but it is also possible that some of our chronic ulcers are syphilitic in origin. Two of the patients referred to were given anti-syphilitic treatment and treatment of the stomach combined and made an excellent recovery. The cases are too recent to know about recurrence and are not conclusive.

It would be much more definite if we find we can take such cases which have resisted ordinary thorough medical treatment and promptly cure them by giving the ulcer anti-syphilitic treatment. I think the subject is so important that it is worth while to try the Wassermann reaction in every chronic peptic ulcer. We may save some from the necessity of operation. I can see no reason to expect the x-ray to help us to distinguish a syphilitic ulcer from other ulcers of the stomach.

CANCER FROM ULCER.

The question of the development of cancer from chronic ulcer of the stomach is important and there is much conflicting opinion about its frequency. The old figures gave us six or seven per cent. of cancer developing from previous ulcer. Moynihan and the Mayo clinic place the figures about ten times as high, namely they believe that 60 to 70% of gastric cancer de-

velops from previous ulcer. It is difficult to reconcile these high figures with our clinical experience. I recently looked over my records of 100 cases of cancer for evidence on this point and found that a large majority of the cancer cases had a short history of digestive trouble; that less than one quarter of the cases had had any previous digestive trouble, and that less than one-tenth presented real evidence of preceding ulcer. Furthermore in a small group of ulcer cases followed for years without operation, the development of cancer is a great rarity.

While this clinical evidence is not absolutely conclusive it leads me to believe that the above figures, 60 to 70% are really far too high to represent the average run of cases of cancer of the stomach; that while they may be true for the carefully sifted and selected material of these surgical clinics, they do not represent the conditions met with in every day practice. My own impression is that less than one quarter of the cancers of the stomach develop from previous ulcer and perhaps the actual figures are much lower than this. Bearing these things in mind it certainly is not desirable to send every ulcer case to the surgeon as soon as the diagnosis is made, neither is it desirable for the surgeon to resect every accessible ulcer of the stomach.

TREATMENT.

I will speak briefly of a few of the newer drugs. Hydrogen peroxide, used internally by Petri in 1908, has a great power of lowering the acid of the stomach. This was first thought due to depression of the acid secretion, and later to neutralizing it by the alkaline product of the stimulated surface epithelium. I have found doses of two to four teaspoonfuls in a glass of water after meals very useful for temporary relief in hyperacidity of all sorts. Big doses such as Petri used (nearly two oz.) are likely to irritate the stomach and cause nausea. I have used it in conjunction with alkalies and oils and a proper diet.

Some new drugs have appeared for increasing the acid in the stomach. Acidol tablets which equal 12 drops of dilute HCl and are taken in a tumbler of water, have no advantage over the old acid preparation except convenience in carrying about, and cost much more. Oxyntin, which only increases the *combined* not the *free* HCl in the stomach can have little effect on peptic digestion.

Pankreon a preparation of pancreatin, much advertised and used on the continent, is claimed to be unaffected by the gastric fluids and to reach the bowel in an active state. The Council of Pharmacy of the A.M.A. found that it was promptly digested by pepsin in acid solution and thus rendered inert in the stomach before reaching the bowel.

Hormonal the peristaltic hormone of Zuelzer given with the object of physiologically stimulating peristalsis has proved so toxic and dangerous in occasional cases that it seems unwise to use it.

Anesthesin, an insoluble local anasthetic similar to Orthoform in its action, has proved useful in sensitive stomachs in nervous people. The modern method in all nervous dyspepsias, however, is to treat the patient more and the stomach less. We really depend on rest, hygiene, sedatives feeding up and encouragement, while most of the "special apparatus," intra-gastric douches, and electrodes, powder blowers, gyromeles, etc., which lumbered up the older textbooks on diseases of the stomach are rarely seen or used today.

Even lavage in spite of all the ingenious apparatus devised, is much less used than formerly, one reason being that the patient whose stomach persistently refuses to empty without help, wisely seeks a surgeon.

On the other hand not every patient with fasting residue in the stomach needs a surgeon. The stomach like the heart may have its periods of dilatation and decompensation and in some cases of atony and ptosis may fail miserably of emptying itself now and then. Here lavage with rest and diet may work wonders. I have seen within a week two patients of this type in whose fasting stomachs I found a half a pint of coarse food residue ten or fifteen years ago. Medical treatment gave prompt relief and they have been well for years.

Duodenal intubation is a new method used by Einhorn for treatment of peptic ulcer. A small soft rubber tube is passed into the duodenum and left in place continuously for ten or twelve days and food is poured through it directly into the bowel. The object is to free the ulcer from the irritation of food and gastric secretion and heal it quickly. A few men have used the method and reported good results, but it has not come into general use. I have tried it in a few cases with poor success. The constant presence of the tube was usually trying and the feeding often caused distress. I must confess that the continuous presence of an indigestible foreign body is not my idea of "giving the stomach a complete rest." The method is still on trial.

I have said nothing about diet in this brief review, not because it lacks importance, but because I have discovered nothing really new within the past year or two.

In surgery I notice less tendency to operate on non-obstructive peptic ulcers, evidently because the results have not been as good as in the obstructive cases. The x-ray clearly shows that in the former the food continues to pass out through the open pylorus instead of by the new surgical opening. The food continues to irritate the ulcer and the new opening tends to close and conditions are left as before operation. This makes the surgeon less eager to operate on some border line non-obstructive cases, and where operation is clearly indicated by reason of failure of medical treatment, inclines him to

close the pylorus at the time gastro-enterostomy is done.

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SIGNIFICANCE OF MINIMAL MACROSCOPIC GASTRIC STASIS.

By A. Everett Austin, M.D., Boston,

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Von Noorden long ago called attention to the fact that while the stomach was subject to abnormalities of secretion and motility, the latter, particularly when they produced retention, were the only ones to actually cause a change in the metabolism of the body, because much of the nutritive value of the food is destroyed by fermentative and putrefactive processes. True, the hypersecretions by producing pain induce the patient to eat less food, and emaciation follows, but if the patient can be assured that a generous, well selected diet is beneficial to his condition rather than otherwise, and is the very best means of controlling the suffering, an equilibrium can soon be established; this cannot be done where stasis exists dependent on pyloric narrowing, since almost every effort to increase the amount of nourishment is overcome by the periodical onset of vomiting or the increased distress of the victim. Hence it behooves us to detect the very earliest manifestations of retention in order to forestall the subsequent malnutrition. At just this point we come upon two causes of delay of gastric contents in the viscus, as unlike as the two regions are described to be where we are supposed to pass our future life. Unfortunately, too, the clinical signs in the early stages differ from each other only in degree and that largely of time. When retention or delay arises from gastric myasthenia, a meal of a beefsteak, four tablespoons of mashed potato and bread and butter should leave the stomach in eight hours while, if due to pyloric narrowing, it may not leave for fourteen hours. As can be seen, there is no hard and fixed line of division, yet everything depends on this decision for the following reasons: a gastric myasthenia is either associated with a general weakness of the whole muscular system so commonly seen in the Stiller type with narrow chest and acute substernal angle, concave epigastrium and protruding region about the navel, often congenital or is the result of a general enteroptosis following repeated child bearing, hernia, or the weakening of abdominal muscles by laparotomy scars. Here operation other than a shortening of the gastro-hepatic ligament, whose value has not been fully demonstrated, is of no avail, and only roborant measures can be employed. The other condition, true pyloric narrowing, is dependent on scar tissue from ulcer, cancer or adhesions from cholecystitis. Intermittent spasmodic narrowing due to gastric hypersecretion is maintained, but at least it cannot be common, and there must be periods when free egress of the contents occurs and retention of any considerable degree ceases. For stasis due to pyloric narrowing, only gastro-jejunostomy gives any permanent relief, while this operation does not aid myasthenia in the slightest degree. Thus we are driven to employ our greatest ingenuity in separating these conditions so essentially unlike, but with such similar manifestations. Nor is it permissible to wait until visible peristalsis and gastric rigidity make the differentiation so evident that "He who runs may read." Then the stomach has become distinctly dilated and as a result of the fermentation and vomiting the patient has become more or less emaciated, adding greatly to the danger and prolongation of the convalescence from the operation which must follow. An illustration of this is shown in the following case.

Case 1. A man, 42 years of age of excellent habits who had had "stomach trouble" not clearly defined for a long period (two or three years, as near as he could recall), began three months ago to suffer more severely. He had epigastric pain after every meal, but it was more severe when he ate heartily, for his appetite remained good. There were eructations of sour fluid 3-4 hours after the food and once in two days, particularly at night, vomiting of large quantities of sour tasting fluid containing recognizable food fragments without any particular association of pain other than the distress mentioned. He had lost 20 pounds in weight though he was eating well and his movements were irregular and induced largely by laxatives.

The physical examination showed excellent teeth, no cachexia, no glandular involvement, while the heart and lungs were without significance.

The stomach was found to fill the whole abdomen; spurting could be felt and heard over the pylorus, but there was no mass, no resistance, but little tenderness, and no gastric waves could be distinguished. The fasting stomach washings, 18 hours after food, contained all forms of food fragments with numerous sarcinae and free hydrochloric acid. The gastric contents six hours after a chicken sandwich amounted to 400 c.c., had a musty odor with many bubbles, and the solid portion was one-third of the whole. Free hydrochloric acid was present and the acidities were 33 and 98. Sarcinae were abundant, but there were no Boas-Oppler bacilli. The clinical diagnosis was pyloric stenosis due to ulcer. The surgeon's report was duodenal adhesions, scar of an old duodenal ulcer, constriction of the ascending portion of the intestine and collapse beyond. The stomach was enormously dilated but no glands were found anywhere.

Of course every effort should be made to make a much earlier diagnosis than was made in this

case, and various articles of food have been suggested which are known to leave the stomach with more or less difficulty, such as currants, raisins and rice, while it has come to my attention that lima beans, particularly the outer coverings, are long delayed in their departure. Then again we are advised to depend on the microscopical detection of food fragments at a sufficient period after an evening meal. Unfortunately, the former articles may pass out of a stomach with moderate pyloric stenosis within the prescribed time, as is shown by the following case:—

CASE 2. A girl of 29 years was well to 5 years ago, when she began to have pain coming on after eating. She remained in a hospital 8 weeks, where her stomach was washed out 30 times. She was better for 6 months, when her former pain after eating recurred. Two years ago she returned to the hospital, where her appendix was removed. Again there was a remission of her symptoms for 18 months, when her old symptoms returned much exaggerated. At present she has gaseous and fluid eructations which are very acid and come on one to two hours after food. She has pain at this time which she localizes over the old appendix scar.

If the pain is severe, she vomits, an event which occurs about 4 times weekly, and may occur at night; the vomitus is always very sour and contains food but never blood. She has lost 13 pounds in weight during the six months, but confesses that she has eaten much less for fear of aggravating the pain. Her bowels move every second day and the stools are very hard. Menses always painful and last 3 days but no clots are ever passed.

Physical examination showed a very pale individual with gums and conjunctivae almost colorless. The hemoglobin was 75% (Tallquist). The teeth were good, the tongue lightly coated, the chest narrow with acute substernal angle, but the heart and lungs were without significance. The stomach's dimensions were 21 vertical by 23 cm. horizontal, extending 5 cm. below the navel and 8 cm. to the right of the median line. There was a well defined tender spot just above and to the right of the navel and a spot of similar character in the right back just below the insertion of the tenth rib. What was taken for a contracted pylorus was felt under the tender spot in front, but no masses nor undue rigidity were detected. The fasting stomach after the evening Riegel meal with the addition of rice and raisins contained no gross food fragments nor mucus. The stool after three days' meat-free diet, contained no occult blood (modified Weber). After the test breakfast the gastric content had free hydrochloric acid with acidities of 60 and 85. There were no sarcinae nor mucus. The radiologist reported that the pylorus was well defined, the first part of the duodenum filled, an enlargement of the stomach in the longitudinal direction, and on standing the lower border was in the pelvis; no stasis could be discovered. The operation showed an ulcer scar on the posterior surface of the duodenum adjacent to the pylorus with numerous adhesions, for which a gastrojejunostomy was done.

It is almost incredible that there was not, at periods, sufficient pyloric narrowing to cause the vomiting, yet the raisins passed through without hindrance.

Then again we may err at the other extreme when some food residue is found by lavage of the fasting stomach, but the laparotomy shows no narrowing and the stasis must be ascribed to myasthenia, as is proven by the case which follows:

CASE 3. A man, 45 years of age, an architect, of excellent habits, using neither tobacco nor alcohol, had been well to two years ago, when a torticollis had been relieved by cutting the muscle, following which he had passed ten months in a sanatorium for neurasthenia. For the five months subsequent to his coming under my care he had had sour stomach, acid eructations, water brash, and his bowels had been confined, requiring the frequent use of laxatives. He thought he felt better when there was food in his stomach than when it was empty, but food did not play an important part in his discomfort. Eructations often continued for 6 hours after he had eaten. At no time was there any severe pain, except one night recently when the pain in the epigastrium was so severe that he vomited food which was extremely sour to the taste. He was sure the vomitus was not brown nor red. His weight had remained constant for many years at 153-5 and he weighed 155 in my office. Examination showed his head to be still slightly drawn to the left, his teeth good, his tongue but lightly coated and his sclerae free from yellowing. Sound heart and lungs were found and no involvement of the glandular system was discovered. His abdomen was full, symmetrical and without tender points. Under inflation the stomach extended from the 6th rib to two fingers above the navel on the left, while on the right it extended beyond its usual limit and the tympany encroached on the liver space. Under the right costal border a hard mass could be felt to slip under the examining fingers on full inspiration, but was not perceptible on expiration. It gave the impression of a sausage-shaped body, but only the lower border was perceptible. The fasting stomach after the evening Riegel meal contained food fragments in very diminutive quantities, upon lavage, among which the raisin fragments could be detected. After a test breakfast the contents contained no free hydrochloric acid, but the total acidity was 85. No sarcinae nor Boas-Oppler bacilli were found. The feces after a meat-free diet never contained occult blood. The urine was normal. The radiologist reported a stomach normal in size, shape and contour, but under the screen no food could be seen to pass through the pylorus. The individual was passed on to the surgeon with a provisional diagnosis of early malignant disease of the pylorus, when, much to my surprise, when the abdomen was opened by him an almost gangrenous gall bladder was displayed containing one large stone and much debris, but the pylorus was entirely normal and entirely free.

Under such conditions, of course, we must hold a myasthenia responsible for the minimal retention, but such an occurrence warns us against placing too much confidence in the slight stasis which this meager remnant or microscopic residue represents.

Much discussion has been aroused as to

whether, when lavage of the fasting stomach produces food fragments, while the radiograph at a six-hour interval shows no stasis, we are to place our reliance on the one or the other. It would seem that the explanation of the other horn of the dilemma, when radiology shows stasis and the tube does not, is not explainable by the bending of the tube by which it follows the lesser curvature, since it was one of the teachings of Boas that the lower border of the stomach could be determined by palpation of the tube after it was introduced. Especially when lavage follows, this explanation would be less tenable because, after the introduction of two liters of water, in four portions, any food residue must be brought to light unless we were dealing with an hour-glass constriction. Huerter thinks that the excessive hydrochloric acid in many instances of myasthenia keeps the pylorus closed much beyond its usual period, while the acid contents entering the duodenum are being neutralized and thus simulates a minor stasis when lavage is employed, while the neutralizing effect of the contrast meal (bismuth subcarbonate) checks this tendency when radiology is employed. If these premises are true, then in case of contradictory results, we must rely with greater assurance upon the radiologic method. At least we must employ both methods and, if they agree, we proceed to operative intervention with greater confidence. It has been my experience in many instances where lavage showed morning residue and the radiogram did not indicate stasis, that subsequent treatment with alkalies and atropine brought about a condition where lavage no longer brought forth food remnants under the same restrictions as formerly.

Now, since raisins have proved deceptive for testing motility and the so-called microscopic retention is evanescent, coming and going without any known cause, if many observations on a myasthenic individual are made, we must have recourse to some more reliable method for the detection of early pyloric stenosis. The criterion which I have adopted is the one recommended by Hausmann and consists of the retention of starch granules of sufficient amount to be visible to the eye at least 12 or more hours after a liberal portion of boiled rice or rice pudding has been eaten in conjunction with meat, potato, bread and butter. All patients after such a meal come to the clinic fasting, when they are washed out with one or two liters of water in portions of 500 ccm., according to whether the first returns clear. As it is very difficult to determine whether a residue, if present, is made up of starch remnants or mucus mixed with partially digested epithelial cells, on account of the similarity of color, the washings are allowed to stand in a conical glass when the solid part will soon fall to the bottom. The supernatant fluid is then poured off and Lugol's solution added to the solid portion, with which it is thoroughly mixed. An instantaneous bluish coloration will appear, were the residue starch. No matter how small the remnant may be apart from mere isolated microscopic granules, it becomes readily visible and may be found as late as sixteen hours after the rice is taken where the stasis is marked, but still not so gross as to cause large accumulations of residual food in the stomach as is found in advanced pyloric cancer and callous ulcer. When this condition exists, which should be verified by at least two examinations, and better three at week intervals, I have always found that there is a pyloric narrowing due to organic disease, as verified by operation, or where that was refused, by steadily increasing difficulty in the stomach's emptying itself and greater residue in the period following. One must not rely upon a single instance of this occurrence, for I have repeatedly seen a fairly copious amylaceous residue at the first lavage, disappear at a subsequent washing, under the identical conditions as to amount of food and time, one week later.

Such temporary and periodic increase in the weakness of a myasthenic stomach to which such retention is due, arises from various causes. I have seen them after a severe cold where there has been much irritating cough, with an accession of constipation and more rarely when there is a coexisting chronic appendicitis. It has been my practice, too, to add the raisins to the evening meal, and have been very much surprised in routine washing of the fasting to note how infrequently fragments of the fruit can be found and how much more constantly the gross starch remnants are discernible when the residue is treated as suggested. There is no explanation for the fact that raisins will pass through an opening which will hold the rice back. Some have offered the explanation that it is not the narrowing as such that holds the rice, but the depression in the stomach's surface afforded by a chronic ulcer, much as the bismuth adheres which produces the flecks in the radiogram and persists on the wall of the organ long after the rest of the contrast meal has disappeared. If this is true, then the minimal macroscopic residue would have a double significance of pyloric narrowing or an old ulcer scar, not necessarily at the pylorus. My personal experience, however, has led me to believe on account of the ephemeral nature of this finding that it is due to myasthenia and for some unaccountable reason, the weakened stomach can free itself more readily from the raisins than from the starch. When the residue is persistent and there is progressive narrowing, then the rice and the raisins pursue a parallel course and both can be removed at every washing. Another suggestive factor in favor of the theory that microscopic amylaceous residue may be found from adherence to an ulcer scar is the simultaneous presence of bile in the wash water, while when any considerable amount of starch (*i.e.* macroscopic) is found, bile is rarely, if ever found. Hence microscopic starch granules with bile are indicative of chronic ulcer with imperfectly closing pylorus or an exaggerated myasthenia, while macroscopic rice rem-

nants without bile may be interpreted as meaning an actual stenosis without, of course, indicating its nature.

Naturally, too, when retention results from the idiopathic pyloric closure of hypersecretion or continuous secretion, if such exist, which many doubt, the bile is never found; such at least is my experience that when from the fasting stomach any considerable portion of highly acid clear gastric juice may be drawn, this is never stained with bile. Similarly, if the wash water responds promptly and markedly to reagents for free hydrochloric acid when it is impossible to express the undiluted contents, and any considerable amount of starch is found, our color reactions are rarely disturbed by the peculiar coloration of bile. We may summarize these isolated facts by saying that: (1) A limited number of rice grains visible in the wash water only by means of the microscope, 12 hours or later after the evening meal when accompanied by marked hydrochloric acid reaction or bile, means a spasmodic closure of the pylorus or a myasthenia and is rarely permanent. (2) Currants or raisins may be retained for this period in a myasthenic stomach or sometimes pass through a moderate narrowing of the pylorus. (3) A distinct amylaceous residue made visible to the unaided eye by means of Lugol's solution, which is not accompanied by bile, but is by hydrochloric or organic acids, if persistent, means a mechanical hindrance to the egress of food from the stomach. (4) A wash water containing hydrochloric acid freely and microscopic starch remnants may indicate an old ulcer scar without a trace of gastric stenosis. (5) A minor gastric retention detected by lavage and unconfirmed by the radiograph is proof of pylorie spasm rather than stenosis, and will often disappear upon appropriate medical treatment. (6) A radiographic demonstration of gastric stasis, not substantiated by lavage, is oftenest due to myasthenia since the weakened gastric walls cannot free the stomach from the heavy bismuth within the accepted time.

BANTI'S DISEASE WITH REPORT OF SUCCESSFUL SPLENECTOMY.*

By Milton G. Stubbs, M.D., Seattle, Wash.

In 1866, Gretzel, describing enlargement of the spleen in an infantile case from the clinics of Griesenger, first used the term, "splenic anaemia." Previously, non-leukaemic enlarged spleens had been described as pseudo-leukaemias.

There were few cases reported from that time until 1882, when Banti, an Italian pathologist, published his studies of cases of splenomegaly of unknown etiology, concluding that they constituted a distinct clinical disease, and divided this disease into three stages.

First, the stage of splenic enlargement with secondary anaemia; second, the stage in which the liver becomes palpable; and third, the ascitic stage. The secondary anaemia presented a fairly distinctive picture, in which the numbers of erythrocytes were ordinarily decreased, but not constantly, the color index lowered, nucleated reds or myelocytes were never found, the hemoglobin was decreased, a leucopaenia was sometimes present.

He was the first to give a comprehensive description of the pathology of this disease, as follows:[1] The spleen is much increased, weighing from 1 to 1.5 kilograms. The shape is preserved, the surface smooth and regular. The capsule is thickened, and on section, the substance is dark brown and hard, showing thickened trabeculae and whitish nodules, which correspond to the Malphigian bodies.

Microscopically, the Malphigian bodies were found in various stages of fibrous transformation, the process beginning around the vessel, within the body. A certain amount of hyaline transformation was also apparent. The splenic pulp showed no special enlargement of the venous channels. In the earliest stage, there may be found in some of the veins, a lining of large cells, making the vessels appear almost like an epithelial channel on cross-section. These large cells have a limited amount of protoplasm, and large nucleus of a diameter of from 5 to 8 microns. The same kind of cells are found in the reticulum surrounding the veins, and in some of the channels, the cells have become loosened from the walls, and fill the lumen of the vessel, giving the appearance of a cancerous alveolus. In some spaces actual giant cells and occasionally cells containing normal or degenerated red corpuscles were observed. The reticulum of the pulp was evidently thickened and of a hyaline appearance. This was always a conspicuous feature, and distinguished the tissue absolutely from normal spleen. The thickening of the reticulum is in proportion to the duration of the disease, and, finally, areas of the splenic pulp may become entirely fibrous.

In view of the process of fibrous transformation, and the multiplication of cells within the veins, Banti proposed the name, "fibro-adenia." He does not believe there is a new-formation of fibrous tissue in the ordinary sense of the term, but rather, an increase of the reticulum, from exudation from pre-existing cells.

The liver is reduced in size, granular, and hard. In earlier stages of the disease, it may be normal in size, and smooth. Microscopically, there is found a marked inter-lobular cirrhosis like that due to alcohol.

Banti calls particular attention to sclerotic endophlebitis of the splenic vein, causing irregular thickening and sometimes even athermatous and calcareous foci. These conditions also extend into the portal vein, and in the

* Read before the North Pacific Surgical Society at Seattle.

ascitic stage of the disease, even the mesenteric veins may be affected, though in less degree than the splenic. He found the disease more common in males, in young adult life, and described a symptomatology dependent on the weight of the spleen, the anaemia and ascites. He believed the anaemia to be due to the increased hemolytic action of the spleen.

He based his opinion that the spleen is primarily responsible for the clinical picture, on the following considerations. First, splenomegaly always preceded the anaemia; secondly, hepatic changes appeared last of all; thirdly, the changes in the spleen seemed to him to be peculiar to the disease, and the success of splenectomy suggested the diseased spleen as the chief factor in the cause of the disease.

Since the publication of Banti's first article, much has been written on this topic, and a diversity of opinion expressed which is most confusing. At present there seems to be three divisions of thought. First, those agreeing with Banti that the disease as described by him, constitutes a distinct clinical entity, accounting for a part of the splenic anaemias. Second, those who believe that Banti's Disease is but the terminal stage of primary splenic anaemia. Third, those who believe that it is not a primary disease, but is secondary to cirrhosis of the liver—a pre-cirrhotic splenic tumor.

In the cases recorded in literature so great has been the variation in the pathology, in the blood picture, and in the duration and intensity of the symptoms, that most clinicians and pathologists agree that Banti's Disease as a clinical entity does not exist; but reserve the term for the terminal stage of primary splenic anaemia, which, they agree, is a fairly definite clinical entity of unknown origin, characterized by a chronic course:—enlargement of the spleen, anaemia of a secondary type, a marked tendency to hemorrhage, and a liability in late stages to be associated with jaundice, cirrhosis of the liver, and ascites.[2]

As to the cause of this primary splenic enlargement, it has been suggested that it results from toxines absorbed from the gastro-intestinal tract, but this has not been proven; that it is secondary to the endo-phlebitis of the portal and splenic veins, but experimental studies occluding partially or wholly the splenic veins have failed to produce anything but primary congestion, followed by partial or total atrophy; that it is due to stasis in the portal circulation, but the splenomegaly always occurs before stasis is established; that there is a relationship between splenomegaly and tuberculosis, syphilis, or chronic malaria, regarding which it is interesting to note that Cohen of Philadelphia reports a case of typical clinical splenic anaemia where, after the use of large doses of quinine, plasmodia were found circulating in the blood. Recently, Gibson[3] reported that in five cases of Banti's Disease, a post-mortem study of the spleens disclosed a streptothrix present in each one.

Banti's theory of the anaemia being due to the increased hemolytic action of the spleen is acceptable to Rodman and Willard,[4] who draw an apt comparison between the hyperactivated thyroid exerting a deleterious action on the body, which is ameliorated or cured by the partial or total removal of the thyroid, and the hyperactivated spleen producing symptoms which are likewise relieved by the removal of the spleen. Others, notably Dock and Warthen and Stengel[5] take the stand that this is due to a bradyplastic condition of blood-forming organs and point to the fact that they found a marked hyperplasia of the hemo-lymph glands lying along the thoracic aorta and in the retro-peritoneum, which contained large numbers of cells holding red blood corpuscles and blood pigment, and in view of the pathology of the spleen, they concluded that this condition was compensatory.

Whether or not splenic anaemia can be considered as a clinical entity is still unsettled. We have a disease, the pathology of which is due to a chronic toxic irritant, having a selective action on the spleen; whether this toxin arises from one or several causes, is unknown but the work but recently done by Billings[6] in the treatment of Hodgkin's Disease, as well as the discovery that eclampsia is but the expression in the kidneys or liver of a ferment generated in the pathologic placenta, leads us to believe that this discovery when made, may change our entire conception of this disease.

The history of the case reported is by Dr. Moser who referred the patient.

A. W. White boy, aged 18. Family history negative. Father, mother, brothers and sisters, all living and well.

Patient came to us June 1, complaining of being continually tired, and of having a sense of fullness and dragging in left hypochondriac region. For the previous two years the patient has a sense of not being well, with intermissions of relative improvement; he noted times when his skin had a distinct yellowish color; various physicians had told him that he had liver trouble, for which he was treated. He was irritable and refractory to parental control; appetite was poor, often being entirely absent, and was somewhat perverted; at times he was nauseated and would vomit. This latter was apparently uninfluenced by the kind of food taken, or by the time of ingestion.

Of previous illness, the patient had had measles; no malaria, and no evidence of ever having lived in a malarial country. In July, 1909, he had received a gunshot wound, which necessitated amputation in the upper third of forearm. There ensued a discharge of pus from the wound and from an axillary abscess, which was cured by "scraping the bone" under anesthesia.

The patient is slender, of poor musculature, drooping shoulders, slow gait, and tired facies; the conjunctivae are jaundiced, as is the skin of the entire body. The teeth are sound. The gums are firm, and have no dark colored line on them. The

tonsils are neither enlarged nor scarred. The pupils are equal and react to light and distance. The thyroid gland is not enlarged; the thymus is not detected; the lymphatic glands are not generally palpable. The heart action is good; the apex beat inside the nipple line in 5th intercostal space. There are no murmurs, nor arrythmia. The lungs have good excursion, and no abnormal respiratory sounds are detected.

The abdomen has full contour, and is slightly distended. No "Caput Medusae" is present, and the navel is retracted. There is dullness in the flanks, which dullness seems to shift with changes of body position. The liver is not palpable at border of right costal arch.

The spleen can be easily palpated, and its lower border extends one-fourth of the way from left costal border to the umbilicus; it is not rigidly fixed, but is slightly movable; percussion over the splenic tumor elicits flatness.

Neither kidney is palpable. No varicosities exist in the lower extremities.

The patient was under our care from this time until a splenectomy was done upon him in December.

Our treatment consisted of a thirty days' course of iron plus Fowler's solution, as tonics and alteratives: salol and occasional exhibitions of calomel.

In August the patient became worse, having a remittent fever, of two weeks duration, ranging from 100° to 101° F. He had, at this time, a number of hemorrhages into the stomach with hematemesis, the blood being dark red in color, and slightly digested. Blood was also present in his urine. The hemoglobin fell to about 65%.

The hemorrhages were treated by complete rest in bed, fluid diet, ice to the abdomen, and calcium lactate, grs. x. t.i.d.

Following this time in August, the patient improved somewhat in weight and strength, his hemoglobins came up to about 80% and he had no visible hemorrhages. No examination was made for occult intestinal blood.

Urine: S. G. 1015, color—pale straw, no sugar, no albumen, indican occasionally, blood was present after during the month of August, about 1500 c.c. daily.

Blood: Hemoglobin 65-80%, leucocytes 8000, erythrocytes 4,000,000.

Differential count: Polys. 65, large monos. 5, small monos. 25, eosinophiles 3, transitional 2.

The reds were regular in size, and were evenly stained. No nucleated reds were detected.

At the time of the operation the liver dullness extended a finger's breadth below the ribs. The edge of the spleen was palpable two-thirds of the distance to the umbilicus.

Operation. Dec. 4, 1912. Incision 8 inches long was made through left rectus muscle. There was free fluid in the abdomen. Owing to severe perisplenitis, there was a band of extremely vascular adhesions an inch or more in width, extending from the one side of the splenic vessels around the border to the other side. The omentum was adherent to the anterior surface. Because of the density of the adhesions it was impossible to first clamp off the splenic vessels as is ordinarily done. The adhesions were stripped off, the bleeding being controlled by gauze, until the spleen was entirely free; it being then removed without difficulty. On removal of gauze there was slight bleeding, which was controlled by ligature, excepting a small area on the posterior surface of the diaphragm, where extensive oozing necessitated packing.

The wound was closed, and the patient returned to his room in considerable shock. He was suitably stimulated, and rallied well. There had been no traction on, nor injury to, the stomach, but seven hours after operation he vomited brown fluid, an hour later he vomited about three ounces of dark red blood, and shortly after, a large amount of blood clots. Twelve hours after operation, his temperature was 102° F., pulse 128, and respiration 34. He vomited dark blood each day for four days, and passed a large dark fluid bowel movement on the fourth day.

On the fourth day he developed a cough—a mild bronchitis—which persisted during his stay in the hospital, causing him very much discomfort.

The packing was removed on the third day, and the patient was able to leave the hospital on the 25th day. His temperature persisted at 100° to 101° F., up to the time of his leaving the hospital. Excepting this, he was in good physical condition, and had recovered a fair degree of strength.

Pathological report by Dr. O. J. West:—

Macroscopical Examination. Spleen 22 x 17 cm., weight 800 gms., normal shape preserved, color normal, surface smooth. Capsule is markedly thickened and shows evidence of extensive adhesion on anterior surface; cut surface, dark red except where ramifications from capsule penetrate to form trabeculae; these trabeculae are much thickened.

Microscopical Examination. Malpighian bodies show moderate fibrous increase; endothelial lining of vessels is hypertrophic and occasionally vagrant endothelial cells are seen. No malignancy, no infection necrosis or degeneration.

The findings are those of a chronic toxic spleen, with nothing to designate the source or nature of the toxic substance.

He suffers no discomforts and apparently enjoys excellent health; yet an examination of the blood made Feb. 28, 1914, shows the following condition.

Moderate poikilocytosis and anisocytosis.

Number of leucocytes per cm. (estimated) 8000

Differential count of leucocytes:—

Lymphocytes	43%
Large mononuclear and transitional	15%
Neutrophiles	34%
Eosinophiles	8%

This case presents some interesting features. The abnormalities of the blood 14 months after the removal of the spleen suggests that the anaemia is not due to hemolytic action of the spleen alone. In view of the findings of Gibson the history of the trauma to, and amputation of, the arm with resulting infection, followed within a year by the primary symptoms of this disease which were progressive up to the time of the removal of the spleen suggests that such infections may be the origin of the toxin.

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AN OPERATION FOR CORRECTING THE AQUILINE NASAL DEFORMITY. THE USE OF A NEW INSTRUMENT. REPORT OF A CASE.*

By Oliver A. Lothrop, M.D., Boston.

Assistant Otologist, Massachusetts General Hospital; Clinical Assistant, Massachusetts Charitable Eye and Ear Infirmary.

The nasal deformity often called the aquiline or Roman nose, is characterized by an excessive growth forward from the face of the nasal bones and septal cartilage, causing a hump or arching forward of the nose bridge. In extreme cases a very disfiguring deformity results, most noticeable in profile. In order to transform such a deformity into a normal nasal profile, this new operation has been devised.

General anesthesia is required for this operation and adrenalin chloride, applied to the mucous membrane of the septum and nasal bones, is very helpful in reducing the hemorrhage. Strict asepsis in every particular throughout the operation is imperative for a good result.

Technic. An incision is made on one side of the columella down on to the free edge of the septal cartilage. The muco-perichondrium is now elevated for a short distance on either side. If the septal cartilage has grown too long in this direction, so that the nose is too long and hangs over the upper lip, a suitable amount of the denuded cartilage is now removed. The muco-perichondrium is then elevated on both sides of the septum close under the nose bridge up to and under the nasal bones. The free border of the cartilage forming the bridge is now shaved down to the line desired for the reconstructed bridge. A piece of the perpendicular plate of the ethmoid close under the nasal bones is now removed, relieving all support at that point.

The next step in the operation consists in making an incision within the nostril along the free border of the nasal bone and ascending process of the superior maxilla. This incision cuts the mucous membrane and underlying tissues adherent to the free border of the bones and brings the operator beneath the periosteum covering the external surface of the nasal bone and ascending process. The periosteum elevator now raises all the periosteum over the nasal bone and ascending process of that side. The above technic is now repeated on the other side.

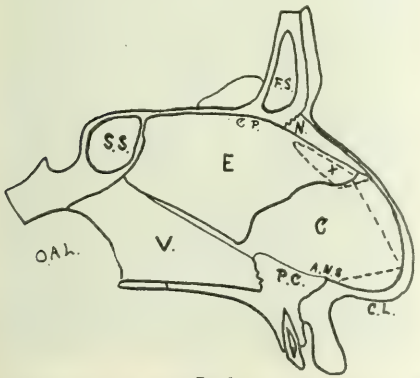


Fig. 1.

Median section of nose showing parts of the septum. *E.* Perpendicular plate of ethmoid. *V.* Vomer. *S.S.* Sphenoidal sinus. *C.P.* Region of cribriform plate. *F.S.* Frontal sinus. *N.* Nasal bone. *P.C.* Premaxillary crest. *A.N.S.* Anterior nasal spine. *C.L.* Columella. *C.* Septal cartilage, the broken line showing where it is cut to form the new borders. *X.* Section of perpendicular plate of ethmoid just beneath the nasal bones which must be removed.

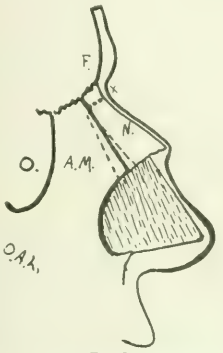


Fig. 2.

This figure shows the septal cartilage (shaded) with its re-shaped borders and the skin and soft tissues collapsing upon them. *N.* Nasal bone. *A.M.* Ascending process of superior maxilla. The broken lines enclose the triangular section on either side of the nose which must be removed to meet the newly-shaped border of the septal cartilage before depressing the arch formed by the nasal bones. *X.* At this point the nasal bones are fractured with a narrow chisel. *F.* Frontal bone. *O.* Orbit.

A triangular or v-shaped piece of bone is next removed subperiosteally from either side of the nose. This section includes a little of the nasal bone and some of the ascending process and has its acute angle near the fronto-nasal suture. In oder to remove this section cleanly, symmetrically and quickly, a new bone punch was devised for this operation. It is a heavy forceps just small enough to enter the vestibule, having a male blade and a female blade. The female blade has a triangular aperture, one-quarter of an inch at the base and seven-eighths of an inch on each of the other sides. The male blade fits into this area so that with one closure of the forceps the desired section can be removed.

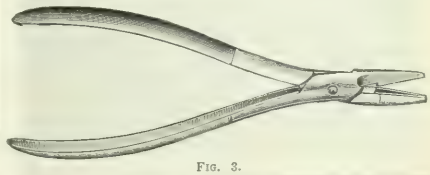


Fig. 3.

A new bone punch designed to remove a V-shaped section of bone.

* Read at a meeting of the New England Laryngological Society, March 24, 1914.

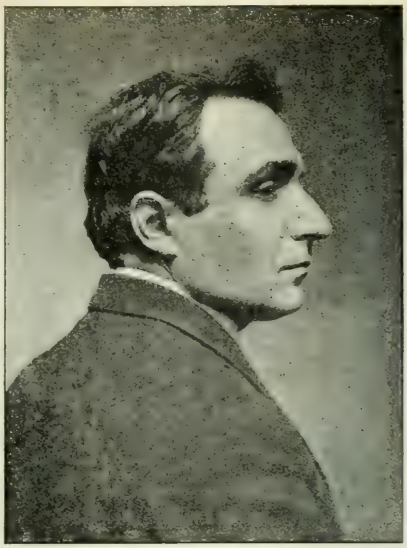
After the lateral V-shaped sections have been removed the nasal bones are fractured near the fronto-nasal suture with a narrow straight chisel. Protecting the soft tisues over the nasal bones, the latter can now be easily depressed with a blow from the mallet flush with the newly-shaped, free border of the septal cartilage.

If the nose is of the proper length the operation is finished. No packing or splinting is required. Light gauze pressure may be used over the nose for a few hours if desired to prevent a hematoma.

Should the nose be abnormally long, cartilage is removed from the free border at the columella as previously mentioned. Since all attachments of the soft tissues over the nasal skeleton have been cut or freed by elevating, the nose can be shortened to any desired length and held in that position with adhesive strips reaching on to the forehead until the soft tissues (periosteum) readhere to the reconstructed bony and cartilaginous framework. This technic makes possible the shortening of any nose exclusive of other deformity without excision of any tissue causing external scar.

Case Report. G. J., male, aged 30 years, medical student, was referred to me by Dr. Augustus Riley for nasal obstruction and deformity. The septum was straight and the obstruction complained of was due to collapsed alae nasi. Examination was otherwise negative and the external nasal deformity is shown in the accompanying illustration.

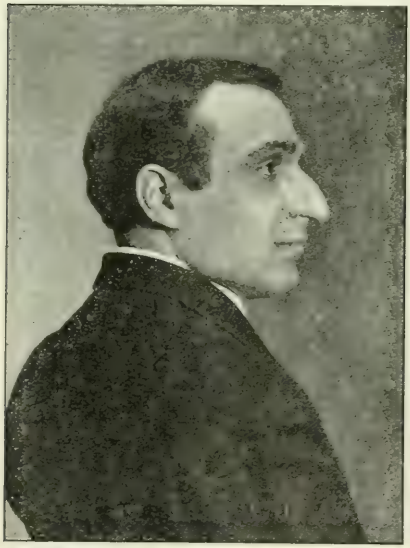
On January 9, 1914, he was operated upon. The technic of operation was identical with that above described. The operation consumed forty minutes



Photograph taken two months after operation showing the results of correction.



Front view taken two months after operation.



Photograph taken before operation showing the saddling deformity and drooping tip of the nose.

and the patient made a good ether recovery. He never had any pain but there was considerable swelling and ecchymosis. His temperature recorded on a four-hourly chart, never went above the 98.6 line. On the fourth day after operation he left the hospital, at which time the swelling was

rapidly subsiding, but it was not wholly gone for over two weeks. The adhesive plaster was removed on the third day and there was no tendency to elongation of the nose. However, to insure against a return to the former condition, the plaster strips were left in place for over two weeks. At present the nose is three-eighths of an inch shorter than before operation, the bridge is straight, and the nose is perfectly firm. The nose is still a little broader than before operation, which is probably due to periosteal thickening. Although branches of the nasal nerve must have been cut, patient observed no change in sensation at the tip.

One most gratifying, although perhaps unexpected, result of the operation was the marked improvement in breathing, noticed by the patient the first day after operation, notwithstanding the swollen condition of the nose. The shortening had relieved the collapsed condition of the alae nasi and had opened up the vestibules so that the patient had good breathing space.

ANAPHYLACTIC REACTIONS OCCURRING IN HORSE ASTHMA AFTER THE ADMINISTRATION OF DIPHTHERIA ANTITOXIN.*

By J. L. Goodale, M.D., Boston.

The following paper is intended as a preliminary communication regarding the local phenomena occasioned by horse serum in individuals suffering from so-called horse asthma.

It has long been known that animals may be sensitized by an injection of foreign serum and examination of the literature shows a number of instances in man where a second injection of horse serum has been followed by alarming and even fatal results. It has also been observed that individuals who are subject to horse asthma may show anaphylactic shock, when given antitoxin from horses even though they have not previously been given an injection of horse serum. The suggestion was made by Rosenau and Anderson that these individuals may have been previously sensitized by the inhalation of particles of flying hairs from horses, carrying minute quantities of protein, causing local sensitization.

From these reports, it is sufficiently evident that the injection of horse serum in sensitized individuals may be extremely hazardous. We have, however, no observations, showing whether asthmatics in general are more subject to this danger than other individuals. Furthermore no studies have been made, so far as I know, to ascertain whether individuals suffering from horse asthma are actually peculiarly susceptible to horse serum.

In order to determine whether horse serum was capable of producing local disturbances at the point of contact, patients with a history of vasomotor disturbances were examined in one or both of the following ways.

1. The lobe of one ear was moistened with a drop of diphtheria antitoxin prepared by the Massachusetts State Board of Health, and a superficial cut was made with a needle, just sufficient to cause blood to appear, but not to flow.

2. A drop of the same antitoxin was placed in one nostril upon the anterior end of the lower turbinate.

Eighteen cases were examined. These may be grouped as follows:

1. Cases in which horses had been known to excite nasal vasomotor symptoms or an asthmatic attack.

2. Cases showing no reaction to horses, but in whom the asthma was apparently associated with bronchitis alone, or occurred only during the summer in connection with hayfever.

Eight cases with a history of sensitiveness to horses were examined with the following results:

Case 1. Miss W., 28. For eight years asthma more or less constant throughout year, increased markedly by the neighborhood of horses. Has been under observation for six years. A large cystic right middle turbinate was removed in 1909, without influence on asthma. Tonsils were removed for septic detritus four years ago. During past two years, asthma had been much less troublesome, and is able to drive behind horses, although the air of a stable excites an attack.

A drop of diphtheria antitoxin was placed in each nostril. Within five minutes the mucous membrane of both lower turbinates and of the septum became pale, edematous and covered with serous fluid. The clinical picture was that of typical hay fever, and the symptoms passed off in the course of two hours. A week later a scratch was made in the skin of the lobe of one ear, and the same antitoxin applied. In three minutes the patient stated that the ear itched, and examination showed a white, slightly raised area of the skin immediately surrounding the scratch, while the skin beyond this white area showed reddening and general swelling, the lobe of the ear as a whole being about twice the thickness of the other. Five minutes later the white wheal had disappeared, and the surface of the skin was diffusely reddened. In the course of the next hour the edema of the lobe began to diminish and two hours later had disappeared.

Case 2. Mrs. V. Seen first in 1906 for asthma of many years' duration. Had had much treatment of nose without effect. In intervals of the attacks, chest examination was negative. Has had one or two small dogs continually about her. For several years following the first examination, it was observed that on being away from the dogs, she was free from asthma, and an attempt was made to have her dispose of the animals, but without success. In November, five years ago, she was given pollantin by her family physician for an attack of sneezing and moderate asthma. This was immediately followed by exceedingly severe dyspnea, nasal ob-

* Read before the Boston Society for Medical Improvement, March 23, 1914.

struction, and profuse watery flow from the nose, being the worst attack that she had ever experienced. The symptoms subsided in the course of twelve hours. Two years ago both dogs were disposed of on account of old age, and the patient has since then had no dogs in the house. During this period she has been entirely free from asthma, although a sense of constriction in the chest is experienced when in the neighborhood of horses. When I explained the test which I wished to make, the patient was unwilling to have the antitoxin applied to the nose, as her recollection of the asthma following pollantin was so disagreeable, but consented to have the test made on the ear. Within two minutes after the application of antitoxin to the scratch on the lobe of the ear, a clearly defined, elevated, white area appeared, bordering the scratch, surrounded by a diffuse reddening, the whole lobe becoming symmetrically swollen, this resembling perfectly the appearance on the skin which would be produced by a nettle. Five minutes later the white area became changed to red as in Case 1, and the local manifestations cleared up slowly in two hours.

CASE 3. Miss J., 24. Seen in 1909 for recurrent colds and asthmatic attacks since three years of age, always excited by horses, although also occurring at all times in the year, often without assignable cause. Bilateral ethmoiditis existed, characterized by enlargement of the middle turbinates, and polypoid degeneration of the mucous membrane. In 1910 the ethmoid cells were curetted, and the patient experienced complete relief for a period of ten months, when slight shortness of breath developed. One year later, in November, asthma appeared following a cold, and a return of polpoid tissue was observed in the right ethmoid region. This was curetted with relief from the asthma. In March of this year, the patient was tested by the methods above described, with positive result, one drop of the antitoxin in the right nostril causing a typical vasomotor swelling and pallor of the mucous membrane, completely obstructing respiration on that side, and attended by profuse watery discharge, the other side remaining unaffected. The right eye became suffused with free lachrymation. The skin test of the ear developed in four minutes as a clearly defined anemic area of one-fourth inch in width bordering the incision, and contrasting sharply with the hyperemic neighborhood. The whiteness of this area was especially well-defined against the generally reddened lobe, fading in four minutes, leaving a generally reddened edematous lobe, which returned to normal in three hours.

CASE 4. G. T., male, 24. Seen in February of this year for acute ethmoiditis, which cleared up after ten days. There was an old right chronic ethmoiditis with polyp formation. Polypi had been removed in the past on several occasions. The patient stated that during the summer the neighborhood of horses would occasion sneezing, and what he described as asthmatic feelings. This condition was apparently not sufficient to cause much discomfort. The serum test in the nose gave a delayed reaction, occurring in about half an hour, and lasting for two hours later. The serum test on the skin gave negative results.

CASE 5. Miss G., 24. Seen last summer for nasal obstruction and vasomotor rhinitis, aggravated in the neighborhood of horses. During the following winter she was seen on three occasions for nasopharyngeal catarrh, and stated that she was at this season able to go near horses without symptoms. A serum test of the nose gave no reaction.

CASE 6. Miss C. Seen May, 1913, for perennial vasomotor rhinitis, increased by the neighborhood of horses in summer. No asthma. During the winter is able to come near horses without symptoms. The serum test in the nose gave negative results. The skin test was not applied.

CASE 7. J., male, 23, brother of Case 3. In general well. Sneezed since boyhood whenever is in the neighborhood of horses. No asthmatic symptoms. Submucous resection has been done by another physician one year ago. Except for small septal perforation, nose essentially negative. Introduction of antitoxin into nostril not followed by reaction Skin test on ear negative.

CASE 8. E., male, 60. Hay fever many years. Horses excite sneezing and watery nasal discharge, but no asthmatic symptoms. Chronic non-suppurative ethmoiditis and polypi. The serum test of the nose was negative. On the skin a delayed reaction occurred, beginning in forty minutes, and lasting two hours.

Five cases of bronchial asthma which gave no history of irritation from horses were examined by the nasal test with negative results. Five cases of uncomplicated hay fever received the serum in the nose without exciting reaction.

SUMMARY OF CASES.

In three cases of horse asthma the application of horse serum to the nasal mucous membrane, (in one case pollantin) or to a cut of the skin gave rise to an immediate reproduction in miniature of the phenomena of anaphylactic shock, namely spasm of the arterioles, with oedema and surrounding congestion.

One case of horse fever gave a delayed but otherwise typical skin reaction, but no disturbance in the nose. One case of horse fever gave a delayed reaction to the nasal test, but was negative for the skin test. Four of the horse fever cases without asthma were negative for both tests. Five cases of bronchial asthma and five cases of hay fever without sensitiveness to horses gave negative results.

The number of cases thus far tested is too small to justify definite conclusions in regard to the value of these tests in detecting the existence of a state of sensitization to horse serum, but if further studies should confirm them, they should prove to be of assistance to the physician who is in doubt whether in a given case it is safe to administer antitoxin.

So far as they go, they would indicate that in horse asthma, an anaphylactic reaction may occur after the administration of horse serum; in horse fever with nasal symptoms alone, this danger is less or not at all to be feared, and in other types of asthma and of vasomotor rhinitis it is not present.

Clinical Department.

BILATERAL SARCOMA OF UNDESCENDED TESTES.*

By Oliver C. Smith, M.D., Hartford, Conn.,

Surgeon to the Hartford Hospital.

When some weeks ago the author looked through the literature on malignant diseases occurring in the undescended testicle he was surprised at the paucity of the same. Shortly after a splendid article with a thorough review of the literature on the subject appeared in the December number, Vol. 17, of *Surgery, Gynecology and Obstetrics*, by Dr. Kenneth Bulkley of New York City. Fifty-seven cases of malignant degeneration of the undescended abdominal testicle were found on record, to which he added two, making 59 cases, after an exhaustive search of foreign and domestic literature. Sarcoma of one type or another occurred in 40 of these 59 cases. Of this number the side was reported in 56 instances; 30 were upon the right, 24 were upon the left, and two were bilateral.

Since this article appeared the author has made a further search of the literature, believing that other *bilateral* cases must have been reported, as in Dr. Bulkley's collection cases of intra-abdominal testes only are cited. In a careful search, however, including a perusal of the catalogue of the Surgeon-General's library, no other cases of bilateral malignancy of testicles were found. The rarity of the condition would seem to make it proper to report the following case of bilateral sarcoma of undescended testicles.

H. M., aged 38, native of United States, farmer, white, married, no children; referred by Dr. R. E. Harrington, Stonington, Conn.

Family History. Father died of heart disease; mother living, has general dropsy; one sister living and well. No tuberculosis or malignant disease in family.

Personal History. Patient has never been seriously ill and enjoyed good health until onset of present trouble. As a child both testes were absent from the scrotum; occasionally the left one could be felt in the canal. At thirty years of age he suffered from parotitis, complicated by painful swellings in the inguinal canals. These swellings entirely subsided, and not until two months prior to our observation of him, did he notice an enlargement in each inguinal canal, the right being the larger. Their growth was rapid, the one upon the right side occasioning some pain.

Condition at Time of Examination. July 8, 1913. A tall, sinewy, bronzed, thin man of quiet demeanor, rather slow of comprehension, with masculine traits not well marked. Heart sounds were normal; lungs clear and resonant; reflexes active; no palpably enlarged glands. Blood-pressure, 120 mm. hg; hemoglobin, 80%. The prostate and seminal vesicles were normal to palpation, and the urine was negative. Both iliac fossae and inguinal canals were occupied by large, fluctuant tumors, the right extending from the upper margin of the scrotum to above the umbilical line. This mass was tense, fluctuating, and bulging far anteriorly to the abdominal wall. The tumor upon the left side occupied the inguinal canal and was less tense, and through the fluid medium could be palpated a solid, ovoid mass at the upper posterior area. Both testes were absent from the scrotum.

Diagnosis. Bilateral hydrocele with neoplastic degeneration of both testes high in the inguinal canals.

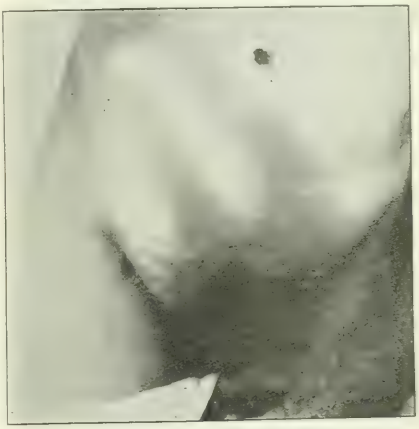


Fig. 1.
Photograph of patient taken previous to operation.

Figure 1 is a photograph of patient taken previous to operation. Operation July 10, 1913, at Hartford Hospital, under ether anesthesia, drop method.

An oblique incision was made on the right side, parallel to Poupart's ligament over the center of the tumor; the external oblique fascia was split as in operation for hernia. An enormous fusiform cyst of the tunica-vaginalis was found containing 750 c.c. of clear straw-colored fluid. At the upper portion a hard, irregular mass, the neoplastic testicle was found. The tissues of the cord, including the vessels and lymphatics, were dissected beyond the internal ring; the vas deferens was followed as far down as possible toward the pelvis and removed. A similar operation was performed upon the left side, where the quantity of fluid was found to be half that of the right. The testicular tumor was found lower in the canal than upon the right side, of similar appearance and but slightly varying dimensions. The wounds were closed without drainage. The operation was followed by but little reaction, and primary union resulted.

Figures 2 and 3 are photographs of the testicles after removal, actual size.

* Read before the Surgical Section of the Hartford Medical Society, December 22, 1913.



FIG. 2.
Photograph of left testicle after removal, actual size.



FIG. 3.
Photograph of right testicle after removal, actual size.

Figure 4 is a photograph of the patient taken seven months later, showing extensive recurrence on the right side.

The pathological report by Dr. John Carter Rowley, pathologist at the Hartford Hospital, was "large, round-celled sarcoma of each organ."

Figures 5 and 6 are photomicrographs by Dr. Arthur J. Wolff and show very clearly the histological structure.

The following is Dr. Wolff's description of the sections: "The sections were stained with a modified Van Gieson stain. The histological structure of both pieces of tissue are entirely similar, so that a description of the one applies to both. They consist of large, round cells imbedded in a scanty amount of intercellular substance; the stroma intervenes between all the cells and is closely connected with them. The sections show a rich but a very irregular distribution of small blood vessels possessing but a single layer of endothelial cells separating these from the round cells forming the tumor.

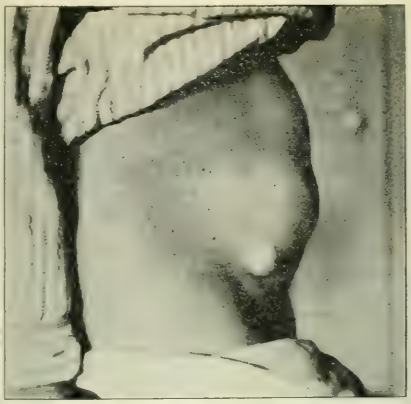


FIG. 4.
Photograph of patient taken seven months after operation, showing extensive recurrence on right side.

As can be seen in the photomicrograph of the right testicular growth, the large, round cells are in very marked mitotic action. In some parts of the tumor, especially near the peripheral zone, some disposition to alveolar structure is to be seen, but such arrangement is entirely absent in the deeper portions of the mass. The histological diagnosis is "large round cell sarcoma."

From the statistics collected by Dr. Bulkley it appears that malignant disease of the testicle is fifteen times as frequent in the undescended as in the scrotal testicle. It is obviously important, therefore, to place the undescended testicle in the scrotum during childhood, either by manipulation and massage, or by operation. Where this cannot be accomplished, removal of the undescended testis should be considered.

The newly built Institute of the History of Medicine will be opened in the University of Vienna at the beginning of the summer semester. Already the institute has a library of three thousand volumes, besides a number of valuable manuscripts relating to the Vienna Medical School. There is also a collection of old surgical instruments and apparatus.—*British Medical Journal.*

Reports of Societies.

NEW ENGLAND PEDIATRIC SOCIETY.

The thirty-first meeting of the New England Pediatric Society was held on March 20, 1914, at 8.15 p. m., at the Boston Medical Library.

DISCUSSION.

Dr. Walter B. Swift: I saw these cases in the Boston City Hospital, nerve out-patient department, and it may be of interest to know that they were put on thyroid extract there without any results whatever. This was done with Dr. Fairbanks' prophecy that no change would come. In looking over the German literature I find there are some cases, two in brothers, that have been reported:

BILATERAL SARCOMA OF UNDESCENDED TESTES — SMITH.

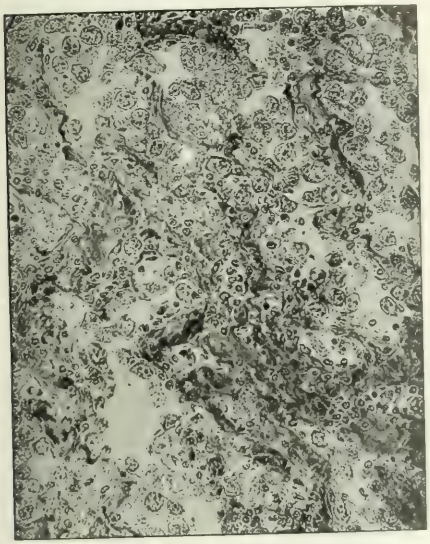


Fig. 5.

Testicle, large round cell sarcoma (right). X 545 Winkel 7 mm. obj. No. 3 Winkel proj. eye piece.

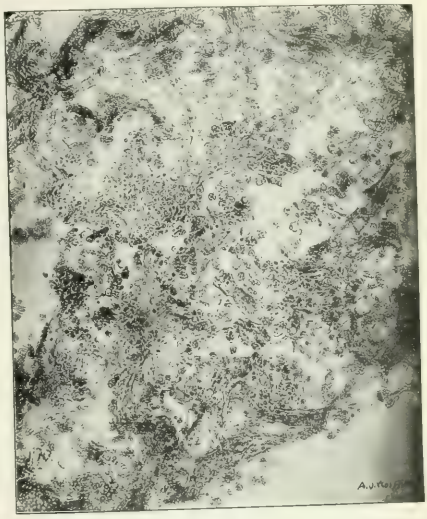


Fig. 6.

Testicle, large round cell sarcoma (left). X 240 Winkel 7 mm. obj. and No. 1 proj. eye piece. Modified Van Gieson stain.

bony framework whose development should normally commence in this period, but does not, accounts for the characteristic deformity seen in this condition, of which these two children are most typical examples.

The particular interest of these cases shown this evening lies in the fact that we have here two very characteristic cases of the condition in two children of a family all of the other members of which are normal.

It has been reported that a chondrodystrophic mother has given birth to a chondrodystrophic child. On the other hand, a chondrodystrophic mother has given birth to normal children.

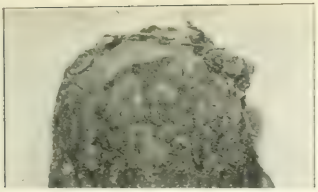
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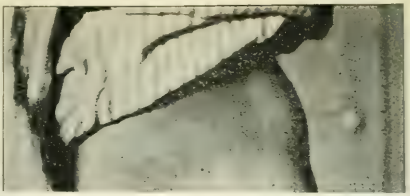
never use such large doses, and I wonder if the other gentlemen are accustomed to give them? I am asking these questions for information, not criticism. I have seen a number of these cases, and all have been in girls. In one case I feared we might have some tubercular trouble and had Dr. Ernst go over the case carefully. He found the colon bacillus and there was no tubercular infection whatever. I have seen cases extend over two years' time where the colon bacillus was present.

Dr. Wyman, in closing: As to the transparietal theory, I cannot answer that question. I think that in a number of cases the condition clears up entirely. In some of the more acute cases the condition clears up in a month or six weeks. The chronic cases do not clear up as easily, and one often finds them extending over a year or sometimes years in spite of careful treatment.

With the alkaline treatment I give enough to get a strong alkaline reaction in the urine. (If I do not get it with grains ten, three times daily, of the ci-

* See Boston Med. and Surg. Jour., Vol. clxx, No. 14, April 2, 1914, p. 540.





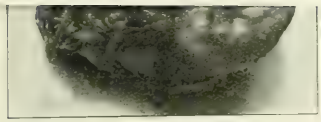


Fig. 3.
Photograph of right testicle after removal, actual size.

Figure 4 is a photograph of the patient taken seven months later, showing extensive recurrence on the right side.

The pathological report by Dr. John Carter Rowley, pathologist at the Hartford Hospital, was "large, round-celled sarcoma of each organ."

Figures 5 and 6 are photomicrographs by Dr. Arthur J. Wolff and show very clearly the histological structure.

The following is Dr. Wolff's description of

From the statistics collected by Dr. Bulkley it appears that malignant disease of the testicle is fifteen times as frequent in the undescended as in the scrotal testicle. It is obviously important, therefore, to place the undescended testicle in the scrotum during childhood, either by manipulation and massage, or by operation. Where this cannot be accomplished, removal of the undescended testis should be considered.

The newly built Institute of the History of Medicine will be opened in the University of Vienna at the beginning of the summer semester. Already the institute has a library of three thousand volumes, besides a number of valuable manuscripts relating to the Vienna Medical School. There is also a collection of old surgical instruments and apparatus.—*British Medical Journal.*

Reports of Societies.

NEW ENGLAND PEDIATRIC SOCIETY.

The thirty-first meeting of the New England Pediatric Society was held on March 20, 1914, at 8.15 p. m., at the Boston Medical Library.

Fritz B. Talbot, M.D., Secretary.

Dr. A. W. Fairbanks showed two cases of

CHONDRODYSTROPHIC DWARFS (BROTHERS).

Dr. Fairbanks, in commenting on the two chondrodystrophic dwarfs shown, said that such cases were entirely unrelated to hypothyroidism. He had seen a number of cases in children and three in adults and they were all free from myxoedematous phenomena and were normal mentally. One of the cases seen originally in childhood has been under observation nearly twenty years. These two brothers are mentally normal for their age and are doing the usual school work for that age. All of the other children and both parents are of normal stature. The mother and sister were shown for comparison.

The mother's pregnancy with both of these boys was normal in every respect.

Photographs of other cases in children were shown, as well as radiographs of cranium, extremities and thorax of each of the brothers.

The condition is due to defective growth of cartilage, the normal development of which should take place, or at least commence, between the third and the sixth month of fetal life, and to premature ossification of this deficiently developed cartilage, with consequent defect in the subsequent development of the bones. Only those bones are involved that develop from cartilage, and only those the cartilage of which should be in active growth in those particular months of fetal life, namely, the endochondrium of the long bones of the extremities, and the cartilage from which are formed the bones of the cranial base, the ribs and the pelvis. The limitation of the disturbance to this particular period of fetal life, and to the structures of the prospective bony framework whose development should normally commence in this period, but does not, accounts for the characteristic deformity seen in this condition, of which these two children are most typical examples.

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DISCUSSION.

Dr. Walter B. Swift: I saw these cases in the Boston City Hospital, nerve out-patient department, and it may be of interest to know that they were put on thyroid extract there without any results whatever. This was done with Dr. Fairbanks' prophecy that no change would come. In looking over the German literature I find there are some cases, two in brothers, that have been reported: Porter, 1907, three brothers, and Schemensky, 1912, two brothers, twins.

Dr. Edwin T. Wyman read a paper on,

PYELITIS IN INFANCY AND CHILDHOOD.*

Abstract: A review of the symptomatology, diagnosis, prognosis and the treatment of pyelitis.

He states that these cases of pyelitis are not infrequently treated for other diseases and reports two typical cases where the diagnosis was overlooked.

He states that in a series of cases of pyelitis in infants and children at the Children's Hospital, Boston, 54% were in infants under two years of age and 40% over two years. Of these cases 63% of the infants were females and 90% of the children were females. Vomiting was noted in 35% of the cases, painful micturition in 36%, and frequency of micturition in 40%. Chills were noted in 15%, and abdominal pain in 16% of the cases.

The average leucocyte count in the uncomplicated cases was 19,000; the lowest leucocyte count was 8,000, in a chronic case, and the highest leucocyte count was 62,000, in a very acute case. The temperature varied from normal in the chronic cases to 105.5° F. in the acute cases. There was anorexia, anemia, fretfulness and loss of weight in all cases.

DISCUSSION.

Dr. Myron L. King: I would like to ask Dr. Wyman what proportion of the cases clear up entirely? Do they entirely clear up, or do they run for years and years?

Dr. Edwin P. Stickney: One thing that surprised me was the size of the dose of these different drugs, and *especially* the citrate of potash. Do such large doses upset the stomach? In these cases I never use such large doses, and I wonder if the other gentlemen are accustomed to give them? I am asking these questions for information, not criticism. I have seen a number of these cases, and all have been in girls. In one case I feared we might have some tubercular trouble and had Dr. Ernst go over the case carefully. He found the colon bacillus and there was no tubercular infection whatever. I have seen cases extend over two years' time where the colon bacillus was present.

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trate of potassium, the dose is increased to twenty grains three times daily. With the hexamethylenamin, I push the dose until I get the test for formaldehyde in the urine, keeping the urine acid all the time, and then if there is any microscopic blood in the urine, you know that there is irritation of the kidney, when the treatment is discontinued. With regard to citrate of potassium disturbing the digestion, in my experience I have not found it to do so.

DR. Z. B. ADAMS read a paper on,

THE ANOMALIES OF THE LUMBO-SACRAL REGIONS AND THEIR RELATIONS TO THE CAUSE OF SCOLIOSIS.*

ABSTRACT: First is mentioned the fact that congenital lesions of the base of the spine are frequent occurrences in scoliotics, more frequent than has been previously supposed; then follows a description of the mechanics of the base of the normal spine; the joint between the fifth lumbar vertebra and the top of the sacrum and between the sacral segments; the various anomalies at this region are rehearsed, special attention being drawn to those which have a bearing on the causes of scoliosis; next is a chapter on the mechanics of the scoliotic spine, but especially of the base, in scoliosis; next diagnosis is treated and the frequency of these lesions is brought out in an analysis of twenty-six cases, a brief description of the x-rays taken in making the diagnosis. In speaking of treatment the importance of these anomalies is shown, and it is brought out that it is a mistake to attempt to make the corrected spine stand upon the twisted and uneven base, from which it has toppled; therefore it is necessary to place and fix the base of the spine in a position of equilibrium, so that the corrected spine may stand upon it. This requires careful surgical treatment after corrective methods have been practised.

DISCUSSION.

DR. TALBOT: We have had the privilege tonight of hearing some entirely new principles in the mechanics of scoliosis, and I am told that these principles which Dr. Adams has worked out are going to revolutionize the treatment of that condition.

DR. RICHARD M. SMITH read a paper on,

FAMILY INCIDENCE OF ENDOCARDITIS IN CHILDREN.

ABSTRACT: Out of 208 cases of endocarditis, chorea or rheumatic fever 30, or 14.48%, occurred in children who had father or mother or brother or sister with a similar infection.

Some families had all the children showing infection. In some cases the date of the onset of symptoms of the different members of the same family suggested strongly infection from one individual to another.

DISCUSSION.

DR. HENRY I. BOWDITCH: I would like to ask Dr. Smith whether there was any similarity between the infections, what proportion of the cases in a given family had chorea, and what proportion had rheumatism, and whether they all followed a certain course. I think this study is extremely interesting, and opens our eyes still further to the possibilities of infections. We may have to come to the point of isolating such families because of the transmission of dangerous organisms.

DR. L. C. MILLER: Dr. Smith stated in his remarks that the social worker looked up these cases. I would like to ask him if she reported on the surroundings, hygienic conditions, etc., and how much bearing they may have had on the course of these conditions in different members of the same family.

DR. ARTHUR W. FAIRBANKS: In those cases of endocarditis that result from tonsillitis it seems to me that there can be no question of familial incidence in the strict sense of the term, that is, a familial predisposition to the disease. There can be no question about the infectious and contagious nature of acute tonsillitis. We have all of us seen many examples of this in families and in institutions. Now if such infections result in endocarditis, that endocarditis cannot be considered as indicative of familial incidence, but is better termed a familial accident. It is the result of infection transmitted from one individual to another by contact, as in the case of any other infection.

We of course see cases of rheumatism with endocarditis, and chorea with cardiac involvement occurring in more than one member of a family without any obvious infectious disease like tonsillitis having preceded their onset. Whether the entrance of the infection in cases is by some other route than by the tonsils we cannot say, but the resultant endocarditis is the accidental result of infection rather than the result of familial predisposition.

DR. SMITH, in closing: I would say in reply to Dr. Bowditch's question as to whether one family was more prone to have rheumatism, another chorea, and so on, that we did not find that this was so. There may be three children in the same family, and one of them may have chorea and rheumatism, while the other two have other conditions,—they do not necessarily have the same condition.

Answering Dr. Miller as to the question of surroundings, we tried when we started out to go into the question of surroundings, physical conditions, etc., but we were unable to get sufficient data from which to draw accurate conclusions. Cases of endocarditis following tonsillitis do not fall into the group under discussion, and there are a great many such cases.

Another illustration of this possible infection of rheumatic fever from one member of the family to another may be worth mentioning. A case came to my attention today where two boys had been in the habit of sleeping in the same bed. One fell sick and the brother was taken away to sleep in another room. The first boy proved to have rheumatic fever and for four or five days he slept alone. When the joints quieted down, the other boy resumed sleeping with him, and the next day he came down with rheumatic fever. This may be a pure coincidence, but it seemed to me a rather striking occurrence.

PLAGUE IN COLOMBIA.—Report from Bogota on May 7 states that bubonic plague has broken out along the Atlantic coast of Colombia. Suppressive measures have been immediately instituted. The number of cases is not given.

* See BOSTON MED. AND SURG. JOURN., Vol. clxx, No. 21, May 21, 1914, p. 786.

Book Reviews.

Diagnosis in the Office and at the Bedside. The Use of Symptoms and Physical Signs in the Diagnosis of Diseases. By Hobart Amory Hare, M.D. New (7th) edition, thoroughly revised and rewritten. Octavo, 547 pages. Philadelphia and New York: Lea and Febiger. 1914.

Dr. Hare has revised his book, which is now in its seventh edition. He has omitted laboratory methods from the text. A very careful index is an excellent feature.

Diseases and Deformities of the Foot. By John Joseph Nutt, B.L., M.D., surgeon-in-chief to the New York State Hospital for the Care of Crippled and Deformed Children. New York: E. B. Treat and Company, 241-3 West 23rd Street. 1913.

This monograph, designed to cover all the common disorders of the feet, in large measure accomplishes its purpose. If there is a slight lack of an original point of view, the thoroughness with which the foot conditions of all sorts are described makes it a very useful book. It is evidently written rather more for general practitioners than for orthopedic surgeons, and wisely it does not attempt to describe the details of complicated operative procedures. The illustrations, especially the line drawings, are profuse and graphic, those which portray the commoner types of deformity of poliomyelitis being most excellent. The book will help to call attention to a region which suffers much from medical ignorance and inefficiency.

Die Krankheiten der Nase und Mundhöhle, sowie des Rachens und des Kehlkopfes. Ein Lehrbuch für Arzte und Studierende. Von Dr. Alfred Bruck, Berlin. Zweite, wesentlich vermehrte und verbesserte Auflage. Mit 252, zum Teil farbigen Abbildungen und 2 Tafeln. Urban and Schwarzenberg. 1912. New York: Rebman and Company.

This is the second edition of an excellent textbook. With German thoroughness and system it divides and subdivides, but it is condensed and clear. It has a little to say about everything and not too much about anything. To the American reader the method of dealing with the tonsils will appear ancient, but on the other hand, he will find some subjects which he has probably never heard of before. The first edition of this book was translated into English four years ago by Dr. Ross of Edinburgh and published in this country. It is reviewed in this Journal, Vol. 163, p. 262.

Chronic Colitis. Its Causation, Diagnosis and Treatment. By George Herschell, M.D., and Adolphe Abrahams, M.D. London: Longmans, Green and Company. 1914.

The authors state that they have designed this book for the general practitioner. In their definition of chronic colitis they exclude the condition of ulceration of the intestine except in so far as it is definitely considered a complication of chronic colitis. They regard ulcerative colitis as a specific infective condition which is the province of the surgeon. Most readers will wish a work that is less elementary and more critical. On the whole, the work is rather vague and general.

A Text-Book of Physiology. For Medical Students and Physicians. By William H. Howell, Ph.D., M.D., professor of physiology, Johns Hopkins University, Baltimore. Fifth edition, thoroughly revised. Octavo of 1020 pages, fully illustrated. Philadelphia and London: W. B. Saunders Company. 1913.

In the new edition of this well-known textbook the author has maintained admirably the high standard set by previous editions. While the frequent issuance of new editions of necessary text-books is to be deplored in general, it seems to be unavoidable in any field in which advance is so rapid as in the medical sciences. An unfortunate feature of the situation is that in the most rapidly developing phases of a subject, material advance may be made during the interval between preparation of the manuscript and issuance of the text-book. This is exemplified in interesting fashion in the discussion in Professor Howell's book of internal secretions. His treatment of the functions of epinephrin represents the utmost that could be said in the summer of 1913. But in the months that have elapsed since then, some very striking advances have been made in our understanding of the operation of this hormone. Thus nothing is said in the text-book about the "emergency function" of epinephrin, although in the light of the most recent researches that expression seems to elucidate its actual use in the body better than the more detailed statements previously given.

Probably the most significant advance in the present edition over previous ones, lies in the sections devoted to the absorption of the various food stuffs, and to general metabolism. The recent work of Mendel and Osborne, Folin and Denis, and the other workers in these fields, is

presented with full appreciation of the great gain in our comprehension of these difficult topics which their work has furnished. Scattered throughout the book are to be found such changes in statement as the general physiological advance of the last two years has made necessary. While one might possibly wish that the recent studies having to do with the mechanism of muscular contraction had received more attention, in view of the great complexity of this subject and the lack of finality about the experiments, the postponement of the discussion to later editions is undoubtedly justified. That the book as a whole constitutes one of the most satisfactory presentations of the subject matter of physiology in any language, cannot be doubted.

The Early Diagnosis of Tubercle. By Clyde Rivière. New York: Oxford University Press. 1914.

Any new book by such an authority as Dr. Rivière merits close attention and scrutiny. The present volume is a small one of nearly pocket size with, however, 260 pages.

The reviewer frankly does not like the title. While the author evidently means the early diagnosis of pulmonary tuberculosis, certainly the title does not convey this idea. As is common with many books of this type, it loses much of its value as a help to general practitioners in this important branch of medicine on account of the multiplicity of detail. The description of fine technical points in diagnosis would tend to diminish the relative importance of the fundamental groundwork on which the early diagnosis of pulmonary tuberculosis rests. For the specialist in tuberculosis and diseases of the lungs there are many points of interest, although many with which American students of tuberculosis would not for a minute agree. The reviewer is strongly of the opinion that there is not anywhere near enough attention given to the history, occupation and constitutional signs and symptoms of the patient and far too much space devoted to the detailed examination of the lungs. The author is an enthusiastic advocate of percussion as a means of diagnosis, and in the reviewer's opinion somewhat exaggerates its value and does not pay enough attention to auscultation.

Under the subject of differential diagnosis, he speaks of apical pulmonary collapse and acute apical catarrh, chronic bronchitis with collapse, as simulating early pulmonary tuberculosis. The cases which he presents as examples of this condition unfortunately do not give enough data to allow of an opinion one way or the other. It would be far safer to consider the cases which he presents as ones of early pulmonary tuberculosis rather than of pulmonary collapse or apical catarrh.

There is a detailed discussion of tuberculin in diagnosis, far too detailed for the general practitioner to understand or to be even interested in. The best feature of the book is a detailed discussion of tuberculosis of thoracic glands, or hilus tuberculosis. This is most interesting and valuable and presents this subject in fuller detail than the reviewer has seen elsewhere in any other book or publication. There are many photographs, diagrams and charts.

With the exceptions mentioned above, there is very much to commend itself in this little volume, although it is one evidently intended more for specialists than for the average general practitioner.

Scrofulosis. By Professor Dr. G. Cornet, Berlin. Translated from the second German edition by J. E. Bullock, M.D., London. New York: William Wood and Company. 1914.

After a careful study of this book, the reviewer is as much at a loss after having read it as he was before so doing as to what scrofulosis is, and as to its relation to pulmonary tuberculosis. In general, there seem to be two causes of this strange condition: (1) scrofulosis due to the tubercle bacillus; and (2) scrofulosis due to various pyogenic organisms. In reading over the various conditions due to scrofulosis, one finds that the seborrhea of the scalp in young infants, and large tonsils and adenoids in childhood, eczema in all of its forms in all ages, glands of the neck, all forms of tuberculosis, and all diseases due to pus-forming organisms, are due to scrofulosis or to the scrofulous diathesis. The reviewer regrets that he cannot see how this book can cause anything but confusion worse confounded, and utterly fails to see its place in the medical literature of this country at least. The therapeutic advice here given would seem to hark back to a period of twenty-five years ago. Creosote, in various ingenious mixtures, arsenic, cinnamic acid, sapoviridis, and others are recommended. The author even devotes half a page to the rubbing in of brown soft soap from the neck to the popliteal space as a cure for tuberculosis, glandular swellings, ulcers, etc.

Although in certain passages there is much sound advice in this book, as a whole the reviewer believes that such a volume as this will do far more harm than good.

The Junior Nurse. By Charlotte A. Brown, R.N. Illustrated. Philadelphia and New York: Lea and Febiger. 1914.

This volume is primarily a text-book for probationers. It describes the things a nurse should know and learn to do early in her training. It is a well-written book, illustrated with 41 good figures in the text, and should find a place of definite value in the library of training-schools and of the individual pupil nurse.

THE BOSTON

Medical and Surgical Journal

THURSDAY, MAY 28, 1914.

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TRANSMUTATION AND RACE-BUILDING AMONG BACTERIA.

IT has been recognized in the past that there may be considerable variation and transformation in the biological characteristics of different bacterial species. Progress in this direction has been carried forward to such an extent that we are now confronted with evidence that transmutation of one species of bacteria to another has been accomplished, thus questioning the permanence of bacterial species.

These transformations or transmutations of bacteria have been brought about by modification of the environmental conditions through experimentation. We find that Thiele and Embleton[1] report the experimental transformation of Bacillus mycoides into an organism resembling the bacillus anthracis. The former bacterium is a non-pathogenic organism found in garden soil, slender, non-capsulated, flagellated, motile, growing at a low temperature, and dying when incubated at body temperature. The latter organism is pathogenic, shorter and thicker, encapsulated, non-flagellated, non-motile, capable of growing at body temperature, virulent, having all the properties of the bacillus anthracis and producing lesions quite similar to those found in anthrax. In like manner these authors have converted the harmless smegma bacillus into a virulent bacillus which resembled the tubercle bacillus in all its properties, and the various relatively avirulent diphtheroid bacilli have been transformed to virulent organisms which in every way resembled the diphtheria bacillus.

Rosenow,[2] of Chicago, has recently made noteworthy and valuable contributions to this fascinating and important problem of the transmutation of bacterial species. In his recent paper in the *Journal of Infectious Diseases*, he first refers to the work of investigators in the problem of the transformations among the various strains or types of streptococci, and then gives the results of his own extensive experimentation and observation. Five different micro-organisms were employed in these experiments. They were the streptococcus viridans, the streptococcus hemolyticus, the streptococcus mucosus, the streptococcus rheumaticus and the pneumococcus.

The extent of his observations can be judged from the fact that they comprised the following: Culturing of the micro-organism under varying favorable and unfavorable conditions, with a study of the morphologic biochemical and virulent properties of the various strains of cocci employed. The organisms were cultivated in various and widely different environmental conditions, such as, for instance, cultivation in an atmosphere varying from pure oxygen to complete absence of oxygen, in media with a salt concentration varying from hypertonic to hypotonic, at temperatures slightly above and slightly below normal body temperature. Various body fluids, such as ascitic fluid, urine, sterile milk and others, were employed. Furthermore, the various micro-organisms enumerated above were grown in symbiosis with other organisms, within the cavities and circulating blood of living animals. Still further, the organisms used in this extensive series of experiments were obtained or isolated from a great many widely different sources, including tonsillitis, arthritis, erysipelas, puerperal sepsis, pneumonia and others. The bacteria so obtained were subjected to the various experimental environmental conditions mentioned above.

As a consequence of this work Rosenow found the following results: Apparently complete transmutation of each of the various members

[1] *Ztschr. f. Immunitatsforsch. u. exper. Therap.*, 1913, xix, 643.

[2] Transmutations within the Streptococcus-Pneumococcus Group, *Journal of Infectious Diseases*, 1914, xiv, 1. Also Relation of and the Lesions Produced by the Various Forms of Streptococci with Special Reference to Arthritis, *Illinois Medical Journal*, xxv, 1, 11; Role of the Streptococcus in Rheumatism, Muscular and Articular, *Journal of Infectious Diseases*, January, 1914.

of the streptococcus-pneumococcus group to one or the other of the rest of the group was accomplished *in vitro*. So complete was the transformation in some of the strains that it was found to be so by every test known. Thus the transmutation into another type of organism and the identity of the latter was proved by the morphologic and biochemical characteristics, the fermentative powers, presence or absence of capsule, solubility or insolubility in bile and sodium chloride solutions, the behavior toward the respective broth culture filtrates (Marmorek's test), and the specific immunity response as proved by the production of specific opsonins and agglutinins, and the more or less specific pathogenic powers as evidenced in the ability to produce characteristic lesions when inoculated into animals. For example, strains corresponding to hemolytic streptococci were converted into typical pneumococci as determined by all the tests enumerated and vice versa. In other words, the streptococcus was transformed from one strain to another and to a pneumococcus and vice versa, as proved by morphologic, cultural, agglutinating, pathogenic and other properties.

It has thus apparently been demonstrated that one species or race of bacteria can be transformed or transmuted into another. A new species of bacteria, a new race of micro-organisms has been developed by the modification of certain environmental conditions. Rosenow further noted that the various strains with which he experimented seemed to have a more or less specific affinity for certain specific structures in the body, one attacking the joints with the production of arthritis, another the lining of the heart with resulting endocarditis, another the muscles, producing myositis.

As Rosenow points out, this work was started by others before him and no doubt anticipated by still others before them, since it was fully appreciated that differentiation and specialization of function was here at its minimum, in as much as in dealing with bacteria we have to do with the very lowest forms of life.

The importance of these findings for bacteriology, epidemiology, medicine and biology, are not yet fully appreciated by many. But Rosenow ventures to say that the fact that variations in oxygen tensions and salt concentrations, that growth in symbiosis with other bacteria and that injections into body-cavities in animals, commonly produced mutational forms in streptococci, suggests strongly that similar changes might occur in various foci of infection where such conditions may prevail. "It would seem, therefore," he declares, "that focal infections are no longer to be looked upon as merely a place of entrance of bacteria but as a place where conditions are favorable for them to acquire the properties which give them a wide range of affinities for various structures."

MEDICAL LEGISLATION. REORGANIZATION OF THE STATE BOARD OF HEALTH.

THE bill for reorganization of the Massachusetts state board of health, the text of which was printed in full in last week's issue of the JOURNAL, has been first referred by the legislature to the committee on ways and means. On Tuesday, May 19, this committee held a hearing at which Governor Walsh spoke in favor of the bill. Others who spoke in its favor were Dr. Bowers, in behalf of the legislative committee of the Massachusetts Medical Society, Mr. Stoughton Bell, for the Boston Chamber of Commerce, and Drs. Edward O. Otis, James J. Minot, and Arthur K. Stone. Many amendments were offered. It is estimated that the expenses of administering the new system would be about $16,000 more than the cost of the present board.

Opponents of the bill criticise it because it does not transfer the department of vital statistics from the secretary of state to the health service, and because it makes no provision for adequate control of the milk supply. It is a debatable question whether such provisions should be made a part of the present bill; whether they could not more properly be made the subject of special legislation. It is also suggested that the health commissioner should be given even larger jurisdiction and authority. This, too, is a legitimate question for discussion in committee and before the legislature. As it stands, we believe the bill a constructive and dignified piece of legislation, and, with such modifications as may seem desirable, advocate its enactment into law.

It is to be realized that Dr. Walcott's retirement marks the end of an epoch in health administration; and that methods which were efficient with the board of his time, may no longer be adequate under the changing conditions and personnel of the future.

HEALTH EDUCATION.

It is evident that increasing publicity in regard to matters of health is to be the prevailing attitude of the future. If this is accepted it is eminently desirable that such instruction as is given in physical and mental hygiene should be from authoritative sources. Among such efforts toward public enlightenment we are glad to call attention to a series of small pamphlets which sell at the modest price of four to ten cents bearing the general title, Health Education Series. These small booklets, as they are termed in the prospectus already number 29, on such subjects as "Milk," "Colds," "Meat and Drink," "The Boy and the Cigarette," "Microbes, Good and Bad," "Emergencies," "Industrial Hygiene" and others of like character. These are written by such authorities in their several subjects as the late Dr. Charles Harrington, Miss Ellen H. Richards, Professor C.-E. A. Winslow, Dr. Edward O. Otis and other persons of equal attainment in their special fields. Undoubtedly such pamphlets, obtainable at so small a price, will be helpful to a large number of people. Evidently the writers have been chosen with care to the end that the suggestions made shall lead directly to a more adequate knowledge of the laws of health through a plain statement of the means for their attainment. We wish to call special attention to the latest of the series by Dr. Charles M. Green on the subject "Prospective Motherhood," a subject upon which it will be generally acknowledged a large amount of ignorance exists. Dr. Green has approached his topic on the basis of a wide experience in a way which cannot fail to be of value to women looking forward to motherhood. If the precepts therein expressed were generally followed there is no doubt that much discomfort and actual illness both before and after childbirth might be avoided.

HOSPITAL PROVISION FOR WHOOPING-COUGH.

There is at present pending before the Massachusetts General Court a bill for the abolition of the parental school at West Roxbury. The school department, it is understood, already has in hand plans of making other provision for the children annually committed there. If this bill is passed, it is proposed to convert the buildings of the parental school into a hospital for whooping-cough. At present there is no hospital provision for cases of pertussis, which are never admitted to the South Department of the Boston City Hospital. During the decade from 1901 to 1911 the annual average of deaths from this disease was 76 per 10,000 inhabitants. In 1910 the rate was only 52 but in 1913 it rose to 97.

Whooping-cough, though unfortunately often lightly regarded by the public, is an important disease of childhood, serious in its course, complications, and sequelae. It has a considerable mortality, often due to neglect of proper treatment. The possibility and risks of its general dissemination from unisolated cases are great. Dr. John Lovett Morse has recently emphasized the importance of making hospital provision for this disease, and steps to this end have already been taken in New York. It is to be hoped that the above measure, or one similar to it, may soon adequately be carried out in Boston.

DEFEAT OF THE ANTI-VACCINATION BILL.

The anti-vaccination bill met with an overwhelming defeat in the House on May 14. The vote stood at 133 to 53. Largely owing to the influence of the Christian Scientists the contest was fierce and persistent. The Senate had already approved of the measure, 25 to 9, and the sponsors had great expectations of victory.

Great credit is due Dr. E. H. Bigelow who led the fight in the House. He made the principal speech, exhibited pictures and charts to show the effects of smallpox in contrast to vaccination and did much to convince the open-minded members of the advantages to be derived from the operation. The replies of the State Board of Health to the series of questions suggested by Representative Chamberlain of Springfield also had their effect. Mr. Moore of Leominster and many other public-spirited members of the House deserve the gratitude of the friends of good government for their wise action in defeating the bill.

A MEDICAL VIEW OF THE DWARFS AND JESTERS DEPICTED BY VELASQUEZ.

In an interesting article of recent date in *Aesculape* Verdier has brought to the attention of the medical world the great attraction which the depiction of the deformed and mentally deficient toys of royalty had for the great Spanish painter. After paying homage to the greatness of Velasquez, Verdier brings out the deep knowledge of pathology possessed by the painter in his startling, life-like depiction of these unfortunates. No modern physician could have told Velasquez the points to bring out in accentuation of the abnormalities of face and figure better than he knew them himself. No artist, said Verdier, had a like power to understand the temperament or the mentality of these people. The dwarfs depicted he finds indisputable examples of pathologic states. The pictures of Philip IV, especially, Verdier says, are the most penetrating psycho-physiologic analysis that an artist has ever made.

MEDICAL NOTES.

Canadian Association for the Prevention of Tuberculosis.—The fourteenth annual meeting of the Canadian Association for the Prevention of Tuberculosis will take place at Halifax, N. S., on July 13 and 14, 1914. Dr. S. Adolphus Knopf of New York has been invited to deliver the oration on that occasion. The subject will be "The Modern Warfare Against Tuberculosis as a Diseases of the Masses." His Royal Highness, the Governor-General of Canada, is the Honorary President of the Association.

Officers: American Dermatological Association.—At the thirty-eighth annual meeting of the American Dermatological Association, held in Chicago, May 14-16, 1914, the following officers were elected for the ensuing year: President, Dr. S. Pollitzer of New York; vice-president, Dr. Martin F. Engman of St. Louis; secretary and treasurer, Dr. Oliver S. Ormsby of Chicago. It was decided to hold the next meeting in New York City in May, 1915.

Appointment of Dr. Smith at the Rockefeller Institute.—It is announced that Dr. Theobald Smith, professor of comparative pathology in the Harvard Medical School, has accepted the position of director of the new department of animal pathology at the Rockefeller Institute for Medical Research.

An Hereditary Centenarian.—Bridget D. Curran, who died on May 15 at Bethlehem, Pa., is said to have been born in 1807. Her mother is reputed to have lived to the age of 102, and her grandfather to that of 108.

Bubonic Plague in Hongkong.—Report from Hongkong states that 203 cases of bubonic plague occurred in that city during the week ended May 6.

Hospital Bequests.—The will of the late Catharine Paris, of Boston, contains bequests of $10,000 each to the Sacred Heart Hospital, Manchester, N. H., and St. Mary's Hospital, Quincy, Ill.; $5000 to the Home for Convalescent Women, Spring Valley, Ill.; and $3000 to the Claremont (N. H.) Hospital.

National Academy of Sciences.—At a meeting of the National Academy of Sciences on April 23, in Washington, D. C., Dr. Walter B. Cannon, Higginson professor of physiology at the Harvard Medical School, was elected a member.

Bubonic Plague in Havana.—Report from Havana on May 15 states that another case of bubonic plague has been discovered in that city, making a total of 17 since the outbreak of the present infection.

Benetol in the Treatment of Hog Cholera.—Report from Minnesota to the United States Department of Agriculture on May 15 states that in experiments by Prof. H. C. Carrel and Dr. E. W. Berg, benetol has been found of great value in the treatment of hog cholera.

Honor for Dr. Remsen.—At a recent meeting of the Chicago section of the American Chemical Society, Dr. Ira Remsen, emeritus president of Johns Hopkins University, was decorated with the Willard Gibbs medal for his distinguished researches in chemistry.

American Association of Pathologists.—At the Toronto meeting of the American Associa-

tion of Pathologists, April 10 and 11, papers were read by representatives from the Harvard Medical School as follows: Dr. M. M. Canavan and Dr. E. E. Southard, "Further Studies in the Bacteriology of the Cadaver"; Dr. H. T. Karsner and Mr. Cyrus H. Fiske, "The Effect of Acute Destructive Lesions of the Liver on its Efficiency in the Reduction of the Ammonia Content of the Blood"; Dr. S. B. Wolbach "Concerning the Granule Stage and Filterability of Spirochaetes"; Dr. S. B. Wolbach and Dr. Richard S. Austin, "The Cultivation of a New Filterable Spiral Organism from Human Feces"; Dr. Richard P. Strong and Dr. E. E. Tyzzer, "The Pathology of Oroya Fever and of Verruga-Peruviana"; Dr. E. E. Southard and Dr. M. M. Canavan, "On the Incidence and Nature of Renal Lesions in Subjects Dying Insane"; Dr. H. T. Karsner and Dr. F. G. Benedict, "Pathological Lesions following Prolonged Exposure to Atmospheres Rich in Oxygen"; Dr. H. T. Karsner, Mr. H. H. Amiral, and Mr. A. V. Bock, "A Study of the Influence of Splenectomy and of Certain Organs and Organ Extracts on the Hemopsonins of the Blood Serum"; Dr. J. Earle Ash, "Primary Carcinoma of the Liver" and "Primary Carcinoma of the Lung"; Dr. A. E. Taft and Dr. M. E. Morse, "On a Cerebellar Lesion and Associated Lesions of Dentate and Olivary Nuclei."

St. Mary's Hospital, Rochester.—The recently published twenty-fourth annual report of St. Mary's Hospital, Rochester, Minn., records the work of that institution for the calendar year 1913. During this period, the total number of patients treated was 7020, upon whom 10,166 operations were performed, with a total death rate of 1.5 per cent. Ten patients were not submitted to operation. From the training school 19 nurses were graduated.

Escape of Early the Leper.—Report from Seattle, Wash., on May 19 announces the escape of John R. Early, the leper from the Diamond Head quarantine station near Port Townsend. He is believed to be in hiding at Victoria, B. C.

BOSTON AND NEW ENGLAND.

Smallpox in Attleboro and Boston.—On May 19 a case of smallpox was discovered at Attleboro, Mass., and another in Boston. Neither of the patients had ever been vaccinated.

Scarlet Fever in Milton.—Report from Milton, Mass., on May 16 states that five cases of scarlet fever have recently occurred among pupils of the Milton Academy, which has been quarantined to prevent further spread of the infection.

Children's Hospital Training-School.—The annual graduating exercises of the Children's Hospital School of Nursing were held at the Harvard Medical School on Friday afternoon of last week, May 22. The principal address was made by Dr. Harold C. Ernst. Dr. Frederick C. Shattuck presided.

Faulkner Hospital Training-School.—The annual graduation exercises of the Faulkner Hospital training-school for nurses were held at Jamaica Plain on Tuesday afternoon of this week, May 26.

Deaconess Hospital Training-School.—The sixteenth annual commencement exercises of the training-school for nurses of the New England Deaconess Association were held in Brookline on Wednesday of this week, May 27. The principal address was made by Dr. Daniel Fiske Jones, of Boston, and diplomas were presented to the six members of the graduating class.

Hospital Gifts and Bequests.—A friend of the Sharon Sanatorium has recently presented it $5000, to establish there an x-ray plant for scientific investigation.

The will of the late Francis Skinner of Dedham, Mass., which was filed in probate at that town on May 17, contains a bequest of $10,000 to the Massachusetts General Hospital.

Prevention of Infant Mortality.—On Monday afternoon of last week, May 18, a joint meeting was held in Boston of the Women's Municipal League and the American Association for the Study and Prevention of Infant Mortality. Dr. J. Whitridge Williams, president of the Association, professor of obstetrics at the Johns Hopkins Medical School, made the principal address on the subject of infant mortality, before and after birth.

Fire at Boston State Hospital.—On the morning of Thursday, May 21, a fire occurred in the two-story brick laundry building adjoining the Boston State Hospital, Dorchester. None

of the patients was disturbed and the damage was limited to $1000.

Cases of Infectious Diseases reported to the Boston Board of Health for the week ending May 19, 1914: Diphtheria 42, of which 4 were non-resident; scarlatina 91, of which 8 were non-resident; typhoid fever 5; measles 125; smallpox 1; tuberculosis 65, of which 2 were non-resident.

The death-rate of the reported deaths for the week was 14.86.

NEW YORK.

Mortality Statistics.—The death-rate in the city during the month of April was considerably lower than in the preceding month. The weekly reports of the Health Department show that the mortality represented an annual death-rate of 14.99, as against 16.42 in March and 15.09 in April, 1913. Among the diseases in which there was a diminished fatality were the following: The weekly average of deaths from diphtheria and croup declined from 46 in March to 40.5 in April; the weekly average from influenza, from 22.75 to 15.25; from epidemic cerebrospinal meningitis, from 4.5 to 3.75; from pulmonary tuberculosis, from 209 to 197.75; from acute bronchitis, from 19 to 15.25; from pneumonia, from 197 to 132.5; from broncho-pneumonia, from 145.5 to 116.25; from organic heart diseases from 238 to 208; from apoplexy and softening of the brain, from 28.5 to 24.75; from appendicitis and typhlitis, from 16.25 to 13.75; and from Bright's disease and acute nephritis, from 126 to 110. Among the diseases in which there was an augmented mortality were the following: The weekly average of deaths from typhoid fever increased from 2.5 to 3.75; from measles, from 17.5 to 20.5; from scarlet fever, from 13.5 to 18; from whooping-cough, from 5.75 to 7.5; from tuberculous meningitis, from 17 to 18; from cancer, from 79 to 87; and from hernia and intestinal obstruction, from 10.5 to 14.75.

Regulations for River Bathing.—The Board of Health has reconsidered its determination to prohibit river baths this season, but has adopted stringent rules and regulations for their control. Floating baths must be constructed with water-tight bathing pools and, where river or harbor water is used, this must be purified so as to render it clean and sanitary. Bathing beaches are not permitted within 500 feet from a sewer outlet and water-closet accommodations in connection with such beaches must be so constructed and maintained as not to contaminate the water used by the bathers. The department, it is stated, has obtained the willing coöperation of private bath owners and of the president of the borough of Manhattan in the application of the new rules.

St. Luke's Hospital.—The annual report of St. Luke's Hospital shows that last year 5433 patients were treated in the wards and 22,139 in the dispensary department. In March there were 833 ward patients, the highest record for a single month. Recently an auxiliary of ladies has been organized to enlarge the social service work which St. Luke's has been carrying on for the past three years, for the relief of its convalescents and out-patients. The aims of the auxiliary are to aid the physicians and surgeons of the staff by investigating and relieving the social conditions which hamper the patient's recovery, to confirm the cure by seeing the patient safely through his convalescence, and to safeguard the general health by spreading the educational influence of the hospital throughout the homes of the community. Many a discharged patient, it is stated, finds himself, in the early stage of his convalescence, without a cent of money and without a friend to aid; while many a mother, suddenly obliged to go from her tenement home to the hospital, leaves five or six little children uncared for all day—except perhaps by a girl of eleven or twelve—until the father's return from work at night. The auxiliary aims to look after such as these and many others, and to give intelligent and effective relief through its visiting nurses and social workers.

Lebanon Hospital.—At the annual meeting of the managers of Lebanon Hospital, in the Bronx, held on May 17, the reports showed that during the past year 49,057 cases were treated at the hospital, and that 2888 ambulance calls were made. The cost of maintenance, including the training-school for nurses, was $165,268.

Mortality for the Week Ending May 16, 1914.—There were 1533 deaths and a death-rate of 14.32 per 1000 of the population reported during the past week as against 1531 deaths and a rate of 14.87 for the corresponding week of 1913, an absolute increase of 2 deaths, and a decrease of .55 of a point in the rate equivalent to a relative decrease of 59 deaths.

Measles showed a decrease of 11 deaths, diphtheria and croup 13 deaths, whooping-cough 2

deaths, digestive diseases other than diarrheal 15 deaths, organic heart diseases 2 deaths, pulmonary tuberculosis 26 deaths, Bright's disease and nephritis 9 deaths and violence 10 deaths. The following causes showed an increased mortality: scarlet fever 4, typhoid fever 4, diarrheal diseases 5, influenza 4, all other causes 68. The number of deaths from acute respiratory was the same as in 1913.

Viewed from the point of age grouping there was an increase of 17 deaths of children under one year of age, between one and five years of age there was a decreased mortality of 41 deaths; between five and sixty-five years showed a decreased mortality of 36 deaths, and at sixty-five years and over there was an increased mortality of 62 deaths, that is the mortality at the extremes of life was considerably increased, while that of children over one year of age and adults below sixty-five years of age evidenced a large decreased mortality.

The death-rate for the first twenty weeks of 1914 was 15.35 per 1000 of the population as against a rate of 15.56 for the corresponding period of 1914, a decrease of .21 of a point.

Current Literature

Medical Record.

May 9, 1914.

1. Roberts, P. W. *The Practical Management of Chronic Osteoarthritis.*
2. Morris, R. T. *Let Us Settle the Loose Kidney Question.*
3. Bucklin, C. A. *Surgical Treatment for Reduction of Vacuum Caused by Nasal Obstructions.*
4. Luke, H. C. *Ether-Oil Rectal Anesthesia; Some Theoretical Considerations.*
5. Hubner, M. *The Practical Scientific Diagnosis and Treatment of Sterility in the Male and Female.*
6. Kahn, M. H. *Four Cases of Multiple Myeloma.*
7. Amsden, H. H. *A Case of Vincent's Angina, Treated with Neosalvarsan.*
8. Francis, C. F. D. *A Biological Treatment for Cancer.*

New York Medical Journal.

May 9, 1914.

1. Burr, C. W. *The Relation of Aphasia to Mental Disease from the Medico-legal Point of View.*
2. Lloyd, J. H. *Sensorimotor Aphasia.*
3. Southworth, T. S. *Some Observations on the Child of Today.*
4. Solomon, M. *Psychoanalysis.*
5. Benedict, A. L. *The Psychological Effect of the Fairy Story.*
6. Sapiiie, J. F. *Rectal Cases Under Local Anesthesia.*
7. Seelye, H. H. *Why Electrotherapy Cures.*
8. Harris, J. F. *Brachial Neuritis.*
9. Thompson, N. P. *Acute Dilatation of the Stomach Complicating Pregnancy.*
10. Brill, N. E. *In Memoriam—Dr. Edward Charles Spitzka.*

The Journal of the American Medical Association.

May 9, 1914.

1. Mitchell, S. W. *The Medical Department in the Civil War.*
2. *Voobsanger, W. C. *Palliative Effect of Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis.*
3. *Clark, A. S. *Radium Treatment of Cutaneous Epitheliomata by Single or Massive Doses.*
4. Thompson, L. *Cholesterinized Antivens.*
5. *Murphy, J. B. *Heteroplastic Tissue Grafting Effected Through Roentgen Ray Lymphoid Destruction.*
6. Ewing, H. M. *Complete Bilateral Isolated Paralysis of the Seventh Nerve Developing Four Months After the Primary Infection of Syphilis.*
7. *Corbus, B. C. *Treatment of Gonorrhea and Its Complications by Antigonococcic Serum. A Preliminary Report of Twenty-Four Cases.*
8. Force, J. N. *An Investigation of the Causes of Failure in Cow-Pox Vaccination.*
9. Crump, A. C. *A New Aid for the Diagnosis of Stricture of the Esophagus.*
10. Brown, E. J. *Acute Lymphatic Leukemia After Tetanus Serum Anaphylaxis.*
11. Willson, H. S. *A Method of Staining and Mounting Smears.*

2. Voorsanger inclines favorably to artificial pneumothorax. He does not believe it is necessary to confine the patient to a hospital for treatment. Many of his cases are done in his own office or the patients' homes. Treatment should be checked by x-ray.

3. Clark advocates the single massive dose in the radium treatment of superficial epitheliomata. He thinks it will prove the method of choice as the dosage may be measured. The two great objections to its use are the cost and length of time of exposure.

5. Murphy, working experimentally on rats and chick embryos, finds that heteroplastic tisssues grow in animals treated with the Roentgen ray, probably by the removal of the lymphoid barrier.

7. Corbus finds antigonococcic serum efficient in the treatment of gonorrhea and its complications. The complement fixation test is a reliable guide to its use as the intensity and efficiency of the two are in direct proportion. The amount should be from 36 to 45 c.c., administered intramuscularly, or from 12 to 15 c.c. a day for three days. Serum sickness, even if distressing, should not be alarming. A negative test after two or three months shows complete cure.

[E. H. R.]

The American Journal of the Medical Sciences.

March, 1914.

1. *Howard, C. P. *The Etiology and Pathogenesis of Bronchiectasis.*
2. Conner, L. A., and Downes, W. A. *Spontaneous Rupture of the Spleen in Typhoid Fever, with Report of a Case Cured by Operation (Splenectomy).*
3. *Wilson, L. B. *A Study of the Pathology of the Thyroid from Cases of Toxic Non-exophthalmic Goitre.*
4. *Rowntree, L. G. *The Study of Renal Function: the Prognostic Value of Studies of Renal Function.*
5. McCarthy, D. J. *Iron Infiltration in the Fixed and Wandering Cells in the Central Nervous System.*

6. *KNOPF, S. A. *A Practical Apparatus for the Production of Therapeutic Pneumothorax. With Some Notes on the Modus Operandi, Indications and Contra-indications.*
7. *WOOD, G. B. *Tonsillar Infection: A Preliminary Report Concerning the Passage of Anthrax Bacilli Through the Tonsillar Tissues as Determined by Experimental Research.*
8. PUTNAM, J. J. *On Some of the Broader Issues of the Psycho-analytic Movement.*
9. WEINBERGER, W. *An Improvement of the Benedict Method for the Determination of Sugar in the Urine.*
10. SCHWATT, I. J. *The Application of the Calculus to the Medical Sciences.*
11. SUTTON, R. L. *A Clinical Note on Fibroma Molluscum Gravidarum.*
12. PEMBERTON, R. *The Metabolism, Prevention, and Successful Treatment of Rheumatoid Arthritis. Second Contribution (Concluded).*

1. Howard's article on bronchiectasis is an able discussion of the etiology of the condition with illustrative cases. It is concluded that the condition is clinically not an infrequent one, being too often mistaken for pulmonary tuberculosis. The possibility of a foreign body or of syphilitic stenosis as etiological factors must always be considered. Inflammatory causes are the most frequent. As to the mechanism of production, the most plausible theory is that of Ewart, attributing the dilatation to the joint action of a faulty distribution of air space and bronchial obstruction.

3. Wilson reports further analyses of cases of goitre. His pathological evidence seems to show a constant relative association of increased secretion and increased absorption from the thyroid gland proportional to the degree of toxicity on the part of the patient.

4. Rowntree discusses the significance of the numerous tests of renal function which have recently come into prominence. He concludes that the phthalein test is the one most deserving of general application. When this reveals decreased excretory capacity, one of the blood tests, urea, total non-coagulable nitrogen, or serum cryoscopy, should be employed to determine the presence or absence of cumulative phenomena in the blood.

6. Knopf describes an improved apparatus for producing therapeutic pneumothorax in tuberculosis, and states concisely the indications and contraindications for this treatment. It is recommended in general for cases that have failed to respond favorably to general medical treatment, obstinate hemorrhage and bronchiectasis. The chief contraindications are extensive involvement of both lungs, much cavity formation, pleurisy, ascites or other abdominal distention, cardiac, renal or constitutional disease. It is not recommended in early and favorable cases.

7. Wood reports observations upon the manner of entrance of anthrax bacilli into the tonsil of the hog, showing that they penetrate only through the crypts, passing apparently through the living unaltered cryptal epithelium. [F. W. P.]

APRIL, 1914.

1. *MAYO, W. J. *Cholecystitis Without Stones or Jaundice in Its Relation to Chronic Pancreatitis.*
2. *RUHRAH, J. *The Treatment of Pylorospasm in Infancy.*
3. DOUGLAS, J., AND EISENBREY, A. B. *Tuberculosis of the Spleen, Septic Infarction, Polycythemia, Splenectomy.*
4. COLLINS, J., AND ELSBERG, C. A. *Giant Tumors of the Conus and Cauda Equina.*
5. *GOODMAN, E. H. *Some Cases of Hypotension Associated with a Definite Symptomatology.*
6. *NICHOLSON, P. *The Clinical Significance of Diastolic and Pulse Pressure.*
7. SIMON, C. E., AND WOOD, M. *The Inhibitory Action of Certain Anilin Dyes upon Bacterial Development. (Second Communication.)*
8. *KRUMBHAAR, E. *Diagnostic Value of Percutaneous Tuberculin Test (Moro).*
9. DILLER, T., AND MILLER, R. T. *The Successful Removal of a Tumor from the Frontal Region of the Brain.*
10. *FARR, C. B., AND WILLIAMS, P. F. *The Total Non-protein Nitrogen of the Blood in Pregnancy and Eclampsia.*
11. PALMER, C. D. *Prolapse of the Ovary: Its Rational Treatment.*
12. JUMP, H. D., BEATES, H., AND BABCOCK, W. W. *Precocious Development of the External Genitals Due to Hypernephroma of the Adrenal Cortex.*
13. *BOND, E. D. *Symptoms Suggesting Pituitary Disorder.*
14. *BARNES, H. L. *The Value of Auto-inoculation in Pulmonary Tuberculosis.*
15. *JANEWAY, H. H. *The Early Symptomatology of Cancer of the Esophagus.*

1. Mayo describes cases of chronic cholecystitis, especially those which he calls the "strawberry type" from the appearance of the lining mucosa of the gall-bladder, with an indurated condition of the head of the pancreas, which he believes to be evidence of chronic pancreatitis. In certain cases of this type treated by drainage of the gall bladder relief occurred, while the drainage persisted, but symptoms recurred as soon as the drainage was discontinued. He believes that removal of the gall-bladder is indicated, cholecystectomy in his cases having given prompt and permanent relief.

2. Ruhräh calls attention to the condition of pylorospasm in infancy in distinction to that of congenital hypertrophic stenosis of the pylorus. These disorders, while similar in their manifestations and perhaps related in their etiology, differ in that the pylorospasm is accompanied by less violent symptoms, is of much better prognosis, and does not always appear immediately after birth. In treatment he emphasizes the necessity of the use of breast milk, and speaks favorably of the giving of atropine in 1-2000 grain doses every four to six hours.

5. Goodman describes cases in which the blood-pressure is found to be subnormal, particularly in association with symptoms of neurasthenia. In a number of these improvement was effected by treatment, after which the blood-pressure was found to have increased. This treatment consisted chiefly of general tonic measures, such as gymnastic exercises and hydrotherapy, which are given in detail. Drug treatment played little part, although some reliance is placed upon strychnine.

6. Nicholson urges that greater attention be devoted to the observation of diastolic as well as of systolic blood-pressures, the former being now readily determined by the auscultatory method. He also describes a portable mercury sphygmomanometer which he has devised, less bulky than those in common use.

8. Krumbhaar and Musser report a series of 149 cases in which the Moro percutaneous tuberculin test by inunction of a tuberculin paste in lanolin was applied. The tendency to react positively in cases clinically not tuberculous, which has caused the von Pirquet test to be discarded for use in adults, was little in evidence, since in 76 unselected non-tuberculous cases only 5 failed to give a negative reaction, and in only 2 was the reaction definitely positive. Of 44 tuberculous cases all reacted positively with the notable exception that of 10 cases of far advanced pulmonary tuberculosis 9 reacted negatively and 1 doubtfully positively, a finding consistent with the results of other tuberculin tests in advanced tuberculosis. It is concluded that the prevalent opinion that positive reactions in adults are of little or no value is erroneous.

10. Farr and Williams find that in normal pregnant women the total non-protein nitrogen does not usually exceed 30 mg. per 100 c.c. of the whole blood, but may reach 40 mg. or more without demonstrable renal lesions. In all of their cases in which there was definite renal insufficiency or eclampsia, with one exception, there was always a slight, and in most cases, a marked, increase in the total non-protein nitrogen, similar in degree to that found in parenchymatous nephritis, but less than that found in interstitial nephritis. The retention, however, bore no relation to the severity of the symptoms, and its significance is regarded as inferior to that of rising blood-pressure albuminuria and the general clinical picture.

13. Bond urges a closer scrutiny of insane patients for evidence of pituitary disorder. In 1600 consecutive autopsies on insane patients, lesions of the pituitary body were found in 45, and in a brief survey of the inmates at one time of the Danvers Hospital 10 cases with suggestive symptoms were found.

14. Barnes reports experience with graduated exercise in pulmonary tuberculosis similar to Patterson's auto-inoculation method. While he regards this treatment as advantageous where it can be carried out without inducing symptoms, and as of value as a test of the patient's fitness to return to work, he warns against the belief that fever reactions or auto-inoculations are other than harmful.

15. Janeway has analyzed the first symptoms of 21 cases of cancer of the esophagus, finding that dysphagia is not by any means always the first to appear, and that in a small minority only was the diagnosis made before three or four months after the patient had symptoms. [F. W. P.]

Bulletin of The Johns Hopkins Hospital.

May, 1914.

1. *Miller, S. R., and Levy, R. L. *The Colloidal Gold Reaction in the Cerebrospinal Fluid.*
2. *Sellards, A. W. *The Essential Features of Acidosis and Their Occurrence in Chronic Renal Disease.*
3. Campbell, C. M. *The Work of the Out-Patient Department of the Henry Phipps Psychiatric Clinic.*
4. Whitham, L. B. *Dystrophia Epithelialis; Report of a Case.*
5. Charlton, M. *Louis Hébert.*

1. The writers conclude that the gold test is essentially a laboratory method requiring extreme care in preparing reagents and cleaning of glassware. Normal fluids give normal reactions; the test has no value in purulent or tuberculous meningitis, and has no advantage over known laboratory methods in diagnosing syphilis. Reactions are inconstant in secondary and tertiary stages; positive reactions observed in the majority of cases of tabes and cerebrospinal syphilis are not characteristic, while the reaction peculiar to paresis seems to be of some value in differential diagnosis.

2. Sellards states that the essential feature of acidosis consists in a general impoverishment of the body in bases or in substances which readily give rise to bases. The fundamental features of every acidosis as thus far established are: (*a*) an increase in the tolerance of the body to fixed bases, (*b*) a diminution in the titratable alkalinity of the body serum, and (*c*) a diminution in the carbon dioxide of the blood. An acidosis of high grade occurs in certain nephropathies, especially in the uremia of acute and chronic diffuse nephropathy. It is not a terminal event and is often present in relatively high grade outspoken cases many months before the development of the uremia. It represents the effect rather than the cause of the renal lesions. [J. B. H.]

The Journal of Infectious Diseases.

March, 1914.

1. *Ayers and Johnson. *Pasteurization in Bottles and the Process of Bottling Hot Pasteurized Milk.*
2. Dick. *Ferments from Carcinomatous Protein in the Blood in Carcinoma.*
3. King and Drake. *Some Phenomena Involved in the Life History of Spirochaeta Suis.*
4. Drennan. *A Non-Cholera Vibrio Resembling the True Cholera Vibrio and a Pigment-forming Vibrio.*
5. *Jansen. *The Disinfectant Action of Certain Bacterial Stains.*
6. Williams et al. *A Study of Trachoma and Allied Conditions in the Public School Children of New York City.*
7. Park, Famulenor and Banzhaf. *Influence of Protein Content on the Absorption of Antitoxin and Agglutinin Injected Subcutaneously.*
8. Park, Famulenor and Banzhaf. *Serum Sensitization as Related to Dosage of Antitoxin in Man and Animals.*
9. Pearce and Williams. *Protective Enzymes, Cytotoxic Immune Sera and Anaphylaxis.*
10. Lake, Osborne and Wells. *The Immunological Relationship of Hordein of Barley and Gliadin of Wheat as Shown by the Complement Fixation, Passive Anaphylaxis and Precipitin Reactions.*
11. Wells and Osborne. *The Anaphylactogenic Activity of Some Vegetable Proteins.*
12. Lake. *The Immunological Reaction of the Proteins of the Human Placenta, with Special Reference to the Production of a Therapeutic Serum for Malignant Chorion-Epithelioma.*

1. Pasteurization in bottles is a safe and easy process, provided the temperature is maintained within the bottle a sufficiently long time. The one drawback to this method is the expense of water-tight caps, which are necessary. To avoid this the milk is first pasteurized and then, while hot, is poured into bottles which have just been steamed for two minutes. This process is safe, inexpensive and easy. In this way bottle infection is eliminated and the ordinary cardboard caps may be employed. The bottles are air cooled. The sole disadvantage of this method is the loss of time in those plants where milk is delivered directly after pasteurization.

5. Aqueous solutions of methyline blue of fuchsin show very slight bactericidal power. Such solutions of gentian violet, however, are markedly bactericidal to gram-positive organisms, even in very weak solutions. Anilin gentian violet and carbol fuchsin, as made up for staining, show a decided disinfectant action upon cover glass preparations. This action is due to the stain, especially in the former case; mice controls, controls consisting of dried, fixed, but unstained preparations, showed organisms in the subcultures. No such bactericidal action was produced by laboratory methyline blue. Those facts are of practical importance to laboratory workers. Mice slides and cover glasses may in some instances, but not in others, be handled with safety, according to the stain employed. [L. H. S.]

The Lancet.

April 25, 1914.

1. *Ormerod, J. A. *The Lumleian Lectures on Some Theories Concerning Hysteria. Lecture I.*
2. *Watson, D. C. *Intestinal Toxemia, with Special Reference to the Indications for Operative Treatment.*
3. Adams, J. E. *The Drainage-tube in Abdominal Surgery.*

4. BALFOUR, A. *The Wild Monkey as a Reservoir for the Virus of Yellow Fever.*
5. FREEMAN, J. *Vaccination Against Hay Fever: Report of Results During the Last Three Years.*
6. RAMSAY, A. M. *The Use of Omnopon-Scopolamine Combined with Local Anesthesia in Ophthalmic Surgery.*
7. WHITEHEAD, G., AND MORLEY, J. *Extraperitoneal Uretero-Lithotomy through a Median Suprapubic Incision.*

1. Ormerod, in this first Lumleian Lecture, discusses in a general way hysteria, its relation to neurasthenia, its symptoms, such as hysterical fits, anesthesia, hysterogenic zones, contractures, skin affections, edema, wasting, ecchymosis, et al.

2. Watson, describing the various clinical manifestations of intestinal toxemia, believes that treatment is largely medical and in the earlier stages it can be cured if medical treatment is efficiently carried out. In advanced cases, however, surgical intervention seems to offer the only hope. X-ray examination is essential to arrive at a proper diagnosis. Lane's short circuiting operation is simple, but in inexperienced hands is often unsatisfactory. Before any operation a prolonged course of medical treatment is advisable. [J. B. H.]

BRITISH MEDICAL JOURNAL.

APRIL 25, 1914.

1. *DAVIES, H. M. *The Therapeutic Value of Gases Introduced into the Pleural Cavity.*
2. ROUTH, A. *The Need For Research in Ante-natal Pathology.*
3. HANDLEY, P. A. *Pituitrin in Labor.*
4. BUIST, R. C. *Two Cases of Pregnancy in Uterus Subseptus.*
5. JAMISON, P. *Carcinoma of the Stomach; Gastrectomy.*
6. *SYMES, J. O. *The Association of Erythema Nodosum and Tuberculosis.*
7. ELLIOT, R. H. *The Experiences of Surgeons in Sclero-Corneal Trephining.*
8. BLACKLOCK, B. *On the Multiplication and Infectivity of T. Cruzi in Cimex Lectularis.*

1. Davies believes that those cases of phthisis suitable for artificial pneumothorax are: (1) those with a persistent fever, (2) profuse or repeated hemorrhage, and (3) cases with cavity formation. He describes in detail his technic, and among complications mentions pleural reflex and gas embolism. He is in favor of frequent refillings at first and of keeping up the treatment for at least eighteen months. He discusses immediate and remote results, the value of other forms of treatment, tuberculin, exercises, etc., in conjunction with nitrogen treatment. He also speaks of this treatment for bronchiectasis and putrid bronchitis. There are some excellent plates.

6. Symes presents evidence which is fairly conclusive showing the close connection between erythema nodosum and tuberculosis, although he believes that in certain forms at least the disease is a distinct clinical entity. [J. B. H.]

THE QUARTERLY JOURNAL OF MEDICINE.

VOL. 7. NO. 27. APRIL, 1914.

1. *BUTTERFIELD, H. G., AND HUNT, G. H. *Observations on Paroxysmal Tachycardia.*
2. *MCNEE, J. W. *Cholesterin: An Account of Its Relations to Pathology and Physiology.*
3. *THURSFIELD, H. *Bilateral Salivary Swellings. A Clinical Review.*
4. *KEMP, C. G. *On the Prognosis of Acute Articular Rheumatism, with Special Reference to the Cardiac Manifestations.*
5. MCINTOSH, J. *Critical Review: Anaphylaxis and Its Bearing on Medicine.*
6. SIMONS, I. *Critical Review: Bacterial Endocarditis.*

1. Four cases of paroxysmal tachycardia are reported, with histological examination of the heart in three of them. The latter confirmed the clinical diagnosis, which was based on the study of electrocardiograms and of venous tracings. In the first case the extra-systoles appeared to be of ventricular origin, for the auricular rhythm was undisturbed and the form of the extra-systoles differed from that of beats of supraventricular origin. At the autopsy a marked lesion was found in the interventricular septum, consisting of fibrosis involving two-thirds of the thickness of the wall. The second case was clinically, judging from the shape of the beats in the electrocardiogram and the presence of an auricular wave in the venous tracing, a paroxysmal tachycardia of auricular origin. At the autopsy there were found a well marked infiltration with lymphocytes and two small hemorrhages in the region of the sino-auricular node. The a-v node and bundle were intact. In the third case, also of auricular origin, there were perivascular lymphocytic infiltrations about the sino-auricular node.

2. McNee reviews the recent work on cholesterin in the blood and tissues, including some interesting studies of his own. The cholesterin content of the blood is increased in a number of conditions, *e.g.* Bright's disease, diabetes, jaundice, adiposity, arteriosclerosis and pregnancy. Where the amount in the blood is too large the cholesterin of the bile is increased also. Hence the relation of pregnancy, and adiposity, to gall-stones, especially the solitary stone of pure cholesterin, which, as the researches of Aschoff show, may arise without inflammation. These facts also explain the association of exanthemata, in which the cells are stuffed with cholesterin, with diabetes and chronic jaundice; also the "white spots" in the retina, which consist of cholesterin, with Bright's disease and diabetes.

3. The Mikulicz syndrome consists of bilateral painless swellings of the salivary, and sometimes of the lachrymal glands. It is sometimes associated with enlargement of the lymph nodes and spleen, with or without the blood changes of leukemia. Thursfeld's case was remarkable for the rapidly fatal course and the blood picture, that of an "aplastic" anemia with marked decrease in the leucocyte count and lymphocytosis. He calls it aleukemic leukemia.

4. Kemp examined the hearts of a large number of cases of acute articular rheumatism two years or more after they left the hospital, to determine whether the murmurs heard were due to organic disease of the valves, or to mitral insufficiency resulting from myocarditis. The results confirm the statements of Romberg and others that myocarditis is a frequent cause of such murmurs, for 22% of the cases developed signs of carditis, which disappeared during convalescence, and in 20% of those who showed signs of endocarditis not clearing up before discharge from the hospital, a later examination showed the heart to be quite normal. Only 22% of the total number showed no signs of cardiac disease throughout the acute attack. [W. T.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

NO. 16. APRIL 21, 1914.

1. *NEUBAUER, O. *Creatinin as a Test for Renal Function.*
2. WILMS. *Artificial Solidifying Fluid in Tuberculosis of the Lung.*
3. ABDERHALDEN, E. *The Discovery of Protective Ferments by Colored Substrata.*

4. Abderhalden, E., and Wildemuth, F. *Repeated Dialysis in Determining Protective Ferments by the Dialysis Method.*
5. Rosenthal, F., and Biberstein, H. *Experimental Studies on the Specificity of Proteolytic Serum Ferments. Third Communication.*
6. Abelin, J., and Perelstein, M. *The Perishable Factors of Coffee.*
7. Bache, M., and Acel, W. *The Influence of Breathing on Albumin and Carbohydrate Metabolism.*
8. Decker. *The Necessity for Albumin in the Diet in Relation to the Increased Cost of Meat.*
9. Lindbom, O. *Sennatin.*
10. Fuchs, W. *Epilepsy and Luminal.*
11. Lehnert. *The Treatment of Anomalies of the Blood with Dürkheim Spring Water and Arsenic Baths.*
12. Mann, M. *A New Symptom of Cerebellar Abscess.*
13. *Beck, R. *Two Cases of Nutmeg Poisoning.*
14. Gebbis, H. *A Peculiar Condition of Narcosis from Chlormethyl.*
15. Heinemann, O. *The Diagnosis of Salivary Stones.*
16. Mayer, H. *Grotan as a Therapeutic Remedy.*
17. Schneider, E. *An Arm Cuff to Aid Intravenous Injections.*
18. Wintz, H. *A New Finger Curette.*

1. Neubauer has introduced creatinin as a test for renal function. Normally, creatinin is formed from endogenous protein destruction and thus the amount excreted is nearly constant without regard to the diet. Neubauer considers that this fact makes the excretion of the substance a valuable test for renal function, since patients to be studied require no special diet, and can be observed when they are up and about, as well as when they are in bed.

To make the test, the creatinin excretion is followed every four hours for three days. On the second morning a test meal is given which contains 105 gms. of the pure substance dissolved in sugar-water. Normally it is excreted almost immediately. With diseased kidneys, its excretion is delayed in proportion to the degree of functional disturbance. For the differential diagnosis between marked passive congestion and true nephritis, the test is of as little value as are most of the other tests based upon the excretion of physiological substances. Marked disturbances of creatinin excretion occur with congestion as well as with nephritis. Finally, in advanced nephritis, creatinin accumulates in the blood significantly, and parallels the retention of nitrogen and urea.

13. Beck reports, on account of its rarity, two cases of nutmeg poisoning which occurred in two of the hospital servants. Two women prepared a drink of nutmeg, cinnamon and wine, and after taking it, remained in a comatose condition for a considerable period. Both recovered. The mixture was taken by one to induce abortion, and by the other to make a diagnosis of early pregnancy, since she had been told that nutmeg would induce menstruation in the event of lacking pregnancy.

Beck reviews the literature on the subject of the toxicity of nutmeg. It has been used in the cases reported to induce abortion, and has produced the symptoms of stupor which were seen in Beck's cases. The pharmacological basis for its supposed action appears to be the fact that its oils in enormous dose cause congestion of the abdominal and pelvic organs. [R. F.]

Revue de Médecine.

February, 1914.

1. Lepine. *New Internal Secretions and New Functions of Vessels.*
2. Labbé and Bith.—*Amino-aciduria Provoked by the Ingestion of Peptone and the Diagnosis of Hepatic Insufficiency.*
3. *Debré and Paraf. *"The Antigen Reaction" (Completed).*

3. The conclusions which Debré and Paraf draw from the present and previous articles upon the use of a complement-fixation reaction upon tubercular fluids are of great value. The reaction is specific in a very high percentage of cases when performed on the urine secreted by kidneys, affected by almost any variety of tuberculosis,—whether granular, ulcerative, or even amyloid. Such reactions are not present in the urine from healthy kidneys even of individuals suffering from pulmonary tuberculosis. Similar reactions have been performed with great success in pleural and abdominal fluids, whether serous or purulent. The application of the test to cerebro-spinal fluids and blood sera has not been productive of very constant results. Its use in sputum is encouraging and deserves further trial. [L. H. S.]

Bullettino delle Scienze Mediche.

November, 1913.

1. *Schiassi, B. *Sub-Total Resection of the Stomach.*
2. Gurrieri, R. *Zoosperms Included in Lamellar Seminal Concretions and in Urinary Calculi in Relation to Medico-Legal Researches.*

1. In this continued and concluded article, Schiassi describes details of technic and indications for procedure, and presents clinical demonstrations and radiographic documents. His work is an elaborate and well executed piece of clinical study and research. [R. M. G.]

December, 1913.

1. *Ravà, G. *So-Called Paralytic Oculo-Cephalic Deviation from Lesion of One Cerebral Hemisphere.*

1. Ravà reports and discusses 16 cases presenting the symptom-complex described in his title. He believes that such deviation is not solely dependent on the paralysis, but is determined by the activity of healthy sensory centres not counterbalanced by corresponding activity of injured homologous sensory centres, principally those of vision. [R. M. G.]

Miscellany.

MEDICAL STATUS OF THE UNITED STATES ARMY.

In the current issue of the *Engineering Record* is an article by Dr. William C. Gorgas on army camp sanitation. The following extract may serve to represent the opinion of the surgeon-general on the medical status of our troops in case of possible war in Mexico.

"In the event of an invasion of a sub-tropical country by our army the sanitary precautions to be observed by our troops would be of supreme importance. Our precautions must, however, begin at home in our assembly and concentration camps. In the war with Spain in 1898 we were handicapped by lack of training and experience

in camp sanitation. We had practically no experience in the tropics. The great development of preventive medicine was not then in a stage convenient for practical application.

"In any contemplated occupation of a country lying partly in the tropics by an army coming from the temperate zone there would be two stages to consider with reference to the precautions necessary to the preservation of the health of such a command—first, the measures required to avoid the "camp diseases" in the homeland while the troops were mobilizing and training and second, the measures required to avoid the diseases peculiar to the country to be occupied. The first sanitary precaution is to secure healthy soldiers—physically sound men. Then it is necessary to safeguard their health while in training by giving them pure food, water and healthy camp surroundings and by preventing the entrance to such camps of infectious diseases.

"When we have to deal with the question of potable water in the enemy's country, and especially in the field, we deal with a more difficult problem, but by no means a hopeless one. Efforts are made to ascertain the quality of the water by examinations and by its reputation when that is practicable. When deemed necessary—and this is the case with all surface waters in the tropics, unless we except some mountain streams—we try to render the water safe for drinking purposes by such measures as may be possible in the field. However, it will often occur that under military stress, lack of time and transportation, troops for short periods must use the water that the natives depend upon. Under these circumstances we may look for the appearance of such diseases as are water-borne and are prevalent in the communities using the water. The methods to render the water potable are naturally those used in temporary emergencies as a rule—boiling, filtering and the use of chemicals. Portable appliances are used in the army to render the water safe.

"Only less important than a supply of potable water in camp is an efficient method for the disposal of human wastes. Excreta in camp become a most dangerous focus for the dissemination of such diseases as are spread through this means by direct contamination or pollution of water and milk and by flies. In the last large camps maintained by the army in Texas in 1911 and 1913 a most efficient system was used. On still larger scale but for a shorter time the same system was in use at the Gettysburg reunion in 1913. For a year in the Texas camps this system has given complete satisfaction.

"Flies spread typhoid, dysentery and perhaps other diseases. It is necessary, then, to devise a method of gathering and destroying both stable sweepings and kitchen wastes. In camp the army has disposed of this by burning the sweepings after they are gathered at a dump and by burning right at the kitchen door the wastes therefrom. Moving troops in the field, as a rule, have no trouble with the disposal of these wastes, as they are so scattered that the amount constitutes no menace.

"In such an army as might be mobilized for service abroad we would expect some 120,000 regulars, and twice as many volunteers. There will be, therefore, a considerable proportion of green men to be taught camp sanitation, as well as given military instruction. Much of this will be given in concentration camps. There exists a yeast to leaven the whole that was absent in 1898. Since that year the officers of the medical department of the army have been studying and practising military hygiene and sanitation with brilliant results, as demonstrated in the two large camps in Texas. Here ten thousand men lived for a year at a time with sick rate lower than that at the average post. The army, then, is in an entirely different position from that at the outbreak of the Spanish War.*

"Anti-typhoid inoculation which has been in vogue in the army since 1909, and which so efficiently protected it in 1913 that there was but one case among the inoculated in the army of 90,000, is to be trusted to keep our camps free of this disease so fatal to armies of the past. The dysenteries will be held in abeyance by many of the precautions that prevent typhoid, particularly the safeguarding of water and the early exclusion of such cases from the camps. Yellow fever is robbed of much of its terror by the fact learned in 1898 by Reed and his devoted band, which taught us the means of transmission and, consequently, the manner of avoiding it. One other disease, typhus fever, we have learned, is spread by the bite of the louse, and, in consequence, we are enabled to limit its ravages.

"Thus, forewarned, we are forearmed and enter any campaign confident of our ability and in the sanitary training of the line to feel that we can exist in the campaign in a state of "hygienic competence" that the disabilities of the war will be limited, for the first time in the history of the New World, to wounds, and that disease will not kill more than bullets. The American people will have what they should have for the generous support given every year—the most efficient army of its size in the world."

CANCER MEETING IN BOSTON.

At the invitation of the Boston City Federation the American Society for the Control of Cancer held a public meeting for the discussion of the cancer problem at Huntington Hall, Boston, on Tuesday afternoon, May 19. Similar meetings have recently been arranged by the Cancer Society in New York, Chicago, St. Louis, Pittsburgh and other cities.

The meeting was under the auspices of the Boston Federation of Women's Clubs. Since the

* [During the Spanish War of 1898, 20,000 cases of typhoid fever occurred among our soldiers in the field or in camps.—Ed.]

meeting was held on the same day as the opening session of the annual meeting of the American Gynecological Society, when many visiting physicians were in Boston, it was possible to secure speakers representing a widely distributed experience, who discussed the various phases of cancer with an unusual degree of authority.

The president of the Boston Federation of Women's Clubs, Mrs. Frank L. Young, opened the meeting as chairman, and Dr. Edward Reynolds, vice-president of the A. S. C. C., introduced the first speaker, Frederick L. Hoffman, LL.D., statistician of the Prudential Life Insurance Company of America and chairman of the committee on statistics of the A. S. C. C., who presented the evidence of "The Prevalence and Increase of Cancer in the United States." The work and purposes of the American Society for the Control of Cancer were described by Dr. F. F. Simpson of Pittsburgh, Pa., one of the founders of the Cancer Society and a member of its executive board. Dr. J. Collins Warren of Boston, a trustee of the Society, discussed the cancer problem from the point of view of the Huntington Cancer Commission of Harvard University of which he is chairman.

The second half of the meeting was devoted to a symposium of public education on cancer in which a number of physicians of recognized authority in their special fields indicated what the public should know about this disease in order to avoid its suffering and mortality. Among these five minutes' addresses were the following: Dr. Mixter of Boston spoke on cancer of the digestive organs. Dr. Walter W. Chipman of Montreal discussed cancer of the breast. Dr. Howard C. Taylor of New York discussed uterine cancer, and Dr. David Cheever of Boston described the symptoms and treatment of external cancer.

The need of public education and the social aspects of the cancer problem generally were summarized in a brief address by Rev. Dr. George A. Gordon who closed the meeting.

Correspondence.

PARIS LETTER.

THE MEDICAL ATMOSPHERE OF THE RENAISSANCE, AS PORTRAYED IN SOME EARLY FRENCH WRITERS.

I. PHILIPPE DE COMMYNES.
(1490, Circa.)

(From Our Special Correspondent.)

PARIS, April 16, 1914.

"Dixisse me aliquando penituit, tacuisse nunquam."

(Inscription on the wall of the dungeon at Loches, ascribed to Ph. de C.)

Mr. Editor: In a former letter (January 9, 1913) I dwelt at some length on the medicine of the 17th century in France, as revealed in Molière's "Malade Imaginaire" (1673), and on how man's substratum of plain commonsense *will* come to the fore and protect him, in spite of all that perverse thought and erroneous doctrines can accomplish toward his undoing: *e.g.* the course of treatments applied by Dr. Purgon, and the friendly advice of the level-headed brother: sager counsels could hardly be preferred even at the present time than those of Béralde.

But if we go further back still, to the early times of the Renaissance, and examine the leading writers of the day, we again find a similar state of affairs: on the one hand what we can scarcely call anything else than sheer folly, in medical circles, acceptable to a certain number of panic-stricken patients; and on the other, the part of the population which (even in a state of illness, as in the case of Montaigne) looked on the question from a practical and sensible standpoint, and refused absolutely to be duped by the errors and superstitions of the practitioners of the epoch.

There are among the interesting old writers of that period, three who stand out preëminent in this respect,—Philippe de Commynes, our excellent confrère François Rabelais, and Michel de Montaigne, and I think that a brief exposition of their views on medical matters may not prove devoid of instruction. If I were to take these authors in their order of interest, that incomparable master of good-humored satire, Rabelais would unquestionably be entitled to precedence. But it will be best to treat them chronologically, and in this respect Commynes comes first, his classical Mémoires dating from the end of the 15th century, just about the time of the discovery of America, to be exact.

This book is one of the chefs d'oeuvre of French literature, as can be imagined when I say that after a lapse of over four centuries it still reads as easily as a novel and is said to be, after the Holy Scriptures, one of the works that has been re-issued the oftenest. Philippe was the intimate friend and counsellor first of Charles, Duke of Burgundy, and then of three kings of France in succession, Louis XI, Charles VIII and Louis XII; but it is chiefly with the reign of Louis XI (1461–1483) that he deals, and his portrait of this ruler is the standard on that subject. Whether we consider his remarkable delineation of the political atmosphere of the day, his power of description, his astounding memory *ex post facto* of the entangled threads of intricate negotiations, or his philosophical reflexions as to the difficulties of being King in this world,—all is equally absorbing; and at the same time the quaint old French in which the narrative is couched adds manifestly an element to the story, as *we* see it, that must of course have been lacking to readers of the times, although Montaigne, who wrote nearly a century later, and who refers in his Essays to the works of both Rabelais (who came between the two) and Philippe, speaks of him in the most flattering terms, toward the end of Chapter X, Book II.

Not among the least interesting of de Commynes' characteristics is his implicit faith in Divine Providence and evident conviction of the presence of a personal guiding-hand in all matters, public or private, as well as of his, Philippe's, ability to see the action of this hand and detect its purpose. The fashion in which Philippe carries his Providence, as it were, about with him in his breast-pocket, and brings it in whenever called for, despatching the believer, no matter how sinful, to paradise, and the infidel, no matter how deserving, to sheol, is really remarkable, on the part of one of the most prominent and capable men of the day. For instance, in referring to the death of a certain Turkish prince he remarks: "en cecy ne parle point dudit Turc, car je tiens ce point pour vuidé et qu'il est logié avecques ses prédecesseurs." This comes pretty near to the doctrine of the Wahabees, who are reputed to claim that the world is divided into 73 religious sects, of which theirs alone is destined to salvation.

Philippe has left no actual discourse on medical matters, as did Montaigne and Molière: but he was more

or less mixed up with the end of several very prominent men, and in particular of Louis XI, and was in this way led to chronicle various doings and sayings that throw light on the medical customs of the times, although so far as he personally was concerned, his clear intellect appears to have enabled him to take a rational view of medical matters and to estimate the science of his day at its true value.

Taking up, then, first the case of Louis XI,—this sovereign had an initial stroke of apoplexy in March, 1480, a second one the year following, and his final illness in August of 1483,—a total duration of three and a half years. Louis was an unusually authoritative man, even for those days, had his way in all matters, and exacted implicit submission from everyone connected with him; and in particular the historian remarks that "by nature he was disposed not to place faith in the advice of physicians." But he also says: "never did man fear death so greatly,"—so much so that he constantly directed those about him, in event of illness, to be careful what they said to him, to advise him merely to confess himself, and not to make use of the word death. Yet observe the irony of Fate! This domineering spirit, that doubted his physician's word, and lived in terror of death and all connected with it, was finally forced to place himself implicitly in the hands of his intimates, became terrorized by his medical attendant whom he placated by the payment of large sums of money, and finally had his death-sentence served to him in such a brutal manner as to draw forth the indignation of even such a moderate and reserved man as the historian.

Commynes was away at Argenton, his château, when the first stroke occurred near Chinon, and it is a curious coincidence that he was likewise absent in the same manner when Charles VIII had his cerebral hemorrhage at Amboise. However, he describes the event evidently from the account of the spectators, and we have here in a few lines an exact tableau of what practically always takes place when a medical catastrophe strikes one of a group of laymen, who with this apparently irresistible human impulse to be doing something, although utterly ignorant of the elements of the proposition, find it impossible to refrain from making a bad job worse, and seem the more determined in their misguided efforts in proportion to their lack of intelligence. Could anything be more descriptive of this state of mind than Commynes' half dozen lines: "at dinner he was seized with a stroke and lost the power of speaking. He was removed from table and kept near the fire, with the windows closed; and although he made every effort to get to them, his companions prevented him (acting for the best, as they thought)." So much for that part of the scene, now comes the complement, the arrival of the medical man. He, naturally, has also to appear to be doing something; but as it would never do to let the laymen think they had acted correctly, the man of art usually orders the opposite to what has already been done; sits the patient up, if he had been laid flat, gives him air, or water, if these have been witheld, and so on: "Thereupon you arrived, who were his physician at that time, and at once gave him an enema and opened the window to let in the air." Now if this whole scene is not the neatest little piece of irony on the classical performance on such occasions, then I confess to being grossly mistaken.

Little by little speech began to return to the royal patient, whose first act was to unburden himself to his confessor who had been summoned from Tours, although, as the historian remarks, "he had not very much to say, as he had already confessed himself a few days previously, because, when the Kings of France wish to lay hands on those afflicted with scrofula, they first go to confession, and our King never failed in this (laying on of hands) once every week. If the others (kings) do not do this, it is a great pity, as there are always plenty of sick people." We are here, consequently, right in the heyday of those fortunate times when organic disorders yielded to the contact of divine right! Being now in a state of grace and filled with the milk of human kindness, Louis' next act was the following. He inquired and ascertained who were those that had restrained him by force on the occasion of his stroke; these he at once drove from his court, taking from some of them their positions and dismissing them once and for all, while from others he took nothing but sent them off. "Many were astounded at this action, which they criticized adversely, saying that they had acted for the best, and so they had"; but Louis was so in fear of anyone venturing to infringe on his rights, even with the purest of intentions, that nothing of this sort could be tolerated.

If now we turn to his final illness, August, 1483, which lasted from Monday to Saturday, we find ourselves in the presence of a very different man. Louis is now broken in spirit, suspicious of everyone, in terror of death, and placing his last hope in holy men and physicians. And here again we have the usual tableau of such occasions: the infinite hoping against hope, "for notwithstanding his misfortunes his courage rose and he quite expected to recover"; truly Aeschylus never had a deeper thought than when he made Prometheus take away from mortals the power they once had of foreseeing future events, and gave them in its stead *blind hope*,—observe the force of the qualifying adjective,—hope in spite of anything, everything and everybody, what would life be without hope,—an unthinkable nightmare.

The other characteristic of such crises is the feeling of hate toward the medical attendant; when the patient finally comes to the realization that his end is near; when *their* life is at stake the man of science ought to be able to arrest the flight of time, to change the order of the seasons, and to reverse the orbits of the celestial bodies. Connected with this frame of mind is the thought, generally felt, sometimes openly expressed, that if the medical attendant would only give himself the trouble, a remedy could be found! To gain this end no means is too vile. With Louis it took the form of bribes: "his physician, Maître Jacques, in whom he had complete confidence, and to whom he gave 10,000 'escus' each month, in the hope that he would lengthen his life and that he would bear his case constantly in mind, setting aside all other thoughts." Maître Jacques may have had other patients as ill or even more so; these were all to be dropped, because the royal patient *had the money to pay!* This is a condition of spirit not unknown in our own day with a certain type of mind, witness the following anecdote: One of our very wealthy and very well-known society women was ill with a self-limited disease at one of the very swell hotels in Paris where she was attended by a very fashionable doctor. The whole matter was, as you see, quite an extra-special performance! The disease was running its usual course without incident, but the patient could not understand how such a thing could be, with a person of her importance; this was all well enough for hospital patients, but for *her!* So she finally made the following epic speech to the medical attendant: "but doctor, why do you not give me something to break up this disease and stop it short; you *must* have remedies that will do this, *which I can pay for but which others cannot.*" The more one reflects on that creature's mentality,—and she is a very important person and no fool,—the more astounding does her remark become.

But to return to Maître Jacques, who appears to have been quite a character for the day, and whom we can perhaps look on as the prototype of a kind of physician existing also at the present time, the man who without any particular medical merits retains his patients' allegiance by a process of "bulldozing," if you will pardon the term. During the last five months of Louis' life this artistic confrère extracted from his august charge "fifty thousand écus in hard cash, the bishopric of Amiens for his nephew, as well as other positions and properties for himself and

friends." Now when we consider the difference in the value of money between those days and ours, and if I am correct in estimating the écu at three francs, you must agree with me that for a poor sinful mortal that doctor didn't do so badly by himself and relations! The historian proceeds: "The said doctor was so very rough with him that no one would say to his valet the offensive and rude words that he used; but the King stood so in awe of him that he did not dare to discharge him. The King complained concerning him to those around him, but he would not have ventured to change him as he did all his other servants for the reason that the said doctor used to fling the following taunt impudently in his face: "Je scay bien que ung matin vous m'en envoyrez comme vous faictes d'autres; mais par la . . . (ung grant serment qu'i juroit), vous ne vivrés point huyt jours aprés!" Isn't that simply lovely?

Finally this mighty ruler who had always lived in such awe of death that he had time and again desired his intimates never to speak of it, but, when the time came, to resort to subterfuges, to "go easy," as the expression appears to mean (parlés petitz), had his death warrant flung in his face in the following cavalier fashion. Having observed that the king continued to shut his eyes to facts, in spite of the gravity of his condition, three members of his immediate circle, one of whom was our distinguished confrère Dr. Jacques, decided that the truth must be made known to him, and laid the situation unmistakably before him in the following terms: "Sire, we must fulfil our duty; cease hoping in this holy man (a hermit he had sent for from the far end of Italy) or in anything else, for of a certainty the game is up: on this account make your peace with God, since of remedies there is none." That is what might be called the delicate and finished touch, in the way of breaking bad news, and even the historian's sentiments were outraged, since he remarks: "he had raised these men, suddenly and without grounds, to a condition to which they were not fitted; therefore they did not hesitate to say to such a ruler things that were out of their province, also failing to observe the reverent and humble attitude suited to the case." When this little joint speech had been delivered "each one said a few brief words," to which this impenitent optimist replied: "I have hopes that God will help me, since peradventure *I am not as ill as you suppose!*" Not long subsequently the king expired,—as so commonly happens with people who have particularly apprehended their latter end,—peacefully, without suffering, fitted with the necessary sacraments, and conversing with those about him concerning the arrangements that he wished carried out at his funeral!

Louis XI has led me to such lengths that I shall have to make short work of the other medical details in our author. Charles VIII, his successor, struck his head against a beam in a doorway, and succumbed in nine hours, probably to meningeal hemorrhage. This occurred on the eve of "pasques fleuries," the pretty term for palm Sunday. The account was given to Commynes by the King's confessor who during the preceding week had on two occasions had the King at confession one of them on account of those who came to him for scrofula—as was likewise mentioned in connection with Louis. Commynes goes on to say that the disorder was apoplexy and that the physicians hoped that it would only affect one arm and not carry off the patient. "He was attended by four good physicians but only trusted the craziest of the lot, to whom he accorded so much authority that the others did not dare to speak, although they would gladly have purged him four days previously, as they thought they detected indications of death,—which actually came true." These must have been very far-sighted practitioners indeed.

Another interesting passage in Commynes is that in which he tells of the neurasthenic condition into which fell Charles, the iron duke of Burgundy, after his terrible rout at the hands of the Swiss at the battle of Morat,—and of the treatment of this disorder. He says: "he worked little, and kept to himself, and seemed to do so more from obstinacy than from any other cause, for his grief was so great as to upset his mind, so that he became seriously ill. For whereas his natural temperament and bodily heat were so great that he could not stand wine, but in the morning usually took some "ptizanne" and eat rose-conserve to freshen himself up, this grief changed his disposition in such a way that he had to be put on strong wine undiluted; and in order to get the blood back to the heart, they placed burning tow in dry-cups, and applied them thus heated to the cardiac region." This treatment of such a common trouble as neurasthenia may appeal to some inquiring mind.

In this connection (and also on another occasion) Commynes speaks of the advisability in cases of great adversity of acquiring relief by unburdening the soul to others: "It is of the greatest service to confer with special friends, and not to be afraid to manifest one's distress . . . since this relieves the heart and cheers it up and one's spirits revive." The other instance refers to Louis XI in his illness: "on no occasion did he complain, as do all kinds of persons in trouble, at any rate that is the sort of man *I* am, and I have seen many others act in a similar manner, since to lament is said to relieve suffering.' This is, of course, a well-known fact of current observation.

A visit to the donjon prisons of Loches, where Louis used to keep his particular enemies in safe guardiance, raises some curious medical points. One of the very original features of this institution was that the royal gaoler, not satisfied with shutting his prisoners up in dungeons cut out of the solid rock, in some cases altogether without light, had had constructed solid cages, 8 feet by 8 by 7, out of rectangular bars of oak strengthened by iron inside and out, into which he would pass a victim and then have the cage swung up in the air to a beam. Cardinal de la Balue, for instance, is reported to have spent three years of his long captivity in such a cage; and even Philippe de Commynes relates that under Louis' successor he personally was shut up in one for eight months.

Still other prisoners, besides those kept in ordinary dungeon chambers with no light and air but what could penetrate through one of the slits in the 4-5 metres thick wall, in the cages, and in caves with no light whatever,—were confined by an oak grating in the window-aperture itself; their space, then, would be in the form of a wedge, whose point was the outside window slit, its sides the thickness of the wall, and its base the opening into the dungeon barred by the oak grating. Thus, one very distinguished captive, the Duc d'Alençon, is reported to have passed five years in such a predicament at Loches.

Now the interesting question is this. Those prisoners were mortals like ourselves. They were mentally fulgurated, besides being inadequately clothed and fed. They had no light, little air, and no heat: in particular, the situation of the prisoners in those window-cells must have been trying to the extreme. Yet they seem to have survived it,—in fact Philippe refers to his little experience in terms that are almost jocose. Speaking of the inventor of these cages he says: "Many are those who have cursed him, among them myself, who have 'sampled' one of them for eight months, under the present king." It would appear that the men of those times must have been made of very different stuff from ourselves.

There is one piquant detail, in connection with these dungeons and torture-chambers, that can hardly be omitted. Louis XI was very devout; a man who could act with such ferocity as that was pretty sure to be pious,—*that* could have been told in advance. Under the church up in the fortifications of Loches is a subterranean chapel where he was accustomed to perform his devotions, and in particular he was in the habit of praying there for the souls of the prisoners he was about to submit to torture! From this chapel runs an underground passage that ends,—in the dungeon where de la Balue hung in his bird-cage.

and d'Alençon was enclosed in his icy window-aperture! The King could thus pay them a little private visit, now and then, and gather their personal views as to things in general! These rulers were not styled protectors of the true faith without very just grounds, evidently.

"S."

ITALIAN QUINTUPLETS.

Boston, May 18, 1914.

Mr. Editor: The newspaper clipping attached hereto gives the information that Rosa Corrada gave birth to five children at one parturition and that all are enjoying the best of health.

Inasmuch as we seldom hear of quintuplets being born, I thought it might be well to report this apparently authentic case.

Yours truly,

Gaetano Praino, M.D.

CINQUE FIGLI IN UNA VOLTA.

Palermo, 15.

Un fatto che si assicura non ha alcun riscontro s'è prodotto in questa città. Certa Corrado Rosa, metteva alla luce in un sol parto cinque figliuoli.

Puerpera e neonata godono ottima salute.

SOCIETY NOTICES.

American Medical Editors' Association.—The American Medical Editors' Association will meet on June 22 at the Marlborough-Blenheim Hotel, Atlantic City, N. J., under the presidency of Dr. E. A. Vander-Veer of Albany, N. Y.

Massachusetts Medico-Legal Society.—The annual meeting will be held in Room 125 of the Copley-Plaza Hotel, Boston, on Tuesday, June 9, 1914, at two o'clock.

Preceding the meeting, the annual lunch will be served in Room 123 at 1.30 o'clock.

Annual reports and election of officers.

The following papers will be read and discussed:—

1. "The Relation of the Industrial Accident Board to the Medical Examiner," Mr. Edward F. McSweeney, Member of the Massachusetts Industrial Accident Board.

2. "Poisoning by Paris Green," Theodore S. Bacon, M.D., Associate Medical Examiner, of Springfield.

3. "The Murder of Captain Charles D. Wyman of the Barge *Glendower*," George Burgess Magrath, M.D., Medical Examiner, of Boston.

Oliver H. Howe, M.D.,
Recording Secretary.

Cohasset, May 20, 1914.

APPOINTMENTS.

Syracuse University.—*Dr. Oliver W. H. Mitchell* has been appointed assistant professor of bacteriology.

University of Missouri.—*Dr. E. R. Clark* has been appointed professor of anatomy, and *Dr. Muzyck P. Ravenel* professor of preventive medicine.

RECENT DEATHS.

Dr. Charles T. Wainright, of New York, died from cardiac disease at Englewood, N. J., on May 7. He was a native of Lewis County, Mo., and 56 years of age. Dr. Wainright was graduated from the Missouri Medical College in 1882, and afterwards studied for a considerable time in Europe. In 1889 he received the degree of M.D. from Bellevue Hospital Medical College, New York, also. He was appointed professor of internal medicine at the University Medical College, Kansas City, Mo., and after serving for several years resigned to accept a similar position at the New York Post-Graduate Medical School. For some time before his death he had been incapacitated by ill health.

Dr. William Edmund Weber, of New York, died suddenly on May 7, at the age of 47. He was graduated from the College of Physicians and Surgeons, New York, in 1891, and since 1896 had served in the New York City Health Department. For the past four years he had had charge of the work of the infants' milk stations of the department. Dr. Weber was also attending physician to the out-patient department of the German Hospital.

Dr. John Alexander Fitz-Hugh, a Fellow of The Massachusetts Medical Society, died at Amesbury, March 21, 1914, aged 59 years.

Dr. Thomas M. L. Chrystie, of New York, died on May 19, at his country home at Rye, Westchester County. Dr. Chrystie was a lineal descendant of Major James Chrystie of the New York troops in the Continental Army, and was a hereditary member of the Society of the Cincinnati. He was born in 1841 at New Windsor, on the Hudson, where the family had been early settlers. He was graduated from Trinity College, Hartford, in 1863, and served for a time at the Cavalry Corps Hospital of the Army of the Potomac. He was then transferred to the navy, and was acting ensign on the staff of Admiral Farragut until the close of the war. He was graduated from Bellevue Hospital Medical College in 1867, and later became attending surgeon to the New York Orthopedic Dispensary and Hospital. For the past twenty-five years he had been surgeon of the New York State Branch of the Society of the Cincinnati.

Dr. Daniel Morris Woolley, of Brooklyn, died from cancer of the liver on May 18. He was a native of Deal Beach, N. J., 64 years of age, and was graduated from the Medical Department of New York University in 1885.

Dr. Joseph E. A. Lanouette, who died of septicemia on May 16, in Manchester, N. H., was born at Champlain, Que., in 1850. He graduated in 1872 from University Bishop College. From 1873 to 1881 he served as a surgeon in the Canadian militia. He was for many years a member of the local board of health.

BOOKS AND PAMPHLETS RECEIVED.

Public Health Reports. Vol. XXVIII, No. 42, October 17, 1913. Containing Information of the Current Prevalence of Disease, the Occurrence of Epidemics, Sanitary Legislation and Related Subjects.

London Public Health Administration, a Summary. By W. McC. Wanklyn. Longmans, Green and Company, London, 1913.

Modern Medicine. By Sir William Osler, M.D., and Thomas McCrae, M.D. Vol. I. Lea and Febiger, 1913.

Surgical Treatment. By Sir W. Watson Cheyne and F. F. Burghard. Lea and Febiger, 1913.

Portraits of Dr. William Harvey. Oxford University Press, London, 1913.

Exophthalmic Goiter Cured by Ligating One Superior Thyroid Artery. By Leigh F. Watson, M.D. Reprint.

Abolishing Pain after Operations with Nerve Block a Distance. By Leigh Watson, M.D. Reprint.

Original Articles.

CANCER OF THE UTERUS.

THE POSSIBILITIES OF CURE BY THE RADICAL ABDOMINAL OPERATION. CERTAIN ORIGINAL METHODS OF OPERATING. INCLUDING AN ANALYSIS OF 367 CASES AT THE MASSACHUSETTS GENERAL HOSPITAL.

By Farrar Cobb, M.D., Boston,

Visiting Surgeon to the Massachusetts General Hospital.

This paper is substantially the same as that read at the clinical meeting of the Staff of the Massachusetts General Hospital, February 20, 1914. The paper should be of value from an educational point of view because,—

(a) It gives a complete analysis, from the standpoint of end results, of all the cases of cancer of the uterus at the Massachusetts General Hospital for fourteen years, from 1900 to 1913 inclusive, 367 in number, of which 70 were my own personal cases.

(b) It emphasizes the importance of early diagnosis of cancer of the cervix and distinctly shows the possibilities of cure by the extended abdominal (Wertheim) operation, and describes certain original methods of operating which are of importance.

In 1912 I published an article on the same subject,[1] analyzing the hospital cases from 1900 to 1910 inclusive and it is only natural that the present paper should be related to the first in form and substance.

In preparing this article opportunity has been given me to prove previous work and review conclusions in the light of three additional hospital years and my own larger operative experience and to describe in detail some original technical methods which I have developed. Those who have read my previous paper will recognize doubtless certain statements and opinions and for such inevitable repetition I crave indulgence.

It is a plain duty to study our own end results and compare them with those of other workers the world over, and this applies particularly to special workers in different fields; but while our results must be compared with those of the best workmen anywhere, it is not fair to compare the results of a large number of men, some of whom have had no special training or experience, operating intermittently with relatively small material, with the work of one well trained man who has worked continuously with abundant material. This should be considered when we compare our results as a whole with those of Wertheim or with the results of one of our own number who has been given more opportunity and material.

I have been interested in the radical abdominal hysterectomy for cancer of the cervix since 1901 and up to January 1st last have done this operation 29 times, with an immediate mortality of 4 or 13.7%, 25 cases in the hospital and four cases during the last year in my private practice. Two cases have been done too recently to be included in this analysis. Only the hospital cases will be included in this paper. Previous to August 1, 1911, the operations at the hospital were done by many surgeons including myself. Since that date, under the present system of assigning special lines of work to individuals, all the cases of cancer of the uterus have been operated on by me.

By radical operation I mean substantially that done by Wertheim, which, concisely, is the removal of the uterus and a liberal portion of the vagina through a median abdominal incision with thorough dissection of the ureters and bladder and the removal of as much of the parametrium as possible, the regional lymph glands to be removed only if palpably enlarged. It is a difficult and tedious operation and the profession and the public should be made to understand that it should be done only by specially trained men. Surgeons who are jealous of their immediate mortality records should not operate for cancer of the cervix; one must disregard absolutely his surgical reputation, as far as his primary results are concerned, for the sake of curing more patients in the future.

I believe there is urgent need for education on the subject of cancer of the uterus; education of medical students and the medical profession; education of surgeons and of the lay public, and that until a vigorous campaign has been waged for a long time, the majority of women with this disease will continue to be deprived of their proper chance of life, as, beyond question they have been in the years that are past. It is not unusual to hear men of wide surgical experience say that the abdominal operation for cancer of the cervix is unjustifiable, because of the small chance of ultimate cure and the extremely high immediate mortality. In fact, since I began my special work at the hospital in August, 1911, more than one of my distinguished colleagues on the Staff have expressed practically the same opinion. Such teaching is to be condemned; men holding such opinions do not know what has been accomplished. As stated by Dr. William P. Graves in his admirable discussion of my first paper, "It is unquestionably true that the prognosis of cancer of the cervix operated on early by a trained surgeon employing the best technical methods is considerably better as to recurrence than that of an early cancer of the breast operated on under similar circumstances, and the surgical treatment of cancer of the uterus is

par excellence Wertheim's extended abdominal operation."

When you consider that over three-fifths of the patients presenting themselves at the hospital with cancer of the cervix come too late for any attempt at a radical operation, and of those radically operated on by surgeons not specially experienced probably three-fourths will die inside of five years,—and our analysis at this hospital proves this,—it is little wonder that physicians and the laity believe it to be an incurable disease. The two most important questions in relation to this subject are,—

1. How can we teach the public and the medical profession the importance of early diagnosis and the possibility of cure?

2. In what cases is a surgical operation justified?

In the fourteen years from 1900 to 1913 inclusive, 367 cases of cancer of the uterus were admitted to the hospital, including cases of cancer of the cervix and cancer of the body of the uterus. Seventy of these were my personal cases. Cancer of the uterus usually means squamous cell cancer of the cervix. In discussing the radical operation and the late results the cases of cancer of the cervix have been separated from those of the body of the uterus, since cancer of the fundus is a comparatively favorable form for cure by simple hysterectomy, either vaginal or abdominal.

Cancer of the cervix is a disease demanding a radical operation. Wertheim's reported cases are all cancer of the cervix. The important part of my work from an educational point of view relates to this form.

One great lesson from such a large series of cases, the work of many men, is that there is great need of an effective system of completing hospital records, from the standpoint of end results. The difficulties in securing final information in this large number of cases have been great and the hospital records, with the exception of the last few years, have furnished practically no help. I cannot help feeling a certain amount of satisfaction at the result of our labors in that out of 103 cases surviving the operations of hysterectomy of all kinds 93, or all but 10, have been traced. I have not lost track of any of my own cases.

Wertheim's latest report covers a period of fifteen years from 1898 to 1912. His work during this period should be compared with our hospital results from 1900 to 1913, fourteen years. Of our 367 cases:—

4 refused operation.
57 were considered inoperable.
173 had a palliative operation, either amputation, or curetting and cauterization, with or without ligation of the internal iliac arteries, (this last procedure only being done since I began this special work.
17 vaginal hysterectomies.
116 abdominal hysterectomies.

At the end of my paper I will give a tabulated review of the statistics of the cases in detail.

230 cases came too late for a radical operation, an operability of only 36.2%. According to Wertheim's latest statistics 50% of his cases were operable. From 1898 to 1912 he examined 1430 cases.

71 refused operation.
684 were inoperable.
675 had a radical operation done.

The appalling lack of operability is due to popular ignorance as to the nature of the disease and its hideously insidious onset, and also to the neglect of medical practitioners to examine the cases or to recognize the importance of the conditions found on examination, and also, and this applies especially in this country, to the lack of knowledge on the part of surgeons as to what is an operable case. The operability at this hospital is about the same as at other hospitals in this country.

Since August 1, 1911, I have had personally 50 cases of which 5 were inoperable; 23 had palliative operations, including eight cases in which the iliac arteries were tied; radical abdominal hysterectomy was done in 22 cases, an operability of 40.4%, too small a number of cases and too small an increase in operability to justify any conclusions as to the value of our specializing in educating the community. It should be realized that for years in Germany a publicity campaign to educate the laity has been carried on and it is gratifying to note that something is beginning to be done in this country in this direction. Until we can teach convincingly that irregular bleeding at any time in a woman's life may mean cancer, and always demands investigation by a competent man, we will continue to have an appalling list of hopeless cases and avoidable deaths. Every medical society in every city and town should be aroused to the serious need of such education and the importance of a thorough examination.

EARLY SYMPTOMS.

Our series of cases simply corroborates what is already known, that the commonest early symptom is irregular bleeding; that pain is a late symptom, but our statistics in regard to the first symptoms and the duration of symptoms are of small value because of inaccurate observation on the part of patients and the failure to make careful notes in the majority of the records. In the 230 inoperable and palliative cases the average duration of symptoms before the patient came to the hospital was about one year. Undoubtedly cancer of the cervix may be present for many months before any symptoms are noted. It may go to an inoperable stage with practically no symptoms and still such cases live for years. One case came to the hospital three weeks after the first

symptoms were noted and was thought to have inoperable disease and yet lived for four years and eight months. The average duration of life in the cases that were not operated on at all was between seven and eight months, whereas the average duration of life in the palliated cases was thirteen months. It is interesting to note here that one case of adeno-carcinoma of the cervix is alive and well without recurrence at the end of eleven years after a palliative operation; *i e.*, amputation with the cautery.

I make here a plea for those unfortunate patients who come too late for radical operation. I think it is our duty in every case where a radical operation is inadvisable to make determined and repeated efforts toward the prolongation of life and relief of pain and hemorrhage. I feel sure that all too frequently the operable cases here and elsewhere are neglected and allowed to die without much of anything being attempted for their relief. We are all familiar with the value of thorough curetting. It should be remembered that curettage without the use of the cautery is unwise and that the cautery itself probably has a positive influence in checking cancer growth much deeper than the surface actually cauterized. In other words, there is hardly any doubt that the developmental activity of the cancer cells can be arrested and permanently destroyed at a distance far remote from the surface upon which the cautery is used. Recently Dr. James F. Percy, Galesbury, Ill.,[2] has exploited at medical meetings and in journals his exaggerated use of the cautery in inoperable cases. He uses a water-cooled vaginal speculum, puts a thermometer in the bladder and opens the abdomen so that he can detect a dangerous amount of heat. His statistics are not convincing and we must wait a number of years before passing comparative judgment upon his method of the use of the cautery.

Between cauterizations much good can be done by local applications, either of acetone or formalin. The value of radium emanations is uncertain, but in cases in which this treatment can be obtained it should be tried, not neglecting general treatment, bromide of arsenic and tincture of iodine, and the judicious use of opium, in accordance with the principles laid down by Dr. George W. Gay.[3]

I have in eight cases supplemented the curetting and cauterization by opening the abdomen and ligating both internal iliac arteries. I first thought this procedure was an original one with me, but have found out since that it originated with Charles Ryall, Surgeon to the Bollingbrooke Hospital and the Cancer Hospital of Bromptom, England.[4] He reports over twenty cases of ligation with decided benefit and no complications. There has been no immediate mortality in my eight cases and in certain of them I have been much impressed by the almost instant relief from pain and hemorrhage. Patients that before operation have required morphine in fairly good sized doses have needed none the day after. The operation is one that can be done rapidly and safely even in obese patients. The abdomen is opened by a median incision, both ovarian and both internal iliac arteries tied with silk and the abdominal wound closed without drainage. Obviously, the theory of this method is to shut off the blood supply to the uterus and by starving the malignant growth diminish pain and hemorrhage. The two of my cases that most strongly illustrate the value of this procedure are:

Case 1. Hattie A., Hospital No. 182694.

This case illustrates *also* what, in my opinion, is a wrong way to deal with cancer of the cervix. She entered the hospital first in May, 1911. An assistant surgeon curetted and cauterized the growth and the patient was discharged with the advice to return in a month for radical operation. In my opinion, the radical operation was indicated at this time, and should have been done within a week or two after the cauterization, if not immediately following. The case teaches us that women should not be allowed to go out of the hospital without a radical operation. This patient got so much relief from the curetting and felt so well that she did not return until May, 1912, one year after her preliminary curettage; too late. She had had almost constant flowing for three months and much pain in the right lower abdomen, travelling down the right leg. An abdominal incision revealed marked involvement of the parametrium on both sides and extension of the growth into the broad ligament, most marked on the right, where a loop of the small intestine was adherent to the disease. This was not freed. The internal iliac arteries were tied with silk. Hemorrhage ceased at once and the pain practically disappeared. She left the hospital in very good condition June 1, 1912. I saw her at intervals of a month at the hospital and at her home in East Cambridge. She had no return of the hemorrhages and remained quite free from pain until six months before her death, which took place Oct. 9, 1913, a year and four months after ligation, a case that could have been radically operated on when it first came into the hospital. Final symptoms were markedly relieved by ligation.

Case 2. Annie S. Hospital No. 185890.

Carcinoma of the cervix and extensive pelvic metastases following palliative operation fifteen months before in another city. Very severe pain for weeks, requiring large doses of morphia. In November, 1912, I ligated both internal iliac arteries. She had immediate relief from pain and required practically no opiates after operation. Before operation large doses were repeated during the day. Required no opiates the last week of her stay in the hospital. The patient is still living, but at present in very poor condition.

What is an Operable Case?

Two hundred and thirty cases of the hospital series were pronounced unfit for radical operation, but this represented the opinions of many different surgeons. It

is probable that some of the cases regarded by some of the men as beyond surgical aid, might have been considered by others as fair risks. The fact that of the 317 cases before August, 1911, only nine were given the advantage of an exploratory laparotomy proves to me that in many a true decision could not have been made. If the entire pelvis is filled with a hard mass, the uterus fixed and the vagina markedly involved, there is no doubt but that such a case is inoperable, but in many cases no bimanual examination, with or without an anaesthetic, can determine positively that the case is not one for radical treatment, because fixation of the uterus and indurated masses in one or both broad ligaments are not infrequently due to inflammatory tissue, adhesions, pus tubes or cysts. Even if fixation and induration in the broad ligaments is due to cancer, such cases should have the advantage of exploratory laparotomy because it is certain some of the apparently desperate cases, even those involving the bladder, can be cured. Of Wertheim's cured cases there were no less than ten that had been considered inoperable by very worthy men. In nine others the wall of the rectum was involved and in six others the bladder was so fixed that its loosening was very difficult. In several others the parametrium was so widely infiltrated that in separating it from the pelvic wall it gave the operator the impression that he was cutting through cancerous tissue. One of my own cases that had lived the longest free from recurrence; namely, thirteen years, was a case in which the left ureter had to be dug out of a mass of apparent disease and in which the iliac glands on both sides were markedly enlarged and were removed. This is the case of Elizabeth C., W. S., vol. 369, page 120. In her case there was marked thickening and induration in the left broad ligament noted before operation, and one case, in which the uterus was fixed and both broad ligaments indurated, is alive and well over five years. I have operated on three cases operated on palliatively by other men. In each case I found it possible to do a radical operation; in two of them the bladder was opened and successfully repaired. One died of recurrence, one year, eight months and nine days afterwards; the other two are cured. Therefore, in the face of such evidence as Wertheim's and my own limited experience, I believe that there are a number of cases in which none of us have the right to decide in regard to the possibility of a radical operation until the abdomen has been opened. The borderline cases will be the most difficult, possibly involving injuries or resection of the bladder and ureters, but without operation death is certain, suffering extreme, and we know that with it a definite number of cases are cured. Cystoscopy may give some evidence in regard to the extension of the growth to the vesico-cervical septum. If there is a prominence of the trigone, it is an indication that this area is involved, but even if the cystoscope should show probable invasion of the septum, it would not be positive proof and a radical operation even then, with resection of the bladder, might not be impossible. If on exploring a case it is found unfit for a radical operation, the valuable palliative operation of tying the iliac arteries can be quickly done.

The general condition of the patient must be considered carefully in deciding upon the operation and a long, tedious and frequently bloody abdominal operation should never be attempted in feeble subjects: it is contra-indicated, also, in the presence of marked adiposity. In such cases vaginal hysterectomy should be substituted. In certain of the adipose cases it may be possible to do a para-vaginal or radical vaginal hysterectomy, the operation of Schuchardt and Schauta, as will be described in detail later. My experience has convinced me that the Wertheim operation in very fat women is one of extreme difficulty and great risk to life, and in the future I will avoid the operation as much as possible in such cases and intend to do the extended vaginal operation. One of my fatal cases was that of a very fat woman in whom a vaginal hysterectomy was impossible on account of the inability to pull down the uterus because of firm intra-abdominal adhesions subsequent to a previous laparotomy. Death resulted from general peritonitis. During the time Wertheim was doing 500 abdominal operations he performed vaginal hysterectomy only 21 times, in 5 cases for high-grade adiposity, in 11 cases because of cardio-renal disease, in 5 cases of very early cancer diagnosed only by the microscope.

CARE IN PATHOLOGICAL EXAMINATIONS.

Unless great care is used, pathological examinations of tissue from the suspected cervix may be in error. The most favorable cases for cure are those in which the diagnosis of cancer is made early by the microscope. Possible sources of error are depending upon curetting without excising pieces, failure to obtain tissue from the diseased area, and incomplete study of the tissues after removal, also the mixing up of specimens in a laboratory which is burdened with much work. In suspicious cases wedge-shaped pieces should be cut from more than one place, should involve the area of granulation tissue under suspicion and the normal mucosa adjoining. Many sections should be cut and examined with care. Great pains should be taken to prevent the mixing up of specimens with those from any other case. As an illustration of the possibility of error, there were three cases in our series in which no operation was done because the pathological reports were in one case "blood clot," in two "simple glandular hypertrophy."

These three cases died of typical cancer of the cervix clinically. In one of my cases it is certain that the specimen was interchanged with that from another case in the laboratory.

I have done two cases in which the pathological report was non-malignant after operation, one case was a sloughing fibroid and the other arterio-sclerosis. These cases both recovered, but have not been included in my series of radical operations for cancer of the cervix. In the operation for sloughing fibroid the bladder was badly torn and a large vesico-vaginal fistula persisted for many weeks; finally I was able to close this.

IMMEDIATE MORTALITY AND RESULTS.

Since writing my earlier paper nearly two years ago, I have had opportunity to trace cases then classed as untraced and to prove and correct my statistics. Before analyzing our own cases I will give you Wertheim's latest report on his percentage of cures by the abdominal method. By his report of November, 1912, he had done the radical operation 675 times, 380 were done over five years previous to the report, and of this number 160 cases were cured, over 42%. His immediate mortality in the first ten cases was 30%, and in his last 175 only 9%, a most striking illustration of the possibility of improving one's technique and results by practice.

VAGINAL HYSTERECTOMIES.

In our series there were 17 vaginal hysterectomies, 13 for cancer of the cervix and 4 for cancer of the fundus. The immediate mortality was zero. 14 operations were done over five years ago, and of these 8 were traced. 2 cases were cured, both of them cancer of the cervix, 25% of cures in the vaginal operation for cancer of the cervix. Since 1910 there were 3 cases, all of which are free from recurrence from one to three years, 2 cancer of the cervix and 1 cancer of the fundus. It is interesting to note that there were no cures in cases of cancer of the fundus, which is supposed to be but slightly malignant and for which the operation of vaginal hysterectomy is justifiable.

I believe it is true that the simple vaginal hysterectomy in the hands of numerous men who have had no special training or experience will be the safest method and give a greater percentage of cures than the radical abdominal method in the *same hands*, but I believe most earnestly that cancer of the cervix should be operated on only by men specially educated and trained. After the studied results of special operators in this and other countries and our own cases, as shown here tonight, it must be admitted that simple vaginal hysterectomy can have no place as the operation of choice for cancer of the cervix except in very fat subjects and in those cases where it is wise to do a rapid and comparatively safe operation because of the poor condition of the patient and possibly in a small number of cases of very early microscopic diagnosis. No operator with large experience has been able to report over 10% of cures.

We should, however, compare the radical vaginal or paravaginal operation of Schuchardt and Schauta with the radical operation of Wertheim. Briefly, it is an operation in which the vaginal wall and labia on the left and all the para-vaginal and para-rectal tissues are split to the sacrum laying wide open the perineum. By this procedure it is possible to remove a generous portion of the vagina and some of the parametrial tissue, but it is said to be difficult and bloody and undetected injuries of the bladder, rectum and ureters are common. The danger of implantation metastasis is greater and the lymph glands cannot be reached. Its immediate mortality is almost as high as Wertheim's and the percentage of cures not so large; convalescence is often complicated by tedious suppuration and sinus formation.

ABDOMINAL HYSTERECTOMIES FOR CANCER OF THE FUNDUS.

There were in our series 27 cases in which seven cases were my personal operations. The immediate mortality was 4 or 14.8%. Of the surviving 23 cases I have traced 22, of which 14 were operated on over five years before. Six of these cases are cured, or 42.8%. In addition, one case is free from recurrence $4\frac{1}{2}$ years and one $3\frac{1}{4}$ years. In my personal cases, 7 in all, I have had no immediate mortality and but one death from recurrence; this case was far advanced and in very weak condition when I operated and the disease had extended to the peritoneal surface of the body of the uterus.

It is a matter of surprise to me that the percentage of cures of carcinoma of the fundus, both by the vaginal and abdominal route is so low. Dr. Graves in his discussion of my previous paper stated that the figure for non-recurrence should be as high as 90%, while the primary surgical mortality should be practically nothing. The only explanation of our immediate mortality, 14.8% by the abdominal method with only 42.8% cured cases, is the fact that a few of the cases came to operation in an advanced stage of the disease in poor condition. A case of this sort is my case, Zenia C., No. 190040, who died with recurrence in the liver four months and nine days after operation.

ABDOMINAL HYSTERECTOMIES FOR CANCER OF THE CERVIX.

Total number 89; squamous cell 87 and adenocarcinoma 2. I have divided the abdominal hysterectomies into two groups, the simple, not radical, operations, 49 in all, and the radical,

40 in number. By simple hysterectomy I mean the removal of the uterus with no extraordinary attempt to dissect the ureters and remove the parametrium widely. Radical hysterectomy is substantially Wertheim's operation.

Of the 49 simple hysterectomies there was the excessive immediate mortality of 17, or 34.6%. Of the surviving 32 cases I have been able to trace 29. Of these 26 were operated on over five years ago, cured only 5, or 19+%. In addition, two cases are free from recurrence from three to four and a half years. Of the 40 radical hysterectomies there was an immediate mortality of 9, or 22.5%. Of the surviving 31 cases I have traced all the 31, of these 14 were operated on over five years ago and 7, or 50% are cured.

Of the 40 radical hysterectomies 23 were done by myself. Of the 17 cases not done by myself all were traced, the immediate mortality was 5, or 29%. Of the 12 surviving cases, 8 were operated on over five years ago. One case is cured, 12½%. In addition, two cases are alive and free from recurrence over three years. Of my own 23 hospital cases, the immediate mortality was 4, or 17+%. Six cases were done over five years ago, 5 are cured. In the cases since August 1, 1911, 17 in number, I have so far four recurrences; three cases are free from recurrence from one to two years. The cause of death in the abdominal hysterectomies in the majority of cases was septic peritonitis; shock was the next most frequent cause.

In reviewing the hysterectomies certain features are worthy of special note. Simple vaginal hysterectomy was the safest in the hands of a large number of operators and gave a larger percentage of cures than simple abdominal hysterectomy by numerous surgeons. The simple abdominal hysterectomy, with an immediate mortality of over 34%, proved to be an extraordinarily dangerous method in the hands of various surgeons and its percentage of cures is very small, not sufficient to justify its employment as an operation having any advantage over vaginal hysterectomy. Cases in which the bladder, rectum or ureter were injured were far more common in this set of cases than in the radical operations. We are led to conclude that the abdominal operation which makes no attempt to dissect the ureters and remove the parametrium, to say nothing of the glands, cannot be advocated as a safe or reasonable operation for cancer of the cervix, because such an operation exposes the patient to increased danger from shock, hemorrhage and peritonitis without making any more effective removal of the disease and its lymphatics, than in a simple vaginal hysterectomy.

The 40 radical hysterectomies including my own cases show an immediate mortality of 22½%. The cures were 50%, a showing which speaks for itself as satisfactory. The lower mortality and increased percentage of cures by the radical method can be explained by the fact that these operations were attempted only by two or three men specially interested and educated, whereas, the majority of the simple hysterectomies were done by many surgeons, most of whom, in all probability, had made no special study of the technique of the subject, or, chose the abdominal route as a method with which they were more familiar.

The important factors in the operation are:

1. The preliminary preparation.
2. The anaesthetic with special reference to the prevention of shock.
3. The abdominal incision.
4. The freeing and handling of the ureters.
5. Removal of the parametrium and glands.
6. Control of hemorrhage.
7. Prevention of peritoneal infection and implantation metastasis from the growth itself.
8. Drainage and after treatment.

I gradually have adopted some original technique by which I think the operation is made even more radical and perhaps somewhat safer. I refer specially to the combined method of spinal and general anaesthesia, the abdominal incision, the retraction and elevation of the ureters by tapes and the ligation of both internal iliac arteries.

PRELIMINARY PREPARATION OF THE PATIENT.

Under this heading is to be considered the general preparation of the patient, the getting her into the best possible condition for the operation, and also the preliminary preparation of the vagina. Special attention should be paid to the condition of the heart and kidneys; the functional renal test should be done with care more than once. A percentage of 25 prohibits the radical operation. It has been surprising to me to see how much certain cases have improved in ten days or two weeks by rest in bed, forced fluids and liberal diet with a moderate amount of stimulation. This had been especially so in a number of cases of adeno-carcinoma of the body of the uterus; women quite advanced in years, cases which on entering the hospital seemed to be inoperable because of the irregular pulse and feeble condition, and upon which a successful hysterectomy was done.

I wish to say here that the combined method of spinal and ether anaesthesia has enabled me to safely operate on a number of cases which previously I should not have operated upon, or, if at all, under the feeling that death would almost certainly result. I will take up this method of anaesthesia in detail later on. More so than in any other pelvic operation, the presence of distended coils of intestines will seriously interfere with the technique. At least two days of light diet and catharsis are needed.

It is impossible to make any hard and fast rule in regard to the preparation of the vagina. Wertheim usually curettes and cauterizes the

growth on or about the cervix immediately before beginning anaesthesia for the abdominal operation. He does this usually without anaesthesia, and claims that the patients suffer little pain. This is hard to believe. The difficulty of getting sufficient relaxation without anaesthesia, to say nothing of the psychic shock to a woman facing such an ordeal, would contraindicate any such proceeding. I have come to believe that in the majority of cases it is best to do the curetting and cauterizing, if it is necessary, and the disinfection of the vagina as the first step of one operation, and to do it under combined anaesthesia, and, as I will mention in discussing anaesthesia, the vaginal part can be begun immediately after the first injection has been made, while the ether is being started.

I have found that curetting and cauterization as a distinct preliminary operation a week or ten days before the abdominal operation is apt to create a much more foul and septic condition about the cervix because of the large migration of bacteria into the freshly infiltrated areas, and also. I believe that the formation of scar tissue in the cauterized areas where the cervical growth has been large will tend to make the intra-pelvic freeing of the bladder and the rectum much more difficult. In cases where the cervical growth is small and confined to the cervix, where I am sure that I can at the later stage of the abdominal operation go far down the vaginal walls with the right angled clamp, I do not curette or cauterize, simply disinfect the vagina as described below. The cases of extensive proliferative growth are curetted and cauterized, after which the vagina is disinfected. The only cases in which I think it best to do curetting and cauterization as a distinct operation a week or two in advance, are the cases that are in bad condition because of excessive hemorrhage, and cases which are flowing profusely on entering the hospital. In such it is wise to thoroughly curette and fire locally and wait a sufficient length of time to get the patient strong enough for the abdominal work.

To disinfect the vagina, whether or not the curette and cautery have been used, I use the following method. The preliminary preparation is always done by myself. After scrubbing with green soap and water, and using a 1-2000 corrosive douche freely, the scrubbing and corrosive douche being done before the use of the curette and cautery, I fill the vagina with tincture of iodine and allow it to remain two minutes. After wiping this out with gauze sponges the vagina is filled with alcohol, pains being taken afterwards to wash out all the alcohol with bichloride solution 1-2000. A small gauze sponge is tucked lightly for a short distance in the vagina as the final step, no attempt being made to demark the cervix or to attach any instrument to the posterior vaginal vault.

ANAESTHESIA.

The time necessary to do an operation of this magnitude will be from one to four hours. My quickest operation, in which I did not remove the iliac glands, required one hour and fifty minutes. My difficult cases have taken from two and a half to three and a half hours. It goes without saying that much pains should be taken to shorten the time in every way and that the choice of anaesthesia and the anaesthetist is of the greatest importance. The chief cause of death following this operation are shock and septic peritonitis.

Spinal anaesthesia has been done in 33 cases by Wertheim, either with stovain or tropococaine. In general the duration of the anaesthesia possible by the spinal method alone is too short for the performance of this operation, and the necessity of using a large amount of the interspinal fluid in combination with the Trendelenberg position tends to make this method of anaesthesia dangerous. In addition, I believe it to be very important to have the patients, who almost always are in fear of the operation, unconscious and oblivious to the manipulation and surroundings.

Ether has been accepted as the best anaesthetic. In my paper published a year and a half ago I said it was the only anaesthesia to be considered. I still think so,

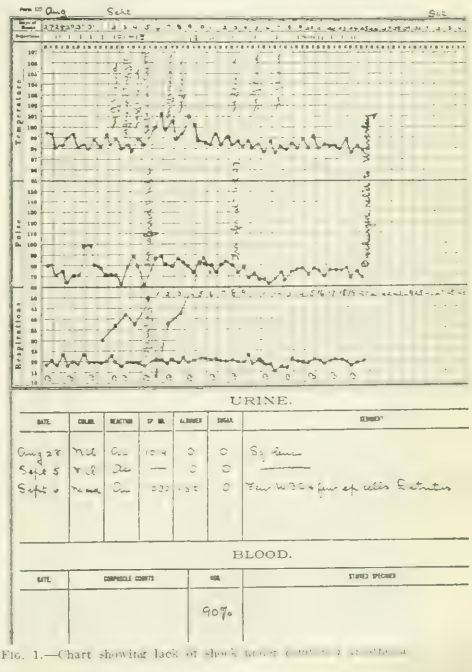


Fig. 1.—Chart showing lack of shock [illegible]

but I have found in the last eleven months that by using spinal injection and ether in combination that not only have I had no shock at all or anything approaching it, in most of the cases, but the patients have been free, in a most surprising degree, from the alarming sequelae and complications of convalescence that all too often cropped up in the cases leaving the operating table in moderate or severe shock after a long etherization. This spinal injection is used as a "nerve bloc" on the anoci principle, or nerve blocking theory advanced by Crile; the idea being to shut off the nerve irritation from the extensive manipulation in the pelvis from the higher centres by using a moderate dosage of stovain or tropacocaine and in addition to secure unconsciousness and prolonged anaesthesia; ether is begun at once after the spinal injection and continued to the end of the operation. Figure 1 is a copy of the chart of one of the hospital cases illustrating the entire absence of shock in the pulse curve and the very satisfactory convalescence in these cases.

As I have said, the preparation of the vagina can be undertaken almost immediately. Half an hour before the anaesthesia, morphine gr. ¼ with atropine gr. 1-120 is given hypodermically. The spinal injection is from 1 to 2 c.c. of tropacocaine, 5% with suprarenin. (The 5% tropacocaine-suprarenin Lösung made by G. Pohl of Germany.) This is given usually between the second and third lumbar vertebrae.

Dr. A. M. Dodge, one of our anaesthetists has been interested and kind enough to give this combined anaesthesia for me in nearly all of my private and hospital cases.

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(To be continued.)

THE USE OF CONCENTRATED NEOSALVARSAN FROM A CLINICAL AND SEROLOGICAL STANDPOINT.

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[From the records of the Skin Department of the Massachusetts General Hospital.]

THE successful treatment of syphilis today in a large clinic demands a method of administering salvarsan that fulfills at least three requirements. The operative procedure must be simple and swift. The patient must be spared any immediate or permanent sequelae of a disabling nature. The disease must be checked as effectively by this as by any known method.

The use of concentrated neosalvarsan satisfies the requirements of simplicity, swiftness and freedom from objectionable after-effects as no other method has done. Therapeuticly, its true place can be settled only after the accumulation of much more data than is available at present.

After experimentation with mechanical holders and tubing devices the method of administration of concentrated neosalvarsan in the Skin Out-Patient Department of the Massachusetts General Hospital settled on the following simple procedure which has been successfully used without exception over three hundred times.

All the injections of the morning are mixed in one bottle which may be kept tightly corked. 20 c.c. of freshly distilled sterile water are allowed to each dose and that amount is poured into a small graduate. A straight needle with a Swift holder is introduced into the vein and as soon as the blood returns freely through the needle, the syringe is filled, quickly adjusted to the needle and its contents injected. The time consumed in the actual injection of the solution is about thirty seconds. All the operating is done under the strictest aseptic precautions. With the aid of one assistant or nurse to get the patients prepared, in position on the operating table and tourniquetted, a dozen injections have been given in less than an hour without undue haste.

This procedure, although simple in description and in operation, may present several points of difficulty to the novice in this method of injection. When the syringe is full, it is advisable to grasp the barrel well toward the upper end in order that the little finger may rest firmly on the plunger. Otherwise, if only the barrel is held and the syringe is tilted in the transfer from the graduate to the needle the weight of the plunger forces the fluid out at the end or if the position is reversed the plunger falls out entirely.

Another point to be borne in mind is that the syringe must invariably be adjusted to the needle and not the needle to the syringe. This is the most difficult part of the technique and the source of the greatest trouble in the whole operation. The syringe and needle combined represent the long arm of a tremendously powerful lever in comparison to the very short arm represented by the length of the needle within the lumen of the vessel. For instance, in the average injection the length of the needle in the tissue is about half an inch and the length of the rest of the needle and the filled 20 c.c. syringe is about ten inches. The firm skin at the point of injection acts as an excellent fulcrum. In as much as pressure applied at the long end of a lever increases in direct proportion to the length of the short arm it will

be seen that an eight ounce pressure on the syringe increases to a ten pound pressure at the end of the needle within the vein. This physical law explains in large measure the rupture or leaking of blood-vessels after the needle has apparently been successfully introduced. A steady hand to hold the apparatus as motionless as possible is an important requisite for the successful use of this method.

The concentrated neosalvarsan injection is splendidly adapted for use in the office or outpatient clinics where it is of primal importance that sequelae shall not interfere with the patients' unassisted return home or to work without considerable loss of time. In three hundred and forty-one (341) injections done in the Skin Out-Patient Department from November 10, 1913 to January 17, 1914 no patient found it necessary to recuperate in the recovery rooms because of untoward symptoms. As for illness for the twenty-four hours following injections, it was the exception for the patient to make any comment on the next visit about unpleasant sequelae. In the majority of cases it took searching questions by the phyician to bring to light symptoms that might be classed as after effects of the medicine. Dizziness, headaches, and diarrhea were commonly recorded, their occurrence being most frequent following the initial injection and in those patients where nerves and alcohol played a leading role. The evidence showed conclusively that the danger of unpleasant or dangerous sequelae when the injection is given by an experienced operator and under aseptic conditions is reduced to a minimum.

Broadly speaking, the success or failure of any method of medication depends upon its lasting therapeutic efficiency, irrespective of the facility it may be given by the physician or received by the patient. This test the concentrated neosalvarsan has yet to undergo and the results must be conclusively in its favor if it is properly to displace the original Ehrlich product, the worth of which is established in fairly definite lines.

Symptomaticly, the concentrated neosalvarsan is as active as any of its predecessors. Primaries disappear, rashes fade, mucous patches heal, headaches cease, and gummata resolve as rapidly as with the old salvarsan. It is only when the serological results are considered that doubts about its comparative value begin to arise.

In order to get a more definite notion of the serological side of the question it was proposed to take as many fresh untreated syphilitic cases as possible within certain time limits, give a series of four injections of concentrated neosalvarsan of a 0.45 gram dosage to each at weekly intervals and follow this by a Wassermann test one week after the last injection. Out of a series of sixty-two (62) cases, carefully selected and instructed as to the importance both to themselves and to their physician of carrying out instructions, only twenty-four (24) fulfilled the simple requirements of this five weeks course of treatment. The Wassermann tests in all instances were done with two antigens, the beef heart extract and the new cholesterinized heart extract. The details of the series of cases were as follows:

For practical consideration this series can be divided into three fairly distinct groups,—ten cases of early syphilis, four cases of late secondary manifestations, and ten cases of late syphilis. It is to be regretted that Wassermann tests were not done on all cases before treatment but it seems fair to assume that as the positive diagnosis of syphilis was made the Wassermann would be as strong before treatment as after.

Group I. Ten cases. *Cholesterinized antigen.* One stronger after treatment than before. Eight unchanged or strongly positive after treatment. One changed from strongly positive to weakly positive. *Beef heart antigen.* Five became less strong after treatment. Five became negative.

Group II. Four cases. *Cholesterinized antigen.* One remained strongly positive. Three became less positive. *Beef heart antigen.* One remained weakly positive. Three became negative.

Group III. Ten cases. *Cholesterinized antigen.* Nine remained strongly positive after treatment. The one that became negative was only weakly positive in a congenital case before treatment. *Beef heart antigen.* Seven remained strongly positive. One became moderatively positive from strongly positive. One became negative from weakly positive. One was negative before and after treatment.

Summary. Twenty-four cases. *Cholesterinized antigen.* Nineteen remained unchanged. Four became less positive. One became negative. *Beef heart antigen.* Seven remained unchanged. Seven became less positive. Ten became negative.

The exact status of the cholesterinized antigen in the Wassermann reaction is still a matter of debate but most observers agree that in known syphilities at least, the test is more delicate than the older methods. This series would support that theory. With one exception, (Group 1, case 1), the cholesterinized antigen was equally or more strong than the beef heart antigen tests before and after treatment. According to this test only one out of the ten early cases of Group 1 changed for the better. The milder secondary cases in Group II responded in a more satisfactory manner although the number treated was hardly enough to justify a positive statement. The late cases of Group III, where the spirochetes might be said to be well entrenched, failed to show improvement in again nine out of ten cases. Keeping in mind the fact of the much less senative action of the beef heart antigen the end results of that test show a proportionately unsatisfactory condition of the blood picture. Thus it would

GROUP I.

Case.	Sex.	Age.	Duration.	Previous Symptoms.	Present Symptoms.	Previous Treatment.	Before Treatment.		After Treatment.	
							Choles. Antigen.	Beef Heart. Antigen.	Choles. Antigen.	Beef Heart. Antigen.
1.	M.	30	2 mos.	—	Penile primary No secondaries	None	Neg.	St. pos.	Wk. pos.	Mod. pos.
2.	M.	34	3 wks.	—	Penile primary No secondaries	None	St. pos.	St. pos.	St. pos.	Wk. pos.
3.	M.	29	3 wks.	—	Primary lower lip Sub-maxillary glands	None	St. pos.	Mod. pos.	St. pos.	Wk. pos.
4.	M.	24	3 mos.	—	Penile primary Secondaries	None	—	—	St. pos.	Neg.
5.	F.	16	3 mos.	—	Genital primary Secondaries	None	—	—	St. pos.	Wk. pos
6.	M.	38	2 mos.	—	Penile primary Secondaries	None	—	—	St. pos.	Neg.
7.	M.	23	5 mos.	—	Primary scar Secondaries	None	St. pos.	Wk. pos.	St. pos.	Neg.
8.	M.	26	3 mos.	—	Penile primary Secondaries	None	St. pos.	St. pos.	St. pos.	Mod. pos.
9.	M.	24	2 mos.	—	Primary scar Secondaries	None	St. pos.	St. pos.	Wk. pos.	Neg.
10.	M.	29	3 mos	—	Primary scar Secondaries	None	—	—	St. pos.	Neg

GROUP II.

1.	F.	20	3 yrs.	Rash Sore throat	Late papules Condylomata	None	—	—	Mod. pos.	Wk. pos
2.	M.	46	4 yrs.	Penile primary Secondaries	Tongue, thick denuded and fissured.	Pills for one year	—	—	St. pos.	Neg.
3.	F.	35	3 yrs.	Primary Secondaries	Late papules Annular lesions on forehead	None	St. pos.	St. pos.	Mod. pos.	Neg.
4.	M.	34	3 yrs.	Primary Secondaries	Annular lesions on forehead	Sev. mos.	—	- -	Mod. pos.	Neg.

GROUP III.

Case.	Sex.	Age.	Duration.	Previous Symptoms.	Present Symptoms.	Previous Treatment.	Before Treatment.		After Treatment.	
							Choles. Antigen.	Beef Heart. Antigen.	Choles. Antigen.	Beef Heart. Antigen.
1.	M.	41	18 yrs.	Syphilis in Italy	Pain in joints Cough	None	St. pos.	St. pos.	St. pos.	St. pos.
2.	M.	40	11 yrs.	Primary Secondaries	Ulcers in nose	Few mos.	St. pos.	St. pos.	St. pos.	St. pos.
3.	F.	24	Cong.	—	Swelling and pain in right ankle	Much T. B. treatment	Wk. pos.	Wk. pos.	Neg.	Neg.
4.	M.	35	13 yrs.	Primary Secondaries	Ulcer of left ary epiglottic folds	Six mos.	St. pos.	St. pos.	St. pos.	St. pos.
5.	M.	27	10 yrs.	Primary	Gumma of testicle	None	St. pos.	St. pos.	St. pos.	St. pos.
6.	F.	21	—		Gumma of sternum	None	St. pos.	St. pos.	St. pos.	St. pos.
7.	F.	28	—	—	Perforations of soft palate Four mos. pregnant.	None	St. pos.	St. pos.	St. pos.	St. pos.
8.	M.	30	—	Denied all syphilis	Husband of syph woman	None	St. pos.	St. pos.	St. pos.	Mod. pos.
9.	M.	43.	20 yrs.	Primary Secondaries	Ulcer of right nostril following operation	Pills for two years	St. pos.	St. pos.	St. pos.	St. pos.
10.	M.	32	—		Leucoplakia	None	St. pos.	Neg.	St. pos.	Neg.

seem that the neosalvarsan has the least effect in those cases where a maximum efficiency is most desired. Viewing the therapeutic action of the concentrated neosalvarsan from the serological standpoint it would seem the part of well thinking conservatism to regard it as a remedy giving excellent temporary aid rather than the more lasting effects of the old salvarsan.

SUMMARY.

I. *Technique.*

1. Intravenous injection of 20 c.c. of fluid with glass syringe, needle and Swift holder most simple method.
2. A steady hand and careful adjustment of syringe to needle necessary.
3. The time of actual injection averaged thirty seconds.

II. *Sequelae.*

1. Three hundred and forty-one injections given.
2. No patient required the use of the recovery rooms because of untoward sequelae.
3. Dizziness, headaches, and diarrhea in mild degree recorded in some instances during the first twenty-four hours especially after the first injection.
4. Experienced operator and strict aseptic technique render danger negligible.

III. *Therapeutic Efficiency.*

1. Twenty-four untreated cases were given four injections of concentrated neosalvarsan, dosage 0.45 gram at weekly intervals followed by a Wassermann seven days later.
2. Active symptoms and lesions yielded readily.
3. The Wassermann reaction was little changed.
4. Active early cases or long standing cases showed the least serological change.
5. Serologically, the concentrated neosalvarsan was inferior to the old salvarsan.

CANCER OF THE TONGUE BASED UPON THE STUDY OF OVER ONE HUNDRED CASES.*

BY JOSEPH C. BLOODGOOD, M.D., BALTIMORE.

This study has led to some very remarkable conclusions.

It has been demonstrated that the failure to cure when the cancer of the tongue is fully developed is due chiefly to the neglect to remove the muscles of the floor of the mouth below the cancer.

The high mortality after operations for cancer of the tongue is chiefly due to the removal of the floor of the mouth without removing a section of the lower jaw.

The investigation has also shown that if a lesion of the tongue is subjected to immediate operation within a few weeks after the onset of the lesion, the chances of a permanent cure are best. In this stage it will usually be sufficient to remove the local lesion with a good margin of healthy tissue, and this removal should be done with the electric cautery. The centre of the lesion should be preserved for microscopic study. When this is done the chances are that the lesion will still be benign. But even though the lesion prove microscopically cancer, the probabilities of a cure are almost 100 per cent.

In the past surgeons have apparently removed too much of the tongue and have performed too extensive operations upon the glands of the neck. Now this is theoretically incorrect, because cancer of the tongue infiltrates into the glands of the neck through the floor of the mouth. Should the glands be involved and the floor of the mouth not be removed, one could hope for little, if anything, from such an operation. If the glands of the neck are not involved, this does not preclude infiltration of the floor of the mouth.

When the operation is performed in one stage it is impossible to remove the tongue, the floor of the mouth, and the glands, and then to close the opening in the mouth, unless a section of the lower jaw is also removed. If the former operation is done thoroughly the mortality is very high—almost 80%—from primary or secondary pneumonia, or a late infection from the oral fistula.

The author was first impressed with these facts when it was found that the first cured cases were either cancer originating in the floor of the mouth, or cancer of the tongue invading the floor of the mouth, in which it was absolutely necessary to resect portions of the lower jaw in order to remove the disease. The extent of the disease, therefore, forced the surgeon to the more radical and mutilating procedure, and allowed him to perform removal *en-bloc*. During the same period earlier and more favorable cases were subjected to less extensive operations. When the floor of the mouth was not removed local recurrence always followed, and when it was thoroughly removed the patients died from the operation.

The author in November, 1910, for the first time deliberately, in a favorable and early cancer of the tongue, removed the right half of the tongue, the right floor of the mouth, the right half of the lower jaw and the glands on the right side of the neck in one piece. The wound was closed by suturing the mucous membrane of the right cheek to the remaining half of the tongue. The patient swallowed at once after the operation, and no recurrence followed. The micro-

* Author's abstract of paper read before the American Surgical Association, New York, April 9, 1914.

scopic study showed that the floor of the mouth was infiltrated but the glands were free.

As the removal of the lower jaw, especially in the region of the symphysis is mutilating, the author has attempted to accomplish the same results in a different way.

The glands of the neck are first removed and, after the operation, their connection with the floor of the mouth below the lesion is thoroughly burned with the cautery, and the wound closed. Then the lesion in the tongue or floor of the mouth is attacked with the electric cautery. The application of this is usually repeated two or more times, until everything is destroyed down to the area of the first cauterization from below. The healed skin flap of the first operation forms the floor of the mouth and prevents an oral fistula.

The first operation after this method was performed in April, 1912,—two years ago. The lesion was a cancer occupying the floor of the mouth between the tongue and the symphysis of the jaw. It was about the size of a silver dollar. Permanent cures have been accomplished in similar cases by an *en-bloc* dissection of tongue, floor of the mouth, jaw and glands. The oldest case lived fifteen years, but this is a very mutilating operation, and the recent patient refused to submit to it. This led the author to attempt what he had had in mind for some years. At the present writing, two years since operation—there is no evidence of recurrence and no mutilation.

Since then four cases have received this treatment with, so far, apparent success.

The majority of cases of cancer of the tongue seek surgical aid at an unnecessarily late period. In every case the patient is warned. There is always something to be seen and felt in the tongue or floor of the mouth. If such a lesion is investigated at once, a local operation with the electric cautery should be sufficient; in a little later stage removal of the glands and repeated cauterizations in the mouth; in still later stages resection of the jaw must be done. The author's recent experience seems to show that this operation should be done in stages. First, thorough removal of the glands with cauterization of the floor of the mouth from the neck wound; second, cauterization of the lesion within the mouth; third, removal of the lower jaw and cauterized area. These points will be discussed in detail with illustrative cases in the complete paper.

When the cases observed until 1908,—a period of 18 years,—are compared with those observed during the past five years, the influence of education is well shown. The very early precancerous lesions have increased from 8 to 30%. The late and inoperable cases have decreased from 18 to 10%. The cures have increased from 21 to 50%.

When the author considers the cases personally operated on by him by these newer methods in the past five years (14 in all) he finds that there has been no postoperative mortality, and so far but one patient is dead of recurrent carcinoma. In this case the lesion of the tongue had previously been subjected to operation, the recurrent tumor was extensive, and the glands of the neck involved.

In this group every type of operation according to the newer methods just described is represented. At the present time there is evidence of recurrence in only one case; here the lesion was most extensive and the operation most radical.

The experience with these 14 cases proves the point as far as the immediate mortality is concerned, because considering all cases studied, the postoperative mortality has been about 22%. Since recurrences as a rule take place within one year of the operation, the results in these 14 cases also demonstrate that the improved methods promise a much larger per cent. of permanent cures, and certainly a longer freedom from recurrence.

We have, therefore, apparently conquered the technic of operations for cancer of the tongue. Now, if we can educate men to come earlier, we shall probably conquer the disease.

THE USE OF IODOFORM OIL IN JOINTS.

By E. G. Brackett, M.D., Boston,

Surgeon to Orthopedic Department, Massachusetts General Hospital.

[From the Orthopedic Department, of the Massachusetts General Hospital.]

The use of medicinal agents in joint cavities is by no means new. That it has not always met with success is also well known, yet the principle is sound, and tallies with other surgical methods of today. Many of the results have been bad, because of some disaster, and others negative as to the final results; either because of some of the difficulties of technic and of the great risks under the older methods of surgery, or because of the improper selection of cases. The report of the results in the series here recorded is in the line of similar procedures, but may differ in some matters of technic and in the selection of cases.

There are two general types of cases for which the procedure may be used:—

1. Those in which there is no active disease at the time, and in which the object of the injection is largely mechanical, as, for instance, cases of old arthritis with adhesions, in which it is necessary to keep the surfaces apart after freeing the adhesions.

2. Those in which there is present active disease, and in which the object of the injection is largely for the effect of the agent employed

on the immediate process, as, for instance, in synovitis, of tubercular, Neisser, or other origin.

In all cases, the two things to be considered are:—

I. The special features of the technic of the operation.

II. The type of case to which the procedure is applicable.

I. *The Technic.* Several points in this procedure demand emphasis.

(*a*) The injection is always made by open incision, and not by puncture.

(*b*) Sufficient fluid is always left in the joint to keep the capsule under tension, therefore some form of stitch is necessary by which the tension can be maintained at the time of the withdrawal of the syringe.

(*c*) The adhesions, in old cases, are broken up before the joint is filled with oil and the capsule closed; other than this no violence is done to the cavity of the joint, and no handling is permitted, particularly of the tubercular joints.

(*d*) Fixation by plaster, or splints, is seldom used.

The Incision. The open incision is always used, and a word is necessary in reference to the choice of this method of inserting the oil, instead of by trocar injection. As a matter of fact the two methods have hardly enough in common to make a comparison. It is often not easy to find the cavity of these joints, not distended with fluid, even by a clear open incision, and, in the acute cases, with the very great edematous swelling of the synovial capsule, it is often difficult to find the cavity of the capsule. The synovial membrane is redundant, the pannus may cover a large part of the articular surfaces, these two surfaces are in contact and roll out into the incision, so as to completely block it, and, in the acute cases, as in the active stages of tuberculosis, the thick, velvety, synovial membrane protrudes into the wound, almost like a hernia. In the older cases with adhesions, the cavity is more or less obliterated, and a trocar will make a small area about its point. In the early cases, with a thick redundant membrane, one has only to experience the difficulty of finding the capsular cavity, even by an open and easy method, in order to realize the difficulty of finding it by a blind trocar puncture. The direct entrance by a clean cut is far more surgical than the blind hunt by a trocar, and likely to do far less damage. Another reason for the open method is the opportunity of obtaining a specimen for examination, to determine the nature of the infection. I believe it justifiable to open in some cases, to insure diagnosis, when the procedure is not dangerous, and may be advantageous. It is only too easy to call a joint case tubercular or otherwise, but in very many cases to which this method is applicable, it is impossible to positively make a diagnosis without further evidence than the clinical signs. The method is practically safe with extraordinary precaution.

The incision in the skin (preferably on the inner side) (Fig. I.) is a blunt ellipse and the flap dissected back the width of the ellipse. An ellipse with the flap in the opposite direction, shorter than the skin incision, is made in the fascia, and also turned back. It is not always possible to successfully complete this flap when the fascia is very thin and adherent. A straight incision, shorter than the fascia flap, is then made in the capsule, about one-half inch from the border of the patella, in the vertical direction of the leg. The patella lies in the middle or slightly below the middle of the incision.

The Stitch. In order that the capsule may be kept under tension while the fluid is left in the joint cavity, it is necessary to have some form of stitch which not only will make an oil-tight cavity, but also will hold the capsule firmly about the nozzle of the syringe while filling the joint, and will immediately close the opening on its withdrawal. It would seem a very simple method to determine on such a stitch, but several methods were tried before it was found that the most effectual was a double mattress, one enclosing the other. (Fig. 2.) The capsule is closed, beginning at the two ends, and carrying the needle through the fibrous portion of the capsule, but not quite through the synovial portion. By so doing, the soft, spongy synovial tissue is pushed up against the stitch by the pressure of the oil, and acts as a kind of valve. The capsule is closed from either end, with the exception of a space of three-eighths to one-half inch in the centre. Two mattress sutures are then placed in the same manner as the first sutures, one with the opening pointing above, and the other below, the second smaller than the first and enclosed by it. The syringe is then inserted between the threads of the inner mattress, and both drawn firmly about the nozzle. (Fig. III.) When the cavity is fully distended the syringe is withdrawn, the inner mattress is first pulled, then the other, and both tied. (Fig. 4.) The double ellipse flaps give two coverings to the capsular incision, and an additional protection against direct entrance to the joint. Silk is used in all of the sutures.

Preparation Used. Olive oil has been used in all of the cases of the series. Glycerine has been used by many operators and has had much favor, but does not seem to be so well adapted to use in these cases, on account of its hygroscopic properties. It is necessary to have a medium which will resist absorption, and remain in situ to protect the surfaces as long as possible. Very great care should be used in the selection of the oil; it must be of pure quality and of neutral reaction. Very many of the olive oils contain acids, which tend to disorganization and the freeing of some irritative products, as well as to the liberation of the iodine. Some of the irritative results, following the use of oil for surgical purposes, as for instance in the abdominal cav-

ity, have probably been due to this cause. The oil in all of these cases has been the French oil of Antoine Chiris. It is sterilized for one-half hour in boiling water, in a cotton plugged bottle, the top being also covered by rubber tissue, which is kept in place until the oil is used. Enough of the solution is used to fill the joint under tension of its capsule. For an adult joint three and one-half to four ounces is a sufficient amount. The special feature which must be borne in mind in all cases is the necessity of keeping the joint cavity sufficiently distended, to prevent the surface of the synovial capsule from coming in contact either with itself, or with the other articular surfaces, therefore it is necessary that the oil be left with the joint capsule under tension. This is Nature's way of protecting an acutely inflamed joint. In the usual synovitis, an excess of fluid is poured into the joint, separating the synovial surfaces, and this acts in two ways: first, to keep the inflamed surfaces from contact, thus diminishing the pain; and, second, to thus prevent adhesions in the acute stage, when adhesions are formed so easily. When the fluid is early absorbed, or removed, and the surfaces allowed to come in contact, while still acutely inflamed, the pain and sensitiveness, and the tendency of adhesions is increased. By imitating Nature's method,—filling the cavity with fluid,—the freshened surfaces are kept from adhering in the cases in which adhesions have been broken up, and, in cases of active disease, a decided amount of rest is given to the inflamed synovia, through the avoidance of friction.

In old cases with adhesions it is necessary to freely break up all bands in order to obtain as large a capsular cavity as possible. Many old bands are so strong as to give risk of fracturing a portion of the articular surfaces, and these may be cut with much greater safety. Also, experience of many operators has shown that the ordinary forcible straightening of these knees, held firmly by strong adhesions, is attended with a large element of danger. Many times the adhesions are stronger than the bone, which is much atrophied by long restricted use, and force results in a tearing off of a fragment of the articular surface. Puncture by trocar, at the best, will find only a small isolated cavity, and cannot meet the conditions which demand thorough freeing. It is particularly essential, in this class of cases, that sufficient oil be left in the joint to insure the actual distention of the whole capsule. Naturally, fixation in plaster is not indicated.

Selection of Cases. This method is applicable to:—

1. Cases of old infectious arthritis, with adhesions and with partial obliteration of the capsular cavity, but with no true ankylosis, and without destruction of cartilage.

2. Cases of infectious arthritis, in the acute stage, particularly those of Neisser origin, and more especially the type where there is one remaining persistent joint, which usually results in ankylosis.

3. Cases of primary synovial tuberculosis before involvement of cartilage or bone.

4. Cases of osteo-arthritis, with marked thickening of capsule and with pannus, in the sensitive stage, but before there has been loss of cartilage.

In other words, the method may be used in the affections of the synovial membrane, either when it is desired to keep the surfaces apart, or when it is desired to apply a remedial agent to the joint surfaces.

For the purpose of illustration, one case (a favorable one) of each of the types to which the method has been found applicable will be cited.

Case 1. An infectious arthritis of two or three years' standing, which had had several times brisément forcé. At the time of operation the case showed increasing sensitiveness, disability and pain; knee held in flexion of 20°; motion 5 to 10°, all painful; knee swelled; capsule evidently very markedly thickened; patella not movable. X-ray showed fragment of bone on the inner side of the joint, apparently from a fracture of a portion of the articular surface of the inner condyle, and a corresponding space on the under and anterior surface of the inner condyle. Incision was made along the inner side, the capsular cavity was found practically obliterated, with only a few small areas or pockets remaining to indicate the capsular cavity. The patella was so strongly adherent that it could not be freed by either blunt dissection or with the finger, but required the knife or scissors. There were no surfaces of bone exposed, but all articular areas were covered by thick, tough membrane, apparently simply inflammatory in character. On the other side, a piece of bone with cartilage upon one surface was found lodged between the tibia and condyle. This was removed, and the areas of cartilage which were exposed by this were clear and white. About one-half of the capsular cavity was restored. The adhesions on the outer side were so firm as to resist all attempts at freeing, except by actual section, and complete restoration of the joint cavity was not attempted. The joint at this time allowed flexion to 80° and nearly complete extension. The joint cavity was then filled with oil with the capsule under tension.

The case showed practically no pain during convalescence, which was uneventful. Knee kept in fixation for about two months, but slight amount of motion was given each day without force. Patient began walking with crutches in a month and during the following months used leg increasingly.

Twelve months later the knee allowed extension to within 5° of normal; 90° flexion; thickening had markedly disappeared; practically no pain; patella was somewhat movable from side to side. Patient walked without protection about the house and with a splint allowing motion on the street. Eighteen months after operation patient walked several miles daily without cane.

Microscopically the specimen showed an old chronic inflammatory process, and although every attempt was made to find evidence of some tubercular process the examination was negative in this respect.

CASE 2. Neisser infection, polyarticular. All joints cleared in the usual time, excepting one knee, which remained persistently painful, swollen and sensitive; flexed at 20°; no motion on account of marked spasm and pain; no fluid; very marked thickening of capsule. Case apparently one of the types in which in one joint the Neisser infection remained, and there being no fluid to keep the surfaces apart, it gave every indication of a stiff joint from adhesions. No progress had been made for two months. The joint was opened by incision on the inner side, a few adhesions found, but these were easily broken up, the joint moved to a position of 90° flexion, and the capsule, filled with oil, was left under tension. Little pain in convalescence. Motion allowed of a few degrees in a week. After three weeks gentle passive motion was given, which did not cause particular pain. Recovery with full extension; flexion to 110°. Patient has been able to work freely since (2½ years).

CASE 3. Tubercular synovitis of six to eight months' duration. Unable to work for six months; knee flexed at 45°; motion practically nil on account of spasm; whole knee swollen; tender; marked capsular thickening; no fluid; complete disability. X-ray showed no involvement of bone; articular surfaces clean; normal cartilage space between bones. T. B. von Pirquet reaction, positive. Incision on inner side opened to markedly thickened synovial membrane, fragile, vascular, of typical tubercular appearance, pannus extending over to the edges of the articular surface of bone; remaining cartilage clear, smooth; no sign of erosion of any part of joint that could be inspected through the incision. No manipulation was given to the inside of the joint except to remove a small bit of the synovial capsule sufficient for microscopic examination. Oil injection, under tension. Recovery from operation negative. Leg in plaster for several days. Split plaster allowing passive motion daily. At end of eight weeks a second injection was given, and at this time free oil was found in the joint. No weight-bearing was allowed for six months, but patient wore a split plaster and used crutches. At end of eight or nine months patient returned to work with plaster. Two years later leg showed practically normal motion except that of extreme flexion; no swelling; no tenderness. Has worked for 2½ years at his occupation as a plasterer with no return of symptoms. Microscopic examination of specimen showed the process to be tubercular.

CASE 4. Infectious arthritis with hypertrophic areas, with increasing disability for two years. Permanent flexion of knee of 15° to 20°; motion allowed in 25°; marked capsular swelling and villous condition, evident to palpation; pain and sensitiveness with use, to such a degree that disability was nearly complete. X-ray showed hypertrophic process, without involvement of cartilage. This case had a somewhat multiple arthritis, but the knee had been the longest involved and its disability was the greatest. The process was not at the time active. Incision on the inner side showed thickening of whole synovial portion of capsule, pale in color, with pannus extending over onto the edges of the articular surfaces but not covering them, and several large lipomata, which were removed. Oil injection under tension. Motion allowed at end of two weeks. No pain during convalescence. Three months later swelling and capsular thickening had disappeared; knee could be extended freely and flexed to 100°; no pain on weight-bearing. Eight months later knee had remained quiet; patient was using joint freely; there was no swelling of capsule; crepitus had disappeared.

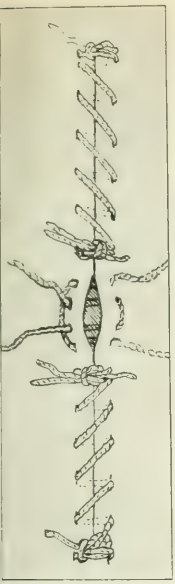
The list in this series includes cases of the four classes above mentioned operated on by this method. The post-operative period of observation varies from six months to four years. From the study of these cases the following summary has been made:—

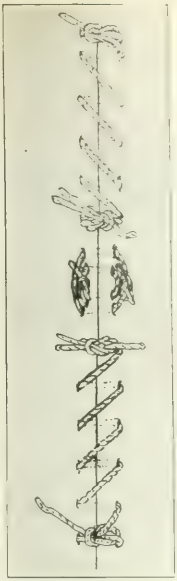
The first group comprises the cases of old infectious arthritis with adhesions—object of operation may be called mechanical, viz., to keep apart the freshened surfaces after freeing the adhesions—10 cases. Seven have been successful. Two were unsuccessful and they showed by x-ray destruction of the articular surfaces. These two illustrate the type of case which should not be attempted by this method, viz., the cases in which the arthritis has resulted in destruction of cartilage. In both, this destruction was present, and the operation gained nothing. In the others, motion resulted varying from 45° to 100°. In cases sufficiently severe to warrant an operation it is doubtful if complete motion is ever to be expected.

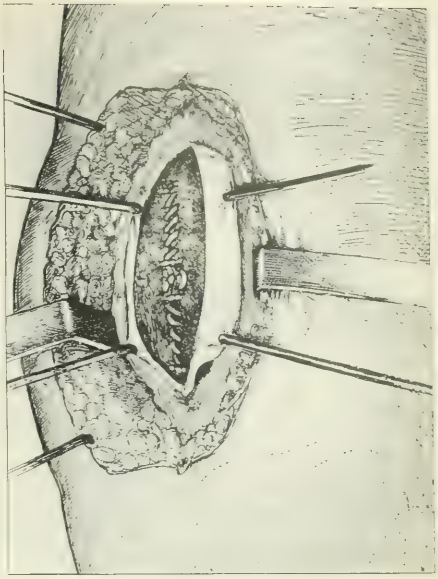
The second group comprises the cases in the earlier stages of disease. Object of operation is also in a large measure mechanical. This group includes the three types, viz., (*a*) acute infections (Neisser, etc.), (*b*) early tubercular synovitis, (c) chronic infectious (osteo-arthritis, etc.).

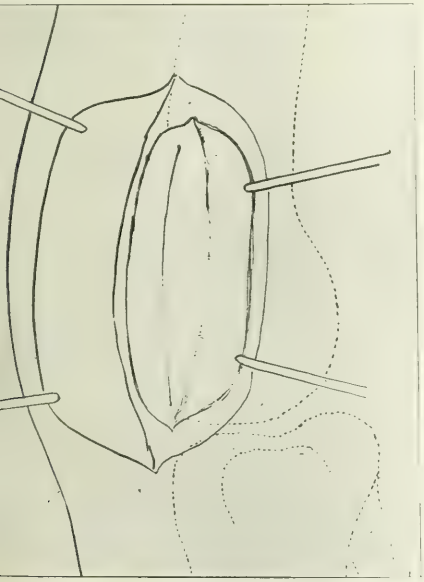
Type A—Neisser and Acute Infectious. Three cases have been treated, none in the very early stage. With the strong tendency of this form to a spontaneous recovery, it is doubtful if this operative procedure is to be generally advocated in the early period of the disease, for it is recognized that this infection is the most amenable to treatment, and in the usual case, even in the persistent joints, radical measures are rarely necessary. But these joints do occasionally go on to destructive changes, and it is in these persistent ones, before this stage of articular invasion has been reached, that the use of oil is to be advocated. It is in this later stage, where the capsular thickening persists, where adhesions are forming and becoming firm, that the indications for this operative treatment are evident, and has resulted in a rapid diminution of the capsular swelling, disappearance of pain and sensitiveness, with increase of motion.

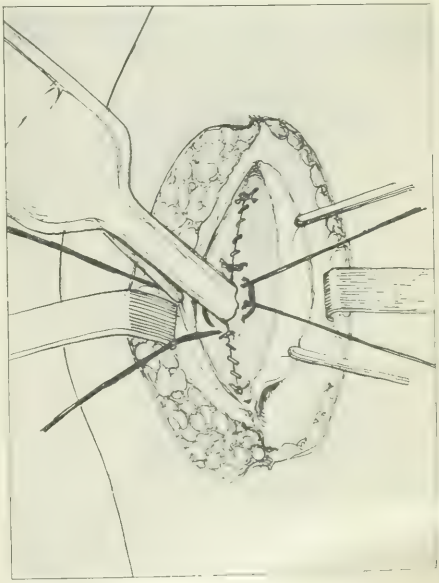
Type B—Tubercular Synovitis. This type forms the most interesting of the group. It can be definitely stated that the operative procedure is not applicable to cases in which there is involvement of the articular surfaces. The old records of cases show that these cases of tubercular disease of the knee practically all came to ankylosis or to excision; but the records also show that the average case did not present itself for treatment until about two years after











the onset of the disease, and at this time the disease was well advanced. At present many cases are seen in which there is no evidence, either clinical or by the x-ray, to indicate involvement of bone, either because diagnosis of these conditions is made in much earlier stages, or because the cases are presenting themselves earlier in the course of the disease. Moreover, the further study of these cases, especially by early operation, shows that a large number of these begin as a primary tuberculosis of the synovial capsule. The excision of these knees, in this stage of purely synovial disease, is a step most radical, yet experience has shown that these cases progress more or less steadily to distinct bone disease. It is in this stage that the attempt has been made to cut short the process by the internal medication of the joint. The usual ultimate result is such an unfortunate one, that attempts to this end are to be desired, provided the method is a safe surgical procedure, and a few favorable early cases gave encouragement. Ely has shown that the cure of the tuberculosis is in many instances by the formation of fibrous tissue, and may serve as the means through which the cure is effected in these cases, but so far there is no proof in this series. One feature of this method, by no means an unimportant one, is the establishment of a positive early diagnosis, a thing not always easy or even possible by clinical signs alone, in the early stages of the process, and the evidence thus obtained in these cases has very materially aided in the general diagnosis of the early tubercular joint lesions.

Thirty cases are available for report. From the standpoint of the results they may be divided into three groups.

1. Cured Cases (8). It is doubtful if the final result of a disease so insidious can be definitely given until a very long time has elapsed. Freedom from symptoms, even for a year, is not sufficient to warrant placing the case among those cured, as has been shown by one of the best early results. An apparent cure has occurred in eight cases, which have stood the test for one and one-half and two and one-half years. The cases were placed as cured by the following tests: Freedom from pain or sensitiveness, maintenance of motion, absence of added deformity, absence of capsular thickening,—all with continuous use.

2. Arrested Cases (14). To this second group belong the less successful and more usual cases, which have not shown definite improvement. There has, however, been a decided checking, as shown by the diminution of (1) sensitiveness, (2) deformity, (3) swelling of the capsule, by the maintenance or increase of motion. In these cases, the x-rays have given no evidence of extension of the disease to the erosion of cartilage or involvement of bone. In other words, the condition has changed from one in which the evidence was pointing toward a progressive process, to a condition in which the evidence was directed toward a retrogressive process of the disease. The question will arise whether this was not the result of the usual rest and fixation of the treatment, but the fixation was no greater than before, and usually much less, for these joints are not kept in perfect fixation, and the change in the clinical course was too synchronous with the operation to be regarded as a coincidence.

3. The unsuccessful cases (8) are those in which there has been no decided improvement, or the present state cannot be learned. Three were Italians who have quite dropped out of sight. Experience has shown that these are not a favorable class. A few were operated upon in which the x-ray showed a slight involvement of the articular surfaces and the result in these was uniformly bad. The disease was in no way checked, and the cases came later to an excision.

At the present, the most practical value of this operative procedure, in these tubercular cases, depends upon the value which is put on the "checking of the disease." To estimate this, one must have in mind for comparison, the usual course of this disease under fixation and rest. Without exception, the non-operated cases which have been kept under observation, have progressed steadily, by a remitting course, to increasing disease and to increasing disability, and ultimately to excision or to amputation. This applies also to the old cases in the past, whose records have been looked up. Besides the three cured, in seven of these cases there has been decidedly an arrest in the condition as shown by the symptoms, the clinical signs, the x-rays, and the clinical usefulness of the joint. This seems decidedly a gain, particularly when it is considered that this is the stage when excision would not be resorted to, at least as a routine. It must be also borne in mind that the after-care in an out-patient clinic cannot be properly carried out, and many times patients were found walking on the joint three or four months after operation, when fixation had been carried out up to the time of operation.

Type C. Chronic Arthritides. The cases of chronic arthritides in which benefit has been obtained are those of the osteoarthritic type, of the chronic form of the infections, with enlarged villi but without the destruction of cartilage. The procedure is not of use in the atrophic type, or in the atrophic stage of the infectious type. Three cases of this type have been operated upon and without benefit. The cases which have been benefited have shown a decided diminution of the capsular swelling and thickening, diminished sensitiveness and increased use of the joint, and of this type three cases have been operated upon with distinct benefit to each.

CONCLUSIONS.

This method is applicable to the cases of capsular involvement, of various types of infection, and in the stages in which there is no involve-

ment of the articular surfaces. These cases may be divided into two groups:—

1. Cases of old infection in which adhesions have been freed, and it is desirable to keep the surfaces apart. (The use in these cases is largely mechanical.)

2. Cases of infection, of

(*a*) Acute infection (Neisser, etc.).

(*b*) Tubercular synovitis (early stage).

(*c*) Chronic arthritis (selected cases).

The procedure is in no way a substitute for arthroplasty; is not applicable to cases of disease of any origin, in which the x-ray shows involvement of the articular surfaces; but is essentially for those cases, only, in which the abnormal condition is confined to the synovial membrane. In tubercular cases, the early cases naturally show the most marked definite improvement, and in these cases repeated injections are advocated, preferably at intervals of eight to twelve weeks. This procedure should be considered as an incident in the treatment of the tubercular synovitis, not a substitute for the fixation and rest. Neither is permanent fixation desirable. The absolute immobilization is, perhaps, quite as disastrous as the other extreme. A daily gentle passive motion, without forcing the arc of motion allowed, is decidedly a benefit, does not increase the activity of the disease, and does prevent the contraction of the capsule and formation of adhesions.

In Group I, in which the object is largely mechanical, the motion is begun early, within the first two or three days, but never with violence or even to the point of causing pain. In the other cases (*a*) and (*c*) of Type A, the acute infectious and the chronic arthritides, motion is also begun early, on the third or fourth day, and given once or twice daily. After two weeks the leg is put in a split plaster, and locomotion allowed without weight-bearing.

Medical Progress.

REPORT OF PROGRESS IN SURGERY.

BY JOHN BAPST BLAKE, M.D., BOSTON.

IT becomes yearly more and more impossible to give, within moderate limits, an adequate outline of the progress of general surgery as indicated by current literature. The number of monographs steadily increases, and the duty of the reviewer becomes correspondingly complicated, even with the assistance given by abstracts and indexes. America is certainly contributing, at present, a generous share to the sum-total of investigation and treatment of disease. This is true both in the output of the laboratories and of the surgical wards of the hospital.

In a way, it may be said that conspicuous advances have been made in the broad sub-division of,—anesthesia; surgery of the head; standardizing treatment of fractures; surgical conditions of the thorax; surgery of the stomach; sterilizing the skin both in minor injuries and in preparing for operations.

1. Anesthesia:

There have been at least one hundred important monographs on this subject in the past twelve months. These papers have ranged from the Anoci-association of Crile, through local anesthesia pure and simple, to the new rectal anesthesia of Gwathmey.

RECTAL ANESTHESIA.

Technic for the introduction of oil ether—colonic anesthesia devised by J. T. Gwathmey, M.D., abstracted by Charles Gordon Heyd, M.D.

Contraindications: 1. Whenever ether is contraindicated *except* when the patient has been ill from a previous administration. Here it can be given with impunity. It can also be given in bronchitis, asthma. 2. Pathological conditions of the lower bowel, colitis, hemorrhoids, fistula, etc. 3. When the patient complains very much upon its introduction.

Preparation of the Patient: 1. A laxative, mild, avoid all purging. 2. Irrigation of the colon until the return is clear, three to four hours before operation.

Apparatus: 1. A small catheter and a funnel. 2. Two small rectal tubes inserted side by side to flush and withdraw fluid.

Administration: 1. *a.* One hour before operation: Morphine, 1/8 to 1/4; atropin, 1/200 to 1/100 by hypo.; *b.* one-half hour before operation per rectum: Chlorotone, gr. 5-10; ether, drams 2-4; olive oil, drams 2-4; 2. *a.* Mixture for adults: Olive oil, oz. 2; ether, oz. 6. Mixture for weak anemic patients: Ether, 55, 65%; oil, 45, 35%. Mixture for children: Ether oil, 50%. *b.* Patient in Sims' position. The catheter is well lubricated and inserted, four inches within the rectum. The mixture poured slowly into the funnel, at least 5 minutes being consumed. Introduce oz. one, for every *twenty* pounds of body weight except for obese. From 10 to 30 minutes is necessary before patient can be moved.

Danger Signals: 1. Loss of lid reflex. 2. Stertor or embarrassed respiration. 3. Approaching cyanosis. If any of the above signs are present withdraw two or three ozs. of the mixture from the rectum immediately. If the breathing is regular with reflexes active, the patient will be relaxed and in surgical narcosis.

Post-Operative: Immediate irrigation of the colon with cold-water soap suds. Then withdraw one of the tubes from rectum and introduce two to four ozs. of olive oil and one pint to one quart of cold water. Withdraw tube from the rectum.

It is interesting to recall that more than 20 years ago Post made observations upon rectal anesthesia here in Boston, and at a much more recent period Cunningham and others did similar and more extensive work. A rather large number of deaths were, however, reported from various parts of the country following rectal anesthesia and the method has been recently much less in evidence. With the new technic of Gwathmey, rectal anesthesia bids fair to become a valuable addition to our methods of producing general narcosis.

LOCAL ANESTHESIA.

The field of local anesthesia is spreading rapidly, not only in the variety of surgical procedures for which it is applied, but also in the steadily increasing number of surgeons who are perfecting its technic. It must be emphasized that local anesthesia requires a very careful, painstaking, and somewhat tedious technic if it is to produce its maximum effect. Altogether too often has the surgeon blamed the anesthetic in the past, when his own inaccurate methods were the cause of failure.

Two drugs have rapidly taken the place of all others in the local field:

1. Novocain.
2. Hydrochlorid of quinine and urea.

These two make the use of cocaine for the general surgeon entirely unnecessary, since they are equally efficient and far less toxic.

In an admirable paper on local anesthesia in *Surgery, Gynecology and Obstetrics*, 1913, p. 842, Dr. J. F. Mitchell presents the developments and modifications that have occurred in the previous five or six years.

This monograph covers the field so completely as to make it unnecessary to quote others at length.

Rood: *British Medical Journal*, 1912, No. 2, p. 1701, describes in considerable detail what he calls regional anesthesia, that is to say nerve blocking, at points distant from site of operation, summarizing its advantages in the extent of area anesthetized by a single injection, and, that the site of operation is not obscured by the edema of the injected fluid, and finally that operation may thus be done on inflamed parts, since injection is made a considerable distance away. Anesthesia, he says, last several hours. He reports two hundred and fifty-four cases as very satisfactory, requiring general anesthesia as an addition in only seven.

Braun, in the *Deutsche Medizin. Wchnschr.*, 1913, No. 39, p. 17, discusses the advantage of local anesthesia in the reduction of fractures and dislocations, and reports fifty cases during the previous year, claiming that reduction was easier under local than under general anesthesia. He says that as early as 1885, Conway, an American surgeon, used this method, followed shortly by Von Reclus.

SPINAL ANESTHESIA.

It is a little difficult to say whether on the whole spinal anesthesia is used at present more than it was a year ago; probably it is.

Donaldson, H. J., *American Journal of Surgery*, 1913, No. 27, p. 325, reports two hundred and four cases of spinal anesthesia, consisting of operations on the pelvis and abdomen as high as the gall-bladder; in only fifteen of these either a second injection was required, or a little ether was applied. Thirty-four cases suffered from nausea and vomiting. There seems to have been no other complications. The author thinks it is safer than ether. He does not understand the existing prejudice against its use. He uses stovaine for anesthesia.

Babcock, *Journal Am. Med. Asso.*, 1913, p. 1358, contains an excellent article on spinal anesthesia in gynecology and obstetrics and abdominal surgery. He says that since 1904 five thousand operations have been performed under spinal anesthesia in the Samaritan Hospital, Philadelphia. Of these, about three thousand were his personal cases. He says that with a similar technic, with the position of the operator and the patient reversed, he himself would have accepted spinal anesthesia. Stovaine has been chiefly employed. The repeated production of spinal anesthesia in the same person is no more harmful than a single injection. It may have a large mortality in the hands of one not possessing sufficient clinical skill. He concludes that while not a universal anesthetic, it produces the greatest degree of muscle relaxation with the least protoplasmic disturbance. It is probably more dangerous than a light narcoses under ether or nitrous oxid-oxygen, but it is safer than prolonged narcosis. It causes an earlier and more marked fall in blood-pressure than other anesthetics. It should be avoided in conditions of marked hypotension of the circulation. Headache and palsy mean that faulty solutions have been injected. It is useful in obstetrics, in pulmonary tuberculosis, and heart disease, also in acute peritoneal sepsis. "Against spastic or paralytic ileus it is a most potent agent, and its use will often render operative intervention needless. It is relatively safer in the young and robust than in the enfeebled and toxic."

Bainbridge, *Med. Press and Circ.*, 1913, p. 334, reports personal experience with ten hundred and sixty-five cases, half of which were done under cocaine and the other half under stovaine, or tropacocaine. In all his cases, there was only one death and that was probably from status lymphaticus. The indications for spinal analgesia are the contra-indications for inhalation anesthesia. Some of its objections are that a dose once given cannot be diminished, and that its effect may pass before operation is completed.

Jonnesco: *Zentralbl. f. Chir.*, 1913, p. 469, believes that stovaine and nitrate of strychnine may be injected at any point in the spinal canal without danger. In nearly two thousand opera-

tions he had only two deaths. For anesthesia of the head and upper extremities he makes the injection between the first and second dorsal vertebrae, otherwise between twelfth dorsal and first lumbar vertebrae. Jonnesco is one of the few who recommend spinal anesthesia for operations above the diaphragm; his contentions are not widely accepted.

Nicolich, in a paper read before the French Clinic of Urology, October, 1912, considers spinal anesthesia decidedly superior to chloroform in genito-urinary surgery, because he thinks it is less dangerous and because it makes the operative attack much easier.

ANOCI-ASSOCIATION.

Crile's method has been adopted by many good surgeons, but by no means all. In slight detail, Dr. Crile has modified his technic and now injects the quinine and urea at a distance from the line of incision so that anesthetic effects will cover the whole field of operation, the distance injection doing away with edema of the wound itself which might possibly interfere with prompt healing. Quinine and urea are not used where infection is present. The strength varies from one-half to one-sixth of one per cent.; novocain one-fourth per cent solution. Morphine and scopolamine are used as preliminary narcotics. This technic adds a little to the time of operations. It is fair to say that those who use this technic are convinced that it is followed by a convalescence almost entirely free from pain and from the discomforts which formerly attended major surgery.

It is difficult and unsatisfactory to endeavor to summarize important papers describing new methods. It is only right that the author of these methods should insert original monographs. Either one of two papers by Crile should be consulted by those who desire to follow his precise technic in his method of producing shockless operations; and conclusions should be based, of course, only upon a series of cases in which Crile's precise technic has been faithfully followed. These two papers are "Kinetic Theory of Shock," *The Lancet*, July 5, 1913, and in somewhat more concise and shorter paper "Anoci-Association." *New York Medical Journal*, January 10, 1914. In this latter paper Dr. Crile says, "Comparing the last one thousand operations performed by myself and staff at the Lakeside Hospital, we adopted the fully developed anoci technic with the last one thousand operations; we find that in the former the mortality rate was 4.6 per cent., while in the last one thousand anoci operations the mortality rate was .8 per cent." These figures need no comment.

GAS OXYGEN.

Gas oxygen is unquestionably the safest general anesthetic we possess, but it must always be in the hands of an expert. Crile himself, who has done so much to increase the use of nitrous oxid says in *Clinics of J. B. Murphy*, February, 1914, "Nitrous oxid skilfully given, in my estimation, is the best anesthetic for surgical purposes, but it ought never to be given except by some one who has been well trained in its administration. In my judgment, the degree of M.D. does not qualify a man to give nitrous oxid anesthesia or any anesthetic, in fact. It gives any one a legal qualification, but it does not give one a moral qualification. It takes a special training to give nitrous oxid, for it is the most difficult of all anesthetics to give well. I am speaking about this because I have known of certain fatalities from nitrous oxid anesthesia administered by inexperienced anesthetists. I believe that when well given, it is the safest anesthesia one can use, and I think that nitrous oxid not well given is, perhaps, the most dangerous anesthetic there is. In my own clinic in the Lakeside Hospital we have given nitrous oxid for general surgical purposes eight thousand times."

Nitrous oxide may be given by intratracheal method as described by Boothby and Cotton in *Surg., Gyn. and Obstet.*, November, 1911, p. 572, or more commonly through an inhaler of a perfected apparatus: Cotton and Boothby, *Surg., Gyn. and Obstet.*, September, 1912, p. 281:

I. To be safe, effective and suitable for major surgical work a nitrous oxid-oxygen anesthesia must be so conducted that the patient is never in the least degree cyanotic; on the contrary the patient must always be pink.

II. No attempt should be made to use the dangerous procedure of increasing intrathoracic tension of the gases for the purpose of deepening the anesthesia.

III. In those cases that cannot be sufficiently relaxed for the purpose in hand by the use of nitrous oxide with a sufficient proportion of oxygen to prevent cyanosis, the anesthesia should be deepened by the addition of as much ether vapor as may be needed; experience has shown that the total amount of ether used is small and has little and often no effect on the quick and agreeable recovery incident to this form of anesthesia with its absence of post-operative "surgical shock."

IV. We believe an anesthesia without cyanosis to be safe in expert hands. The anesthetist, however, must have skill and experience to recognize the warning signs of too much nitrous oxide even without cyanosis (a picture not striking enough to appear to the tyro) as well as the signs of too much ether.

V. Therefore, to be practical for surgical work an apparatus for the administration of nitrous oxide-oxygen-ether anesthesia must possess the following fundamental features:

1. The apparatus must deliver, for any length of time, any desired proportion of nitrous oxide and oxygen, without requiring constant attention from the administrator; in other words the high pressure of the supply tanks must be

automatically reduced to an easily controllable working pressure; the importance of this feature necessitates that the reducing valves be an integral part of the apparatus.

2. It must be possible to add ether vapor in any strength from the merest trace to a high precentage: and any desired variation in this percentage must be gradually and yet rapidly made.

3. There must be a method of instantly estimating by the eye the approximate proportion of each gas being administered.

4. The face piece must be not only air-tight but practically self-retaining.

5. The apparatus must be strong, light and reasonably portable.

VI. The apparatus herewith described and illustrated is designed to meet the clinical and the physiological requirements of surgical anesthesia and it effectively overcomes the mechanical difficulties attendant to the successful administration of nitrous oxide-oxygen-ether.

Other papers on nitrous oxide anesthesia will be found in the *Proceedings of the Society of Biology*, 1912, p. 652, by Ambard and DeMartel, and Collier, *Jour. Med. Asso.*, Ga., December, 1912, who has used it in one hundred and ninety-four cases.

EXTRADURAL OR SACRAL ANESTHESIA.

Lawen, was one of the first to recommend this method and gives a report of his recent experience. He also gives a compilation of the literature in *Ergebn. d. Chir. u. Orth.*, 1913, V. 39. He traces the origin of the method and describes the anatomy of the epidural space and gives technic. He reports sixty-five cases. In three cases anesthesia failed and narcosis had to be added four times. Those who should be excluded from this are the fat, senile, the arteriosclerotic, and those suffering from heart disdisorders of the nerves.

Schlimpert: *Surg., Gynec. and Obstet.*, 1913, p. 488, describes in detail the technic as used at the Freiburg Woman's Clinic where the method is used for both low and high extradural anesthesia, that is to say, below and above the symphysis. The results are as follows:

Low anesthesia; duration from three-fourths to one and one-fourth hours; of one hundred and fourteen cases about half showed complete anesthesia, while one-tenth were failures.

High anesthesia; in three hundred and forty-two cases of high anesthesia forty-six per cent. were complete, and the failures were apparently a little more than in the low cases, though the figures seem to be contradictory.

INTRATRACHEAL ANESTHESIA.

Intratracheal anesthesia will presumably continue indefinitely to be practiced only by ex-

perts. Its dangers in the hands of the unskilled are acknowledged. Its advantages, particularly in surgery of the brain and face and thorax, are indispensable. Gas oxygen instead of ether may be used as an anesthetic.

Boothby-Cotton, have written an excellent paper, perhaps as good as any which has appeared, bearing upon both physiological and clinical aspects, "Intracheal Insufflation," *Annals of Surgery*, January, 1913. A list of ninety references covering all the most important articles bearing upon the subject is appended. Its conclusions are as follows.

1. Intratracheal insufflation respiration is the only artificial method that absolutely provides for a sufficient aeration of the lungs, regardless of the respiratory movements of the patient, and that properly administered and safeguarded can be rendered devoid of intrinsic danger.

2. In consequence, anesthesia by this method is indicated whenever the operation is about to interfere in any way with the ability of the patient to voluntarily respire.

3. Therefore it ought to be used in all intrathoracic work and in extensive operations about the head, neck, mouth.

4. Of the various anesthetics to be used with this method, ether with air, preferably supplied by a foot pump, is the most applicable for general use; however nitrous oxide-oxygen with minimal quantities of ether may occasionally be the anesthetic of choice.

5. To prevent deaths from emphysema, no matter what form of apparatus is used the same must be provided with a *safety-valve* by means of which the intrathoracic pressure cannot exceed 15 mm. mercury.

The technic of inserting insufflation tubes is given by Jackson himself, *Surg., Gynec. and Obstet.*, 1913, p. 507. It must be done under full anesthesia, the patient's head fully extended and without gag.

Peck, *Jour. Am. Med. Asso.*, 1913, p. 839, gives his personal experience with intratracheal insufflation anesthesia in a series of four hundred and twelve cases. He summarizes its advantages as being ideal in intrathoracic operations, lessening the shock, first, through relief of strain on the respiratory apparatus and circulatory and nervous systems, and through the even degree of the anesthesia maintained. It prevents aspiration pneumonia and makes preliminary tracheotomy unnecessary in operations on the tongue, jaws, mouth, nose, and pharynx. It is especially useful in operations about the head and neck and in awkward operations in general. The degree of anesthesia is under perfect control.

Janeway, *Laryngoscope*, 1913, p. 1082, describes a new instrument for catheterizing the trachea, pointing out the advantages of the new method in comparison to the old methods and its convenience to the operator.

INTRAVENOUS ANESTHESIA.

This form of anesthesia is used to a certain extent in some of the foreign clinics, though it has not apparently been widely adopted throughout the United States.

Graef: "Methods of Using Intravenous Ether and Isopral Anesthesia," *Beitr. z. klin. Chir.*, 1913, p. 173, reports five hundred and ten intravenous cases in the City Hospital at Nürnberg without a single death. Contra-indications are the following: myocarditis, marked arteriosclerosis, nephritis, etc. The after-effects are so slight that the patient prefers intravenous to general anesthesia. Strict asepsis and slow injection are absolutely essential.

Honan and Hassler: "Experience with Intravenous Anesthesia," *Surg., Gynec. and Obst.*, 1913, p. 206, report fifty-one cases in which hedonal, ether, and a mixture of paraldehyde have been used. By this method, anesthesia is rapidly induced, the breathing is natural, color remains good, and muscular relaxation is absolutely satisfactory to the operator. The awakening of the patient is prompt and with clear mentality; there is absolute absence of nausea and vomiting. Cases have been those of general hospital service. There was one failure in the early cases. They particularly urge that strict attention be paid to details of technic to insure satisfactory results. The description of the technic in their paper is excellent and complete.

Kepler and Breslauer: "Intravenous Narcosis," *Deutsch. Ztsch. f. Chir.*, 1913, p. 265, carry out investigations in search of an ideal intravenous injection which they think should consist of but a single injection of a small amount of narcotic that would act on brain cortex and have no effect on any other organ. It should be free from danger and its action should pass rapidly after the operation. It is unnecessary to say that their search has not been successful.

Buxton: *Tr. Internat. Cong. Med.*, Lon., 1913, August, publishes a very interesting article on the dosimetric method of administering chloroform based on the fact that percentages of vapor below *one* per cent. do not produce anesthesia but interfere with the temperature and metabolism. Higher percentages induce anesthesia, lower blood pressure, and interfere with respiration. More than two per cent. will impair circulation, and double this amount may be considered fatal. Buxton does not consider any of the mechanical inhalers perfect. He has used chiefly the Vernon-Harcourt regulator and finds it satisfactory. No matter what changes may occur in the patient's breathing, a safe strength, two per cent., should not be exceeded, and even struggling does not call for a restriction of the supply.

Kasashima: "Pantopon-Scopolamine Narcosis," *Beitr. z. Geburtsh. u. Gynäk.*, 1913, p. 90, reports on two series of gynecological operations —in one morphine-scopolamine, in the other pantopon-scopolamine were used. In all cases lumbar anesthesia was used in combination with the narcosis. The author says that pantopon series was more satisfactory. There was less vomiting and less bronchitis. There were no deaths and the one case of collapse was probably on account of the pantopon, as the dose was .02 pantopon and .0003 scopolamine given twice at hour intervals before the operation. Pantopon is an opium derivitive, approximately the equivalent of morphine, but theoretically free from its after-effects.

Diwawin, *Zentralbl. f. Chir.*, 1912, p. 1729, discusses pantopon injections in combination with local anesthesia. His technic is the same as in preceding paper. He reports seventy-two cases, including mastoid, gastroenterostomy, appendectomies, and herniotomies. The patient sleeps, as a rule, for two or three hours after the operation, and has no post-operative pain and no vomiting. Alcoholics are not good subjects. Grave diseases of the heart and lungs, as well as advanced age, may be considered contra-indications for the use of pantopon-scopolamine.

Book Reviews.

The International Medical Annual. A Year Book of Treatment and Practitioners' Index. New York: E. B. Treat and Company. 1914.

This thirty-second annual issue of this standard year-book, edited from Bristol, England, successfully continues the aim of its predecessors to present accurately the progress of the preceding year in all branches of medical science. The progress of the past year was so great and varied that the volume has been increased by nearly 100 pages. It is the work of 37 distinguished contributors, among the new names appearing this year being Dr. Lawrason Brown and Dr. Edward N. Packard, Jr., of New York, and Dr. Beverley R. Tucker, of Richmond, Va. The volume is fully illustrated with 63 full-page plates and 82 cuts in the text. The first part is a dictionary of materia medica and therapeutics, including particularly a general review of radio-activity and electrotherapeutics, a chapter on thorium, and one on tuberculin therapy. The second part is a dictionary of treatment, with special articles on anesthetics, brain surgery, cancer, fractures, hernia, infant feeding, pellagra, surgery of the spinal cord, syphilis, tuberculosis, and typhoid fever. The third part is devoted to miscellaneous topics of public health, including medico-legal, forensic, and state medicine. Twenty-eight new terms have been added to the initial glossary.

Though it aims to be cosmopolitan, the English point of view of this publication almost in-

evitably prevents it from noting some important foreign advances, notably so valuable a contribution to the technic of transfusion as the Kimpton-Brown tube. In the main, however, the book covers its field thoroughly and remains a reliable manual of progress for general practitioners.

Diseases of the Heart and Aorta, and Their Treatment. By Dr. Arthur Leclercq. Paris: Octave Doin and Son. 1914.

This volume by the author of "Diseases of the Sixth Decade" (reviewed in the issue of the Journal for Aug. 24, 1911, Vol. clxv, p. 298) may well be classed with that work, indeed it essentially represents a new edition of the volume in that series devoted to diseases of the heart. The first part is devoted to an anatomophysiologic study of the normal and of the abnormal heart, and the methods by which it may be examined. The second part deals with cardiac diseases under the headings of cardiosclerosis, the cardiarteritides, and cardiatheroma. The third part considers the treatment of cardiac and aortic diseases. The book is illustrated with 38 figures in the text and a plan of the heart. Like its predecessors, it is a model of Gallic lucidity, but seems hardly likely to appeal to the busy American general practitioner.

The Treatment of Acute Stenoses of the Larynx. By Dr. William Zorraquin, Buenos Aires. Paris: Vigot Brothers. 1914.

This monograph deals with the treatment of severe acute stenoses of the larynx requiring immediate surgical intervention. In the first chapter the author discusses intubation and tracheotomy, which he regards as serious procedures and believes often unnecessary. In the second chapter he discusses what he terms the pathologic physiology of these stenoses, and describes the new procedure,—tracheotomy with a tracheal valve,—by which he believes to have obviated the disadvantages of classic tracheotomy, reporting one case in which this method was employed. Even if not convincing, his exposition is of notable interest, and the figures of his apparatus suggestive of possible improvement in the mechanism of tracheotomy.

Outlines of Greek and Roman Medicine. By James Sands Elliott, M.D., Ch. B. (Edin.). Illustrated. New York: William Wood and Company. 1914.

This admirably written and instructive monograph describes the history of medicine from the half-mythical days of Aesculapius till the death of Paulus Aegineta, when, with the end of the seventh Christian century, medicine, like the other sciences and arts, was plunged into medieval darkness and temporary abeyance. An immense amount of interesting material is here gathered within the limits of very brief space. The text is illustrated with five full-page plates and one line-cut. It is sincerely to be hoped, as the author hints, that the appearance of such a work may be evidence of a recrudescence among physicians of intelligent interest in the history of their own craft, and may stimulate the study of that history, not only by individuals, but in medical schools as part of the professional culture which they impart.

Studies from the Rockefeller Institute for Medical Research. Volume xviii. New York: The Rockefeller Institute for Medical Research.

This volume of reprints represents the results of investigations conducted at, or under the auspices of, the Rockefeller Institute, during 1913 and a part of 1912. It consists of 60 papers, in English or German, by a number of different workers, in various departments of medical science. Most noteworthy among them is Flexner's Huxley lecture on "Problems in Infection and Its Control," and the continuing papers of his series on poliomyelitis and meningitis; the work of Rous and others on chicken tumors; of Noguchi on syphilis and the spirochetes; of Loeb on parthenogenesis; and of Peabody on the inorganic metabolism in pneumonia. Many of the papers are abundantly illustrated, and the volume, like others of the series, constitutes a valuable library of recent progress in experimental medical research.

The Pathogenesis of Salvarsan Fatalities. By Dr. Wilhelm Wechselmann, Berlin. Authorized Translation by Clarence Martin, M.D., St Louis, Mo. St. Louis: The Fleming-Smith Company. 1914.

In his large experience as director of the dermatologic department of the Rudolph Virchow Hospital, Wechselmann has had only a single fatality from the administration of salvarsan. This he reports in detail and from the literature collects three other fatal cases following intravenous injection, six after subcutaneous and fifteen after intramuscular injection, 25 after intravenous injection where death was due to errors of technic, 14 after combined treatment, 25 in which nephritis was the chief cause of death, 37 in which it was acute yellow atrophy of the liver, 10 in which the causes were general, and 39 of miscellaneous character. He also reports some animal experiments, and concludes that in the few fatalities where all other causes can be ruled out, death is due to acute renal insufficiency, not to cerebral hypersensitiveness. He

therefore urges exact technic, judicious dosage, careful study of the urine, avoidance of combined treatment, and special observation of temperature in every case.

The Hypodermic Syringe. By GEORGE L. SERVOSS, M.D. Newark, N. J.: Physicians Drug News Company. 1914.

This book, according to the author's preface, aims to replace Bartholow's "Hypodermic Medication," now out of print. It describes, in a series of seventeen chapters, the varieties of the hypodermic syringe, the technic and indications of its use and the various substances that may be administered by its means. The latter include not only drugs and chemicals, but antitoxins, sera, and bacterial vaccines. The subject of local and spinal anesthesia is also included. The hypodermic syringe is perhaps the most useful instrument in medicine today and seems likely to become even more prominent an agent of progress in the medicine of the future. This volume is a convenient guide in the useful administration of hypodermic therapy.

A Handbook for the Post-Mortem Room. By ALEXANDER G. GIBSON, D.M. (*Oxon.*), F.R.C.P. (Lond.). London: Henry Frowde and Hodder and Stoughton. 1914.

This small volume in the series of Oxford Medical Publications is an excellent concise English manual for the performance of autopsies. The technic described for the removal of organs is a modification of the classic Virchowian method, not the method of removal *en bloc* often seen in this country. The book is illustrated by 13 small cuts in the text. It should prove a useful guide for students and pathologists.

Treatment of Chronic Leg Ulcers. By EDWARD ADAMS, M.D. New York: The International Journal of Surgery Company. 1914.

This monograph, as its sub-title indicates, aims to be "a practical guide to the symptomatology, diagnosis, and treatment" of chronic ulcers of the legs. The different types of ulcer are briefly described and the appropriate treatment of each is outlined. There is also a section on the surgical treatment of varicose veins. The book should prove a useful manual of reference for practitioners.

Sciatica. A Fresh Study. By WILLIAM BRUCE, M.A., LL.D., M.D. (Aber.). New York: William Wood and Company. 1913.

This monograph by Dr. Bruce of Dingwall, N. B., is an exposition of his theory of the pathology of sciatica, which he regards not as a neuritis, but as an inflammatory affection of the hip-joint. After a brief historic survey of the views of Gowers, Lawson and others, he explains his own opinion, and the evidence which has led him to it. The treatment, based on his theory, is rest, fixation, diet, baths, and radiotherapy. A first appendix, illustrated with three full-page plates, presents the anatomy of the sacral plexus and its relation to the hip-joint. A second appendix, constituting half the book, and illustrated with fifteen full-page plates, consists of a brief record of 691 cases of sciatica observed by the author at Strathpeffer from May, 1889, to October, 1912. There is also a bibliography of 23 titles. Whatever proves to be the true ultimate pathogenesis of sciatica, this fresh study of it is a valuable contribution to the literature.

Lectures on Dietetics. By MAX EINHORN, professor of Medicine at the New York Postgraduate Medical School. New York: Paul B. Hoeber. 1914.

This volume consists of the stenographic record of the author's 8 lectures on diet, and essentially covers the field of his previous monograph on "Diet and Nutrition," but with greater variety and more practicality. There are two full-page illustrations and one cut in the text. The book should prove a serviceable manual for practitioners.

Radium Therapeutics. By N. S. FINZI, M.B. (Lond.), M.R.C.S., L.R.C.P., L.S.A. London: Henry Frowde and Hodder and Stoughton. 1913.

The small manual on radium by Dawson Turner, which was reviewed in the issue of the JOURNAL for May 18, 1911 (Vol. clxiv, p. 723), was the first reliable publication of its kind in English. It was concerned chiefly with the physics, and only secondarily with the therapeutics of radium. After a period of three years, during which radium has had an extensive experimental application in treatment, this monograph by Finzi, in the series of Oxford Medical Publications, appears as a legitimate supplement and continuation of Turner's work. After a brief introductory chapter, descriptive of the properties of radium, it is devoted almost wholly to a consideration of its methods of administration, action, dosage, indications, and uses in a variety of affections. An appendix contains descriptions of uranium, thorium, mesothorium, and other radio-active substances. The book is illustrated by 25 figures in the text. It is conservatively written and in the present popular over-enthusiasm about radium is a wholesome guide for the profession as to what may really be expected from this new therapeutic agent.

The Johns Hopkins Hospital Reports. Monographs. New series.

No. I. Free Thrombi and Ball-Thrombi in the Heart. By J. H. Hewitt, M.D.

No. II. Benzol as a Leucotoxin. By Lawrence Selling, M.D.

No. III. Primary Carcinoma of the Liver. By M. C. Winternitz, M.D.

No. IV. The Statistical Experience Data of the Johns Hopkins Hospital, 1892-1911. By Frederick L. Hoffmann, LL.D., F.S.S.

No. V. The Origin and Development of the Lymphatic System. By Florence R. Sabin. Baltimore: The Johns Hopkins Press. 1913.

These five large pamphlets represent the beginning of a new series of publications by the Johns Hopkins Hospital. They are all monographs of research.

Dr. Hewitt, from his study of cardiac thrombosis, concludes that no practical treatment different from that ordinarily employed in mitral stenosis with insufficiency can be recommended.

Dr. Selling, from his studies on the degeneration and regeneration of the blood and hematopoietic organs, concludes that benzol is a powerful leucotoxin, destroying the white cells of the circulating blood and the parenchymal cells of the hematopoietic organs. Myeloid tissue is injured more than lymphadenoid tissue, and polynuclear leucocytes more than lymphocytes. The erythroblastic tissue of the bone marrow is destroyed, but the circulating erythrocytes are injured relatively little. By repeated injections of benzol, the myeloid and the lymphadenoid tissues can be rendered almost wholly aplastic.

Dr. Winternitz reports four cases of primary carcinoma of the liver. It is rare, occurring only in from 0.03 to 0.3 per cent. of all autopsies. It occurs most frequently in adult males, and clinically is difficult to differentiate from cirrhosis.

Mr. Hoffmann's elaborate statistic study concludes with high praise for the excellent record system of the Johns Hopkins Hospital. He believes, however, that the Bellevue Hospital method of classification is preferable.

Miss Sabin, from her embryologic study of the morphology of the lymphatic system, finds that lymphatic capillaries are tubes of endothelium, derived from the veins, and having the same relation to tissue spaces as have the blood capillaries.

Time and the Timeless. Songs of Shadow and of Hope. By a Physician. London: Henry J. Glaisher. 1914.

This is a small, paper-covered volume of verse by a physician who, though nameless is apparently a Scotsman. It consists of a number of brief poems and one somewhat longer piece, "To a Brother Physician." So far as these deal with medical topics (as in the unfortunate lines on "This Little Bistoury"), they can hardly be called successful. Indeed Mr. Kipling is probably today the only living man who could make poetry out of such material. Some of the other verses, however, apart from professional experience, have a more genuinely lyric character. The best of these, "In the Fratry of Furness Abbey," may serve as an example of all.

"Thy walls are desolate, and where
The gownèd monks sat, row by row,
Tall trees their shadowy foliage throw
And toss their branches high in air.

"The broken pillar, the noble arch,
The square red stones, pil'd huge and high,
As rugged time-worn tokens lie,
Marking the Day's triumphant march.

"No longer shut in walls of stone
The highest thoughts of men are pent,
But, bursting earthly tenement,
They claim the heavens for their own."

Communicable Diseases. By J. W. Kerr, Assistant Surgeon-General, and A. A. Moll, A.B. Washington: Government Printing Office. 1914.

This volume, prepared by direction of the surgeon-general and issued as a public health bulletin (No. 62) by the Treasury Department, is an analysis of the laws and regulations in force in the United States for the control of communicable diseases. It is intended as a sequel to bulletin No. 54, which described and commented upon the provisions governing health organization in this country. The first portion consists of a discussion of the principles involved in the prevention of disease; the second is an appendix of miscellaneous matters; the third presents the text of federal, state, and territorial laws on the control of disease. The book is a valuable repository of important information, and should prove useful to students of preventive medicine.

The Anatomist's Notebook. A Guide to the Dissection of the Human Body. By A. Melville Paterson, M.D., Edin., F.R.C.S., Eng. London: Henry Frowde, and Hodder and Stoughton. 1914.

This volume, in the series of Oxford Medical Publications, is essentially a dissecting syllabus. The text provides a summary of structures to be investigated, and the intervening blank pages afford opportunity for laboratory notes. There are 26 outline diagrams for original drawings. The book should be of convenient value to elementary and advanced students of anatomy.

THE BOSTON
Medical and Surgical Journal

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THE NEUROLOGICAL INSTITUTE OF NEW YORK.

THE fourth annual report of this institution, recently issued, shows a continuation and expansion of the excellent work in which it has been engaged since its organization and contains much that is of practical as well as scientific interest. The real need in a large city of such a hospital, affording the most skilled modern treatment in its special department, is shown by the material increase in the number of patients cared for; nearly 500 more having been admitted to the hospital wards, and nearly 600 more to the dispensary, than in 1912. Considering the very limited capacity of the institution, the number of treatments given has been remarkable for during the past year the individual treatments in the dispensary alone amounted to nearly 30,000. The order of popularity of these, it is stated, has been: electrotherapy, hydrotherapy and massage. Mechanotherapy, was the least popular of all.

In preceding reports mention was made of the good effects of the hospital treatment of persons merely threatened with some mental disorder. A continuance of these beneficial results has been noted, and it is felt that the institute, if it had done nothing else, has justified its existence by the good it has done in this way. By this prophylactic management the development of insanity has frequently been arrested, and individuals so threatened have been enabled to return to their work after a short time, instead of being condemned to a long period of mental disturbance. In two diseases the benefits of the special equipment and methods employed have been particularly manifested, chorea and poliomyelitis. In the former, isolation and quiet have proved very successful, and in the after-treatment of poliomyelitis admirable results in the way of prevention of permanent paralysis are accomplished by the judicious use of massage and electricity—a form of treatment to which scant attention is apt to be given in general hospitals.

Particular attention is called to the report of operations performed during the year. The skull was opened thirty times for various diseases, with a mortality of four.

A large portion of the report is taken up with the work of the department of social research. The most important of its problems is stated to be that of personal advice and instruction. The results of the examinations belong to the physicians, who determine the diagnosis and treatment; but in a large number of instances the explanation and oversight of the treatment prescribed are entrusted to the examiner, who has made the long personal inquiry and has an intimate knowledge of the factors in the case on which successful treatment depends. As to the problem of the individual, the more intimate phases of the work are found hard to describe without violating the confidences of the examination room, but illustrations are given which are typical of the ordinary run of cases. The following are the problems mentioned, illustrative cases being cited in each: 1. Problems of fear in young men and women. These frequently present themselves in the form of slight alterations in physical condition, associated with unreasonable concern about health, mental adequacy, or business or social success. 2. Problems of waywardness in childhood—sometimes due to inherited weakness and sometimes merely the accompaniment of some passing disorder; or they may be traced directly to bad care or to a bad example in the home. 3. Problems of waywardness in youth. Flagrant waywardness of conduct has been brought to the attention of the service much more commonly in the case of young women. 4. Problems of retardation and of special guidance. Whenever retardation in school studies is due to settled deficiency it is regarded as important to discover it in time and to obtain some clear idea of its nature and possible consequences; and equally important to estimate

clearly the nature of any special aptitude and establish the conditions under which it may be developed. 5. Problems of special defect. The largest number of such cases have been in those suffering from some form of speech defect. During most of the year a class has been conducted in speech training—individual lessons being given; and in every instance where the attendance has been regular very satisfactory progress has been made. Very many of the cases referred to this service were accompanied by a definite request for some estimate of the patient's general efficiency, and in the department it has been found that success or failure in dealing with patients commonly turns on an accurate estimate of their efficiency. At first this situation was met by selecting from the growing literature of tests any that seemed adapted to the particular case under observation, but gradually a number were selected as being particularly suitable for a neurological clinic. During the past year this work with tests has taken the form of trying out a set of tests for the pre-adolescent period, and this has been given in its complete form to over 250 individuals and in partial experimental form to as many others. In the report there is presented the scheme followed in the arrangement of tests for all the growth periods, as well as a table of tests selected, in accordance with this scheme, for the pre-adolescent period.

The hope is expressed by the medical board that sooner or later the scope of the work of the institute will be greatly expanded. It should be its aim, to discover the causes of nervous and mental diseases, to suggest remedies which will affect the race as well as the individual, and to disseminate such knowledge. To attain this goal, part of the working force must be directed to pure science, which would demand an equipment far different from that at present possessed. Such an institute, to which physicians and all concerned with education and public health would naturally turn, as they turn now in the matter of infectious diseases to the Rockefeller Institute, would be an incalculable benefit to the community.

Maine Health Ordinance.—The Maine State Board of Health recently adopted a regulation, which became operative on June 1, forbidding the use of common drinking-cups and roller-towels in schools, hotels, restaurants, railroad trains and other public places and conveyances.

THE MEXICAN SITUATION.

During the active progress of mediation at the conference now in session at Niagara Falls, Canada, hostilities continue between the contending Mexican factions. Tampico has been seized by the constitutionalists under General Villa, and has been made a basis of further operations against Mexico City. Meantime the United States forces hold a position of neutrality in occupation of Vera Cruz. General Funston, who is in command at that city, reported on May 22 a sick rate of 1.49% among the soldiers and 1.46% among the marines quartered there. Smallpox has already been almost wholly eradicated from the city. The United States has a total fleet of 34 warships lying off Vera Cruz and 17 off Tampico.

In the issue of the Journal for May 21, we referred editorially to the absence of the hospital ship *Solace* from Mexican waters during its voyage to New York for transportation and repairs. It appears that at least one other hospital ship is much needed by the navy.

"The Navy Department has had under consideration the purchase of a vessel in New York suitable for the purpose, but the owners of the ship have demanded $1,000,000,—a price regarded by the department officials as excessive. It is hoped that further negotiations with the owners will result in a reduction, but there are some naval officers who believe that the necessities of the case justify its immediate purchase, as a delay might result in increasing the number of deaths. The vessel in question would require an expenditure of $125,000 to fit out as a hospital or ambulance ship.

"Two vessels are declared necessary—one to remain in the neighborhood of Vera Cruz while the other is transporting the sick and wounded away from the tropics. Unless this is done, as is recommended by the surgeon-general of the navy, with the approval of the army medical officers, it is apprehended that there will be disasters which will arouse public criticism of the Administration. Secretary Daniels believes that there is no necessity for immediate action, and has informed his assistants in the Navy Department that he does not propose to be held up by ship owners because of the apparent necessity for a special type of ship."

It is to be hoped that neither motives of false economy nor an undue sense of security in the present situation may be allowed to prevent the immediate obtainment by the navy of a proper ship for the purposes required.

JULIUS BETTINGER "(L'ANONYME DU PALATINAT)".

FOR half a century or more the identity of the physician who, under the above title, contributed so much to the knowledge of the experimental inoculation of syphilis remained a complete mystery. It was in 1855 that the experiments were reported to the Medical Society of the Palatinat according to a recent article in *La Chronique Médical*. The experiments proved irrefutably the contagious properties of specific blood, as well as secondary specific lesions. This was at the time that Ricord held diametrically opposite views on this subject. It was, according to this article, Hoffmann's researches into the question of the infectivity of specific blood and his study of the older literature pertaining to this question which led him to the discovery of the author of these experiments heretofore shrouded in mystery. In the *Aertzlicher Intelligenz-Blatt* for 1856, the article goes on to say, he found the report of the proceedings of the Society of the Palatinat pertaining to this work. ("Rapport Médical pour le Palatinat rédigé d'après les Rapports Médicaux de Cantons.") The identity of the author was made certain by a communication from the son of Bettinger to Hoffmann.

Bettinger was born in 1802 at Zweibsucken, and studied medicine at Wurzbourg; at 22 years of age he was named assistant at the Cantonal Hospital at Frankenthal in the Palatinat. It was here that in later years his communication regarding the inoculability of specific blood and secondary lesions was made. In 1836 he was created director of the Cantonal Hospital; in 1856, one year after the anonymous communication had appeared, he received the Cross of the Order of St. Michael, without there being any apparent explanation of this honor. In 1878, his 50th anniversary of service in the Palatinat was celebrated, and he was the recipient of many tokens of respect and esteem for his life-long service and high attainments. He resigned in 1885 and died in 1887, having preserved his pristine vigor and strength of mind and body till nearly the end, also having kept the authorship of his chief work secret. It is of exceeding interest that Hoffmann, one of the discoverers of the cause of syphilis, should be the observer to throw light on the long puzzling question of the identity of "l'Anonyme du Palatinat."

ANOTHER MARINE TRAGEDY.

THE sinking of the Canadian steamship *Empress of Ireland*, off Rimouski in the Gulf of St. Lawrence early on the morning of May 29, with a loss of very nearly 1000 lives, vividly recalls the *Titanic* disaster of April 15, 1912. The *Empress*, while lying to in a fog, was rammed amidships about 2 a.m. by the Norwegian collier *Storstad*, and sank in 14 minutes. Many passengers were crushed to death in their berths by the impact of the collision. Many others were drowned when the ship went down. There was not time to man but a few lifeboats. About 400 persons were picked up by the *Storstad* and by the *Lady Evelyn*, which was summoned by wireless to the scene of disaster. Some of those rescued subsequently died of shock, exposure, or injuries, and many of the survivors are suffering from fractures and other trauma. Among those who perished was Dr. M. A. Lindsay, pathologist at the Victoria General Hospital, Halifax, N. S., who was on his way to England to be married.

Especial praise is given by surviving passengers to the ship's surgeon of the *Empress*, Dr. James F. Grant, of Victoria, B. C., a graduate of McGill University Medical School in 1913. Coming on deck from his cabin after the collision he coolly directed the embarkation of passengers and assisted in the launching of several lifeboats. When the vessel sank he swam to one of the *Storstad's* boats, which had put out, superintended the rescue of many persons from the water, and subsequently for hours aboard the *Storstad* devoted himself to the relief and treatment of the injured. Amid the melancholy reflections evoked by such a tragedy, it is an encouragement to find that the fine ideals of valor and service were so well maintained by this young representative of our profession.

MEDICAL NOTES.

VON BEHRING'S NEW DIPHTHERIA SERUM.—Report from Berlin on May 23 announces that von Behring's new toxin-antitoxin diphtheria serum is soon to be placed on the market for use as a durable immunizing agent against diphtheria. Excellent results from its use have been reported in the German medical journals.

A NEW INDIAN SCHOOL OF TROPICAL MEDICINE.—A recent item in the *Scientific American* calls

attention to the new Calcutta School of Tropical Medicine, whose corner-stone has just been laid by the lieutenant-governor of Bengal.

"This school will have unique advantages for carrying on its special line of work, viz., the study of tropical diseases, with a view to finding more accurate methods of diagnosis and treatment. Such diseases are responsible for more than one-third of the mortality in the city of Calcutta. From the consul's report it appears that the new institution aims to become an international centre in its particular field; students will be welcomed from all parts of the world, and medical research institutions in other countries are urged to establish scholarships at the Calcutta school, or to provide otherwise for sending research students to enjoy the advantages it offers. Inquiries should be addressed to Lieutenant Colonel Leonard Rogers, I. M. S., Medical College, Calcutta."

Bubonic Plague in Havana.—Another case of bubonic plague was reported at Havana on May 25, making a total of 20 since the outbreak of the present infection. There have thus far been three deaths of the disease. The city is quarantined.

BOSTON AND NEW ENGLAND.

Scarlet Fever at Milton Academy.—The epidemic of scarlet fever at Milton (Mass.) Academy, which we noted in last week's issue of the Journal, has extended. There are now 30 cases among students and the institution has been closed and quarantined.

Appeal of Baby Hygiene Association.—In a recent bulletin, the Boston Milk and Baby Hygiene Association has appealed to the public for $2000 to provide six additional nurses for carrying on its work during this summer.

A Centenarian.—In the issue of the Journal for June 20, 1912 (Vol. clxvi, p. 943), we chronicled the supposed centennial anniversary of Mrs. Benjamin de St. François, of Medford, Mass., said to have been born on June 12, 1812, at Chambley, near St. Francis, P. Q., Canada. We regret exceedingly to learn of her recent death, on May 21. Of her seven children, she is survived by three aged daughters; also by three grandchildren, and three great-grandchildren. She had been a widow since 1850.

Wassermann and Schwartz Tests in Brookline.—The Brookline (Mass.) Board of Health has just announced, in a circular letter to physicians, its preparedness to do Wassermann and Schwartz tests free of charge.

"The Brookline Board of Health desires to call to the attention of physicians the fact that it will make free of charge for residents of Brookline the Wassermann test for syphilis and also the corresponding test for gonorrhea, the so-called complement fixation test.

"The necessary outfits for these examinations may be had at the Board of Health Laboratory in the Court House on Prospect Street. Specimens for the test for syphilis may be sent to the Laboratory on any week day except Friday and Saturday. For the blood test for gonorrhea a special arrangement must be made by communicating with the Laboratory.

"Physicians are required to fill out a card giving certain information in regard to the case, but they need not give the name of the patient, provided they will sign a statement that the patient is a resident of Brookline, and will substitute letters or numbers for the name to identify the specimen. The same letters or numbers should be used for subsequent specimens from the same individual.

"For the present, these examinations will be made at the Laboratory of Neuropathology at the Harvard Medical School.

"The Board of Health is undertaking to furnish these examinations because it believes that the more frequent use of the tests will result in preventing the spread of these serious communicable diseases and will also enable physicians to recognize and successfully treat syphilitic lesions of many different organs of the body."

The remainder of the circular describes the uses and interpretation of the Wassermann reaction and the complement fixation test for gonorrhea, and gives instructions to patients and directions for collecting blood for the tests.

Boston City Hospital Training School.—The annual graduating exercises of the Boston City Hospital Training School for Nurses were held in the surgical amphitheatre on Friday afternoon, May 29. The principal address was made by Mayor Curley, who distributed diplomas to 43 graduating nurses.

Hospital Bequests.—The will of the late Frances H. Curtis, of Jamaica Plain, Mass., which was filed on May 23 for probate in the Suffolk Registry, contains a bequest to the Faulkner Hospital of $8000 to constitute a fund for the maintenance of a free bed to be named after George S. Curtis.

The will of the late James Sagebury, of Arlington, Mass., which was filed on May 26, at

the probate court in East Cambridge, Mass., contains contingent bequests of about $5000 each to the Infants' Hospital, the Children's Hospital, the Samaritan Hospital, the Lying-in Hospital, and the Woman's Charity Club Hospital, of Boston, and the Free Hospital for Women, of Brookline, Mass.

MASSACHUSETTS MEDICAL SOCIETY.—The one hundred and thirty-third annual meeting of The Massachusetts Medical Society will be held in Boston on Tuesday and Wednesday of next week, June 9 and 10. The sessions will be at the Copley Plaza Hotel and the Massachusetts General Hospital. The Shattuck Lecture will be delivered by Dr. Herbert C. Moffit, of San Francisco, and the annual discourse by Dr. Horace D. Arnold, of Boston. The annual dinner will be at 7 p.m. on June 10.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending May 26, 1914: Diphtheria, 47, of which 1 was non-resident; scarlatina, 120, of which 25 were non-residents; typhoid fever, 10, of which 2 were non-residents; measles, 144; tuberculosis, 68, of which 2 were non-residents.

The death-rate of the reported deaths for the week was 15.00.

NEW YORK.

MORTALITY FOR THE WEEK ENDING MAY 23, 1914.—There were 1592 deaths and a death-rate of 14.88 per 1000 of the population reported during the past week as against 1572 deaths and a rate of 15.27, an absolute increase of 20 deaths, and a decrease of .39 of a point in the weekly rate, equivalent to a relative decrease of 42 deaths.

The following causes showed an increased mortality: Measles, diphtheria and croup, typhoid fever, diarrheal diseases under five years of age, tuberculous diseases other than pulmonary and violence. Those causes showing a decreased mortality were scarlet fever, influenza, acute respiratory diseases and pulmonary tuberculosis. The mortality from whooping cough, organic heart diseases, Bright's disease and nephritis and nervous diseases were approximately the same as that of last year.

Viewed from the point of age grouping the mortality of infants under one year of age was slightly in excess of the figures of last year, while that of infants between one and five years was approximately the same. The mortality between five and sixty-five years of age was decreased somewhat, and that of sixty-five years of age and over was considerably increased.

The death-rate for the first 21 weeks of 1914 was 15.33 per 1000 of the population as against 15.55 for the corresponding period of 1913, a decrease of .22 of a point.

HONOR FOR DR. JELLIFFE.—Dr. Smith Ely Jelliffe, of New York, has been made a corresponding member of the Paris Neurological Society.

THE MENACE OF CANCER.—In view of the undoubted increase in the mortality from cancer, the Department of Health is seeking in every way to educate the general public regarding the nature of this terrible malady and as to the surpassing importance of early recognition and treatment. It is usually not known that the general death-rate of persons over 40 years of age *is higher* now than it was thirty years ago. In this increase, in addition to diseases of the kidneys, heart and blood vessels, cancer plays a large part.

While the ultimate cause of cancer is not yet known, much has been learned about conditions giving rise to the disease. Among these some form of chronic irritation ranks first. Physicians have also come to recognize what are termed "pre-cancerous" conditions." Prompt surgical attention to such conditions will do much to prevent cancer. Competent surgery in the early stages means a large percentage of cures, and the earlier the better. Hope lies chiefly in the first operation. Delay means not simply danger, but as a rule, inevitable death.

X-rays and radium are often valuable adjuncts to surgical treatment, but alone they are useful only in the skin cancers and other superficial forms. In Europe, where the popular furore about radium appeared earlier than in this country, great numbers of dishonest and fake, money-getting, radium-cure establishments have made their appearance. There is danger of the same thing occurring here, unless the public heed the warnings of competent authorities.

The evidence so far collected on early cancer also brings a message to the people who seek help in the later stage of cancer. Although the chances of a cure here are less, the disease in many instances is by no means hopeless. Even when the hope of cure is remote, surgery looks

toward the prolongation of useful life and the relief of much suffering.

Not only the public, but the medical profession, needs education with more reliable data as to the results of early diagnosis and treatment. The diagnosis of cancer, in its earliest stages, when treatment gives the very best results and the greatest number of cures, is more uncertain, and the treatment in this stage, although very much less dangerous, is a more delicate surgical procedure.

Typhoid in Brooklyn.—On May 23 the Health Department issued an official report in regard to the Mercer family in Brooklyn, two children in which became seriously ill after antityphoid vaccination. This was done by the family physician, at the request of Mr. Mercer, who was suffering from typhoid fever and later succumbed to the disease, and the vaccine was procured from the Health Department office in Brooklyn. The report states that the children are affected with typhoid fever, but that this must have been contracted before the vaccination, and not as a result of the latter. One of the children was thought to have cerebrospinal meningitis, but it was found that the symptoms pointing to this were due simply to pressure from cerebrospinal fluid. No meningicocci were found in the fluid, and the removal of some of the fluid by the lumbar puncture markedly benefited the patient. A third child, as well as the mother and an aunt, who were vaccinated at the same time, are now entirely well.

Investigation by Health Department.—A study has recently been made by the Health Department to ascertain what proportion of secondary cases follow the various contagious diseases when the patients are treated at home and when they are removed, with the following results: Diphtheria, quarantined at home, 13%; removed to hospital, 1%. Scarlet fever, quarantined at home, 9%; removed to hospital, 6%. Measles, quarantined at home, 14%; removed to hospital, 4%. A plan has been developed for the better supervision and treatment of cases of whooping-cough by the hospitals and dispensaries of the city. The department is taking up the matter with the Associated Out-Patient Clinics and the hospitals, and it is hoped that before long adequate facilities for the care of such patients will be provided.

Current Literature

Medical Record.

May 16, 1914.

1. *Friedman, G. A. *The Value of Polycythemia for the Diagnosis of Duodenal Ulcer, Based upon Sixteen Operatively Demonstrated Cases.*
2. Maloney, W. J. M. A., and Sorapure, V. E. *Note on Mechanical Support for the Feet in Locomotor Ataxia.*
3. Solenberger, A. R. *Prophylaxis of Laryngeal Tuberculosis.*
4. Kemble, A. *Chronic Prostatitis.*
5. Kitchen, J. M. W. *Bacteria and Bacterial Proliferation in Dairy Products, Related Problems and Their Solution.*
6. Birdsall, E. *The X-ray Treatment of Myoma.*
7. Crothers, T. D. *Voice and Manners in Medical Practice.*

1. Friedman has found polycythemia of value in the differential diagnosis of duodenal ulcer, especially from gastric ulcer and chronic appendicitis. There is no pathognomonic symptom of duodenal ulcer, he says. The history is important, especially a history of hunger pain, late pain and night pain, but atypical histories are common. The x-ray is very valuable, but the value of this, too, is limited. The data obtained by analysis of the duodenal contents is of secondary importance. In his cases, in all of which diagnosis was confirmed at operation, he found polycythemia almost constant in non-hemorrhagic duodenal ulcer, and in many instances it was the only distinctive feature. The average hemoglobin in his series was 90%, the average red count 5,921,000, the average white count normal. In gastric ulcer and chronic appendicitis a varying degree of secondary anemia is the rule. [L. D. C.]

New York Medical Journal.

May 16, 1914.

1. Collins, J. *Salvarsan a Valuable Treatment of Brain Tumor Symptoms Dependent upon Syphilis.*
2. Bandler, S. W. *Constitutional Dysmenorrhea.*
3. Rhein, J. H. W. *Apraxia in Relation to Aphasia.*
4. Weisenburg, T. H. *Anarthria and Its Relation to Aphasia.*
5. Pisek, G. R. *The Need of Hospitals for Whooping Cough in New York City.*
6. Robertson, W. E. *Kidney Disease, with Special Reference to the Test for Functional Capacity.*
7. Braddock, C. S., Jr. *Tropical Malaria and Its Causes.*
8. Haskin, W. H. *Oral Sepsis of Dental Origin.*
9. Boise, E. *Shock.*
10. Graham, H. S. *Causes of Gastro-intestinal Stasis.*
11. Stern, S. *Alcohol Acidemia.*
12. Smith, G. R. *Uterus Duplex cum Vagina Bipartita.*

The Journal of the American Medical Association.

May 16, 1914.

1. *Patrick, H. T. *The Symptomatology of Trifacial Neuralgia.*
2. *Nichols, H. J. *Syphilis as a Public Health Question.*
3. Nixon, P. I. *Chaparro Amargosa in the Treatment of Amebic Dysentery.*

4. YAWGER, N. S. *Experience with Crotalin at the Oakbourne Epileptic Colony.*
5. WOLFSOHN, J. M. *The Normal and Pathologic Physiology of the Visceral Nervous System, with Especial Reference to Vagotomy and Sympathicotomy. A Review.*
6. BROWN, G. V. I. *The Surgical Treatment of Post-operative Palate Defects.*
7. OMAN, C. M. *Medical and Surgical Work on Board a U. S. Battleship.*
8. *STEVENS, W. E. *The Comparative Value of Modern Functional Kidney Tests.*
9. PRICE, G. E. *A Case of Tay-Sachs Amaurotic Idiocy with a Positive Wassermann Reaction.*
10. MELTZER, S. J. *How Deep Should the Tube be Introduced in Intratracheal Insufflation?*
11. MILLER, T. G. *The Cultivation of the Plasmodium Falciparum in Vitro.*
12. MCLAUGHLIN, A. J. *Results of an Improved Public Water-Supply at Cohoes, N. Y.*
13. DAVISON, C. *The Treatment of Fractures by Autoplastic Bone Pegs.*
14. WILLSON, R. N. *The Incidence of Fibrinous and Bronchocatarrhal Pneumonia in the Philadelphia General Hospital.*
15. PLOTZ, H. *The Etiology of Typhus Fever (and Brill's Disease). Preliminary Communication.*
16. FARR, R. E. *Modification of the Brophy Mouth-Gag.*
17. UNGER, M. *A New, Double, Self Retaining Nasal Speculum.*

1. Patrick finds pure trifacial neuralgia about evenly divided between men and women, and not more common in women, as Dana has believed. As to age, it is more common in the degenerative period of life. More than half of the author's cases have been between 40 and 60 years of age. The impression exists that these patients are of the neurotic type, but Patrick does not find this borne out. Only one of his 220 cases really contracted the morphine habit. The right side is always more commonly affected than the left. The author offers no explanation for this. Patrick differs with most other writers in regard to the location of the pain. He believes the second division, not the first, is the most common location. The pain is essentially short-lived. Any pain about the face, forehead or temple which is a steady ache, which is continuous for a half hour or more, is not trifacial neuralgia. The disease is essentially chronic with no tendency to recover. The element of tic or motion is not a part of true trifacial neuralgia. Syphilis as an etiologic factor is noticeable by its rarity. Patrick does not believe in the toxic theory of its cause. This article is of very practical value and worth reading.

2. Nichols believes that a strictly medical campaign against syphilis is neither practical nor desirable. A modified medical campaign is both practical and necessary. The prevalence of the disease is still largely a matter of conjecture. The most hopeful outcome of all the recent work on syphilis is the possibility of an early diagnosis and radical cure. Our ideas about the efficiency of treatment and a standard of cure are more definite but need further elucidation. Syphilis is in most cases a preventable disease and this fact is an additional warrant for penalizing those who contract it.

8. Stevens favors the phloridzin test as more accurate than the phenolsulphonephthalein test in kidney function. It also takes less time.

[E. H. R.]

THE LANCET.

MAY 2, 1914.

1. ORMEROD, J. A. *The Lumleian Lectures on Some Modern Theories Concerning Hysteria. Lecture II.*
2. *COLE, L. G. *The Diagnosis of Post-Pyloric (Duodenal) Ulcer by Means of Serial Radiography.*
3. *TIDY, H. L., AND PHILLIPS, E. *Acute Lobar Collapse of the Lung.*
4. MUMMERY, P. L. *Pain after Operation for Internal Piles and Its Prevention.*
5. KRAUS, O. *The Early Detection of Diabetes by a Simple Method of Estimation of the Blood Sugar.*

2. Cole, in a paper illustrated with some very poor x-ray plates, describes his method of making serial x-ray photographs and its value in the diagnosis of post-pyloric or duodenal ulcer. This method is now too well known to require comment.

3. Tidy and Phillips describe a case of acute lobar collapse and discuss this condition. It is due to inaction of the muscles of respiration or blockage of the bronchioles from capillary bronchitis. It may explain cases of pleural effusion without corresponding displacement of mediastinum or heart.

[J. B. H.]

BRITISH MEDICAL JOURNAL.

MAY 2, 1914.

1. *STEWART, P. *The Diagnosis and Treatment of Cerebro-spinal Syphilis Including Tabes and General Paralysis.*
2. ARMSTRONG, H. *On Some Clinical Manifestations of Congenital Syphilis.*
3. BOYD, W. *The Clinical Importance of the Cerebro-spinal Fluid.*
4. *SMITH, W. M. *Meningitis in Children.*

1. Stewart believes that before coming to any definite conclusion concerning prognosis or course of treatment of any case of cerebro-spinal syphilis prolonged observation and study are necessary. Only cases in the early stages should be selected for radical treatment before the cortex has become profoundly degenerated. He believes in a combination of intravenous, intraspinous, intracranial treatment. While possibility of a cure is slight, alleviation and arrest to a greater or less degree may be possible in those cases. The writer presents details of cases and methods used.

4. Smith discusses the various forms of meningitis in children and their diagnosis and treatment. The whole subject is clearly shown in tabular form.

[J. B. H.]

THE PRACTITIONER.

MAY, 1914.

1. *SAVAGE, G. H. *Syphilis and Insanity.*
2. *POWELL, R. D. *The Use of Digitalis in Heart Diseases.*
3. *CAMMIDGE, P. J. *Glycosuria and Its Relation to Disease of the Pancreas.*
4. *BLAXLAND, A. J. *Some Aspects of Gall-stone Disease.*
5. LETT, H. *Thread Worms in Relation to Appendicitis.*
6. *CHISOLM, R. A. *Anæmia in Childhood.*
7. SMITH, S. *Random Notes in a Children's Casualty Department.*
8. FOX, R. F. *The Choice of Summer Health Resorts.*
9. CHAPMAN, C. W. *Recent Work on Diseases of the Heart.*
10. HERNAMAN-JOHNSON, F. *The Treatment of Severe Menstrual Pain and Excessive Bleeding by X-rays.*
11. THORNE, W. B. *Toxæmia and Autogenous Vaccines.*
12. FOTHERGILL, C. F. *Treatment of Neurasthenia.*
13. FLETT, A. B. *The Phylacogen Treatment of Rheumatism.*
14. ELDER, G. T. D., *and* DANKIELS, D. *Case with Comments. Pancreatic Hemorrhage.*

1. Savage discusses in a general way the relationship of syphilis to insanity in its various forms and comes to the natural conclusions that syphilis may be a cause of congenital mental defects and undoubtedly is the cause of general paralysis and other similar conditions. He believes in treating such patients with salvarsan, but does not hold out much hope as to a cure.

2. This is a good review of the subject of digitalis and its value in various forms of heart disease, but presents nothing new.

3. Cammidge, in a long paper, takes up the relation of glycosuria to disease of the pancreas. He discusses at length the work of other investigators and the historical side of this complex subject and its physiology and pathology. He believes that in the case of death from persistent glycosuria, pathological changes can be demonstrated in the pancreas in 70-80% of the cases; it does not follow that lesions of the pancreas are the primary cause of the condition in that proportion of cases. He describes his own investigations on this subject and gives the details of the various tests he has elaborated. He urges early treatment along scientific lines for every case of glycosuria, even of an apparently mild and simple character. It is pure empiricism to place a patient with glycosuria on a carbohydrate-free diet without further investigation. Other facts concerning metabolism in general should be ascertained in every such case.

4. Blaxland discusses gall-stone disease from various points of view as to symptoms, diagnosis, treatment, results of operation, etc. His paper is based on a study of 116 consecutive cases.

6. This is a good clinical study of the various causes of anemia in childhood and their cure and prevention. [J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 17. April 28, 1914.

1. Abderhalden, E., and Ewald, G. *Does the Serum of Rabbits Contain Proteolytic Ferments after the Intravenous Injection of Their Own or Other Rabbits' Serum Which Were Not Present before Injection?*
2. Lichtenstein, S., and Hage. *The Recognition of Specific Ferments by the Dialysis Method.*
3. Freymuth, F. *The Clinical Value of Abderhalden's Dialysis Method.*
4. *Nakano, J. *A Case of Hemochromatosis with a Clinical Picture Simulating Addison's Disease.*
5. Riebold, G. *Are Diphtheria Bacillus Carriers Infectious for the Community?*
6. Franck, O. *Experiences with Direct Tracheotomy.*
7. Hohlweg. *Polyuria in Carcinoma of the Breast.*
8. Hufschmidt, A. *Death from Spontaneous Cerebral Hemorrhage in Hemorrhagic Diathesis.*
9. Brandes and Buschmann, P. *Instruments for Electrical Stimulation During Surgical Operations.*
10. Alter. *The Simplification of Serological Methods.*
11. *Schneider, K. *The Treatment of Delirium Tremens.*
12. Schmidt-Ottmann, F. *Cumarin, a New Cardiac Tonic.*
13. Oloff. *Karl Völckers.*
14. Kaup, J. *Instruction in Social Hygiene at the University of Munich and the Establishment of a Seminary for Social Hygiene.*

4. Nakano reports a case which, clinically, had the weakness, malaise, vomiting and diarrhea characteristic of hemochromatosis. At no time, however, during a long period of observation was sugar found in the urine. At autopsy changes were found in the liver, spleen, and pancreas, which justified the diagnosis of hemochromatosis. The adrenal glands appeared normal.

Cases of hemochromatosis without glycosuria have been described, as well as cases of this disease combined with atrophy of the adrenal glands. Nakano concludes that his case must be considered glycosuria, and with symptoms of severe auto-intoxication due to a functional adrenal insufficiency.

11. In No. 13 of this periodical Scharnke objected to the bath treatment of delirium tremens. Schneider in reply records 31 cases which occurred in the city hospital of Köln during the year 1913. The cases were all of outspoken alcoholic delirium, and were treated in the same fashion. There was not a single death despite such complications as bronchitis, pleuritis, pneumonia, erysipelas and senility.

The method of treatment employed consisted in the use of a continuous warm bath without restraint. As soon as the patients became sleepy, they were placed in bed. Alcohol and hypnotics were never used. When the heart showed danger of collapse it was stimulated with digitalis, camphor or caffein. Such treatment, however, was necessary in only two cases of Schneider's series.

Schneider concludes that this communication offers evidence in support of the hydrotherapy of delirium tremens. [R. F.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 12. March 23, 1914.

1. *Wechselmann, W. *Concerning the Salvarsan Treatment of Syphilis.*
2. *Blaschko, A. *Some Fundamental Points in the Treatment of Syphilis.*
3. *Boolander, F. *On the Modern Treatment of Recent Syphilis.*
4. Torler, L. *On the Breslau Epidemic of Erythema Infectiosum.*
5. *Post, F. *A Contribution to the Treatment of Pernicious Anemia by Splenectomy.*
6. Wollenberg, G. A. *On the Treatment of Paralysis.*
7. Karo, W. *Kidney Diseases and Tuberculosis.*
8. Lillendahl-Petersen, N. *Methods of Determining Hemoglobin and a Suggestion for Such a One.*
9. Scheibner. *Reports on the Action of "Eisen-Elarson Tablets."*

1. Wechselmann is one of the few men who advise the use of salvarsan alone, that is, without combining it with mercury. He has carried out this treatment exclusively for four years with excellent results, giving in some cases as many as 35 or 40 doses in a single case, and recently having used neosalvarsan. He has given 45,000 injections without a death, and claims first that the fatal results are usually due to lack of appreciation of contraindications, and second that untoward effects are much more liable to occur when mercury is being used at the same time. Of interest in regard to deaths are the statistics of Leredde, quoted by the author, to wit:

Year	Deaths	Salvarsan Injections
1910	16	50,000
1911	92	800,000
1912	66	1,200,000
1913	37	2,000,000

These demonstrate clearly lessened fatalities as clinicians become more familiar with the drug.

2 and 3. These two authors sum up various points of interest in regard to modern treatment, disagreeing with Wechselmann in his conclusions as stated above, that salvarsan alone is the best treatment. Blaschko (2) especially states that Wechselmann lost sight of numerous cases which were really not cured, but turned up at other hospitals and were given combined treatment.

5. Post presents a case of pernicious anemia operated on (splenectomy) in December, 1913, and already showing marked improvement. Before opera-

tion the highest red count was 1,900,000, and on March 11, 1914, it had risen to 3,556,000, and the hemoglobin had gone from 50, its highest point before operation, to 77. The case to date had been observed only three months after operation, but the beneficial results seemed striking. [R. H. M.]

No. 13. March 30, 1914.

1. CITRON, J. *Recent Progress in the Treatment of Syphilis.*
2. CEDERBERG, A. *The Pathogenesis of Certain Anemias, with Especial Reference to Pernicious Anemia.*
3. AUMANN. *The Measures Used in Fighting Cholera in Servia in* 1913.
4. HEILE, B. *Operations to Relieve Pressure in Cases of Sciatica.*
5. FEDERN, S. *Blood-pressure and a New Method of Measuring It.*
6. UNNA, P. G. *The Chemistry of the Cell.*
7. THEILHABER, A. *On the Etiology of Cancer.*
8. WENTZEL, K. *Experiences with Paravodin.*
9. OPPENHEIM, H. *The Treatment of Leucorrhea with Powders.*
10. WEIGERT. *The Question of Professional Secrecy on the Part of Physicians, in Giving Legal Testimony.*

1. Citron emphasizes the importance of beginning anti-syphilitic treatment as soon as possible, and following it up energetically as long as any traces of the disease persist. He thinks that many late syphilitic lesions are due to improper treatment of the earlier stages by dermatologists, and is especially anxious that it should no longer be considered a skin disease. He favors combined treatment, and does not put much trust in Wechselmann's method of using salvarsan without mercury.

[R. H. M.]

Miscellany.

A PRACTICAL METHOD OF DRYING CULTURES OF BACTERIA.

ALL the better class of creameries use for ripening cream pure cultures of bacteria which are obtained at regular intervals from commercial laboratories. These are carried in the creameries by transferring milk cultures from day to day, the culture being renewed occasionally to insure its purity. The small milk culture, known as a "mother starter," is usually carried in bottles or small jars, from which it is transferred to a large can or vat of milk to make the starter used to ripen the cream.

The ideal culture for distribution is in a dry form, sufficiently active to produce rapid growth when it is added to milk and yet so dormant that it can be held a long time without losing its activity. But the difficulties of producing a culture in this condition are so great that the most successful of the commercial cultures are distributed in a liquid medium and must be used within a comparatively short time. A few cultures, however, have been sold continuously in a powder or tablet form; in other cases the liquid culture has been found to be more satisfactory and the dry culture has been abandoned.

Recently the general interest in fermented milks, especially those of the Yoghourt type, has stimulated the production of various kinds of tablets and capsules which ostensibly contain the organism in such quantities that the culture can be used to start a fermentation in milk or to inoculate the digestive tract by direct consumption. These cultures, as well as those sold for butter-making and cheese-making, are of real value only when they contain a suitable organism free from contamination and are sufficiently active to start the acid fermentation before accidental contamination can develop to an appreciable extent.

As a result of recent experiments the Dairy Division of the Bureau of Animal Industry, United States Department of Agriculture, has devised a method of drying cultures by which the loss in bacterial content is greatly reduced. Experiments in removing the water by a spray carried up by a current of warm dry air were found to produce satisfactory dry cultures, but rapid drying by this process requires the use of complicated and expensive machinery not within the reach of the ordinary laboratory.

Cultures were then successfully evaporated by freezing and lowering the atmospheric pressure. Phosphorus pentoxid and lime were used to absorb the moisture, but sulphuric acid proved to be the best agent for this purpose.

These experiments show conclusively that water may be removed from cultures of bacteria used in the manufacture of dairy products by exposing them in a frozen condition over sulphuric acid in a vacuum approximating 0.01 mm.

Fresh lactic cultures dried by this method are sufficiently active to curdle milk in 17 hours at 30° C. when added in the ratio of 1 part of powder to 1,000,000 parts of milk.

The total number of bacteria in a milk culture may be increased by adding dibasic potassium phosphate, but the powder made from the culture is less active than that made from unneutralized milk. The activity of the powder is not increased by neutralizing the culture with calcium carbonate before drying.

More powder may be produced at each operation of the drier by using a culture grown in milk concentrated to one-half its original volume, and this powder is as active as that made from normal milk.

The activity of a dried culture diminishes more or less rapidly, depending on the conditions under which it is held. The loss of activity in powders is much more rapid when the moisture content is comparatively high. The loss in activity is very slow at 0° C. or lower, and becomes more rapid as the temperature is increased. Dried cultures of the lactic acid bacteria held at 30° or 37° C. become inactive in a short time. Cultures held in a vacuum retain their activity much better than cultures in an atmosphere of

nitrogen or hydrogen: the most rapid loss of activity takes place either in air or in an atmosphere of oxygen.

Very active dried cultures of *bacillus bulgaricus* may be made by the freezing-vacuum method; they curdle milk in 20 hours at 37° C. when added to milk in the ratio of 1 to 100.000.

UNITED STATES MORTALITY STATISTICS.

From a statement recently published at Washington by the census bureau, it appears that the death-rate in the registration area of the United States in 1913 was 14.1 per 1000.

"This figure of 14.1 as the death-rate for 1913 was based on 890.823 deaths returned from 24 registration states, the District of Columbia and 41 cities in non-registration states. The total population included in the registration areas reporting is 63,299,164, or 65.1 per cent. of the estimated population of the United States. While the figures are not complete for the entire country, they serve as an index to the general sanitary condition of the United States. Virginia is included for the first time in the national vital statistics, as the result of the passage of a registration law in that state in 1912, and the Bureau of the Census is actively cooperating with officials in other states so that the entire country may be included in the area having effective registration at the earliest possible date.

"The death-rate for 1913 (14.1 per 1000) slightly exceeded that for 1912, which was 13.9, but was less than that for 1911, which was 14.2. It also is markedly lower than the average rate for the five-year period 1901-1905, which was 16.2. The decrease in the death-rate amounts to 13%, or to a reduction of about 1 death in every 8, during the interval of ten years. Allowing for changes made in the registration area during this time (much new territory has been added), when comparison is made of the rate shown for 1913 and for 1901 to 1905, with the same group of registration states, there is still a considerable decrease shown (7.5%). If the same death-rate had prevailed in the registration area in 1913 as prevailed in the annual average for the years 1901-1905 there would have been 1,025,446 deaths recorded instead of 890,823, an excess of 134,623 over the number recorded in 1913. In the original group of registration states as constituted in 1901-1905, the population of which is about one-fourth of the total population of the United States, the reduction in mortality would have been equivalent to a saving of 30,546 lives in 1913 that would have been lost if the former rate of mortality had continued.

"Among the states for which the death-rates for 1901 to 1905 are given, the largest percentage of decrease was shown for Rhode Island (15.7), followed by New York (12.3), New Jersey (11.2), and Massachusetts (9.6). Slightly increased death-rates for 1913 are shown for Michigan (4.5), New Hampshire (3) and Indiana (0.8). These increases may be due in some cases to increased accuracy of registration of deaths during 1913 as compared with the earlier period.

"Among the cities of 100,000 population and over the variation shown in the death-rates covers a wide range. In general, the tendency seems to be to a lower mortality. The following cities show a reduction of 20% or more from 1901-1905 to 1913, or an average of 2% or more for each year of the past decade: New York, 24.7; Jersey City, 24.4; Newark, N. J., 23; San Francisco, 21.7; Lowell, Mass., 21.3; Spokane, Wash., 21.2; Denver, Col., 20.3, and Paterson, N. J., 20.1."

Correspondence.

REORGANIZATION OF THE STATE BOARD OF HEALTH.

Boston, May 28, 1914.

Mr. Editor: With the retirement of Dr. Henry P. Walcott from the State Board of Health the health matters of Massachusetts may be said to have come to the "end of an era." It has been his forethought and wisdom that has brought Massachusetts well to the forefront of the states in health matters. Of those who have worked with him in the past only Mr. Mills remains. All of the other members of the Board are serving their first term so that it will be seen clearly that the retirement of Dr. Walcott puts the state health department in new hands.

To those who have realized what was to happen it has long been evident that there was no Elisha on whom could fall the mantle of the leader. This was fully realized by Governor Walsh on taking office and by Dr. E. H. Bigelow, the House Chairman of the Public Health Committee, and they immediately after election took council together as to how they should meet the emergency. Crude bills for the reorganization of the State Board of Health appeared in the legislature, which the Legislative Committee of The Massachusetts Medical Society opposed. In order to try and help matters along they suggested to the Public Health Committee that any reorganization that might be made, should be with a Commissioner of Public Health to be in charge of the executive work of the department, to control and direct its machinery with departments more distinct and better defined than at present and further an advisory council to protect the public from autocratic action on the part of the commissioner, and to give him advice in the formulation of rules under which he shall work, thus preserving, as far as possible, the Massachusetts idea of an unpaid board. This Journal early in the year advocated this general line of action.

The present bill (House No. 2598) which was printed in full last week together with the Governor's message is along these lines. It was arrived at after many hours of consultation between the Governor, Dr. J. W. Kerr, Asst. Surgeon-General of the United States, The Public Health Committee, Dr. M. J. Rosenau and others. The drafting was finally left to Dr. Rosenau after the general features were decided upon. It was then carefully studied by the Governor and various physicians who were invited to meet and confer with him.

The bill carries out the general scheme for a Commissioner devoting his whole time to the health matters of Massachusetts who shall be at the State House and meet the people and also go out to study the problems as they present themselves in our densely populated state. The Health Council is to carry on the judicial work of the present board and to draw health rules for the state, under the laws, which shall apply throughout the Commonwealth. The district health officers who on part time have developed into a strong and important body of men, helpful throughout their district, have been strengthened by putting them on whole time although reducing their number.

When one looks at the past events one has to realize that although the present State Board has been an unpaid board, nevertheless the chairman has had a salary from the state, although in another capacity. Though it has been a painfully inadequate salary for all the services rendered to the state it has nevertheless been a salary and any competent new man coming to the service of the state, whether from the ranks of the state medical profession or called from abroad, would have to be provided with a living. Hence the necessity of providing the man on whom are to devolve the responsibilities of the present chairman and the difficulties of taking up a new work with a salary. Seventy-five hundred dollars may not seem a sufficient recompense but no state excepting Pennsylvania at present pays a ten-thousand dollar salary for its chief health officer. State and university work are notoriously underpaid.

There are two methods of drawing a bill, one which takes every possible detail into consideration and tries to incorporate it into law, the other which tries to establish the broad general principles which it is desired to elaborate, leaving the detail to the executive to work out. Of the former the health law of New York with its 22 pages is an example. There is a mass of health legislation in Massachusetts, which must be lived up to. What suggestions the present State Board of Health may have had regarding it are not known, for the codification of the health laws and the board's suggestions for new legislation, not having been presented to the legislature until late in March, had never emerged from the printers and consequently have not been generally available. The present bill is along general lines permitting the formation of the new State Department of Health on a broad foundation.

The question has been asked, why was not the vital statistics department put where it belongs, under the health department? The only answer is that the legislature in its wisdom voted earlier in the year not to do this very thing. And the answer to the question of why was not the milk inspection provided for? is that the majority of the legislators do not appear to wish what seems to us as desirable milk legislation and that so far, the farmers of the state are not able to see that it is for their interest to have the State Board of Health look after the milk production.

The bill is on the lines that the JOURNAL has consistently advocated and when a clause is added arranging for the protection of the present employers and the change of administration from the old form to the new on the appointment of a commissioner, it is hoped that the bill, as drafted, will pass practically without amendment.

Truly yours,

A. K. STONE, M.D.

THE ANTI-VACCINATION BILL. A CORRECTION.

FITCHBURG, JUNE 1, 1914.

Mr. Editor: In your editorial on the "Defeat of the Anti-Vaccination Bill" in your issue of May 28th, ult., you say, "Mr. Moore of Leominster and many other public spirited members of the House deserve the gratitude, etc." There is no Mr. Moore of Leominster in the House. The medical profession and all friends of good government in the 11th and 12th Districts will, I am sure, thank you if you will note the error and say it should read, "Mr. George F. Morse, Jr., Lancaster, Representative of the 11th District."

Mr. Morse was active in working to defeat this bill, and also on the floor of the House made a strong protest against its passage. Mr. Morse is a worthy son of the late Dr. George F. Morse of Clinton, a medical examiner and member of The Massachusetts Medical Society, a wise counsellor and cherished friend of mine while I was a resident of Lancaster, from 1870 to 1874.

Thanking you in advance for correcting this unintentional error, I am,

Very respectfully yours,

FREDERICK H. THOMPSON, M.D.

SOCIETY NOTICE.

AMERICAN CLIMATOLOGICAL ASSOCIATION. — The thirty-first annual meeting will be held at Atlantic City, N. J., June 19 and 20, 1914. President, James M. Anders, M.D., Philadelphia; secretary and treasurer, Guy Hinsdale, M.D., Hot Springs, Va. Members of the profession are cordially invited to attend the meetings of the Association.

RESIGNATIONS AND APPOINTMENTS.

TUFTS COLLEGE.—*Dr. Frederic M. Briggs* has resigned as secretary of the medical and dental faculties, and has been appointed professor of surgery and secretary emeritus. *Dr. Frank E. Haskins* has been appointed secretary to succeed Dr. Briggs on Sept. 1.

RHODE ISLAND BOARD OF HEALTH.—*Dr. Henry S. Bernstein*, director of the Bender Hygienic Laboratory at Albany, N. Y., has been appointed state pathologist and bacteriologist of Rhode Island.

RECENT DEATHS.

SIR FRANCIS HENRY LAKING, M.D., who died in London on May 21, was born in 1847. He studied at St. George's Hospital Medical School and the University of Heidelberg. He was consulting physician to the Victoria Hospital for Children and physician-in-ordinary and surgeon-apothecary to King George and the Prince of Wales. He was a member of the Royal Institute of Great Britain and Knight Commander of the Royal Victorian Order.

MR. STEPHEN TOWNSEND, who died on May 20 in London, was educated as a surgeon, and became a Fellow of the Royal College of Surgeons of England. He soon gave up the active practise of surgery, however, and became best known as a lecturer, actor, and author. His most familiar work is "A Leaf from a Hospital Day-book."

BOOKS AND PAMPHLETS RECEIVED.

Operative Surgery for Students and Practitioners. By John J. McGrath, M.D. F. A. Davis Company, 1913.

The Psycho-analytic Review. Published by the Journal of Nervous and Mental Disease Publishing Company. Vol. 1, No. 1, November, 1913.

The Uterine Myoma and Malignancy. By W. P. Manton, M.D. Reprint.

The Door is Open. By W. P. Manton, M.D. Reprint.

Bulletin of the Massachusetts Institute of Technology. Catalogue, December, 1913.

Report of the Surgeon-General, U. S. Army. 1913.

Transactions of the American Otological Society, Forty-sixth Annual Meeting. Vol. XIII, Part 1.

Medical and Sanitary Inspection of Schools. By S. W. Newmayer, A.B., M.D. Lea and Febiger. 1913.

Original Articles.

THE PRESENT STATUS OF PSYCHOANALYSIS.*

By James J. Putnam, M.D., Boston,

Professor of Diseases of the Nervous System, Emeritus, Harvard Medical School.

There are two main reasons why I am glad of the chance to speak tonight on the subject of the psychoanalytic movement, in which for the past four years I have had a share that, small though it has been, has meant more intense and more engrossing labor than I have ever spent on any previous task—a labor often involving much readjustment, sometimes far from pleasant but very satisfactory in most of its results.

In the first place, this movement represents a great boon to many sufferers from a series of extremely distressing and disabling maladies,—more distressing than any one is aware who has not watched the disastrous evidences of them, day by day and from close at hand.

To illustrate this point from my own relatively small experience, I will cite the following case-outlines, which indicate (so far as mere samples can do this), first, that mental disorders ordinarily classified as very serious can often be relieved in this way; next, that neither a bad family history nor long continuance of the symptoms are a necessary bar to improvement or substantial recovery. It goes without saying that this treatment, like all others, has its well-marked limitations, which it neither can nor should be expected to overpass. The persons to whom it appeals, whether as patients or physicians, will be mainly limited to those who are inclined and able to see that a large share of the troubles of this world have as their basis the doubleness of the mental life and the consequent misconceptions of individuals with regard to the influences by which they are being moved. A portion of these misconceptions is due to the fact that men fail to see, perhaps have never been trained to see, that we stand, not as separate individuals, with duties that end in the promotion of our own superficial interests, but as members of smaller and larger communities and groups, and eventually of ideal communities. The sense of isolation, doubt and terror, of jealousy, even of depression and despair, which are so prominent as causes of human misery, and especially of the misery of neurotic patients, would undoubtedly be far less if men were carried along by a sense of devotion to some great cause, some great religious sentiment, in which their longing for more exclusive, personal successes should be merged.

If this were the whole story, then the direction in which the remedy was to be sought would be clearly indicated, in theory at least. But, in fact, this is not the whole story, and the problems at stake cannot be wholly met by a completer recognition of social, or even religious obligations.

There is certainly another great element of difficulty at stake, which consists in the existence of schisms of the personality and self-misunderstandings, that have their root in subtle disorders of development which begin in infancy. These disorders are of such a sort that they cannot be classified as wholly due to an imperfect recognition of the unseen forces which we describe in terms of moral and social obligation. The persons whose development has been disturbed in this way to any considerable extent, are apt to find, at the time when they come up against the necessity of making moral choices, that their ability to do justice to their best qualities has been undermined by tendencies which have not until then been made obvious by definite results, and of which the nature and mode of origin are entirely hidden from the view.

Such persons find themselves saddled with desires, cravings, or habits which they seem under compulsion to obey, or from which they can escape only by the discovery of some subtle compromise which makes the apparent escape a delusive unreality. Of what benefit is it, for example, to escape from a self-indulgence of some infantile type, only to be left a person of overwhelming prejudice or narrow vision, or of blind and hostile pride?

Fortunately, even these compromises are often attended by a sense of distress which may lead the individual to attempt, with expert aid, to discover the true source and nature of his difficulty. It is in meeting this need that psychoanalysis plays an effective part.

A recent personal letter from Professor Freud, dealing with the theory of the treatment, concludes with this sentence: "The great ethical element in psychoanalytic work is truth, and again truth; and this should suffice for most people. Courage and truth are in what they are mostly deficient."

This proposition might well be taken as the motto of the psychoanalytic movement, for it is truth at which it aims. And the recognition of this principle should serve also as an answer to those who might be willing to see something of value in Freud's demonstration that it is possible, by means of his association method, to enable patients to see more deeply into their own histories and yet are unwilling to accept the results which psychoanalysis has thus far brought to light and have no patience with the details which are brought out.

Without these details, however, the principle would be of little worth, and the acceptance of the principle is often only a cover for an inner rejection of every attempt to apply this principle for the benefit of an individual patient.

* Read at a meeting of the Medical Section, Boston Medical Library, in conjunction with the Suffolk District Medical Society, April 1, 1914.

Finally, the fact cannot be too strongly emphasized that there is no necessary hostility between this mode of treatment and any genuine agency for good that social life or the ingenuity of any physician has to offer. On the contrary, in so far as it sets the patient free from the tyranny of his less good impulses, psychoanalysis should make him more susceptible to influences corresponding to the better elements of his nature.

CASE 1 is that of a gentleman of middle age, who had been suffering for about fifteen months from serious paranoid symptoms, accompanied with intense depression and a strongly marked suicidal tendency, on account of which it had been necessary to confine him, against his will, in a sanatorium, where he remained about a year. He had improved somewhat when I saw him, and it is not impossible that he would have recovered after a time without psychoanalytic aid. Nevertheless, considering that he was still deeply despondent and suicidal, so that the services of two male nurses were thought necessary, that under this treatment he improved steadily and fairly rapidly, and that he has had no recurrence in the three years that have elapsed since his recovery, the case seems worth recording, even at greater length than is here possible.

This patient had always been of a gentle disposition, highly refined, sensitive and self-depreciative, and had suffered from environmental conditions which received their tone from the temperament of the mother and grandmother, who, though high-minded, cultivated and refined, like himself, were out of touch with many of the more aggressive and practical interests of a boy's life.

It may be accepted as eminently probable that the qualities thus far mentioned first became developed as a result of reaction to positive emotional desires; but whether this is so or not, it is certain that these desires existed and acted as one of the strong influences of his whole life. He was unquestionably a person who suffered from the need of an outlet for feelings which he strove, without success, to sublimate, but in reality repressed. Any fancied sin against sexual purity (as a single, almost accidental, seminal emission at the age of about fourteen), or against the traditions by which he was surrounded, often gave rise to an agony of remorse. Yet his sexual excitability and his curiosity about sex topics were quite strong, and he was thus drawn continually in opposite directions, and became thereby irresolute and inclined to suspiciousness and depression.

This tendency to feel himself drawn in opposite directions was illustrated also very clearly in his relations to his mother. He was devotedly attached to her, but being fond of society in a wider sense he failed to find in her a complete outlet for his emotional life, and thus came to have a morbid sense that he was neglecting her for others, a double feeling that had a deep subconscious root. So matters went on until his mother's death. Some time previous to this he had been occupied in teaching in a boys' school, and had also been through several rather intense attachments which, however, had resulted in nothing except a series of friendships tinged with an unsatisfied desire for something more. The death of his mother seemed to let loose a number of conflicting tendencies, and led gradually to an emotional crisis which reached its culminating point about two months later. He then had a severe "Angst"[1] attack, after which a tendency to suspiciousness, which formed a part of his self-depreciatory habit of mind, became more and more intensified, and associated itself with gloomy forebodings. A specialist was called in, whose attitude and treatment only added fuel to these flames. The patient felt himself humiliated and crowded down, and took easily to the idea of a hostile conspiracy, as a species of relief. Removal to a sanatorium only made bad matters worse. The attendants treated him, as he believed and still believes, with considerable harshness and neglect, and very soon he found himself living in the midst of a fantasy world in which he played the victim's part with every one for his enemy. If a book was sent to him by a friend, he saw in it, both in general and in detail, only studied attempts to mock at his condition. To this end the writers had devoted their main efforts. Certain colors, and various other signs, seemed to him to be displayed to irritate and distress him, and false interpretations were placed by him on every act. Not only real persons, but the powers of the nether world were discovered to be in league against him. The devil's mark was traced on the avenue of the sanatorium, as a sort of bar beyond which he could not safely pass; and this element of his delusional state became so strong that even when fairly well on toward recovery he would exhibit, at least verbally, a degree of belief in this evil deity which seemed strangely at variance with his intelligence and cultivation.

At the time at which the treatment was begun, his physical health, which had previously been reduced, had become somewhat improved, but his delusions (only a small part of which I have here outlined) were still present in full force. The beneficial effect of the treatment soon became apparent. It was an immense relief to him to trace out, through the study of reminiscences and dreams, the mental influences which had brought him where he was, and to discover that it was possible to neutralize their effects.

It gradually became possible for him to utilize again his fine intellectual and temperamental traits in the interests of a wide life of friendship and social usefulness, and it is my belief that, understanding the situation as he now does, it would be almost impossible for him to suffer a serious relapse.

[1] The German word "Angst," as technically understood, covers a good deal more than can be indicated by any corresponding word in English. Its symptomatology is made up of both mental and physical elements of emotional excitement and distress which often reach a high point of severity.

Case 2 is that of a lady who had been treated by me without success before my interest in this movement began, and later successfully by this method. Her symptoms, which were of several years' duration, consisted of compulsive and torturing doubts, the extension of which was without limit. It seemed to her impossible to disprove the possibility, dreadful to contemplate, that plants and trees were capable of suffering like men, and this was but a sample of a distrust on her part of the power to form judgments of any sort or even to feel that she had the right to be sure of her own identity and name. This doubting habit had not prevented her from working, it is true, but it had made her exceedingly unhappy, and had given her a sense of isolation at contrast with her naturally sociable and friendly tendencies.

The analysis gradually made it clear to her that her present paradoxical doubts were only covers for a series of uncertainties about old problems of personal conduct, and moral responsibility for definite acts and tendencies of childhood and adolescence of which she was ashamed. It was in the conflicts centering on these early tendencies—that had originated in a craving for personal self-indulgences and personal affection, at variance, as she thought, with a set of ethical standard which she longed to consider genuine—that the habit of doubt became established. For, blame and criticize herself as she might she could not shake off the fact that she had strongly emotional traits, and, until she became able to secure a rational comprehension of her own nature and her ethical obligations, she had no recourse but to make her doubts themselves, and her false reasoning about them, the servants of the emotional longings. She had become accustomed, and with reason, to regard herself as immature, but could not make head against this immaturity until she came to see in just what respect the estimate was a just one.

In cases of this sort an element of peculiar difficulty for the treatment is often furnished by the fact that the reasoning power itself becomes sophisticated, and is prostituted, as it were, to the keeping alive of the tormenting but fascinating doubts.

This was so in her case. Gradually, however, improvement set in, and for a long time the patient has been so well that except for short periods, during times of especial stress, she has been mistress of her thoughts.

Case 3 is that of a lady still under my care, whose history may be condensed as follows:

Up to the age of about twenty she was ordinarily well balanced, a fine scholar at school and college, finding perhaps too strong an attraction in her literary work with its appeal to her esthetic sense. She was intensely, perhaps too intensely, devoted to her mother, who was for a number of years an invalid. Yet she insists that this relationship was in no way narrowing or unwholesome, but rather of a broadening tendency.

Later analysis brought out several facts about this early period, which, trifling as they had appeared, have become of material significance in indicating the existence of conflicting trends in her temperament. Had her mother lived, or had she been able to work out a life on lines other than those that she was forced to follow, all might have gone well. But while she was in college her mother died, and she was then called upon to face situations which were not in harmony with instinctive desires that had become stronger, subconsciously, than she knew, to the exclusion of traits of which she stood in need and could not spare. Then inner conflicts began to show themselves, which became especially intensified after her marriage (in itself a very happy one), and forced upon her a series of obligations which she felt herself unfitted to assume, and under conditions peculiarly hard and uncongenial.

Sick, thwarted, and disappointed, she began to react against herself and her environment with an intensity difficult to express adequately. Persons whom she had every cause to love became objects of horror and detestation, and these feelings were poured copiously upon herself as well. Home-making became an impossibility, her despondency bitter and severe, and the desire to end her miseries by her own act a longing scarcely to be resisted.

In spite of the call of obvious duties such as she had never previously disregarded, and in the face of an obviously rational outcome apparently within easy grasp, the inner obstacles in the way of a successful attainment of her best wishes seemed almost insurmountable. Moods of violence lay always close beneath the surface; and though better moods were also near at hand, yet the better moments were fleeting, and for the most part she kept being overwhelmed as if by waves of destructiveness, or drawn out beyond her depths by a strong undertow of despair. It was only after many months of almost daily treatments that anything like stability seemed to come within her reach. But at present a better outcome seems to be in sight, and the main trend is gradually toward a better state. And the result has been due to the equally gradual defining of the removable portions of the difficulty in terms of the undesirable trends of character and temperament which the patient is learning to discard in the interests of a better sort of progress.

Case 4 is that of a lady, an artist by profession, and of highly neurotic stock, who for some ten years had been tormented by morbid fears which made it painful, if not impossible, for her to go down town, or to places of entertainment. This sense of fear, which was indescribable but prostrating, and for which no obvious cause could be assigned, was gradually traced to longings and cravings which had their origin deeply in her temperament, and which she had been unable to face out, because never fully aware of their meaning or existence. She had had treatment from excellent physicians, but without avail. In the course of a few months, however, she became substantially relieved, so that she could go everywhere with but slight traces of discomfort, and could finally take a foreign trip. I have heard from her at intervals, and in very gratifying terms.

Case 5. Another case which has interested me greatly is that of a young man, gentle in demeanor, rather small in stature, a chronic masturbator, suffering from timidity and morbid consciousness of himself, who since earliest childhood, as if either

seeking a compensation from these tendencies to a sense of insufficiency, or with the primary love of self-assertion which every infant feels,[1] has indulged in grotesque day-dreams of heroism and domination. In these day-dreams, which came to his memory gradually, during a moderately long treatment, he felt himself a king, or even tyrant, able, like Nero, to gratify fanciful ideas of cruelty. His dreams, like his experiences, have illustrated the concealed motives of his life,—to override others and to seek protection for himself. In a recent dream, of obvious tendency, he found himself at first indentified with the pilot of a newly-built steamship of high power, which he called "Novelty," and in which he was ploughing his way rapidly and successfully through a winding channel into an open sea. Then the scene changed, and he was (like Phaeton aspiring to drive the wagon of the Sun) the easy master of a four-hourse sleigh, in which again he was making his way at full speed toward an open and unknown but unfeared land that lay before him.

In thinking of this case and others of like sort, the image has come frequently to my mind of a pair of Siamese twins, each invisible to the other and endowed with opposite characteristics. How could this patient expect to make his better ideas of progress and usefulness avail, so long as they were harnessed to this unrecognized desire for power and domination? The difficulty became even more apparent when, after recognizing the significance of the situation, he admitted that this half hidden love for power, although alien to his more conscious personality, was something from which he could hardly bear the thought of parting. Fortunately he has learned to see, not only in his day-dreams, but also in his depressions, his numerous fears, his doubts, and even in his trains of over-ingenious reasoning through which he seeks to justify his false positions, the evidences of personal self-indulgence, the mental equivalents of his masturbation.

In all these respects he is making excellent progress toward character development, and thus recovery.

I have made no attempt to show in detail the mode in which, in these cases, the basis of the later symptoms was laid down in infancy and childhood. It would be impossible to do this satisfactorily without entering at length into the personal histories of each patient, as well as into the discussion of Freud's whole doctrine of infantile and childhood psychology, and his theory of the part played by the accentuation, through arrest, of one or another specific phase of infantile development.

It is enough, for present purposes, to point out that such patients fail to live happily and to work out their best birthrights, by no means always because life offers them so little in the way of health, opportunity, inheritance, or fine traditions, but also because of influences of more or less accidental and theoretically avoidable sort, emphasized in infancy and because of early longings and cravings, which perhaps social traditions, perhaps conscience, could not justify.

In Case 5 the egocentric tendencies of the patient were fostered through the injudicious influence of a nurse who for a long time played toward him the mother's part, though by no means in the best sense. Unfortunately, the sense of supremacy thus early emphasized did not stimulate him to take a really leading part in practical life, even in childhood, so that it was only through idle day-dreams and postponement of daily tasks that his theory of leadership could be kept alive. All the greater was the sense of downfall when actual trials proved this theory to be untenable.

As regards the value of the method used in treatment, I desire to emphasize the point that there is no necessary hostility whatever between this means of securing benefit and those employed by men who prefer to stimulate their patients to march forward, through work, loyalty, and wholesome living. It is, indeed, difficult for me to conceive why any one should consider the interests of medical progress served by the suggestion that this hostility does exist, while it implies on the other hand a most unfortunate narrowness of view with regard to the varying needs of psychoneurotic patients. Every one whose experience is at all large has seen an abundance of cases where influences which ought to have turned out favorably, if neurological treatment of the old style was practically or theoretically sufficient, have turned out, in fact, anything but successful, because no one had sufficiently recognized the terrible handicap which internal conflicts may create. Of what use to urge such sufferers to toil, pale and panting, toward the summit of their Mount of Difficulty, when they must drag along an unseen ball and chain which deeper insight might remove, leaving them able not alone to help themselves but to show a wider sympathy for their neighbors? The case which comes frequently to my mind in illustration of this sentiment is that of a clergyman, a man of the finest character and highest principles, who was obliged to live as a voluntary exile in a hospital for the insane because he was carried away by the obsession that he would kill some member of his family, to which he was, in fact, devotedly attached. The case was of a sort which is now known to be almost invariably modifiable under favorable conditions, and usually curable under the best conditions, through the psychoanalytic method; and although in this case the best was doubtless done that could be done, yet the time will come when it will be considered a disgrace that such a patient should remain, year after year, with the proper remedy for his malady unsought. The fear of killing, in such cases, represents the persistence of a fantasy of childhood, clothed with emotions which are usually referable to

[1] Ferenczi has pointed out that the infant, by virtue of the fact that he is the centre of attention, and, through a series of specific signals, can secure the accomplishment of his will, is liable to acquire a sense of all powerfulness which may easily become intensified and persistent. Internationaler Zeitschrift für Aerztliche Psychoanalyse, Jahrg. II, Heft 2.

conditions prevailing at that period of the patient's life and removable later through discovery of their origin.

In the next place, even the very principles underlying this movement have been dreadfully misunderstood, and in order that they may be correctly understood they should be studied carefully and repeatedly.

I shall use the remainder of my time in discussing certain of these points about which misunderstanding chiefly reigns yet should not reign, and will lead off with a few remarks about the central figure of the movement, Professor Sigmund Freud, whom—let me say—I regard as a personal friend, and have learned to respect as a man of superior cultivation and even genius.

I have learned to see in the modes of investigation adopted by this remarkable man, and by those who have followed in his path, the signs of intellectual honesty of a high order. There is room, no doubt, for considerable difference of opinion with regard to the interpretation of the symbolisms met with in dreams, around which controversy has so fiercely raged. But it should be borne in mind that these interpretations of a given symbol, as offered by any given psychoanalyst, are usually based on large numbers of observations by himself or others, through which the meaning suggested has seemed justified. Interpretations so based acquire the value of tentative, partial definitions, offered, of course, for the acceptance or rejection of those who are willing to take into account the conditions which led to the framing of them.

It should be remembered that Freud was, to all intents and purposes, a pioneer explorer in a new territory, and that he felt himself under obligation to report everything which he found there, at the risk of the loss of his own self-respect if he should fail, through carelessness or timidity, to do so. I say "new territory," for although perhaps none of the principles which Freud announced (such as the principle of repression or that of forgetfulness as an evidence of repression, or of the significance of the several stages of the infantile life for the characteristics of the adult, or of the importance of the sexual emotions) were wholly new, yet it was he who first gave to these principles accurate form and color, organs of locomotion, and an individual virile life; and it was that endowment that caused this great movement to command respect, on the one hand, and to evoke criticism, on the other.

People sometimes speak of Freud as if he had been the first one to speak freely of the sexual life, but in so doing they overlook the extensive publications of such men as Krafft-Ebing, Moll, Havelock Ellis, Janet, and many more, which, important though they are, have mainly slept on the shelves where they were deposited, unknown or shunned save by a few more curious or bolder readers. It was Freud that first breathed vital energy into this neglected topic, and forced its recognition by demonstrating its practical importance. One should not overlook the fact that the somewhat patronizing statements to the effect that Freud and his followers "have gone too far" in this or that direction, or have "misled" many persons to entertain false doctrines, have often been made by men who even now have never trodden the path broken by him through this wilderness, or who might live a thousand years without giving us the splendid gift of Freud's discoveries—a gift which, to be appreciated, should be looked at in terms of its best possibilities, its best animus.

There has been a great deal of misunderstanding also on the subject of Freud's attitude with reference to the significance of the sexual life in the causation of hysteria, and the psychoneuroses of other sorts. It is a great mistake to assume that in their analyses of a patient's case psychoanalysts see before them nothing but this special phantom. In the first place, it is emphasized by every writer that as a partial cause for every psychoneurosis, a predisposition exists, which it is impossible to define in exact terms but about which one can say that it implies an excitability of the emotional life, and hence of this great sex-emotion with the rest and predominantly with relation to the rest. This is a predominance which the sex-emotions may be said to share with the instinct to assert one's existence, in the sense of Schopenhauer's will to live or Nietzsche's will for power. But even these instincts may often be best described in terms of personal relationships, and therefore if one wishes (for reasons of practical classification) in sex terms. Next, it should be recognized that the objective point of every psychoanalysis is the placing at the disposal of the patient's conscious awareness, of everything which his own intuitions feel to be significant. Nothing is to be excluded which he can reveal, whether as regards the history of his environment in childhood and later, or his personal ambitions, or his religious views, or his opinions upon any other subject. More has never been maintained than the fact, testified to, or rather asserted, by the patient's own memory and power of inference, that amongst the turmoil of emotions which form the basis of his hidden complexes, the sex emotions invariably occupy an important place.

With psychoneurotic patients this particular passion comes preëminently into play, for the simple reason that it is not only one of the strongest by which men are moved, but the one most strongly repressed, and that it is thus placed on a vantage ground for special mischief.

For the sake of making clearer Freud's conception of the sexual I give a very free translation of one of the latest of his carefully drawn statements with regard to this point, again begging those who would pursue the inquiry further to read the fifth chapter of Dr. Pfister's[1] book.

[1] Oscar Pfister: Pedagogium, Band I: Die Psychoanalytische Methode.

"It is well known that psychoanalysts have been criticized for extending their conception of what is to be understood by the word sexual, far beyond the usual limits. The fact that they have done this is true; whether it is a matter for criticism is another question.

"The conception of 'sexual' as now defined by psychoanalysts is wider than the popular conception in both directions, and the reasons for this widening are best stated in genetic terms. We include in the sexual life the whole range of emotions which had the primitive stirrings of the sexual function as their main root, even when the emotions which were derived from these primitive stirrings are no longer directed toward what at first seemed to be their goal, or have even become directed toward a new goal which would ordinarily be classified as not sexual at all.

"Reasoning in this way, we prefer to use the word 'psychosexual' rather than 'sexual,' in order to make it clear that we neither overlook nor underrate the mental factor in the sexual life.

"In other words, we now use the word 'sexuality' in a sense equivalent to that of the German word *lieben*."

In view of this definition and in recognition of what "love" stands for in normal life, can one wonder that the sex-emotions should play the prominent part that is ascribed to them in the causation of the psychoneuroses?

Another very important consideration for fair-minded persons to realize and remember is that when the term "sexual" is used by psychoanalysts with reference to some experience or symbol, it is by no means necessarily meant to imply that the grossest connotation of this word is present in the patient's mind. An important principle here comes into play. One justly classifies a series of phenomena by the most prominent and typical of its members, and if one is on the watch for elements of especial significance, of especial danger, for example, then one classifies with special reference to that point. "De potiori designatio fit," or, in other words, there are occasions on which to lay a hand, no matter if gently, on a man's arm is to commit assault and battery.

Another expression of this principle, and one which appeals strongly to me, would be to say that we can judge best of acts, as well as of men, by looking at their tendency or motive power, or animus; and this is something which is by no means always seen at first glance.

Let us suppose, for example (what must, from the evolutionary standpoint, be the case), that an unbroken line connects the sensuous with the spiritual and in terms of this situation let us consider the meaning of some given act. Let us suppose that one man kills another. If the animus or motive of the first man is in the line of sensuousness, or brutality, we call his act a murder. If it is in the line of the highest interests of the community we call it patriotism.

The question is whether the main trend of such a man's emotion, which in both cases takes in, theoretically, all that the whole line stands for, is more toward the spiritual or more toward the sensuous aspect of his nature.

To a great extent the problem before the nervous invalid is the same with that which every living man is forced to meet:

We come into the world with infinite possibilities ahead of us in the way of moral and intellectual development. Why do most of us fail so signally to realize these possibilities? Surely, in part, because to realize our best possibilities would imply a thorough utilization of powers of disinterestedness and rationality, of which all of us possess, indeed, the germ, but which we can employ only at the cost of setting aside the temptation to follow the broader and easier paths marked out by pleasure, passion, and self-interest.

The path of disinterestedness and reason is one that mankind has learned only comparatively recently, and, so, imperfectly to tread; the broad and easy path has been trodden by countless generations of beings from which we derive our life.

The conflicts here involved are old ones and have been called by many names, as that of the carnal, the natural, and the animal against the spiritual.

Adam and Eve, preferring knowledge, even with the chance of sin, to ignorance and static content, fought through this conflict in the garden, as Hercules trained himself to do, even in his cradle; and it is noteworthy that in both cases the serpent, symbol alike of sense-temptation and wisdom, played a prominent part.

In such exigencies as these, the child, ignorant of his danger, often endeavors to avoid the necessity of taking a definite stand by adopting a self-deceiving device, which is all the more effective because utilized almost wholly without conscious awareness on his part. The child, namely, instinctively learns that he can reject any given form of self-indulgence, so far as its original shape is concerned, and yet preserve its essence by encouraging its attachment to some otherwise indifferent and allowable conscious process. I am now defining a principle of general psychological significance, and not dealing with its application to any particular form of symptoms. But examples can be furnished by every one's experience, and are given on a large scale by the history of ascetism.

To combat this tendency to self-deceit only thorough-going methods will suffice. One has to learn to ticket, as with a red tag, the beginnings of evil. It is of little use to upbraid one's self, for our acknowledgments of fault and frailty are sometimes the very means by which we keep alive the essence of the fault and frailty.

I am free to admit that the psychoanalyst assumes a responsibility when he disturbs any equilibrium at which another fellow-being has

arrived, even such an equilibrium as his nervous symptoms secure to him. But this is true not of the psychoanalyst alone, but of the minister and of the educator, who, like the psychoanalyst, though perhaps in a less trenchant way, are continually endeavoring to bring about a new equilibrium better than the last. I assert only that psychoanalysis has its place and meets certain needs, in these difficult situations, which are not otherwise to be met.

Psychoanalysis helps the patient who has been driven to follow blindly an inferior vision of his destiny in which gratification or some subtle substitute for gratification plays so large a part, to strengthen the slender thread of his rational and spiritual life, and to see that his massive longings and personal affections, that hark back even to infancy, ought to be regarded not solely as something of value in and for themselves, but rather as bridges to something better.

SOME PERSONAL RESULTS IN PSYCHOANALYSIS, AND THE FUTURE OF PSYCHOTHERAPY.*

By L. Pierce Clark, M.D., New York.

On the invitation of your chairman, I shall undertake to make a few remarks upon the use of psychoanalysis in some of my own cases, and sketch in a manner what I think will be the future of psychotherapy. In a measure I know you will pardon me if I am somewhat personal at the beginning of my short paper.

Soon after graduation I began the study of nervous diseases because I was ashamed to admit during my first week in a general hospital training that I did not know peripheral neuritis from locomotor ataxia; the various forms of sclerosis of the cord meant nothing to me. After I had studied the old museum pieces of spinal cord and brain diseases in the incurable wards on Blackwell's Island, I was forcibly impressed with the very hopelessness of curing or bettering such advanced disorders of the nervous system. In an effort to get nearer to the beginnings of nervous disease, and especially brain disorders, I entered the Insane service on Ward's Island. In my mind I carried over to this service the idea that inasmuch as all the spinal cord and brain diseases I had so far seen had a gross pathology, the various insanities probably had their gross or microscopic lesion if one were able to approach these disorders with a sufficiently careful technique. Just at that time the refinements of sectioning and staining brain tissue were on their way, so I served an apprenticeship in this quest in Dr. Prudden's laboratory, working with Dr. Van Gieson. After a short study of the clinical and pathological material of the Asylum, I saw that some mental disorders, such as the arteriosclerotic dementias and general paresis, did have a more or less distinct pathology which was demonstrable to the naked eye or under the microscope, but that there were a host of other insanities with which one could do nothing in making clear their pathology neither could these mental disorders be classified satisfactorily (this was before the days of the Kraepelinian school) in consequence, no definite idea of prognosis was possible, and the result was that the treatment for all these insanities was practically the same. After several years' study of the convulsive disorders at the Craig Colony for Epileptics, and continued study in the clinics abroad, it steadily dawned upon my rather rigid and materialistic mind that out of the sum-total of nervous affections the special physician was called upon to treat, the majority of them were functional and had their origin for the most part in those persons who possessed illy organized physical and mental habits. The greater number of such nervous invalids had a peculiar type of personality which differed a good deal in different persons, but on the whole a certain defect of the same was always to be found and reckoned with in any rational diagnosis and treatment. I then began to realize for the first time that the large group of psychoneurotics and even those presenting milder types of the insanities needed in a great measure to be handled along psychologic lines; I saw I must cease thinking of these diseases in the strict terms of a nerve cell perversion and look more sharply yet simply into just what sort of human beings with which one really had to deal. From paling into a splendid martyrdom of laboratory research for the cause and treatment of these functional disorders, I found I most needed to gain more understanding of the different ways ordinary everyday mortals reacted to the various vicissitudes of life, more especially when they had this neuropathic constitution and personality. Like many another chastened special worker in this field, I saw I had greatest need of pencil, paper, a quiet room, lots of patience and a certain amount of tact, and that in future I could well afford to spend less time in an especially equipped physiologic and psychologic laboratory to find out what really ailed nervous people. The idea, you will percieve, was all very human and an outgrowth of reasserting common sense. Please do not misunderstand; I do not depreciate the employment of all the best means of physical diagnosis and the use of the most advanced drug therapies and physical therapeutics that may be brought forward.

After this somewhat random and personal introduction, I shall undertake to give you some results I have had in the study and treatment of the psychoneuroses as shown in a few selected individual cases. The method or study and

* Read before the Medical Section, Boston Medical Library, in conjunction with the Suffolk District Medical Society, Boston, April 1, 1914.

treatment in all which I shall attempt to give were treated by psychoanalysis, the details of the use of which I trust you are all familiar with from the admirable teachings of Dr. Putnam.

I shall give only the merest outline of the cases, any one of which in detail would outrun the time allotted to this short paper. I take it for granted that your individual experience with the use of various types of physical therapeutics such as baths, massage, work, etc., are sufficiently well known to be devoid of interest at this time.

The first two cases that opened my eyes to the great importance of an intensive analysis of the inner life were referred to me by two of your Boston physicians.

The first case was that of a young unmarried girl. She had recently graduated from college at 21. She suffered from hysterical convulsions and from other convulsive seizures that were thought to be genuine epilepsy. These disorders had existed for several years and had defied all the usual plans of treatment for either disease. Inasmuch as I could not prove to my own satisfaction that she had ever really had epileptic seizures in which tongue-biting and incontinence of urine occurred, and in the absence of certain physical and mental stigmata of epilepsy which one might expect in such cases, I determined to make the one disease of hysteria go as far as it would—a bit of chiding, but wise advice, I learned to accept from my studies with Hughlings Jackson. The girl was an extraordinarily clever girl and practically analyzed her own case for me, at least so far as the conscious field of her life was concerned. Then by a series of intensive studies of her dream life we succeeded in unearthing a host of self-inflicted pain which served as a sexual satisfaction, called masochistic phenomena, and which had been a conscious practice in youthful days, but which had gradually relegated itself entirely to the realm of the unconscious life, and now And the hysteric attacks, which were really phantasy representations of the sexual act. After we had gotten all these facts unearthed and made plain, all the different types of its record. The girl soon took her proper place in the intellectual world and commanded a salary of $2,000 a year, in a position which she resigned last year to work for no salary, also here, having married a poor but very able physician. I never obtained so much cheap credit for performing a miraculous cure before or since. The clever girl really analyzed herself, and took me along: I followed and saw the wonder of it all. The whole experience was as convincing of the value of psychoanalysis, at least in such cases, as when I saw the diphtheritic membrane peel off a child's throat after the administration of antitoxin.

The second case, which, however, was not a conclusive one in my experience with psychoanalysis, was that of a married woman of 56 living in New York, referred to me by another Boston physician. She had periodic depressions of such an intense character as to be classed as mild attacks of manic-depressive insanity. There were great depression, loss of sleep and appetite, indecision, neurasthenic pains, slow thought, considerations of self-destruction, etc. The attacks had occurred at least twice a year since her marriage at 24. Her continued illness had engrossed the whole family and wrapped them in gloom truly pitiful to contemplate. Thorough analysis disclosed her periodic depression to be really a compulsion neurosis at heart, in which there were certain phobias of death and fear that there was no God and no immortality; all these ideas by dream analysis proved that this woman had a very fixed infantile attachment to the aunt (her mother died soon after her birth) and that the panics, fears and depressions were really substituted mechanisms from an unconscious desire to die and be united with her aunt who had died. It is unnecessary to say that her marriage was a non-sexual one, and efforts to adapt to new relations brought out the symptoms. Even going to the country and coming back to town or making any new adaptations in life always brought on her depressions. After three months' treatment she was so much better that she discontinued treatment of her own initiative. She has never had a depressed day since the analysis. The treatment was finished five years ago. This case is cited for special reasons; two practical points are worthy of note. The analysis was, of course, not as complete as I thought it should be, yet it was evidently thorough enough to bring about a practical cure; the other point is that psychoanalysis was undertaken in a rather "set" woman of 56, an age often thought too advanced for such a plan of treatment. It all goes to prove that one must not follow any hard and fast rules in an age-limit in psychoanalysis nor in stating just how long the analysis must be made. I have had another equally successful case of relatively the same sort in a woman 60 years of age.

I am impressed the more carefully we study the one time periodic neurasthenias and the same type which has later been designated manic-depressive or cyclothymia, that many such cases which on superficial examination seem to belong to the above types really belong to the compulsion neuroses with obsessive ideas. This point is of more than academic interest inasmuch as at the present time no line of therapy has been able to prevent or greatly retard the recurrence of subsequent attacks in such individuals. The case above cited is the more remarkable as more time intervenes. I have others like the one just cited that promise as well in final outcome, but only time will prove this point.

For a number of years I have been interested to see what treatment can be employed for incipient cases of dementia praecox,—whether they can be conserved from going on to the deterioration requiring asylum care. From some half-dozen such cases studied and treated two may be briefly cited.

The first, a young, unmarried man of 29 years of age, who had been twice in sanitaria for nervous disease for periods of several months each. The mental disorder had been in existence six years when I first saw him. He was a typical case of dementia precox with mannerisms, stereotypy and a

delusion that God was killing him by casting his thoughts upon him, etc. A rather complete analysis showed that he had a firm mother attachment. He began masturbation at seven years of age and continued it off and on thereafter. He had a marked musical ability and at fourteen tried to stop masturbating by throwing all his energies into his music, but at this time his mother, who had kept him company in musical education until that age, was obliged to discontinue her practice with him. Immediately the patient recommenced his habit of masturbation. He then joined the church as a defense against this practice. The music and church work combined were effective for a time. He felt best and was free from torture of sexual thoughts when he played music, but some five years ago he played secular music at a church fair held in a church, and since that time until I saw him two years ago he played no more music; again he commenced masturbation, became listless, inattentive, slovenly, and developed his complete series of a precox symptom. Analysis showed that music meant all the sexual satisfaction he had prior to the intensive practice of music. When he played secular music in a church he thought he had committed the sin of polluting his own and in fact all religion, and therefore God had sought to punish him in the manner outlined in his delusion. He was sufficiently accessible to bring many of these ideas into a semblance of rational adjustment. His physical and mental habits were readjusted and his main avenue of strongest contact with the outside world of reality through his music was carefully opened again. He is now doing fair work in a theatre orchestra. He has lost his peculiarity of manner and conduct and to a great extent seems to have been conserved from a useless existence.

If such a man had been taken early after his great conflict under which he broke entirely, it would seem that much more might have been done for him. I believe it is popularly held by many alienists that dementia praecox is an organic insanity, but while that popular belief is being substantiated, why should we not handle many of the accessible cases somewhat upon the lines detailed?

The next case had an even more promising outcome; a young, unmarried girl of 19 who had been adjudged a case of paranoid dementia precox. She had delusions that she was being hypnotized, that her thoughts were being read by many people, and later that God had given her direct power to save the world. The final dream analysis showed that the *hypnosis* was a wish desire of a sexual character for a certain man for whom she had an unrequited love, and that God was the father complex sublimated. Her own father had rather seriously admonished her to go out in the world and earn her own living as all the other members of her family had done. The divine power idea had been a dream at first and she continued it in the waking state as a fixed belief. Her physical and social surroundings at home were very bad; these were all changed, and gradually the analysis opened her outlook to the real life about her. An aunt took her under her protective care and the young girl is now busy and happy as a designer in a millinery establishment and is pursuing some language studies in a neighboring school. She states that the former delusions are like a half-forgotten bad dream.

I think these two cases of dementia praecox go to show that we physicians, during the several months before many of these cases go to asylum commitment have a distinct duty to perform. Inasmuch as the average asylum life of a dementia praecox is about fifteen to seventeen years, ought we not to try to conserve these cases if possible by extra mural treatment?

Furthermore, the more we study cases of craziness, which the benign or recoverable psychoses have been called, the more we will find that the crazy ideas and apparently meaningless jargon of such patients have a real meaning when carefully analyzed, and if we will but take the pains to piece these sayings and acts together the more will we see that they really intimately concern the real difficulties with which our patients have unsuccessfully coped. The mental content I believe in time will be found to give us real clews to many of the conflicts with which our patients unsuccessfully contend.

A number of us are studying the innate nature and mental treatment of the tics. We have already found that such disorders as mental torticollis and the facial tics are really the motor expressions of certain types of mental conflicts which require some physical acts. When such individuals are fully freed of their tic disorder by a detailed analysis, the result is surprisingly good. When we realize how stubborn to treatment *tic convulsif* has proven in the past we should hasten to welcome any rational plan of therapy that promises any measure of permanent success. It is ironically amusing that the facts concerning tics which we are but just now working out in detail Charcot long ago elaborated in general terms. We now see the master's original precept and the detailed facts of today are united in a complete whole. During the past two years I have treated several cases of tics upon the foregoing grounds and the results so far have been excellent.

One of my first cases of tics studied as a psychoneurosis was that of a man 28 years old, unmarried, an expert bookkeeper, who suffered one of the severest grades of left spasmodic torticollis I have ever seen. At first it seemed that he were none other than one of the so-called professional tics. With my consent, the surgeon by whom I was first called in to see the young man, did a full resection of the spinal accessory and the cervical nerves of the left side. This treatment was of no avail. The case was then turned over to me to make the best of a bad job. That which seemed at first like a just punishment to me to further handle the case, turned in the end to be a reward. I employed the re-educative methods, massage, electricity and all the usual correctional nerve remedies. I then undertook a minute inquiry into the exact manner in which the tic developed. The first analysis showed that the patient had worked under great physical and mental stress at cross-ledger accounts; this, in conjunction with a severe psychic shock, seemed

sufficient to cause the tic, but further inquiry was pursued. The next study of the case showed that since school days and earlier he had had a very persistent habit of stroking the left side of his head: this habit was consciously broken off a few weeks before the tic developed. When under great mental stress he felt that he wanted to do this previously automatic act of stroking, but he suppressed the inclination, and while he was finally successful in controlling the movements of the hand, the head wobbled and finally broke away from control in the torticollis, as shown in the disease from which he sought relief. In the next study we determined to unearth the origin of the habit movement. This finally proved to date from a caressing, petting act of the mother in rocking him to sleep in his nursery days. It was further shown in dream analysis and other methods of approach to the infantile life that our ticeur was surcharged with many doubts and fears and states of obsessive thinking since he was a child, and that back of all these compulsive thoughts and desires he had conflicting doubts which resulted in indecision and vascillation. A three months' analysis enabled us to clear the situation. He has no torticollis today and has been well for over a year.

Another case was that of an unmarried woman of 36, with a professional tic torticollis to the right. All the older forms of psychotherapy failed in other competent hands and in my own. Psychoanalysis revealed an incompletely repressed sexual attachment to the father, which broke out in the tic when she undertook onerous and worrying tasks in a business office, the manager of which was the source of an unrequited love on her part. A three months' treatment has reduced the spasm, taken out all the secondary defense acts to control the tic and she is comparatively well, at least as long as the call for new adaptations in her home and her new work is not too severe. I may say that in both the foregoing cases extraordinary changes in character and ability to do better work have incidentally been brought about by the treatment, although psychoanalysis was undertaken primarily for the tic disorder.

The third case I shall mention briefly; it is the most surprising one in its rapid improvement. The young man had the greatest number of different tics and habit movements I have ever seen. In the latter part of the tic disorder last fall when I first saw him, he had 13 different habit movements and tics, which were as follows:—

(1) Biting of finger nails following finger sucking. (2) Grimacing tic, involving the whole face. (3) A convulsive tic. (4) Sighing tic. (5) Laryngeal clicking tic. (6) Autoecholalia (repetition of some or all of the words in a declamatory statement which finally ended in 7) an exclamatory tic, "H-h! huh!"; a so-called grunting tic. (8) Pulling the fringe of hair, which ended in (9) the more tic of smoothing imaginary hair. (10) Picking the finger nails, which succeeded the cessation of biting the nails. (11) Picking the face, which resulted in a profuse suppurative acne over the entire face. (12) The ablution tic, wringing the hands and washing the face. (13) Panics and fears that he was to [illegible] his head, meet with an accident and be killed, or that he was to die.

To make a long case analysis short, they were all resolved back to their genetic origin, and in two months' treatment they all disappeared except the autoecholalia, the sighing tics and the panics. The autoecholalia is a repetition of certain words in sentences which the patient himself has just uttered, and has the following explanation: Inasmuch as the patient has always had doubt and uncertainty of doing and saying the proper thing (obsessive neurosis), he contracted the habit of repeating aloud the essentials of the sentence, the headlines of the idea as it were, and in this manner he relieved and quieted the doubt and feelings of inadequacy. Much the same was shown later in his underscoring and repeating certain phrases and even ideas in his writing. In the process of inhibiting this disagreeable repeating of words, he first stopped repeating whole sentences, then single words, and now the phenomenon amounts to but a beginning of speech, a sort of exclamatory speech, and the former intellectual act has been almost inhibited, but there still remains the semivoluntary muscular larynx and diaphragm contractions. Here we have the complete conversion of a psychic process into a physical act or tic. It has completely lost its former mental meaning. This tic has now practically disappeared. The sighing tic went with the panics. The boy had the panics and fears since he was 11 years of age, or since the father's death. He had such a homosexual father attachment that he attempted to die by holding his breath, going without sleeping or eating, etc., which were all childish attempts at suicide. The fears and panics came on first in the dreams three or four days after the father's death. In such the father came back, and it seemed as though he had never been ill; then he came in dreams as though he were ill but recovering; then he returned, was ill, and died; then he returned, was ill, died, and the patient strove to follow him, with all the feelings of the panics and fears. All the dreams ended in a nightmare, not understood until the full drama of the final act in the dream was brought into the conscious life. Then the father dreams ceased. He then dreamed rarely of the father, but had panics and fears which were in conscious symptoms what the pursuits of the father image in death-dreams were. A free association of death brought out an exact description of his panics and fears. All difficult or new adaptations brought on the panics, such as going away from home, meeting strangers, or going to little social gatherings. The most extraordinary result has been brought about in this case from a three months' analysis—the tics are gone, the panics and fears flowing out of a deeper trend in his life are nearly absent. The young man is at work half the day and attends an occupation school the other half. He is neat, cheerful, orderly and, in the words of his former despairing sister, he is a "reformed and agreeable young man."

I think there can be no doubt that all ticeurs have a constitutional makeup and certain peculiar types of mental conflicts that place them with psychoneuroses of the compulsion type, and such neurotics ought to be treated by psychoanalysis when possible. The first case I mentioned had his disorder five years, the second two years, while the third had most of his tics from earliest childhood and his true obsessive thinking from his eleventh year, which goes to show the length of time the tic has existed has

little to do with the prognosis. The main issue for real successful treatment is a sincere desire on the part of the ticeur to rid himself of the disorder coupled with his willingness to follow the psychoanalyst.

In speaking more directly to the text allotted to me by your chairman,—the future of psychotherapy,—I am aware that I am stepping from the firm ground of proven facts to that of prophecy, the unsubstantial footing of which you shall be the judge. In the beginning I shall say that I consider there is but one real thorough-going plan of psychotherapy, and that is psychoanalysis. All the other schemes of hypnosis, suggestion, persuasion, re-education, etc., are but incomplete half-way stations in the handling of the psychoneuroses. I have used all the latter for years before I undertook psychoanalysis, and I have discarded them all for the latter. I would not have you believe that I hold that the psychoneurotic cannot get well of his ailment by any of the host of other plans of psychotherapy; indeed, one of the most miserable of psychoneurotics, a personal friend of mine, has been relieved of his disorder for many years by Christian Science.

Psychotherapy, and therefore psychoanalysis, in its fullest sense, is a jealous goddess and demands much of one who would follow its practice. It will not only always demand extraordinary amounts of time and patience from one who uses it, but I believe many who will undertake the work will prove totally unqualified to practice it, and in consequence we must be prepared to see the method fail and many reproaches heaped upon its misapplication and the misapplier. One of its very regrettable features is that it takes the psychoanalyst very far afield from the ordinary practice of medicine, and especially from all the phases of organic neurology. Indeed, it would seem in some instances to be almost a separate profession from that of medicine as we ordinarily see it practiced. In some instances our best analysts are not physicians at all. I believe, however, every analyst should have a careful and experienced medical and neurological training. A definite medical sense is absolutely necessary in dealing with mental and nervous disease. Many of you would think it unnecessary for me to speak of this, but I wish to remind you that a large part of the work in the care and treatment of the feeble-minded still rests in the hands of psychologists or in lay hands untrained in either psychology or medicine. I hesitate to give you what I think the full measure of a man and physician should be to undertake psychoanalysis, for you will see I do not consider it to be a method which even the average well-trained neurologist may follow at option. There is no reason, however, why all of us should not know about its principles and its use. I think none of us need feel that this plan of treatment is in any real danger of getting too remote from real service to legitimate medicine, simply because we hear that some of its votaries are setting folk-lore, mythology and many phases of psychology and metaphysics on a firm foundation and meaning. It will be remembered the enthusiastic workers in neurology at its inception happily went far afield and cleared many an obscure issue in kindred specialties of medicine. Most of us can remember at the advent of bacteriology one had need but to scrape one's tongue before breakfast and become famous by describing a new germ before dinner.

Now about neurotics: It now seems possible that in a few years sufficient careful studies of the more common forms of the psychoneuroses will have been made so that we may lay down some rather specific and general rules in parental and school education for the proper bringing up of neurotic children so the neuroses may be less frequent, or at least much easier handled when the psychoneuroses do occur. Then, too, the accumulated facts will surely point the way to wiser and more tolerant customs of society toward the unfortunate neurotic, when we learn that certain kinds of physical and mental training are important for the proper balance of the emotional life and that all sexual matters will have their proper place in a cultural education. Many of these points have already been so carefully and wisely set forth by Dr. Putnam that I shall but refer you to his masterly writings upon this subject.

Finally, in closing, I believe we should all hold ourselves open for the reception of evidence of the inner mechanisms of the psychoneuroses and the insanities, for in this latter respect we at last have much hope that even paranoia, the depressives and dementia precox in the exact manner of their mental development will not long remain in mystery. I do not mean we shall know their physical causes by these intense analyses, but we shall gain an insight into their precise mechanisms and find how they break down into the several psychoneuroses and psychoses.

Mexican Notes.—Report from Mazathan, Mex., on June 1 states that smallpox is epidemic among the constitutionalist garrison of Culiacan, the capital of Sinaloa. On June 1 the United States Army completed its first month's occupation of Vera Cruz. During this period over 7000 soldiers and marines have been ashore without a single death among their number from disease. On June 5 there were 78 sick among the soldiers at Vera Cruz, a percentage of 2.23, and 101 sick and injured among the marines, a percentage of 3.3. There are several cases of malaria aboard the despatch boat *Dolphin* off Tampico. The army medical corps now consists of 445 members, with 89 in the active reserve corps and 60 in the dental corps.

INDICATIONS FOR OPERATION ON THE SEMINAL VESICLES.*

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My early experience with operative work upon the seminal vesicles was limited to excision of the organs when they had become diseased by tuberculosis. In 1911 I began removing vesicle, vas and testicle, in those cases presenting evidence of tuberculous epididymitis with spermatic cord involvement. It seemed to me poor surgical judgment to leave an infected vas and vesicle, when excising a tubercular deposit in the epididymis, as it would be to leave behind a known tuberculous ureter when removing a tuberculous kidney.

Since this phase of the symposium is to be elucidated by Dr. Young, I make mention of it merely to explain that it was through this work that I learned how comparatively simple it was to reach the seminal vesicles by perineal exposure.

I believe one of the main reasons why surgery of these organs has remained undeveloped for so long a period, has been largely due to the current opinion that the vesicles were of such difficult surgical access. One American surgeon has for the past ten years devoted a large amount of his time to surgery of these organs and has contributed much to the literature. He has apparently not aroused the interest of the profession proportionately to the importance of the subject. Needless to say I refer to the work of Dr. Eugene Fuller of New York.

While some may not be as enthusiastic over the possibilities of drainage of the seminal vesicles, nevertheless, when the history of the surgery of these organs is complete, his will be the glory of one who has blazed the trail. Our apathy in this direction is responsible for this admission which I must make, namely, that probably no surgeon in this room can, at the present stage of our knowledge, definitely outline just what are all the indications for operation upon the seminal vesicles, or how it is possible in many cases of systemic toxemias or joint lesions conclusively to prove disease of the vesicles to be the causative factor.

We know that certain portions of the body by reason of histologic formation and anatomic situation are prone to chronic infections.

These infections are characterized by focalization, extreme chronicity with acute exacerbations, and protean systemic manifestations, due to a constant discharge of infectious emboli into the circulation. The interrelationship of endocarditis and infected tonsils; urethritis and gonorrheal rheumatism, "sore throat" and nephritis has been conclusively proved. These examples have attracted more investigation because the interrelationship was more obvious than with other forms of chronic sepsis. The idea has become dominant that many forms of arthritis can be explained as end results of focal infection; however, the determination of these points of infection and their correlation with the systemic signs, has been a matter of difficulty. Nevertheless, it can scarcely be doubted that many of the arthritides have their origin in occult focal infections. We believe that chronic infections of the seminal vesicles are an undoubted source of some of the deforming arthritides whether they are of the atrophic or hypertrophic type. Infections within the vesicles do not lend themselves to a natural drainage by reason of their relation and peculiar anatomy. It is questionable if an infection of the vesicle is ever rendered sterile by natural drainage through the ejaculatory duct into the urethra. On the contrary it would seem that resolution takes place by an encapsulating process with scar tissue formation.

The amount of cicatrix and perivesiculitis found at operation in most of our cases would presuppose that the infection had been "walled off" by scar tissue, rather than resolution having taken place with sterilization of the infectious foci. Such a condition continuing, a chronic sepsis of low virulence may occur, a bacteriemia which Adami designates as a subinfection. This chronic sepsis finally produces a break, so to speak, in the immunity of the individual and then there appear, after a variable time, systemic manifestations. The occurrence of systemic manifestations is by no means entirely confined to the joints but may affect other tissues—endocardium—renal epithelium, etc. The reason the joints are so frequently involved would seem to rest upon a number of factors. First, the synovial membrane is a tissue not particularly resistant to infectious processes. Secondly, the synovial fluid is lymphocytic rather than leucocytic and does not offer a marked phagocytic power. Thirdly, the almost constant irritation of joint surfaces incident to locomotion, etc. A clinical fact not to be lost sight of, is that disability in a joint very easily makes its presence known, whereas the same is not true of an infection of the heart or kidney, where it may exist for years without making its presence known.

Chronic infection within the vesicles by the time systemic manifestations develop, has undoubtedly become a mixed infection, with pyogenic bacteria as the predominant type. Cultures from the vesicles at this period are uniformly negative for gonococci but reveal an almost constant growth of pyogenic bacteria. Rosenow has demonstrated that the cultural characteristics and morphology of bacteria may be modified or even undergo mutations by an alter-

* Read as part of a Symposium, "The Genito-Urinary Tract as a Factor in the Production of Chronic Toxemias and Joint Lesions," before the New England Branch of the American Urological Association, Boston Medical Library, Boston, February 17, 1914.

ation of the environment; and upon the development of different strain streptococci and pneumococci from a single strain streptococcus or pneumococcus, together with the study of the lesions produced by these different strains, a reasonable explanation may be deduced for chronic rheumatism and rheumatoid conditions.

If we follow the reasoning of Adami, relative to subinfection, and the researches of Rosenow in the production of experimental myositis in rabbits, and apply it to our seminal vesicle work, we find an easy explanation for many of the phenomena encountered. For example, let us suppose that the gonococcus, having been liberated from its usual habitat—the genito-urinary tract, into the general circulation undergoes metamorphoses and emerges as a different form of coccus. Upon focalization, the lesion produced will necessarily conform to the type usually caused by that group of bacteria which it now resembles. Let us believe that in many instances the metamorphosed gonococcus appears as a streptococcus, or that the lesion produced in the vesicle by the gonococcus has attracted to it other bacteria as a suitable resting place for multiplication, and the various systemic manifestations of gonorrhea are explained.

The particular grade of attenuation of the bacterium will determine the severity of the lesion.

The milder grades will localize themselves in the muscle capillaries, multiply but for a short period and disappear by lysis, the symptoms produced being only muscular aches and pains. With reference to these infectious emboli. "it appears that as soon as the bacteria set up a reaction, whether by their mere mechanical presence, or by endothelial phagocytosis of some of their number and liberation of their endotoxins, that reaction is adequate to destroy the rest of the bacteria, and this with relatively very slight accumulation of wandering cells. But the liberated and diffused endotoxins are sufficiently powerful to destroy the more highly differentiated cells in the immediate neighborhood, and following this destruction there is, in favorable cases regeneration or in unfavorable cases, a replacement and even a productive fibrosis" (Adami). Thus is explained the nature of the more severe cases of joint disease where the lesions found are of the nature of a connective tissue hyperplasia.

The rarity of endocarditis following gonorrhea in adults, and the possibility of endocarditis in children in certain instances being primarily due to a gonorrheal infection, is also made clear. In adults the heart valves have become non-vascular, the arterioles present in childhood in the proximal two-thirds of the cusps having become obliterated.

The work of Opie on experimental production of cirrhosis of the liver, by action of B. Coli, that of Gaskell, of Libman and Baehr on the form of nephritis produced by streptococcal embolism in the capillaries of the glomeruli, are strong arguments for recognition of this condition of subinfection as the underlying cause. The chief characteristics of the condition of subinfection are: it is recurrent, a lesion occurring from it is not suddenly produced but takes place gradually as the "summation of a succession of minute insults to the tissues, sometimes occurring within a few days or weeks but often extending over years" (Adami). Those of you who are familiar with bacteriologic advances may consider that I am wandering from my subject,—the indication for operation on the seminal vesicles. Nevertheless it has seemed to me advisable to incorporate the foregoing in this paper, if only to strengthen the argument that there are indications for operating upon the vesicles.

In selecting cases for operation, and by operation I am referring only to surgical drainage of the vesicles, I have grouped them into three rather general classifications—pus, pain and rheumatism.

Pus Groups.—(a) Those in whom suppuration is the predominant feature. This will include definite abscess formation within or around the vesicles. The surgical indication in such cases is so obvious that but mention is made of it. However there is a border line group, namely those who develop an acute seminal vesiculitis and prostatitis during the course of a specific urethritis which does not terminate in localized abscess, who I am inclined to believe would fare better if subjected at once to operation rather than be treated by expectant measures.

These are the cases in whom rest in bed, hot rectal irrigations, etc., cause a subsidence of the acute symptoms and we compliment ourselves that we have "aborted" a prostatic abscess, only to have a long tedious case of chronic seminal vesiculitis to deal with. I have not had sufficient experience as yet with operating upon this type of case to warrant advocating it as a routine procedure, but when we reflect that from the anatomic arrangement of the tube-systems of the vesicles, the chances for early resolution and spontaneous cure are only four per cent., it seems that such a procedure might be justified, especially if we find that drainage of the vesicles produces a permanent cure and not merely a transient amelioration of symptoms.

(b) Cases of recurrent epididymitis following acute urethritis and vesiculitis, the operative indication being vesical drainage combined with epididymotomy.

(c) The chronic type of seminal vesiculitis, often rather difficult to diagnosticate as the symptoms are not so well pronounced as in the acute form.

The history of urethritis, or stricture; discomfort in the perineum, increased upon difficult defecation; tenesmus; frequent erections without sexual stimulus and frequent nocturnal emissions, often bloody in character; and the presence of pus in the semen. These cases have

to be decided upon their individual merits according to the effect the symptoms are having upon the patient's general health, since it is perfectly possible for a patient to suffer from the above without greatly impairing his general health or sexual activity.

Pain.—The group in which persistent perineal pain has seemed a sufficient indication for operation have presented some interesting features.

Three patients, with histories of more or less constant perineal ache associated with recurrent urethral discharge have been found at operation to be suffering from calculi of the seminal vesicles. In but one was this possibility considered before operation. This patient gave a history of "colique spermatique." The colic occurred during coitus and the pain experienced was excruciating. The acuteness of the pain subsided and a persistent soreness and ache in the perineum remained. The calculi in all these cases were found to be composed of phosphate and carbonate of lime and were true calculi.

I am under the impression that calculus formation in the seminal vesicles is more frequent than has been formerly considered. Given a chronically inflamed vesicle with a partial occlusion of its outlet, ideal conditions are indeed present for their production, and doubtless further collated operative data will prove this contention.

Rheumatism.—The indication for operation in cases where joint lesions are present is definite; namely, if the focal infection can be proved to be the seminal vesicles,—drain them—but here is the difficulty of the whole question.

Llewellys F. Barker in his original article, "Differentiation of the Diseases Included Under Chronic Arthritis" (*American Journal of Medical Sciences*, Jan., 1914), states as follows: "We should also when using the term 'infectious' keep clearly in mind the difference between (a) an infection in a joint-system itself, and (b) an infection somewhere in the organism as a whole, with secondary non-infectious changes (toxic, nutritive, trophic) in a joint-system. I emphasize this point because of the great importance, in the chronic arthropathies, of minute foci of infection distant from the joints and of their removal as a therapeutic measure. Chronic inflammations of the paranasal sinuses (including the antrum of Highmore), chronic tonsillitis, chronic otitis media, pyorrhea alveolaris, alveolar abscess, chronic bronchitis, chronic ulcerative enteritis, chronic appendicitis, cholecystitis, chronic pyelitis, chronic cystitis, chronic urethritis, spermatocystitis and prostatitis, chronic salpingitis and chronic endometritis may be mentioned among the many possible foci whence influences injurious to the joint-system may emanate, and this without prejudice as to whether these influences are (1) metastatic infection, (2) toxic, (3) neurotrophic, or (4) noxious in all other ways.

It may, therefore, be really appreciated that before a definite conclusion can be arrived at as to the influence a diseased vesicle may exert upon the production of a chronic arthropathy in any given case, a very great amount of differential exclusion must be seriously considered.

My experience with drainage of the vesicles in patients suffering from infectious arthropathies has been limited to the acute or subacute varieties. In every case a recent gonorrhea has been present so that the relationship between disease of the vesicles and the joint seemed definite. In every case immediate cessation or amelioration of the joint symptoms has resulted. I am firmly convinced that drainage of the seminal vesicles offers more for the cure of typical cases of gonorrheal rheumatism than any other means as yet suggested.

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CANCER OF THE UTERUS.

THE POSSIBILITIES OF CURE BY THE RADICAL ABDOMINAL OPERATION. CERTAIN ORIGINAL METHODS OF OPERATING. INCLUDING AN ANALYSIS OF 367 CASES AT THE MASSACHUSETTS GENERAL HOSPITAL.

BY FARRAR COBB, M.D., BOSTON.

Visiting Surgeon to the Massachusetts General Hospital.

(*Concluded from page 868.*)

THE INCISION.

The satisfactory completion of this operation with wide removal of the parametrium and upper portion of the vagina necessitates a generous exposure of the pelvic field. The incision should be in the median line and should go down to the symphysis and always must be carried above the umbilicus. I have in most cases adopted a modification of Gibson's method in operating for low ureteral stone; namely, cutting across the anterior sheath of the recti just above the symphysis. This alone gives appreciably more room. In obese cases or difficult cases I do not hesitate to partially divide the tendinous insertions of the recti muscles. It is a relatively easy matter to repair the recti by mattress stitches at the end of the operation.

MANAGEMENT OF THE URETERS.

The dissection and handling of the ureters, freeing them from the parametrial tissue, is the most important technical part of this operation. The object is to have them free so that they can be lifted up and out of the pelvis, and at the same time preserve their own blood supply and thus avoid subsequent necrosis and fistulae formation. The method introduced by Howard Kelly and still, I believe, practised at Johns Hopkins, of inserting ureteral bougies before operation as aids in finding and dissecting the ureters, I only mention to condemn. It is time-consuming and unnecessary not only, but, on the other hand, it is a distinctly dangerous procedure because the bougies act as rigid splints and prevent displacement of the ureters and at the same time exert a counter resistance and pressure and so contribute to necrosis. It is seldom difficult to locate the ureters if one begins to look for them high up near the bifurcation of the iliac arteries. In obese patients, and cases which are complicated by old pelvic infection with adhesions, the finding and isolating of the ureters may be most difficult.

I have perfected an original method of using tapes to retract and lift the ureters out of the way, protecting the ureteral blood vessels by rolling over a fold of the peritoneum. After the ovarian artery has been tied and the broad ligament opened up, the peritoneum being divided above the bifurcation of the iliac arteries, the ureter is exposed lying on the inner and posterior peritoneal flap of the broad ligament. The internal iliac artery is then exposed and ligated with chromic catgut, after which the posterior peritoneal layer of the broad ligament is incised below the ureter midway between the bifurcation of the iliac arteries and the uterus, parallel with the ureter and about half or three-quarters of an inch away from it, and through this slit tapes one-half an inch wide, wet with sterile salt solution, are passed, surrounding the ureter. Traction on these tapes serve to roll a cuff of peritoneum about the ureter, this cuff can be more definitely demarked by vertical incisions. I have found that with this method I could make fairly strong traction on the ureters without damaging their blood supply.

In Figures 2 and 3 I have tried to show in a diagrammatic way the method of making the broad ligament cut and applying the tapes. I have found the method to be of great value in dissecting the vesical end of the ureter, and also, more especially, when dividing the parametrium and cutting across the vagina. In my more recent operations I have not hesitated to use additional tapes under the ureter itself close to the bladder in the final stage of the operation using gentle traction. I have never had an ureteral fistula, although in many cases I have made fairly strong traction on the ureters. It should be stated that the ureter should be traumatized as little as possible. If its blood vessels are injured even a little, necrosis and fistula formation can occur. In 500 of Wertheim's cases ureteral fistulae occurred thirty-two times, and he says that in twelve of these cases it occurred where separation had been easy and there was no reason to suspect injury. In Wertheim's experience the ureter is rarely if ever involved in cancer, although it may be



Fig. 2.—Showing method of passing tapes around the ureters through a cut in the posterior layer of the broad ligament.

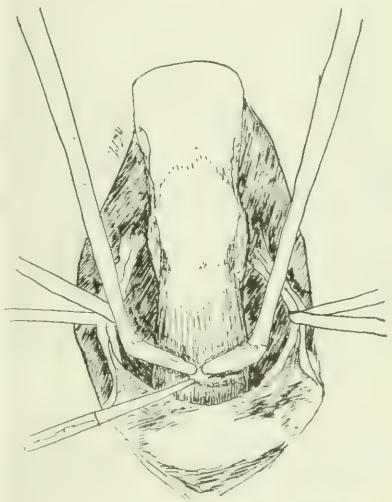


Fig. 3.—Showing method of using tapes in elevating and retracting the ureters.

surrounded and compressed by malignant disease.

PREVENTION OF INFECTION AND IMPLANTATION METASTASIS FROM THE GROWTH AND THE VAGINA.

The chief cause of death in this operation is septic peritonitis; the second most frequent cause is shock. Next to the dissection of the ureters I consider the most important part of the technique the method to prevent septic or cancerous infection. The source of infection, obviously being the ulcerated infiltrated growth of the cervix, and the presence of discharges and organisms from the growth in the vagina in spite of all attempts at sterilization. One of my fatalities was due to a rapid septic peritonitis. Two of my recurrences have been rapid metastasis in the pelvis, presumably implantation metastasis. There are only two methods to consider from the point of view of avoiding infection. One, devised by Werder of Pittsburg in this country, is technically too difficult and dangerous to be considered as a routine procedure. In this method the vagina is freed very far down from the bladder and rectum, and then the uterus is pulled and pushed out through the vulva and the vagina amputated from below with the patient in the lithotomy position. This method has been called an invagination from above. Wertheim tried and abandoned it because of its great difficulty and the serious bleeding from the para-vaginal tissues and the extra time required. I also have attempted this method, but have given it up for the same reasons. The use of the right-angled clamps devised by Wertheim, in my opinion, is the method of choice. To amputate the vagina I use the electric cautery with a strong, right-angled blade if possible. The use of the curette and cautery, however, and thorough dissection in the preliminary preparation is fully as important as the use of the clamps.

REMOVAL OF THE PARAMETRIUM AND GLANDS.

After the uterus and vagina have for a long distance been freed from the bladder and rectum, the ureters should be lifted up by tapes and the lateral and parametrial tissues from above the internal os well down the sides of the vagina should be removed with scissors close to the pelvic wall. It is in this removal that one is likely to have great trouble with obstinate venous bleeding deep down in the pelvic hole. After the operation has to all intents and purposes been completed, I have not infrequently had to spend half an hour in patient effort to stop this deep venous bleeding. I have never had a case in which I could not do so, although others have reported deaths from uncontrollable hemorrhage in this region. The use of small right-angled hemostats is very important in clamping off the parametrium. Figures 4 and 5 illustrate the extensive removal of the parametrium and the vagina. This specimen is from the same case as the chart in Figure 1.



FIG. 4.—Specimen from case whose chart is shown in Fig. 1. Note wide removal of parametrium and upper portion of vagina.

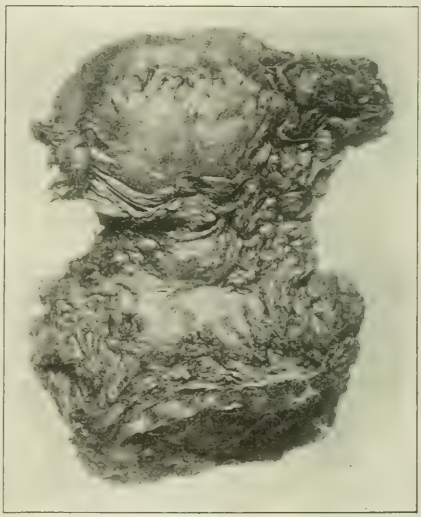


FIG. 5.—From same case as Fig. 4.

In cancer of the cervix the first glands involved are the iliac, those glands lying between the internal and external iliac arteries. The

glands next are the obturator and last the sacral and inguinal. Cases in which the sacral and inguinal glands are involved are beyond doubt absolutely unfavorable. It is impossible to remove all the glands. Wertheim's decision that only glands that are palpably enlarged should be removed is now accepted by most operators. Enlarged glands are not necessarily cancerous by any means. In over half of my cases in which the iliac glands were distinctly enlarged and removed, the pathologist reported, after a careful serial examination, no cancer, but enlargement due to hyperplasia; that is to say, enlargement was due to the arrest of septic material from the ulcerating growth.

A thorough survey early in the operation for glandular conditions is necessary, and it should be understood that to do this properly the peritoneum must be split and the great vessels laid bare, for in no other way can one determine accurately by sight and palpation whether the glands are pathological. If numerous enlarged nodes are felt, especially in the sacral chain, a radical operation is inadvisable and the operator should content himself with a simple hysterectomy. If the iliac and obturator groups are moderately involved, the glands should be removed as the last thing in the radical operation. Theoretically, they should be removed at the first of the operation, or in continuity with the parametrium, but it is impossible in this operation to establish a lymph block as in operations in the breast and neck. In many cases the glands can be removed easily, but in cases where they are adherent to the iliac veins they will be removed with difficulty and risk.

CONTROL OF HEMORRHAGE.

In my last paper on cancer of the uterus, I said it was problematical how much ligation of the internal iliac arteries would interfere with pelvic nutrition and especially influence post-operative cystitis, and in cases where a large dissection had been made, would increase the chance of sepsis and necrotic sloughing. Since that writing I have ligated the internal iliac arteries in the majority of my cases. Instead of adopting the former method, that of Wertheim, of tearing through the tissues along the pelvic wall and lifting up the uterine arteries on the finger right after ty'ng the ovarians, I have carefully exposed the ureters on the inner layers of the broad ligaments, and then deliberately tied the arteries on both sides. While, because of the free anastomosis, the ligating of the iliacs does not control the hemorrhage from the uterines absolutely, it enables a much clearer dissection, an easier freeing of the bladder and a deliberate securing of the uterines when they are cut across, also diminishes arterial bleeding deep down when the vagina and rectum are freed. I am convinced from my cases that this procedure does not in any way cause bladder complications or necrosis; cases in which I have done this have done fully as well as those in which I have not done so. This procedure is especially valuable in cases of obesity and in which the room in the pelvis is small.

DRAINAGE.

Drainage through the vagina with long strips of iodoform gauze, the peritoneal surfaces being sutured over so as to form a floor above the gauze is, in many of the cases, all that is necessary. The gauze strips should be started on the fifth day and removed an inch or two daily until all has been withdrawn. In a few cases where there is reason to suspect unusual infection of the peritoneum, where the bowel has been injured or the bladder resected, abdominal drainage also is wise, and in my recent cases, where I had reason to fear unusual accumulation of blood below the peritoneal floor about the vaginal drain because of obstinate venous oozing, I have also used the abdominal drain at the lower angle of the abdominal wound for a few days and have been surprised to see the amount of serous drainage which this has taken care of.

The after treatment is simple. The head of the bed should be elevated a foot for the first week and salt solution given by rectum every five or six hours. In cases where one has reason to suspect unusual infection of the peritoneum, continuous salt solution by rectum is advised. The use of the inlying catheter for three or four days is a routine followed in my cases, and this, with the use of urotropin will in most cases prevent any unusual post-operative cystitis.

Of my 23 radical hysterectomies for cancer of the cervix at the hospital four died as a result of the operation, one on the second day of peritonitis, a very difficult case in a very obese woman; one in twelve hours of shock; one on the tenth day, cause of death not made out at autopsy; one case died in the fifth week of iliac thrombo-phlebitis.

Five of my first six cases have lived from five to thirteen years after operation free from recurrence. All have been seen or heard from within a month. Very briefly, they are as follows:

Elizabeth C., W. S., Vol. 369, p. 120, Jan. 4, 1901, age 35 years. Symptoms,—pain and flowing for six months. Had been curetted by a doctor. Cervical growth size of half a dollar, marked thickening and induration in left broad ligament. Iliac glands on both sides removed.

Pathological Report. Squamous cell carcinoma of the cervix; glands not malignant.

Madeline V., Hospital No. 134507, S. S., Vol. 83, p. 287, Oct. 16, 1903. Age, 48 years. Symptoms,—for five months excessive flowing and pain. Extensive cauliflower growth of cervix, uterus movable.

No thickening in the broad ligaments. No glands removed.

Pathological Report. Squamous cell cancer of the cervix.

JANE S., Hospital No. 140882, S. S., Vol. 107, p. 142, Jan. 14, 1905. Age, 60 years. Symptoms,—for two to three years bloody discharge, some pain, loss of weight and strength. Cervix hard and infiltrated, several deep ulcerations, uterus movable, broad ligaments not thickened. One enlarged gland in the left iliac region removed.

Pathological Report. Squamous cell cancer of the cervix; gland non-malignant.

FANNY H., Hospital No. 150169, S. S., Vol. 137, p. 2, Nov. 6, 1906. Age, 27 years. For five months symptoms, bleeding and pain. Had been curetted by a doctor. Badly eroded cervix with free hemorrhage. On examination broad ligaments not indurated. Bladder torn in operation. Iliac glands on left enlarged and removed.

Pathological Report. Squamous cell carcinoma of the cervix. Glands not malignant.

ROSE S., S. E. S., Vol. 620, p. 105, Hospital No. 159940, Aug. 24, 1908. Age, 35 years. For four-teen months symptoms, constant flowing and foul discharge. Cervix hard, nodular and excavated. Uterus not freely movable. Induration in both broad ligaments. No glands removed.

Pathological Report. Squamous cell cancer of the cervix.

To have cured five out of six cases is, obviously, largely a matter of luck. I would not be surprised if my last six cases died of recurrence, but I am greatly encouraged to go on with the radical operation as I have been doing it.

TABULATED ANALYSIS OF THE CASES AT THE MASSACHUSETTS GENERAL HOSPITAL FROM 1900 TO 1913 INCLUSIVE.

Total number of cases.....367
- Personal cases of Dr. Cobb.....70
- Refused operation..... 4
- Inoperable..... 57
- Palliative operations.....173
- Vaginal hysterectomies..... 17
  - For cancer of cervix.....13
  - For cancer of fundus..... 4
- Abdominal hysterectomies.....116
  - For cancer of cervix.....89
  - For cancer of fundus.....27
- Operability.....36.2%

230 came too late.

Since August 1, 1911 (Dr. Cobb).....50
- Inoperable..... 5
- Palliative operations..... 23
- Radical operations..... 22
- Operability.....44%

VAGINAL HYSTERECTOMIES.

Total number.....17
- Immediate mortality.....None
- For cancer of cervix..... 13
- For cancer of fundus..... 4

Operations over 5 years ago.....14
- Traced..... 8
- Cured..... 2

Both cancer of cervix.
Note: No cures in fundus cases.
Cures 25%

Since 1910.....3 cases
- Cancer of cervix.....2
- Cancer of fundus.....1

No recurrence one to two years.
Dr. Cobb has no vaginal operations.

ABDOMINAL HYSTERECTOMIES FOR CANCER OF FUNDUS.

Total number.....27
- Personal cases of Dr. Cobb..... 7
- Immediate mortality.....4 or 14.8%
- Surviving cases.....23
- Cases traced.....22

Operations over 5 years before....14
- Cured .....6 or 42.8%

One case free from cancer....4½ years
One case free from cancer....1¾ years

Personal cases, Dr. Cobb.....7
- Immediate mortality.....None

No cases over 5 years
One death from recurrence within a year.

ABDOMINAL HYSTERECTOMIES.

(NOT RADICAL.)

Total number.....49
- Immediate mortality.....17 or 34.6%
- Surviving cases.....32
- Traced 29

Operated on over 5 years before.....26
- Cured .....5 or 19+%

2 cases free also from recurrence, from 3 to 4½ yrs.

(RADICAL.)

Total number.....40
- Immediate mortality.....9 or 22.5%
- Surviving cases.....31
- Traced 31

Operated on over 5 years before...14
- Cured .....7 or 50%

RADICAL (WERTHEIM) OPERATIONS FOR CANCER OF CERVIX.

Total number.....40
- Personal cases of Dr. Cobb.....23
- Cases of other operators.....17
- Cases traced.....All
- Immediate mortality.....5 or 29+%
- Of the 12 surviving, operation over 5 years..... 8
- Cured .....1 or 12.5%
- Alive and free from cancer for 3 years 2

Personal cases of Dr. Cobb.....23
- Immediate mortality.....4 or 17+%
- Cases traced.....All
- Cases over 5 years ago..... 6
- Cured 5
- Cases since August 1, 1911.....17
- Recurrences 3
- Free from recurrences as yet..11
- Free from recurrence, over 1 year 3

PYLORIC STENOSIS OF THE NEW BORN.

This case is reported for the purpose of showing a picture of the condition, not that it adds anything unusual. The baby, sick for five days with vomiting, was seen then by Dr. John Mitchell, who made the diagnosis.

Boy, three weeks old. First baby. Normal delivery and apparently a normal baby. Nursed well for two weeks, gaining over eight ounces the first week, and about the same the second week. Began vomiting the first day of the third week, and has been vomiting now for six days. Vomits all the milk taken, either at once or soon after nursing.

Examination. Well developed child and apparently still in fair condition. Rectal examination reveals nothing abnormal. Abdomen not distended. Palpation of abdomen shows a tumor in the region of the pylorus. This was easily palpable by placing the fingers low on the abdomen and gently sliding the fingers under the edge of the liver.

Before both parents could be reached and preparations for operation made the baby died. The pathologic report by Dr. Whitney was the usual type of hypertrophic stenosis. The photograph shows well the tumor and its customary extension along the greater curvature of the stomach.

It would seem that these cases had best be considered as emergencies, and possibly cases seen late might be saved by doing a jejunostomy through a left rectus incision. This could be done very rapidly and practically without general anesthesia.

CONGENITAL INTESTINAL OBSTRUCTION IN A NEW-BORN BABY.

Case was seen with Dr. A. L. Brown of Winchester:—

Italian baby girl four days old, born without medical attendance. Had had no movement since birth. On the second day parents noticed that baby's abdomen was distended, but did not call a physician until the fourth day, when the child began to vomit. Baby had been to the breast a few times.

Examination showed a well developed child with a much distended abdomen. Rectal examination showed a patent rectum as high as could be reached, and from the rectum an inspissated, putty-like material was being discharged. There was no meconium, but a large amount of this putty-like substance had been passed.

It was decided to quickly make an artificial anus in the hope that more could be done later should the child be so fortunate as to live. This was done, the abdomen being opened through a left rectus incision. A very definite volvulus reduced itself as some loops of small intestine came into the wound, but no gas or meconium was passed. There was some free, blood-stained, fluid in the abdominal cavity. No large intestine could be found, therefore a fistula was made in the most dilated loop of small intestine handy. Through this fistula a large amount of meconium was passed. No search was made for the cause of obstruction. This took a very few moments and the baby's condition was little worse after the operation, but the child died a few hours later.

The post-mortem findings were as follows: The intestinal tract from the stomach to within about three inches of the ileo-cecal valve was normal. Here there was complete obstruction. Meconium had never passed this point. The obstruction was caused by a firm band, coming from the right side of the pelvis and grasping the ileum in such a way as to cause a complete twist. The large intestine was a mere patent band. The material it contained arose from its own secretions.

The fact that the baby did not vomit until the fourth day, and that enough of this inspissated material had passed to empty the large intestine, should have led to the conclusion that the obstruction was low in the small intestine.

Medical Progress.

REPORT ON DERMATOLOGY.

By JOHN T. BOWEN, M.D., BOSTON.

THE VACCINE TREATMENT OF SKIN DISEASES.—RESEARCH STUDIES IN PSORIASIS.—ARTIFICIAL ERUPTIONS FROM CRUDE COAL TAR.—PEMPHIGUS TREATED BY QUININE INJECTIONS.—ALOPECIA ATROPHICANS.—MEDICAL COSMETICS OF THE SKIN.

THE VACCINE TREATMENT OF SKIN DISEASES.[1]

At the meeting of the 17th International Congress of Medicine, held in London in August, 1913, Dr. T. C. Gilchrist, in the dermatological section, opened a general discussion on the above subject. He said in his paper that vaccine therapy had now reached, especially in America, a stage somewhat similar to that of x-ray therapy during the first two years of its application, when collectively it probably did more harm than good. Many people are now so prejudiced against x-ray treatment that they refuse to have anything to do with it, and so it is getting to be with vaccine treatment. He compares the treatment by commercial mixed vaccines, containing often as many as nine or 10 kinds of organisms, with the old "shot-gun" prescriptions, when it was hoped that the remedy would hit something.

Gilchrist records his experience of vaccine treatment in about 800 cases of skin disease during a period of six years. He asserts that he has had brilliant results, moderate successes, and many failures, probably about in equal proportions. He considers that the only true method is by the use of autogenous vaccines. Vaccines are of the greatest value in chronic or subacute, and especially relapsing staphylococcus affections of the skin, where there is a lack of production of antibodies, due to the patient's capacity for pro-

ducing antibodies being worn out. Many times brilliant results, not infrequently failures, are met with in the treatment by vaccines of relapsing furuncles, sycosis, and pustular dermatitis. His results vary in the treatment of eczema. It is the pustular, weeping or vesicular type that is most favorably affected, but there were many negative results. About 50 cases of rosacea were treated, 25 of whom were private patients, who could be better followed than dispensary patients. In cases where the rosacea is complicated with acne pustules, the albus vaccine not only causes the acne to disappear, but diminishes the rosacea, and there is improvement also in the cases of pure rosacea. He admits, however, ,that hygienic and constitutional measures are also necessary. With regard to ordinary acne, acne vulgaris, Gilchrist still considers the vaccine treatment of great value. He has found that a stock bacillus acnes vaccine made in the hospital laboratory is as effective as an autogenous one. The following may be cited as a very saving clause in his argument as to vaccines in acne: "Patients with severe acne have still to be treated with a great deal of painstaking care, and one cannot rely on vaccine therapy alone. It is necessary to give careful attention to diet, to the regulation of the normal functions, to fresh air and exercises, to the expression of all comedones, since vaccines have no effect on comedones at all, and in many cases to the application of mild x-rays, and finally to the use of suitable lotions or ointments." He refers to the indiscriminate and unscientific use of acne vaccines by hundreds of physicians throughout the United States with very unfavorable results. He now recommends an initial dose of 10 to 20 millions, then wait for the negative phase that occurs from the third to the eighth day and is shown by the appearance of new lesions or the flaring-up of old ones, and after these have subsided, give another injection, and so on for three or four injections, when a period of rest is to be taken.

Gilchrist notes some beneficial results in blastomycetic dermatitis by treatment with a filtrate from a three months' old culture of the blastomycetes.

It was thought, since tuberculin ointment had been used with some success in treating lupus vulgaris, that ointments made with the staphylococci, streptococci, trichophyton tonsurans, etc., might in the same way be found to be valuable. The organisms were therefore mixed with a cold cream base, in the strength of ten per cent., and this was applied to various cutaneous affections, especially those due to one or the other of these organisms, or where they were secondary invaders. The results were not favorable in papular, pustular and weeping eczemas of the legs, arms and face, but there was great benefit in two cases of eczema and pruritus about the anus. Also benefit was produced in a few cases of sycosis vulgaris. An ointment of the bacillus acnes produced some interesting improvements, but could not be regarded as successful on the whole.

In summing up, Gilchrist points out the necessity of having an intimate knowledge of bacteriology and immunology in attempting to treat skin diseases by means of vaccines, giving the preference to autogenous vaccines, and warning against the use of the commercial mixed vaccines. He admits that this treatment by vaccines has not been so successful as it promised, but yet regards it as a valuable aid, especially in acne and the staphylococcic forms, and perhaps occasionally in eczema. He thinks that the use of ointments made up of organisms cultivated from the skin offers a hopeful chance for investigation.

RESEARCH STUDIES IN PSORIASIS.[2]

Schamberg, with his assistants, Kolmer, Ringer and Raiziss, has conducted an elaborate and important series of investigations on the subject of psoriasis in the dermatological research laboratories of the Philadelphia Polyclinic and College for Graduates in Medicine. In the investigations no attempt has been made to prove any theory of the causation of psoriasis, a subject about which at the present time, as in that of Auspitz, practically nothing is known. The researches were conducted on two lines, one bacteriological and pathological, the other physiological-chemical; and the work was carried out with the intention of recording the findings, whether of a positive or negative character. A summary of their conclusions from their bacteriological and pathological investigations is as follows:

1. Nine of 48 cases of psoriasis, or 18.7%, gave positive Wassermann reactions, using an alcoholic extract of luetin liver as antigen. With antigens of cholesterinized alcoholic extracts of human and beef heart over 28% or 22 cases reacted positively. From a clinical study of the patients whose serums were studied, the positive tests cannot all be attributable to syphilis, although this might be true of a few of them; on the other hand some significance must be attached to them, which future research alone can reveal.

2. Using for antigens aqueous and alcoholic extracts of psoriasis scales and of a larger number of cultures of organisms isolated from lesions, complement fixation was not found to occur with 10 sera from active cases of psoriasis. These results would indicate that either the true antigen was not present in the extracts of scales and culture used, or that the psoriasis antibody, if it exists, was not present in the sera in sufficient amount to inactivate complement with the extracts used in this study.

3. Sixteen different organisms were isolated from 57 cultures from 24 cases of psoriasis. No organism was found that could be regarded as bearing an etiological relationship to the disease.

4. An unidentified diplococcus was found in 5 psoriatic lesions and in 1 blood culture, and is deserving of further study.

5. The use of anaerobic methods and special culture media, composed of the scales and secretions of psoriasis, did not show the presence of any special parasite.

6. Numerous growths of scales in moist chambers showed the presence of diplococci, but no unusual organism or fungus.

7. Investigation with the ultramicroscope discovered the presence of a motile bacillary body in 17 out of 19 cases of psoriasis. In 18 other dermatoses these were found in 3 instances. These bodies are being further studied.

8. Cultures and microscopical examination of fluid secured by blister over psoriasis lesions yielded negative results.

9. Vaccine treatment carried out with vaccines made from a large number of different species of organisms found in psoriasis lesions, yielded indifferent and inconclusive results.

10. Inoculation experiments on monkeys, including the implantation of buttons of psoriasis skin, scales, serum and defibrinated blood, were negative in one to six months after inoculation.

With regard to metabolism in psoriasis, a great many contributions on this subject have appeared during the last twenty years. These observations have been based chiefly on clinical examinations, with sometimes an analysis of the urine. The writers' research on the metabolism of psoriasis was directed primarily to a study of the protein metabolism. In the experiment all of the patients were kept in private rooms at the Presbyterian Hospital, which were on the same floor as the laboratory, so that the excreta could be transferred to the examining room as quickly as possible. The results of a careful study of the protein metabolism of eight psoriasis patients are reported with much detail. The summary and conclusions of their investigations show:

1. That on a given protein diet a psoriatic subject eliminates less nitrogen in the urine than does a normal individual on a corresponding diet. The urinary nitrogen in some of the patients reached a level lower than has even been recorded.

2. Patients suffering from psoriasis exhibit a remarkable retention of nitrogen. This retention appears to be proportional, in a general way, to the extent and severity of the eruption present.

3. The nitrogen is retained to a greater degree than has been observed in connection with any other condition, and is, furthermore, retained with great ease even on a diet low in nitrogen and insufficient in caloric value, and one on which a normal individual would fail to maintain equilibrium.

4. Experiments with urea feeding show conclusively that the nitrogen retention cannot be attributed to any disturbance in the eliminative capacity of the kidneys.

5. Patients with extensive psoriasis may lose very large amounts of nitrogen in the exfoliated scales, which consist of almost pure protein.

6. The retention of nitrogen in most of the cases was greater than could be accounted for by the protein lost in the scales, and it may persist even after scaling has ceased, and the eruption has virtually disappeared.

7. A low nitrogen diet has a most favorable influence upon the eruption of psoriasis, particularly when the latter is extensive. Making all reservation suggested by scientific caution, there can be no doubt that severe cases of psoriasis improve under such a diet, almost to the point of disappearance of the eruption.

8. Conversely, a high nitrogen diet exhibits an unfavorable influence on psoriasis, commonly causing an extension of the eruption.

9. Whether a high nitrogen diet can stimulate an outbreak of psoriasis in a psoriatic subject, who is at the time free of the eruption, has not yet been determined.

10. The great proliferation and exfoliation of cells by the skin in psoriasis demand a large supply of protein, which can only be procured from the lymph and blood streams. This protein supply may be derived from the ingested food, and a possibility exists that the great demand of the diseased skin for protein may also be satisfied by the protein reserve in muscle tisssue, which thus may become depleted and later require restoration.

11. A protracted, low protein diet may diminish the proliferative activity of the skin by diminishing the supply of the principal building material, namely, protein. On the other hand, a high protein diet may stimulate the proliferative activity of the cells by furnishing an abundant supply of the necessary protein.

12. The writers are unwilling, at the present stage of their studies, to venture an hypothesis as to the primary cause of psoriasis.

ARTIFICIAL ERUPTIONS FROM CRUDE COAL TAR.

Brocq,[3] who was one of the first to advocate the use of pure coal tar in the treatment of oozing and highly inflammatory eczemas, calls attention to certain cases of artificial dermatitis produced by this agent. He still maintains the view that of all preparations actually known that are of value in drying up rapidly a vesicular eczema, either of the true or of the seborrhoic type, crude coal tar is the one best tolerated by a large majority of patients. Exceptions, nevertheless, occur, in which it is necessary to suspend the treatment immediately, on the appearance of certain indications that the individual skin is intolerant of this application. Hallopeau and François Dainville have reported a case of acute bullous dermatitis following the frequent applications of methylene blue and coal tar in a patient suffering from persistent urticaria. Brocq agrees with the reporters that this eruption was due to the applications of coal

tar and not to the methylene blue, as his experience with methylene blue since 1897 has been that inflammatory reactions with abundant exudation sometimes occur when it is employed in eczematous subjects, but never a bullous eruption.

With coal tar, on the contrary, he has found that in certain comparatively rare instances, the application of coal tar may provoke the appearance of large bullae, which are more or less characteristic of this procedure. This occurs especially in eczematous subjects, on the upper and lower limbs, and especially on the lower part of the legs. In a case cited, that of a man of 37 who had entered the hospital for a generalized eczema, coal tar applications had been made to the lower part of the legs, the places where there was the most exudation. Soon afterward enormous bullae, filled with yellowish serum, appeared on the regions that had been treated with the coal tar. Later on a modified coal tar paste produced an eruption of small bullae. In other cases, an oxide of zinc paste containing varying proportions of coal tar, produced an intense redness of the skin, after several days of application. But the characteristic sign of this dermatitis is the production of vesicles and bullae. Often the bullae are of very large size like those of pemphigus, with very resistant walls, the raw surfaces left after the breaking of these lesions persisting often for a very long time.

Brocq thought at first that these accidents were due to a bad quality of coal tar, but careful investigation showed that it must be explained by individual intolerance. Consequently Brocq counsels caution in the use of crude coal tar, using it in pure form or incorporated in pastes only on very small surfaces at the beginning, and using it generally only when one is sure that it will not produce any poisonous effect. Also it is important not to repeat the applications very often, and to suspend its use when one sees the skin assuming a certain red tint. He considers it regrettable that these relatively rare occurrences should throw discredit on an application that is most useful in rebellious pruritus and in exudative eczemas.

PEMPHIGUS TREATED BY QUININE INJECTIONS.

Leszczynski[4] in Lukasiewicz's clinic in Lemburg has attempted the treatment of pemphigus with quinine intravenously. Quinine was recommended by Mosler in 1890 in cases of pemphigus, and for ten years quinine has been employed in most cases of pemphigus at the Lemburg clinic, with no doubt as to its favorable action. The good results attained in many cases of skin disease by blood-letting followed by the injection of salt solution and the action of intravenous injections of salvarsan in syphilis, stimulated Leszczynski to try intravenous injections of quinine in pemphigus. Three cases of pemphigus, in all of which the mucous membranes were prominently affected, were treated by this method, beginning with small doses of quinine, and increasing up to a grain, given every other day. All the patients asserted that as early as the day after the injections, they experienced less smarting and pain from the oral lesions. The skin proved more refractory to the injections than the mucous membranes, but began to improve after several injections. The writer declares that there can be no doubt as to the very rapid amelioration of the oral and mucous membranes lesions under this treatment, and a less rapid, although marked, improvement of the skin lesions. With regard to permanent improvement, new lesions appeared during the treatment in all three cases. The first patient, to be sure, showed few and slight recurrences, and was discharged well. No return had yet occurred. The second, a more severe case, continually exhibited new lesions during the treatment, although he was free at the time of writing. In the third case, the mucous membrane of the mouth improved more quickly than in either of the others, and remained good during the whole time of observation. On the mucous membrane of the vulva and on the skin, new efflorescences appeared during the treament, and the patient was not free from the trouble. The writer truly says that it may be a question whether the benefit in these cases comes from the quinine or from the salt solution in which it is given. On the one hand, we know that quinine internally has given good results in pemphigus, and on the other hand Bruck and Simon have shown the good effects of drenching with salt solution. On both grounds, therefore, the use of the quinine injections seems to be justified. It would be of interest to know if other bullous and exfoliative dermatoses may be benefited by quinine injections. In a case of exudative erythema multiforme, with bullae and exfoliative changes of the mucous membrane of the mouth, healing of the mucous membranes was attained after four injections of quinine, and no new appearances were observed during the succeeding two weeks. The writer concludes, on the strength of these three cases, that injections of quinine salt solutions have a favorable influence on the course of pemphigus, and hasten epithelial regeneration. They also alleviate subjective symptoms and improve the general condition.

ALOPECIA ATROPHICANS.

Dreuw[5] of Berlin states that alopecia atrophicans is very little known as compared with alopecia areata. It was first described by Brocq in 1885, and consists of bald patches of varying size, seldom perfectly round, but with three and four angles, partly isolated and partly confluent, with inflammatory appearances or subjective symptoms, which lead in the course of years to an atrophy of epidermis and corium and result in permanent baldness. It has been named by Brocq pseudo-pelade. Inasmuch as

this affection occurs in epidemics. Dreuw considers that it ought to be brought more prominently before the general medical profession than has been the case.

In 1910, 200 cases were observed in Berlin schoolboys. The patches corresponded to the description of Brocq given above. The children affected were from 5-14 years of age, all of them boys. The affection began with a small bald spot of rounded or oval shape, with in some cases a few scales appearing. In no case was there a total alopecia. Remains of hairs were sometimes to be found in the centre of the patches. Microscopically no fungus or parasite could be detected. He names this episode alopecia parvimaculata on account of the arrangement in small spots, and regards it as the beginning stage of alopecia atrophicans, inasmuch as the symptoms of the latter affection have been observed in eight of the school children. The fact that no infectious agent could be discovered is not, the writer asserts, sufficient evidence that the affection is not contagious, in view of the epidemic character. On the ground of an epidemic described in Lüdingshausen he considers that there is a form of alopecia parvimaculata non atrophicans which is related to some forms of alopecia areata.

MEDICAL COSMETICS OF THE SKIN.

Kromayer,[6] inventor of the quartz-lamp, takes up first the anomalies of cornification and warns against the free and long-continued use of ointments, paints and powders for cosmetic purposes, which protect the skin from the irritating effects of air, light, and varying grades of temperature, but cause a thinning and diminished nutrition of the integument and subcutaneous fat, which predispose to early senile changes. Such skins are also more susceptible to diseased conditions, and to hyperkeratoses, which in turn lead to eczematous inflammatory conditions. These rough skins, predisposed to eczemas, are wanting in water and in fat, and it is the object of therapeutics to supply the place of these substances. Fats should be applied immediately after soap washings, and before the skin is thoroughly dry, wiping off the excess with absorbent cotton or a bit of linen. Kromayer considers that the pure fats, as lanolin, vaseline, oils, etc., make the skin unpleasantly greasy, and recommends solution of fats in fluid and gelatinous substances, solutions of glycerine and castor oil in alcohol, glycerine in tragacanth or solution of fats in ether. Fatty emulsions, cold creams, etc., are perhaps most valuable of all, as equal parts of lanolin, vaseline and water, or with the addition of glycerine.

For keratoses, radium and the Roentgen rays are recommended, especially on account of their action on the connective tissue, which the writer asserts is also "hardened" in conjunction with the epidermis. These agents should not be used in too feeble doses; it is desirable to push them to the point of a well-marked erythema.

With regard to vascular anomalies, various pastes of sulphur, salicylic acid and resorcin are commonly used in the treatment of rosacea, when there is present also an affection of the follicles. Lassar's schälpaste, and the quartz-lamp are also recommended. When there is hypertrophy of connective tissue, with enlargement of the nose, the Roentgen rays and the quartz-lamp are of great value. The older methods, of scarification and electrolysis, are much inferior. Touching the vessels with the sharp point of the actual cautery is recommended, however, in rosacea, as well as in the case of punctate vascular naevi and linear telangiectases. In the case of flat naevi, radium is preferred to carbon dioxide snow, by Kromayer, or radium in combination with Roentgen rays.

With regard to acne vulgaris, the writer takes the view that the ordinary form at the time of puberty is due to constipation, which causes the absorption of abnormal poisonous substances from the intestinal tract. For local treatment in acne the Roentgen rays are particularly recommended, especially in rotation with stimulating applications and peeling.

The anomalies of pigment are to be treated in various ways, according to the character of the individual lesion. The interesting assertion is made that an intense application of the rays from the quartz-lamp so that bullae are produced, is followed by a permanent and not temporary removal of pigment. He has also used the lamp to lighten the pigment at the borders of patches of vitiligo.

In the treatment of alopecia areata, he considers that the light as applied by the quartz-lamp is far superior to all other methods. He has not, however, been able to make use of this method with advantage in other forms of alopecia.

With regard to hypertrichosis, he speaks of the Roentgen ray treatment for the removal of this condition as useless and to be abandoned. With regard to electrolysis, he displays an acquaintance with the finer points of this treatment which is much inferior to that possessed by the skilled operators in America, where this procedure was devised and developed. Even with an unprotected needle, there should be no danger of scarring in experienced hands. He reports a far larger percentage of recurrences than is necessary, and his method of technic is surely inferior to that adopted by the best American dermatologists.

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Reports of Societies.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Wednesday, April 8, 1914, at 8.30 P. M.

The President, Dr. William D. Robinson, in the chair.

THE SUBJECTIVE AND OBJECTIVE SYMPTOMS OF FAVORABLE AND UNFAVORABLE REACTIONS TO TUBERCULIN.

Dr. Myer Solis-Cohen: Many of the phenomena produced by tuberculin are often unrecognized because they are slight or have not been recorded in the literature. Valuable information as to suitability or unsuitability of dosage is neglected with the result that the appropriate dose is frequently increased instead of being held and the excessive dose often still further augmented, until the well-known book symptoms of a severe unfavorable reaction have been produced. Unless the physician questions his patient closely without, of course, suggesting the nature of the reply, and unless the patient observes himself carefully and reports his symptoms accurately, many of the less well-known symptoms of a reaction will be missed. If the observant physician will note every symptom occurring on the day of and the day after the administration of tuberculin that was not present before the dose was given, he may discover many symptoms of a reaction of which no mention has as yet been made. In order to direct attention to the disregarded and unfamiliar symptoms I have tabulated all the subjective and objective symptoms that have followed the administration of tuberculin in 56 of my patients of whom I had sufficient notes and on whose records I could lay my hands. To this list I have added 45 symptoms of a reaction that have been described by other writers but not recorded by me. I distinguish between favorable and unfavorable reactions to tuberculin and have grouped the symptoms under these two heads. In 56 patients who reacted to tuberculin I observed a total of 91 distinct symptoms, many of which I have not seen previously recorded. It should be borne in mind that this is an analysis not of patients taking tuberculin but only of those who presented symptoms of a reaction to tuberculin. Symptoms grouped under the head of a favorable reaction are detailed under sub-headings of: (1) general or systemic symptoms; (2) changes in the temperature; (3) lung symptoms; those under the head of unfavorable reaction are detailed under (1) general or systemic symptoms; (2) gastro-intestinal symptoms; (3) alteration in the temperature; (4) lung symptoms; (5) pains; (6) eye symptoms; (7) vasomotor phenomena. Symptoms reported by other observers I have recorded under: (1) General or systemic symptoms; (2) local or organ symptoms; (3) skin reaction at site of injection.

REPORT OF A CASE OF OSTEITIS DEFORMANS.

Dr. Eleanor C. Jones: This rare disease of the bones was first described by Sir James Paget in 1876, and is commonly known by his name. The latest statistics show about 175 cases on record of which only about fifty are American cases.

The case reported follows closely the essential features of the cases reported by Paget. The disease in this woman began at the age of 33 years. She has lost about four inches in height, her height now being 4 ft., 11 ins., because of the bowing of the legs and curvature of the spine. Her head is large and square looking; the thorax small and emaciated; clavicles thickened. The spine has the appearance of sinking into the pelvis. The pelvis is wider than normal, and all the long bones are bowed. The arteries are somewhat atheromatous, and the second aortic sound is accentuated and there is a loud systolic murmur present. The urine showed a cloud of albumen. The examination of her blood for Wassermann reaction was negative. The summary of the bone changes found by radiographical examination were those of new bone formation, porosity, a softening arthritis and bone absorption. No suggestions could be made as to the cause of the disease in this patient.

THE CORRELATION OF APPENDICITIS AND OTHER ABDOMINAL AFFECTIONS.

Dr. Levi J. Hammond: Aided by abundant clinical evidence we must conclude that the frequency of the co-existence of abdominal inflammations with appendicitis is more than a coincidence. A critical analysis of the findings in 920 operations at the Methodist Episcopal Hospital, Philadelphia, would seem to indicate that the existence of the appendix establishes an important anatomic and physiologic relation to the remainder of the digestive system. It must, therefore, be considered as a specialized and functioning organ blending with the remainder of the digestive tract. The principal characteristic of the appendix is lymphoid tissue. One property of lymphoid tissue is to produce leucocytes, and it is only after the sclerosed appendix has impaired or destroyed the function of the lymphoid that acute appendicitis develops. As to the demonstrable anatomic relation of the appendix with other abdominal organs I would especially refer to that of the mesoappendix and the ovary by a peritoneal fold extending directly from the former to the latter. This relationship explains the frequent association of the appendix and adnexal disease. Of all the organs the liver is the one which appendicitis causes to suffer most. Epigastric symptoms must be regarded as reflex phenomena caused in the domain of the vagus nerve by irritation in the nerve terminals of the appendix. Gastric dyspepsia in chronic or recurring appendicitis is thus explained, dependent as it is upon trouble within the secretory, motor or vasomotor function of the viscera. Neuralgic or neuritic pains are in like manner referred to the hip, the thigh, or to the thorax as in pneumonia and acute tuberculosis. Chronic duodenal and gastric ulcers would seem to be dependent upon septic thrombi of appendiceal origin. Biliary lithiasis, chronic cholecystitis and hepatitis furnish forceful evidence in support of their origin in part, at least in primary infection of the appendix. Diagnosis must be based upon existence of a painful zone. This can always be elicited at the point where the appendix is located if palpation combined with rectal and vaginal examination be thorough.

Recurrent attacks of supposed typhoid fever have proved to be chronic appendicitis and prompt cure followed removal of the appendix. When differenti-

ation of the various abdominal affections is doubtful and the morbid symptoms justify operation, this should be done through an incision allowing intervention with the viscera and the appendix, with the ovary and the appendix, or with the kidney and the appendix. Faisans says, appendicitis is so frequent that one must always think of it and seek for it systematically by aid of interrogation and a complementary examination as one seeks for syphilis and alcoholism.

OUR EXPERIENCE WITH CROTALIN AT THE OAKBOURNE EPILEPTIC COLONY.

DR. N. S. YAWGER: For the purpose of this study a fair group of individuals having idiopathic epilepsy were selected for three months treatment. All but one patient were given an intramuscular injection of crotalin once a week for three months. We began with 1 200 of a grain gradually increasing it to the strength mentioned in the details of the cases, 1/25 of a grain being the maximum dosage. Because of the psychic effect the purpose of the injections was kept as much as possible from the knowledge of the patients. Briefly stated, our exerience was that two patients were uninfluenced; two were worse during the treatment; one, early in the course developed such intolerant toxic symptoms that further experimentation was unjustified; and the last patient died two and a half months after treatment. While we did not feel that death resulted from the use of crotalin, the patient's disease certainly was not benefited by the treatment.

Book Reviews.

The Practice of Pediatrics. By CHARLES GILMORE KERLEY, M.D., professor of diseases of children, New York Polyclinic Medical School and Hospital. Octavo, pp. 878, 139 illustrations. Philadelphia and London: W. B. Saunders Company. 1914.

This new book by Dr. Kerley contains an immense amount of valuable material. It is, on the other hand, not very well arranged and shows evidence of having been hastily written. It is written from the standpoint of the practitioner and will, therefore, be of great value to practitioners. The vast clinical experience of its author is manifest on every page. It is especially strong in regard to the treatment of diseases, the part in which most books are woefully deficient. No one can read it without picking up many valuable points in treatment, even if one does not entirely agree with the author in all his recommendations. The book should be very useful to physicians, whether they are in general practice or specialize in the diseases of children. It should have a wide sale.

A Treatise on Diseases of the Skin. For the Use of Advanced Students and Practitioners. By HENRY W. STELWAGON, M.D., Ph.D., professor of dermatology, Jefferson Medical College, Philadelphia. Seventh edition, thoroughly revised. Octavo of 1250 pages with 334 text illustrations and 33 full-page colored and half-tone plates. Philadelphia and London: W. B. Saunders Company. 1913.

The last edition of this work appeared in 1910. The present, the seventh edition, although following closely on its predecessor, shows the advances made by dermatology, in the descriptions of more or less recently acknowledged independent disorders that have been added by the author. Among these may be mentioned prurigo nodularis, granuloma pyogenicum, benign sarcoid, and keratosis blenorrhagica. About forty new illustrations have been added, much old matter has been eliminated, and much new matter and many changes in the text have been inserted. In short, the book has been completely reset, but preserves its place as the best text-book from the point of view of students and practitioners in the English language.

Biology. General and Medical. By JOSEPH MCFARLAND, M.D. Second edition. Thoroughly revised. pp. 457. W. B. Saunders Company. 1913.

The first edition of this book was favorably reviewed in these columns and we see no reason to change the opinion then expressed. The author has modified the text somewhat in response to the friendly criticisms of his readers and again presents a book clearly written and containing a vast number of facts with which persons of ordinary education should be acquainted. The value of such a book to students of medicine is particularly evident.

Modern Anesthetics. By J. FREDERICK W. SILK, M.D. (Lond.). New York: Longmans, Green and Company. 1914.

Dr. Silk is one of the leading London anesthetists. His book on anesthesia adds another to the group of excellent English handbooks on this subject by Gardner, Mortimer and Alderson, all of which have been recently reviewed in the JOURNAL (Vol. clxii, p. 576; Vol. clxvi, p. 258, and 423). Like his colleagues, Silk advocates the habitual use of the corneal reflex, whose employment is discouraged by American anesthetists. The book is well illustrated with 36 figures in the text, and is a valuable addition to the manual literature on anesthesia.

Annual Report of the Surgeon-General of the Public Health Service of the United States. Washington: Government Printing Office. 1914.

This report records the activities of the Service for the fiscal year 1913. It is divided into the usual headings of scientific research, maritime and domestic (interstate), quarantine, and marine hospitals and relief. It records an interesting variety of scientific and administrative data. Among the urgent needs of the service are more officers, an additional building for the hygienic laboratory, funds for printing publications, and an appropriation to defray the expense of collecting morbidity reports.

Surgical Diseases of Children. A Modern Treatise on Pediatric Surgery. By SAMUEL W. KELLY, M.D., LL.D. Illustrated. Second edition; revised and enlarged. New York: E. B. Treat and Company. 1914.

The first edition of this text-book was published in 1909. The appearance of this second edition within five years is evidence that the volume has found a place of value in medical literature. Considerable new matter has been added, notably with regard to arthroplasty, clubfoot, scoliosis, tonsillectomy and transfusion, but sufficient condensations have been made so that there is an increase of only 25 pages in the total. A series of 62 notes have been transferred from the text to a convenient appendix. There are 295 illustrations. With the exception of Kirmisson's admirable "Handbook of the Surgery of Children," this seems the most satisfactory and available work on an important and often neglected special field of surgery.

An Introduction to the History of Medicine. With Medical Chronology, Bibliographic Data, and Test Questions. By FIELDING H. GARRISON, A.B., M.D. Illustrated. Philadelphia and London: W. B. Saunders Company. 1913.

The purpose of this volume is partly to present a consecutive story of the development of medical sience, partly to record a large number of discrete biographic and historic data in a form readily available for reference. Both aims are very happily fulfilled, and at the same time, the encyclopaedic character of the book does not detract from its literary excellence. There are successive chapters on primitive, Egyptian, Oriental, Greek, Byzantine, and Mahometan medicine; on medicine in the middle ages and renaissance; and on the medicine of the four great succeeding centuries. The text is well illustrated, chiefly with portraits, and there are complete indices of personal names and subjects. The work is a valuable contribution to the literature of medical history, of which it places a comprehensive and scholarly survey within convenient access both for students and for occasional readers.

Spätpsychosen Katatonie Art. Von DR. MED. MAURYCY URSTEIN. Warsaw, Berlin und Wiener: Urban und Schwarzenburg. 1913.

This monograph on late catatonia, which with the author's previous publications is well worth the consideration of the psychiatrist, shows how insufficient are our present methods of diagnosis and classification. The manic depressive in his cases, may and does become in later years a catatonic, exhibiting signs and symptoms which if present in the patient's early life we should not hesitate to ascribe to dementia precox. The presenium ushers in many psychoses, which no matter how they start, whether by manic depressive symptoms, by paranoid ideas or catatonic manifestations end in a large number of cases with the symptoms of catatonia. Urstein's exceptional opportunities in having access to the fine records of Schweizerhof has made possible this demonstration of the insufficiency of the Kraepelinian scheme, but when Urstein goes further and makes catatonia a disease with an underlying internal splitting of the personality as the cause, he leads us into the same difficulties as Kraepelin has, for an inner splitting must be the basis of all functional psychoses, no matter what their character. There must be a destruction of inhibition here, a stimulation there, a falling part somewhere else, and an internal splitting is no more a characteristic of any single group of diseases than inflammation is peculiar to a skin infection or a meningitis. It is a general process, the recognition of which will not help us in the diagnosis of any one condition. Further, we find that his "catatonia" embraces almost the whole of dementia precox, the largest part of manic depressive insanity, the major portion of the psychoses occurring in the presenium and senium, and, therefore, the concept is not of great advantage to us since it does not enable us more intelligently to offer a prognosis or apply treatment. While his cases also are those in which the psychosis has come on after forty years, probably a more searching history into the antecedents of his patients would have revealed the fact that in many cases there was an initial attack in adolescence or in early life. This attack may have been a slight one and have passed without further notice than to call it "nervous prostration," a term of which psychiatrists ought to be especially suspicious.

Nevertheless Urstein has done psychiatry service in the publication of his cases of Spätkatatonie as well as in that of his two other monographs. The three books are earnestly recommended to every psychiatrist.

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AUTO-SERUM INJECTIONS IN CHRONIC PSORIASIS AND OTHER OBSTINATE SKIN DISEASES.

THE latest thing in dermatology is the use of auto-serum in the treatment of certain inveterate affections, as practiced during the past year by Linser, Ulmann and other German authorities. In this procedure a suitable quantity of blood is drawn and centrifuged, and the serum thus obtained is injected intravenously. The method appears to be practically harmless, and its technic is simple. It has only very recently been introduced in America, and the credit for its first employment here is due Gottheil of New York, who in the *Medical Record* for April 4 published reports of twelve cases,—six of generalized psoriasis, three of generalized eczema, two of pemphigus, and one of leprosy,—treated in his service at the City Hospital, Blackwell's Island. The psoriasis and eczema cases received autogennous serum; the pemphigus and leprosy ones, that of relatives and that of a case of dermatolysis when it was available. In the first two diseases the injections were given once a week,—three or four in number, of from 20 to 30 c.c. each, making about 100 c.c. in all,—before the local treatment, of very mild character, was begun. In the pemphigus and leprosy cases more injections were employed. In the cases of psoriasis the results were wholly admirable, and in those of eczema less decisive, though marked improvement was observed, while in those of pemphigus, although reports of wonderful success in this affection have been published in Germany, there were practically no results at all. In the case of leprosy the benefit from the treatment was unmistakable and quite rapid, though in this disease there is no reason to hope that it will do more than ameliorate the symptoms and improve the general condition.

A second communication on the subject was presented by Gottheil at the May meeting of the Medical Association of the Greater City of New York. Since the expiration of his term of service at the City Hospital, in January, the cases in which he has employed the treatment have been mostly in private practice, and the exigencies of office work have naturally rendered it impossible to administer it to any very large number of patients. The process is somewhat lengthy; the services of a nurse and an assistant, while not absolutely necessary, are desirable for the instrument sterilization, the centrifuging, etc., and the various factors of personal convenience, expense, and individual possibilities and idiosyncrasies have to be taken into consideration. As in the first series, the most noteworthy were the psoriases, of which there were five. One of these patients was a physician with the affection chiefly on the palms of the hands, and complicated by a severe radiodermatitis, the result of x-ray treatment, who withdrew from observation before the course of treatment was concluded. Excluding this case and judging from his experience in the other ten cases of the disease now treated, he expresses the positive conviction that in psoriasis the auto-serum method has a peculiar influence for good, which enables one to clear off the skin in one-tenth the usual time, with very weak and innocuous local medication, and without any internal treatment whatever. All the cases were old, extensive and recurrent instances of the disease. In every case the treatment was well borne and caused no inconvenience, and in all, the following effects were observed: Cessation of the appearance of new lesions and diminution in the elevation, redness and scaling of the old ones; very rapid disappearance of the disease,—in from three to seven days after the course of injections, under the mildest kind of local treatment (usually with 2½% chrysarobin petrolatum); and all this without any of the extremely troublesome general dermatitis ordinarily accompanying the chrysarobin full strength medication. Such a gratifying picture he contrasts with the four to

six weeks' treatment with ointments ranging up to 40% of chrysarobin, the daily arsenical injections, up to the very point of toleration, and the daily scrubbings with detergent soaps, etc., which constituted his former plan of procedure. The evidence therefore seems to him conclusive that in psoriasis the blood withdrawal and subsequent serum injection, one or both, have a very pronounced influence in modifying and ameliorating the disease and rendering the skin less susceptible to the irritating effects of local medication, and at the same time more responsive to its remedial action. Whether the treatment has any influence in preventing or delaying relapses, or on the general course of the disease, must be left to the future to disclose.

A few cases, including a chronic urticaria, a generalized lichen planus, a bad pustular acne with large abscesses, etc., are still under treatment, but Gottheil states that he is not prepared to report upon them as yet, except to say that in them the prospect looks encouraging. These cases are of such long duration, so recalcitrant to ordinary treatment, and so prone to show exacerbations and remissions, that he feels that great caution must be exercised in reporting results. He does, however, cite one remarkable case in this second series which is deserving of special mention. The patient had had prolonged x-ray treatment for some abdominal disorder six years ago, and this had resulted in the formation on the skin of the abdomen of an atrophic area, covered with telangiectases. Last autumn it began to show distinct signs of active inflammation, and at one time there seemed danger of a fatal termination. When Dr. Gottheil first saw him the entire area was necrotic, presenting the complete picture of a chronic gangrenous radiodermatitis. Local treatment was almost impossible on account of the exquisite tenderness, and morphine had to be constantly resorted to on account of the intolerable pain present. As the result of one injection of 70 c.c., at the end of a week there was noted a wonderful improvement in the lesion and in the general condition of the patient, who for the first time had been able to sleep without the aid of narcotics. During the month following he was given four injections of nearly 100 c.c. each, there was a rapid and steady betterment, and he gained fifteen pounds, or more, in weight. The ulceration was now clean,—all necrotic tissue having been removed,—and two-thirds healed; and, as the sensitiveness had disappeared, vigorous stimulant local treatment was instituted. Since the results under the five injections had been so satisfactory, it was purposed giving him three more, by which time it was estimated that the ulceration would be entirely healed. After the sixth, however he had a chill, followed by fever and sweating, and as similar phenomena of even greater severity resulted from a seventh injection, the serum treatment was discontinued. The constitutional reaction produced was thought to be probably of the nature of "serum sickness," due to the sensitizing of the organism by the previous injections. At the present time the ulceration is but one-quarter its original size and is slowly healing under local treatment alone. On the whole, the results observed in this case are certainly noteworthy; though, as therapeutic work of this kind is as yet experimental and without data, it is possible that the injections were too large or too near together.

Among those who have taken up the autoserum treatment are Fordyce, MacKee and Howard Fox. In his experience with it Fox has had eighteen cases: fifteen of psoriasis, two of eczema, and one of herpetiform dermatitis. In the eczema cases the results have been unsatisfactory, but in the herpetiform dermatitis somewhat more encouraging, while in the cases of psoriasis they have proved exceedingly gratifying. He has given rather smaller doses of serum than Gottheil, and finds local treatment after the injections to be essential. In his psoriasis cases he employed chrysarobin, and in some instances also covered the lesions with rubber cloth, but the final results have been such as could by no means have been obtained from local treatment alone.

MacKee has employed the treatment in fourteen cases. Eleven of these were of inveterate psoriasis, and he noted in them the same admirable results observed by Gottheil and Fox. Like the latter, he uses the smaller doses of serum, and he usually gives about six injections, at a week's interval, before resorting to local treatment. His local medication is even milder than that of Gottheil. In two cases of herpetiform dermatitis which had resisted all other treatment for twelve years, the skin entirely cleared up in six or eight weeks. Whether the result will be permanent remains to be seen. He has observed no serum sickness, and speaks very encouragingly of this new treatment, which he has found easy to carry out and apparently free from danger.

ANTI-VACCINATION SENTIMENT IN GERMANY.

IN commenting editorially, in the issue of the JOURNAL for April 23, on the Bagshaw anti-vaccination bill, we referred to the minimum frequency of smallpox in Germany, where compulsory universal vaccination is enforced. It appears, most regrettably, that there is an anti-vaccination faction also in that country, as was evidenced by a discussion in the Reichstag on May 23.

"On a motion to appoint a commission composed equally of friends and opponents of vaccination for the purpose of studying the whole question, party lines were completely obliterated and the motion failed only by a tie vote. It was brought forward in answer to numerous petitions for a change in the present law, which has been in force for 40 years.

"The anti-vaccinationists claimed that hundreds of cases occur where health is injured by the practice, and it was pointed out that the official statistics show that 32 deaths were thus caused in Prussia in 1912. They further asserted that managers of stations for obtaining lymph from calves have themselves admitted the impossibility of getting a pure lymph in all cases. The German law does not provide for compulsory vaccination, but the police authorities have everywhere construed it as giving them the right to require vaccination, and when it becomes necessary they use compulsion. The representative of the imperial health office, however, said that there were only eight or nine cases yearly where compulsion was necessary.

"A Socialist speaker claimed that some parents have been punished five or six times for refusing to have their children vaccinated, and some of them were sent to prison. Hundreds of thousands of people in Germany, he added, have to act contrary to their conscience in having their children vaccinated, and the example of England, where a conscience clause was adopted some years ago, was held up for imitation by Germany. The case of Italy was also pointed out as worthy of study; it was asserted that vaccination is nowhere practiced so extensively as in that country, yet nowhere is smallpox so frequent. Dr. Kirchner of the imperial health office answered all this by displaying a statistical table showing a steady reduction in smallpox cases since the present law was passed."

At the moment of our happy escape in Massachusetts from the threatened evils of an anti-vaccination propagandum, we cannot but lament this evidence of unenlightened prejudice among the people who present the best example of the beneficence of vaccination against smallpox.

TYPHOID DEATH-RATES.

IN the year 1913 Boston had a typhoid death-rate of 8.4 per 100,000 population, standing twelfth among United States cities. Cambridge, Mass., was fourteenth, with a rate of 9.2, and Lowell, Mass., fifteenth with a rate of 10. During the three-year period 1911 to 13, Cambridge stood second in the United States, with a rate of 5.6, and Boston and Lowell stood eighth, with a rate of 8.6 each.

Philadelphia, which for many years has had a rather poor reputation regarding typhoid, had a rate of 15.7 in 1913, almost double the rate in Boston. In Chicago during the fall of 1913 there was an increase in the number of cases, the reason possibly being an impure public water supply. It is interesting that New York, the largest city in the country, should have had the lowest typhoid rate in its history, namely 7 to 100,000 of the population. This rate compares favorably with that in various European capitals.

Although in a general way it is fair to attribute a lowered typhoid incidence to improved general hygiene, it must nevertheless often happen, as in fact the variations in the death-rate of various cities seem to demonstrate, that fortuitous circumstances beyond the control of the health authorities must arise from time to time, leading to the outbreak of considerable epidemics. This has apparently always been the experience in regard to this so-called preventable disease and simply serves to emphasize the fact that unremitting precautions should be taken to avoid all possible sources of infection, and particularly with relation to public water supply. The foregoing statistics, compiled and published by the *Journal of the American Medical Association*, are a valuable index of the relative extent of typhoid fever in our larger cities, and if the facts as published stimulate a healthy rivalry to minimize the disease, a step in progress toward the complete elimination of this unnecessary infection will be made.

CENTENNIAL OF YALE MEDICAL SCHOOL.

AT the coming Commencement of Yale University, June 15 to 17, the Yale Medical School will celebrate the one hundredth anniversary of the first conferring of degrees. The occasion

will be observed by special exercises to be held June 15, at which addresses will be presented by Professor William H. Howell of Johns Hopkins University and Dr. Walter R. Steiner of Hartford. An excellent musical program will be furnished in connection with the addresses. On Commencement Day a number of honorary degrees will be conferred to commemorate the occasion. A Life of Nathan Smith, one of the founders of the School, will be issued from the Yale University Press at about Commencement time, and a memorial volume of medical papers, prepared under the editorship of Dr. Horst Oertel, and containing contributions from Drs. Graham Lusk, E. R. Baldwin, John Hartwell, C. W. Field, W. W. Herrick, Charles F. Craig, Samuel W. Williston, and Horst Oertel, will appear as a special number of the *Archives of Internal Medicine*. It is hoped that the University will be able to announce at this time the consummation of the plan for affiliation with the New Haven Hospital and gifts to the endowment of the School, to which reference is made in a note in this issue of the JOURNAL.

MEDICAL NOTES.

RECAPTURE OF EARLY THE LEPER.—Report from Seattle, Wash., states that on June 2 John R. Early, the leper, whose escape from quarantine we noted in the issue of the JOURNAL for May 28, was captured in a local hotel and returned to custody.

DECREASING NUMBER OF MEDICAL SCHOOLS.—The recently published eighth annual report of the Carnegie Foundation for the Advancement of Teaching notes with approval that the number of medical schools in the United States has decreased from 162 in 1910 to 115 in 1913.

A WELSH SCHOOL OF PREVENTIVE MEDICINE.—It is announced that the South Wales and Monmouthshire University College at Cardiff has received from an anonymous donor funds for the erection of a school of preventive medicine. We have become so sure of the mode of infection that, being compelled by the lack of bedding, we put patients with other trouble in the beds which had been occupied by typhus patients. We made no further change than clean sheets and pillow covers, and though in several cases the limit of incubation has passed twice over there has not been a single infection."

AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.—The annual meeting of the American Medico-Psychological Association was held in Baltimore from May 25 to 28, inclusive. On May 26 there was a symposium on paresis. On May 27 the annual address was delivered by Dr. Lewellys F. Barker on "The Relation of Internal Medicine to Psychiatry." On May 28 there was a symposium on eugenics, following which the Association defeated by a large majority a proposed resolution favoring the enactment of so-called eugenic marriage laws.

Resolutions recommending the segregation of the feeble-minded, imbeciles, or other mental delinquents, and the establishment of separate institutions for their care, were adopted unanimously.

Dr. S. E. Smith, of Richmond, Ind., was elected president of the association for the coming year. Dr. E. Brush of Baltimore was chosen vice-president, and Dr. Charles G. Wagner of Binghampton, N. Y., was re-elected secretary-treasurer. Councillors elected were: Drs. H. R. Stedman of Boston, H. M. Green of Milledgeville, Ga., W. M. English of Hamilton, Ga., and C. F. Applegarth of Mount Pleasant, Ia.

ANOTHER XIPHOPAGUS.—Another case of xiphopagous twins was reported in a recent issue of *American Medicine*.

"The mother is a white woman, aged 44; by a previous husband she has a son, who is now 23 years of age, and quite normal. On Nov. 28, 1913, she gave birth to two girl children, both a good deal below the normal standard of full-term development; it is not stated what period of utero-gestation had been reached. They are united by a piece of tough fibrous tissue, about four inches thick and twelve inches in circumference, below the sternum, and reaching nearly down to the umbilicus. They have entirely separate thoracic and abdominal organs, except that the two peritoneal cavities are in communication through the band of union. Possibly it is due to this fact that a curious phenomenon occurs in respiration, for one twin inhales as the other exhales, and *vice versa*. One child is very slightly larger than the other in most of its measurments and appears stronger; this larger twin has a pulse rate of 130, whereas the smaller one's rate is but 120. The blood of the two children also exhibits differences. The larger child has 6,960,000 red corpuscles per c.mm. and 7500 leucocytes; the smaller one has 6,280,000 and 6335 respectively. The children are progressing favorably, and a photograph reproduced with the description shows them being fed, one from each breast."

AMERICAN SOCIETY OF TROPICAL MEDICINE.—The eleventh annual meeting of the American Society of Tropical Medicine, held in Boston on May 30, was attended by 25 members.

Dr. S. P. Beebe of Boston read a paper on "The Effect of Ultra-violet Light on Protoplasm," and Dr. Fritz C. Hyde of Boston read a paper on "The Occurrence of Malaria in New England." The third paper of the closing session was on "Malaria," by Dr. C. C. Bass of New Orleans. At the morning session those who presented papers were Dr. Phillip E. Garrison of Boston, Dr. John T. Moore of Houston, Tex., Dr. Andrew W. Sellards of Baltimore, Dr. Aristides Agramonte of Havana, Cuba, Dr. Richard P. Strong of Boston, Dr. Milton J. Rosenau of Boston, and Dr. W. R. Ohler.

Dr. Strong, professor of tropical medicine in the Harvard Medical School, presided, and his address was on "Recent Discoveries in Relation to Infectious Diseases in South America." Dr. Charles F. Craig, U.S.A., was elected president of the society for the ensuing year, and Surgeon-General William C. Gorgas was chosen delegate to the executive committee of the Congress of American Physicians and Surgeons, with Dr. J. F. Siler, of New York City, as alternate.

The other officers elected are: First vice-president, Dr. Milton J. Rosenau of Boston; second vice-president, Dr. Bailey K. Ashford of San Juan, Porto Rico; secretary, Dr. John M. Swan of Rochester, N. Y.; assistant secretary, Dr. Allen J. Smith of Philadelphia; councillors, Dr. D. T. Darling of Ancon, Panama Canal Zone; Dr. Henry J. Nichols of Washington, D. C., and Dr. Victor G. Heiser of Manila, P. I.

The next meeting of the society will be held in San Francisco, Cal., in 1915.

BOSTON AND NEW ENGLAND.

MALDEN HOSPITAL TRAINING SCHOOL.—The annual graduation exercises of the Malden (Mass.) Hospital Training School were held in that city on Thursday evening, May 28. The principal address was made by Dr. Carroll C. Burpee, of Malden, and diplomas were presented to five graduating nurses.

TRADE SCHOOL FOR CARDIAC CONVALESCENTS.—In July, 1913, a Trade School for Cardiac Convalescents was opened as an experiment at Sharon, Conn. The institution, which has now nearly completed its first year, has been exceedingly successful medically and financially, and will be continued on its present basis.

HOSPITAL BEQUEST.—The will of the late Sarah M. Coats, of Melrose, Mass., who died on May 17, was filed on May 28 for probate at East Cambridge, Mass. It contains a residual bequest to the Melrose Hospital Association.

YALE MEDICAL SCHOOL.—It is announced that the Rockefeller General Education Board has offered to the Yale Medical School $500,000, on condition that it procure complete teaching and medical control of the New Haven Hospital, that the teachers in the main clinical branches be placed on the full-time basis, and that by July 1 the university acquire or set apart the further sum of not less than $600,000.

MASSACHUSETTS COMMISSION FOR THE BLIND.—The recently published seventh annual report of the Massachusetts Commission for the Blind records the work of that body for the year ended Nov. 30, 1913. During this period 415 new cases of blindness have been reported, and 600 blind persons have been helped to get training or employment. Legislation for the prophylaxis of blindness is suggested, and a number of special reports are appended.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending June 2, 1914. Diphtheria, 58, of which 2 were non-residents; scarlatina, 71, of which 10 were non-residents; typhoid fever, 9; measles, 123, of which 3 were non-residents; tuberculosis, 82, of which 6 were non-residents.

The death-rate of the reported deaths for the week was 17.64.

NEW YORK.

A NEW CHARITY.—In a lecture on "Food from the Standpoint of Energy" at the New York Academy of Medicine, on March 19, Dr. Graham Lusk, professor of physiology at Cornell University Medical College, remarked that it would be a matter of great interest if some benevolent person would establish a restaurant which prepared pork and beans on a large scale and served it hot, with bread and with half a large cup of coffee made half with milk. Possibly in this way, he said, 1000 calories in a well-balanced ration, furnishing the requisite energy for an average adult engaged in light

work, could be sold for about ten cents. It is now announced that Mr. George Bancher will establish in the Bowery such a restaurant, where one may purchase for ten cents a meal of this composition, which will furnish exactly 1000 calories; and Prof. Lusk has written him, "I do not know of a better charity than to give an indigent person a meal ticket for such a place. You may have the opportunity of doing a great piece of educational work."

Scarlet Fever at Auburn Prison.—An outbreak of scarlet fever has occurred in the State Prison at Auburn, involving both the men's and women's departments, and more than a thousand inmates have been attacked. The disease is said, however, to be of mild character.

Columbia University.—At Columbia University Dr. Warfield T. Longcope, associate professor of the practice of medicine, has been appointed to the Bard professorship of medicine, made vacant by the resignation of Dr. Theodore C. Janeway. He also succeeds Dr. Janeway as director of the medical department of the Presbyterian Hospital. Among the honorary degrees conferred at the 160th annual commencement of the university, on June 3, was that of Doctor of Science upon Dr. Aristides Agramonte, professor of bacteriology and experimental pathology in the University of Havana, especially distinguished for work on yellow fever.

Mikveh Pools.—A conference, called by Health Commissioner Goldwater, was recently held to consider the subject of "Mikvehs," the cleansing pool baths, whose regular use is required by the Jewish faith. These pools have been made the subject of a bacteriological investigation by Dr. Manheimer of Columbia University, and independently by the Health Department. They showed that the Mikveh pools, as at present conducted, are a serious menace to the health of the people using them, and indicated the need of steps to render them sanitary. While no definite measures have as yet been formulated, the department believes that the enforcement of regulations similar to those recently adopted for floating baths would prove feasible. These provide for a preliminary cleansing shower bath, and include regulations regarding the cleanliness of the water in the pools.

Tuberculosis.—The Weekly Bulletin of the City Health Department has published a table giving figures relating to the occurrence of tuberculosis during the first quarter of 1914, and comparison with previous figures shows that the number of voluntary renovations in premises infected with tuberculosis has been steadily increasing. This is regarded as a very encouraging sign, indicating a better conception, by owners and agents of property, of the necessity for preventive measures, and of a greater readiness to comply with the requests of the department to do such work.

Mortality for Week Ending May 30, 1914.—There were 1547 deaths and a death-rate of 14.46 per 1000 of the population reported during the past week, as against 1323 deaths and a rate of 12.85 for the corresponding week of 1913, an absolute increase of 224 deaths, and an increase of 1.61 points in the weekly rate, which increase is equivalent to a relative increase of 168 deaths.

The following causes showed an increased mortality: scarlet fever, diphtheria and croup, typhoid fever, cerebrospinal meningitis, diarrheal diseases, acute respiratory diseases, pulmonary tuberculosis, nervous diseases and violence. There were ten deaths from sunstroke reported during the past week. Those causes showing a decreased mortality were measles and whooping cough. The mortality from digestive diseases, heart diseases, Bright's disease and nephritis was about the same.

Viewed from the point of age grouping there was an increase of 54 deaths of children under one year of age; between one and five years the mortality was approximately the same, between five and sixty-five years of age there was an increase of 122 deaths; and at sixty-five years and over there was an increase of 40 deaths, that is, all groups showed a considerably increased mortality except for the period of one to five years of age.

The death-rate for the first twenty-two weeks of 1914 was 15.29 per 1000 of the population, as against 15.43 for the corresponding period of 1913, a decrease of .14 of a point.

Appointments in State Department of Health.—The following appointments in the State Department of Health are announced: Member of the Public Health Council, Dr. T. Mitchell Prudden, emeritus professor of pathol-

ogy, Columbia University; consulting pediatrician, Dr. L. Emmett Holt, professor of diseases of children, Columbia University; director of the Division of Vital Statistics, Dr. Cressy L. Wilbur, chief statistician, United States Bureau of the Census. The latest issue of the *Health News*, which is the new title of the monthly bulletin of the department, is a "school principals' number, and opens with addresses to the school principals of the state by John H. Finley, LL.D., president of the University of the State of New York and commissioner of education, and Dr. Biggs, head of the Health Department. The latter states that he will in the future endeavor to make the monthly bulletin of special service to the school principals, and through them to the teachers and children, as well as to local health officers and other health workers. It will be the aim of the editor to include in each issue timely and important material under the heading "School Health Lesson."

HOSPITAL SOCIETIES FOR CLINICAL STUDY.—The organization of a society for clinical study has been ordered in each of the hospitals of the City Health Department. Each member of the staff will hereafter be expected to devote himself, during his spare hours, to the pursuit of some special topic or branch of medicine, and will be granted leave of absence from the hospital during stated hours each week for the practical study of the special subject assigned him.

HOSPITAL BEQUESTS.—Among the charitable bequests in the will of Mrs. Lina V. Happel of Brooklyn, N. Y., are $15,000 to the German Hospital of Brooklyn and $5000 to the Hospital for Ruptured and Crippled, Manhattan.

Current Literature

MEDICAL RECORD.

MAY 23, 1914.

1. VAN BAGGEN, N. J. P. *The Progress of Education of the Deaf and Dumb, and Some of the Difficulties of Aural Instruction.*
2. KAHN, M. *Calcium Therapy of Tuberculosis.*
3. *LANKFORD, J. S. *Pulse Pressure in Diagnosis and Prognosis.*
4. REHFUSS, M. E. *The French Aspect of Functional Liver Testing.*
5. SCHULTZE, E. C., AND GOLDBERGER, L. A. *A Report of One Hundred and Twenty-Three Cases of Scarlatina Treated by Vaccines and the Method of Milne.*
6. FERRY, N. S. *Study of Bacteriology of the Posterior Nasopharynx in Scarlatina.*
7. *KIEFER, G. L., AND FERRY, N. S. *Some Experiences with Bacterial Vaccines in Scarlatina.*
8. SEFF, I. *Retroperitoneal Hernia of the Appendix into the Ileoappendicular Fossa.*

3. Lankford discusses the determination of pulse-pressure in general practice and in life insurance work, and cites several cases which demonstrate its value. He finds the auscultation method more satisfactory than palpation. One of the cases cited is particularly interesting. A farmer, aged 27, was examined for insurance and recommended as a first-class risk by the examiner. The blood-pressure was reported as systolic 120 mm., diastolic 55 m.m. Suspicions of the low diastolic reading, the Company requested a re-examination after vigorous exercise. This showed rapid pulse, marked arrhythmia and an aortic murmur. The applicant would have been accepted but for his abnormal pulse-pressure.

7. Kiefer and Ferry report encouraging results from the vaccine treatment of scarlet-fever. Their vaccine is made from two organisms obtained from the posterior naso-pharynx of scarlatinal patients—a streptococcus and the micrococcus "S," described by Schultze. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

MAY 23, 1914.

1. WOODBURY, F. *The Treatment of the Insane in the Tropics.*
2. ALBEE, F. H. *The Inlay Bone Graft in Fresh Fractures.*
3. MALONEY, W. J. M. A., AND SORAPARE, V. E. *The Relief of States of High Vascular, Muscular and Mental Tension.*
4. SQUIER, J. B. *Surgery of the Hourglass Bladder.*
5. *BRODHEAD, G. L. *Vagitus Uterinus.*
6. BRAY, A. *The Preventive and Curative Treatment of Ophthalmia Neonatorum.*
7. LEWIS, W. M. *The Albumin Reaction in the Sputum.*
8. BIRDSALL, E. *Hyperthyroidism.*
9. HARTZELL, T. B. *The Surgical Relationships of Mouth Infections.*
10. MOSS, M. I. *Intestinal Parasites with Unusual Symptoms.*
11. FISHER, H. M. *Autoserotherapy in Fibrinoserous Pleurisy.*
12. BLOCK, S. *A New Psychosis.*

5. Brodhead reports a case of vagitus uterinus, the authenticity of which he expects will be questioned as usual. He did not hear the uterine cry himself, but he has absolutely no doubt of the correctness of the report of the two internes who did hear it. The patient was on the service of the Post-Graduate Hospital, New York. The second stage was prolonged and the interne had introduced his right hand into the vagina, preparatory to applying the left blade of the forceps when he heard a loud cry. The crying continued at intervals from that time until the head was extracted, thirteen minutes later. The child had a good color and was in good condition when born and was normal in every way during the puerperium. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

MAY 23, 1914.

1. *LOVETT, R. W. *The Causes and Treatment of Chronic Backache. With a Consideration of the Diagnosis of Sacro-Iliac "Relaxation."*

2. Field, C. W. *The Use of Cholesterin Antigen in the Wassermann Reaction.*
3. Martinez, I. G. *Fatal Attack of Filarial Lymphangitis Stimulating Bubonic Plague.*
4. *Griffith, J. P. C. *Diseases Connected with Meckel's Diverticulum, with Especial Reference to Diverticulitis.*
5. *Neuhof, H. *Supraclavicular Anesthetization of the Brachial Plexus. A Case of Collapse Following Its Administration.*
6. *Percy, J. F. *Best Methods of Discouraging the Activity of Inoperable Cancer. A Study of Heat in Cancer.*
7. Gunn, F. H., and Fairbrother, H. C. *Deep Wound of Brain.*

1. Lovett's article, though not suited to abstracting, is of very practical value and well analyzed.

4. Griffith's article contains a large mass of statistics boiled down and covers the symptomatology well.

5. Neuhof describes the technic of this method, its advantages which are distinct in certain cases, and also a case of collapse apparently due to the drug used and not to the method employed. He is in favor of this method of anesthesia in many shoulder and arm operations.

6. The author quotes Nidal, who states that the benefit derived in carcinoma treated by vaccines, etc., is solely from the heat generated by the reaction. The various reports of malignant growths diminishing in size after erysipelas assume a new significance with this theory in mind. The author believes that we can hope for the eradication of cancerous growths by attacking them through their vulnerability to heat. He then details his own experiments and technic. He believes the successful treatment of cancer depends more on the question of heat than on the actual cauterization. [E. H. R.]

Surgery, Gynecology and Obstetrics.

May, 1914.

1. *Krönig. *The Difference Between the Older and the Newer Treatments by X-ray and Radium in Gynecological Diseases.*
2. Grant, W. W. *The Treatment of Blood-Vessel Injuries.*
3. *Horsley, J. S. *Surgical Repair of Blood-Vessels: Its Technic, Its Uses and Limitations.*
4. Bryan, R. C. *Cancer of the Breast in a Boy Fifteen Years Old.*
5. Stein, I. F. *Eventration of the Diaphragm, with the Report of a Typical Case with X-ray Diagnosis.*
6. *Beckmann, E. H. *Complications Following Surgical Operations. A Report of the Complications in a Series of Six Thousand, Eight Hundred and Twenty-five Surgical Operations Performed in the Mayo Clinic in the Year 1913.*
7. McMurtry, L. S. *Hysteromyomectomy: Its Evolution and Perfection.*
8. *Dickinson, R. L. *Efficiency Engineering in Pelvic Surgery: One and Two Suture Operations.*
9. *Lewis, E. J. *Preliminary Report of Experimental Work in Bone Transplantation.*
10. Ryerson, E. W. *The Transplantation of Bone in Pott's Disease.*
11. Thomas, H. B. *Bone Transplant.*
12. Furniss, H. D. *Supernumerary Ureter Opening Extravesically.*
13. *Sampson, J. A. *The Influence of Ectopic Pregnancy of the Uterus, with Special Reference to Changes in Its Blood Supply and Uterine Bleeding. Based on the Study of Twenty-Five Injected Uteri Associated with Ectopic Pregnancy.*
14. Green, F. R. *Education and Publicity Through the Council on Health and Public Instruction of the American Medical Association.*
15. *Hill, R. *Congenital Pyloric Stenosis.*
16. *Kerr, J. M. M. *Operative Treatment for Malformations of Uterus and Vagina.*
17. Birnie, J. M. *A Method of Exposing the Pelvic Portion of the Ureter.*
18. Stark, S. *Technic Employed in Excision of a Carcinomatous Urethra.*
19. Bartlett, W. *A Simple Meat Method of Sterilizing Catgut; after Ten Years' Use of It.*

1. The author devotes most of his paper to the technic of scopolamine-morphine anesthesia to produce painless labor. He considers x-ray and radium in treating malignancy valuable, but they may be very dangerous.

3. Horsley's article is beautifully illustrated with cuts showing his technic. He believes that blood-vessel suture is valuable in certain transplantations of organs, in repair of injuries to vessels, in replacing segments of vessels necessarily removed at operation, and in transfusion, which he preferably performs by suture of artery to vein.

6. Beckmann's analysis of the complications following surgical operations in 6825 cases in the Mayo Clinic in 1913 is very interesting. There was a percentage of .017 of infections, or 117 cases; 87 cases had pulmonary complications, none of which were fatal,—.012 per cent. These are divided as follows: Acute congestion, 21 cases; pleurisy, 18 cases; bronchitis, 21 cases; broncho-pneumonia, 12 cases; lobar pneumonia, 15 cases; thrombophlebitis, 14 cases. Figures seem to show that patients with infections are not more prone to have thrombophlebitis than the so-called clean cases. Acute dilatation of the stomach, 3 cases. There was one case of empyema of the chest following transplantation of right ureter for extrophy of the bladder. Three cases of bowel obstruction, 4 cases of cystitis, 1 post-operative miscarriage following appendectomy, 2 cases of neuritis, 2 of arthritis, 6 of tonsillitis, 3 of acute dilatation of the heart (all in thyroid cases), 3 cases of bleeding from wounds following severe jaundice, 3 cases of parotitis. None of these cases were fatal.

8. Dickinson's article on technic is beautifully illustrated by drawings and cuts. It is of practical value.

9. Lewis finds experimentally that cortical bone, free of its periosteum, endosteum, and marrow, will retain its vitality and proliferative powers when subdivided into small fragments and replaced in the tissues. Contact with living bone is unnecessary for the growth of these transplants. Transplanted fascia may take up the nutritional and limiting functions of periosteum.

13. Sampson, in an exhaustive article, shows that under the influence of an ectopic pregnancy there is an increase in the size of the uterus, which is due to two factors,—hyperemia and thickening of the endometrium.

15. Hill believes that all cases of pyloric stenosis in infancy submitted to operation should be fed on mother's milk. He believes operation is indicated when a tumor is present. Surgical treatment has a lower mortality than medical and the relief is immediate.

16. Kerr's article is well illustrated and of practical value. [E. H. R.]

Münchener Medizinische Wochenschrift.

No. 18. May 5, 1914.

1. Baumler, C. *Vaccination in Relation to Smallpox.*
2. *Esch, P. *The Advantages of Cutaneous and Intracutaneous Tuberculin Reactions for the Diagnosis of Tuberculosis in Guinea Pigs.*
3. Kutschera, A. *Tuberculin Treatment by Percutaneous Injections.*

4. LESCHKE, E. *The Treatment of Respiratory Paralysis by Intra-bronchial Injections of Oxygen.*
5. ALLENBACH, E. *The Vaccine Treatment of Typhoid Fever.*
6. GRIESBACH, W. *Quantitative Determinations in Abderhalden's Pregnancy Reaction by Estimating the Nitrogen of the Dialysate.*
7. GWERDER, J., AND MELIKJANZ, O. *Abderhalden's Dialysis Method in Pulmonary Tuberculosis.*
8. HÜSSY, P. *The Clinical Importance of Vitamines.*
9. LOEW, O. *The Nature of the Blood Calcium.*
10. SAENGER, M. *Vascular and Cardiac Stimulants in Bronchial Catarrh.*
11. *SCHLESINGER, H. *Tuberculosis of the Pylorus and Stomach Wall.*
12. DESSAUER, F. *The Introduction of the Gamma-ray of Radium into Roentgen Tubes.*
13. DOLDI, A. *Simple Pessary for Prolapse of the Uterus.*
14. METZ, C. *An Ocular Counting Chamber.*
15. MILLER, J. W. *Medical News from Bahia.*

2. Recent studies have shown that tuberculosis in guinea-pigs, after ten days from infection, can be diagnosed by tuberculin tests. Each has made comparative experiments with the cutaneous and intracutaneous injections of tuberculin for the purpose of determining which of these methods is of greater merit. According to his results, the intracutaneous reaction occurs more characteristically and earlier than the cutaneous reaction, and therefore this test is the more satisfactory for obtaining an early positive reaction in the first stages of the experimental disease.

11. Schlesinger states that tuberculosis of the stomach is not an extremely rare disease, but is difficult to recognize. Four types of lesion have been reported: 1. Tubercular ulcer at the pylorus. 2. Hypertrophic changes at the pylorus without ulceration. 3. Sclerotic and chronic inflammatory processes at the pylorus due to tubercle bacilli. 4. Tubercular adenitis around the pylorus with perigastric adhesions.

Clinical symptoms in any of these types of the disease are not characteristic; gastric lavage does not show constant findings; the x-ray picture is not typical; and a local tuberculin reaction is dangerous to attempt on account of the possibility of a resultant perforation. Hence the diagnosis, clinically, is usually overlooked.

Schlesinger reports a case which came to autopsy and which showed a localized tubercular abscess starting in the submucosa of the pylorus, and draining by perforation into the stomach and duodenum. Tubercles were found in the muscularis and serosa around the cavity.

A somewhat similar case has been reported by Mathieu-Rémond. Hence Schlesinger believes in pathological classification of tuberculosis of the stomach, a fifth type must be recognized, consisting of a circular tubercular abscess in the submucosa of the pylorus wall. [R. F.]

No. 19. MAY 12, 1914.

1. MAYER, A., AND SCHNEIDER, E. *Disturbances of Ovarian Function in Myoma of the Uterus, and Other Disputed Questions in Myoma.*
2. BERG. *The Storage of Albumin in the Liver after Feeding Albumin and Its End-Products.*
3. KLEE, P. *The Shape of the Stomach in Increased Vagus or Sympathetic Tonus.*
4. LUNCKENBEIN. *The Treatment of Malignant Tumors by Tumor Extracts.*
5. *BREUNING, F. *Paratyphoid Fever among the Children of Munich.*
6. KERN, H. *An Institutional Epidemic of Infantile Paralysis.*
7. CRONE, E. *Barium Sulphate as a Vehicle for the X-ray Diagnosis of Gastro-intestinal Disease.*
8. ROSENTHAL, J. *Deep Ray Treatment.*
9. VOGT, E. *The Treatment of Adiposity with Leptynol. (Preliminary communication.)*
10. WENZEL. *A Case of Marked Ankylosis of the Vertebral Column.*
11. *SCHEIDEMANDEL, E. A. *Transportable Bacteriological Thermostat.*
12. SPITZY, H. *A Blood-pressure Machine for Rendering the Extremities Anemic.*
13. *Krecke's New Sanatorium at Neuwittelsbach.*
14. FISCHER, A. *Franz Anton Mai, the Author of the First Public Health Law.*

5. During the past year, Breuning has collected eleven cases of paratyphoid infection out of 326 babies suffering from various types of gastro-enteric disease. The diagnosis was made by blood or stool culture or by agglutination tests.

Breuning recognizes clinically two types of paratyphoid fever. The first and less severe type resembles typhoid. The second type has symptoms of hemorrhagic enteritis. It is characterized by a weak, rapid pulse, and by profuse diarrhea with mucous stools of foul odor. Its etiology is not explained, though Breuning believes that infected milk may play a part.

These observations are reported for the practical purpose of emphasizing the importance of bacteriological studies in the feverish diarrheas of infants. By such studies Breuning considers that important factors may be discovered in the production of intestinal diseases.

11. Scheidemandel has devised a portable thermostat for the incubation of blood cultures and other bacteriological investigations made in private practice. The instrument consists essentially of a wide-necked thermos cylinder containing a rack for test tubes and agar plates. It is simple and affords a means for making blood cultures at the bedside, and for avoiding the customary exposure of the infected media to heat or cold or sunlight which is usually obtained between the time that the culture is taken and incubated in the laboratory. [R. F.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 14. APRIL 6, 1914.

1. JESS, A. *Headache and Eyes.*
2. HEIMANN, E. A. *Further Experiences in the Association of Strabismus and Frontal Headache.*
3. KATZENSTEIN, M. *Bone and Periosteum Transplantation, Together with a Method for Treating Rigid Flat-foot.*
4. *D'AGATA, G. *Rectal Feeding after Operations on the Mouth and Pharynx.*
5. *STANGE, W. *On Prognosis after a General Anesthetic.*
6. JULIUSBURGER, O. *Dial-Ciba, a New Sedative and Hypnotic.*

4. d'Agata, having in mind the frequency and danger of inhalation pneumonia after operations of this sort, has carried out metabolism experiments on two patients who were fed by rectum for ten to twelve days after operation. These investigations, which were exhaustive, prove that a patient can perfectly well subsist for this length of time after operation on nothing but nutrient enemata. He advises this measure, and in addition mentions favorably their technic following operations, which is to have the patient sitting up for twenty-four hours after operation, and then to allow him to get up, out of bed.

5. Stange suggests, as a test of the cardiac muscle before operation, investigation of the length of time a patient can hold his breath without discomfort. He has the patient, sitting up in a chair, take one deep breath and hold it as long as he can. In a series of

cases he finds that a normal person can easily do so for 30 seconds, that those with lung conditions and moderate mitral disease vary between 20 and 30 seconds, and those with severe heart lesions are under 20 seconds. As definite examples of the last group he gives,—

Insufficiency of aortic valve .....15 seconds
Chronic myocarditis .....17 seconds
Large aneurysm of aortic arch .....10 seconds

In view of the above he considers that a general anesthetic is contraindicated if a patient cannot hold his breath 20 seconds, and that if it is absolutely necessary to use one, ether is infinitely safer than chloroform. [R. H. M.]

Archiv für Klinische Chirurgie.

Vol. 103. Part 3.

21. *Hausmann, T. *The Localization of Abdominal Tumors by Means of Topographical "Sliding" and Deep Palpation.*
22. *Heimann, F., and Fritsch, K. *The Early Diagnosis of Carcinoma by Abderhalden's Ferment Reaction.*
23. Bernstein, P. *The Predisposition to Hernia as Found in the Fetus and Infant.*
24. Frischberg, D. *Injury and Traumatic Aneurysm of the Superior and Inferior Gluteal Arteries.*
25. Kelling, G. *The Mechanics of Lateral Anastomosis in the Gastro-intestinal Tract.*
26. Brind, Z. *A Case of Gigantism with Atrophy of the Sexual Organs.*
27. Mayer, L., and Wehner, E. *A New Attempt to Ascertain the Value of the Various Components of Bone Tissue in the Regeneration and Transplantation of Bone.*
28. Blenkle, E. *A New Case of Myositis Ossificans Progressiva.*
29. Sasse, F. *Treatment of Diffuse Purulent Peritonitis Following Appendicitis.*
30. Meyer, A. W. *Wound Infection in War. Experiences in the Balkan Wars of 1912 and 1913.*
31. Harzbecker, O. *Metastatic Necrosis of the Ribs.*
32. Delfino, E. A. *Hypertrophic Cecal Tuberculosis.*
33. Blum, U. *Injection of Collargol into the Kidney Pelvis.*

21. Hausmann describes again his method of mapping out tumors, abnormalities and exudates within the peritoneal cavity by means of his "Gliding and Deep Palpation." He illustrates the article by diagrams showing his findings, and the case histories, operative results or autopsy findings for comparison. He believes that this method will give more reliable information than will radiography, in cases where the two methods disagree, and that the surgeon will be aided very greatly by his ability to use it. "The method," Hausmann says, "is to former methods of palpation as a modern chronometer is to an old sun dial."

22. Heimann and Fritsch applied Abderhalden's carcinoma test in 34 cases. In the great majority of cases the test proved its reliability, the reaction being especially strong when carcinomatous tissue from the same organ as the one suspected of malignancy was used. In two cases the test differed radically from the clinical diagnosis, and in both its correctness was proved later. In every case giving a positive test, cancer was found. [G. G. S.]

Deutsches Archiv für Klinische Medizin.

Band 113. Heft 5 and 6. March, 1914.

1. Schutz, H. *Case of Multiple Myeloma with Bence-Jones Albuminuria and Metastases in the Right Tonsil.*
2. Huhle, G. *Lymphocytoses and Its Diagnostic Significance.*
3. Schrumpf, P. *Blood-pressure Study and Investigations with the Energometer in High Altitudes with Cardiac and Circulatory Disturbances.*
4. Veiel, E., and Kapff, W. *Studies on the Venous Pulse.*
5. Asayama, T. *Aphasia with the Japanese.*
6. Fischer, F. *Production of Meat Intoxication with the Eck Fistula in the Dog.*
7. v. Hoesslen, H. *Observations on the Influence of the Vagus upon the Human Heart.*
8. *Brieg, H. J., and Jakobsen, B. *Blood-sugar Observations in Normal and a Few Pathological Conditions.*
9. Josefson, A. *Dentition and Hair Development under the Influence of Internal Secretions.*
10. Wentges, *Pharmacodynamic Test of the Vegetative Nervous System.*

8. With the Bang method for studying the sugar content in the blood these authors, working at Copenhagen, have studied a series of normal individuals and some pathological conditions, such as nephritis, diabetes mellitus and a few other cases. They conclude that the normal sugar content of the blood is 0.1 when determined by this method. Their variations ranged from 0.06 to 0.12. Usually in healthy people after a test meal containing 100 grams of sugar there is a variable increase in the sugar content of the blood in different people. The same also occurs after ordinary meals. In nephritis there is usually hyperglycemia, which is not dependent upon increase of blood-pressure, but upon other complications. In cases of gastric diseases, hyperthyroidism and neurasthenia no hyperglycemia was found. In pancreatic disease a hyperglycemia existed. In hyperglobulae there was an increase of blood sugar, due to the increased amount of reducing substance in the blood corpuscles. In diabetes the blood sugar was increased in fasting conditions as well as after mealtimes. Glycosuria may occur, however, without increased sugar in the blood, due to renal factors. The estimation of blood sugar is of good diagnostic and prognostic value. [C. F., Jr.]

Revue de Médecine.

March, 1914.

1. *Marañon, G. *Hyperchlorhydria and Hyperthyroidism.*
2. Mollard, J., and Dumas, A. *"Gallop Rhythm" in the Course of and During Convalescence from Typhoid Fever.*

1. Marañon shows a striking relationship between hypersecretion of the stomach and hyperthyroidism. This relationship does not seem to hold in the advanced cases of Basedow's diseases. In the latter, because of prostration and asthenia, a decrease or absence of acidity is the rule. When hypersecretion is associated with the signs of increased thyroid activity it yields not to direct gastric treatment, but to that which brings relief to the over-excited thyroid gland. This is accomplished spontaneously, by the use of organic anti-thyroid substances or by extirpation of the gland. This as a matter of proof is considerable. In addition one must add the frequent association of these two conditions. Finally, hyperchlorhydria, like hyperthyroidism, may be provoked by artificial intoxication with organic extracts. [L. H. S.]

Revue de Chirurgie.

March, 1914.

1. Guibé, M. *Cholecystitides with Apparent Integrity of the Biliary Passages.*

2. *BALTHAZARD, V. *A Case of Traumatic Spondylosis with Autopsy.*
3. WELSCH, H. *Pathogenesis of Retrograde Strangulation of the Intestine in W-Hernia.*
4. POTEL, G. *Essay on Congenital Malformations of the Limbs. Their Pathogenic Classification.* (*To be continued.*)
5. HARDOWIN, P. *Clinical and Experimental Study on Traumatic Backward Dislocations of the Knee.* (*To be continued.*)

2. Under the name of "Kümmel's disease," Balthazard reports a case of fracture with ankylosis of the ninth, tenth and eleventh thoracic vertebrae. [R. M. G.]

BULLETTINO DELLE SCIENZE MEDICHE.

JANUARY, 1914.

1. POPPI, G. *The Bologna Infant Asylum in the Decennium* 1901-1911.
2. *GAMBERINI, C., AND MASSI, W. *The Abderhalden Reaction.*

2. In a preliminary note, the authors compare the reaction of Abderhalden with that of Rosenthal, which is biologically similar, and is based on the inhibition of the trypsin digestion of casein by the action of special substances in the serum of pregnant women. [R. M. G.]

FEBRUARY, 1914.

1. *GHILLINI, C. *Fractures of the Pelvis.*
2. CAVINA, G. *The Treatment of Idiopathic Dilatation of the Esophagus.*

1. On the basis of the medico-legal evidence in a fatal case of fracture of the pelvis Ghillini makes an extensive study of this condition. In his case there was failure of union, complete permanent disability, traumatic psychoneurosis, and pellagra as the ultimate cause of death. [R. M. G.]

MARCH, 1914.

1. *BERETTA, A. *The Anatomic Conditions of the Teeth with Respect to the Origin of Caries.*
2. *PALMIERI, G. G., AND RIVETTA, C. *Some Muscular Variations Observed in the Same Individual.*
3. *ZANETTI, G. *Iodobenzoic Solution.*
4. MAGNI, E. *Exploratory Laparotomy is Imperative in Every Case of Gunshot Wounds with Various Projectiles in Regions Bordering on the Abdominal Cavity.*
5. MAGNI, E. *Can Prostatectomy be an Emergency Operation?*

1. This study of the dental enamel is a contribution to the etiology and pathogenesis of dental caries.
2. The authors report, in a single anatomic subject from the dissecting room, interesting variations in the infraspinatus, triceps, pectoralis major and minor, subscapularis, coraco-brachialis, extensor communis digitorum, and extensor proprius minimi digiti muscles.
3. Zanetti describes a new type of iodine solution made by Grossich's method. [R. M. G.]

IL POLICLINICO.

JANUARY, 1914.

MEDICAL SECTION.

1. CIUFFINI, P. *A Clinico-Pathologic Contribution to the Study of Luetic Meningomyelitis.*
2. PHILIPPSON, L. *Observations on the Wassermann Reaction in Syphilis.*
3. SISTO, P. *Studies on Progressive Pernicious Anemia.*

SURGICAL SECTION.

1. CHIAROLANZA, R. *Antonio d'Antona.*
2. UFFREDUZZI, Q. *Contributions to the Experimental Surgery of the Organs of the Mediastinum, Exclusive of the Heart.*
3. *PIGNATTI, A. *Deferential Implants.* (*Conclusion.*)
4. SERAFINI, G. *Considerations on an Attempt at Semiarticular Homo-Necro-Transplantation of the Proximal Part of the Humerus Made in a Case of Resection of the Upper Extremity of the Humerus for Sarcoma.*
5. BARTOLOTTA, E. *Endothelioma of the Sheath of the Optic Nerve. Resection of the Nerve with Conservation of the Eyeball.*
6. SEGRÈ, M. *Does Osmic Acid Really Excite Osteogenetic Activity?*
7. CAMERA, W. *Clinical and Histologic Contribution to the Study of Osteofibroma of the Maxilla.*

3. As a result of his experiments, Pignatti believes he has demonstrated that it is possible to restore the continuity of the interrupted vas with vasal segments, whether arterial or venous, also with segments of vas from the same animal, or of tube from the same species. Invagination of the vas into the transplant assures the best result, though there may be some stenosis of the lumen. [R. M. G.]

Miscellany.

REORGANIZATION OF THE STATE BOARD OF HEALTH.

IN last week's issue of the JOURNAL we published a communication from Dr. A. K. Stone relative to the proposed reorganization of the Massachusetts State Board of Health. The following letter to the daily press by Dr. George W. Gay on the same subject seems to deserve republication as a valuable contribution to the discussion of this important question:—

"If the State Board of Health is ever to be reorganized, the present conditions offer a peculiarly favorable opportunity for carrying out the necessary plans.

"1. After thirty-three years of exceptionally efficient and valuable service, Dr. Walcott retires. He has achieved an international reputation as a wise and practical sanitarian.

"2. We have an executive who is thoroughly in sympathy with the best ideals pertaining to public health. Instead of rushing blindly forward in his efforts at reform, he calls to his aid experts who have the confidence of the scientific world and defers to their judgment in all pertinent matters. This is the true spirit. It merits the support of the public.

"3. Public health occupies a position of importance today never before attained in this country. Only men of the highest qualifications, similar to those of the retiring chairman, are capable of directing them successfully. While the board has done excellent work in the past,

considering the limitations imposed by the state, in the opinion of many reliable authorities the time has come by reason of the growth of the work and the demands of the public for a change in the organization of the board.

"4. As this is an age of individual responsibility, a board with one head and a cabinet or council would seem to be the best plan. The health commissioner should give his entire time to the work. The salary should be sufficient to command first-class talent. There should be no politics in the appointments.

"5. Dr. Walcott should have received a salary for his services. The physicians in this state do too much work for nothing. Why should they be required to serve the state for nothing, in positions as important as the chairmanship of the Board of Health? The citizens of Massachusetts are not mendicants. Hence a paid Board of Health is a step in the right direction.

"It by no means follows that all of the unpaid boards of our charitable institutions should be replaced by paid supervision. Many of the present boards are doing satisfactory work at a reasonable expense to the state. There would seem to be no good reason for a change under those circumstances.

"The two principal essentials of efficient and satisfactory management of the charitable institutions of this state are, first, a harmonious board of trustees, and, second, the right sort of a superintendent. Without the latter, the best results are impossible. With the right kind of a superintendent fairly good work may be accomplished even under a wrangling board of trustees. The trustees are responsible for the efficiency of the superintendent, the governor and council for the trustees.

"Political appointments, here as elsewhere, are liable to result unsatisfactorily. Paid trustees will do no better work than the unpaid. This is largely a personal equation. No one should be required to give all, or even a large proportion of his time to the state for nothing.

"With the right kind of a superintendent many of our unpaid boards do not need to give an unreasonable amount of time to their duties. Plenty of public-spirited, broad-gauged persons with no axes to grind are available for service on the unpaid boards. In the opinion of most of the disinterested authorities the character of their service leaves little to be desired either in efficiency or in expense. For these reasons it would seem wise to leave most of the unpaid boards alone. The State Board of Health is an exception to the rule."

AMERICAN DOCTOR STUDIES TYPHUS.

An American doctor, Clarence D. Ussher, has received hearty and public thanks from the vali of the Turkish vilayet of Van for his "humane zeal and care for the sick" in the recent epidemic of typhus among the Turkish soldiers quartered in the city of Van.

Van, the city, is the center of the Turkish provinces of the same name, in the northeastern corner of Asiatic Turkey. On its eastern border the vilayet joins Persia, while on the north it is very near the Russian Caucasus. The city is on the shore of Lake Van, a large sheet of water whose surface is 5500 feet above tide level. The city is said to have been built by Semiramis, and strange and interesting inscriptions and carvings are found in and about it.

Since the American Board of Foreign Missions began work there the mission has been through war, famine, pestilence and massacre, and the epidemic of last winter will take its place in the history of calamities which Americans have helped the people to fight.

The Turkish military authorities were not insistent on cleanliness and sanitation, and after the epidemic started it made rapid headway so that over 2500 soldiers are known to have died of the disease. Dr. Ussher was active wherever he was permitted to serve, but had not access to the barracks or to the military hospital. In the Board's hospital, however, and in going about among the sick in the camp and in the city he made careful study of the disease, and says:—

"We have proved very conclusively in our hospital that the only means of infection is vermin. Our nurses have been thoroughly exposed to every form of contagion from the breath, desquamation, discharges, constant association day and night, and all this in an over-tired condition, and not one of them contracted the disease. The typhus patients have been put in the same ward with surgical, pneumonia, dysentery, and even confinement cases, and not a single patient has become infected in the hospital.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FROM MAY 4 TO MAY 23, 1914.

May 2. Asst. Surgeon N. R. Sullivan, detached, Canacao Hospital to *Villalobos*.

May 4. Medical Inspector N. J. Blackwood, Commissioned from September 29, 1913.

Asst. Surgeon M. H. Stenhouse, M.R.C., Commissioned April 4, 1914.

Asst. Surgeon W. A. Stoop, M.R.C., Commissioned April 4, 1914.

May 6. Medical Director T. A. Berryhill, detached, Navy Yard, New York, to Naval Hospital, Great Lakes, Ill.

Surgeon C. M. DeValin, to Navy Yard Station, Portsmouth, Va.

P. A. Surgeon R. E. Stoops, detached, Marine detachment, Pensacola, Fla., to *New Jersey*.

Asst. Surgeon J. W. Boyce, M.R.C., resignation accepted May 14, 1914.

May 7, P. A. Surgeon L. M. Schmidt, detached, *New Jersey* to *Louisiana*.

May 8, P. A. Surgeon W. H. Halsey, detached, Naval Medical School, Washington, D. C., to *Montana*.

May 8, Surgeon C. St. J. Butler, detached Medical Supply Depot, to home and wait orders.

P. A. Surgeon A. E. Lee, detached, Marine Detachment, Peking, China, to *Galveston*.

P. A. Surgeon M. A. Stuart, detached, *Galveston* to Marine Detachment, Peking, China.

Asst. Surgeon W. E. Bradbury, M.R.C., Naval Hospital, Philadelphia, Pa.

May 11, Asst. Surgeon L. L. Pratt, to Philadelphia, Hospital.

Asst. Surgeon J. G. Omelvena, to Newport Hospital.

Asst. Surgeon J. V. Howard, to Mare Island Hospital.

Asst. Surgeon H. M. Stenhouse, M.R.C., to Las Animas Hospital.

May 14, Surgeon J. S. Taylor, detached, Naval Training Station, Great Lakes, Ill., to *Illinois*.

May 15, P. A. Surgeon R. W. DeDowell, to *Ozark*.

P. A. Surgeon J. B. Kaufman, from *Ozark* to Great Lakes Training Station.

May 16, Surgeon Lewis Morris, detached, Fleet Surgeon, Asiatic Fleet, to treatment civil hospital, Shanghia, China.

Asst. Surgeon N. R. Sullivan, detached, *Villalobos* to treatment Civil Hospital, Honkow, China.

May 19, P. A. Surgeon W. B. Owens, detached, Marine Detachment, Managua, Nicaragua, to *Talahassee*.

May 22, Act. Asst. Surgeon C. K. Miller, revocation of appointment as Act. Asst. Surgeon to take effect May 22, 1914.

May 25, Surgeon F. L. Benton, detached Receiving Ship, Navy Yard, Norfolk, Va., to Marine detachment, Pensacola, Fla.

P. A. Surgeon W. H. Connor, detached Naval Hospital, Boston, Mass., to *Isle De Luzon*.

P. A. Surgeon J. B. Mears, to Naval Training Station, St. Helena, Va.

Asst. Surgeon F. H. Bowman, M.R.C., to Naval Hospital, Boston, Mass.

SOCIETY NOTICES.

THE AMERICAN GASTRO ENTEROLOGICAL ASSOCIATION.—The seventeenth annual meeting of the American Gastro-Enterological Association will be held at Hotel Chalfonte, Atlantic City, N. J., on Monday and Tuesday, June 22 and 23.

FRANKLIN W. WHITE, M.D., *Secretary*.

THE PSYCHOPATHIC HOSPITAL.

74 Fenwood Road, Boston.

THE SECOND ANNUAL CONFERENCE on the Medical and Social Work of the Psychopathic Department of the Boston State Hospital will be held in the Assembly Room, four to six p.m., Friday, June 26, 1914, under the auspices of the Trustees of the Boston State Hospital. (Brookline or South Huntington Avenue cars: alight at Fenwood Road.)

PROGRAM.

I. Introductory Remarks. Dr. Walter Channing, Chairman Board of Trustees, Boston State Hospital.

II. The Prophylactic Functions of the Psychopathic Hospital, with Special Reference to Admissions of the "Not-Insane." E. E. Southard, Director.

III. The After-Care Program and Results of the Psychopathic Hospital, Boston. A. Warren Stearns, First Assistant Physician, in charge of out-patients.

IV. Further Notes on the Economic Side of Psychopathic Social Service. Mary C. Jarrett, Director Social Service.

V. High-grade Mental Defectives in a Group of Adolescents Studied at the Psychopathic Hospital. Thomas H. Haines, First Assistant Physician.

VI. Genetic Factors in One Hundred Cases of Psychoneurosis (Out-Patient Department). Donald Gregg, Assistant Physician, Out-Patient Department.

VII. A New Point Scale for Measuring Mental Capacities. Robert M. Yerkes, Psychologist.

VIII. Experience with the Martin Electric Threshold Test in Psychopathic Cases. G. P. Grabfield, Interne.

IX. Experience with the Lange Colloidal Gold Test in Various Cerebrospinal Fluids. H. C. Solomon, Interne.

X. Cases to Illustrate Symptomatic Psychoses of Cardiorenal Type. Frankwood E. Williams, Assistant Physician.

XI. On the Margin of Error in Psychopathic Hospital Diagnoses. A. Warren Stearns and E. E. Southard.

XII. Points Concerning Salvarsan Therapy. H. M. Adler, Chief-of-Staff.

(For convenience of social workers and physicians, the more social papers have been placed early and the more medical papers late on the program.)

RECENT DEATHS.

DR. L. M. BAKER, who died of cardio-renal disease on May 27 at Lynn, Mass., was born in 1869. He received the degree of M.D. from Boston University in 1894, and since that time had practised his profession in Lynn. He is survived by his widow and by one son.

DR. EMIL GRUENING, of New York, died from cerebral endarteritis on May 30. Dr. Gruening was born in Hohelsalza, Prussia, in 1843, and came to this country in 1862. He was in active service with the Seventh Regiment, New Jersey Volunteers, during a considerable portion of the Civil War, and in 1867 was graduated from the College of Physicians and Surgeons, New York. He practised in New York, and became distinguished as an eye and ear specialist. Among the positions which he held were, surgeon to the New York Eye and Ear Infirmary, consulting ophthalmic surgeon to the German Hospital and Dispensary, and consulting ophthalmic and aural surgeon to Mount Sinai Hospital and the New York Infirmary for Women and Children. Dr. Gruening had the high honor of being elected president of both the American Ophthalmological Society and the American Otological Society.

DR. ARTHUR W. SWANN, who died in New York recently, was born at Chattanooga, Tenn., in 1880. He graduated from Harvard in 1903 and from the New York College of Physicians and Surgeons in 1907. Since 1909 he had been an instructor at the latter college and assistant physician at the Presbyterian Hospital. He is survived by his widow and by two children.

AMOS LAURENCE MASON, M.D., a Fellow of the Massachusetts Medical Society, died at Albany, N.Y., June 5, 1914, aged 72 years. He was a graduate of Harvard College in the Class of 1863, was in the Harvard Law School 1863-1864, and graduated from the Medical School in 1872. He was house physician to the Massachusetts General Hospital from 1871-1872; Boston Dispensary and Carney Hospital, 1874-1878; visiting physician Boston City Hospital, 1878-1903.

Original Articles.

A POSSIBLE FACTOR IN THE PRODUCTION AND DISTRIBUTION OF EDEMA.*

By Frederick C. Shattuck, M.D., Boston.

Is there one among us who has not been struck, if not puzzled, by the curious distribution of edema, especially in cases obviously of mechanical obstruction to the circulation? We see, for instance, two cases of mitral disease with failure of the myocardial compensation. The physical signs and symptoms taken altogether indicate lesions similar in kind, as well as degree, and also an approximately equal myocardial weakness. The parallelism between the two cases may be accentuated by an equal rapidity and degree of improvement under, for all practical purposes, identical treatment. The sequence of events is mechanically impeded circulation, dilatation of the right heart annulling compensatory hypertrophy, over-plus of blood in the venous system, stasis, dropsy. A difference in the degree of the dropsy in the two cases may be readily accounted for by differences in the lesion, valvular, myocardial, or both, which elude any means now in our powers to estimate. But it would seem that the distribution of the edema should be essentially the same. It is, however, notoriously not so. In one case we see dropsy chiefly or only in dependent parts, especially the legs; in another the great serous sacs are markedly involved with a varying degree of stasis in the lungs, liver and kidneys and little or no anasarca; in still another stasis shows itself mainly in an enlarged liver; in short, seemingly similar mechanical conditions show results which vary far more widely than one would, off-hand, expect.

Long ago a possible, at least partial, explanation occurred to me. I have not seen it in print or heard it suggested, and venture to lay it before you, keenly realizing its hypothetical nature, and how far removed it seems, at present, from direct evidence. The Bertillon system shows that by a sufficient number of accurate measurements any person can be distinguished from every other person. Even more remarkable proof of the individuality of the individual is afforded by the fact that no two persons have the same finger prints. Is it not at least possible that analogous variations may exist in the texture of the tissues, of the organs, in the blood, or one or another of its constituents, which may be a factor in the distribution of edema?

In the urticarias, perhaps especially the giant form, and in angio-neurotic edemas, a nervous element must play an important part: but it would seem possible that individual peculiarity of tissue may play a part in the localization of the striking superficial changes.

* Read before the Association of American Physicians, Atlantic City, May 12, 1914.

ON THE SIMULTANEOUS OCCURRENCE AND INTERRELATION OF BASEDOW'S DISEASE AND TABES.

By Hans Barkan, M.D., San Francisco, Cal.,

Formerly Instructor in Pathology, Harvard Medical School; Assistant in Ophthalmology, Stanford University Medical School.

[From the II Eye Clinic, Prof. Fuchs, Vienna.]

Pierre Marie in 1892 was the first to call attention to the simultaneous appearance and possible interdependence of the symptoms of Basedow's disease with those of incipient or already well developed tabes. In a clinical lecture on the vascular apparatus, as affected by tabes, he says, "les lésions et ces troubles sont multiples et peuvent frapper de façons diverses le coeur et les vaisseaux. En connextion avec ces troubles vasculaires j'aurai l'occasion de vous parler d'une complication signalée tout récemment: le goître exophthalmique." Since Marie's remark on the subject very little has been written about it. Sattler in "Die Basedow'sche Krankheit" issued as a part of Graefe-Sämisch's "Handbuch der Augenheilkunde" mentions and gives a short abstract of the cases reported: by Joffray, 3; Barie, 1; Sechchieri, 3; P. Marie and Marinesco, 1; Ingelhans, 1; Moebius, 1; Lewinek, 1; Timotheef and Mannheim, 2; Kollait, 1; Hudovering, 1; Charcot, 1; Delearde, 1; Wiener, 1; Cohen, 3; Bernhardt, 1. Oppenheim, Eppinger, Strümpell and von Mehring refer to the condition in a few words. In view of the small number of reported cases and the scarcity of literature on the subject, I shall review the salient points as found in a study of the reported cases and literature. Oppenheim in his "Lehrbuch der Nervenheilkunde" raises several interesting points as regards tabes, from the standpoint of the observer also interested in Basedow,—that in tabes epiphora, without local disease of the tear-conducting passages, or tic-like winking of the upper lid, or hyper-esthesia in the neighborhood of the eye, may be found as part of a fifth nerve lesion. These conditions are also not infrequent ones in Basedow's disease. Interesting for the same reasons are the following remarks: "To be especially regarded in early tabes are a number of symptoms displayed as the effect of lesions in the territory of the vago-accessorius. Chief of these is the habitual frequency of pulse, which in not an inconsiderable number of cases may be found early in the disease." In tabes also there may exist, as Oppenheim points out, signs and symptoms directly referable to diabetes mellitus, so that one may be led to the diagnosis of tabes with diabetes, of diabetes with tabes, or finally admit the two to be coexistent, if not dependent

upon each other in these cases. Westphal's sign, paresthesias, lancinating pains, paralysis of ocular muscles, loosening and shedding of teeth, impotence, may be found in diabetes. Williams and Marinesco have in a few rare cases of clinically well marked diabetes even found typical atrophy of the posterior columns. Addison's disease may also show a few symptoms usually associated with tabes, such as Westphal's sign; in one case Bernardi showed a degeneration of the posterior columns. Of tabetic symptoms, which are often among those of the sufferer from Basedow's disease, Oppenheim mentions psychic anomalies, disturbances of general nutrition, motor-weakness, tremor, discoloration of the skin, and diarrhea. The occurrence of Basedow's disease at the same time and as a possible result of other diseases, has been noted a number of times. Walzberg reported a sarcoma of the cranial floor with optic neuritis and Basedow, Oppenheim a hemorrhagic destruction of the posterior inner capsule, with hemi-anesthesia and hemi-ataxia in a woman of 42, who had had Basedow's disease for half a year; the same author also a case of hemi-anesthesia and hemi-ataxia caused by hemorrhagic destruction of the posterior inner capsule, showing shortly after this symptom of Basedow's disease; Joffray and Ashard a combination of Basedow's disease and syringomyelia, as also did Spillman; Moebius and Gordon cases of Basedow's disease with paralysis agitans; Savage, one combined with progressive paralysis; Reynolds a case of disseminated sclerosis and Basedow; Ziegel, Graves' disease combined with scleroderma and a positive Wassermann reaction.

The symptoms of Basedow's disease followed in the train of the symptoms of the others mentioned in all but one of these cases, and in such fashion that the authors suggest the other disease to have acted in some way as the "Auslösendes Moment." Its occurrence immediately after or during the course of hysteria and various psychoses, of which are to be especially mentioned the melancho-manic type, dementia precox, and halluciuatory paranoia, is a not uncommon occurrence.

Finally a direct if short statement is made as regards its occurrence coincident with tabes: "Most frequently we find tabes combined with hysteria, occasionally with epilepsy, seldom with myasthenic paralysis and diabetes; very seldom indeed with Basedow's disease." Sattler expresses himself as follows regarding the combined picture of tabes and Basedow's disease: "The coexistence of Basedow's disease and tabes appears on the whole to be very infrequent. There exist, however, a number of cases where the coincidence of these diseases has been surely established. If the characteristic symptoms of both are well developed the diagnosis offers no difficulty. On the other hand, if only a few signs of the one or of both exist, it is questionable as to how far one may go in assuming the combination of Basedow's disease and tabes to be present; for we know that in exceptional instances a transient absence of the patellar reflex may occur in Basedow's disease as well as parapareses almost simulating ataxie, with paresthesias of various kinds, and that on the other hand, as Charcot has pointed out, tabetics not infrequently show habitual tachycardia, and that often in the early stages of their disease, as also states of anxiety with tachycardia and arrhythmia of almost the character of an angina pectoris. Again quoting P. Marie in his original lecture on the subject, "Donc fréquence dans le tabes d'un des symptomes cardinaux du goitre exophthalmique, la tachicardie."

Bernhard Sachs in Osler's System, volume on "Disease of the Central Nervous System," does not mention the disease picture, nor does the picture as such receive recognition or even mention in other text-books except those of Oppenheim, von Mehring, Lewandovsky and Sattler, already quoted. Yet, as P. Marie says at the close of this lecture, illustrated by clinical cases: "Cette coincidence de la maladie de Basedow et du tabes est-elle donc un fait extrement rare? Eh bien non, Messieurs!"

Judged by the history and physical findings of the following cases, I believe P. Marie's opinion to have been correct, and that the coincidence of these diseases and a possible relationship when they are so coincident, has been somewhat neglected in our literature and teaching.

CASE 1. The patient sent by Professor M. in Krakau, who in 1911 had found a visual acuity of 6/9 with +3 sp. both eyes. Color perception somewhat diminished. The patient admitted having contracted lues 24 years ago, and had been treated thoroughly with mercurial injections. In 1902 he had been given a glass to read with because of an internal ophthalmoplegia. Both papilla had begun to show slight discoloration since 1896. In 1912 bilateral exophthalmus had been noted. His wife had borne one healthy child; had had two abortions.

Physical Examination. Male, 66 years old, presents an unusually emaciated appearance; the thyroid is slightly and uniformly enlarged, soft, no pulsation. Pulse varies between 102-110 a minute. The protruded tongue and extended hands tremble slightly. Marked bilateral exophthalmus. Hertel, 27. Lid margins widely separated, movements of eye in all directions normal, the right eye, however, often turns outward (Moebius). Graefe's sign absent, Stellwag's present. Both pupils enlarged, left more so than right; pupillary reaction to light and convergence completely absent. The right papilla chalky white, the temporal half showing a shallow excavation; this is also the condition of the left papilla. Margins of the disc sharply outlined; vessels unchanged. The right patellar and tendo Achilles reflex present but weak, the left ones absent. Romberg indicated. In the territory of the right ulnar nerve a subjective feeling of "going to sleep"; an area of anesthesia, band-shaped, over the right mammary region. No lancinating pains, no headaches. Wassermann reaction positive. The patient has taken iodides for many years.

Case 2. Marie M., 42 years. The patient complains of an unsteady gait during the last five years, and that this is increasing. She has noticed a diminution in vision since several months; during this time she has also lost a great deal of weight, perspired freely and felt extremely nervous and "jumpy"; she has noticed her exophthalmus since one month. She also complains of sharp, "tearing pains" in her leg. Of tabetic signs shows unequal and dilated pupils R-L. No reaction to light, convergence reaction unimpaired. Both optic discs are quite gray, temporally, of a slightly yellow gray color in their nasal halves. Disc margins clear cut, retinal vessels normal. Both patellar and tendo Achilles reflexes absent. Romberg marked. The walk is of a markedly ataxic character. No paresthesias. Wassermann positive; marked bilateral exophthalmus. Hertel, 28. Von Graefe's and Dalrymple's sign present. Pulse varies between 115-120; marked tremor of extended hands and tongue; thyroid gland easily palpable, no pulsation. Vision both eyes, 6/24. The visual fields show marked concentric narrowing, especially for red.

Case 3. Alfred M., 52 years. The patient admits lues 15 years ago, states that he was treated at that time with repeated mercurial inunctions. He presents a mixed picture of tabes and Basedow, the signs and symptoms of the latter causing him to consult the clinic; tall, thin, extremely nervous, quick and abrupt in movement, with a roving, unsteady glance. Marked exophthalmus. Hertel, 28. Moebius, Graefe, Dalrymple evident; marked fine tremor of extended hands and tongue. Pulse 120. He perspires very easily and has lost a good deal of weight recently. The thyroid is barely palpable, no thrill, no bruit. Both pupils considerably wider than normal, equally so, reacting neither to light nor accommodation. Both patellar and tendo Achilles reflexes absent. Romberg barely indicated. An area of hypalgesia from the 4th to the 13th rib, right side. Belly reflexes somewhat tardy and barely perceptible. Fundus normal. Vision, B. E. 6/6. Wassermann positive.

Case 4. Isidor W., 58 years. Typhoid fever when 15; gonorrhea at 20; luetic infection denied; married, first 2 children still born, then 4 healthy children. For 5-6 years, loss of sensation in ulnar nerve territory of right arm. Later atrophy of thenar eminence, right hand. Exophthalmus for last 10 years. Had lost a good deal of weight up to 1½ years ago, but since then has gained 10 lbs. Perspires easily and freely, is nervous and excitable. Has had urinary retention relieved by catheterization for two years. Sexual ability not impaired. In the last two years he has stumbled and fallen frequently. Has undergone several inunction treatments, about the time and extent of which he is uncertain. Examination shows exophthalmus of marked degree. Hertel, Moebius, Graefe, Stellwag absent. Very marked intention tremor of the hands, tremor of extended tongue. Pulse, 120. No enlargement of thyroid gland. The dorsal surface of both hands show a diminution of sensibility and unequal perception of painful stimuli. Marked atrophy of thenar and antithenar eminences as well as interossei. Both patellar and tendo Achilles reflexes absent. Romberg well marked. Fundus normal. Vision, B. E. 6/6. Pupils contracted, no reaction to light, reaction to convergence present. Wassermann negative.

Case 5. Eduard R., 43 years. The patient presents himself because of failing vision. He shows a right sided ophthalmoplegia externa of marked degree, which had appeared first six years ago, had changed for the better occasionally, but has become markedly worse during the last year. Slight paresis of the facial of the same side. Deep and superficial reflexes normal. No Romberg. Pupillary reaction normal. Vision, B. E. 6/18, not improved by glasses. Fundus, papillae uniformly light gray in color, sharply outlined, retinal vessels unchanged. The field of vision shows a uniformly concentric contraction for white of moderate degree, but of marked degree for all colors. In addition to the above tabetic signs he presents a moderate degree of exophthalmus. Hertel, 24. Dalrymple present. Graefe and Moebius absent; thyroid easily palpable, no pulsation; the extended hands and tongue show a slight tremor. Pulse, 120 to 130 a minute. States that he has felt restless and nervous during the last weeks, has perspired markedly and had constant diarrhea; loss of weight said to have been considerable. He admits having acquired lues 25 years ago. No treatment. Wassermann positive.

Case 6. Albertine Sch., 31 years. The patient presents herself complaining of diplopia. States that she also "saw double" the previous year, lasting 6 weeks. She is found to have a paresis of both superior oblique muscles. The right pupil is constantly somewhat larger than its fellow, and reacts less promptly to light; reaction for convergence normal. The right Achilles reflex cannot be elicited even with Jandrassek's manoeuvre. Patellar reflexes normal. No areas of anesthesia. Romberg absent. The fundus normal; both discs show well marked physiological excavations. In addition to the above signs of a tabes incipiens there are present an enlarged thyroid, a fine tremor of extended hands and tongue, pale moist skin, a pulse of 110 and a moderate degree of exophthalmus. Hertel, 23. Has lost 25 lbs. in the last 4 months, during which period she has also become very irritable and unstable in her emotions, easily excited and worried. During this time she has been treated at a medical clinic in Vienna, taking the following prescription every week: Kalil jodati 5,0, aquae fontanae 200/0. She admits having contracted lues 10 years ago. Wassermann positive.

Case 7. Adele B., 42 years. The patient presents herself because of the exophthalmus. This she has had to a slight degree for two years, accompanied by a decided feeling of general weakness, marked perspiration and tachycardia, these all having increased markedly in the last six months. Of the signs of Basedow's disease, she shows enlargement of the thyroid, without pulsation or bruit, tremor of extended hands and tongue, tachycardia, a pulse of 120 and exophthalmus. Hertel, 27. Von Graefe's and Dalrymple's signs present. Moebius absent. There has been a decided loss in weight; both pupils wider than normal, slight anisokorie, reaction to light absent. Patellar and tendo Achilles reflexes absent. Slight Romberg. No ataxia. Fundus in all details normal. Wassermann positive.

Case 8. Therese M., 16 years. The patient presents herself because of failing sight. Vision found to be B. E. 6/18, not improved by glasses. Examination of her visual field by Bjerrum's method shows

a concentric contraction of the field for red with temporally a U-shaped indentation corresponding to a similar but slighter one for the white field, which was also concentrically narrowed. The fundus showed a well marked primary atrophy of both optic discs. She states that she noticed diplopia lasting a month, six years ago. In the last three to four years she has often vomited green matter, suffering at the time with severe pain in the epigastric region. At present she complains beside the failing sight, of great nervousness, of "feelings of anxiety" accompanied often by profuse perspiration, especially at night. She feels weak and is short of breath; in the last three months has lost 15 lbs. in weight. Examination shows an easily palpable thyroid, no pulsation, a slight degree of exophthalmus. Hertel, 22. The right eye stands in a convergence of 10°, possibly due to the former abducens paralysis, with consequent contracture of the antagonist,—diplopia cannot be elicited now. Graefe, Dalrymple, Moebius, absent. Pulse, 125. Fine tremor of extended hands and tongue. Patellar and tendo Achilles reflexes absent. Pupils normal. Wassermann positive.

Eight cases of this character in the space of three months among the ambulatory of the clinic lead Fuchs to the not unnatural supposition that this condition is more frequent than has been up to now supposed; and as many come to an eye clinic first, partly because of the exophthalmus, partly because of their failing sight, due to tabetic nerve atrophy, partly because of the motor instability which is often felt as a dizziness and referred to the eyes, a good number have no doubt been overlooked.

Careful survey of these histories and physical findings can leave no doubt that all were afflicted at one and the same time with Basedow's disease and tabes. A survey of the literature, scanty as it is, the finding of 8 of these cases within the last three months in one clinic, and granting the very probable supposition that many of these cases exist but are overlooked, neither ophthalmologist nor internist examining Basedow patients with reference to tabes, which, as we have seen, is in nearly all these cases incipient, its symptomatology often masked by the more striking picture of the Basedow component, surely dispels the assumption that when found together, we are facing two absolutely separate and independent affections happening to coincide in time.

In the further discussion of the possible relationship of the symptoms in these cases, I believe it will become clear that we are not dealing with coincidences. Summing up the cases it can be said: All but 1 show a positive Wassermann reaction; all show the cardinal symptoms of tabes; Argyll-Robertson, absence of patellar or tendo Achilles reflex; all but 2 Romberg's sign; 3 cases in addition to the cardinal symptoms primary optic atrophy; 1 case marked ataxia, 2 cases distinct areas of paresthesia, 1 lancinating pains. Six of the 8 admit having had lues. There can be no doubt that we are dealing with 8 tabetics. As a group they present just as typical a picture of Basedow's disease. All show exophthalmus, a pulse varying from 95-120, and fine tremor of extended hands and tongue; a palpable and enlarged thyroid, though to slight degree in all but one; all complain of perspiration, of restlessness and nervousness. All show marked loss of weight. The summing up of these signs and symptoms meets the very justified warning of Von Mehring: "One must beware of the diagnosis of 'secondary Basedow' or 'forme fruste,' if a few of the great number of symptoms of hyperthyroidism are found in connection with paralysis agitans, tabes, certain psychoses, in the course of chronic iodide intoxication, with chlorosis, or during excessive thyroidin treatment." Two of my cases had been taking iodides and it is a question as to whether they belong in the type picture. They are instructive in another regard, however, to be referred to later. There is no case in which any one of the signs here ascribed to Basedow, or the combination of them in any case, could be counted as belonging to the tabes, with the exception of the rapid pulse. This, however, in view of all the other signs and symptoms of Basedow's disease, can be safely reckoned as belonging to this latter.

The "time occurrence" of the two diseases is an aspect of the combination on which Sattler has collected some interesting data. In the cases of Joffray, Barie, Sechchieri, P. Marie, and Marinesco, the two were found coexistent at the first examination of the patient, who could not tell which group of symptoms had commenced first. In a second case of Joffray and in one of Moebius', the symptoms of both appeared at the same time; in Moebius' case lightning pains, diplopia, tremor and tachycardia were all equally marked and had appeared at the same time; Argyll-Robertson, optic atrophy, absence of patellar reflex, Romberg, exophthalmus and struma were found combined at the first examination. In the cases of Lewinek, Timotheef and Mannheim, and in one further case of Joffray the cardinal symptoms of tabes had existed for five years, to be followed by typical Basedow; in one case only was exophthalmus missing. In the further cases of Charcot, Moebius, Deliarde, Wiener, Cohen and Mannheim, Timotheef and Bernhardt, the Basedow antedated the tabes, but it is to be remembered in this connection that the Basedow symptoms are usually first noticed by the patient, incipient tabes being then found on examination.

It is to be noted that in all these cases the specific infection occurred years ago, with the Basedow in all cases years after the infection, appearing in practically all cases shortly before, at the same time with, or shortly after, the symptoms of tabes.

There is not a single case reported, in fact, where the Basedow antedated the specific infection and where in that case tabes-Basedow were found coexistent later, although in several cases struma had existed for years. In my own

cases, Case 1 presented tabetic symptoms antedating the appearance of exophthalmus by 18 years, Case 2 tabetic symptoms antedating those of Basedow by 5 years, Case 3 had suffered from Basedow for 2-3 months previous to examination and at that time presented marked tabetic signs. Without question these have existed for a longer period. Case 4 states having noticed loss of feeling in the distribution of the ulnar nerve 12-15 years ago, exophthalmus since 8 years. Case 5 had had paralysis of the third nerve 6 years ago and had noted symptoms of Basedow in the last few months only. Case 6 had had diplopia a year ago and had noticed exophthalmus with loss of weight since 4 months. Case 7 had noticed the exophthalmus 2 years ago and was found to have objective marks of tabes, whose beginning must certainly be traced as far back as that. Case 8 had well marked optic atrophy, had had diplopia 6 years ago, had had gastric crises 3 years ago; her Basedow symptoms are of only a few months' duration.

These cases form almost a "type picture" and lead to a consideration of the possible relationship existing when the diseases are found in the above manner. Do they exist simply and solely as a chance happening? I think this may be dismissed in view of facts already stated, as extremely improbable. Has one led to the appearance of the other, directly or by an intermediate process? If so, which has favored the development of the other? Have we finally a type of luetic manifestation sui generis?

As to the second question: Curshman has recently reported in two tabetics intermitting symptomatic Basedow occurring with other paroxysmal appearances on the part of the vegetative nervous system, in conjunction with gastric crises and hypertension of blood pressure, the appearance of all the cardinal symptoms of Basedow's disease. V. Malaise has also reported two cases from Marie's clinic. In the opinion of these authors we are dealing with an affection of the sympathetic and have a condition analogous to disturbances of other organs, such as the stomach, depending on disturbed equlibrium of the vegetative nervous system. Curshman believes that we are dealing with a primary tabetic lesion of the cervical sympathetic, which, when it oversteps certain bounds, leads to a swelling and hyper-secretion of the thyroid (in the sense of Abadie, Jannescu and others), which again leads to the thyreotoxic symptom complex of Basedow's disease. Bauer, in a discussion of Curshman's cases speaks of them directly as "thyroid gland crises" appearing as the result of intermittent disturbance of the gland enervation. That the Basedow in these cases in any way favored the appearance of the tabes can be ruled out. None of the cases reported had Basedow extending over many years or appearing occasionally, nor has it ever been proven that any intercurrent disease, acute or chronic, favors the appearance of tabes in a syphilitic, though chronic poisoning, such as with alcohol and nicotine, does seem to act as a factor. While the incident of tuberculous lesions of the lung or lymph-glands is a very high one in the autopsy records on cases of tabes or paralysis (Klippel, Anglade, Calmeil, Seglas, Regis, Goldstein, Marmieres, v. Lucas, Tatusesco and Heilbronner) it seems to me, in consideration of the fact that both tuberculosis and syphilis are so ubiquitous, and that autopsies are more general on tabetics and paralytics as a class, than on any other, most of them dying in state asylums or hospitals, etc., that the coincidence cannot be used in the sense in which Stern attempts to, namely, that there exists a certain bodily habitus peculiar to the majority of tubercular and tabetic patients, and that a coincidence of bodily disposition a priori exists, which renders individuals of this habitus more likely to become tabetics if lues be acquired.

To be considered more seriously in the sense of Stern as expressed by him in "Über körperliche Kennzeichen der Disposition zur Tabes" are his observations on the coincidence of tabes and Basedow's disease.

For the appearance of tabes or general paralysis Stern declares the following triad of factors to be necessary: The "dispositio paralyticans," the luetic infection, and the patho-function of certain glandular organs of internal secretion. He has divided metaluetics into two main groups: that of a tall, rather asthenic type, of weak musculature and sparse hair growth, and into that of a broad-shouldered, muscular, rather hairy individuals. These groups merge into each other in subdivisions: that of the asthenic akromegaloid, the asthenic hairy, the asthenic rhachitic medium height, the muscular broad type, the adipose and muscular adipose type, etc. In these groups he believes to have found certain signs which show that in one group one internal secretory process has suffered derangement of function, or has always over- or underfunctionated, in another group another. For us his remarks anent the disposition to overactivity of the thyroid in one class are of interest. This is the asthenic type; longlegged and of sparely developed secondary sexual characteristics, according to the views of Tandler, Holmgreen and Stern, the result of an overactivity of hypophysis and thyroid gland. Stern believes that this group of tabetics has been subject to a relative hyperthyroidism during years of involution, and as just this group is the one representing the greatest number of tabetics, and as just in this group are mainly found, according to Stern, the combination of tabetic symptoms with those of Basedow, comes to the conclusion that in the development of tabes, as regards this group at least, hyperthyroidism plays a leading rôle.

As opposed to this class, in this regard, stands that of the group of short, muscular, hairy individuals. Here Stern finds no sign or few of hyperthyroidism. In this group fall most of the cases of optic atrophy, cases which in them-

selves are to be differentiated from the asthenic group, in that their tabes is of a relatively mild sort, both as regards subjective symptoms and ataxia. This has also been the course of the cases showing akromegaloid type and tabes, and of this whole class of short, sturdy, hairy individuals, Stern rather believes in a hypophyseal disturbance of function as a leading factor in the development of tabes.

My cases would, according to the hypotheses of Stern then, be explained as tabes developing after a primary luetic infection in individuals suffering from hyperthyroidism. This may not have evidenced itself actively, except in so far as its influence in forming the asthenic group was concerned, until the time of the appearance of tabetic symptoms. In the two of my cases taking iodides, the appearance of hyperthyroidism might then be conceived of as a formerly latent process being activated. Goldflams, Roux, Clark, Pineles, Krehl, have all seen Basedow appear with iodides in tabes incipiens.

In an effort to group my cases according to the formula of Stern, I find that they fall naturally into two divisions; four of them to be classed among the asthenic, four among the broad-shouldered, muscular group. All, however, showed equally the symptoms of hyperthyroidism. It is also true that the three cases of optic atrophy were in the second group. It may not be out of place here to mention that tabetic optic atrophy is found more especially among well developed robust, rather stocky individuals. Four of my cases are women, four men. In the cases collected by Sattler the ratio of women to men stands at about six to one. About 15 women acquire Basedow to one man. This relationship holds in about inverse order as regards tabes. The preponderance of women in the combination of Basedow and tabes might be explained by their greater susceptibility to thyreo-toxic influences, predisposing to development of tabes in a luetic. The total number of cases, however, is too small to permit of any definite conclusions. This can also be said as regards the conclusions drawn by Stern. While his views are interesting, it will need the observation of many more cases before a definite conclusion as regards the importance of his grouping of tabetics can be made, especially as regards the value of them in reference to prognosis and therapeutics.

Two of my cases had been using iodides. Goldflams and others have reported cases of tabes in which Basedow appeared during a course of intensive iodide administration.

One point of clinical importance, therefore, I believe is worth considering in regard to these cases as a group. In tabetic individuals of an asthenic type,—long-legged, tall, meagre, nervous—especially, if they show any mark of hyperthyroidism,—tachycardia, hyperidrosis, glycosuria, dermographism, increased salivary or lachrymal gland secretion, I believe iodides, because of the possibility of Basedow developing in just this class, to be contraindicated.

A definite conclusion as to the course and factors predisposing to the development of the type-picture, cannot, I believe, be made at present. We know that only about 3½% of all syphilities develop the so-called "meta-luetic" lesions. Explanations of this fact differ and none of them and no combination of them entirely cover the ground. Erb's school maintains that spirochetes are of various sorts, one kind producing a relatively mild lues often followed by "meta-luetic" developments, while infection by another variety may not cause late syphilitic effects. This view is supported by the experiments of Spielmeyer, who succeeded in growing trypanosomes, killing dogs in from six to eight weeks. In cultures from these animals there was obtained a variety which inoculated into dogs produced typical tabetic symptoms; the cultures obtained from these animals produced in the next series of dogs, the effects of the first inoculation, death in from six to eight weeks. It has hence been experimentally shown that trypanosomes can be so influenced as to alternately produce different types of disease.

The other widely held view is that of the importance of the special bodily constitution of the individual, "meta-lues" being the result of a syphilitic affection in a person so constituted. Chvostek especially has pointed out that an individual's constitution is the product of the relationship of his internal secretory activities. It is very possible that through certain changes in increase or decrease of internal secretion a specific reaction to the virus of a certain disease may be called forth; in this manner the varying reactions as regards the luetic virus could be explained, and the occurrence of Basedow's disease concomitant with tabes in certain cases, becomes more intelligible.

The factor of the primary toxicity of the spirochete,—of its tabes developing potential in the sense of Erb,—may play a part. Stern's constitutional moments certainly do, and the possibility of direct tabetic lesions of the cervical sympathetic in certain cases (though this would not account for the entire picture of Basedow's disease) cannot be denied. That the two diseases do interact and in doing so bear a causal relation to each other as also that the combination is not as infrequent and of much greater importance than has been supposed, are facts which may, I believe, be accepted as established.

It is a pleasant duty to thank Hofrat Fuchs for his permission to report these cases as also to acknowledge my thanks to Hofrat Fuchs and to Professor Marburg for advice and criticism.

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OBSERVATIONS ON STERILITY IN THE MALE.*

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The object of this communication is twofold. First, I wish to point out that in the event of a childless marriage the finger of suspicion points at the woman with shocking frequency. It is almost a reflex act on the part of the physician, to say nothing of the husband. The fault is hers, and even in the absence of some definite abnormality of her genitalia, she falls a ready prey to curette, dilator, or glass plug. Second, I wish to consider, in a general way, the sterile man, and to discuss some of the causes of his sterility.

There seem to be no very accurate figures as to the frequency of childless marriages. According to Huhner (Sterility in the Male and Female, Rebman, New York, 1913), 10% of all unions are sterile. In France the number is put at 20%. But in a general and impersonal investigation of statistics on this point one must not forget that the clandestine, but admittedly widespread use of the many methods for the prevention of conception is a factor of unknown, but immense importance.

Therefore all the material upon which we must base our figures consists only of those comparatively few couples who, anxious to have children, come to the hospital or to the physician's office. Even in such cases there is no general agreement as to the number of times in which the husband is at fault. Hunter (*American Journal of Surgery*, April, 1912) quotes numerous writers whose percentages vary from 1 to 80. Lier and Ascher (cited by Scholtz, *Arch. f. Dermatologie u. Syphilis*, 1910, 101) found the fault to lie with the husband in 71% of the sterile marriages which they investigated. Huhner, in 129 couples, found this figure to be 59%. Kehrer's 40 cases (Huhner, *loc. cit.*) indicted the husband in 35%. S. W. Gross Huhner, *loc. cit.*) in 192 cases from various authors, found the husband responsible in 17%. Vedder (Huhner, *loc. cit.*), examining 50 husbands, found them sterile in 70%.

In view of these facts it might be supposed that a community such as ours, would proceed with caution under such circumstances. As Belfield (*Journal American Medical Association*, 1912, lix, 1419) aptly says:

"The investigation of childlessness should begin, not with the curettage of the wife, but with the microscopic examination of the husband's semen."

But the facts show the contrary to be true. From one of our largest public hospitals I have collected data of 108 women, in whom a diagnosis of sterility is recorded. Some of these women had been married many years. Three had been married more than once. In justice to the male sex, and to the particular individuals here involved, these patients are not to be included in our statistics.

In 31 cases the records do not contain any statement as to advice or treatment either of the wife or of the husband. Of the remaining 74, 37 were advised to undergo operative treatment, while the remaining 37 actually went through this ordeal. In many this advice was given or an operation performed in the presence of a negative pelvic examination. In only 5 of these 105 women (4.76%) was the husband first examined!

If these operative procedures had led to the much desired pregnancy we might feel somewhat justified. But failure is written in large type over the results. Twenty-five of the women operated upon were followed for a year or more. Only 2, or 6%, had become pregnant or borne children. An attempt to examine the husbands of the remaining 23 cases met with poor success. He rarely can be approached, and

* Read at a meeting of the Obstetrical Society of Boston, December 23, 1913.

even when found to be sterile, usually as a result of his own indiscretions, he shrinks from the comparatively simple procedures which might result happily. However, 4 such husbands were examined. Two were evidently normal in every respect. In the other 2 the semen contained no spermatozoa, and an examination of their genitalia showed evidence of an old gonorrheal infection. One of these men had been married twice, neither wife had ever become pregnant, the present incumbent had gone through two fairly serious operations, yet the husband's powers of procreation had clearly become obsolete years before.

Bearing in mind the figures already given as to the frequency of the sterile husband, it is fair to assume a similar percentage in the cases here presented.

One might suppose that in hospital practice the pressure of work furnished an excuse for an inexcusable blunder; one might further suppose that this does not apply to our private cases. Unfortunately it does. Through the courtesy of several gynecologists, I have now seen the husbands in 40 childless marriages. Twenty were actually sterile. Yet the wives of 4 (20%) of these had had more or less severe operations done upon them before it occurred to the operator that perhaps, after all, the husband was at fault.

While these figures are small, we believe them to be representative, not only of this community, but elsewhere. When it is remembered that a man is so often sterile as a result of his own ignorance, and that the innocent wife very frequently falls a victim, should we not be more careful as to where the blame is placed?

Now as to the causes of sterility in the male. While in women nature seems to be responsible in many cases, in man disease plays the chief rôle. In the event of bilateral undescended testicles Belfield (*loc. cit.*) says that no spermatozoa are formed. On the other hand, Simmons and Odiorne (*Annals of Surgery*, December, 1904) and more recently, McGlannan (*Journal American Medical Association*, February 28, 1914) have observed adult spermatozoa and a normal histologic picture in a considerable number of such organs.

In the rare malformations, such as epispadias, certain types of hypospadias, and exstrophy of the bladder, the spermatogenetic function of the testicle may be and generally is unimpaired, but owing to the nature of the defect, coitus is either impossible, or the semen cannot be ejaculated into the vagina.

There are several non-venereal diseases, which, if they attack the testicle or epididymis, may produce sterility in the male. Of these mumps, especially when occurring after puberty, is the most common, with an incidence of orchitis, generally bilateral, estimated at anywhere from 5% (Keyes Genito-Urinary Diseases, 1911) to nearly 33% (Comby, Osler's Modern Medicine). Atrophy of the testis with destruction of its spermatogenetic function follows in a vast majority of these cases.

When we consider that approximately 15% of the adult male population is infected with syphilis and that this may involve the testicle we are at once confronted with another cause of sterility. Syphilis (gumma) of the testicle is fortunately not common, and is generally unilateral. Keyes (*loc. cit.*) records 67 cases, of which only 10 were bilateral. But even if bilateral, the prognosis, after proper anti-syphilitic treatment, is said to be good. Those portions of the testicle which are not sclerosed may functionate and secrete spermatozoa. Gosselin (quoted by Watson and Cunningham) has found spermatozoa in the semen after the cure of this condition. That a restoration to, or a continuance of fertility under these conditions is of doubtful value to the community or to posterity seems to be clear.

The incidence of abscess of the testicle (usually unilateral) in typhoid is only about 2%. The destruction of the organ may be, and usually is, complete.

Tuberculosis of the genital tract, although primary in the epididymis, and even when unilateral, results in azoospermia in about 85%. This catastrophe is to be explained in part by an occlusion of the genital ducts through early involvement of vas deferens, prostate and seminal vesicles. The prognosis is bad, for a considerable experience has shown that, even if early operation removes the diseased epididymis, its fellow becomes involved within a year in more than half the cases.

The abuse of alcohol is also a potent factor in the production of sterility. Simmonds (Keyes, *loc. cit.*) estimates that 61% of all alcoholics are sterile. But in such a condition of narcotism is it not reasonable to suppose that concomitant diseases, generally those of venereal origin, are far more productive of the sterility than is alcohol? Also may not such a loss of the procreative function be desirable under the conditions? Certain experimental evidence, at least, would seem to bear out this conclusion.

Another possible cause of sterility which does not seem to be mentioned elsewhere, is absolute and protracted continence. This statement, made to me by a colleague, is based on the case of a man who was married fifteen years ago. At this time healthy spermatozoa were found in the semen. For reasons best known to themselves the couple have abstained from sexual relations, and there have been no intercurrent diseases. A recent examination of the husband shows azoospermia.

It also seems to be a fact that the otherwise healthy testes of normal, active and sexually vigorous men may occasionally be entirely unproductive of spermatozoa. I have recently been told of such a case occurring in the practise of one of my colleagues, and both Belfield (*loc. cit.*) and Janet (L'Assoc. Franc. d'Urol., 1909, xiii) mention similar examples. The possibility in

such cases of a congenital atresia of the spermatic ducts is not to be disregarded.

Another source of sterility of considerable importance is repeated and prolonged exposure (especially of the genitals) to the Roentgen ray. Those affected therefore, are physicians, x-ray workers, and patients to whom this has been prescribed as a therapeutic measure for other conditions. Brown and Osgood (Trans. American Association Genito-urinary Surgeons, 1907) carefully investigated this question and found, among other things, that (1) spermatozoa themselves are highly resistant to the x-ray, (2) the spermatogenetic cells of the tubules of the testis show degenerative changes, (3) there is no deterioration of sexual activity produced. These investigators also found that in a very small percentage of cases fertility may return after removal of the offending cause.

Infection by the gonococcus is by all odds the most frequent cause of male sterility. From a numerical standpoint all other etiological factors fade into insignificance. The disease is so widespread that statistics collected from various sources place the incidence at from 50 to 75% of the adult male population. It is also well established that prostatitis, generally with more or less involvement of the seminal vesicles, occurs in the vast majority of cases.

The involvement of these organs may result in sterility, a point on which there seems to be general agreement. If the site or severity of the inflammatory process is such as to disturb the patency of the ejaculatory ducts, there will be either azoospermia or oligospermia, depending upon the degree of closure of these structures. When one considers the small calibre of these ducts, their proximity one to the other, and the relation of their orifices to the prostatic urethra, where the inflammatory process is at its height, such an outcome is not to be wondered at. On the other hand, one might well ask why sterility from this cause does not occur with greater frequency. But the procreative capacity of the husband is done away with in prostatitis in another way as well. In such cases there is frequently found asthenospermia, the semen containing a few weakly motile or abnormally shaped spermatozoa, or necrospermia, where these bodies are absolutely motionless, tightly curled on themselves and abnormal in size or shape. These changes are to be accounted for by an alteration in the reaction or composition of the prostatic or vesicular secretion. Just what this change is, or in which organ (prostate or vesicles) it arises, we do not know. But we do know that spermatozoa are killed or inhibited in an acid medium, while they thrive in an alkaline medium. It is probable that in addition to other chemical changes there is sufficient combined or free acid in the secretion of these glands to deprive the spermatozoa of their vitality. Further knowledge, based on scientific, rather than on empirical principles, is much needed before we can discuss this point intelligently.

A fourth complication of gonorrhea following close upon the heels of prostatitis is epididymitis. Its incidence is considerable, Finger (Blenorrhea of the Sexual Organs and Its Complications, Trans. 3rd ed. 1894) reporting 29% in 1844 cases of gonorrhea. While involvement of one side (usually the left) is the rule, the opposite side becomes affected in no small number. In the latter event the percentage of sterility (azoospermia) is exceedingly high. Finger collected 242 such cases from different authors and found azoospermia in 92%. The figures of other authorities, while not so high, give us reason to regard the incidence of sterility in men so affected as 75 or 80%. This unfortunate result is due to occlusion of the genital duct, usually at the lower pole of the epididymis, but often at other points as well. While such a condition would appear to be hopeless, the ingenious operation devised by Martin, of anastomosing the vas deferens to an uninvolved portion of the epididymis, has resulted happily in a large number of cases.

But unilateral epididymitis is not without its drawbacks. Emödi in 31 cases found azoospermia in 9, and the investigations of Benzler (*Arch. f. Derm. u. Syph.*, 1898, xlv) are significant. The latter followed the subsequent history of German soldiers who had had gonorrhea, and who had been married three or more years. Of those without epididymitis 10.5% were childless. Where there had been unilateral epididymitis the percentage rose to 23.4%, while in the bilateral cases sterility obtained in 41.7%. Azoospermia in unilateral epididymitis is to be explained, not alone by a blocking of the genital duct on the opposite side, probably at the prostatic orifice, and without clinical evidence of its occurrence, but also by the prostatitis and vesiculitis which accompanies it.

Finally, gonorrhea may result in sterility by the production of a stricture of the urethra. When its calibre is so decreased as to prevent the free ejaculation of semen into the vagina the results are not difficult to explain. Also it must not be forgotten that behind every stricture there is a more or less well marked prostatitis, and we have seen that this in itself is capable of producing sterility.

I wish now to consider briefly my own experience with sterility in the male, of which, as already stated, I have seen 20 cases. The semen of 10 contained no spermatozoa after one or more examinations. One was a case of tuberculosis of the epididymis (unilateral), upon whom I finally operated, but whose initial symptoms had appeared eight years previously; one gave a history of some obscure scrotal swelling (probably mumps) years previously, and with marked atrophy of both testes; in a third, gonorrheal prostatitis and vesiculitis of long duration, and with numerous exacerbations, together with a pronounced atrophy of each testicle of

undetermined cause, was responsible for the condition. In the other 7, bilateral epididymitis of gonorrheal origin was to blame. In all there was also found a well defined prostatitis, the secretion containing much pus.

Six of my cases were found to have oligo- or necrospermia, or both. In 4 of the 6 there was a purulent prostatitis, one associated with an old bilateral epididymitis. The latter, occurring in a middle aged man, in whom no objective or subjective evidence of gonorrhea was found, was undoubtedly due to infection with the colon bacillus, a not infrequent occurrence. The other 3 had been produced by the gonococcus.

The semen of the 2 remaining cases contained only a few immobile and abnormally shaped spermatozoa. Careful examination and inquiry revealed no cause for the condition.

Four more of my series showed a peculiar intermittency in the presence of spermatozoa. None of them had been able to procreate even after years of marriage, and with wives pronounced normal by one of our most eminent gynecologists. At the first, second, and in one or two, the third examination of the semen, no spermatozoa, living or dead, were to be found. On the next occasion the specimen was swarming with myriads of them. Still later, spermatozoa were conspicuous by their complete absence.

One of these was a pronounced alcoholic, but young, and otherwise apparently normal. It seems likely that John Barleycorn furnished the answer.

In another there was a large left varicocele, with marked atrophy of the corresponding testicle.

In the third nothing could be found but a slight degree of prostatitis. In this case the first specimen of semen was sterile, and the second normal.

Lastly, a man with a small spermatocele and a generally cystic feel to the epididymis on the right side. The first sample of semen showed one or two dead spermatozoa. A week later it contained absolutely none. Two weeks later a similarly negative report was given me by Dr. E. L. Keyes, Jr., of New York, to whom I had referred the case. At the end of another week the news came to me that countless active and normally shaped spermatozoa had been found.

Finally, it is of interest that of the four private cases whose wives had already been operated upon, only one was found to produce spermatozoa. In two of the others a bilateral gonorrheal epididymitis excluded all possibility of procreation without previous operation. In the fourth the testicles had been put hopelessly and forever *hors de combat* by an attack of mumps in early manhood.

In closing, it seems worth while to state briefly the method which I have found to be efficient in the examination of such men. A careful history, with special reference to the causes of sterility already mentioned will often give the clue at once. The man's sexual life should also be inquired into. Physical examination involves a rigid routine. The external genitalia are first carefully examined, especially epididymes and testes. Urethral discharge is looked for. The anterior urethra is irrigated with boric acid solution. The patient then urinates in two glasses, that in the first glass showing the condition of his posterior urethra. The urethra is calibrated for stricture. The bladder is filled with boric solution and a rectal examination made to determine the condition of prostate and vesicles. These organs are then gently but firmly massaged. In most cases this serves to express enough secretion to drip from the meatus. Two drops of this are placed on separate slides, one being examined at once for spermatozoa. If numerous and active, the hand of suspicion must then point elsewhere. To the second specimen is added a drop of acetic acid (36%). This is examined for its cell contents, and here the nuclei are so well stained by the acetic acid that one has no difficulty in distinguishing pus from round cells. The presence of pus indicates a prostatitis of greater or less severity. The absence of spermatozoa, however, does not indicate sterility. In the latter event the man is instructed to have intercourse wearing a condom of the thin membrane variety ("beaters skin"). After ejaculation he is instructed to remove this gently from the penis and to place it at once in a wide-mouthed bottle of warm water, keeping its contents from spilling by jamming the open end of the condom between the cork and the bottle. This should be examined at the earliest possible moment after ejaculation, meantime keeping it warm to insure the vitality of the spermatozoa. While haste is advisable, if instructions are carried out, I have found spermatozoa of great activity as long as ten hours after intercourse. If the first specimen is negative, ask for another, and even a third, but be sure that several days or a week of sexual abstinence elapse between. I regard three specimens as the least on which to safely base an opinion.

It will be seen that I have dwelt in this paper upon three points. First, the prevalence of sterile marriage, and the unjust and often unwarranted indictment of the wife; second, the main causes of male sterility have been discussed, and it has been shown that in a great majority of cases venereal disease is the underlying factor; and third, the method of determining the presence or absence of sterility in the male. A fourth point, one of vital importance, dealing with the prognosis and results of treatment in the various conditions enumerated, has been intentionally omitted. It is our purpose to deal with this at greater length in a subsequent communication.

This experience, although brief, is not without its lessons.

1. The cause of sterility in man is due to venereal disease (generally gonorrhea), in the vast majority of cases.

2. Oligospermia or azoöpermia may occur without obvious cause.

3. The production or ejaculation of spermatozoa may be intermittent for reasons as yet unknown.

4. A single examination of the semen is insufficient. At least two, perhaps three or four specimens, each taken after a considerable period of sexual continence, must be seen, before a prognosis can safely be given.

5. Marriage may continue to be sterile even with the finding of active spermatozoa in the husband, and a normal genital tract in the wife. Experience has shown us all that for some reason best known to herself, Nature delays procreation often for years.

6. It is noteworthy that in no case of male sterility regardless of the cause, is masculinity in the least impaired. This is to be explained by the fact that even though the spermatogenetic function of the testicles is inhibited, the internal secretion continues in full force.

STATISTICAL NOTES ON A SERIES OF 6000 WASSERMANN TESTS FOR SYPHILIS PERFORMED IN THE HARVARD NEUROPATHOLOGICAL TESTING LABORATORY, 1913.

By E. E. Southard, M.D., Boston,

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The value of the present series of Wassermann tests is enhanced by the interest which the laboratory officers have taken in the clinical diagnoses of the cases tested and by the courtesy with which the clinicians submitting specimens have given important data.

Since the Harvard Neuropathological Testing Laboratory is not a commercial institution and has performed much charity work in addition to its other work (paid for virtually at cost), a spirit of cooperation has grown up which has helped in the solution of many problems of individual diagnoses.

The Testing Laboratory, of which the last year of work is here summarized, was, I believe, the first to be established in Massachusetts to make use of the ingenious discovery of Wassermann, and, since it has been in continuous action under its various heads, (1) Professor F. P. Gay (now of the University of California) who established the standards since maintained, (2) the late Dr. Emma W. D. Mooers, who brought to the work a great interest in both the technique and the clinical significance of the tests, derived from her work with Plaut in Munich, (3) Professor W. P. Lucas, (now of the University of California) who turned his attention to numerous clinical problems, not only of children, but in general, and (4) their successors (see below), the Laboratory has had a very varied experience and has sustained most of the shocks which the numerous pitfalls of the test provide. The result has been an increasing confidence in the tests as made, and fewer and fewer complaints of lack of congruence between the results of the tests and clinical findings, especially when these latter are reviewed.

My own interest in the tests was in the first instance psychiatric and neuropathological, and I believe that the laboratory would hardly have survived, had it not been for the interest in these tests taken by the state institutions for the insane. The work published heretofore, based on this laboratory's tests, has been largely psychiatric, as the following titles illustrate:

Lucas, W. P. The Wassermann Reaction in its Application to Medicine. Boston Medical and Surgical Journal, clxix, 1913, No. 4, pp. 116-121, July 24, 1913.

Paine, H. L. Results of the Wassermann Test in Two Hundred Consecutive Admissions to the Danvers State Hospital. Boston Medical and Surgical Journal, clxviii, No. 14, pp. 501-503, April 3, 1913.

Morse, M. E. Correlations of Cerebrospinal Fluid Examinations with Psychiatric Diagnoses: A study of 140 Cases. Boston Medical and Surgical Journal (in press) Worcester State Hospital Contributions No. 20, 1914.1.

I believe the value of the Wassermann reaction will always remain even more critical in the neurological arts than in those of the syphilographer who has so many more clinical data immediately accessible to him. It is to be hoped that some state agency will take over the entire task of Wassermann-testing on a scale commensurate with its value. If so, it is the experience of the present Laboratory, which has been virtually supported by cooperation of several of the larger hospitals for the insane, that psychiatric and neurological cases will absorb the lion's share of attention, although from time to time many series of sera will be submitted by physicians having special therapeutic tests (salvarsan, neosalvarsan) in hand.

There are Wassermann tests and Wassermann tests! In comparing our results with others, we often find tests described as Wassermann tests which are somewhat essentially different therefrom. Needless to say some workers omit various precautions and controls which are essential to reliable work. To make clear the policy of this laboratory, which has been managed in common by the writer, by Professor H. M. Adler, and by Dr. Annie E. Taft under the Department of Diseases of the Nervous System of the Harvard Medical School, I propose to set down (without description) the steps, precautions, and controls used in the series of tests, which are now being executed by Dr. W. A. Hinton.

(A.) *Materials*:

(1) washed sheep corpuscles, 5% suspension, 5 c.c. to tube.
(2) antisheep amboceptor, 2 units.
(3) complement (guinea-pig serum, 10%), 2 units.
(4) patient's serum inactivated at 56,° 0.1 c.c. with each antigen.
(5) antigens (a) human heart reinforced with cholesterin (0.1 c.c.)
(b) human heart reinforced with cholesterin (0.05 c.c.)
(c) alcoholic extract of syphilitic fetal liver (0.25 c.c.)

(B.) *Controls*:

(1) antisheep amboceptor unit tested daily.
(2) Compliment unit tested daily.
(3) 0.2 c.c. inactivated patient's serum used in addition to test with 0.1 c.c.
(4) each specimen tested with three antigens.
(5) control to exclude the (rare) occurrence of natural hemolytic power in complement.
(6) same hemolytic power in amboceptor.
(7) same, salt solution.
(8) control sera six in number (strong positive, slight positive, negative; each antigen doubled in amount.)

(C.) *Remarks*:

(1) period for fixing complements, 1 hour.
(2) doubtful cases repeated with double amount of serum and appropriate controls.
(3) cerebrospinal fluids used in five times the amount of sera.
(4) attention may be called to the "slight positive control (v. B., 8 above) which prevents many slightly positive cases from being overlooked on a given day.
(5) attention is especially called to the use of *three* antigens (This is not usual in many American laboratories), excluding technical error, perhaps indicating slight quantitative changes in a given patient's reaction, and excluding certain false positions.
(6) supervision and control, (highly important where so important a diagnosis as syphilis is being rendered) are obtained by the direct contact of (a) secretary, (b) technician, (c) laboratory boy, in addition to medical expert diagnostician (during 1913, Dr. W. A. Hinton) under general direction of Dr. Annie E. Taft, Custodian, Neuropathological Laboratory, Department of Neuropathology.

GENERAL STATISTICS.

Total Wassermann tests, 1913		6139
Blood sera	5282	
Cerebrospinal Fluids	857	
Total tests repeated		228
Blood sera	186	
Cerebrospinal Fluid	42	
Total individual blood sera		5096
Cerebrospinal Fluids	815	

An important question is always raised by tests which have to be classed as doubtful in result. These doubtful tests occupy a large share of attention and inspire requests for new specimens. I was surprised to learn the low percentage of such doubtful results when all the tests were summed up. The percentage (2-4%) is somewhat like what might be expected of a biological test. The fact that there are more such doubtful tests in sera than in cerebrospinal fluids signifies doubtless the larger number of confusing substances in the blood as well as other technical difficulties. The figures follow:

Total blood sera	5282
"Doubtful" results (4%)	202
Total cerebrospinal fluid	857
"Doubtful" results (2%)	19

It may be properly inquired what is the result of repeated tests in connection with these "doubtful" cases. The following table demonstrates cases in which a change in result was registered involving "doubtful" tests in sera:

"Doubtful" became negative	17
Negatives became "doubtful"	4
"Doubtfuls" became positive	2
Positives became "doubtful"	5

This table would incline one on statisical grounds to prefer to call "doubtfuls" negative. Suppose we look at a group of non-"doubtful" cases to see how they turn with repeated tests.

Negative cases become positive 15 (of which 3 had also been postive also before the initial negative and one had been "doubtful.)"

Positive cases become negative 33 (of which three became positive again later and one had been negative before the initial positive.)

If we leave out the anomalous examples of one dissimilar test in a triad, we arrive at

Negative cases become positive 11
Positive cases become negative 29
Comparing this with data above:
"Doubtfuls" become positive 2
"Doubtfuls" become negative 17

we see that, statistically at least, "doubtfuls" resemble negatives more than positives. This also confirms the qualitative suspicions of many workers. Nevertheless it must be pointed out that this general trend toward negative is partly due to natural immunizing or spirochaete-destroying factors at work in the individual and partly to therapeutic efforts.

The figures with respect to "doubtfuls" and changes of reaction in cerebrospinal fluid are as yet too small to make tabulation profitable.

If we exclude "doubtful" tests and limit consideration to the positive and negative tests alone, we have the following denominators:

Blood sera	5096
Cerebrospinal fluids	815

Concerning these blood sera in our laboratory it is not at all certain that they represent the community fairly; indeed it is highly probable that they are a picked class of sera derived from patients in whom syphilis was seriously suspected.

Positive blood sera (23%)	1161

And it is certain that the cerebrospinal fluids are a still more highly selected class

Positive cerebrospinal fluids (33%)	267

It is an interesting speculation to consider how far this 33% of positive cerebrospinal fluids represents the chance that an "organic" disease of the nervous system has of being syphilitic.

From the community's point of view it is clear that the percentage of outstanding syphilis is not so high as alarmists have sometimes thought. It is probable from such data as these that the percentage of syphilis in the community is far below 23%.

A curious fact is illustrated by the figures from the Worcester State Asylum, a transfer institution for chronic patients. This institution harbors syphilitics (3 in 103) not quite to the extent of 3% (2.9%.) Here is a community from which the luetic organic cases have largely never been sent. The chances are that this percentage is lower than that of the community at large.

On the other hand, if we consider the girls of the Massachusetts Reformatory for Women, we find the extraordinary percentage of 44, that is, 112 positives in 254 cases.

Some facts concerning the Psychopathic Hospital data were worked up more particularly for the benefit of the White Slave Commission, and the following paragraphs are reproduced from a report to Dr. Walter E. Fernald, Chairman of that commission.

"I. The general average for the whole state of cases thought by the hospital physicians to be due to syphilis is 5.49% for the three years 1910-1912, and 6.28% for the year 1912 itself. This figure can be safely stated to be far too low because the average percentage of general paresis during the same three years (1910-1912) was 8.43% (for 1912, 8.65%.) This latter figure is also beyond question too small since a certain proportion of coarse brain lesions of epileptic insanities and of imbecilities are undoubtedly due to syphilis, although they are classified outside the syphilis group in the figure presented by the Board of Insanity from which I make the above extracts.

"II. The best information available to me as to the general percentage of syphilis to be found in mental cases is that afforded by our experience at the Psychopathic Hospital covering 1671 separate random tests on different persons. 264 of these 1671 persons were determined to show syphilis so far as the Wassermann reaction carried out under the precepts of the original method can be trusted. I consider that there is no better set of data available for Massachusetts. This will be found to work out a percentage of 14.7% for our Psychopathic Hospital intake. I think our Psychopathic Hospital intake may be regarded as more representative of the general population than any admissions in previous years to other insane hospitals. An indication of this for example, is the fact that we discharged 250 persons during the last year alone as "Not Insane" although every one of these cases presented some kind of mental problem. It is rather curious that the percentages which we here work out, viz., approximately 15%, correspond to the idea prevalent I believe among dermatologists as to the general percentage in the community which they deduced from cases resorting to skin clinics.

"III. In a series of random "organic" cases 321 in number, I found cerebrospinal fluids positive in 118 cases or about 37%. You will of course wonder how I determine cases to be "organic." My general policy has been to have examination of the blood serum made in all cases having severe mental symptoms. If the serum is positive, I proceed as a rule to an examination of the cerebrospinal fluid by the Wassermann and other methods, believing it to be of importance to determine whether a case is one of General Paresis or of some other form of cerebrospinal syphilis. In case the serum is negative but the patient shows signs of disorder in the projection system, or as we say, looks "organic," then I proceed to a cerebrospinal fluid examination, despite the negativity of the serum. It is from these two groups that my random organic series of 321 cases is made up."

Following is not intended as a complete account of the Wassermann technique but only to record the particular materials and main steps used in this laboratory in 1913, so that it may be known exactly what we mean by "Wassermann" tests.

SUMMARY.

1. On account of the varying standards and criteria which have held or will in future hold in the matter of Wassermann tests for syphilis, it has been thought wise to summarize the materials, controls, and special precautions used in the Harvard Testing Laboratory.

2. General doubts are often raised as to the reliability of Wassermann's test on account of the "great number" of "doubtful" reactions; this "great number" resolves in our large series to 4% of the blood sera and 2% of the cerebrospinal fluids.

3. On statistical grounds we find the "doubtfuls" resolve much more frequently into "negatives" than into "positives."

4. 23% of all sera examined were positive, and since the cases are in many instances picked as likely to be positive, this percentage is doubtless much higher than the community's total percentage.

5. 33% of all cerebrospinal fluids examined were positive. The principle of selection of these cases was such (positive serum or symptoms of "organic" nervous or mental disease) that the result is of practical value, stateable as follows: The chances of a syphilitic origin for a case of "organic-looking" nervous or mental disease are not more than one in three.

6. The Massachusetts Reformatory for Women yields 44%, a partial index of the infected nature, though not necessarily of the infectivity, of prostitutes and other delinquent women.

7. The Danvers State Hospital (for the insane) yields between 19 and 22% positive sera in its routine intake of cases from Essex County.

8. The Worcester Asylum, a transfer institution (to which are transferred chiefly *non*-paretic cases), yield less than 3% positive. If this percentage should be maintained in future work, one might infer that, from the group of persons in the community with insane tendencies and infected by syphilis, cases are drained off into the frankly paretic group, in such wise that a population of asylum *transfers* will be likely to show a *low* syphilis index. But this conclusion can be only tentative on account of many other issues.

9. The Psychopathic Hospital index (15%) is perhaps somewhat closer to the general community index than the others just mentioned on account of the large number of cases "not insane" that are tested, but it is evident that 15% would be too high an index to assign to the syphilis of the general population.

10. Aside from its capacity to solve problems of individual diagnosis, the Wassermann method is obviously of such value to the community that a community Wassermann service might well be undertaken by a state agency such as the Board of Insanity or the Board of Health.

CYSTITIS—AN INCOMPLETE DIAGNOSIS.*

BY BENJAMIN TENNEY, M.D., BOSTON.

Surgeon to the Boston Dispensary.

THE number of proprietary and semi-proprietary remedies for "cystitis," "catarrh of the bladder," "inflammation of the bladder" which are advertised to the profession and to the public is equalled only by those for "indigestion," "dyspepsia," and "rheumatism." This can mean but one of two things, either the profession fails to make a complete diagnosis followed by curative treatment or else the condition leading to the symptoms is either extremely resistant to treatment or incurable.

People in pain and with physical handicaps go to some doctor at some stage in their disease as a rule. If they are then told what they already know and given some treatment from which they obtain but little relief, they try other men or clinics until they are relieved or they class all medical help as futile and turn to proprietary medicines or extra-medical delusions. It has been said before that the list of remedies for a given disease was a fair indication of our uncertainty in the treatment of the disease, and it may be said with equal truth that the number of proprietaries and semi-proprietaries advertised as cures corresponds somewhat with the failure of the general profession to promptly and permanently relieve the pains and other handicaps of people who are not well.

Some things are still beyond prompt or permanent relief, but more human ails are controllable now than ever before and a large part of our gain has come from perfecting our diagnosis. A completed diagnosis based on findings apart from the patients' statements and not inconsistent with the statements leads to a choice between a small number of therapeutic measures —often to a choice between mechanical treatment or none.

An incomplete diagnosis leads nowhere, but leaves both doctor and patient in a fog of uncertain and changing therapeutics until nature kills or cures.

To return to the title of this paper, the diagnosis of cystitis is made on one or more of the following symptoms and signs.

1. Frequency of urinating.
2. Pain in connection with urinating.
3. Pus, red corpuscles, and shreds in the urine.
4. Tenderness of bladder to pressure.
5. Appearance through cystoscope.

Three of these can be studied apart from the patient's statements.

1. Frequency in urination depends on the distensible capacity of the bladder quite as much as on the rate of kidney excretion. In urinary tuberculosis and some stages of urethral ob-

* Read before the Somerville Medical Society, May 7, 1914.

struction the actual capacity of the bladder may be reduced to an ounce or less. If the bladder with prostatic or stricture obstruction holds sixteen ounces and always has a residual of twelve ounces its distensible capacity is only four ounces, and as soon as the kidneys have secreted four ounces of urine it calls for relief. If a bladder is in spasm from ureteral irritation its distensible capacity may be a few drachms for some hours and then return to normal. We read and hear of "irritating" urine, and "too acid urine." Both may exist, I do not know, but I have yet to find the patient whose bladder will hold much more warm boric solution than it did of the urine previously expelled from his full bladder.

The common experience of us all in health is that in cold weather with little or no perspiration and dilute urine we empty our bladders more frequently than in hot weather with free perspiration and concentrated urine, unless we make up for perspiration by extra drinking of fluids. The experience of travellers in the desert and of sailors and others deprived of drinking water for long periods indicates that the concentration of the urine has little or no effect in increasing the frequency of urination. On the other hand, most of us know that apprehension or fright will increase the frequency more than can be accounted for by increased kidney secretion. Here the distensible capacity of the bladder is diminished for the time, but returns to normal when the excitement is over.

The distensible capacity of the bladder in health is not absolutely constant owing to the central nervous disturbances. It is also altered in certain cord lesions and in diseases which affect consciousness.

Apart from these extra vesical influences each individual has a normal capacity of his own, which in health will determine the frequency of his urination. In general one whose comfortable distensible capacity is sixteen ounces will have no night urine unless he takes a quantity of fluid during the evening, while one with less or with the habit of evening drinking will probably urinate during the seven or eight hours reserved for sleep. Any condition that diminishes this distensible capacity of the bladder will increase the frequency. External tumors will do it while the bladder remains healthy. Internal tumors by obstructing the urethra and causing hypertrophy of the bladder wall, by their own bulk and perhaps by irritation of the cord centre, will accomplish the same result. Foreign bodies in the bladder may act in precisely the same way. Ulcers of the bladder mucosa probably act on the cord centre only.

My observation has been that any process either above or below the bladder which disturbs the muscle bundles, which are continuous with the longitudinal fibres of the ureter, is associated with the desire to urinate. There is a point just below the internal meatus, where the muscle bundles from the left and right ureters meet and the touch of a sound here brings on the desire to urinate. Inflammation and growths at this point produce the same sensation. This must be a reflex from the cord centre corresponding to the natural impulse to urinate, which is said to be due to the upward pull of the distended bladder on these same muscle bundles. If this be true then any condition pulling on this area will probably cause the same sensation and a hypertrophied ureter wrestling with a calculus, or inflamed by extension of a pyelitis or tied down by adherent appendix or dragged upon by a prolapsed uterus may give the sensation. We find all these conditions accompanied by frequent urination.

Another type of frequent urination is seen in patients who have a weak sphincter and accustom themselves to the habit to avoid the annoyance of incontinence. This is not uncommon in women who have some injury to the urethra during childbirth. Frequency in urination is a poor reason for the diagnosis of "cystitis" without eliminating these other causes for the same symptom.

2. Pain with urination may precede, accompany or follow the act. Preceding the flow it indicates that the distensible capacity of the bladder has been exceeded. Pain during the flow indicates that some inflamed area is being altered in its relations, pulled upon, compressed, or dilated. Pain after the flow is often due to a spasm or cramp of the bladder wall as it responds to an over-stimulus for contraction and any severe inflammatory condition within the bladder wall or the first part of the urethra or the lower portion of the ureter may cause this.

The diagnosis of cystitis from the symptom of pain is not fair to the patient until the possibly serious conditions above, within and below the bladder have been eliminated.

3. Pus, red corpuscles, and shreds in the urine must be seen in catheter specimens from a female and in "second glass" specimens from a male to be considered in this diagnosis. In such specimens the presence of pus and blood indicates trouble, but has no localizing significance, as the source may be in either kidney, either ureter, or the bladder. Shreds showing papillomatous arrangement suggest bladder growths, but tumor cells may sometimes be identified with no clue to their exact source. Pyuria and hematuria are the cardinal symptoms in new growths, lithiasis, and destructive infections of the kidneys and ureters, and a diagnosis of cystitis in the presence of such findings without careful elimination of these dangerous conditions is unfair to the patient and unwise of the doctor from every point of view.

4. Tenderness to pressure in the region of the bladder is misleading. In the male it is confused with tenderness of the seminal vesicles and prostate. In the female, tenderness of the ureteral insertion is a well known indication of inflammatory condition higher up on the same side. Tenderness of infected Skene's glands

may be confused with bladder tenderness as may the inflammatory conditions in and about the broad ligament. Tumor and stone are often causes of exquisite tenderness. The over-distended bladder may be sensitive, but after relief is usually free of all reaction to pressure. As a leading symptom of cystitis it is seldom mentioned and as a confirmatory symptom it is almost worthless.

5. The appearance through a cystoscope is the only finding upon which a diagnosis of cystitis can be made, and the more cases one observes through this instrument the more rarely does one make the diagnosis of cystitis without some really anatomical cause. Red, thickened, bleeding bladder mucosa is sometimes seen, but with these findings we find urethral obstruction, or bladder tumors, ulcers, foreign bodies, diverticula and distorted ureteral orifices, or we search further with ureteral catheter and x-ray until the disease which produces the symptom—cystitis—is found.

We all know that there are many individuals who have these conventional symptoms of cystitis at some time, and others who have recurring attacks. We know, too, that tuberculosis and other destructive infections above and below the bladder, stones, and tumors of the most serious nature first make their presence known through these same symptoms, which are often intermittent. If such a case is seen when symptoms are active and the diagnosis of cystitis is made, the decline of symptoms may be credited to the last drug given, when it is merely what may be called the "negative phase" of the disease. Neither patient nor physician is wiser as a result of the experience, but both are deceived.

The diagnosis of cystitis deserves a place in medicine with "peritonitis," "rheumatism," "gastritis," "neuralgia," and many others which have been resolved into their proper component parts. The sooner we banish it from our own and our patients' vocabularies, the sooner will we make complete diagnoses and deal fairly and honestly by our patients, and the sooner shall we close another avenue through which the patent medicine man gains at the expense of our imperfectly treated, because imperfectly diagnosed patients.

It is easy to cite cases to illustrate the unnecessary suffering and finally crippled condition into which some victims of this diagnosis fall. The most unfortunate have been those with tuberculosis of the kidney.

One such, a man of 32 came in July, 1909, with a story of "inflammation of the bladder" for two years. He had been dosed, his bladder had been washed, he had taken gallons of water and had even spent six weeks in bed with a cystotomy wound to relieve his cystitis. While he made a good recovery from his nephrectomy and has gained thirty-five pounds in weight, his bladder is so contracted by the constant irritation through the inflamed ureter that it is doubtful if he ever recovers a comfortable capacity or normal intervals of urination.

A second was an Italian of 36 who had spent all his savings on pills and potions and local treatment for a period of five years. He was wasted with pain and lack of sleep and had been in bed a month. In the course of his search for health he had had a testicle removed for tuberculosis. A nephrectomy relieved him of most of his pain, he gained forty pounds in weight, worked for nearly a year and then died of some other disease.

A third was an active business man of 38 whose symptoms had existed for two years. Among all the medical men he consulted, one only had told him he had a tubercular kidney and he had seen many and those of good standing. All others told him he had chronic cystitis and treated him therefor. He recovered from his nephrectomy, and lived some months in comparative comfort, though his wound broke down and he had reflux urine through the ureter stump. A reasonably early diagnosis and nephrectomy would have made him an active man for years, to say nothing of the suffering he would have saved.

A fourth was a woman of 35 who had been from one physician to another and then to hospital for pelvic surgery to relieve her right-sided pain and cystitis during a period of three years. A completely destroyed kidney was removed six years ago and today her bladder will hold twelve ounces of fluid and she often sleeps the night through, instead of rising every half hour.

A fifth gave a history of cystitis in 1906, lasting about two weeks and cured by buchu, a recurrence in 1908 cured by tablets, in the meantime a pelvic operation and "cystitis from catheterization" during her convalescence. A left tubercular kidney was removed in 1910 with immediate relief of her pain and gradual return of her bladder to normal function.

Almost every patient with tubercular kidney gets a diagnosis of inflammation of the bladder unless he happens to consult a urologist first, and yet if there is any disease besides cancer where early recognition and treatment is the patient's surest way to avoid suffering, that disease is tuberculosis of the kidney.

Of the cases of stone and cystitis, the most striking among my patients was a woman of 72. Pain and frequent urination amounting to incontinence had been her portion for forty years. I do not know what diagnosis her physician made, but he fitted a leather covered metal plate, eight inches in diameter, held by straps about her body to press on her lower abdomen. This she had worn faithfully and hardly stepped off her piazza for the last twelve years. An observing nurse called my attention to her urinary frequency and a glass catheter made the diagnosis as a specimen of bladder urine was being drawn. With the stone removed her life has been transformed, but the bladder will never get back to the normal capacity. Her relief came too late.

Patients with urethral obstruction whether from stricture or hypertrophied prostate, form another group that suffers from the diagnosis of "cystitis." Most have the symptoms, but they are in worse case than patients with "neuralgia" from an ulcerated tooth, "gastritis" from a gall stone, "rheumatism" from a dislocated semi-lunar cartilage, and "peritonitis" from a perforation in the intestines because there is no hope of spontaneous relief, which may possibly, though it does rarely, occur with these other conditions.

To give cases illustrating the common delay in proper diagnosis and treatment of these conditions one has only to turn to his records of prostatic enucleations and operation for stricture. They vary only in the length of time the patients have suffered waiting for a complete diagnosis. These details are unnecessary and within the personal knowledge of almost every practitioner, and the diagnosis of urethral obstruction is so easily made that any delay in reaching it seems inexcusable.

Patients with new growths in the kidney and bladder form the most important, though the smallest, group of sufferers through the diagnosis of cystitis. If any relief is possible for these patients, diagnosis must be made early and treatment promptly applied. A few months may make the difference between a hopeful and a hopeless case.

Fortunately there is a growing appreciation of the seriousness of frequent urination, painful urination, hematuria, pyuria, and the other urinary symptoms, both within and outside the medical profession. Patients are demanding permanent relief from their pains and disabilities, and physicians are fast giving up the old theoretical pathology, which was made to fit the symptoms, for the modern pathology of the living.

A STUDY OF EXTRA-PULMONARY AND OTHER SOUNDS WHICH MAY LEAD TO ERRORS IN THE DIAGNOSIS OF PULMONARY TUBERCULOSIS.

By John B. Hawes, 2d, M.D., Boston.

[From the West Medical Service of the Massachusetts General Hospital.]

In this paper I shall discuss certain sounds, not due to tuberculosis or any pulmonary disease, but to physiological processes, which sometimes lead to confusion in the diagnosis of pulmonary tuberculosis. These sounds may cause errors in diagnosis, either by simulating râles or else by obscuring the breath sounds or such râles or other abnormalities as may be present. The conclusions which I have reached in this matter are based on a study of 250 patients seen during the past eighteen months in private practice and in my clinic at the Massachusetts General Hospital. There has been no selection of cases although the greater number were patients in whom pulmonary tuberculosis was present or suspected. I have undertaken this work not to investigate in detail the exact nature and cause of these sounds and the various conflicting theories concerning them, but to find out as far as possible how large a factor, to the general practitioner, such sounds may be in making his diagnosis of chest conditions and, of special importance, how errors due to such causes may be avoided. The sounds here considered are as follows:

1. Muscle sounds.
2. Joint sounds.
3. Tendon or bursal sounds.
4. Atelectatic râles or crackles, otherwise known as marginal sounds.

Muscle Sounds. A detailed description of muscle sounds is unnecessary. In any text-book on physical examination or diagnosis a full description of their nature and origin will be found. In brief, muscle sounds may take the form of a low pitched rumble or roar so loud as to obliterate all breath sounds, or else they may be heard only at the end of forced inspiration. Occasionally they closely resemble a shower of dry crackles.

Joint Sounds. These sounds, to me at least, are more interesting and important and more frequently lead to errors in diagnosis than any of the others. My attention was first called to them by an article by William Ewart[1] of London, to which the reader is referred. In this paper Ewart discusses in detail the original work of Perez and the sign bearing his name besides giving complete bibliography on this subject. Perez was apparently the first to note that certain sounds are produced in joint movements, which in the case of the shoulder and sternal joints may closely resemble râles and may thus lead to errors in diagnosis. "Perez's sign consists essentially in the production of sounds over the upper thoracic surface on actively or passively moving the arms at the shoulder joint, and particularly by raising or lowering them."[2] In a certain small proportion of cases, particularly among those who raise their shoulders up and down in breathing, enough of such joint sounds are produced in the movements of the acromio-clavicular, sterno-clavicular joints and elswhere to cause confusion.

Tendon or Bursal Sounds. These are best described by an article by F. T. Lord.[3] His is the only detailed description of such sounds and how they are produced that I have found. As I shall later point out, I have not found them to be the cause of any confusion.

Atelectatic Râles or Crackles. These sounds constitute a well-known and common phenomenon, but should only rarely lead to errors in

diagnosis. I have included so-called marginal sounds in this group. Although there seems to be considerable difference of opinion as to this I cannot consider marginal sounds as due to anything but the expansion of an atelectatic area in the lung. Bushnell[4] discusses this point at great length, and although he does not commit himself definitely, he seems to feel that such sounds are due to a physiological but not a pathological atelectasis. For the more detailed discussion of these points, and for many others bearing on the subject of extra-pulmonary sounds, the reader is referred to Bushnell's most excellent and comprehensive article.

Of my series of 250 patients, there were 133 males and 117 females. There were 16 children, 15 years old or under, 211 whose ages vary from 16 to 45 years and 23 over 45 years of age. In 169 cases the lungs were normal, 67 had pulmonary tuberculosis more or less marked, 3 a tuberculous pleurisy, 4 acute and 6 chronic bronchitis, 1 chronic influenza. As to the type of patient I have more or less arbitrarily divided these cases into groups, as follows:

1. Fat	48 cases
2. Fat and muscular	28 cases
3. Thin	69 cases
4. Thin and muscular	33 cases
5. Muscular	61 cases
6. Emaciated	11 cases

MUSCLE SOUNDS.

In discussing this subject and others I shall use the terms "absent," "slight," or "marked" in a relative and not an absolute sense. In every individual muscle sounds of greater or less degree can be heard on careful listening; when they are classed as "absent" it is meant that they are negligible as a factor in causing confusion or errors in diagnosis; the same applies to the term "slight" or "marked," not only as regards muscle sounds, but as to joint and bursal sounds and atelectatic râles. In this series of 250 cases muscle sounds, as a factor in causing mistakes, were "slight" in 25 cases, "absent" in 168 cases,—a total of 193,—and "marked" in 57 cases. Of the 193 patients in whom such sounds were absent or slight, 107 were males and 86 females. Of the 57 patients in whom I designated muscle sounds as "marked," 49 were males and 8 females All of these 57 patients were in the "muscular" group, "fat" or "thin," as the case might be. In 23 of the 57 cases, or in 9.2% of the whole number, the muscle sounds either closely resembled râles or else markedly interfered with breath sounds or the detection of other abnormal conditions. Among the 16 children, 15 years old or under, there were two instances where muscle sounds were a potential source of error by obscuring other sounds.

JOINT SOUNDS.

Joint sounds, loud enough to be distinctly audible on auscultation of the apices, front or back, were present in 126 cases. They are easily elicited by rotating the arms or by moving them up and down with the stethoscope held over the apex, front or back, or over the upper part of the sternum. Of the 126 patients in which such sounds were present, 75 were males and 51 females; joint sounds were slight in 83 and absent in 41 instances. Of this last group in which no joint sounds were heard, 17 were males and 24 females. On quiet normal breathing joint sounds were heard in only 9 cases, while there were 55 patients, or 22% of the whole number, in whom joint sounds were present on more forcible breathing and in whom they either closely resembled râles or in other ways led to confusion. In most instances, I have described these sounds as "too loud and coarse," "too snappy," "too harsh," "too metallic and near the ear" to be mistaken for râles. There were no joint sounds heard in examining the 16 children in the series.

TENDON OR BURSAL SOUNDS.

On listening in the scapular region as a part of a regular routine in each of these 250 cases I heard what I believed to be tendon or bursal sounds in 10 instances. These I have described as loud "snaps" or "clicks"; they did not resemble râles in the slightest nor could they be considered in any way a cause of error in diagnosis. In 7 cases they were found in muscular males; 1 case occurred in a very emaciated man, and two in fat women.

ATELECTATIC RÂLES.

I do not consider that this is the place to enter into a detailed discussion of the relation of "marginal sounds" to atelectatic rales. For this, as above mentioned, the reader is referred to Bushnell's[4] article. I think it safe to assume that both, doubtless for different reasons, are due to the sudden opening of pulmonary aveoli which were previously closed. Cabot, Bushnell, and others are on record as finding such sounds or râles in an amazingly large proportion of healthy individuals. For my own part, I was strongly of the opinion, previous to this investigation, that I could find râles at the bases posteriorly in the lungs of 80% to 90% of fat women not suffering from any pulmonary disease. It may be purely a coincidence that in this series of 250 individuals, 48 of whom I have classed as "fat" I could hear such atelectatic râles in only 5 instances. These 5 consisted of 3 women and 2 men, all in the "fat" group. As to the râles or marginal sounds heard in the lungs of healthy muscular persons, especially men, as described by Bushnell, I could find no evidence.

IMPORTANCE OF THESE SOUNDS TO THE GENERAL PRACTITIONER.

It seems to me safe to draw the following conclusions as a result of this investigation concerning these various sounds and their importance to the general practitioner in making lung examinations:—

First as to *Muscle Sounds*. In this particular series they appeared to me to be a potential cause of error in 9.2% of the cases. It was particularly in muscular, closely-knit young adults that they were most marked. The temperament of the patient, whether nervous or otherwise, seemed to play a part, those patients manifestly nervous on being examined presenting louder sounds than those of the phlegmatic type. This factor, however, did not seem to play so large a part as that of the patient's actual musculature. In the great majority of instances the muscle sounds took the form of a low roar, obscuring all other sounds; only rarely did they resemble râles.

Next, considering *Joint Sounds*, I found here a larger source of confusion than muscle sounds. In 55 instances, or 22% of the whole, sounds were present on forced breathing, which closely resembled râles. Sex seemed to make no difference in the occurrence of this phenomenon, nor did the patient's age except that no case occurred in the children in the series. Likewise, the physique of the patient did not seem to be a factor. As would naturally be the case, it was in patients who used the accessory muscles of respiration in breathing that the joint sounds were most marked. It is evident, to me at least, that joint sounds deserve careful consideration as a possible cause of error in diagnosing pulmonary disorders.

Tendon or Bursal Sounds do not resemble nor obscure râles or breath sounds, nor do they occur often enough to be seriously considered.

Atelectatic Rales or *Marginal Sounds* ought never to be a source of error. The latter, as described by Bushnell, I have not been able to find, and the former are usually self-evident and rarely simulate râles due to a tuberculous process.

HOW TO AVOID ERRORS DUE TO MUSCLE OR JOINT SOUNDS.

Muscle Sounds often make diagnosis very difficult. Such sounds, in very muscular and nervously wrought-up persons may render it absolutely impossible to come to any accurate conclusions as to râles or breath sounds. In such cases every effort must be made to make the patient relax physically and mentally. Too cold an examining room or too light a wrap over the patient may be important causes of such sounds. In every instance intense concentration on the part of the physician is necessary.

The avoidance of errors due to *Joint Sounds* is an easier matter. I have made it a part of my routine examinations as a result of this study, whenever joint sounds or sounds simulating râles which I think may be joint sounds, are present, to put the patient through the following procedure: The patient closes his nostrils tightly by holding the nose, the mouth is shut, so that no air can get in or out of the chest, thereby doing away with all movement of air in the lungs; and the patient is then told to "go through the motions of taking a full breath without taking one." Usually the patient is quite at a loss as to what to do; a few minutes instructions on my part, however, with an explanation of what I am aiming to accomplish, has in every case made everything perfectly clear and easy. As in doing this there is no movement of air inside the lungs, there can be no râles. In many cases, when for some reason I have been suspicious of a shower of crackles unexpectedly heard at one apex after a deep breath, I have made the patient go through this procedure and have heard the identical shower of crackles as before. This is conclusive proof that such sounds are surely not râles and that in all probability they are "motor joint crackles." It is needless to mention the importance of such a decision as this to the physician in making his diagnosis and to the patient as to prognosis and treatment. I have not found that this simple procedure has been previously described. In my own work I have found it of value. I believe that it will be so to others.

Finally, I would briefly summarize this study as follows:—

1 *Muscle Sounds* were a potential source of error in 9.2% of the 250 cases. Such sounds occur, particularly in muscular persons of nervous temperament. These sounds can be lessened by quieting and calming the patient and by seeing the the examining room is sufficiently warm. Errors due to these sounds can be avoided only by great care and concentration on the part of the physician.

2. *Joint Sounds*, resembling râles and a potential source of error, occurred in 22% of this series. Errors due to this cause may be avoided by the procedure described in detail above, of making the patient "go through the motions of breathing without taking a breath." This should be done in every doubtful case.

3. *Tendon or Bursal Sounds, Atelectatic Râles or Marginal Sounds*, ought not to cause confusion or be sources of any mistakes in diagnosis.

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A PLEA FOR EARLY OPERATION FOR GALL STONES BASED ON AUTOPSY RECORDS.

BY J. C. HUBBARD, M.D., BOSTON,

Assistant Surgeon, Boston City Hospital; Associate in Surgery, Harvard Medical School.

Not long ago cholelithiasis was considered a disease for medical treatment, and the patient's life was regulated accordingly. Gradually it became evident that surgery could offer a better outlook to the average patient suffering from gall stones than medicine. Recently I reviewed the autopsies, where gall stones were found, made at the Boston City Hospital. When my work was done and the figures put together, I was surprised to see what an unrefutable argument they offered for early operation. The number of cases is not large but the evidence is conclusive. The cases include all in whom a gall stone was found at autopsy.

The presence of gall stones was suspected in some and unrecognized in others. They include cases from the various departments of the hospital. A very few follow an operation, but only such of those are included here as had stone at autopsy. It seemed fair to include these, an exceeding small number, for the gall stones necessarily were the cause of operation and death. If the operation killed and a stone was left behind how much more serious would a complete operation have been?

There were 108 cases. Among these gall stones were found in the gall bladder alone in 76. Gall stones caused the death of 9 of these, by setting up fatal trouble in the liver or gall bladder. The causes of death were, hepatitis cancer of the gall bladder, pancreatitis, abscess of liver. The remaining cases, 67, died of such conditions as pneumonia, nephritis, endocarditis, arteriosclerosis, cancer of stomach, fracture, tuberculosis, cancer of liver, etc.

There were 32 cases where the stones had passed beyond the gall bladder and were found in the ducts. In 14 of these the cause of death was due to the gall stones. The cause given being abscesses of liver, peritonitis, cholangitis, abscess of bladder, cholecystitis. The remaining 18 died of cardiac diseases, pneumonia, peritonitis, erysipelas, cancer of liver, etc.

From these figures it follows that if a patient with gall stones chooses medical treatment his chance of dying as a result of the gall stones is 14 out of 100 as long as they remain in the gall bladder. When the stones pass into the ducts his chances increase to 43 in 100. Should he elect operation while the stones are in the bladder what are his chances? His chances for death are then from 3 to 5 in 100.

The mortality of 3% for cholecystostomy and 4½% for cholecystectomy were given to me by Dr. E. A. Codman, who compiled a series of cases from various hospitals. The combined mortality of cholecystostomy and cholecystectomy in uncomplicated cases at the City Hospital is 5% plus.

The above figures are astonishingly large, but I offer them as they are. The relative mortality between gall stones in the bladder and those that have passed into the ducts is of special interest even though the figures themselves may for some unexplained reason be large.

The deduction is of course obvious, that advice for operation should follow the establishment of a diagnosis before the stones have time to set up any secondary fatal changes.

Incidentally it is of interest to note that in 4 out of the 108 cases a stone was found which had ulcerated through into the intestine.

Reports of Societies.

AMERICAN ASSOCIATION OF PHYSICIANS.

TWENTY-NINTH ANNUAL MEETING, HELD AT ATLANTIC CITY, NEW JERSEY, MAY 12, AND 13, 1914.

The President, DR. SIMON FLEXNER, in the Chair.

PRESIDENT'S ADDRESS.

PRESIDENT FLEXNER said the extension of the boundaries of knowledge has been such that it has compelled medical colleges to become departments of universities. This rapid extension of knowledge coincided with the active pursuit of physiology, pathology, bacteriology and pharmacology, either alone or in association with clinical studies for which special laboratories and institutes came to be established. Independent institutions for medical research had exercised a distinct influence on medical practice, but the foundation of these institutions was impossible until medical schools furnished an adequate supply of students whose training approximated that of the older European countries. All these conditions had acted more powerfully on clinical teaching. The professor of medicine in the university medical school had ceased long ago to be a general practitioner. The function of the clinical teacher had been newly defined within one or two decades. The American Association of Physicians had sympathized with every movement affecting the progress of medical education, and it favored this later step with the single hope, if it be in the real interest of medical progress, it might be given a chance to succeed.

CHRONIC INTERSTITIAL GASTRITIS.

DR. JOSEPH SAILER, of Philadelphia, reported a case of chronic interstitial gastritis in a male, 45 years of age, who had been subjected to various forms of medical treatment, but none of them was of any avail. Dr. Deaver performed an exploratory operation and found the condition of the stomach

entirely in accord with the clinical picture. The stomach walls were very thick. The stomach was adherent posteriorly and around the pylorus. The adhesions were released, and the stomach wall found greatly thickened. Dr. Deaver believed that gastroenterostomy would have been difficult, in addition to giving no definite relief. There were no enlarged glands along the lesser curvature, but the adhesions were dense along the greater curvature, and a definite gland mass could not be felt. There was no evidence of metastasis. The abdomen was closed and the patient made a satisfactory recovery from the exploratory operation.

DISCUSSION.

Dr. David Riesman, of Philadelphia, stated that with the x-ray we are not able to distinguish between the malignant and non-malignant types of what is called leather-bottle stomach. This distinction can be made only by clinical observation. Recently he saw a typical case of leather-bottle stomach which was very malignant, because the patient had cachexia and ascites. Both of these conditions in this case were sufficient to determine that the condition was cancerous. The man died in a few weeks. There were no evidences of metastases in the liver, and the liver was not enlarged at any time.

Another case that came to autopsy showed no metastasis from any of the viscera, but marked enlargement of the glands along the greater curvature of the stomach.

THE NATURE OF PERISTALSIS AND THE ACTION OF MAGNESIUM SULPHATE.

Dr. S. J. Meltzer, of New York City, advanced two assumptions. One assumption made upon the basis of experimental facts was that peristalsis was a complicated condition in which the phenomenon of inhibition played an important part, and the second was, that magnesium sulphate acted by affecting this inhibitory force.

A CLINICAL STUDY OF ONE THOUSAND CASES OF CANCER OF THE STOMACH.

Dr. Julius Friedenwald, of Baltimore, presented a clinical study of 1000 cases of gastric cancer. The cases occurred in 10,416 patients, affected with various gastro-intestinal disturbances. The maximum liability to the disease occurred between the fortieth and sixtieth years. The greatest proportion occurred in males, 588 to 412 females. An hereditary history of cancer appeared in 9.4 per cent. of cases; a history of trauma in 1.9 per cent.; anemia was present in 82 per cent. Chronic endocarditis was present in 11.4 per cent.; arteriosclerosis in 69.6 per cent. A history of former indiscretions in diet was obtained in 32.1 per cent.; of alcoholism in 15.2 per cent.; of syphilis in 7.9 per cent.; hyperchlorhydria in 4.9 per cent.; hypochlorhydria in 2.8 per cent.; anacidity in 89.2 per cent. Lactic acid was present in 81.9 per cent. Dysphagia existed in 6.9 per cent. of all cases. Loss of weight existed in 88.5 per cent. Anorexia was present in 89.3 per cent. Vomiting existed in 89.3 per cent. Occult blood was present in the stools in 92.5 per cent. Masses in the form of tumors were detected in 71.9 per cent. Dilatation of the stomach existed in 46.7 per cent. Perforation occurred in 2.3 per cent. Metastasis existed in 67.2 per cent. Operations were performed in 26.6 per cent.

WHEN AND HOW TO USE TUBERCULIN PREPARATIONS IN PRIVATE PRACTICE.

Dr. S. Solis-Cohen, of Philadelphia, in his paper with this title dealt with pulmonary tuberculosis only. The disastrous results of the early use of tuberculin were owing to (a) crude dosage; (b) unsuitability of cases.

1. *Dosage.*—Correct principles were established by Trudeau. The opsonic index of Wright marked a further advance. Latham's method of administration by mouth, with parallel temperature curve and opsonic index guidance, demonstrated the full trustworthiness of the temperature curve alone, and simplified the procedure.

The following was the author's modification of Latham's method: tuberculin residue (T. R.) triturated with milk, sugar was given with skim milk, whey or beef juice. The initial dose, he said, was one one-millionth of a milligram. Both subjective and objective symptoms of reaction were watched for. The dose was repeated once or twice weekly, according to result. It was gradually increased by increments of one one-millionth of a milligram to the reaction point, and then dropped one point lower, and so continued for some weeks. Later, a further increase was attempted, and if reaction was not shown, was proceeded with in a similar gradual way. The arbitrary increment of one one-millionth of a milligram was maintained during this remittent progression until one ten-thousandth of a milligram had been reached. After that, the increment might be raised to one one-hundred-thousandth of a milligram. Thus by successive stages a maximum dose was attained at a point determined for each individual by all the factors in the case, including the rapidity of the increase, character and intensity of reaction and maintenance of tolerance, as well as the local and general signs of improvement.

The treatment was continued with intermissions, for many months, and may be resumed, if necessary, from time to time over a period of years.

2. Selection of cases. In the majority of advanced cases, according to present knowledge, tuberculin was likely to be harmful. Experienced observers might employ it cautiously under conditions that seemed to call for its use, but others should avoid it, especially in cases showing a tendency to continuous fever, or in which there was, or had been recently, active softening. In the great bulk of early cases it was needless. Under proper treatment, medicinal as well as hygienic, recovery would take place without it.

Its field of action was in the treatment of cases which (1) had not passed beyond the stage of infiltration and which (2) had shown a certain degree of improvement under proper food, fresh air, judicious rest and exercise, and other approved measures, including the right drugs, but in which (3) improvement became sluggish or ceased, or retrogression took place. The slight additional stimulus afforded by an appropriate tuberculin preparation administered at well chosen times, and in correct dosage, would often reawaken the defensive and restorative processes of the organism and be followed by complete recovery.

Illustrative cases were cited.

DISCUSSION.

DR. ABRAHAM JACOBI, of New York City, had used tuberculin in doses of from one-hundred-thousandth of a milligram up to one-five-thousandth of a milligram, and had never seen any unpleasant symptoms. He had given it in combination with other agents. His routine treatment in chronic cases of pulmonary tuberculosis consisted in the internal administration of guaiacol and arsenic with tuberculin, and he had observed no disagreeable symptoms which he could attribute to the tuberculin.

SPLENECTOMY FOR PERNICIOUS ANEMIA.

DRS. WARREN COLEMAN AND JOHN A. HARTWELL, of New York, reported a typical case of pernicious anemia that grew steadily worse in spite of four months' treatment with arsenic, iron, hydrochloric acid, and four transfusions. Splenectomy was performed as a last resort. Ten weeks later, January 13, neosalvarsan was administered. The use of neosalvarsan made it impossible to draw any conclusion as to the effects of the splenectomy except in the interval before its administration. In this interval there was no evidence of more than temporary improvement. At the present time, April 24, six months after the operation, the patient, while looking better and feeling better, is just beginning to sit up.

STUDIES IN PERNICIOUS ANEMIA.

DR. HERBERT C. MOFFITT, of San Francisco, had been able to collect 31 cases of splenectomy for pernicious anemia from the literature, and he reported eight which were done in San Francisco, one in his own service.

The results from splenectomy had been variable. In eight cases death resulted either immediately or soon after operation. A number of other cases had not been improved. In still others reported in the literature surprising improvement had taken place. In his own case, paresthesia, which was obstinate before operation, disappeared at once afterward. There were other striking changes in the blood regeneration which followed soon after operation in many cases.

He had had opportunity to study the spleens after operation in eight cases, and the picture was practically the same in all. Contrary to clinical observations, the weight of the spleen was considerably greater than normal, varying from 450 to 500, and from that point down to 350 to approach the normal of 280. Most observers recorded the size of the spleen in pernicious anemia as not increased, while operative results showed the spleen was considerably larger than normal.

The recent work on splenectomy should not distract attention from the ultimate causes of the disease.

The author mentioned some time ago the similarity between pernicious anemia in man and pernicious anemia in animals, such as horses. Since that time he had had opportunity to observe some cases in animals and to make sections from the liver and spleen in certain cases. The microscopic appearance of the spleen and liver in these cases was that noticed in the organs removed at the operation for pernicious anemia. From a spleen removed in January an emulsion was made and injected hypodermically into a horse, with no change in the anemia. The operation of splenectomy in horses was difficult. Many arteries went into the spleen and possibly the operation could not be successfully done. He had in mind tying the arteries of horses whose spleens were affected with pernicious anemia, and it would be interesting to observe whether, as in human cases, cutting off the circulation in horses would have any effect in stopping hyper-hemolysis, which was characteristic of the disease in animals as it oftentimes was in human beings.

STUDIES IN EXPERIMENTAL ARTERIOSCLEROSIS.

DR. I. ADLER, of New York City, presented a preliminary report summarizing briefly the results of some experiments on dogs that he had carried on for some time. Dogs were injected, partly intravenously, partly subcutaneously, with various substances, such as adrenalin, nicotin, lead, diphtheria toxin, pure cultures of different species of bacteria, all with absolutely negative results.

In a further set of experiments dogs were fed with a number of substances, under varying conditions, and it was believed that some positive results were obtained, so that the aorta in some cases showed lesions which both microscopically as well as histologically were closely analogous, if not absolutely identical with human arteriosclerosis.

MITRAL STENOSIS.

DR. R. C. CABOT, of Boston, related his observations on 200 cases of mitral stenosis before and after death. His studies had impressed him with the fact that mitral stenosis fell into four clinical groups: 1. The cardiac group, in which the symptoms were apparently mechanical, such as stasis, etc. 2. The septic group, in which the symptoms were those of an acute infectious disease. 3. The embolic group, in which out of a clear sky embolism of the brain or periphery appeared. 4. That group in which there were no symptoms whatever, and the patient died of some other disease or after an operation and the pathologist found mitral stenosis after death.

CASE OF RECURRENT FEVER IN AORTIC ANEURYSM.

DR. ALEXANDER MCPHEDRAN, of Toronto, reported the case of a woman, aged 36, of irregular life and habits, who entered the hospital October 18, 1913, complaining of pain in the right chest for about six weeks. She had recurrent fever about every seven or eight days. The aortic arch was dilated and showed a pulsating aneurysm in the first left intercostal space. The temperature became normal and remained so in January, and her general condition improved very much. She was treated with iodids, mercury and salvarsan.

PATENT DUCTUS ARTERIOSUS WITH INFECTIVE PULMONARY ENDARTERITIS.

DR. W. F. HAMILTON AND DR. MAUDE E. ABBOTT, of Montreal, reported this case and drew the following conclusions:

1. This case illustrated in a remarkable manner what hitherto has not been fully emphasized, namely, that a vegetative process is commonly associated with congenital cardiac defects.

2. These vegetations in the present case, and probably in the majority of such processes occurring in conjunction with cardiac defects, were not a simple thrombosis of mechanical origin, with secondary infection supervening, but from their onset were inflammatory in character, the result of an invasion of the vessel wall by infective organisms at the seat of maximum strain.

3. The inflammatory process present in this case manifestly did not arise as a result of an embolic infection through the vasa vasorum, but began by the invasions of the intima at a single point, the pulmonary end of the ductus, which was probably the seat of maximum strain from the two combined causes, the eddying blood stream within its lumen, and the rigid calcareous gland which lay in close juxtaposition without.

4. The present, so far as they knew, was the only recorded case in which the ductus and pulmonary artery in the neighborhood were the sole seat of the disease and in which the pulmonary orifice of the ductus had been demonstrated to be the initial seat of the lesion.

DISCUSSION.

Dr. W. S. Thayer, of Baltimore, had had a case very closely similar to the one related in which there was an increased area of dullness in the second and third interspaces, a thrill, and a prolonged murmur beginning in systole and lasting over diastole with an accentuated second pulmonic sound. The diagnosis was open ductus arteriosus. As time went on the patient developed paralysis of the left recurrent laryngeal nerve. The patient was sent to a well known radiologist who took an x-ray and in sending the plates back wrote a letter in which he made an exact diagnosis of the condition from his standpoint, stating, "this is an instance of mitral stenosis with dilatation of the left auricle, and pressure upon the recurrent laryngeal nerve," but it did not occur to the radiologist that there were other methods of making the diagnosis.

Dr. Abraham Jacobi, of New York City, said that he knew a baby when he was only a few months old. He was now a boy twelve years of age. His ductus had been closed nearly three years. He saw him once or twice every year and always found the same symptoms, the murmur getting less and less marked until finally it disappeared not only from the carotids but also from the pulmonary artery from below up.

CERTAIN TESTS OF RENAL FUNCTION.

Dr. W. S. Thayer, of Baltimore, related 18 instances of severe advanced chronic nephritis, and concluded that where he had been able to correlate the anatomical and clinical observations, they served to fortify and to verify his previous opinion that the phthalein test was a reliable one of considerable diagnostic and prognostic value, especially in the study of chronic nephritis.

DISCUSSION.

Dr. Charles F. Withington, of Boston, reported several cases of nephritis. One of the patients, a man, brought into the hospital unconscious, showed unmistakable symptoms or evidence of acute nephritis. There was a history of convulsions and of his being comatose. Twenty-four hours after he was brought in the phthalein output was 70 per cent. His condition proceeded to clear up and he went out about two weeks after he was brought in showing a surprising phthalein output, although manifesting signs of nephritis.

Dr. Joseph L. Miller, of Chicago, stated that a man came to the hospital, not very ill, in whose case a definite diagnosis of chronic interstitial nephritis was made. He was passing 2000 c.c. of urine a day. He could not get a trace of phthalein through in two hours. In forty-eight hours and up to the time he went into coma, he passed a large amount of urine, and at the end of that time went into coma and died. Autopsy showed a high degree of interstitial nephritis.

Dr. Thayer (closing): said there were many instances of hydropic nephritis with very few grave subjective symptoms excepting the hydrops. One found sometimes large quantities of albumin and casts in the urine, yet there was perfectly normal renal function if we estimated it by these tests, excepting the question of salt retention.

SYPHILITIC NEPHRITIS

Dr. Alfred Stengel and Dr. J. Harold Austin, of Philadelphia, in a joint paper stated they had examined the urine with the polarizing microscope fifty-eight times from forty-six cases. Of these 46, 23 showed nephritis with an abundance of albumin and casts in the urine. Of these 23 cases, six had positive Wassermanns, 3 had strong presumptive evidence of syphilis, but no positive Wassermanns; 14 had not the slightest evidence of syphilis. The six cases with positive Wassermanns, all showed lipoids in the urine. The rest of the 46 cases studied were made up in part of nephritis cases of the interstitial or arteriosclerotic types, with only traces of albumin in the urine, and a few hyaline and granular casts, some with syphilis and some without, any number of cases of syphilis but with no nephritis, and any number of control cases with neither syphilis nor nephritis. None of these cases showed lipoids in the urine. One of the six syphilitic cases with nephritis showing lipoids in the urine had not received any mercury.

They found of further interest the fact that of their last 84 cases of nephritis, for 46 cases there could be recognized from the histories such accepted etiological influences as infections, lead, alcohol, excessive work, exposure, senility, etc., but that for 18 cases no such factors could be determined. Of these 18 cases, there existed in eight either an unquestionable history of syphilis or a positive Wassermann or both, and in six more of these cases no Wassermann had been secured.

In order to determine whether the common experimental degenerative nephritides of animals would be associated with lipoids in the urine, three rabbits were given uranium nephritis and one dog a chromate nephritis. The four experiments were negative; no lipoids were found in the urine. Further experiments with mercurial nephritis, phosphorus and chloroform lesions and syphilitic inoculations were in progress.

X-RAY EVIDENCE IN EARLY AND LATENT CANCER OF THE STOMACH.

Drs. Franklin W. White and Ralph D. Leonard, of Boston, said their material consisted of 114 hospital and private cases suspected of having can-

cer of the stomach, thoroughly examined within a year by clinical and x-ray methods. In forty cases cancer was proved; in sixty-six it was ruled out; in eight the diagnosis remained doubtful. The group of cases was studied to determine how far the x-ray evidence had helped to detect early or latent cancer. Recent cases were chosen because of recent improvements in x-ray technic. The x-ray evidence in early cancer was very scanty; in latent cancer it was abundant and important. In the group of operated cases of cancer, a comparison of correct diagnosis before and after x-ray examination showed the latter distinctly higher.

THE PATHOLOGIC EVIDENCE OF THE RELATIONSHIP BETWEEN GASTRIC ULCER AND GASTRIC CARCINOMA.

DR. LOUIS B. WILSON, of Rochester, Minnesota, stated that any existing disagreement as to the relationship between gastric ulcer and gastric carcinoma depended on (1) failure to understand the pathologic data. (2) Inappreciation of the bearing on the clinical data; or (3) failure to appreciate the correlation existing between the two.

Small gastric ulcers were usually simple and large cauliflower cancers usually showed little evidence of previous ulceration, but between these two lay a large group of ulcerated lesions of the stomach, some of which were ulcers only and others of which resembled ulcers in all respects, except that in addition they also showed cancer.

So far as the pathologist was concerned, he could not positively distinguish, in many such specimens, between simple ulcer and ulcer plus cancer, except with a microscope. When, in such a specimen showing cancerous areas, no cancer cells were found in the base of the ulcer one was warranted in assuming that the ulcerative lesion preceded the cancer.

A review now in progress of all the tissue removed from the stomach and duodenum in the Mayo clinic since 1905 showed that approximately 60 per cent. of the specimens which showed cancer gave more or less pathologic evidence of the precedence of ulcer in the same area.

Of the specimens of gastric tumors examined pathologically and diagnosed either cancer or cancer on ulcer, there was agreement between the clinical diagnosis and the pathologic diagnosis in more than 80 per cent. of the cases.

THE INSPIRATORY EXAGGERATION OF THE DICROTIC WAVE IN PERICARDITIS.

DR. ALBERT E. TAUSSIG, of St. Louis, Mo., stated that ordinarily, the dicrotic wave in the radial sphygmogram did not vary in size with the phase of respiration. In pericarditis, however, it became more or less exaggerated, sometimes greatly so, during inspiration. In all of the five cases studied from this point of view, the phenomenon was observed. Anatomical considerations rendered its occurrence readily explicable. It might have diagnostic significance.

INTRAUTERINE AMPUTATION.

DR. GEO. DOCK, of St. Louis, Mo., reported a case bearing on the pathology of so-called congenital amputation with x-rays and photographs.

THE ETIOLOGY OF SOME OF THE INFECTIVE TROPICAL GRANULOMATA.

DR. RICHARD P. STRONG, of Boston, stated that among the infective granulomata which occurred more commonly in certain tropical countries, which were perhaps of unusual interest from an etiologic point of view, were verruga peruviana ulcerating granuloma of the pudenda, and framboesia. The relation of these forms to one another was considered.

Verruga peruviana and oroya fever had been considered to be merely different stages of the same disease, oroya fever having been regarded as the initial stage of the granulomatous verruga stage. The two diseases, however, were quite distinct and had a very different etiology. Verruga peruviana was due to a virus which might be transmitted to some of the lower animals, while oroya fever owed its origin to a parasite of the red blood corpuscles. The two diseases also had a very different pathology.

The etiology of ulcerating granuloma did not seem to be definitely determined.

In view of the recent work in the transmission of the virus of verruga to some of the lower animals, it was recommended that more extensive experiments be carried out with the idea of transmitting ulcerating granuloma to monkeys.

A DIFFERENTIAL STUDY OF COCCIDIOIDAL DISEASE AND BLASTOMYCOSIS.

DRS. P. K. BROWN AND W. T. CUMMINS, of San Francisco, stated that cats and white rats were found to be markedly insusceptible to infection. Rabbits and guinea-pigs appeared to be somewhat more susceptible to coccidioidal than blastomycetic infection. Coccidioidal involvement was noted in two rabbits, while the cerebrospinal tissues remained unaffected in all animals in advanced disease. Passage through animals exalted the virulence of the organisms. Highly acid and alkaline agar offered but little inhibition to the growth of the organisms. There was profuse aerobic growth in, but no fermentation of, eighteen sugars. Fifty dyes were studied for their inhibiting effect upon the growth of the organisms. Crystal violet was found to be the most inhibitive and in concentration forty times greater than the minimum inhibitory dose, was not toxic for guinea-pigs and white rats.

They discussed the differentiation of the two diseases clinically, pathologically, and bacteriologically and by animal experimentation.

THE INFLUENCE OF BENZOL INHALATIONS ON EXPERIMENTAL PULMONARY TUBERCULOSIS IN RABBITS.

DR. WILLIAM CHARLES WHITE, of Pittsburgh, stated that benzol $C_6 H_6$ was the best solvent for the fat portion of the tubercle bacillus. It extracted a greater percentage of fat than any other single solvent would take from the bacilliary substance. Because benzol could be easily vaporized and utilized as an anesthetic, it was thought possible in this way to dissolve living tubercle bacilli after their entrance into the pulmonary capillary system by way of the ear vein and before the formation of the tubercle.

It was hoped in this way to obtain a solution of all the living portions of the tubercle bacillus within the body and the possible development of a retarda-

tion of the process produced by a fatal dose of tubercle bacilli and the establishment of an immunity to a further dose of the organism. Contrary to the desire expressed in the theory, he found that in every instance whether the infecting tubercle bacilli were of low virulence or of high virulence, the resulting infection in rabbits was very much more severe in those treated by inhalation of benzol than in those infected with the same weight of infecting organism.

The symptoms produced in rabbits by the inhalation of benzol were similar to those described by Torald Sollmann for the inhalation of gasoline vapors. Animals might be given benzol inhalations, 5 c.c. every second day for periods up to three and even four weeks without resulting in death. The resulting leucopenia varied very much, the lowest white cell count was 3800 per cm. The red cell anemia was very variable, the lowest in our series being 3,600,000 per cm. The majority retained a normal red cell count.

The blood smears and counts exhibited changes similar to those described for the injections of benzol by Selling and others.

In all thirty-three animals were used; twelve controls and twenty-one treated. The pathologic findings in many of these animals were very striking. In thirty per cent. of the treated animals, after receiving 5 c.c. inhalations of benzol every second day for three weeks, and then being allowed to live two to three weeks longer, extreme enlargement of the spleen was found. In one instance the spleen measured 13 x 3.5 x 3 cms., and the circumference of its largest part was 9.5 cms. There was a large hemorrhage in the substance of this spleen.

There was in all twenty-one treated animals but a single case of purpura with hemorrhages into the mucous membrane of the stomach and bowel.

There were marked fatty changes both in the liver and the kidneys of the treated animals.

SOME RELATIONS OF THE BRAIN AND OF THE OLFACTORY APPARATUS TO THE PROCESSES OF IMMUNITY.

Dr. Henry Sewell, Denver, Colorado, drew the following conclusions from his experimental work on this subject:

1. Guinea-pigs sensitized to horse serum may be desensitized by residence in a horse stable.

2. It was probable that this reaction might be rapidly achieved through the olfactory sense or more slowly by absorption through the respiratory membrane.

3. The period of anti-anaphylaxis was of less than two days' duration.

4. The converse of this, sensitization of normal guinea-pigs in stable air he had not been able to achieve.

5. Removal of part of the brain of a sensitized guinea-pig produced much more severe shock than the same amount of injury in a normal animal.

6. This shock was apt to be followed by a period of anti-anaphylaxis of short duration.

7. Section of the olfactory nerves within the cranial cavity preceding the brain operation by a day or more abolished the tendency to shock.

8. Such nerve section in the normal animal also seemed to reduce the shock arising from definite brain injury.

Depression of the olfactory sense through cocain and the resemblance of symptoms from poisoning with this drug to those of anaphylaxis were discussed.

The body as a whole might be sensitized through the peripheral application of horse serum after a definite latent period which did not seem to be affected by previous general sensitization.

THE NORMAL AMOUNT OF DIASTATIC FERMENT IN THE URINE AND FECES AND ITS VARIATION IN DISEASES OF THE PANCREAS.

Dr. Thomas R. Brown, of Baltimore, stated that from his study of the diastase-content of urine and feces in normal and in certain pathologic conditions, the following conclusions could be drawn:

1. In healthy individuals the diastase-content of the urine falls within quite definite limits. Markedly small amounts of this ferment in the urine, in the absence of renal changes, were suggestive, although not diagnostic, of pancreatic disease, but the real value of these normal limits would probably be in furnishing criteria in testing the renal function by the diastase output of the urine.

2. The stool, if rigorously exact methods are carried out as to food (milk), purgative employed, preservation of specimen, estimation of ferment, etc., also furnished a content within definite limits. He could not insist too strongly upon the procedure being exactly the same in all cases. The effect of waiting too long after the stool has been obtained before making the examination, the influence of variations in temperature in the place where it was kept, and of different laxatives and different foods, was so great as to render the results obtained by methods in which insistence upon such a rigorous technic had not been made of much less value.

3. Extensive carcinoma of the pancreas showed no diastase in the tubes of least dilution in his method, and this absence of ferment should prove of help in the diagnosis of this condition.

4. In chronic pancreatitis diastase was present in the stool, but in markedly diminished amounts.

5. In achylia gastrica the diastase-content of the stool was practically normal in all the cases examined. This, in the first place, suggested that in the absence of hydrochloric acid some other method of pancreas invasion was called into play; and, in the second place, that the diarrhea met with in certain of these cases of achylia gastrica—the so-called gastrogenous diarrheas—was not of pancreatic origin.

6. If all the controllable factors were standardized, the results obtained by the study of the diastase-content of the stool should be of real value in the diagnosis of pancreatic disease and in the study of functional disturbances of this gland.

ACONITE AS A VASO-DILATOR.

Dr. William Hanna Thomson, of New York City, stated that after many years of experience in the use of aconite in chronic interstitial nephritis, he regarded it as the most efficacious vasodilator which we possessed, when given systematically in full doses. Aconite thus administered reduced, at once, the blood pressure, produced a full and compressible pulse, and greatly increased the percentage of the elimination of urea in interstitial nephritis. The most important action of aconite, when administered in interstitial nephritis, was to increase the elimination of urea. The beneficial effects of aconite were particularly pronounced in mental derange-

ments of the nature of melancholia with high blood pressure.

THE SUBCUTANEOUS ADMINISTRATION OF OXYGEN AS A THERAPEUTIC MEASURE.

DR. JOHN MCCRAE, of Philadelphia, stated that he had used oxygen in this way for the last two or three months and believed it was the rational method of administering it, and properly placed, it was useful. He had had occasion to employ it in a surgical case which had a severe operation. The patient looked as though he might die in a short time. His respiration was 60; he had extreme edema of the lungs, extreme pallor, profuse perspiration, and signs of impending death. With repeated injections of oxygen the man recovered. He had used oxygen in thirty cases and believed it should be a part of the armamentarium of the surgical operating room.

INFECTIOUS AND TOXIC FORMS OF TRANSVERSE MYELITIS.

DR. B. SACHS, of New York City, reported five cases of complete transverse myelitis. Of this number, four recovered completely, and one proved fatal.

The first of these cases he reported two years ago with the idea that the transverse myelitis was due to the poliomyelitis virus, that statement being based on the fact that the case appeared during the epidemic of poliomyelitis in New York City, and in many respects it was similar to poliomyelitis. There was some peculiar form of infectious transverse myelitis which in four out of five cases led to recovery. The condition was more common than heretofore supposed and should receive further consideration.

EPIDEMIC OF STREPTOCOCCUS SORE THROAT.

DR. JOSEPH A. CAPPS AND DR. J. D. DAVIS, of Chicago, described in a joint communication an epidemic of streptococcus sore throat in Jacksonville, Illinois, which was traced to the milk of cows affected with streptococcic mastitis.

DISCUSSION.

DR. GEO. M. KOBER, of Washington, D. C., pointed out that he made his first collection of milk-borne epidemics in 1894, and at that time was impressed with the studies made in England by Kline, Crookshank, and others in regard to so-called epidemics of scarlet fever which they attributed at that time to an inflammatory condition of the teat or udder of the animal. In analyzing the situation he concluded and ventured to express the opinion in 1895 that these were not true cases of scarlet fever, but typical instances of either staphylococcic or streptococcic infections, because he had seen a great many instances where an eruption similar to that observed in cases of scarlet fever was due to streptococcus infection.

With our present knowledge of milk-borne diseases, nothing short of pasteurization of milk would confer immunity from these infections.

DR. R. C. CABOT, of Boston, asked what sort of an eruption it was.

DR. CAPPS replied that it was erythematous. Four of the cases were described and diagnosed by very good clinicians as erysipelas.

PATHOGENESIS OF POLIOMYELITIS IN THE LIGHT OF RECENT RESEARCH.

DR. SIMON FLEXNER, of New York City, stated that recent experimental studies on poliomyelitis confirmed the view that in man infection occurred through the upper respiratory tract, and that the virus passed to the central nervous organs by way of the cerebrospinal fluid and not by way of the blood.

Book Reviews.

Die Moderne Therapie der Gonorrhöe beim Manne. Ein Leitfaden für Studierende und Aerzte. Von PROF. DR. PAUL ASCH, in Strassburg i. Els. Mit 25 Abbildungen in Text. Bonn: A. Marcus and E. Webers Verlag. 1914.

This small pamphlet of eighty-one pages contains twelve short lectures which embody the author's fifteen years' experience in the treatment of this disease. There is no attempt at completeness, and the writer states in his preface that his sole object is to present in brief form, his own beliefs and opinions as acquired from his own experience. The German is terse and vigorous and no words are wasted, so there is much knowledge contained in a small space. Type and paper are excellent, and there are twenty-five sketches, chiefly of instruments in common use.

Modern Medicine, Its Theory and Practice. In Original Contributions by American and Foreign Authors. Edited by SIR WILLIAM OSLER, Bart., M.D., F.R.S.; and THOMAS MCCRAE, M.D. Volume II, Diseases Caused by Protozoa and Animal Parasites, Diseases Due to Physical, Chemical and Organic Agents, Diseases of Metabolism and of the Respiratory System. Second edition, thoroughly revised. Illustrated. Philadelphia and New York: Lea and Febiger. 1914.

The second volume of this standard text-book requires little in the way of comment. The eminent authors have revised their special sections; there is a new section on pellagra. Dr. Osler and Dr. Churchman have written an authoritative article on syphilis.

A Manual of Clinical Diagnosis by Means of Laboratory Methods. By Charles E. Simon, M.D. Eighth edition, enlarged and thoroughly revised. Philadelphia and New York: Lea and Febiger. 1914.

The eighth edition of this well-known manual has grown to eight hundred pages. Like its predecessors, it contains all the modern methods of laboratory diagnosis. There is an adequate discussion on complement fixation tests, renal function tests, and the Abderhalden's pregnancy test.

Forensic Medicine and Toxicology. By G. O. Hawthorne, M.D., fellow of the Royal Faculty of Physicians and Surgeons of Glasgow, lecturer on Forensic Medicine in the London School of Medicine for Women; physician to the North-West London and Royal Waterloo Hospitals. Third edition. New York: Longmans, Green and Company. London: Edward Arnold. 1914.

In this book the author has given a remarkably clear and definite statement of the distinction between the expert, drawing inferences from facts, and the ordinary witness testifying to facts. It can be readily seen that usages in English courts are somewhat different from our own. In the detection of blood stains the author states that there are no means by which menstrual blood can be differentiated from blood from a wound, yet this formed an important point in the Tucker trial, where the presence of menstrual blood was determined by the association of vaginal cells. The author is up to date in his illustrations and references, using the Crippen case for proof of the positive application of the Vitali test to vegetable alkaloids (hyoscin, hyoscyamin and atropin alone, and not to the mydriatic animal alkaloid (ptomaines). Full attention is paid to the danger of water gas with its dangerous carbon monoxide. Another fact upon which he dwells, illustrated by a fatal case of poisoning, is that illuminating gas may make its way into a house from a broken street main, cause the death of an individual in the room, without an explosion, though a burning light was constantly present. His differential diagnosis of the causes of unconsciousness could be read with profit by every police surgeon, where the presence of cerebral disease or alcoholism has often to be decided and by whom a mistake is frequently made. Although, as stated, the practices of the courts of Britain differ from those of our own, so much marked good sense is contained in this book that it can be perused with profit by all interested in medical jurisprudence.

Practical Sanitation. By Gardner and Simonds. St. Louis: C. V. Mosby Company. 1914.

The authors of this book have accomplished their object of providing a plain, non-technical exposition of the duties of the health officer. With this volume at hand the health officer should certainly be able to cope more efficiently with the exigencies of his duties. It is obviously not intended for the man in charge of large city or state health organizations, but should admirably meet the needs of the health official of small municipal or rural communities, and should be readily comprehensible to the non-medical man.

Part I, which takes up the consideration of epidemiology, gives information in regard to the management of epidemics, isolation and quarantine, isolation hospitals and camps, and disinfection, which could not readily be found except by a man with a large library at hand. The grouping of the diseases is perhaps not entirely logical, and the discussion of the diseases might well be more from a sanitary and hygienic point of view rather than clinical.

Part II, on general sanitation, should prove extremely valuable as indicating the lines along which the duties and opportunities of the health officer lead, and in guiding him in the methods of carrying out his work. The all-important subject of vital statistics is given due prominence, and is presented in such a manner as to enable the local health officer to keep satisfactory records of his community, even though he had no previous statistical training. In this section of the book are also taken up such matters as the inspection of schools, factories, and public institutions, the disposal of sewage and garbage, the subject of soil pollution, the conduct of various campaigns, as those against rats and flies, and finally the inspection of food, including milk and water.

Of course the legal aspect of health work could not be given a comprehensive discussion in a book of this nature, as the problem is one which varies with each community; but a number of valuable hints are given which should be of great value to the sanitarian in his relation with the law.

Part III, which deals with laboratory methods would be of more value if, instead of limiting itself too much to methods of collecting samples and transporting them to the laboratory, would take up at least the simpler laboratory technic in a manner which would enable the reader to undertake these processes.

The book on the whole, while not being a text-book on sanitation, undoubtedly fills a long felt want, and should go far toward improving the health administration of the smaller localities. The principles laid down are certainly in accord with the accepted teachings, and while being thoroughly up to date, do not advocate any of the extremely recent and untried methods.

THE BOSTON

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101 TREMONT STREET, BOSTON, MASS.

ANNOUNCEMENT.

ON April 10, 1914, the BOSTON MEDICAL AND SURGICAL JOURNAL passed into the hands of new owners. On June 10, 1914, the Council of the Massachusetts Medical Society adopted the recommendations of its Committee of Nine, looking toward an affiliation between the Massachusetts Medical Society and the BOSTON MEDICAL AND SURGICAL JOURNAL.

We, the new owners, desire to express our appreciation of the confidence thus shown in the new management, and assure the members of the Massachusetts Medical Society that we will make it one of the chief concerns of the JOURNAL efficiently to serve the Society, whose official organ it will thus become. We feel that with this association the first step has been taken toward enlarging the scope of the JOURNAL.

We recognize the dignified position which this, the oldest weekly medical journal in America, has always held. Our purpose is to maintain this position of dignity. Our hope is that in the future the JOURNAL may become the most important medium of expression for scientific and clinical medicine in the East, and with courage and timeliness may serve the needs of the community.

Our predecessors in ownership accepted the JOURNAL as a trust, deriving no personal profit therefrom. We, in the same spirit, agree to devote to the realization of those hopes we have expressed, any revenue above expenses which the JOURNAL may afford.

We shall welcome criticism of every sort and from all sources, and we ask the help of all those who have the best interests of medicine at heart.

JOEL E. GOLDTHWAIT, M.D.,
EDWARD C. STREETER, M.D.,
HUGH WILLIAMS, M.D.

MASSACHUSETTS MEDICAL SOCIETY.

THE one hundred and thirty-third annual meeting of The Massachusetts Medical Society was held in Boston on Tuesday and Wednesday of last week, June 9 and 10. The weather of the first day was unseasonably cold, that of the second day very hot; but all the exercises and sessions were well attended.

During the forenoon of June 9 members of the Society were invited to attend specially arranged medical and surgical clinics and demonstrations at the principal Boston hospitals. The annual meeting of the Council was held at noon on this day, and in the afternoon the sections of medicine, surgery, and tuberculosis held their separate sessions at the Copley-Plaza Hotel.

The Shattuck Lecture was delivered in the evening of June 9 by Dr. Herbert C. Moffitt of San Francisco, Cal., and was well received by a large audience of members. It will be published in full in a later issue of the JOURNAL. Following the lecture there was an informal reception by the President and a most enjoyable pop concert, with light refreshments, in the ball room.

On the morning of Wednesday, June 10, the annual meeting of the Society was held at the Copley-Plaza. Dr. Charles F. Withington, of Boston, was elected president for the ensuing year. Dr. Samuel B. Woodward, of Worcester, was elected vice-president; and Dr. Everett A. Bates, of Springfield, orator to deliver the annual discourse in 1915. At noon the annual discourse of this year was delivered by Dr. Horace D. Arnold, dean of the Harvard Graduate School of Medicine.

Dr. Arnold touched upon many current medical and sociologic problems, on medical education, the registration of physicians, health education of the public, the milk problem, and med-

ical legislation. Of the recent anti-vaccination movement, he spoke as follows:—

"Our recent experience with the vaccination laws shows the danger of public indifference. The present generation knows practically nothing about this loathsome disease of smallpox, which was formerly a veritable scourge, and a great many physicians have never seen a case. People have come to accept this freedom from smallpox as a matter of course, and they are apt to forget that constant vigilance on the part of the health authorities and the continued protection of vaccination alone stand between them and the possibility of a serious outbreak of this disease. It is greatly to the credit of the representatives that they were not carried off their feet by the fierce onslaught of the friends of the bill.

"The danger is passed for the time being, but it is not eliminated. But in this connection the medical profession has a duty to itself. It should see that its members are above criticism in the way vaccination is performed. Let us be frank about the matter. There is danger in vaccination—not in the vaccine itself, but in careless methods of using it. In Massachusetts a clean safe virus is furnished by the state to all citizens free of charge. It is a fact that a certain small number of cases of infection do result either because the physician is careless in the operation or because he does not sufficiently instruct the patient about the after-care. It should be considered as much a disgrace to a physician to have an infected wound follow vaccination as it is to have it follow a surgical operation, for it is equally avoidable.

"This is an active issue between the profession and the public. A certain number of persons have just reason to complain of the results of vaccination when it has been improperly performed. In their ignorance they attach the blame to the procedure itself, instead of to carelessness. And the reputation of the whole profession suffers because we thus tacitly shoulder the errors of incompetent practitioners."

In the afternoon of June 10 the combined meeting of the three sections of the Society was held at the Massachusetts General Hospital. The annual dinner at the Copley-Plaza in the evening was attended by 850 members and guests. The retiring president, Dr. W. P. Bowers, of Clinton, Mass., was toastmaster, and addresses were made by Governor Walsh, Bishop Lawrence, Dr. Frederick C. Shattuck of Boston, Dr. Edward L. Martin of Philadelphia, Dr. Herbert C. Moffitt of San Francisco, Dr. James W. Kerr of Washington, assistant surgeon-general of the United States Public Health Service, and Dr. Withington, the president-elect of the Society.

The meeting was in every feature a success, and especial credit is due the members of the committee of arrangements, whose efficiency and hard work made this success a possibility and a reality.

MEDICAL LEGISLATION. MASSACHUSETTS STATE BOARD OF INSANITY.

While the subject of the organization of the Massachusetts State Board of Insanity, to which we made editorial reference in the issue of the Journal for April 9 (p. 584), is under consideration by the joint legislative committees on ways and means and public institutions, a tentative bill has been prepared for discussion by those committees. This bill provides for a board of insanity, to consist of three members, to be appointed by the governor for terms of three years, one to retire every year, and each to be paid a salary.

"The chairman is to be designated by the governor and all are to devote their whole time to the work. At least one member must be an expert in matters relating to insanity and the insane. The bill removes prohibition against the appointment of members of the present General Court. Any member may for cause be removed by the governor. The bill also provides for a paid executive secretary, who must be a physician and an expert on insanity.

"In addition to its present powers, the board is given charge of all insane, feeble-minded, and epileptic persons, and persons addicted to the intemperate use of narcotics or stimulants, the care of whom is vested in the Commonwealth by law, and of all institutions or buildings owned by the Commonwealth and used for the care of such persons. The Norfolk State Hospital and the hospital cottages for children are excepted. These are to be in charge of the State Board of Charity.

"For each institution under control of the board there is to be a board of seven trustees, five men and two women. There must be thorough visitations of each institution by two of the trustees at least once in two weeks, and by a majority of them quarterly, and by the whole board semi-annually; and after each of such visits a written account of the condition of the institution must be transmitted to the State Board of Insanity. The trustees are to receive no compensation for their services."

In general, the provisions of this plan seem well conceived and adequate. Its further discussion in committee will doubtless lead to suggestions for its satisfactory improvement.

THE SURGEON-GENERAL'S LIBRARY.

In the United States Army appropriation bill, which passed the Senate some weeks ago, it was provided that the appropriation for the Surgeon-General's Library shall be conditional upon its merging with the Congressional Library, of which it shall became a subordinate department. This provision was inserted without consultation with either the surgeon-general or the librarian of congress, and seems a most unwarrantable piece of aggression. As a matter of fact both of them are opposed to the change. Whatever might be the administrative conveniences of such a step, they would be more than outweighed by the disadvantages of curtailing the independence and abrogating the autonomy of the largest and most valuable medical library in America. It is sincerely to be hoped that this objectionable provision will be stricken from the appropriation bill in its consideration before the House.

MEDICAL NOTES.

LONDON DEATH-RATES IN APRIL.—Statistics recently published show that the total death-rate of London for April, 1914, was only 13.8 per 1000 inhabitants. Among the several districts and boroughs the highest rate was 19.1 in Finsbury, a crowded central slum, and the lowest was 9.9 in Lewisham, a suburb on the south.

AN OUTRAGE IN DUNDEE.—The following political outrage at Dundee is reported in a recent issue of the *Lancet*:—

"A new hospital for women in Dundee, which was on the point of completion, was partly destroyed by fire in the early morning of May 22nd. The hospital was to have been opened next week. The damage is estimated at some £2000 or possibly more. The hospital, a two-storied building, was erected through the liberality of a number of leading citizens, and was designed to take the place of the present hospital for women in Seafieldroad, which falls to be vacated next week. The new hospital was begun nearly two years go, and every effort was being made to get it ready for occupation. It is generally assumed that the fire was the work of suffragists. Messages such as are common in other incidents of the kind were found. It is believed that six months will be required to get the damage repaired, and although the numbers at the old hospital were being kept down with a view to the removing from one premises to the other, it is probable that temporary accommodation will have to be provided. Fortunately the loss is covered by insurance."

EXPERIENCE WITH VACCINATION AT BELFAST.—In connection with our recent local discussions about vaccination, the following item from Belfast, Ireland, seems of interest:—

"A convincing statement has been sent to the Belfast board of guardians from the council of the Ulster Medical Society and from the executive committee of the British Medical Association (Belfast division) in reference to the campaign now being conducted in Belfast against vaccination. Details of local experience and of great importance are given. In the last outbreak of smallpox in Belfast (1904-05) out of 178 cases there were 9 deaths. Of those attacked, 146 had been vaccinated and 2 of them died, while of 32 who had never been vaccinated 7 died. Thus, 1 out of every 5 unvaccinated people who contracted smallpox died, while of every 73 vaccinated only one succumbed. There was not a single case of smallpox in a revaccinated person. Moreover, the medical superintendent of the Belfast Fever Hospital, whose experience extends over 20 years and covers six outbreaks, has never had a case of smallpox in a revaccinated person."

HONOR FOR DR. LOEB.—It is announced that Dr. Jacques Loeb, of the Rockefeller Institute for Medical Research, has been elected a corresponding member of the section of anatomy and zoölogy of the Paris Academy of Sciences, in succession to the late Lord Avebury.

HONORARY DEGREE FOR DR. AGRAMONTE.—At the recent commencement exercises of Columbia University, one of the seven honorary degrees of D.Sc., was conferred on Dr. Aristides Agramonte, of Havana. In awarding the degree President Butler addressed Dr. Agramonte as follows:—

"Aristides Agramonte—Bachelor of Arts of the University of Havana, and Doctor of Medicine of Columbia University of the class of 1892; sole survivor of a famous group of scientists and public servants who, in order to test the theory of the transmission of yellow fever by mosquitoes, began the experiments on themselves; and who have lived to see your native island freed, largely through your own efforts, of its worst scourge; professor of bacteriology and experimental pathology in the University of Havana."

No one can fail to recall in this connection President Eliot's characterization of Dr. Walter

Reed, in conferring upon him the honorary degree of A.M. at Harvard in 1902, as "the army surgeon who planned and directed in Cuba the experiments which have given man control over that fearful scourge, yellow fever."

Plans for a National Leprosarium.—Report from Washington, D.C., states that on June 4 two bills pertaining to leprosy were introduced into the national House of Representatives. One of these authorizes the surgeon-general of the United States Public Health Service to select an island in any insular or territorial possession for use as a national home for lepers, appropriating $150,000 for that purpose. The other bill appropriates $500,000 for the same purpose, the site for the leprosarium to be selected by the surgeons-general of the Army, Navy, and Public Health Service.

A Centenarian.—Mrs. Anthony Lossaso, who died on June 7 at Paterson, N.J., is said to have been born in 1804 in Italy. She married her fifth husband in 1909.

The Italian Quintuplets.—In the issue of the Journal for May 28, we published a communication relative to the reported birth of quintuplets at Palermo in Italy. In the issue of *La Domenica del Corriere*, a Milan paper, for May 31, is a statement confirming this report, with a colored frontispiece showing the parents, the doctor, and five nurses holding the five babies.

BOSTON AND NEW ENGLAND.

Cases of Infectious Diseases reported to the Boston Board of Health for the week ending June 9, 1914: Diphtheria, 45, of which 2 were non-residents; scarlatina, 68, of which 9 were non-residents; typhoid fever, 3; measles, 168, of which 1 was non-resident; tuberculosis, 77, of which 1 was non-resident.

The death-rate of the reported deaths for the week was 16.04.

Fiftieth Anniversary of Boston City Hospital.—Invitations are issued by the Trustees of the Boston City Hospital to the semi-centennial observance of the opening of the hospital, which will be celebrated with appropriate exercises in the surgical amphitheatre on Saturday of this week, June 20, at 11.30 a.m. The twenty-fifth annual meeting of the Boston City Hospital Alumni Association will be held at the Copley-Plaza Hotel on the same day, at 6.30 p.m. Dinner will be served at 7 o'clock, immediately after the business meeting. Dr. Philip Coombs Knapp will preside. The following are the invited guests, some of whom will speak: The Trustees of the Hospital, His Excellency the Governor of Massachusetts, His Honor the Mayor of Boston, Hon. Samuel W. McCall, Major-General Hugh Bancroft, Herbert G. Woodworth, Esq., Dr. Josiah N. Hall, Dr. H. C. Baldwin, Dr. John G. Blake, and the President-elect of the Alumni Association.

Living Centenarians.—Mary Everett, of Fort Fairfield, Me., is said to have been born in 1812. She recently made a journey alone to the West to visit her daughter.

Mrs. Lemuel Cox, of Malden, Mass., is said to have been born in that city in June, 1812. All of her seven children are deceased, but her own health remains excellent.

Two Venerable Physicians.—It is a noteworthy fact, at this commencement season, that the oldest living graduate of both Harvard and Yale is a physician. Dr. James Lloyd Wellington, of Swansea, Mass., graduated from Harvard in 1838; and Dr. David F. Atwater, of Springfield, Mass., from Yale in 1839.

Newton Hospital Training School.—The annual graduation exercises of the Newton (Mass.) Hospital training school were held in that city on June 4. The principal address was made by Dr. Joel E. Goldthwait, of Boston, and diplomas were awarded to 21 graduating nurses.

Open Air School on Castle Island.—Beginning the last week in June, an open air school will be maintained through the summer on Castle Island in Boston Harbor by the Boston Dispensary, the Boston Instructive District Nursing Association, and the Boston Society for the Relief and Control of Tuberculosis. This school, which is intended as a successor to the former one at Franklin Park, is designed not for children actually tuberculous, but for those predisposed to tuberculosis, whose resistances it is hoped by this measure so to strengthen that they may become capable of successfully avoiding subsequent infection.

MILK AND BABY HYGIENE NURSES.—It is announced that of the $2000, for which an appeal was made by the Boston Milk and Baby Hygiene Association in the issue of the JOURNAL for May 28, $1000 have already been raised, and additional nurses have in consequence been assigned to the milk stations in South Boston, East Boston, and the West End. Other nurses will be assigned as soon as the remainder is subscribed.

HOSPITAL BEQUESTS.—The will of the late Nellie H. Bonney, of Haverhill, Mass., which was filed in the probate court at Salem, Mass., on June 5, contains ultimate reversionary bequests of $5000 each to the Hale Hospital, Haverhill, and the Boston Floating Hospital.

The will of the late Esther F. Emerson, of Gloucester, Mass., contains a residual reversionary bequest for the foundation of a memorial hospital at Milford, Mass.

NEW YORK NOTES.

LEGACY BY DR. BRYANT.—By the will of the late Dr. Joseph D. Bryant, professor of surgery in the University and Bellevue Hospital Medical College, a trust fund of $1,000 is established for the benefit of New York University. The directions regarding it left by Dr. Bryant were as follows: "The income of this fund shall be devoted to instilling in the minds of the senior class the principles of ethics of the American Medical Association. This bequest is made in the belief that early admonition and the implanting of preventive means to seductive inclinations or dangers is the surest method of securing ethical practice in human affairs" Upon the death or remarriage of his widow, one-seventh of Dr. Bryant's residuary estate is to be given in trust to New York University, and one-seventh in trust to the New York Academy of Medicine. One contingent bequest of $10,000 is to be devoted to opposing the efforts of anti-vivisectionists in New York State.

BELLEVUE HOSPITAL.—The present house staff of Bellevue Hospital appears to be unusually rich in musical talent. On June 7 nine of its members, for the entertainment of the patients, gave on the hospital grounds an orchestral concert which was much appreciated by an audience of more than 1,200, including Dr. Brannan, president of the board of trustees, and Drs. O'Hanlon and Fleming, the medical superintendent and assistant superintendent of the hospital.

MORTALITY FOR WEEK ENDING JUNE 6, 1914.—There were 1291 deaths and a death-rate of 12.06 per 1000 of the population reported during the past week, as against 1447 deaths and a rate of 14.05 during the corresponding week of 1913, an absolute decrease of 156 deaths and of 1.99 points in the weekly rate, which is equivalent to a relative decrease of 213 deaths.

The following causes showed material decreases: measles, scarlet fever, diarrheal diseases under five years, digestive diseases other than diarrheal, acute respiratory diseases. Those causes showing an increased mortality were diphtheria and croup, whooping cough, typhoid fever, cerebrospinal meningitis, organic heart disease and violence. The mortalities from pulmonary tuberculosis, Bright's disease and nephritis, and diseases of the nervous system, were approximately the same as those for the corresponding week of last year.

Viewed from the point of age grouping there was a tremendous decrease in the mortality among infants under one year, there being 91 less deaths reported at this age. The mortality between one and five years of age was slightly lower, there being nine less deaths at this age period; between the ages of five and sixty-five years there was a decreased mortality of 85 deaths. The only age group that showed an increased mortality was that of over sixty-five years of age, there being 29 more deaths reported.

The death-rate for the first twenty-three weeks of 1914 was 15.15 per 1000 of the population, a decrease of .21 of a point compared with the corresponding period of 1913.

LONG ISLAND COLLEGE HOSPITAL.—At the annual meeting of the Association of Alumni of Long Island College Hospital at the Polhemus Memorial Clinic, on the evening of June 9, a striking announcement was made concerning the reorganization of the institution. A fifth year medical course has been adopted and the curriculum has been entirely changed to meet modern demands. Students will be accepted from the high school upon possession of a full medical student's certificate, and they will enter the preliminary year for instruction in chemistry, physics, biology, French or German, physiology and embryology. The freshman and sophomore

years will be devoted exclusively to the laboratory branches, and the various laboratories have been equipped with the latest and best apparatus. The junior year will include clinical work in medicine and surgery and daily dispensary work, while the fifth year will be devoted entirely to bedside work. Every clinical branch will have a full quota of resident full-time instructors.

Long Island College Hospital has at this time 300 beds and there is in course of construction a large wing which will give the institution 450 beds, making it one of the largest hospitals in New York. The clinical material in the hospital will be available for the students of the medical school, and the very close connection between the hospital and the college gives the students unsurpassed opportunities for bedside instruction. There has also been a considerable change in the faculty, and this reorganization, together with the addition of several full-time instructors, will give the institution a teaching staff of decided strength.

Award of Lucien Howe Prize.—It is announced that the Lucien Howe prize of the New York State Medical Society has been awarded to Dr. Mark J. Schönberg for his research work on ocular anaphylaxis.

Current Literature

Medical Record.

May 30 1914.

1. Leverety, A. S. *A Clinical Study of Traumatic Nerve Paralysis.*
2. Freudenthal, W. *The Management of Laryngeal Tuberculosis in Sanatoria and Private Practice.*
3. Rockwell, A. D. *Observations Based upon Forty-Five Years of Electrotherapeutic Work.*
4. Druskin, S. J. *Cesarean Section. Three Methods of Performing the Operation, with Illustrative Cases.*
5. Vandegrift, G. W. *Tobacco Amblyopia.*
6. Pease, M. C. *The Provocative Wassermann Reaction.*
7. Munro, H. S. *The Prevention of Psychic Trauma.*
8. Dickinson, G. K. *Divulsion of Arm and Scapula.*

New York Medical Journal.

May 30, 1914.

1. Einhorn, M. *Habitual Constipation and Its Treatment.*
2. Wohl, M. G. *The Present Status of Abderhalden's Reaction.*
3. Cornwall, E. E. *Lobar Pneumonia.*
4. Bisch, L. E. *The Recognition of Mental Deficiency.*
5. Woodbury, F. *The Treatment of the Insane in the Tropics.*
6. Hinkle, B. M. *Jung's Libido Theory and the Bergsonian Philosophy.*
7. Vandiver, A. C. *The Legal Status of Trained Nurses in the Administration of Anesthetics.*
8. Guttman, J. *Hydrorrhea Nasalis.*
9. Gerhard, S. P. *The Medical Colors.*
10. Klein, S. R. *Capital Punishment in the Electric Chair.*

The Journal of the American Medical Association.

May 30, 1914.

1. Simon, C. E. *The Abderhalden-Fauser Reaction in Mental Diseases, with Special Reference to Dementia Precox.*
2. *Janeway, H. H. *Results of Radium in Cancer.*
3. *McCaskey, K. W. *The Autosocrosalvarsan Treatment of Syphilis of the Central Nervous System.*
4. Burr, C. W. *Chronic Dementia, Cerebellar Ataxia and Epileptiform Convulsions in a Boy Caused by Ptomain Poisoning from Eating Canned Salmon.*
5. Sullivan, R. Y. *Pregnancy and Labor Complicated by Carcinoma of the Cervix Uteri.*
6. Davis, B. F. *Paraffin Cancer. Coal and Petroleum Products as Causes of Chronic Irritation and Cancer.*
7. Royster, H. A. *Elephantiasis and the Kondoleon Operation.*
8. Werelius, A. *Traumatic Detachment of the Bladder from Symphysis Pubis, with Complete Severance of Urethra. Use of the Labia Minora as a Substitute for Necrosed Anterior Vaginal Wall.*
9. Reynolds, H. S. *A Case of Acute Nicotin Poisoning of Peculiar Origin.*
10. Stimson, G. W. *Deaf-Mutism (Labyrinthine Deafness) as a Result of Purpura Hemorrhagica.*
11. King, J. J. *A Satisfactory Local Anesthesia for the Submucous Resection of Nasal Septum.*

1. Simon finds that a sex gland reaction, such as the Abderhalden test, may be obtained in nearly, if not all, cases of dementia precox at some stage of the disease, but that the reaction is not specific of dementia precox, as Fauser would have us believe. The author quotes a large amount of information from the literature and the paper is a well written treatise on this subject.

2. Janeway, considering the results so far reported on the treatment of cancer with radium, especially those of Wickham, makes the definite statement of its value about as follows: All operable cancers should be operated on immediately without delay. This is an absolutely fixed rule. Radium has no place in this type of growth. Radium confines its value to superficial growths, for it has been found that its more fully penetrating rays may even stimulate the growth of cancer cells situated deeply beneath those under treatment.

3. McCaskey's article is a description of refinements in technic of administration. [E. H. R.]

The Lancet.

May 9, 1914.

1. Ormerod, J. A. *The Lumleian Lectures on Some Modern Theories Concerning Hysteria. Lecture III.*
2. *Elliott, T. R., and Dingley, L. A. *Massive Collapse of the Lungs Following Abdominal Operation.*

3. *SWAN, R. H. J. *Tumors of the Urinary Bladder.*
4. *JEFFERSON, G. *Death from Hyperacute Streptococcal Infection (Streptæmia) Following Radical Removal of Cervical Tuberculous Glands with Stasinex.*
5. SIEBEL, S. *Congenital Icterus.*
6. CORNER, E. M. *The Role of the Cæcal Ligaments in Hemarthrosis and Incisions to the Knee.*
7. WELCH, H. V. *A Case of Carcinoma of the Breast in a Male.*
8. VERDON, H. W. *A Note on the Aspiration Function of the Heart.*

2. The writers have studied eleven cases of postoperative collapse of the lung and discuss this condition. Each had muco-purulent expectoration and high fever preceding the collapse, thereby closely resembling pneumonia. There is cardiac displacement toward the affected side and compensating emphysema of the sound lung. Pain and cyanosis may develop. At first there is dullness, immobility, weak breath sounds on the affected side, which later becomes bronchial. Usually, all signs vanish in two to three days, but in some cases a true pneumonia may develop. Expectorants should be given, and deep breathing encouraged.

3. Swan classifies, discusses and describes the various tumors of the bladder and remarks briefly on prognosis and treatment.

4. Jefferson describes a fatal case of operation for removal of tuberculous cervical glands and calls attention to the fact that this operation is not free from danger, particularly if discharging sinuses are present. [J. B. H.]

MAY 16, 1914.

1. WATERSTON, D. *Arris and Gale Lecture on the Development of the Heart in Man in Relation to Its Functional Activity.*
2. BATTLE, W. H. *The Diagnosis of Appendicitis.*
3. *PRITCHARD, E. *Common Errors in the Treatment and Diagnosis of Dietetic Disorders in Infants.*
4. MOULLEN, C. M. *A Case of Subtotal Gastrectomy Performed for Cancer of the Stomach Five Years Ago.*
5. HICKS, B. *A Pedunculated Intrabronchial Tumor (Sarcoma) Causing Bronchiectasis.*
6. *WALTON, A. J. *A Consideration of Some Cases of Exophthalmic Goitre Treated by Operation.*
7. WENGLOWSKI, R. *Malignant Tumors of Bones: a New Method in Conservative Operative Treatment.*
8. CUMBERBATCH. *The Influence of the X-rays on Some Cases of Persistent Suppuration.*

3. Pritchard discusses in an interesting and practical way the subjects of diarrhea, constipation and colicky pains in infants, the mistakes frequently made in the treatment of such conditions and the best methods of procedure.

6. Walton discusses the following postulates as to exophthalmic goitre: (*a*) That the disease is due to an excess of thyroid secretion. (*b*) That the results of medical treatment are unsatisfactory. (*c*) That the operative mortality is not unnecessarily high. (*d*) That the results of surgical treatment are very satisfactory. (*e*) That the danger of post-operative myxedema is slight. He presents in detail ten cases on which he has operated. [J. B. H.]

MAY 23, 1914.

1. *PINCH, A. E. H., AND ALTON, W. L. S. *A Report of the Work at the Radium Institute from Jan. 1 to Dec. 31, 1913.*
2. *INMAN, A. C. *The Diagnosis of Pulmonary Tuberculosis: the Value of Besredka's Antigen in the Complement Fixation Test for Tuberculous Disease.*
3. LAKE, R. *Remarks on the So-called Re-education of the Deaf.*
4. OERTEL, H. *A Contribution to the Knowledge of Experimental Nephritis.*
5. MCDONAGH, J. E. R. *Observations on Syphilis of the Central Nervous System, with a Note on Salvarsan.*
6. THOMAS, J. L. *Note on a New Combined Method of Prostatectomy.*
7. ROTH, P. B. *A Case of Congenital Defect of the Ulna.*
8. WARD, G. R. *Secondary or Symptomatic Leukemia.*
9. HOUSTON, T., AND THOMSON, W. W. D. *Bacillus Coli as a Cause of Septic Onychia.*
10. REYNOLDS, W. G. *A Case of Tetanus Treated with Subcutaneous Injections of Carbolic Acid. Recovery.*
11. RAMSAY, W. *Vilton as a Therapeutic Agent.*

1. This report of the Radium Institute is a detailed tabulation of cases and results obtained at the Radium Institute during the past year. It presents results on 972 cases of various kinds.

2. This work of Inman's will be of great interest to scientists and to those specially interested in tuberculosis. A repeated negative reaction indicates the absence of an active lesion. It is distinctly a laboratory procedure. [J. B. H.]

BRITISH MEDICAL JOURNAL.

MAY 9, 1914.

1. *LAZARUS-BARLOW, W. S. *The Cause and Care of Cancer Viewed in the Light of Recent Radiobiological Research.*
2. *RIDDELL, J. R. *Radium in the Treatment of Malignant Disease.*
3. *CLARKE, J. M., AND LANSDOWN, R. G. P. *Intramedullary Tumor of Spinal Cord; Treatment by Laminectomy and Application of Radium.*
4. *HERNAMAN-JOHNSON, F. *On the Respective Advantages and Disadvantages of X-rays and Radium in the Treatment of Cancer.*
5. GRACE, J. J. *Painful Shoulders and Their Treatment by Physical Measures.*
6. MARSHALL, G. *Interlobar Empyema.*
7. SOUPER, H. R. *Veronal Poisoning; Recovery after One Hundred Grains.*

1. Barlow discusses the cancer problem and its relation to radium in great detail, and is evidently a firm believer that radium will prove of constantly increasing benefit in curing and alleviating cases of this disease. The class of cases in which radium should be used, precautions to be taken, and other practical considerations are given in detail.

2, 3, and 4. These are short articles describing the use of radium in specific cases of cancer of various forms and the results obtained, as well as the relative advantages of radium and x-rays in such conditions. [J. B. H.]

MAY 16, 1914.

1. MACKENZIE, J. *The First George Alexander Gibson Memorial Lecture.*
2. *RUSSELL, W. *Phenomena Attributable to Spasm of Cerebral Vessels (Angiospasm).*
3. AULD, A. G. *Oxygen Want and the Means of Its Relief.*
4. *SHAW, B. H. *The Relation between Epilepsy and Tuberculosis.*
5. WHELAN, J. H. *Strychnine-Tuberculin Treatment of Hospital Tuberculous Cases.*
6. *LECKIE, A. J. B. *The Cutaneous Tuberculin Reaction of Von Pirquet.*

2. Russell discusses angiospasm, its cause, diagnosis, symptoms and treatment in an interesting and practical way.

4. Shaw seems to feel that epilepsy may be a manifestation of an early or latent tuberculous infection. He has found an amazingly high percentage of tuberculous infection among epileptics and is of the opinion that there must be therefore some relation between the two conditions. His remarks are interesting, but need confirmation.

6. Leckie, as a result of his investigations, concludes that the cutaneous tuberculin reaction is of no prognostic or diagnostic value, especially in adults and that cases of rheumatism give more positive results than tuberculous individuals, and that early and late reactions have no clinical significance. (These remarkable statements are interesting, if true.) [J. B. H.]

May 23, 1914.

1. *Lockwood, C. B. *The Objections to the Incomplete Operation for Cancer of the Breast.*
2. *Pinch, A. E. H. *A Report of the Work Carried Out at the Radium Institute, London, in 1913.*
3. Hadley, E. C. *A Case of Multilocular Cystic Disease (Cystadenoma) of the Pancreas.*
4. Pannett, C. A. *Acute Obstruction of the Small Intestine.*
5. Porritt, N. *Pituitrin in Post-operative Intestinal Stasis.*
6. Fenwick, W. S. *Ileo-colic Intussusception in a Child of Four Months; Resection; Lateral Anastomosis.*
7. Corner, E. M. *Further Experiences in the Treatment of Imperfectly Descended Testicles.*
8. Candler, A. L. *Experimental Proof of the Value of a Mask over the Surgeon's Mouth During Operations.*

1. Lockwood urges the complete radical operation in all cases of breast cancer and presents details of results obtained in 25 cases.

2. *Cf., Lancet*, May 23, 1914. [J. B. H.]

Berliner Klinische Wochenschrift

No. 16. April 20, 1914.

1. Russell, B. R. G., and Bullock, W. E. *The Length of Life of Carcinoma Cells at 37° C.*
2. Friedenthal, H. *Infant Feeding on a Physiologic Basis with Friedenthal's Modification and Vegetable Powder.*
3. *Harttung, H. *Kidney Infection and Retention of Urine.*
4. Plesmann. *The Treatment of Bronchial Asthma and Chronic Bronchial Catarrh by Inhalations (with an Atomizer) of Glycerine.*
5. Heller, J. *The Microscopic Anatomy of the Oldest Preserved Mammalian and Human Skin (Mummies, etc).*
6. Grumme. *On the Theory of Graves' Disease, Myxedema, Cretinism, and Endemic Goitre. Hyper- and Hypo-thyroidism.*
7. Keetmann, B. *The Tissue Absorption of Beta, Gamma, and Roentgen Rays.*
8. Weckowski. *A Rotatory Apparatus for Giving Radium Emanations.*
9. Meltzer, S. J. *The Present Status of Intratracheal Insufflation.*
10. Böhm, M. *Orthopedic Measures for the Children of the Berlin Parish Schools.*

3. Harttung reports a series of over sixty experiments in guinea-pigs, in which he caused an artificial hydronephrosis on one side by obstructing the ureter, and then observed the reaction of the diseased kidney in comparison with the well kidney, to various infections. In one set of cases he noted that after injection of living bacteria into the blood stream the uninjured kidney would show no pathological changes, while the other would have broken down in a suppurative process. The whole work emphasizes the great importance of hydronephrosis, whether congenital or acquired, in the etiology of renal infections. [R. H. M.]

Archiv für Klinische Chirurgie

Vol. 104. Part I.

1. *Lick, E. *Early Operation in Basedow's Disease.*
2. Eden, R., and Rehm, E. *Autoplastic Fat Transplantation for Neurolysis and Tendinolysis.*
3. Iwasaki, K. *Primary Sarcoma of the Gall-bladder.*
4. Carnelli, R. *Traumatic Perforation with Peritonitis in a Walking Typhoid Case. Observations on Slight Abdominal Injuries.*
5. Hofmann, W. *Functional Tests for the Heart and Their Practical Value for Surgeons.*
6. Scultze, E. O. P. *Habitual Dislocation of the Shoulder. Clinical and Experimental Work.*
7. Gontermann. *Hernia Supravesicalis Cervalis, with Involvement of the Ligamentum Umbilicale Laterale in the Hernial Sac.*
8. Scheuermann, H. *Operative Treatment of Movable Kidney. Observations on One Hundred and Eighty-Nine Cases Operated by Rovsing's Method from 1897-1911.*
9. Eden, R. *Joint Chondroma.*
10. Beresnegowski, N. *The Use of the Isolated Omentum for Control of Liver Hemorrhage. Experimental.*

1. Lick believes that early operation is indicated in all definite cases of Basedow's disease, as soon as the diagnosis is made. Thus the other organs (heart, liver, kidneys, etc.) are spared the irreparable injury which they would otherwise sustain. Operation in early stages is easier, and can be made more complete. The danger of recurrence is thereby lessened, and the exophthalmos will completely disappear. [G. G. S.]

Die Therapie der Gegenwart.

March, 1914.

1. Schreiber, E. *The Present Status of Active Immunization against Diphtheria (von Behring's Method).*
2. Klemperer, G., and Jacoby, M. *The Treatment of Cystinuria.*
3. Lewin, C. *Radium Therapy in Carcinoma of the Esophagus and Cardia.*
4. *Jakobi, J. *The Clinical Value of "Adigan," a New Digitalis Preparation.*
5. Blumenthal, F., and Lewin, C. *Further Studies on the Treatment of Sarcoma in Rats with Extracts of the Same Kind of Tumors.*
6. Dohen, M. *Emil Fischer's Syntheses of Purin Glucosides.*
7. Hoffer, S. *Progress in the Knowledge and Treatment of Diseases of Children.*
8. Altenhum, E. *The Treatment of Gynecological Conditions with Yatren (Tryen).*
9. Cassel, H. *Experiences with Narcophin.*
10. Kärcher, M. *The Action of Digifolin.*
11. Schattaner, F. *On Dermotherma, a Formaldehyde Camphor Ointment.*
12. Gerson, K. *The Prevention of Flat-Foot in Certain Vocations.*

4. Jakobi reports from a study of adigan that in a limited class of cases it gives good results and does not cause untoward symptoms. Adigan is made in tablets of 1 c.c. each, the usual dose being 2 to 3 tablets a day. [L. D. C.]

APRIL, 1914.

1. PETERSEN, O. H. *The Very Methods of Bloodless Treatment of Tuberculosis of the Cervical Glands.*
2. HELLEMANN, O. *The Curability of Multiple Abscesses of the Liver, and Their Diagnosis.*
3. SUSSMANN, M. *The Technic of Gastroscopy.*
4. HEIMANN, F. *The Serum Treatment of the Dermatoses of Pregnancy.*
5. POLLAND, R. *The Treatment of Syphilis with Embarin.*
6. LOEB, W. *The Phenoval Content of the Body.*
7. HOFFER, S. *Progress in the Knowledge and Treatment of Diseases of Children.*
8. FRANKE, F. *A Contribution to the Treatment of Crural Ulcers.*
9. STEINER, F. *Permanent Dressings.*
10. *FROELICH, E. *A New Hypnotic,—Dial-Ciba.*

10. Froelich finds dial-ciba an agreeable and efficient hypnotic. One tablet of 0.1 gm. is sufficient in ordinary cases of insomnia. In nervous subjects 0.15 gm. will induce sleep of about seven hours' duration. Two to two and a half tablets are sometimes necessary. Post-hypnotic effects are less likely to occur if the drug is given moderately early in the evening. It is absorbed better if given dissolved in hot water or weak tea. [L. D. C.]

REVUE DE MÉDECINE.

APRIL, 1914.

1. *CLUCHOND, P. L. *Kubisagari (Gerlier's Disease).*
2. MOLLARD, L., AND DUMAS, A. *Gallop Rhythm in the Course of and During Convalescence from Typhoid Fever.*

1. The "Maladie de Gerlier" was first met on the Franco-Swiss border. It was described as an affection, prevalent in that locality alone, presenting during the summer months periodic attacks of localized paresis. The muscles involved in the characteristic cases were those of the neck and lids, and less frequently the arms and legs. Gerlier describes the three stages graphically as follows: the first represents the "drunken man," whose unsteady gait is helped by the downcast eye; the second, the head and body are inclined to the earth, much as the peasants in Millet's Angelus; the third shows only the ptosis, so that the individual appears to sleep while standing.

In later years the same syndrome has been observed in certain of the countries of Northern Japan. Here the name kubisagari is used, because of the typical attitude of those afflicted. Miura lays especial stress upon the periodic appearance of the following symptoms: ptosis, paresis of the extensors of the neck and back, paresis of the arms, and paresis of the lips, tongue, and the muscles of deglutition.

The observations of Miura and Takemura show a wide variety of cases of this interesting, but rare and closely confined disease. The latter was able to isolate from the spinal fluid of one patient, suffering from an acute attack, a small, gram-negative micrococcus. Subcutaneous injections of this organism produced in a great majority of instances in cats symptoms directly correspondent with the human form of the disease. In only one instance could the same organism be recovered from the spinal fluid of a cat so affected. The bacteriological findings, while by no means conclusive, are encouraging and indicate the line of future work in connection with this disease. [L. H. S.]

REVUE DE CHIRURGIE.

APRIL, 1914.

1. *QUÉNU, E., AND COSTANTINI, H. *Indications for Intestinal Resection in the Radical Cure of Certain Herniae.*
2. *WALTER-SALLIS, J. *Non-Biliary Pancreatitides (Conclusion).*
3. *HARDONIN, P. *Clinical and Experimental Study on Traumatic Backward Dislocations of the Knee. (Conclusion.)*

1. The authors report a number of illustrative cases and conclude that, apart from complications, such as strangulation and gangrene, enterectomy may be indicated in herniae with a neoplastic or tuberculous content and in certain adherent herniae.

2. The writer reports 12 cases of his own observation and experience, and collects 45 others from the literature.

3. In conclusion, Hardonin summarizes a total of 79 collected cases, arranged according to his method of classification and illustrative of the types of backward knee dislocation. [R. M. G.]

Correspondence.

PARIS LETTER.

THE MEDICAL ATMOSPHERE OF THE RENAISSANCE AS PORTRAYED IN SOME EARLY FRENCH WRITERS.

II. MAÎTRE FRANÇOIS RABELAIS.
(1540–50, Circa.)

(From Our Special Correspondent.)

"Heureux le medicin qui est appelé sus la declination de la maladie!" (III.41.)

PARIS, 1914.

Mr. Editor: To undertake to write about such an intellectual colossus as Rabelais is impossible without a certain feeling of misgiving, for it is lamentable to be conscious of being unequal to one's subject, whose extent in this instance is infinite. Rabelais' range of knowledge seems, for his times, practically universal. The first fifteen years of his adult life were spent in convents, where he acquired his marvellous familiarity with the Greek and Latin classics, and an insight into the natural sciences, botany, etc., and astrology. He then laid aside the habit and undertook a round of the different universities of France, studying law, medicine and the liberal arts, ending up finally as a physician. The latter capacity led to his being attached to the embassies of various exalted personages to Italy, Rome and the Pope,—all of which ultimately gave him a breadth of view and field of experience quite out of the ordinary for his period.

Unfortunately, Rabelais is little known to the general reader. His prose is almost untranslatable, and if he is taken in the original the student is rebuffed by a style such as was never before seen in print, and by what seems, to us at least an endless amount of tedious detail. It is, I think, the common custom to look on Rabelais as a foul-mouthed, bibulous ribald. Never was there a grosser error. A man whose early education was acquired in learned and refined surroundings, whose constant frequentation was with cultivated professional men, and who was associated during his latter years with the most distinguished representatives of his country, could have had none of these characteristics. The language of his writings, is to be sure, something awful; it is strange that the very paper on which it stands does not turn red with dismay. Thus a friend of mine, a prominent divine, on inheriting an old and valuable edition of Rabelais, promptly put it in the fire in horror after only looking inside the covers! But this could never have been his natural mode of expression. It was assumed for a purpose, possibly to appeal to the masses. The speech of the people in France, even



STATUE OF RABELAIS AT CHINON.

today, is,—let us say "free," to a degree; listen to two cabbies on the street having a heart-to-heart unbosoming in a dispute, and you will have difficulty in finding anything more lurid even in Rabelais' astounding vocabulary. There is only one way of going at Rabelais,—to read him in the original, without expurgation, and to keep at him until you get quite used to his terrible style and pass through it to the riches concealed beyond. To resort to a simile that would certainly have appealed to our author, would it be rational to refrain from enjoying the contents of a bottle of rare old wine, simply because it was coated on the exterior with a thick layer of dirt, mold and cobwebs?

This remarkable confrère of ours is generally cited as the leading exponent of the art of using the most withering satire without a particle of passion or personal *animus* appearing in it,—a feat difficult above all others. Each of the liberal professions comes in for its share in turn, the Church, the Sorbonne, Medicine, and in particular Law; anything so appalling as his repeated onslaughts on his brethren of the legal profession I have never read. Yet in all of this the reader looks in vain for any evidence of concealed rancour or vengeance; he seems to have criticized and condemned purely because he saw the flaws and knew they deserved to be held up to opprobium. He appears to have been altogether ahead of his times; it would not be easy for a person, even nowadays, to take a more just view of the foibles of the first half of the 16th century.

It is in a way a consolation that of the four callings named, Rabelais is least severe on medicine; let us take this straw to our bosoms and be thankful for it such as it is! Law he simply reduced to pulp with a sledge-hammer and then cast that pulp into a furnace at white-heat. When he finished, there was nothing. His touch was that of the unflinching judge who, called on to consider a case absolutely bad in all particulars, says so in the plain and unmistakable language suited to the occasion. With the Church and the Sorbonne, on the other hand, his satire nearly approaches good-humor. He gives the impression that he is here dealing with a weak side of humanity, that is not without grave defects, but that really must not be taken too seriously. With medicine, however, his tone becomes almost kindly, joking, as of a parent managing a wayward child. It is possible that his leniency toward the medical art may be due to the fact that he considered himself in reality a physician, all of his later work being signed maitre François Rabelais, docteur en medicine; but the fact remains that with one exception most of his little flings at our noble profession border rather on the joke-province than on that of satire. In the fifth book, in his vitriolic diatribe on the lawyers in the guise of the chasfourrez, he speaks of the "ignorance, impudence and imprudence of physicians, surgeons and apothecaries"; but the context here shows beyond peradventure that in all this fulmination of the Gueux-de-bien he was using the strongest terms at his command, and that since he wished to prove that the lawyers were the blackest of the black, the necessities of the case demanded that he should make his contrasts as sharply outlined as possible.

On leaving convent life for the universities he first went to Montpellier with the idea of taking up medicine, "mais il considera que l'estat estoit fascheux par trop et melancholicque, et que les medicins sentoyent les clysteres comme vieulx diables." That is more his real tone in dealing with the profession. Farther on he remarks: "Consider what a strange world this is: we entrust our souls to the theologians, who for the most part are heretics; our bodies to the physicians, who all abhor medicine and never take any; and our belongings to the lawyers who never go to law among themselves." The second phrase in this sentence Pantagruel accounts for as follows: "I can only approve of it, as I note that physicians lay so much stress on prophylaxis and precaution as regards their own health, that they stand in no need of curative treatment by means of drugs." It must be admitted that there seems a surprising amount of sound common sense in all of this, for the period.

As regards general hygiene, Rabelais is a strong partisan of having the chief meal at night, and of eating only sparingly at noon, "no more than sufficient to stay the clamours of the stomach . . . which is the only real way to live, based on good and sound medical precepts,—whatever a lot of fool doctors brought up among the Sophists may say to the contrary." So this point was in dispute even in those days! In the discussion between Frère Jean and Gargantua as to the advisability of drinking wine early in the day, the latter affirms that the practice is in complete disaccordance with medical teaching. This, however, is as good as no argument at all, in the eyes of the monk, who forthwith crushes his opponent with the following reason for not paying attention to what the doctors say: "Cent diables me saultent au corps s'il n'y a plus de vieulx hyvrognes qu'l n'a de vieulx medicins!" and he closes the discussion with "Mais, *venite apotemus!*" The jolly friar had concluded a most practical pact with his digestive organs, that will awaken feelings of envy in many a bosom, and that he unfolds in these terms: "I have arranged matters with my appetite in such a way that it always goes to rest when I do, and to this end I take the measures suitable during the day; but on the other hand it is equally ready to get up when I do."

Since we have mentioned the taking of wine, which occupies such a prominent part in all of Rabelais,—no action ever taking place without all hands first indulging in a drink,—and which has given rise to the idea that our author was a perpetual tippler, I should like to unburden myself on this point, which I have been at some pains to investigate personally, having made several trips to Rabelais' country, the Chinonnais, and sampled conscientiously the different wines of the region. I do not believe that there are any more grounds for considering Rabelais as a tippler, than as a scurrilous debauchee, as mentioned in the early part of this article, and for the reasons there given; still, this unceasing introduction of wine-



THE ANCIENT TOWN AND CHATEAU OF CHINON, ON THE VIENNE IN TOURAINE.

drinking throughout his works does require some explanation.

The French tongue has two words to describe the man who enjoys food, *gourmand* for him who merely "stokes" his stomach, and *gourmet* for the eater of refined and delicate taste. Now Rabelais was a *gourmet* in drinking, what they call a *fin palais*, in connection with the fermented juice of the grape. This is apparent in many a passage, thus: "le noble pontife (evesque d'Auxerre) aymoit le bon vin, comme faict tout homme de bien"; again: "vous mesmes, monsieur le prieur, aymez boyre du mielleur. Sy faict tout homme de bien; jamais homme noble ne hayst le bon vin; c'est un apophthegme monachal"; and there is an unmistakable accent of sincerity in the Friar's exclamation: "Que Dieu est bon, qui nous donne ce bon piot." That cry came straight from the heart. Elsewhere, in one of his inimitable scenes, he refers to wine as "eau beniste de cave." So there is no doubt that Rabelais was not above appreciating a good thing when he got it. But there remain two points to clear up: how it was that his characters stood the amount of wine they were always imbibing; and why it was that Rabelais' constant refrain is that the wine must be cool.

As regards the first question,—when you have made a thorough study of the wines of the Chinon region you soon see that though very smooth and pleasant to the palate they have no bouquet and but a low degree of alcohol; it consequently seems probable that for a person of the district, accustomed to them from birth, the amount he could imbibe would be limited purely and simply by the quantity he could hold, and that the alcoholic effect on him would be more or less nil. This would seem to afford a satisfactory explanation of the fact that Rabelais' characters never move, morning, noon, or night, without first taking a copious libation of wine. But as regards the second point, the explanation is less easy. In Book I, Chap. 6, our author says that "a man of good sense always believes what he is told and what he finds in print." Now, although some people might dispute the validity of this assertion, I followed it in Rabelais' case, and in view of his constant cry: "beuvez fraiz si faire se peut," I took his advice at the letter. Although the best Chinon wine is red, and it is against all rules to drink a red wine cold. I first landed at Chinon one winter's night, Christmas eve, in fact; but encouraged by a bright, cheerful dining room, and by finding comfortable central-heating in a little French provincial inn, I decided to begin my wine investigations at once and had a bottle up straight from an icy cellar. Beuveurs, mes frères,—*never* do that! Let my experience suffice. I spent the remainder of the evening nursing a hot water bag, in the hope of thawing out that awful lump beneath my chest.

This not seeming quite according to schedule I on the next day visited the Devinière, the farm where Rabelais was born, and lunched in a neighboring tavern, where we again had a red wine, which, after sampling, we carefully warmed before the fire. Rabelais says: "O Lachryma Christi! c'est de la Devinière. O, le gentil vin blanc, ce n'est que vin de taffetas." Now the white wine of the Devinière of 450 years ago may have been all sorts of things,—that I am not prepared to dispute; but to apply such terms to the product of today, is to indulge in what the rhetoricians call hyperbole, I believe. However, this does not prevent the fact that really first-class Chinon wine is a very pleasant drink. It may possibly be that in Rabelais' day the Chinon vineyards produced chiefly a white wine, which, I need hardly say, is usually consumed cold. I am afraid that I have been somewhat lengthy on this point: but it has been one that has preoccupied me considerably. There is a final detail in Rabelais connected with eating and drinking that is new, to me at least: that pears and cheese go remarkably well together. This I had never observed.

From an anatomical standpoint I should be glad if any reader can tell me why in Rabelais the medius is so frequently called "the medical finger"; I suppose there is some very simple explanation of this fact, but I do not know it. Rabelais also raises another question that had never occurred to me: that whereas some of our senses (sight, taste) are furnished by nature with means of protection (lids, lips), others, and in particular the sense of hearing, are not, but remain open to influences from the exterior all the time. This whole passage (III. 16) is very curious. Alexander the Great, victorious in Persia, was regretting that his people in far away Macedonia would not be able to hear of his prowesses until after so long a lapse of time, when a man presented himself before him and claimed to have invented a means whereby Alexander's fellow countrymen could be informed of the great news in the re-

markably short space of five days. This idea seemed to Alexander so uncanny that he refused even to listen to the man, which Rabelais reproves: "What would it have cost him to hear and learn what the man had invented? Nature appears to me to have created our ears open not without grounds . . . so that at all times, at night, we can constantly hear, and by hearing, constantly learn; for it is the sense above all others the most apt to instruct us."

As regards insomnia Rabelais puts into the mouth of his *enfant terrible*, Frère Jean, views that are sadly unorthodox. Gargantua being quite unable to fall asleep, the Friar remarks: "personally I never sleep really well except during a sermon or at prayers. Let us commence, you and I, the seven psalms, and see whether you are not soon asleep." And beginning the first psalm they were both sound asleep by the Beati Quorum! For seasickness Rabelais advises copious libations: "They all drank the travellers' health, and all the travellers drank theirs, which was the explanation of the fact that none of the assembly became seasick." The popular remedies of the day appear to have been: to drink seawater, pure or mixed with wine, for several days before going on board; to eat quinces, lemonpeel, or take pomegranate juice; to make a long fast; or to cover the stomach with paper,—"or otherwise to follow the directions which silly physicians give to those going to sea." Perhaps when next you go on board the good ship Mauretania you may like to try some of these novel remedies?

As regards the treatment of luës, it was that of the times,—sweating and inunctions, carried to the point that the patients teeth rattled in their heads like the keys of an organ, and they foamed at the mouth with excess of saliva. But where Rabelais really becomes curious is in his views as to the frequency of this disorder. When Epistemon returns from his brief sojourn in Tartarus, and speaks of the various occupations at which its inhabitants were kept busy, he says that Pope Sixtus' duty was to administer these very inunctions. "What, said Pantagruel, do they have that disorder *there?*" "Certainly, replied Epistemon; I never saw so many cases before: there are more than a hundred million of them; for, believe me, those that do not have it in this world get it in the next."—which is not a very reassuring outlook. In another passage he refers to the first known case of luës, contracted "by not taking his wine cool in summer!" This special etiology had not yet, I think, been reported. In Book II, Chap. 33, is an account of Pantagruel's encounter with the specific catarrh connected with Neisser's micro-organism. In French this scene goes all right; but I do not quite see how to turn it into English, so inquisitive readers will have to look it up in the text. But his explanation in this connection of the properties and nature of mineral springs, is certainly orginal, if nothing else.

In addition to the possibility of an early knowledge of wireless telegraphy, darkly hinted at in the story related concerning Alexander the Great, the question arises whether our confrère Carrel is entitled to quite so much credit for the originality of his researches as is customarily accorded to him. Thus, after one of their many combats Epistemon was found dead with his head completely severed from his body. Panurge, however, was equal to this predicament, as the victim was still quite warm. Clasping the head to himself so that it should not be exposed to the wind or lose heat, he carefully washed both surfaces of section with fine white wine, powdered and anointed it, and then adjusted vein to vein, nerve to nerve, and spondyle to spondyle, so that there should be no torticolis. He next placed 15-16 sutures all around, to prevent its falling off again, and ended up by an application of what he called "resuscitating ointment." Whereupon the patient breathed, opened his eyes, etc., and was given a big draught of white wine and burnt sugar,—naturally; it would have been strange if they had not introduced some more white wine into the scene somewhere, all hands having full right to refreshments after such a remarkable operation as that!

The list of Rabelais' curious views on medicine is hereby by no means exhausted, but fear that the reader's patience *is;* so I will close by the passage in which he refers to the question of physician's fees. His description of this scene is a pearl, but it will have to be given in the original: "puys s'approcha deluy et luy mist en main sans mot dire quatre nobles à la rose. Rondibilis les print très bien, puis luy dist en effroy, comme indigné: Hé, Hé, Hé, Monseiur, il ne falloit rien. Grand mercy toutesfoys. De meschantes gens jamais je ne prens rien. Rien jamais des gens de bien je ne refuse. Je suys tousjours à vostre commendement.—En poyant, dist Panurge? Cela s'entend, respondit Rondibilis!"

And with this shrewd piece of observation we will end this all too summary sketch of this, one of the most remarkable men our profession has ever included in its ranks.

"S."

Miscellany.

UNITED STATES CIVIL-SERVICE EXAMINATION.

ASSISTANT EPIDEMIOLOGIST, MALE.

July 6, 1914.

The United States Civil Service Commission announces an open competitive examination for assistant epidemiologist, for men only. From the register of eligibles resulting from this examination certification will be made to fill vacancies in this position in the Public-Health Service, at salaries ranging from $2000 to $2500 a year, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The duties of this position will be to conduct laboratory studies of disease, to make epidemiological surveys, to determine the prevalence and causation of epidemics, and to recommend measures to prevent and control outbreaks of disease.

It is desired to secure persons thoroughly competent in the various branches of sanitary bacteriology, and especially in isolating the typhoid bacillus from infected persons and materials.

An educational training equivalent to that required for graduation from a medical school or college of recognized standing, and at least three years' experience in epidemiological work under Federal, State, or local authorities, and experience in laboratory technic, especially in regard to tyhoid fever, are prerequisites for consideration for this position.

Applicants must have reached their twenty-third but not their fortieth birthday on the date of the examination.

This examination is open to all men who are citizens of the United States and who meet the requirements.

Persons who meet the requirements and desire this examination should at once apply for Form 304, and special form, stating the title of the examination for which the forms are desired, to the United States Civil Service Commission, Washington, D. C.; the Secretary of the United States Civil Service Board, Post Office, Boston, Mass.; Philadelphia, Pa.; Atlanta, Ga.; Cincinnati, Ohio; Chicago, Ill.; St. Paul, Minn.; Seattle, Wash.; San Francisco, Cal.; Customhouse, New York, N. Y.; New Orleans, La.; Honolulu, Hawaii; Old Customhouse, St. Louis, Mo.; or to the Chairman of the Porto Rican Civil Service Commis-

San Juan, P. R. No application will be accepted unless properly executed, excluding the medical certificate, and filed with the Commission at Washington with the material required, prior to the hour of closing business on July 6, 1914. The exact title of the examination as given at the head of this announcement should be stated in the application form.

BACTERIOLOGIST (MALE).

July 8, 1914.

The United States Civil Service Commission announces an open competitive examination for bacteriologist, for men only, on July 8, 1914. From the register of eligibles resulting from this examination certification will be made to fill vacancies in this position at salaries ranging from $1200 to $2000 a year, in the Bureau of Chemistry Department of Agriculture for duty both in Washington, D. C., and in the field, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The duties of this position will be to examine bacteriologically food products which are subject to the food and drugs act in order to determine their sanitary condition.

An educational training equivalent to that required for a bachelor's degree or an M.D. degree from a college or university of recognized standing, including at least two years' training in bacteriology, is a prerequisite for consideration for this position.

Applicants must have reached their twenty-first but not their fortieth birthday on the date of the examination.

Applicants for this examination may be examined at any place at which it is held, regardless of their place of residence; but under an act of Congress only those who are examined in the State or Territory in which they reside and who have been actually domiciled in such State or Territory for at least one year previous to the date of the examination, will be eligible for appointment to a position in the apportioned service in Washington, D. C.

This examination is open to all men who are citizens of the United States and who meet the requirements.

Persons who meet the requirements and desire this examination should at once apply for application Form 1312, stating the title of the examination for which the form is desired, to the United States Civil Service Commission, Washington, D. C. No application will be accepted unless properly executed, excluding the medical certificate, and filed with the Commission in Washington in time to arrange for the examination at the place selected by the applicant. The exact title of the examination as given at the head of this announcement should be stated in the application form.

SOCIETY NOTICES.

AMERICAN PROCTOLOGIC SOCIETY.—The sixteenth annual meeting of the American Proctologic Society will be held at Atlantic City, N. J., on June 22 and 23. Executive Council meets 11 A.M. First Regular Session at 2 P.M. Annual Address of the President—subject: "The Future of Procto-Enterology," Dr. Joseph M. Mathews, Louisville, Ky. A program of 23 papers has been arranged.

ALFRED J. ZOBEL, M.D., *Secretary.*
San Francisco, Cal.

AMERICAN MEDICAL EDITORS' ASSOCIATION.—The forty-fifth annual meeting of the American Medical Editors' Association will be held at Atlantic City, N. J., on June 22, 1914, at 9 A.M. A literary program of 14 papers has been arranged. The dinner of the Association will be on Tuesday, June 23, at 7. P.M.

JOSEPH MACDONALD, JR., M.D., *Secretary.*
New York.

AMERICAN ASSOCIATION OF MEDICAL EXAMINERS.—The fourteenth annual meeting of the American Association of Medical Examiners will be held June 22, 1914, at Atlantic City, N. J. Hotel Dennis will be headquarters and meeting place.

APPOINTMENTS.

HARVARD UNIVERSITY. — *Dr. Robert Williamson Lovett* has been appointed professor of orthopedic surgery, and *Dr. Roger Irving Lee* professor of hygiene.

RECENT DEATHS.

DR. FRANK BISHOP HARRINGTON died at Brookline, June 8, 1914, aged 59 years. He had been a Councilor of The Massachusetts Medical Society since 1910 and was president of the Suffolk District Medical Society in 1911 and 1912

DR. JAMES A. BLAKE, of Brooklyn, N. Y., died from cardiac disease on June 9, in his 72d year. He was born in Lansingburgh, N. Y., and was graduated from the Albany Medical College in 1868 and the College of Physicians and Surgeons, New York, in 1869. For a number of years he was on the visiting staff of the Manhattan Eye, Ear and Throat Hospital. His son, Dr. James Eddy Blake, is a well-known radiographer in Brooklyn.

BOOKS AND PAMPHLETS RECEIVED.

Anatomy and Dissector in Abstract. By Stewart L. McCurdy, A.M., M.D. Medical Abstract Publishing Company.

Preliminary Note on a Skin Reaction Indicating Protection against Typhoid Fever. By F. P. Gay and J. N. Force. Reprint.

What the State Shall Do in the Care and Supervision of School Children. By Eugene H. Porter, M.A., M.D. Reprint.

Epidemiology of the Outbreak of Poliomyelitis in Buffalo, N. Y., 1912. By Wade H. Frost and James P. Leake. Reprint.

Department of Applied Statistics, University College, London. Questions of the Day and of the Fray. No. VII. Mendelism and the Problem of Mental Defect. I. A Criticism of Recent American Work. By David Heron, D.Sc. London, 1913.

On Psychology and Medical Education. By S. I. Franz. Reprint.

A Further Study of the Anatomy and Physiology of the Infant Stomach Based on Serial Roentgenograms. By Godfrey R. Pisek, M.D., and Leon Theodore LeWald, M.D. Reprint.

The Unexpurgated Case against Woman Suffrage. By Sir Almroth E. Wright, M.D. Paul B. Hoeber, 1913.

Worcester State Hospital Papers, 1912-1913. Offered in compliment to Dr. Hosea Mason Quinby. Massachusetts State Board of Insanity.

Surgical Experiences in South Africa, 1899-1900. By George Henry Makins, C.B. Oxford University Press. 1913.

The Surgical Treatment of Chronic Intestinal Stasis. By William Seaman Bainbridge, M.D. Reprint.

A Contribution to the Study of Chronic Intestinal Stasis. By William Seaman Bainbridge, M.D. Reprint.

What Occupation Neuroses Really Are. By Tom A. Williams, M.B., C.M. Reprint.

Original Articles.

ANAL AND RECTAL GROWTHS OF BENIGN OR DOUBTFUL CHARACTER.*

By T. Chittenden Hill, M.D., Boston,

Instructor in Diseases of the Rectum, Harvard Graduate School of Medicine; Surgeon to the Rectal Department of the Boston Dispensary; Surgeon to the Rectal Department of the Mt. Sinai Hospital.

In a series of 3000 rectal cases which I reported at the last meeting of the American Proctologic society at Minneapolis, there were but 49 cases of benign growths and some of these it was almost stretching a point to classify as tumors so small were they in size. In fact in this series the innocent tumors were quite overshadowed by the cancer cases of which there were 76. Hence, it will be seen, that the subject under discussion this evening cannot be considered a common one. Our interest in these benign growths would indeed be small were it not for the difficulties in diagnosis which occasionally arise in some of the border line cases.

It may be said at the outset, that as ordinarily seen, the great majority of malignant as well as benign tumors of the rectum are characteristic and that their correct diagnosis is easily made. But in recent years the general practioner has begun to recognize the earlier symptoms of new growths and insists on a more thorough local examination in such accessible cavities as the rectum, with the result that more patients are now seen in an early stage, when the exact nature of the lesion is not by any means so apparent.

The two step operation, that is, first removing a specimen for microscopic investigation and later performing a radical operation, in case the growth is found to be malignant, is not now approved by some excellent authorities. They claim the probability of a cure is thereby, greatly reduced and the statistics of Bloodgood on this point are convincing.

Although, as a rule, it is easy to differentiate the benign from the malignant, still, the number of non-malignant lesions which come under our observation with all the clinical appearances of malignancy, and *vice versa*, are frequent enough to make it worth while to study them most carefully. And when we take into account the formidable, mutilating operation with its high immediate mortality (30-40%) and small percentage of authentic cures (10-15%) to be undertaken in the one instance and the simple procedure necessary for relief in the other, the problem of diagnosis becomes a very important one.

It is no way comparable with cancer of the breast, for instance, in which a complete amputation has been performed for a benign tumor. Excellent authorities sanction the practice of treating doubtful breast lesions as malignant, and Bloodgood states that in experienced hands 10% of the complete operations are done on benign cases. It may be a deforming operation to do more than is needed for mammary growths, but, in the case of the rectum there is not alone mutilation but serious impairment of function as well, a consideration which I believe should lead us to exhaust every means of diagnosis before undertaking a radical operation.

It is not my purpose to review the literature of this subject, nor would it interest you for me to attempt a complete discussion of the varieties, symptoms, diagnosis and treatment of benign tumors of the rectum since you can acquire this information much easier and far better from the text books at your disposal. I shall, therefore, simply present to you some of the problems that have come under my personal observation, not alone of benign neoplasms of the anus and rectum, but of some inflammatory conditions that assumed the clinical appearance of malignancy.

In Mumford's book, "100 Surgical Problems," case 93, is of interest in this connection, as it illustrates the perplexity of three eminent surgeons over what turned out to be an abscess. After digital examination Dr. Mumford was in doubt as to the nature of a mass he could feel high up in the "posterior rectal region and obstructing the lumen of the bowel." The remainder of the history I quote directly from the book. "The next day Dr. M. H. Richardson saw the man with me, and we examined him carefully under ether anesthesia. We found the condition much as I have described it. A mass upon the posterior aspect of the rectum impinged upon that organ, apparently involving the mucosa; fixed, in extent the width of two fingers, and admitting a proctoscope with difficulty beyond it. The mucosa over the swelling was eroded and sloughy in appearance. To both of us it seemed highly probable that the mass was malignant but we were not altogether satisfied with that conclusion. For the next three or four days the patient failed perceptibly; his appetite vanished; he became extremely cachectic in appearance; his pulse ran up and down in an uncertain fashion, and he carried a temperature between 99 and 102. On the 12th of March (4 days later) we decided on a more extensive investigation, and called as an additional consultant Dr. J. C. Warren. After the patient was etherized my consultants asked me first to dilate the sphincter and to explore the rectum, while they looked on with great interest. On dilating the sphincter and introducing my finger cautiously into the bowel, I encountered

* Read before the Manchester, N. H., Medical Society, March 20, 1914.

almost at once the tumor, which seemed to be increased considerably in size and to be softer. As I endeavored to push past it, it suddenly ruptured, allowing the discharge of nearly half a pint of malodorous pus. The diagnosis, accordingly, was settled; we were dealing with a simple case of periproctitis with abscess."

This case was instructive and similar in many respects to several that I have met, where an abscess develops in the cellular space between the rectum and sacrum above the levator ani. As the suppurative process goes on the rectal wall is crowded into the lumen of the bowel. The infiltration of the surrounding tissue and bowel coats at first causes the mass to feel indurated and irregular and resemble very closely the sensation imparted to the finger in malignancy. A little later, however, the mass becomes soft and boggy and fluctuation is perceptible, when all doubt as to its nature is removed.

The cases in which I have experienced any serious difficulty in making a differential diagnosis have not been acute abscesses but certain blind internal fistulae associated with induration along their tracks. At first thought the diagnosis would seem to be simple, as it is in the ordinary submucous fistula, but, when a sinus occupies the pelvi-rectal space outside the bowel, the irregular outline of the induration occasionally found may very closely resemble carcinoma.

The following case illustrates this point and was for a time very puzzling.

CASE 1. Mr. G., a business man, 57 years of age, was referred to me March 17, 1911, by Dr. George W. Gay, of Boston, who had successfully operated upon him for a large fistula twenty years previously, after which he had enjoyed excellent health up to a few months before coming under my care. He seemed a fairly vigorous, wiry individual of good color, but said he had lost ten pounds during the past six months. This, he stated, was the duration of his present illness, which began with a slight discharge about the anus that still persisted. There was neither rectal pain or hemorrhage, but he felt that he was growing weak, had but very little appetite and was inconvenienced more or less with indigestion. He had nothing further of importance to relate, and his heart, lungs and urine were found to be normal.

Rectal Examination. On the right side of the anus there was an extensive cicatrix of his former fistula operation with a retracted orifice, as is frequently seen in these cases. Posteriorly there was an opening between the sphincters that admitted a probe for a distance of one inch. On digital exploration, an oval mass about the size of a halved walnut, could be felt on the posterior rectal wall, slightly to the left of the median line. It felt a bit boggy and the mucous membrane was slightly movable over it. It was not nodular, but was rather irregular in outline, and at its upper extremity there was a small indurated area. A polypoid growth the size of the end of a lead pencil lay near by.

Although there was nothing absolutely definite about this mass, there was, as I find in my notes, a "suspicious feel" and I arranged for a consultation with Dr. Gay the next day. At this examination the swelling seemed less indurated, and we agreed that there was little likelihood of malignancy. As it did not seem that any procedure, short of an operation, would cure his local trouble, Dr. Gay recommended a Southern trip, together with some constitutional treatment. He came to me again five weeks later, with a note from Dr. Gay asking me to do "whatever I thought best." His vacation in the South had not improved matters. He did not look as well as when I last saw him, and called attention to his further loss of weight which he stated now amounted to 20 pounds, and judging by the loose fit of his clothing about the waist it may possibly have been more.

At this visit the mass in the rectum felt distinctly larger, but in other respects about the same as at the first examination. I urged operation and explained the element of doubt about the nature of the growth, whereupon he gave his consent to excision if it seemed necessary when under ether. Dr. Gay, who saw him at this time, wrote me as follows: "Mr. J. was in this morning. That growth feels somewhat larger than it did a month ago and the upper edge is more defined to my touch. It is soft more like a sarcoma than a carcinoma. In view of the loss of flesh and strength, I agree with you that he should have ether and all should be in readiness for removal of the growth, if the ultimate examination confirms the present one. I have urged immediate action, irrespective of any business engagements."

At operation a few days later, with the patient completely anesthetized, so that one could thoroughly palpate the mass, get well above it and exert firm pressure, the hard irregular character of the growth disappeared, and it became almost soft and pulpy under manipulation. It was, therefore, perfectly evident that we were dealing with an inflammatory condition about the track of a deep fistula.

A director was inserted into the small posterior opening for a distance of one inch, where resistance was met, and, with the director as a guide, I carried the incision a little beyond and to the right of the coccyx. This sort of a case, in my judgment, needs particularly good drainage, and for this reason should be freely incised. With the wound well retracted, an opening was found through which the director was easily passed to the mass felt in the rectum. After dividing two constricting bands, the finger was readily inserted into a fair-sized cavity filled with cheesy, sebaceous material, made up of retained blood and pus, which was removed with a curette, whereupon the tumor entirely disappeared. There was considerable lateral burrowing, especially on the left side, that had to be dealt with, as well as a sinus which extended over an inch above the mass, making the entire track nearly five inches in length. After irrigation, two good sized rubber drainage tubes were passed to the upper part of the wound, and snugly packed about with gauze. A rubber tube was also inserted in the rectum to overcome any discomfort that might arise from the retention of flatus.

One lesson to be learned from this case is the far different aspect a mass in the rectum

often assumes when the patient is completely relaxed under a general anaesthetic. I have not found the proctoscope of much assistance in questionable cases, although it is perfectly satisfactory in diagnosing the more typical growths above the reach of the finger.

In the case of Mr. J. there were three possible diagnoses:—(1) A gummatous growth, which is very rare in the rectum, was ruled out because he had never had syphilis, nor were there any signs of the disease to be found. (2) Tubercular ulceration may be mistaken for carcinoma, when there is a surrounding chronic inflammatory thickening associated with considerable tumefaction. In this case there was no ulceration of the mucosa, and tuberculosis was therefore not seriously considered. (3) The only question left to decide was, is this a fistula outside the gut, or a malignant growth. The irregular outline and induration suggested malignancy, but the fact that the mucous membrane over the swelling was smooth and intact, and there was already a discharging sinus, pointed to the inflammatory nature of the disease.

A second case, in which the diagnosis was deferred for some time, proved to be an adenocarcinoma.

Case 2. This patient, Mrs. A., 40 years of age, was referred by Dr. Frank B. Brown of Dorchester, for a fistula of twenty years' standing. She had been operated upon three or four times without permanent benefit, and she stated that she had never considered herself cured at any time, as there had always been some discharge of pus about the anus. Her general health was very good. She was a small but well developed woman, of good color, and her weight was about normal.

On careful rectal examination the opening of the fistula was detected in the posterior mid-line, between the sphincters, in much the same location as the preceding case. There was no external opening, but back of the anal orifice, and extending into the right ischio-rectal fossa, could be felt an indurated track about one and a half inches in length. Pressure on this caused some pain and the escape of several drops of pus from the internal opening.

I sent this patient to a private hospital, where I thoroughly incised the fistula, which was found to be rather extensive and complicated by numerous burrowing tracks leading from the main sinus. There was much cicatricial tissue, partly caused by her former operations, which was also removed. Nothing that would in any way bear on the future history of this case was noted at operation. I am positive there was no induration about the internal opening at this time, or for some time later.

Although two of her former operations had been performed by a surgeon of large experience, I attributed the several failures to cure this fistula to a condition seldom recognized by the general surgeon, and to which attention was called by Brick of Philadelphia a few years ago. Blind internal fistulae of the posterior commissure are frequently very troublesome if some of the fibres of the external sphincter are not cut at right angles, so as to put the muscle completely at rest. Simply incising the external sphincter in a posterior direction is insufficient, because it merely separates the fibres, most of which, it will be recalled, have a Y-shaped arrangement as they pass behind the anus, and thence backward for attachment to the coccyx. The difficulty often experienced in this type of fistula is that the sinus apparently does well at first, but the discharge does not altogether cease, and it will be found that a small pocket-like ulcer persists at the anorectal line, which repeated curettings and applications seem to have little effect upon. Even another incision in an antero-posterior direction, which only separates the fibres again, will have no better effect, but after laterally cutting a few muscle fibres, healing is prompt.

My operation was in January, 1909. The wound healed slowly, and in about two months closed entirely, except for a small ulcer in the posterior mid-line, much like the one just described, notwithstanding the fact that the precaution had been taken to incise the muscle, as recommended by Brick. It was a small round ulcer, about one-eighth of an inch in diameter, and caused the patient no discomfort. I then believed it would disappear with or without treatment, but as she was more or less conscious at times of a little moisture of the parts, I saw her at monthly intervals from then on to the following January, when a small indurated area the size of a pea appeared at the upper edge of the ulcer. A probe was passed under this little swelling, without any pressure, and this fact seemed to afford a very reasonable explanation of the delayed healing of the ulcer. Feeling somewhat chagrined that a small submucous fistula had escaped my notice so long, I proceeded to incise it, under local anesthesia, before she got off the table. But the induration did not disappear, and slowly, during the next six weeks, extended a little higher, when it was an inch in length, oval in outline, and covered with smooth, firmly adherent mucous membrane.

A second operation was advised, and as the mass seemed to me a suspicious one, I called in consultation Dr. F. P. Williams, my associate at the Boston Dispensary. Under ether the growth felt hard and rather irregular, and was suggestive, to say the least, of malignancy, but as a grooved director easily passed to the top of the swelling, it was pushed through and the overlying tissue divided. A specimen was sent to Dr. Timothy Leary, who reported simple adenoma.

Even with this comforting assurance the induration and swelling did not subside as would be expected in either a benign growth or an inflammatory condition. It rather seemed to be growing larger and more indurated.

Dr. James P. Tuttle of New York came over a few days later, while she was still in the hospital, and saw her. He was quite positive the growth was malignant, and I was now very willing to concur with him in this diagnosis. A perineal excision was performed, removing five inches of the rectum. The report on this specimen, rendered by the same pathologist, was adeno-carcinoma. Mrs. A. lived four years after this, but finally succumbed to a local recurrence.

The influence of syphilis in the production of fistula is an unsettled question. It has, however, long been recognized that certain simple inflammatory fistulae in syphilitic subjects do not get along well, unless anti-syphilitic

treatment is instituted either before or in conjunction with operative measures.

The following case, the most extensive fistula I have ever seen, was sent me in December, 1911, by Dr. Chas. M. Whitney, of Boston, who asked my opinion as to its malignancy. Salvarsan had been administered three times, by Dr. Whitney, for the rectal condition, and I believe this had much to do with the rapid healing that followed operation.

CASE 3. This patient was a man from Providence, R. I., who gave his age as 46, but looked 15 years older. He appeared much debilitated, and said he had lost 20 pounds during the preceding year. He had contracted syphilis in 1893, and some time during the same year an ischio-rectal abscess occurred on the left side, which was incised under ether. Following this there was very little, if any, discharge noted until 1901, when it reappeared, and had since caused him much annoyance. He had for some time been compelled to wear a large anal pad to protect his clothing from the rectal discharges. He was unable to sit with any degree of comfort. He stated that a severe burning sensation in the rectum came on about a half hour after stool, and lasted for several hours. The discharge was profuse, at times yellowish and at other times watery.

Examination revealed a most extensive "watering pot" fistula. I was able to make out eighteen external openings, which were scattered all about within a radius of five inches from the rectum. The anal orifice was made out with difficulty, as it was occluded by three irregular wedge-shaped masses of extreme hardness, and larger than one's thumb. The skin of this region, including the nates and cruro-scrotal fold, was of a coppery red color for the most part, but interspersed here and there with shiny tense areas. The whole peri-anal region was bathed with foul-smelling pus, which could be seen escaping from many of the openings. A "malignant looking mass" describes it very well.

I completely incised this fistula at one sitting, and there was but little shock following the operation. Much of the lateral burrowing was subcutaneous, with the skin considerably undermined. It was not very deep, except posteriorly, where the track which connected the two ischio-rectal fossæ extended rather high as it passed beneath the ano-coccygeal ligament. With all the external openings there was but one internal one, and that of only moderate size, situated at the interval between the sphincters, in the mid-line posteriorly.

The most remarkable thing about this fistula was the extreme induration of the tissues. Incision seemed very much like cutting cartilage, and the structures were so firm that it was difficult to spread apart the incised tracks sufficiently to explore them.

The post-operative history was uneventful. Healing progressed very rapidly, and he left the hospital seven weeks later. Dr. V. L. Fitzgerald of Providence very kindly looked after him for about six weeks longer, when healing was complete. He put on weight fast, and is now in excellent health.

The major portion of benign growths of the rectum are the adenomas or glandular polyps. They are found most frequently in children, and give rise to repeated rectal hemorrhages. In most instances, owing to the constant downward force exerted by the feces and peristalsis, the pedicle is torn away eventually, and the growth passed spontaneously. When discovered in children, however, it is best to remove them at once. When these growths are met with in adult life, they exhibit a tendency to undergo carcinomatous degeneration. For this reason a careful microscopic examination should be made of them at the time of removal, and should there be any uncertainty in the pathological findings, the patient should be examined at regular intervals for signs of induration. Occasionally, some of these cases either from mechanical irritation, infective processes, or ulceration in the immediate neighborhood, closely resemble and may be mistaken for cancer.

CASE 4. A man, 29 years of age, sent me in November, 1911, by Dr. John H. Cunningham, of Boston, was a case of this kind. Dr. Cuningham first noticed the rectal growth while examining his prostate. His history was that eight years before, while living in New York, he first noticed that he was passing mucous per rectum. He then consulted his physician, who diagnosed his ailment as catarrh of the bowel, and treated him accordingly. Ever since then he had passed more or less mucus. For the past four years there had, occasionally, been blood as well. At times the bleeding had been rather profuse, but ordinarily only small amounts were observed.

Upon passing the finger into the rectum, a tumor, the size of a cherry, could be felt on the anterior wall just above the prostate. An indurated, slightly elevated track extended one inch below this. Through the proctoscope the appearance was spongy, bright red and lobulated. There was considerable superficial ulceration in the immediate vicinity of the growth, and it would bleed readily wherever touched. The mucous membrane above was smooth and normal. The question of malignancy may well be raised in a case of this kind. Dr. Cunningham inclined to this view, and accordingly the patient was sent to a private hospital and prepared for a radical operation. My own opinion expressed at the time was that it was benign, which conclusion was based largely on a former experience in a very similar case. It should be remembered, however, that no matter how great one's experience, one's judgment is liable at any time to be reversed by the microscope.

At operation, with the patient fully etherized, it seemed very improbable that the tumor was malignant. After the sphincters were thoroughly dilated, I was able to remove it without much difficulty, by making traction with a clamp attached to the mucous membrane below. Dr. Felix H. Adler, assistant in pathology at Harvard, and a friend of the patient as well, was present at the operation, and reported later that it was a benign growth. This was a happy outcome for the patient, as he had been prepared for the worst.

Villous tumor of the rectum is very uncommon, and but few cases have been recorded in medical literature. The chief point of interest about them is that they show a marked tend-

ency to undergo malignant degeneration. A case of this kind I reported before the American Proctologic Society in 1910, in some detail.

Case 5. This patient was a woman, 40 years of age, referred by Dr. J. H. Vaughn, of Everett, Mass., in 1907. She was well nourished, weight about normal, anemic with sallow complexion, but otherwise in good health. She had been subject to rectal hemorrhages for six years. During the year previous to my seeing her, the hemorrhages had become more profuse, and a mass always protruded from anus during defecation, and even after slight exertion, as when walking. It was necessary for her to resort to the toilet several times during the day, and to get up two or three times at night, when she would pass half a cupful of blood-stained mucus; also she was annoyed by the escape of mucus with flatus. For two months tenesmus had been present nearly all the time.

Digital examination of the rectum revealed a slippery growth with a band-like pedicle, one inch wide, attached obliquely two inches above the anus. By careful manipulation I was able to bring outside the anal orifice a lobulated cauliflower-like growth the size and shape of a large English walnut, from which there was a gentle oozing of blood while it was held outside the sphincters.

A few days later I removed this tumor under local anesthesia, at the home of the patient. The sphincters first were infiltrated with a quarter of 1% cocaine, and fairly well dilated. The pedicle was next infiltrated and clamped about half an inch from the margin of the tumor. It was then ligated in three sections, and the tumor removed. Over seven years have now elapsed with no sign of recurrence.

One of the most unusual growths ever encountered in the rectum is the myoma. It has been termed by Miles of London, a "pathological curiosity." They arise from the muscular coat and assume a nodular form, supplied with a pedicle, as a rule, but sometimes exist as broad tumors in the muscular wall of the gut without a pedicle. Tuttle cites only five cases in medical literature, and goes on to state that "these tumors are quite rare, and it is impossible to determine their nature without a thorough microscopic examination. If they are small and confined to the rectal wall the hard, nodular surface may frequently lead one to the diagnosis of schirrhus cancer."

Case 6. The only specimen of this kind I have ever seen was distinctly benign, and was removed from a man, 36 years of age, who came to my clinic at the Mt. Sinai Hospital. His rectal symptoms had existed for four years, and most important was a gradually increasing, obstinate constipation. He had at last arrived at such a state that he was unable to have any dejections in a normal manner, but relied mainly on frequent enemata in conjunction with the daily use of strong cathartics. There was an uncomfortable sensation in the rectum much of the time. He was in the habit of going to the toilet five or six times daily, but was only able to pass small particles of feces.

When in a recumbent posture he was comparatively comfortable, and at night he was free from the teasing tenesmus. At irregular intervals he was subject to small hemorrhages.

One of the remarkable features about this case was the loss of weight, stated by the patient to be fully thirty pounds. This without much doubt was due entirely to the large quantities of pills and Epsom salts he was continually taking.

A digital examination of this man was a very interesting procedure. On the occasions when he had secured the best results from the laxatives and enemata the rectum felt perfectly normal as high as one could reach, but when the gut above was more or less filled with fecal matter, a large smooth tumor, which felt much like uterine tissue, could be easily located just above the sphincters. With the finger hooked about the growth, and the patient exerting some effort at expulsion, a portion of it could be seen at the anal orifice.

At operation, over two years ago, the sphincters were thoroughly divulsed, and a large, smooth, irregular shaped mass was delivered outside the anus with some difficulty. The pedicle was rather fan-shaped, and wiry, muscular tissue could be plainly felt in it. The attachment was nearly four inches above the anus, on the anterior wall of the rectum. After transfixion and ligation, I removed the tumor with scissors.

The growth was shaped somewhat like a mushroom. Its dimensions, as measured soon after removal, were $3\frac{1}{2} \times 2\frac{1}{2} \times 2$ inches. It was found to consist essentially of spindle shaped cells, arranged in bundles, with their long axis parallel to one another. These cells were regarded as more or less well formed unstriped muscle fibre, and the tumor was identified as a pure myoma by Dr. J. H. Wright, pathologist at the Massachusetts General Hospital.

As stated at the beginning of this paper, the vast majority of benign tumors of the rectum are easily recognized. The two most common varieties are the adenoid and the fribroid polyps. They may arise from any part of the rectum, but are generally found in the lower two inches. Their presence is generally undetected until the pedicle has stretched sufficiently for them to protrude at the anal orifice during defecation. When found, I believe that, as a prophylactic measure, they should always be removed even if causing no discomfort and of course submitted to examination for possible malignancy.

Operative removal is simple and in most cases can be done under local anaesthesia. The growth should be hooked down with the finger or instruments and the pedicle infiltrated with a weak solution of cocaine and clamped with a suitable pair of forceps as close as may be to its attachment to the rectal wall. A linen or silk ligature is next applied on the proximal side of the clamp, or, if broad, the pedicle is transfixed with it and it is tied in sections. The growth is then cut away on the distal side of the clamp, which is removed, and in due time the ligature sloughs away.

When more than one or two polypoid or semi-sessile growths present to the examining finger in the rectum, and particularly if they

are rather higher than the zone of ordinary occurrence of single growths, and there is an associated history of diarrhoeal and mucoid discharges, one must at once consider the possibility of multiple adenomata, a most serious condition, rarely or never met or diagnosed by most physicians. When the growths are numerous and close together the feeling is distinctly like malignancy, and only by means of the proctoscope or sigmoidoscope can a certain diagnosis be made. These growths may, and usually do, occupy the major portion of the large bowel, bleed easily and may be soft or dense according to the amount of contained glandular or fibrous structure. They are very prone to malignant degeneration, and because one tumor is removed and found not to have been so transformed, one has no right to infer that it has not occurred in others.

Medical treatment of this disease is largely palliative. A few cures have been reported from the employment of lavage of the large intestine but such instances must rather be regarded as symptomatic cures, for it is hard to understand how the tumors can be made to entirely disappear in this way. It may be that the origin of the trouble is some infective process, little understood, which is relieved by keeping the parts clean.

The surgical treatment involves the establishment of a temporary or permanent cecostomy or ileostomy followed by irrigation. Colectomy is not to be considered and ileosigmoidostomy is unwise

The only case of multiple adenomata I have ever seen came to the Boston Dispensary a few years ago. His record is very incomplete as he could not speak English and unfortunately never returned after the first visit. He was an Italian laborer, 40 years of age, much debilitated and evidently a very sick man. He complained chiefly of abdominal pains and copious diarrhoea (10 to 20 dejections daily) and the passage of blood and mucus.

The rectum and sigmoid, as far as the proctoscope was passed, about ten inches, was thickly studded with multiple adenomata.

I have presented this paper to you tonight with personal cases described in detail because they seemed to me to present certain problems of diagnosis and treatment of more than ordinary interest, unusual cases perhaps, yet such as might present themselves to any of you at any time.

Cases of Infectious diseases reported to the Boston Board of Health for the week ending June 16, 1914: Diphtheria 39, of which 4 were non-residents; scarlatina 60, of which 11 were non-residents; typhoid fever 4; measles 131, of which 3 were non-residents. The death-rate of the reported deaths for the week was 15.56.

BACK PAIN AND ITS DIAGNOSIS.

A Study of a Series of Cases.

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One of the commonest types of case seen in the orthopedic out-patient department of the hospital is the adult patient who complains of pain in the lower back. With a view to ascertaining the relative frequency of the varied pathological conditions causing this prominent symptom, I undertook the investigation of some forty cases chosen as far as possible consecutively from the out-patient clinic. In thirty-two of these it was possible to make a fairly detailed examination of the conditions present, and it is chiefly from a study of this series that my conclusions have been drawn.

The number of cases is unfortunately small, but they presented many features which were extremely suggestive. My special quest was to determine, if possible, how far lesions of the sacro-iliac and lumbo-sacral regions dominated the mass of lame backs coming for treatment. These investigations embraced a fair proportion of the lame backs seen in the clinic over a period of three months.

Since the classical paper of Goldthwait and Osgood in 1905[1] many studies have been made on these problems by American authors,[2] but in Europe and more especially in England, practically no attention has been paid to this important section of orthopedic surgery. The subject has come dangerously near being a well-worn one in this county, and it is very important to approach it with an open mind, preferably with a healthy scepticism.

All the thirty-two cases of the present series were of the male sex; for various reasons I did not include the few female cases I was able to see in the clinic. There are fundamental differences in the structure and functions of the sacro-iliac articulations in the two sexes, and I venture to suggest that in much that has been written on lesions of these joints, the part played by the sex distinctions has not been as fully emphasized as its importance warrants.

The thirty-two lame backs of this series group themselves into the following classes:

	CASES.
Sacro-iliac strain	12
Hypertrophic arthritis of lumbar spine	7
Postural back strain	4
Lumbo-sacral strain	3
Spondylolisthesis	2
Lumbar caries	2
Fracture transverse process, 3d and 4th lumbar vertebra	1
Infectious arthritis, lumbar spine and sacro-iliac joint (Neisser origin)	1

The outstanding complaint of all these patients was pain in the lower back, in some instances associated with pain of the sciatic type. There was no case of true sciatica or lumbago in this series; and I did not see any such case amongst a good many other back cases in the clinic during a three-months' period, although especially on the lookout for them. The comparative variety of these two so-called every-day complaints is fully appreciated by orthopedic surgeons, but not by the profession in general.

We may now proceed to a more detailed analysis of the various groups, omitting any reference to the last three, which presented no particularly important features.

SPONDYLOLISTHESIS.

The occurrence of two cases of this condition, in not a small list, may be purely fortuitous, but it is quite certain that such cases are by no means rare. A good many years ago Lane[3] pointed out the fact that spondylolisthesis was not uncommon amongst the laboring classes; in coal heavers he regarded it as almost a normal condition. Some believe the separation between pedical and lamina of the fifth lumbar vertebra to be an acquired deformity, absorption of the pedical having resulted from long continued pressure. Turner has shown that in 5% of subjects, there is a congenital lack of fusion between laminae and pedicles of this vertebra. In a given case of spondylolisthesis, it is practically impossible to determine, by skiagrams, whether such a separation is of the congenital or acquired type. When the separation exists, the body of the vertebra alone slips downward and forward, leaving the neural arch in situ. Goldthwait[4] has described how spondylolisthesis may arise where there is no solution of continuity between neural arch and body; in such examples owing to variations in shape and facing of the superior articular processes of the first sacral segment, unlocking takes place and forward sliding of the fifth lumbar is formed. Here the whole vertebra travels forward with the resulting danger of pressure on the cauda equina. Adams has recently shown the relation of what might be termed unilateral spondylolisthesis to the production of scoliosis. It is apparent that changes in the position of the fifth lumbar vertebra are to be found quite frequently.

The two cases in my list were both men engaged in specially laborious work. One patient came up with a traumatic back strain which was perpetuated by an extremely faulty posture, of the round hollow back type. In neither case was the deformity a marked one. The old classical picture of spondylolisthesis as seen in the text books and in museum preparations must be rare, but the slighter forms which cannot be diagnosed on sight are probably quite common.

HYPERTROPHIC ARTHRITIS.

The seven examples of this condition all occurred in men above the age of forty-eight, who were following arduous occupations. In one only did the symptoms manifest themselves after a definite trauma. Six cases showed a lateral deviation of the trunk, three of the patients presenting the clinical symptoms of so-called sciatic scoliosis, with the list to the same side as the pain in two out of the three. There were no other noteworthy features in the group, the physical signs and radiographic appearances being of the usual type.

POSTURAL SACRO-ILIAC AND LUMBO-SACRAL STRAINS.

These groups present close inter-relationships; all three conditions may co-exist in the same patient, and it is not always possible to establish any definite boundary line between the several types.

1. *Postural Strain.* In four cases the chronic back ache was considered to be due entirely to the obviously extremely faulty body poise present. These individuals showed an absence of any signs which would definitely localize a lesion to the sacro-iliac or lumbo-sacral joints, and there were no abnormalities seen in the x-rays of these regions. No other physical condition was present, which might explain the pain in the back. All four patients had the type of bad posture associated with an increased lumbar lordosis and they were all curiously enough, Russian immigrants.

2. *Sacro-iliac Strains.* Under the generic title of sacro-iliac strain is grouped a most interesting class of cases. The term strain as applied to any joint is one which long usage has firmly established in clinical nomenclature but in itself it is not indicative of any one simple pathological lesion. It behooves us, therefore, to enquire closely into the exact lesion present in cases in this group.

In the present series of thirty-two lame backs, twelve examples of lesions of the sacro-iliac articulation designated as strain, are seen. It is extremely likely that in a much larger series the proportion would be considerably higher.

All twelve cases were under fifty years of age, and nine of them under forty-five. In five, the symptoms followed a very definite acute trauma. Seven cases showed a lateral deviation of the spine; four of them having unilateral sciatic pain with the list homologous in three.

It happens that in ten of these twelve cases the joint strain was right-sided; the two cases in which the left joint was the site of the trouble, both had had injuries unusual in this type of case; one man being run over by a motor car, whilst the other, a fat unwieldly individual of sedentary occupation, had fallen downstairs.

Whether this preponderance of right-sided lesion is a coincidence or not it is impossible to

say from such a small amount of material. In other joints, strains using the term in a rude sense may show such a predilection for one side. In the common internal derangement of the knee, viz.: the displaced or torn internal semilunar cartilage, the left knee is affected in at least 70% of cases. This injury is seen in England largely in two classes of individuals, the foot baller and the coal miner. The frequency of involvement of the left knee has been explained by the fact that the majority of the twisting movements of the trunk occur from right to left, the left knee usually being firmly planted on the ground in the position of slight flexion. This may happen both on the football field and in the low seam in the mine, where the miner works in a cramped position.

Some such occupational asymmetry may perhaps explain the location of strains to the right sacro-iliac joint in men accustomed to very heavy lifting as in the present series of cases.

The skiagrams were singularly unproductive in this group of sacro-iliac strains; no abnormalities being seen either in the joints themselves or in the lumbo-sacral region.

There are three interesting and important facts about this group which I should like to emphasize. In the first place, no case showed gross displacement of the sacro-iliac joint demonstrable by x-ray; no case presented the physical signs of relaxation of the joints and no actual pathological process, such as for example, tuberculosis, was evident in any single one.

Gross displacements of the sacro-iliac joint can and do occur but they must necessarily be rare injuries; requiring a considerable degree of violence and showing signs of extreme crippling. This applies to both series.

Relaxation of the joints in the male, must also be uncommon. If for any reason the condition of strain becomes chronic and persistent, the joint changes are usually if not invariably in the nature of a progressive stiffening, rather than a relaxation. In the female, on the other hand, all the conditions, predisposing to relaxation of the pelvic joints are found. Such a change within limits, is physiological, occurring especially during pregnancy; the failure of normal involution of the joints in the puerperium, associated with the possible injury during labor, are factors which explain the likelihood of such relaxation being often seen in the female.

Many cases of sacro-iliac strain reported in the literature are classed loosely as joint relaxations, irrespective of sex. I think we must appreciate the sex difference in relation to these joints, both from an anatomical and a pathological standpoint. The male and the female joints may, of course, have lesions in common, but on the whole, the pathology of these joints differs widely on the two sexes: a difference which is based on inherent variations in function and structure. The anatomical side of the question has been worked out very thoroughly in the last few years by Derry.[1] The peculiar form of the human pelvis is a result of the assumption of the erect attitude. In the lower mammals the plane of the sacro-iliac joints is practically horizontal and the articular surface of the ilium is only in contact with the first and part of the second piece of the sacrum. The human pelvis has been dragged down posteriorly by the pull of the ham strings and glutei; the sacrum rotating on a transverse axis between the ilia, the whole pelvis rotating on the hips.

As a result of this the two components of the sacro-iliac articulation have been brought into a more intimate connection. In the male the rotation has proceeded to a greater degree than in the female. The female pelvis tends to preserve the more primitive form of the lower mammal; the sacrum is more horizontal, the plane of the brim forms a greater angle with the horizon and the auricular facet extends on to the second sacral segment. The sacral articular surface in the male has come into still greater relation with the ilium and it usually extends over the sacral segments and a part of the fourth. In addition the actual joint surfaces differ markedly in the two sexes.

The auricular facet of the ilium in the female forms a rounded condyloid area fitting into a correspondingly hollowed-out surface on the sacrum. The male auricular surfaces show irregular projections and ridges which fit in interlocking fashion into corresponding pits and grooves and the edge of the articular surface on its anterior aspect, is lipped so as to overlap the adjacent edge of the sacral facet.

The female sacro iliac joint as is well known is capable of considerable real motion and is a true diarthrosis. Derry has called it a condyloarthrosis, thus placing it in the same category as the wrist joint. Coincident with the capability of free motion and dependent directly on it there has developed in the female a very strong ligament in the antero inferior part of the capsule, a ligament which has produced the preauricular sulcus on the ilium, one of the distinguishing features of the female bone.

These characteristics of the female pelvis and sacro-iliac joints are evidences of mechanical adaptation for the functions of labor. The male sacro-iliac joint is practically incapable of any motion. Its anatomical structure would suggest exceptional solidity and stability. Yet the undoubted frequency of strains in men engaged in the hardest kind of manual labor seems to point to some special vulnerability. In the class of patient as seen in the clinic of this hospital the sacro-iliac strain is the commonest of all joint strains.

It seems to me that the fixed, almost immovable nature of the male sacro-iliac joint, explains its weakness in withstanding the effects of strain.

Albee from a study of fifty joints in the dissecting room states that the sacro-iliac joint is always a true joint, that irrespective of age or

sex the variations are very slight and that the antero inferior part of the capsule is always very thin and weak, conclusions which are not in accord with the best anatomical investigations.

When we come to analyse the exact lesion underlying a sacro-iliac strain we are confounded with certain difficulties. The joint is not strictly comparable to a joint such as the knee or hip. The massive posterior sacro-iliac ligaments for the most part stand at some distance from the actual true joint capsule and it is, therefore, possible to have a strain or rupture of fibres of the ligaments without any direct injury to the capsule itself. We must thus recognize the possibility of two extreme types of strain: one type in which the lesion is limited to the more superficial bands of the various posterior sacro-iliac accessory ligaments, the other where there is a stretching or tearing of the joint capsule and some intra-articular injury, such as a laceration of the fibro cartilage and synovial membrane or even a fracture of one of the projecting hillocks of bone on the auricular facets. In the latter condition there will be the possibility of the occurrence of a slip of the interlocking surfaces. Such cases are met with; they show no abnormality in the radiogram and they may undergo spontaneous reduction, or may persist and require manipulation.

The relative frequency of these possible lesions all of which come under the heading of sacro-iliac strains, still require to be worked out in a large series of cases.

Certain clinical differences go with these several types of strain. Thus the presence of very marked muscle spasm in the back ham strings, and the extremes of the hip motions suggest a lesion involving the joint capsule and the joint interior.

The history of a sudden onset, with the feeling of a crick in the back, persistent acute nerve pain over the posterior aspect of the joint sometimes with sciatic pain and a marked muscular spasm, is indicative of a slip of the joint. In such cases the sciatic pain is true referred pain, the ripping of nerve endings due to the lesion, being referred along the distribution of nerve fibres derived from this same origin as the joint supply; actual mechanical irritation of the lumbo-sacral cord on the upper two trunks going to form the sacral plexus being an impossibility in a lesion of this kind.

In the present twelve cases only one gave a history suggesting a slight slip of the joint. The symptoms in this instance gradually disappeared with support and occasionally light manipulations without any anesthesia. A pure strain with no signs of a slip may present very acute symptoms with marked spasm and temporary crippling as was the case in one patient in this series who was seen eighteen hours after the onset.

The diagnostic features of sacro-iliac strain are familiar to most orthopedists but one point deserves further consideration and that is the question of the value of the straight leg-raising test. There has been a tendency to exaggerate the positive value of this test.

Unless there is a decided unilateral limitation of straight leg raising, the act causing pain in the back, localized accurately over the affected joint the test is of no confirmatory value. The statements "straight leg raising limited" or "straight leg raising test positive" which sometimes appear in reports of cases, are absolutely worthless. The considerable variations seen in normal persons in the degree to which this act is possible depend on the length of the hamstrings; not only do these muscles vary in individuals but may even vary on the two sides.

Lumbo-sacral Strain. Three cases fall into category. The oblique inclination of the plane of the lumbo-sacral joint apparently indicates potential instability, though the free motion and the presence of the thick cushion-like intervertebral disc are factors antagonistic to strain.

All three cases had chronic backache referred to the lumbo-sacral region, with the absence of any positive signs of sacro-iliac strain or arthritic changes in the lumbar spine. They do not present clear-cut types, the diagnosis being arrived at mostly by a process of exclusion.

Two cases showed a large transverse process on the fifth lumbar on the right side, with extreme likelihood of impingement on the ala of the sacrum. In addition both had a poor posture with lordosis. There was no pain in the lower extremities in any of the cases. The presence of this asymmetrical variation in the transverse processes did not sufficiently explain the symptoms and physical signs but may possibly be the primary factor in causing disturbances of function at the lumbo-sacral articulation, as in the cases described by Goldthwait.[7]

From these few ill-defined cases it is impossible to draw any conclusions of value.

There are many other cases of low back pain and in examining the type of case it is important to consider the possibility of lesions such as neoplasm of the lumbar spine and sacrum; inflammatory conditions and neoplasms of the spinal meninges, cord and cauda equina and pelvic visceral disease. If one constantly bears these in mind the chance of serious error is minimized.

I am indebted to Dr. E. G. Brackett for the privilege of studying the above series of cases in the Orthopedic Clinic of the Massachusetts General Hospital.

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A STUDY OF THE VACCINE THERAPY OF TYPHOID FEVER.*

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This article is based upon a study of 135 cases of typhoid fever, comparing 40 cases where vaccines were administered with 95 cases where vaccines were not used. The forty cases that received vaccines were those cases admitted to the First Medical Service of the Boston City Hospital between August 1 and October 15, 1913, excepting such cases as showed complications previous to entrance or had a normal temperature before the diagnosis was confirmed by a positive Widal reaction or blood culture. The ninety-five cases not receiving vaccines and used for comparison consist of those cases admitted to the two other medical services of the Boston City Hospital during the same period of time. The one hundred thirty-five cases were treated alike save for the use of vaccines.

The vaccine used in this work was made by suspending in physiological salt solution a twenty-four hour agar slant growth of bacillus typhosus and then killing the organisms by a thirty minute exposure to a temperature of 56° C. The culture of Bacillus Typhosus used is the same that is used at the Boston City Hospital for Widal reactions and for prophylactic inoculations.

The initial dose of the vaccine was ten million killed bacteria. The number of organisms injected was increased daily by ten million, being administered every afternoon for one week, then on alternate afternoons with a twenty million increase until the temperature remained normal for three days or patient had received seven hundred million dead bacilli. The average total number of organisms given each patient was five hundred and sixteen million. Furthermore, there is no difference between the average number of organisms administered to those patients who recovered without complications and to those patients who died or recovered in spite of complications.

The inoculations were intracuticular and were accompanied by local reactions,—of redness, induration, pain and tenderness. These appeared within twenty-four hours and lasted twelve to forty-eight hours. No systemic reactions were detected.

The features of comparison, between those cases receiving vaccines and those cases not inoculated, studied in this work and tabulated below are: duration of fever in uncomplicated cases, incidence and character of complications, and mortality. The average duration of fever in uncomplicated cases treated with vaccines was 24.39 days; in uncomplicated cases not receiving vaccines was 23.08 days. The percentage of cases showing complications were: inoculated, 55; uninoculated, 50½; all cases, 51. The percentages of mortality were: of vaccinated cases, 10; of unvaccinated cases, 11½; of all cases, 11 1-10. (See Table No. 1.)

TABLE NO. 1.

SHOWING MAIN FEATURES OF COMPARISON BETWEEN THOSE CASES TREATED WITH VACCINES AND THOSE TREATED WITHOUT VACCINES.

	All Cases. (135)	Vaccinated Cases. (40)	Unvaccinated Cases. (95)
Days fever lasted in uncomplicated cases	23.46	24.39	23.08
Percentage of cases showing complications	51	55	50.50
Mortality percentage	11.1	10	11.5

The duration of fever in uncomplicated cases was approximately the same whether the cases did or did not receive vaccines. Defervescence in the uncomplicated cases began usually on the third day after admission, no matter whether vaccines were or were not administered. A more detailed study of the incidence and of the character of complications shows relapses occurring in 20% of inoculated cases in contrast to 11.5% of uninoculated cases; recrudescences in 17.5% of inoculated cases as against 28.4% of uninoculated cases; other complications in 37.5% of inoculated cases compared with 21% of uninoculated cases. In brief, the incidence of recrudescence was much less in the vaccinated than in the unvaccinated cases, while relapses and other complications were much more frequent in those vaccinated than in those unvaccinated. The latter class of complications includes hemorrhage, perforation, phlebitis, pneumonia, parotitis, tonsillitis, osteomyelitis, acute hallucinosis, Vincent's angina, and decubitus. (See Table No. 2.)

TABLE NO. 2.

SHOWING INCIDENCE AND CHARACTER OF COMPLICATIONS IN PERCENTAGE.

	All Cases. (135)	Vaccinated Cases. (40)	Unvaccinated Cases. (95)
All complications	51	55	50
Relapse	14.7	20	11.5
Recrudescence	25.1	17.5	28.4
Hemorrhage	3.74	7.5	2.15
Phlebitis	1.48	5	0
Perforation	1.48	2.5	1.05
Pneumonia	6.66	10.25	4.15
Parotitis	0.74	2.5	0
Tonsillitis	3.74	2.5	4.15
Cholangitis	1.48	2.5	1.05
Decubitus	2.22	5	1.05
Furunculosis	2.22	2.5	2.15
Osteomyelitis	0.74	2.5	0
Vincent's angina	0.74	2.5	0
Miscarriage	0.74	0	1.05
Acute hallucinosis	0.74	0	1.05

* Read at a meeting of the Boston Society of Medical Sciences, May 16, 1914.

Analyzing the causes of the four deaths occurring among cases treated with vaccines, we find the first death due to an intestinal perforation, after the fifth inoculation of vaccine and after patient had received a total of 150 million dead bacilli; the second death was due to septic parotitis developing during a relapse which began after three weeks without fever and after patient had received 880 million killed bacteria; the third death was due to an intestinal hemorrhage occurring on eighteenth day after patient's admission to the hospital and after he had received 530 million dead organisms; the fourth death was due to bronchopneumonia on patient's twenty-first day in hospital and after he had received 580 million killed typhoid bacilli. These deaths were obviously not due to complications extraneous to typhoid fever.

The deaths occurring among the 95 cases not inoculated with dead typhoid bacilli were as follows: 4 pneumonia, 2 hemorrhage, 3 severity of the disease, 1 perforation, 1 alcoholism.

The more important articles which suggested this work were as follows: First that by Callison, pathologist to the Manhattan Eye, Ear and Throat Hospital in *American Journal Medical Sciences* for September, 1913, wherein he reports 475 cases of typhoid fever treated with vaccines by various men and showing a mortality of 6.5% and a 6.5% incidence of relapse. Second, the work of Captain Smallman of the English Army Medical Corps, who reports 36 cases of typhoid fever treated with vaccines, having a mortality of 8.3%. Third, the report of 41 cases by Meakins of the Royal Victoria Hospital, Montreal, where he used from 1000 to 4500 million killed bacteria—polyvalent non-autogenous vaccine,—with the death-rate of 4.6% and incidence of relapse of 2.3% among cases so treated, contrasted with a death-rate of 12.2% and an incidence of relapse of 13% among cases not vaccinated.

In the endeavor to be conservative and mindful of the absence of any good theoretical basis for the use of vaccines in cases of septicemia, the dosage used in this series was small, but frequently repeated.

The value of this work is entirely negative. Using the kind of vaccine and the doses already outlined, we find, first, no obvious systemic reaction to the vaccines; second, a local reaction to every inoculation with dead organisms, and third, no diminution of the duration of fever in uncomplicated cases nor of the incidence of complications, nor of mortality.

Rinderpest in the Philippines.—Report from Manila, P. I., on June 15 states that the rinderpest or cattle-plague is rapidly spreading in the islands. Means are being taken to prevent its further extension.

THE FUNCTION OF THE SOCIAL SERVICE OF THE PSYCHOPATHIC HOSPITAL, BOSTON.*

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The Psychopathic Hospital in Boston is the embodiment of an ideal long upheld by the Massachusetts State Board of Insanity and definitely expressed in their annual report as early as 1902. There a plan was sketched for a hospital with an out-patient department, to be conducted along the lines of a general hospital "for the study and treatment of patients" and "for scientific research"; to receive the insane who cannot be cared for at home "pending the legal formalities" preliminary to commitment to an insane hospital, and patients in the "incipient stages of mental disorder, who might never have to enter an insane hospital if they could obtain temporary relief from unusual stress, or be removed from unfavorable environment, or have the advice and supervision which might be afforded through the out-patient department of a hospital." Two years ago this hospital was opened in Boston in close relation with the main hospital for the insane of the Metropolitan District, the Boston State Hospital, and under the supervision of the same board of trustees.

The psychopathic hospital idea began to be put into practice abroad over thirty years ago, and there are now in Europe over 50 institutions for specialized care and investigation of the insane. In the United States there are psychopathic hospitals in four states,—in Michigan the Psychopathic Ward of the Hospital of the University of Michigan at Ann Arbor, in New York the Psychiatric Institute of the New York Lunacy Commission and Pavilion F of the Albany General Hospital, in Massachusetts the Boston Psychopathic Hospital, and in Maryland the Phipps Institute just opened as a part of the Johns Hopkins Hospital.

The patients at the Psychopathic Hospital in Boston either come voluntarily, or are received at the request of a physician, or are sent by the court or the police. The probate court may commit a person for thirty or sixty days' observation on the application of two physicians, the criminal court may commit a person under arrest pending a hearing, and the police may bring directly to the hospital an acutely insane person who comes under their care. The capacity of the hospital is 110 beds, and the average number of admissions is 125 a month. The cases include insanity, mental deficiency, psychoneurosis, alcoholism, and the types of mental and moral defect associated with delinquency

* Psychopathic Hospital Contribution 1914.5. The previous contribution 1914.4 by Dr. E. E. Southard, entitled "Feeble-mindedness as a Leading Social Problem," was published in the Boston Medical and Surgical Journal, Vol. clxx, No. 00, 1914, p. 000.

for which methods of diagnosis and classification have not yet been discovered.

The problems presented by the patients coming to the out-patient department may be grouped as follows. The question of insanity, the question of feeble-mindedness, psychoneurosis, alcoholism, speech defect, and delinquency, whether the result of mental abnormality. About 20% of the 700 patients admitted to the out-patient department between August, 1912, and June, 1913, came through a general knowledge of the hospital, and as a rule we had no information about such patients except what they told us. The same is true of hospitals, physicians or other interested persons, usually with only a brief note or a card of introduction; 24% were discharged patients from our own wards. 28% came from schools, courts, or social agencies which had more or less information and gave us a written history of the patient.

The direct demand upon the hospital social service is lessened about 25% by the fact that a large number of our cases are already in the care of the social agencies which refer them, and that these agencies not only undertake to secure the histories of the patients, but make themselves responsible for their care and treatment according to advice from the hospital; but there are many points at which the social workers of the hospital can facilitate the efforts of these agencies.

The need of social service in some form can safely be assumed in the case of every insane, mentally deficient or neurasthenic patient who comes to the hospital, but we have estimated that the need is considerably less pressing or less readily discovered in about 30% of our cases. These include some of the chronic insane who are committed to insane hospitals, persons of confirmed bad habits who have no fixed residence, with whom communication could probably not be maintained, and patients who have in their own families somebody who takes the social worker's place.

Nearly one-half of the cases, then, both house patients and out-patients, should come at once directly under the social service. The different types of social service for which these cases indicate a need can best be illustrated by brief descriptions of patients who have been admitted to the hospital or examined in the out-patient department. Some cases require a different form of social treatment from others; often several forms are required in the same case. The main groups under which the work of the social service would seem to fall are: (1) After-care or supervision of patients at home, (2) advice to families of patients in regard to their care, (3) prophylaxis for other members of the family, (4) relief, (5) reference to a social agency or an institution, (6) inquiry to secure a history that is needed for the doctors' diagnosis, (7) inquiry to learn whether conditions can be secured suitable for the discharge of the patient.

These types may be illustrated as follows:—

1. Cases showing the need of after-care or supervision:—

Case 1. John C—, 36 years old, engineer. Married at 21 and lived ten years with his wife, took a dislike to her and separated. Four years ago began to be annoyed by spirits. Delusions that the devil has got his soul. Hallucinated. Discharged after six weeks, improved. Diagnosis: Paranoid dementia praecox. His conduct had been good, and he was advised to go out to work again.

Problem: The patient should have been advised as to suitable employment and a proper place to live. If he had difficulty in finding them for himself, he should have been assisted. He should be visited to see whether his delusions return and whether he is capable of self-support.

Case 2. Ethel B—, 23 years old, waitress. Sent from a general hospital where she had been with pneumonia. Had hallucinations and required restraint. Unable to walk. Father dead, mother in court for stealing. Discharged much improved, capable of self-support. Diagnosis: Alcoholic polyneuritis. To report to out-patient department and has not done so.

Problem: A good boarding place should have been found and employment under good conditions, and friends who could strengthen the patient's resolution to abstain from alcohol.

Case 3. Eva A—, 33 years old, widow, one son. Sent to out-patient department by the court after arrest for drunkenness. Claimed she tripped on the street after drinking small amount of beer; that she rarely drinks enough to become drunk; has lived as housemaid in a minister's family. A brother is in an asylum as the result of drinking. Examination did not indicate chronic alcoholism. Her case was dismissed in court. She was advised to report in a month to the out-patient department.

Problem: The patient should be constantly in touch with someone who will make her realize her danger in continuing to drink. She should be helped to settle in new surroundings where the temptation will be less.

Case 4. Amos R—, 26 years old, meat packer, single. Always of peculiar temperament; pious, liked to be alone, silent, a good workman. Two weeks before admission refused to talk, to move or feed himself. Diagnosis: Dementia praecox (catatonic episode). Remained two weeks and for the last ten days was in good physical and mental condition. Considered recovered. In two months was brought in by the police, apathetic and rambling. Was committed to an insane hospital.

Problem: The patient should have been under observation so that the return of his symptoms might have been detected at the earliest possible time, when he should have been brought to the out-patient department. His home conditions should have been looked into and changed if unfavorable to his recovery.

Case 5. Grace B—, 28 years old. Married, three children. Has been a bookkeeper. In Psychopathic Hospital with diagnosis of alcoholic hallucinosis for five weeks; returned in less than a month and stayed two months; readmitted after six months and remained seven weeks. Each time discharged recovered. Has lately lived apart from her husband who is a degenerate and toward whom she feels contempt and hatred. Is fond of her children who are staying with relatives. Her mother was in an insane hospital several years with manic-depressive insanity. Patient is weak, impulsive, pleasure-loving. Before her last admission she made a determined effort to hold a position in a hospital but under discouragement and worry she again succumbed.

Problem: After the first discharge employment should have been found for the patient, and she should have been advised where to make her home. She has no one in her family upon whom she can rely, and she is easily discouraged.

Case 6. Simon G—, 12 years old. Lives with his mother and father and one brother. Admitted to the hospital from out-patient department for observation. Father had syphilis. Boy is continually giving trouble. At four years stole money and hid it in the ground. Somewhat later held burning matches against the faces of younger children, and laughed at the burns. Several times chopped off door knobs with a hatchet; has thrown marbles through neighbors' windows; attempted to set fire to the barn; frequently loses a new article of clothing and shows no concern, though the family is not well-to-do; destroyed the gas meter. Mother can tell twenty or thirty incidents of his maliciously destroying things about the house. Lies about his acts, when there have been witnesses. Masturbates. Incites other boys to mischief and watches the results gleefully.

Problem: The family should have been induced to bring the boy to the hospital for treatment for syphilis, and advised about his training. His mental development should be closely watched, and he should be studied with the object of determining whether he is mentally defective.

Case 7. Edna B—, 19 years old. Living with married sister. Has had bad dreams and on waking loses power of walking until she can recall the dreams. Hears her grandmother, for whom she has a dislike, telling her to stick needles and pins into herself, has stuck many needles and pins into her breast. Admitted to hospital and discharged improved. Diagnosis: Hysteria. Continued to come to out-patient department, had recurrence of attack. Again recovered and went to work, getting back into her natural social life. Later reports she is well and working in a store, but cannot sleep.

Problem: Employment should be found that is not too exacting and is under good hygienic conditions. It should be arranged that the patient lead a regular life with the proper amount of recreation of the right character.

Case 8. Mildred D—, 14 years. Living with parents, brothers and sisters. Bright, capable, well-behaved child, rather sensitive nature. Has lately begun to have hysterical convulsions. Has been admitted to the hospital twice.

Father is a hard drinker and is violent and abusive when drunk. He preceded the family to this country and when the patient with her mother joined him four years ago, it was a great shock to her to find him a drinking man. She has come to have a terror of him when he is intoxicated. At other times he is kind. The mother is a very nice woman and all the children are of the same good character as patient. Patient has been working in a factory, although she wished to continue school, because the family needed her wages.

Problem: The father's drinking habits should be inquired into, and an effort made to cause him to improve. If this is not possible arrangements should be made for the patient to live away from home until she is stronger. It should be arranged with the family that she go to the trade school instead of returning to work.

Group II. Cases showing the need of advice to the patient's family:—

Case 1. Nora C—, 47 years old, married. On admission markedly depressed, apparently very weak, complained of many indefinite pains. At times feels that she cannot breathe if she does not swallow first. No hallucinations. After three days her sister, who was anxious for her to come to the hospital, insisted on taking her out. Provisional diagnosis: Neurasthenia.

Problem: The family's prejudice against the hospital should have been overcome so that the patient could have stayed until sufficiently recovered.

Case 2. James K—, 60 years old. Married 29 years ago, has seven children at home, oldest 22 and youngest 9, all boys except two girls, 18 and 14, and has a married daughter in New York. Patient's story: His wife was never kind to him but he bore with her for the children's sake, feeling that he would have them to depend upon in his old age. But with the exception of the girls, they have sided with his wife and treat him with disrespect and unkindness. His wife nags him continually and neglects his needs; has put him out of the house winter nights when he has slept on a bench in the park. When he comes home tired from work and goes to bed, his wife says he is drunk. He is a cabinet maker; has been in charge of six workmen and earned $24 a week, working five years at a time for at least two firms, but now that he is old cannot get as good positions as formerly. He sent his three oldest children through high school, and has had some of them given music lessons. Before he came to the hospital he turned on the gas to kill himself, feeling that he had nothing to live for. When he leaves he will not live again with his wife and will have nothing to do with his sons; but will work and give all the money he can spare to his two unmarried daughters.

Wife's story: Patient has always been a hard drinker, for the last two years has seldom been

older. Has several times threatened the life of his wife and children and lately attempted suicide.

On admission had delusions that people were trying to choke him at night. Stayed a month and was discharged recovered. Diagnosis: Alcoholic hallucinosis. A month later returned, hearing voices and can not sleep. In two weeks mind again entirely clear.

Problem: It should be learned whether it is true that the patient's wife is harsh and nags him and his children are indifferent to him. If this is exaggeration he should be made to see the facts. His wife and children should be made to understand that kind treatment is essential and their coöperation should be gained to prevent further attacks.

CASE 3. John V—, 14 years old. Lives with parents and two younger brothers. Sent by the principal of the grammar school with the question to what extent he is responsible for his disorderly conduct. Out of 42 school reports of conduct only 2 were "good," 12 "fair," 28 "poor" or "very poor." His misconduct was said to be of a thoughtless kind but he was always in trouble. His father brought him to the out-patient department where he had a preliminary mental examination; but failed to bring him again and did not respond to a letter asking him to return for the completion of the examination.

Problem: The father and mother should have been seen and had explained to them the importance of discovering early whether mental defect may be an element in the boy's conduct.

Group III. Cases showing the need of prophylaxis for other members of patient's family.

CASE 1. Julius R—, 33 years old, widower, mechanic. One child, a boy of 15. Niece of 12 lives with them. The father, a brother and a sister are in insane hospitals in this state, and an aunt has been in an insane hospital. Since wife's death over four years ago, has gone on a spree every three months for a few days. Brought in by the police who found him in his back yard with a club looking for the people who had wired his house for a dictagraph to kill them. After a month in the hospital, had cleared up and showed no evidence of psychosis. Was discharged to the out-patient department on visit. Diagnosis: Alcoholic hallucinosis.

Problem: When there is such a history of insanity in the family, the patient's son and niece ought to be examined to see whether they show any mental abnormality. Other members of the family ought also to be looked up.

CASE 2. Walter A—, 17 years old. Living with parents and one sister 19, the only living child. Four died in infancy after premature birth, and there were two miscarriages. Sister had chorea a year ago. Father's mother and one sister died of "paralysis" and one of his brothers is "eccentric." Patient works in a provision store where his father is in charge but could not hold a job elsewhere. Stolid, indifferent, obedient, kind and well behaved. Sent to out-patient department by family doctor. Diagnosis: Congenital syphilis. Admitted to hospital for salvarsan treatment. Failed to report a month later as directed. Sister was not examined.

Problem: The history of "nervousness" in the patient's sister makes it important that she should be under observation. From the family history it is probable that some of the cousins should also be examined.

CASE 3. Ernest W—. Receiving treatment for tabo-paresis. Twelve years old. Lives with mother who is separated from father. One other child, a girl of 14, shows marked nervousness and a commencing process of tabes. Mother at doctor's suggestion brought her for examination, but failed to bring her for treatment.

Problem. The mother should be informed of the importance of treatment for the girl and should be persuaded to have it given, in the hope of arresting the disease.

Group IV. Cases showing need of relief:—

CASE 1. Miriam I—, 34 years old, married. Husband and two children, younger two years. Two years ago in very hot weather had a week when she imagined people were telling her what to do, crawled about the floor and tried to wash the black off the walls. Completely recovered according to husband. For three months previous to admission had been developing delusions and hallucinations of persecution. Brought in excited and irrelevant and became maniacal. After two months committed to an insane hospital unimproved.

Problem: How are the children being cared for? The father, an ignorant man, needs advice in making suitable provisions for two small children. The mother after her admission was not at any time rational enough to discuss the matter.

CASE 2. Rebecca E—, 6 years old. Father a tailor. Seven other children in family, oldest 16 years. Boy of 16 is described by mother as nervous and backward, and the baby, one year old, twitches. The first child, who died, was feeble-minded. Father can not earn more than $12 a week and has lost time through being sick. The family has had some public relief. Physically normal, markedly nervous. By mental tests child appears to be subnormal but it is not clear that she is mentally deficient.

Problem: The mother, seen at the clinic, is anxious and strained with the effort to keep the children fed and clothed, and cannot give this child the special care she should have. Sufficient income should be secured for the family, and all the children should be kept under observation.

Group V. Showing the need of reference to a social agency or an institution:—

CASE 1. Francis D—, 12 years old. Living with parents, father a bridge caretaker. Five other children from 18 to 7 years in the family. Brought by

school teacher because he is so nervous that he cannot attend school. Underdeveloped, undernourished boy. By Binet tests measures 9 years. Question is how much of his mental backwardness is due to his physicial condition? Advised summer in the country under good conditions.

Problem: The doctor's prescription could not be filled by the family, for they had no relatives or friends to whom they could send the boy for the summer. A children's agency should have been asked to give him special care in a boarding home.

Case 2. Bertha B—, 25 years old. Bright looking, rather attractive. Has illegitimate child six years old in care of a charitable agency. During the past four years five social agencies had been interested in her; two physicians had examined her, one of whom had recommended commitment to a school for the feeble-minded two years before. Sent for examination by a college professor in whose family patient had worked who thought this physician's diagnosis was unjust to her. Examination showed her to be distinctly subnormal, probably a high-grade moron. Her social history was not secured until later and no action was taken. When the history was obtained it confirmed the diagnosis of feeble-mindedness. Meanwhile she was heard of staying with some friends, changing positions frequently, and keeping company with a married man. Finally she married a man who is considered "peculiar."

Problem: Efforts should have been made to secure the patient's commitment to a school for the feeble-minded. Now that she is married, she will probably never be committed, but will bear other children who may be feeble-minded.

Group VI. Cases showing the need of a history required for diagnosis.

Case 1. Henry R—, 54 years old, storekeeper, married. Two grown sons and two grown daughters. Committed by the Probate Court on the statement of two physicians that he had violent outburst and homicidal tendencies and had carried weapons. The patient was orderly and tractable, at first unwilling to tell his whole story, finally gave the following history: His trouble is due to his wife's partiality for a lawyer with whom she has intimate relations, which he suspects to be immoral. This man posted her on points of law and she got control of part of her husband's business. She was successful and he was not; she domineered over him making him of no account in the family and denying him his natural rights. Their children joined with her against him. His sons have beaten him on several occasions. An unscrupulous doctor is conspiring with the family to have him committed to an institution. His wife has often threatened during the past year to have him adjudged insane and sent away.

The wife's story is that her husband always had a very bad temper which has lately grown worse. The present trouble is all because she took the lease of a lodging house in her name as she is a better manager than he and she found he was wasting the receipts from tenants. He has been grossly immoral. She has been true to him, but he is suspicious and jealous. He goes among the neighbors slandering her and her daughters.

Some inquiry by a member of the staff brought out the fact that the patient and his wife had for a long time kept an immoral house in the West End. Inquiry was not pursued and patient was discharged without diagnosis.

Problem: Are the patient's beliefs about his wife the delusions of a paranoid condition or are they facts? Can his wife's story be believed? The facts can be learned only by inquiry among people who know the family. Without these facts the patient's mental condition cannot be determined.

Case 2. James R—, 37 years old, telegrapher. Married and has three boys 12, 10 and 3. Committed by the court for observation because he became excited in the court room.

Patient said that he was here because of family trouble and told the following story: A year after his marriage, 15 years ago, his wife's sister began to interfere in his domestic affairs. His wife is an angel outside but a devil at home and she and her sister want to get rid of him. His wife told him she had been unfaithful to him and he went away to New Hampshire. Came home on hearing that his wife was about to have him arrested for non-support. Continued to have trouble and was arrested this week for failure to provide in spite of the fact that he offered his wife money. In court he became greatly excited because everybody believed her and nobody believed him, and was sent to the hospital. He had been once before in an insane hospital where no definite psychosis was found. At that time he had attacked his wife when drunk. Patient gave no evidence of a psychosis while here and though it was believed that he might be insane, not enough evidence was found for commitment and he was discharged. He got a job on a boat, went home after a short cruise, and his wife immediately had him committed again to the psychopathic hospital, saying that he had threatened to kill her and the children and had broken the furniture. He says this is not true and his wife wants to get him out of the way. His condition is unchanged.

Problem: As the stories of the patient and his wife are contradictory, it is necessary to learn from others what their domestic relations have been, and whether there have been witnesses to his alleged outbursts.

Case 3. Julia E. , 43 years old, married. No children. Married a year ago, separated after a month. Admitted relation since with a married man. Five years ago was for several weeks in a sanatarium and under court supervision for two years. Now committed by the court. On admission apprehensive and depressed. No hallucinations. Believed conscience was punishing her dreadfully for specific offences of sex nature of which she told. No delusions of any other nature. Discharged after three weeks by order of court to custody of her husband. Diagnosis not made.

Problem: Inquiry among relatives and friends was needed to secure information about

the temperament of the patient and her conduct and habits, in order to judge the importance of the symptoms she showed in the hospital. For lack of information she had to be discharged without a diagnosis.

Case 4. Alice B—, 67 years old, widow. Sent for observation by physician, who was called in after quarrel between her and sister with whom she lives, as statements of sister. Fifteen months ago she came to live with her sister whose husband had died leaving some money. Sister says now she does not think patient is insane, but patient thinks sister is insane and refuses to return to her. Is willing to remain as voluntary patient. Sister-in-law's pastor says sister has been insane for 40 years. Patient in the hospital shows no evidence of mental disease.

Problem: Inquiry should be made about the patient and her sister to learn whether either have given evidence of mental disorder in the past.

Group VII. Cases showing need of investigation to determine whether patient may properly be discharged:—

Case 1. Julia K—, 20 years old, dressmaker. Parents dead. Lived with grandmother and two brothers. Brought by police because she had been excited for two days, tried to choke her grandmother and destroyed furniture. Diagnosis: Dementia precox (catatonia). Improved a good deal and at the urgent request of a doctor was discharged in his care on visit. In two months shot herself; recovered from wound and was readmitted to Psychopathic Hospital. Transferred after four months to Boston State Hospital, improved.

Problem: The fitness of the family doctor to be responsible for the patient should have been investigated before her discharge and the living conditions to which she was to return should have been looked up. Then the hospital should have kept in touch with him and with the patient, so that she might have been brought back at the earliest signs of another attack.

Case 2. Laura E—, 37 years old. Married 11 years, two children, age 10 and girl 6. Symptoms: Headache, numbness, palpitations, fear that she was going to die. Believed her husband unfaithful, but [illegible] to her and she hated him. Told of sexual experiences of which she had been the victim since two years old. Discharged improved after two months. Diagnosis: Neurasthenia. In nine months returned as a maniacal excitement and was committed to an insane hospital.

Problem: Inquiry should have been made to discover whether conditions in the patient's home were such that her improvement could be expected to continue. The grounds of her antipathy to her husband should have been discovered. If investigation showed that she ought not to return to him, she should have been helped to make arrangements to live elsewhere.

Case 3. John A—, 21 years old. Single. Newsboy. According to his family left the house in the morning apparently normal. Brought in by the police. Had a knife with which he intended to kill a supposed enemy. Patient said he had heard voices for three years; knew two people who had been influencing him and giving him cramps. After two weeks claimed that he had been mistaken in his delusions and denied that he had them any longer. Discharged on visit at the request of a lawyer who agreed to see that he was taken care of. Diagnosis: Dementia praecox.

Problem: The lawyer's ability to assume responsibility for the patient should have been investigated and the plans for his care should have been known to be suitable. The patient is potentially dangerous, and the hospital should have kept in touch with him so that he might be brought back if his delusions returned.

What are the conclusions as to the function of social service in a psychopathic hospital? Is there a need for members of the staff whose whole duty is concerned with the patient in his social relations? Unquestionably there is much to be done outside the hospital in the care of the insane; and much of the information necessary to an understanding of mental disease cannot be obtained in the hospital. An estimate based on a study of 100 cases in the hospital and 100 cases in the out-patient department indicates that the cases needing social service from the hospital will fall into the groups illustrated above as follows: About 50% will require aftercare or supervision, 35% advice to the patient's family, 25% a history for diagnosis, 15% investigation to show whether the patient may properly be discharged, 5% prophylaxis for other members of the family, 5% relief, 5% reference to a social agency. Some cases will require more than one form of social service. It is not possible for the medical staff to cover this work. The doctor whose time is already filled with examination and treatment of patients and clinical research work has not the time to follow the patients beyond the doors of the hospital, or to make any systematic effort to obtain the facts of their past lives and present environment beyond what can be learned from relatives or friends who visit the hospital.

Complete and thorough histories are needed for scientific research in the correlation of social disorders and mental disorders. Since environment is so evidently a factor in producing mental disease and mental disease is so evidently a factor in producing social disorder, it would seem of great importance that the relation between mental abnormality and social conduct should be scientifically studied, and determined effort made to secure the case material for such study. It cannot be expected that the medical staff should devote a part of their time to collecting and studying this material. If a hospital acknowledges this object, an adequately organized social service staff is a necessary part of its equipment.

Without the social service, "the study and treatment of patients" in the Psychopathic Hospital in at least the majority of cases, must remain incomplete, and "scientific study" must be limited to purely medical subjects. So in order to carry out the aim of the hospital, held in view by the State Board of Insanity, since 1902, the social service has been planned as an integral part of the work. The beginning is being made with two visitors, who will carry only the proportion of cases that it is found they can cover adequately, and the expectation is that by the addition of other visitors, all the cases will be eventually covered.

Medical Progress.

PROGRESS IN PEDIATRICS. THE PHYSIOLOGY OF DIGESTION AND THE METABOLISM IN INFANCY. A SUMMARY.

By John Lovett Morse, A.M., M.D., Boston.

THE CALORIC NEEDS OF INFANTS.

It has been found by metabolism experiments and by the continuous observation of nursing infants that the average infant needs between 100 and 120 calories per kilogram of body weight during the first six months in order to gain properly in weight. After the first six months the organism works more economically and a smaller number of calories are sufficient, 75 to 100 calories per kilogram being enough for the average baby. Young babies will usually hold their weight on from 70 to 75 calories per kilogram, but cannot gain on this amount. Premature babies, on account of their larger surface area in proportion to their bulk, need rather more calories per kilogram of weight than do full-term babies. A certain number of babies need more than 120 calories per kilogram in order to thrive, some babies requiring as much as 140 or 150 calories.

It is far more rational to calculate the caloric needs in relation to the surface area of the baby than in relation to the weight. There are various formulae for determining the surface area which are approximately accurate. There are no figures, however, from large series of cases as to the average caloric needs of babies calculated on this basis. The figures as to the average caloric needs of babies have been determined, moreover, without relation to whether the babies were quiet or active. It has recently been discovered, however, that the active baby uses up many more calories than does the quiet baby and that, therefore, the caloric needs must vary with the activity of the individual baby as well as with its size.

THE METABOLISM OF FAT.

Fat is a very important source of energy to the infant because of its high caloric value. The large proportion of fat in human milk indicates how large a proportion of the total energy required may be advantageously provided by fat. The tolerance for cows' milk fat varies within wide limits. If an intolerance for fat is once established, it persists longer than that due to any of the other food elements. It is difficult to make up for a marked deficiency in fat by an increase in the carbohydrates in the food. Fat and carbohydrates do not serve, moreover, exactly the same purpose, the metabolic water formed from fat being much greater than that formed from the carbohydrates.

Effect on Gastric Motility. Nothing has so much influence on the time required for the emptying of the stomach as variations in the amount of fat in the food, the time required varying directly with the amount of fat. Raising the percentage of fat in the food, for example, from three per cent. to six per cent., more than doubles the time occupied in emptying the stomach. An excess of fat in the food may so retard the emptying of the stomach that stagnation of the gastric contents occurs. When the quantity of the fat is very large, selective retention of the fat takes place. Fat delays the secretion of hydrochloric acid and hence delays the establishment of the pyloric reflex. The delay in the secretion of hydrochloric acid interferes also with the closure of the cardiac sphincter. The food may, therefore, be pushed back into the esophagus by the peristaltic action of the stomach and regurgitation result.

Digestion of Fat. There is unquestionably a gastric fat-splitting ferment present at birth, which is active during infancy. There is some doubt as to how important this action is. In all probability it plays but a small part in the total amount of fat-splitting, which is chiefly accomplished in the intestine. The processes in the intestine are the same as in the adult. Not more than one percent. of the fat escapes splitting under normal conditions. Nature prevents, moreover, a very active participation of the gastric lipase in the splitting of the fat, because, when the casein is coagulated, the fat is entangled in its meshes. The casein has to be digested, therefore, before the fat can be reached by the digestive juices. This takes place slowly. Only a small amount of fat can be acted upon, therefore, at one time.

Absorption of Fat. Under normal conditions, fat absorption is extraordinarily good in health. Under normal conditions more than 91 percent. is absorbed, in some instances as much as 98 percent. The fat absorption is practically the same on cow's milk as on human milk. From eight percent. to 11 percent of the ingested fat is absorbed in the upper part of the small intestine, the absorption being nearly complete at the ileocecal valve. Under ordinary conditions

there is very little absorption in the large intestine, but under certain favorable conditions the large intestine is capable of absorbing large amounts of fat. There is much difference of opinion as to the form in which fats are absorbed, whether as fatty acids or soaps and, if as soaps, whether as the soluble soaps or the insoluble soaps. It is safe to say that at present this question is not settled.

Fat in the Stools. Practically all of the fecal fat comes from the food, not from the intestinal secretions. During the first few days of life as much as 50 percent. of the dried stools consists of fat. This amount may diminish to as little as 15 percent. as the babies grow older, although in some instances from 25 percent. to 40 percent. of the dried stool of the normal infant consists of fat. About ten percent of this fat is in the form of neutral fat, ten percent. in the form of soluble soaps and the rest in the form of fatty acids and insoluble soaps.

Results of an Excess of Fat. When there is an excess of fat in the food, and this fat passes from the stomach into the intestine, it combines there with alkalis, chiefly the earthy, to form the so-called "soap stools." The organism is, therefore, deprived of magnesium and calcium. More magnesium and calcium are lost, however, than can be accounted for by the binding power of the fatty acids. There is not as much interference with the absorption of fat under these circumstances, nevertheless, as would be expected. These stools are only found when there is not only an excess of fat but also a lack of carbohydrate in the intestine, conditions under which putrefaction of protein can take place. After the stools become acid, the fat is present in the form of soft, fatty curds. There is then no longer a loss of magnesium and calcium, but of potassium and sodium.

When there is an excess of the lower fatty acids in the intestines they may produce diarrhea. In these cases there is a great loss of fat in the stools. The fat under these circumstances is combined with the alkaline salts, especially sodium, not with the alkaline earths. A relative acidosis results, with an excess of ammonia in the urine. Even when there is a severe diarrhea, the calcium and magnesium may be well retained.

In normal babies in whom the fat absorption is normal, an increase in the intake of fat has no influence on the mineral composition of the feces. In conditions of chronic malnutrition, an increase in the fat in the food causes a considerable increase in the salt output through the feces. In such conditions the loss of mineral bases may be sufficient to cause a negative salt balance.

THE METABOLISM OF CARBOHYDRATES.

The carbohydrates comprise the sugars and starches. They are not tissue builders, but serve simply as sources of energy. The caloric value of the sugars and starches is the same. They make the digestion of protein more complete, however, and have a marked property of sparing nitrogen. When they are added to the food there is usually an increase in the nitrogen retention. When given in excess, on the other hand, they cause increased peristalsis, frequent stools and a considerable loss of nitrogen from the body.

The carbohydrates begin to leave the stomach almost immediately after they are ingested and pass into the intestine more quickly than the other food elements. They also hasten the passage of protein from the stomach into the duodenum.

SUGARS: *The Chemistry of Sugars.* Three different sugars are commonly used in the feeding of infants. These are lactose, or milk sugar, saccharose, or cane sugar, and maltose, or malt sugar. Maltose is never used in the pure form, because of its cost. The sugars which are ordinarily spoken of as malt sugars are in reality combinations of maltose and the various dextrins. These sugars are all dissaccharides, lactose being a combination of dextrose and galactose, saccharose of dextrose and levulose, and maltose of dextrose and dextrose. The dextrins are bodies which are formed in the change from starch to maltose. There are a great variety of them and their exact composition is not well known. The dextrins being finally converted to maltose, their ultimate end is dextrose.

Absorption of Sugars. The dissaccharides are not absorbed as such from the intestine under normal conditions, but are first broken down into their respective monosaccharides by special ferments. These ferments are maltase, saccharase (invertin) and lactase. They are formed in the mucous membrane of the small intestine and are all present and active at birth. Maltase is also present in the blood, the saliva and the pancreatic juice. The greater part of the digestion and absorption of the carbohydrates takes place in the upper part of the small intestine, but splitting and absorption may also take place in the large intestine.

The monosaccharides which are formed are taken up by the portal capillaries and carried by the portal vein to the liver where they are converted into and stored as glycogen, to be later reconverted by the maltase in the blood into dextrose and used as required. There is normally about one-tenth percent. of dextrose in the blood. A deficit of sugar in the blood is made up from the glycogen deposits. If hyperglycemia occurs as the result of some disturbance of the regulatory apparatus, the excess is eliminated in the urine. The carbohydrates are ultimately broken down into carbon dioxide and water. The various intermediary products which are formed during their disintegration in the body are, however, entirely unknown.

Energy Value of Sugars. The gross energy value of the various disaccharides is the same.

The net energy value of maltose may be, however, greater than that of the others in certain conditions of malnutrition in which the store of glycogen in the liver is depleted or exhausted. Dextrose after being absorbed can be immediately utilized, if necessary, without being previously converted into glycogen. The whole of the energy value of maltose, which is composed of dextrose and dextrose, is thus immediately available, while only one-half of that of the other disaccharides, which are only one-half dextrose, is available at once, the galactose and levulose having to be converted into glycogen before they can be used. Under normal conditions, in which the monosaccharides are all changed to glycogen before being utilized, this difference in energy value does not hold.

Assimilation of Sugars. When milk sugar is injected directly into the circulation it can be completely recovered in the urine. When cane sugar is introduced subcutaneously into animals, 65 percent. or more is excreted in the urine. The remainder is eliminated into the alimentary tract through the gastric mucosa, the salivary glands and the bile. Milk sugar and cane sugar are passed out of the system in this way because there are no ferments in the blood capable of converting these sugars. When maltose is injected it can be broken down by the maltase in the blood and retained.

If an excessive amount of disaccharide is introduced into the intestine, or there is a lesion of the intestinal wall, it will pass into the circulation before it is broken down into the monosaccharides. When the disaccharides reach the circulation in this way, their fate is the same as when they are injected directly into the circulation. All the lactose and the major part of the saccharose are eliminated unchanged in the urine, the rest of the saccharose being eliminated through the alimentary tract, where it may be broken down and partly or entirely utilized. The maltose, unless greatly in excess, is broken down and retained. The limits of assimilation of single doses of disaccharides in infancy are: lactose, 3.1 to 3.6 grams per kilogramme; saccharose, no data, but probably about the same as lactose; maltose, 7.7 grams per kilogramme. These limits are much higher than the amounts of sugar which a baby would receive in a single feeding of breast milk, or in a single feeding of any reasonable artificial food.

Sugar-Fever. It has been believed by many that sugar may cause fever. Leopold found that 43 percent. of the babies tested with lactose, 42 percent. of those with saccharose and 33 percent of those with maltose reacted with fever. This fever was, however, always accompanied by diarrhea, and in none of the cases tested in which the stools remained normal did the sugar cause fever. The recent experiments of Schlutz make it appear very improbable, moreover, that, even when there are lesions of the intestine, the rise of temperature is caused directly by the sugar.

Fermentation of Sugars and the Results. The disaccharides are all fermentable. Lactose undergoes lactic acid fermentation more readily than the other sugars. Saccharose undergoes alcoholic fermentation most easily, and butyric acid next most readily, while maltose is especially prone to butyric fermentation and next to alcoholic.

The maintenance of the normal infantile intestinal flora depends on the presence of a relative excess of carbohydrates in the food, the fermentation of which keeps the reaction of the intestinal contents acid. Lactose is broken down less rapidly and is consequently more slowly absorbed than the other sugars. It is, therefore, better fitted than the other disaccharides to maintain an acid reaction throughout the whole intestinal tract. Few organisms other than those normal to the intestinal tract of infants can, moreover, utilize lactose before it is broken down, while many can utilize saccharose and maltose.

Certain organisms, such as the dysentery bacillus, form toxic substances from protein and innocuous substances from carbohydrates. These organisms always grow by preference on carbohydrates instead of protein, if both are present. Other organisms thrive on protein, but grow with difficulty on carbohydrates. The administration of an easily fermentable carbohydrate will change the activity of many organisms from the proteolytic to the fermentative type and will favor the growth of fermentative organisms which will crowd out the purely proteolytic forms. All the disaccharides are easily fermentable. Milk sugar is preferable to the others because, being more slowly broken down, its action is more prolonged.

The excessive fermentation of sugar may produce an unduly acid reaction of the intestinal contents and cause diarrhea and injury of the intestinal mucosa. When given in excess, lactose causes diarrhea more often than the other disaccharides, presumably because it is more slowly broken down and therefore stays in the intestines longer. The opportunity for the production of an excessive acidity and for injury to the intestinal wall is consequently greater. Under such conditions the sugars which are more quickly broken down and absorbed are more suitable.

Starch: *Amylolytic Ferments.* Amylolytic ferments are present in the saliva and pancreatic secretion of the new-born infant, even if it is born prematurely. These ferments are present and active in the breast-fed as well as in the artificially-fed infant. The amylase of the pancreatic secretion is more abundant after the first month than before. The activity of the pancreatic amylase seems to depend, after the first month, more on individual peculiarities than on the age of the baby. The amount of the secretion is apparently independent of the character of the food. It is not diminished in atrophic conditions.

Digestion and Absorption of Starch. During the process of digestion, starch passes through the various forms of the dextrins and is finally converted into maltose. The maltose is then broken down into dextrose and dextrose before it is absorbed. The digestion of the starch is carried on in the stomach by the salivary amylase until its action is stopped by the hydrochloric acid in the gastric secretion. It is completed in the intestine by the action of the pancreatic amylase. The part played by the salivary amylase is, however, relatively unimportant.

Owing to the facts that starch is slowly broken down and that the maltose which is formed is quickly absorbed in the form of dextrose, there is only a relatively small amount of fermentable carbohydrates present in the intestine at any one time. Starch can be utilized, therefore, without causing disturbance in certain conditions in which the disaccharides cause fermentation.

Barley and oat starch are broken down more rapidly by enzymes and bacteria than are wheat and rye starch and are, therefore, more likely to cause acidity and fermentation. The fermentation of starches results in the formation of free fatty acids which exert a strong irritant action on the intestine. The injurious effect of these acids is the same whether they are derived from carbohydrates or fat.

Starch a Protective Colloid. Starch acts as a protective colloid. It thus prevents the formation of large casein curds and makes the digestion of casein easier.

A baby on a purely carbohydrate diet, or on one in which the carbohydrates are greatly in excess, receives much less salts than it should, such a diet being poor in salts. The consequent disturbance in the retention of salts and water results in impairment of the nutrition and a marked diminution in the resistance to infection.

THE METABOLISM OF PROTEIN.

Rennin, pepsin, hydrochloric acid, trypsin and erepsin are present and active at birth, even if this occurs prematurely. The infant is, therefore, fully prepared to digest protein as soon as it is born.

Pepsin, in the presence of hydrochloric acid, reduces the protein to albumoses and peptones. The trypsin of the pancreatic juice and the erepsin of the small intestine split these products into polypeptides and finally into amino-acids. The amino-acids are the end products of protein digestion. They are absorbed and reconstructed in the body into various substances, which are at present not completely understood. They are excreted by the kidneys, chiefly in the form of urea and ammonia.

The nitrogenous constituents of the food are almost entirely broken down and absorbed. The nitrogen of the feces is derived almost entirely from the intestinal secretions and from bacteria.

Protein, which is the only food element which contains nitrogen, is absolutely essential not only for the growth and development of the baby but also for its survival, since the body tissues can only be replaced and new tissues formed from the nitrogenous foods. A baby can readily die, although taking a food containing a sufficient number of calories, if its protein content is consistently below the minimum protein need. This minimum protein need lies between 1.5 grams and 2 grams per kilogram of body weight. The infant requires protein not only to replace wasted tissues, as does the adult, but also to build up new tissues. The demand for protein is, therefore, relatively greater than that of the adult. The eagerness of the infant to retain nitrogen is surprising. Growth seems to be as necessary a process for it as is the maintenance of the nitrogenous equlibrium for the adult. The baby will retain protein, if it is in any way possible. In the adult a diet of insufficient caloric value leads to protein loss. This is not the case in the infant. Instead of utilizing all the food ingested to furnish energy, the infant continues to use nitrogen for growth and sacrifices other tissues of the body. It retains a considerable amount of nitrogen even when the caloric value of the food is insufficient. That is, an infant will often grow in length while losing weight. It grows at the expense of its general nutrition. The infant can also use protein to furnish heat and energy. The caloric value of protein is the same as that of the carbohydrates. 28.6% of the caloric value is, however, given off as free heat, leaving only 71.4% available for the purposes of cell life. Protein is, therefore, not an economical form of fuel. The excretion of the products of the combustion of protein throw, moreover, an unnecessary load on the organs of elimination. Under normal conditions in infancy, especially when the food is human milk, protein plays but a small part as a source of energy.

Judging from the constant composition of breast-milk, the amount of protein required does not need to be much increased after the first few months until the end of the first year. The rate of growth diminishes as the wear and tear of the body increases and the two factors approximately balance each other. If an infant is temporarily deprived of nitrogen and then given it freely, it retains a large amount for a time. If an excess continues to be given, only the normal amount is retained Nitrogen retention is especially high during the convalescence from atrophic conditions.

The sparing of nitrogen and the storing of nitrogen are materially modified by the composition of the food as a whole. Fat does not spare protein, as might be expected from its high caloric value, but carbohydrates have a marked influence on the retention of nitrogen. The mineral salts must have a very decided influence on the storage of nitrogen, because the retention of nitrogen and of salts run parallel

with each other. The explanation of this fact is that salts are necessary for the building up of living protein material. Nitrogen cannot be retained unless they are available and is, therefore, excreted.

According to Orgler's experiments, healthy artificially-fed infants retain nitrogen as well or better than healthy breast-fed infants of the same age. Sick artificially-fed infants retain it as well as sick breast-fed infants. Healthy infants when given a properly modified cows' milk often retain nitrogen better than when on the breast. The utilization of nitrogen may be as good or even better in the artificially-fed than in the breast-fed.

It is evident, therefore, that the casein of cows' milk is not as difficult of digestion as has been supposed in the past. It may, however, appear in the stools in the form of large, hard curds. The loss of nitrogen in this way is, nevertheless, relatively slight and they are often present without any other signs of disturbance of the digestion.

No injurious effects have been proven to be caused by the presence of larger amounts of protein in the food than are ordinarily present in human milk. Holt and Levene have produced fever in infants by feeding foods containing a large amount of "synthetic" protein. They concluded that the fever was directly due to the action of the absorbed protein, and that the reason that it caused fever was because the food contained a large amount of protein without a sufficient amount of whey. Their food contained a large amount of salts, however, and it is possible that the fever may have been due to them. It is possible, too, that, in general, an excess of protein may increase heat production and thus cause an excessive stimulation of the metabolism of all the foodstuffs.

THE METABOLISM OF THE SALTS.

The salts are necessary for the maintenance of life. They are best absorbed and utilized when they are in organic combination with foodstuffs. The ash content of the newly-born infant is 2.7% of the total weight; that of the adult, 4.4%. About 4% of the mineral intake is retained in the early months and later only about 2%. Human milk contains about 0.2% of ash and cows' milk about 0.7%. The relations of the various mineral constituents to each other are materially different in the two milks. The salts are, moreover, not in the same organic combinations in the two milks. The special combination of the salts in the whey of human milk is more favorable to the absorption and retention of both the fat and casein of both human and cows' milk than that in the whey of cows' milk.

The ash intake in the artificially-fed is from six to nine times that in the breast-fed. The absorption of ash is from 15% to 25% better on human milk, but, on account of the larger intake, from four to six times as much is absorbed in artificial feeding. The greater percentage of absorption on human milk depends especially on the better absorption of calcium, magnesium and phosphorus. The retention of the salts of human milk is better than in the case of cows' milk. About one-third of the salts are eliminated through the feces and two-thirds through the urine when human milk is taken, while on cows' milk about one-half is eliminated in each.

There are marked changes in the metabolism of the salts as a whole in the disturbances of nutrition. In the milder conditions there is a slight decrease in retention of the salts, especially of the alkaline earths. In the more severe disturbances there is a very material loss, especially of the fixed alkalis. Calcium and magnesium are used up by the fatty acids in the stools, while, when there is diarrhea, sodium and potassium are lost. A condition of relative acidosis develops as the result. In the severest cases the nature of the disturbance of the salt metabolism is but little known, but is presumably a very serious one.

Calcium. There is almost always a sufficient amount of calcium in the food whether it is human milk or cows' milk. There is much more calcium in cows' than in human milk and the amount absorbed and retained is greater, although the percentage of retention is less. Only five per cent. to ten per cent. of the calcium ingested is eliminated in the urine, the remainder passing out in the feces, calcium being absorbed and then excreted into the large intestine. Calcium forms a much greater part of the artificially-fed than of the breast-fed infant's feces. It is largely in the form of the insoluble soaps. There is an abnormal elimination of calcium in the feces in rickets. There is also a diminution in the retention of calcium in the spasmophilic diathesis.

Iron. Both human and cows' milk are deficient in iron, and anemia would always develop in infants after a few months, if it were not for the store of iron present in the liver at birth. Iron is almost entirely eliminated through the feces.

Magnesium. The metabolic functions of magnesium and calcium are very much the same. The distribution of magnesium in the tissues is a little wider than that of calcium. Magnesium also makes up a considerable proportion of the total ash of bone. The absorption of magnesium takes place through the small intestine and is relatively high. It varies with the amount of fat in the food, less being absorbed when the food is high in fat. Magnesium is excreted in about equal amounts through the urine and feces.

Phosphorus. Cows' milk contains about five times as much phosphorus as human milk. 77% of the phosphorus of mothers' milk is in organic combination, however, while only 27.9% of the phosphorus in cows' milk is combined in this way. This relation of the organic to the in-

organic phosphorus is of importance, because the organism does not have the power of building cells containing phosphorus from the inorganic phosphates. The absorption of phosphorus on human milk is higher than on cows' milk. The amount of absorption increases with the amount of fat in the food. The presence of a large amount of calcium in the food results in the formation of insoluble salts of phosphorus on the intestine and thus prevents absorption. The organism retains phosphorus longer than any other mineral constituent except sodium chloride, presumably because of its close connection with the central nervous system. Phosphorus is eliminated in about equal amounts through the urine and feces, except when there is a large excess of calcium in the food, when it is eliminated through the feces. The retention of phosphorus is disturbed in rickets. It has a close connection with the intermediary metabolism, it being necessary to the proper functioning of the thyroid gland, the ovaries and the testes.

Sodium and Potassium. There is much more sodium and potassium in cows' milk than in human milk. There is more potassium than sodium in both of them. The absorption of these salts is good for both milks. The retention is better on human milk than on cows' milk, being 67% for sodium and 74% for potassium on human milk, while on cows' milk it is 15.27% for sodium and 16.12% for potassium. Both salts are eliminated in the urine and feces, 15% to 25% of the intake being eliminated in the feces. In disturbances of metabolism the fixed alkalis are retained as long as possible. An over-retention of potassium almost never occurs. It is probable that a retention of sodium chloride precedes water retention in edema. It is probable that an excess of sodium chloride may cause a rise in temperature. This occurs more easily in babies with disturbances of nutrition than under normal conditions.

Sulphur. There is about ten times as much sulphur in cows' milk as in human milk. Ninety per cent. or more is absorbed from both. Absorption takes place through the small intestine. The retention of sulphur is much better when human milk is taken than when cows' milk is taken. Sulphur is eliminated almost entirely in the urine, but a small part is eliminated into the large intestine. The retention of sulphur is somewhat diminished in rickets.

The various salts, with the exception of iron, are present in sufficient quantities and in the proper proportions in human milk. In most modifications of cows' milk there is an excess of salts. This excess is usually unimportant in the feeding of normal infants, but may play an important part when there are disturbances of the nutrition. Little is known as to the conditions in which the salt content of the food should be changed or to what degree each or all of the constituents should be varied.

Book Reviews.

The Sensory and Motor Disorders of the Heart. Their Nature and Treatment. By ALEXANDER MORISON, M.D., F.R.C.P. New York: William Wood and Company.

Morison has written a very interesting book of some two hundred and fifty pages. The fact that the style is somewhat controversial detracts little from the interest or the value of the book. Morison allies himself strongly with the neurogenists. While some of the book is obviously special pleading, yet the author has a strong array of facts to support his case. The first part, on the nature of cardiac action, is based considerably on his own researches and is the best part of the book. There can be little doubt of Dr. Morison's extensive clinical experience, but the clinical part is not as succinctly stated as the parts dealing with pathological anatomy and pathological physiology.

Modern Surgery, General and Operative. By JOHN CHALMERS DACOSTA, M.D,. LL.D.; Samuel D. Gross professor of surgery, Jefferson Medical College, Philadelphia; surgeon to the Jefferson Medical College Hospital; surgeon to St. Joseph's Hospital, Philadelphia; fellow of the American Surgical Association; member of the American Philosophical Society; Membre de la Societé International de Chirurgie; Member of the Medical Reserve Corps, U. S. Navy, etc. Seventh edition, revised, enlarged, and reset. With 1085 illustrations, some of them in colors. Philadelphia and London: W. B. Saunders Company. 1914.

DaCosta's "Modern Surgery" was originally written in 1894. Every single year since that time, with the exception of 1897, it has been either revised, reset, reprinted, or recopyrighted. Further testimony as to its popularity is unnecessary. The book is now a volume of more than 1500 pages and is, in reality, a small encyclopedia. The type is good and sharp. The paper is pleasant to the eye. The pictures are simple and very satisfactory. Throughout, it is interesting and accurate. Perhaps the most interesting page of the entire volume is the preface, in which the author's style and personality is best exemplified. In the reviewer's judgment, DaCosta's work is the best single volume text-book upon general and operative surgery which has been produced in English. It may be unhesitatingly recommended to all medical students.

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HOUSE SCREENING AS A SANITARY MEASURE.

IN the rural districts, the question of screening against insect pests assumes greater importance than in the towns and cities. This is because the house fly and the mosquito find in the country the ideal conditions for breeding. Theoretically the manure piles and the pools of stagnant water could be eradicated from the countryside as readily as from the streets of the cities, but practically a lack of money for sanitary improvements and the more or less sparsely settled population make this highly specialized sanitation which obtains in the cities impossible. Consequently in order to preserve health and comfort it is necessary to resort to the protection afforded by measures intended to keep the insect pests out of the dwellings. On first thought it would seem that such a simple question as screening windows and doors was hardly within the province of the physician. However a little consideration will serve to show that in reality this is a problem in preventive medicine well worthy the careful attention of the country doctor. In order to be a safeguard at all screening must be effective. Half-way measures are of little avail. One of the neglected matters in this problem is the time at which screens are first put up. In the early spring a few flies appear and no attention is paid to them. About ten days later these flies commence to lay their first batch of eggs and then in another ten days the first large swarm of flies make their appearance. Then the people commence to put up the screens, which should have been up two or three weeks earlier.

This screening, undertaken at a date which is entirely too late, is apt to be hurriedly done and to be deficient in many ways. Few people realize the ease with which flies and mosquitoes can find the loopholes in the barrier erected against them. One of the chief of these consists in small holes which have rusted through the mesh of a cheap screen left over from the previous summer. Another is the space left between the door and the jamb, which results from the warping of the light framework. One of the most important of the openings is that which is found in the space between the sliding sashes of adjustable window screens, which are meant to slip in under the raised window and rest between it and the sill. Screens of this kind are almost never efficient. These mistakes in screening commonly arise from a mistaken conception of what constitutes true economy in the matter of screening material and framework. In the first place the frames should be solid and be made to last a lifetime for both doors and windows. Properly made frames can be refitted with wire mesh as often as required and should be a part of the specifications in every newly built house. When it comes to a consideration of the mesh, there is room for the indulgence of considerable leeway in the amount of money to be expended. A wire mesh that is fine enough to keep out every sort of bug and insect will also keep out too much air. As the mesh occurs in the market in four degrees of fineness, one can ascertain for himself which will more easily answer his purpose, and be influenced accordingly. However, it must be said that the ordinary mesh with twelve strands of wire to the inch is too coarse to keep out mosquitoes, and can only be made safe by so many coats of paint that the air is thereby largely excluded. The larger the mesh the coarser the wire, and consequently the longer the life of the screen, therefore one must try to find the coarsest wire and largest mesh which will exclude the insects which are a menace in his community. No. 14 wire mesh with one coat of paint will keep out the house fly effectually and it will also keep out the malarial bearing mosquitoes. This sized mesh can be bought almost anywhere in the United States at considerably less than $2.00 per 100 square feet. In the seaport towns where the Stegomyia calopus exists, a finer mesh must be used. In the sanitation of the Isthmian

Canal Zone, No. 18 was the one which was found the most effective. Whatever the size of the mesh desired the life of the screen can be lengthened by a coat of paint. But in this connection it must be remembered that small meshes readily stop up by paint, consequently it is better to get a size a little too large and reduce it by painting.

But even though the house be thus scientifically screened, the work will be ineffectual unless the details of springs on the doors and stopping of fireplaces be carefully attended to. Mosquitoes do not as a rule fly very high, but they will at times pass over houses, and when attracted by the open chimneys will often enter the house in this way. Keyholes are also another favorite way of entry. In fact, any small holes of any kind will attract the mosquito. Once having made his entry into the house by means of small holes the mosquito does not readily find his way out again, and hence a badly screened house, instead of becoming free from the pest, becomes a veritable mosquito trap, in which hundreds of the insects are imprisoned, and which is more dangerous to its human inmates than if it were not screened at all. There are many more details of screening which are well worth the careful attention of the physician who cares to make himself an authority on the prevention of disease, as well as its cure, but those we have mentioned should be sufficient to stimulate interest in this badly neglected subject.

MEDICAL LEGISLATION. REORGANIZATION OF THE STATE BOARD OF HEALTH.

IN the issue of the JOURNAL for May 21 (Vol. clxx, pp. 817-819) we printed in full the text of the proposed "act to create a state department of health and to amend the public health laws," with the Governor's special message on May 12 transmitting it to the legislature. In the same issue, and in other numbers of the JOURNAL, we have from time to time commented editorially on this bill (House No. 2598) and on the reorganization of the state board of health, which it involves.

Meantime, this bill has been under consideration by the House committee on ways and means, to which it was referred, and which, with two dissenting members, has finally voted to report it favorably, but with several amendments. The more important of these changes have been summarized as follows:—

"The provision in section 3 that the public health council created by the act shall meet at least once in each month, and at such other times as they shall determine by their rules 'or upon the request of any two members' is changed to read 'or four members and upon the request of the commissioner of health.'

"In the same section (section 3) the provision that the rules and regulations promulgated by the public health council shall have the force and effect of law remains, but the penalty is stricken out."

The first amendment seems good, the second rather unfortunate, since it merely invites disobedience of the rules by taking away the sting that makes their violation inconvenient.

"Section 4 originally provided for six divisions in the state department of health—namely, administration, communicable diseases, sanitary engineering, food and drugs, laboratories and child welfare, together with such other divisions as the commissioner of health may from time to time determine. The re-draft provides that there shall be such divisions as the commissioner may, with the approval of the governor and council, from time to time determine.

"The provision in section 5 of the original bill prescribing eleven specific duties which each district health officer shall, under the direction of the commissioner, perform, is simplified by providing that he shall perform such duties as may be prescribed by the commissioner, shall act as the commissioner's representative and, under his direction, secure the enforcement of health rules and regulations.

"Section 6, which originally gave to the public health council the right to decide that local health authorities were failing or refusing to enforce the laws and regulations to prevent the spread of contagious or infectious diseases, is changed in the redraft so as to vest that power in the commissioner's hands."

The first two of these amendments are in the interest of simplification; the third wisely aims to increase the power and authority of the health commissioner.

"A new section provides that present employees shall be continued in office until their successors shall be appointed and qualified or until removed by the commissioner.

"The bill carries an appropriation of $16,000 over and above the amount already appropriated for the state board of health for 1914. Some further minor changes may be made."

None of these changes importantly modifies the general purpose of the measure, but all are

concerned with matters of detail. It is earnestly to be hoped that the bill as amended may be passed by the present legislature, rather than that needful action on this important subject should be postponed to another legislative season.

On June 18 the redraft of this bill (now known as House No. 2742) was ordered by the House to a third reading on a rising vote of 102 to 27.

DANGERS IN THE USE OF ANTIMENINGOCOCCIC SERUM.

The old time death-rate from epidemic cerebrospinal meningitis was, in round numbers, 80%. Now it is 20%. This is solely due to the timely use of the antimeningococcic serum perfected by Flexner. All observers are unanimous in their opinion that this serum is effectual; and with the perfection in the methods of diagnosis by spinal puncture and microscopical examination of the withdrawn fluid, it is becoming more and more uncommon for cases of this disease to have progressed so far that the use of the serum does not effect a prompt cure.

However, it seems likely that the greater part of the 20% mortality is due to the fact that the diagnosis in these fatal cases has for one reason or another been delayed until after the third or fourth day of the disease. That some of this mortality is due to other causes cannot be denied. Chief among these are, first, an overwhelming infection and, second, disastrous effects due to the serum itself. The first of these causes is beyond our control. The second is more amenable to careful supervision.

From a study made by Hale (Hygienic Laboratory Bulletin No. 91) it was found that the possibility of death from the serum was twofold. The first of these was death due to increased intracranial tension from the injection of the serum itself. The second was due to the poisonous effects of the preservative tricresol, which is added to the serum. The symptoms of a dangerous increase of intracranial tension are an enormous rise in blood-pressure preceding a sudden fall and embarrassment of the respiratory centers. This increase in blood-pressure may rise to twice its former height. The practical danger from this source is, however, very slight indeed, as shown by Hale, experimenting with dogs and cats, who was able to produce death in this way in only a few instances out of a large number of attempts. With the usual precautions of injecting the required amount of serum slowly after a still larger amount of spinal fluid has been withdrawn, it would seem that an accident of this kind would be well nigh impossible. When we come to consider the effects of the tricresol, the question assumes a different aspect. Hale's experiments showed conclusively that this preservative was capable of causing death from respiratory failure. But there are certain danger signals which, if closely observed, will usually give ample warning of the impending catastrophe. As in the case of respiratory embarrassment from increased intracranial tension, the index of danger is to be found in the state of the blood-pressure. But, contrary to that condition, the change in blood-pressure consists in a steady fall. When the fall has reached a total of 20 m.m. in an adult having a normal pressure of 110 to 120 m.m. the danger point is approaching, and to avoid fatal poisoning of the respiratory centers by tricresol, the injection should at once be stopped.

The fact that the tricresol preservative carries with it a potential danger increases the responsibility of the physician administering the serum and makes it highly desirable that some more harmless preservative may be found. Experiments recently undertaken at the Rockefeller Institute by Auer* seem to indicate that some volatile antiseptic may be used with less danger than tricresol. He found that when 0.3 per cent. ether was added to the serum there was decidely less fall in blood-pressure and less respiratory embarrassment than when the tricresol was used. It appears that one of the chief advantages of using a volatile preservative, like ether or chloroform, consists in the fact that the preservative may be largely expelled from the serum by the simple expedient of heating the container just before its administration. Although Auer admits the danger from the tricresol preservative, it is plain to be seen that he considers it is one that is slight and easily to be combated. His experiments served to show that dogs are much more susceptible to the deleterious influence than are monkeys. As men and monkeys are much alike in their re-

* John Auer, B.S., M.D.: Journal American Medical Association, June 6, 1914.

a toxin to intraspinal injections, it would seem that Auer's experiments rather offset the dangers which are so apparent in the experiments of Hale on dogs and cats. At any rate the actually proven value of the serum is so great that its use should not be abandoned on account of the potential dangers of the preservative usually employed in its manufacture. This is especially true when the potential danger needs but to be understood in order to be largely prevented.

MEDICAL NOTES.

HONORARY DEGREES FOR PHYSICIANS.—At the recent commencement of Yale University the honorary degree of LL.D. was conferred on Dr. William Crawford Gorgas, surgeon-general of the United States Army; that of D.Sc., on Dr. Richard Pearson Strong, professor of tropical medicine in the Harvard Medical School; and that of A.M. on Dr. Fred Towsley Murphy, professor of surgery in Washington University, St. Louis; on Dr. John Howland, professor of pediatrics at Johns Hopkins University; on Dr. Henry Hun, professor of nervous diseases in the Albany Medical College; on Dr. Elliott Proctor Joslin, of Boston; on Dr. Edward Robinson Baldwin of Saranac Lake; and on Dr. Oliver Cotton Smith, of Hartford, Conn.

At the recent commencement of Brown University, the honorary degree of LL.D., was conferred on Dr. Charles William Eliot, president emeritus of Harvard; and that of D.Sc., on Dr. L. Emmett Holt, of New York.

At the recent commencement of Harvard University, the honorary degree of A.M. was conferred on Dr. Milton J. Rosenau, of Boston, who was described by President Lowell on this occasion as "Milton Joseph Rosenau, professor of preventive medicine in the Harvard Medical School; a physician whose aim is not to cure disease but to preserve health, and whose only patient is all mankind."

AMERICAN ASSOCIATION OF IMMUNOLOGISTS.—The first annual meeting of the American Association of Immunologists was held on Monday of this week, June 22, at Atlantic City, N. J. Among the papers presented may be mentioned one by Dr. J. Whitridge Williams of Baltimore, on "Abderhalden's Pregnancy Test." The discussion of Dr. Frederic E. Sondern's paper on "The Influence of Vaccine Therapy on Blood Morphology" was opened by Dr. George P. Sanborn, of Boston. In the evening the presidential address was delivered by Dr. Gerald B. Webb, of Colorado Springs, Colo. The secretary of the association is Dr. Martin J. Synnott, of Montclair, N. J.

MUNIFICENT ENDOWMENT FOR MEDICAL EDUCATION.—The will of the late James Campbell of St. Louis provides that upon the death of his widow and daughter his entire estate, estimated at $35,000,000, shall revert to St. Louis University, "for the erection, equipment and maintenance of a hospital in St. Louis county for sick and injured persons and for the advancement of the sciences of medicine and surgery absolutely and forever." It is believed that this is the largest single gift ever made to any medical or educational institution.

MAINE MEDICAL ASSOCIATION.—The annual meeting of the Maine Medical Association was held at Portland on June 10 and 11. Papers were read by Dr. John Sturgis of Auburn, Dr. C. M. Robinson, Dr. C. H. Hunt and Dr. J. A. Spaulding, of Portland; Dr. B. L. Wright of Portsmouth, surgeon in the United States navy; Dr. Richard F. Chase of Boston; and Dr. C. W. Pillsbury of Saco.

BOSTON AND NEW ENGLAND.

LONG ISLAND HOSPITAL TRAINING SCHOOL.—The annual graduation exercises of the Long Island Hospital training school were held at the hospital on Saturday of last week, June 13. The principal address was made by Governor Walsh, who presented diplomas to a class of 13 graduating nurses.

NOTIFICATION OF PELLAGRA AND RABIES.—At its meeting on May 7, the Massachusetts state board of health voted to add pellagra, rabies, and German measles to the list of notifiable diseases, and declared pellagra and rabies diseases dangerous to the public health.

SMALLPOX IN BROCKTON.—Two cases of smallpox were reported last week at Brockton, Mass., both in unvaccinated non-residents of the city.

Harvard Dental Alumni Association.—The forty-third annual meeting of the Harvard Dental Alumni Association, held in Boston on June 15, was attended by about 500 members. Dr. Charles A. Jameson presided, and the principal address was delivered by Dr. E. H. Smith. The following officers were elected for the ensuing year: President, Dr. Harold DeW. Cross; secretary, Dr. Frank T. Taylor; treasurer, Dr. Charles T. Warner; executive committee, Dr. Leroy M. S. Miner; trustees for life membership fund, Dr. Horace L. Howe; committee on nomination and election, Dr. Walter A. Bradford, Dr. Maurice E. Peters and Dr. Charles E. Stevens. Dr. George A. Sullivan, of South Boston, has been appointed one of the three United States delegates to the International Dental Congress to be held at London in August, 1914.

Harvard Medical Alumni Association.—The annual meeting of the Harvard Medical Alumni Association was held in Harvard Hall at Cambridge, Mass., on Commencement Day, Thursday, June 18. After the meeting the usual spread was served in Thayer Hall. Dr. Arthur Brewster Emmons, 2nd, was elected secretary of the Association for a term of three years, and the following were elected members of the council: Dr. John B. Blake, of Boston, for three years, and Drs. Horace Binney and Channing Frothingham, Jr., of Boston, and Dr. Silas A. Houghton, of Brookline, for four years.

NEW YORK.

Abolition of Positions, Board of Ambulance Service.—At a meeting of the Board of Ambulance Service, held on June 10, a resolution was passed abolishing the positions of director, deputy director, and registrar. The action of the board is in line with the policy recently outlined by Charities Commissioner Kingsbury, and recommended by the Hospital Investigating Committee, to consolidate the various hospital boards. None of the offices abolished were held by physicians.

Interstate Park.—The new Interstate Park, which has been rendered possible by private munificence and state appropriations, will make 18,000 acres of natural woodland accessible to the people of New York and New Jersey, and will include a river driveway of unequalled scenery from Fort Lee, opposite New York City, to Newburgh, sixty miles up the Hudson. On June 11 the Bear Mountain tract, in the Highlands, a few miles below West Point, was visited by an inspection party, among which were Governor Glynn, Mayor Mitchel, and other public officials, and on June 14 this portion of the park was formally opened to the public. Camping privileges, boating on a beautiful lake, the "Bloody Pond" of Revolutionary fame, and other facilities for outdoor life and enjoyment are offered free of charge, and transportation by steamboat, meals, refreshments, etc., at minimum prices.

An Unsuspected Case of Smallpox.—The chief of the bureau of infectious diseases received something of a shock the other day, when a man who came to the offices of the bureau at the health department to ask for a certificate of health was found to be actually suffering from smallpox.

Bequests.—By the will of the late Dr. Everett Herrick of New York more than $140,000 is left to institutions and charitable societies. Among the bequests are $50,000 to the American Academy of Medicine,—$25,000 to establish an "Everett Herrick Library Fund," and $25,000 to establish an "Everett Herrick" General Fund"; $25,000 each to the New York Skin and Cancer Hospital and the Free Library at Easthampton, Long Island; and $10,000 each to the Society for the Relief of Widows and Orphans of Medical Men and the Association for Improving the Condition of the Poor.

By the will of the late Harris C. Fahnestock, president of the First National Bank, New York, $100,000 each is left to the Presbyterian and St. Luke's Hospitals, the New York Post-Graduate Medical School and Hospital, the Charity Organization Society, and the Association for Improving the Condition of the Poor.

Yale Medical School.—It is announced that the Yale Medical School, which hopes to form an alliance with the New Haven General Hospital, has received from the Brady family, of New York and Albany, a gift of $125,000 for the erection and equipment of a clinical and pathological laboratory, the building to be known as the Anthony N. Brady Memorial Laboratory. The family has also pledged $500,000

to establish an Anthony N. Brady Memorial Foundation in the medical school, on condition that Yale University in ten years obtains a total of $2,000,000 for medical school endowment and building funds, exclusive of gifts from the Brady family.

MILK AT OTISVILLE SANATORIUM.—In connection with its tuberculosis sanatorium at Otisville the City Health Department maintains a model dairy in which the cattle are all high-grade, tuberculin-tested Holsteins. With the establishment of a bacteriological laboratory at the sanatorium, arrangements have now been completed for regular weekly examinations of the milk supplied to the patients. The first bacterial count showed that the milk from the dairy contained less than 10,000 bacteria per c.c.

SPREAD OF TUBERCULOSIS.—In order to determine, as far as possible, the ultimate disposition of applicants refused admission to tuberculosis sanatoriums, and thereby to arrive at an approximate estimate of any bearing such cases may have upon the spread of tuberculosis, the following data concerning 165 rejected applicants who sought admission to the Otisville Sanatorium have been collected: Of the 165 patients, 66 had negative sputum and may practically be disregarded. A majority of these either did not show any clinical evidences of tuberculosis or were suffering from some other disease which overshadowed an insignificant tuberculous lesion. The remaining 99 all had positive sputum and were too far advanced to be admitted, although at Otisville more advanced cases are accepted than is usual at other sanatoriums. All of these were urged to obtain hospital treatment, but only 62 entered hospitals; 37 remained at large,—known active distributors of tubercle bacilli, and only 9 of these could be induced to attend day camps, where a moderate degree of control could be exercised. Nothing but an increase in the infirmary capacity of sanatoriums, the health department states, will provide for and protect the community from cases of this class.

MORTALITY FOR WEEK ENDING JUNE 13, 1914. —There were 1365 deaths and a death-rate of 12.75 per 1000 of the population reported during the past week, as against 1303 deaths and a rate of 12.65 during the corresponding week of 1913, an absolute increase of 62 deaths and of .10 of a point in the rate, which is equivalent to a relative increase of 11 deaths.

The following causes showed a decreased mortality: whooping-cough, diarrheal diseases under five years, organic heart diseases, and diseases of the nervous system. Those causes showing an increased mortality were typhoid fever, cerebro-spinal meningitis, acute bronchitis, lobar pneumonia, broncho-pneumonia, pulmonary tuberculosis and Bright's disease of the kidneys. The mortality from the following causes remained the same: measles, scarlet fever, diphtheria and croup, diseases of the digestive organs other than diarrheal diseases, other tuberculous diseases and violence.

Viewed from the point of age grouping, the deaths of infants under one year of age showed an increased mortality of 21 deaths, between one and five years a decreased mortality of 24 deaths, between five and sixty-five years an increase of 98 deaths reported, and over sixty-five years of age a decrease of 33 deaths.

The death-rate for the first 24 weeks of 1914 was 15.05 per 1000 of the population, as against 15.25 for the corresponding period of 1913.

Current Literature

MEDICAL RECORD.

JUNE 6, 1914.

1. KOSMAS, G. W. *Certain Aspects of the Midwife Problem in Relation to the Medical Profession and the Community.*
2. *HAIG, A. *Deficiency of Chloride of Sodium in the Etiology of Neurasthenia.*
3. CLAPP, H. C. *Can Consumption be Cured?*
4. SCHLAPP, M. G. *An Economic and Social Study of Feeble-Minded Women.*
5. MUNGER, C. E. *Angioneurotic Edema.*
6. RABINOWITZ, M. A. *Two Neurological Cases in Pediatric Practice.*

2. Haig discusses the sodium chloride deficiency of many asthenic conditions and suggests that lack of salt may be a determining factor in the causation of neurasthenia. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

JUNE 6, 1914.

1. GRIFFITH, J. P. C. *Neurotic, Psychasthenic and Hysterical Children.*
2. LAPOWSKI, B. *The Abortive Treatment of Syphilis.*
3. *JUDD, A. *Tuberculous Peritonitis.*
4. LYNCH, D. J. *Decapsulation of the Kidney.*
5. YOOSUF, A. K. *Surgery in Modern Warfare.*
6. WHITALL, J. D. *Fracture of the Lower End of Humerus.*

7. Gillette, W. J. *Avulsion of the Scalp.*
8. Chase, A. F. *Ulceration of the Stomach and Duodenum from the Medical Standpoint.*
9. *Kramer, S. P. *Fatal Accidents Following the Injection of Antimeningitis Serum.*
10. Bram, I. *Predetermination of Sex.*

3. Judd describes his latest procedure in operating for tuberculous peritonitis. The intestines are thoroughly washed and the abdominal cavity flushed with a 50% solution of peroxide of hydrogen, and then with normal saline solution. He has obtained primary union in 100% of his cases thus treated.

9. Kramer is convinced that the sudden respiratory paralysis which has occasionally followed the subdural injection of antimeningitis serum is due to the phenol contained in the serum as a preservative. He considers any serum containing tricresol dangerous and he offers as a substitute formaldehyde in the proportion of 1 to 1000. This will preserve the serum and will not endanger the vital centers. [L. D. C.]

The Journal of the American Medical Association.

June 6, 1914.

1.* Williams, J. W. *Has the American Gynecological Society Done Its Part in the Advancement of Obstetrical Knowledge?*
2. *Jordan, E. O. *Typhoid Fever.*
3. *Cooke, A. B. *The Prevention of Surgical Shock and Postoperative Pain.*
4. *Goltz, E. V., and Brodie, W. D. *Results from the Use of Living Lactic Acid Bacilli on Diphtheritic Throats in Two Groups of Cases.*
5. *Satterlee, H. S., and Hooker, R. S. *The Use of Hirudin in the Transfusion of Blood.*
6. *Murphy, J. B. *Arthroplasty for Intra-Articular Bony and Fibrous Ankylosis of Temporomandibular Articulation. Report of Nine Cases.*
7. Hartman, H., and Kindley, G. C. *A Case of Pseudomyxomatous Cyst of the Appendix.*
8. Fruenthal, H. *The Early Diagnosis of Lead-Poisoning.*
9. Auer, J. *The Effect of Intraspinal Injections of Serums, With and Without Preservatives.*
10. Falls, F. H., and Welker, W. H. *Appearance of Non-Colloidal Ninhydrin-Reacting Substances in the Urine Under Normal and Pathologic Conditions and During Pregnancy.*
11. Zinsser, H., and Hopkins, J. G. *The Viability of the Spirochaeta Pallida in Diffuse Light at Room Temperature.*
12. Hoskins, R. G. *The Practical Significance of the Adrenals.*
13. Sherman, DeW. H., and Lohnes, H. R. *Practical Study of Goat's Milk in Infant-Feeding as Compared with Cow's Milk.*
14. Carter, H. S., Granat, S., and DuPont, S. *The Hemaurochrome Reaction.*

1. Williams' paper is an interesting and analytical survey of the specialty of gynecology at present and in the past. He has large hopes for its broader development.

2. Jordan's paper is a clear exposition for the individual and community at large of the importance of early recognition of the disease, of the common sources of infection, of sanitary privies and of directions for avoiding infection.

3. Cooke's article merely emphasizes the value of Crile's principle of anoci association.

4. The authors find that the use of lactic acid bacilli hastens the disappearance of the diphtheritic membrane but does not produce cultures negative to the diphtheria bacillus

5. This article is of considerable interest and may prove of great practical value on further development.

6. Murphy's article is one of considerable length and well illustrated by drawings of technic and photographs of patients. [E. H. R.]

June 13, 1914.

1. Gorgas, W. C. *Recommendation as to Sanitation Concerning Employees of the Mines on the Rand Made to the Transvaal Chamber of Mines.*
2. *Lespinasse, V. D. *The Treatment of Hemorrhagic Disease of the New-Born by Direct Transfusion of Blood. With a Clinical Report of Fourteen Personal Cases.*
3. Estes, W. L. *Compound Fractures of the Bones of the Extremities.*
4. *Hirst, J. C. *The Routine Treatment of Puerperal Sepsis.*
5. Burrow, T. *The Psychanalyst and the Community.*
6. Smith, W. G. *Aneurysm of the Sinus of Valsalva. With Report of Two Cases.*
7. Gibbon, J. H. *The Treatment of Gall-Bladder Infections. With Report of Twenty-six Recent Cases.*
8. Mallory, W. J. *Gastric Hypertony and Gastro-Enterostomy.*
9. Portis, M. M., and Bach, I. W. *The Non-Specific Action of a Serum Prepared According to the Method of Beebe.*
10. Metzger, J., and Watson, S. H. *An Aid to Prognosis in Pulmonary Tuberculosis. A Simple Urinary Test. The Urochromogen Reaction of Weisz.*
11. Riggs, C. E. *Juvenile Paresis Treated by the Intraspinal Injection of Salvarsanized Serum. Report of a Case*

2. Lespinasse states definitely that direct transfusion of blood is the method of choice in hemorrhagic diseases of the new-born. It has cured where other methods have failed. It is never too late to transfuse.

4. This is a rather dogmatic statement of the author's own idea of treatment. It adds nothing new. [E. H. R.]

Surgery, Gynecology and Obstetrics.

June 6, 1914.

1. Brown, J. Y. *The Diagnosis and Surgical Technic to be Employed in the Handling of Acute Abdominal Conditions; Illustrating Many Interesting Points in Diagnosis and Technic with Original Drawings.*
2. *Davis, L. *Calculous Anuria, with Report of Two Cases.*
3. *Smith, R. R. *Final Results (After Five Years) in 192 Patients Operated Upon for Ectopic Pregnancy; with Special Reference to Subsequent Uterine and Repeated Ectopic Pregnancies.*
4. *Fort, R. E. *Excision of the Clavicle and First Rib for Malignant Disease.*
5. *Albee, F. H. *Original Surgical Uses of the Bone-Graft. A Report of 250 Cases.*
6. Martin, W. *Composite or Fibro-Epithelial Tumors of the Lips.*
7. Cuthbertson, W. *An Improved Gilliam Operation for Uterine Displacements.*
8. Hoffman, F. L. *The Educational Value of Cancer Statistics to Insurance Companies, the Public and the Medical Profession.*
9. Cary, E. *Death of a Full-Term Foetus Due to Constriction of the Umbilical Cord by Amniotic Bands; Rupture of Amnion; Hydramnios.*

10. DEAN, F. G. *Clinical and Experimental Results of Streptococcic Infections with Special Reference to Antitoxins and Its Treatment.*
11. CASE, J. T. *The Roentgen Findings in Gastric and Duodenal Ulcer.*
12. DAVISON, C. *Treatment of Fractures by Medullary Bone Splints.*
13. BATES, U. C. *A New Self-Retaining Abdominal Retractor and Wound Protector.*
14. BLOCK, E. G. *Present Status of Joint Diseases and Best Method of Treatment.*
15. HARTUNG, A. *X Ray Findings in the Normal Stomach.*
16. VAN HOOK, W. *Varicocele Operations.*
17. BANCROFT, W. *A Clamp Intended to Facilitate the Suture-Anastomosis of Hollow Viscera.*
18. LAYMAN, C. B. AND BERGHOLD, W. H. *Amniotic Membrane for the Prevention of Post-Operative Peritoneal Adhesions. A Preliminary Note.*
19. GREER, C. *The Electric Drill, Saw, Reamer, and Trephine in Bone Surgery.*

2. Lewis in an interesting and well-presented article on calculous anuria, makes the following conclusions: The possibility of a reflex anuria cannot be absolutely denied, but convincing clinical, experimental and post-mortem evidence is still lacking. Analysis of these cases recorded in literature shows that in [illegible] in 90 per cent. either only one actively functionating organ existed, which was blocked, or that there was a lessening of both kidneys. The few cases reported as examples of reflex inhibition of an unobstructed but more or less diseased kidney, as the result of calculous obstruction of its fellow, are to be explained more rationally as the functional failure of an overloaded unsound organ. Convincing postmortem and histological evidence of reflex inhibition of a normal kidney as the result of calculous obstruction of its fellow is lacking. Convincing clinical and experimental evidence is also lacking. From a practical point of view calculous anuria should be considered and treated as a purely mechanical problem. Operation should be resorted to at once in all urgent cases, the indication being to relieve obstruction, pyelotomy, when practicable, to be preferred to nephrotomy. Bilateral operation is indicated whenever the unblocked kidney, put down upon, seems inadequate by itself to sustain the work of elimination of the body.

3. Smith in a very careful and analytical paper finds that less than half of women having ectopic pregnancies have subsequent uterine children and about 14.6 per cent. repeat their ectopic pregnancies. The author removes the opposite even apparently healthy tube if further pregnancies seem unnecessary because of the danger of a repeated ectopic gestation.

4. The author believes that partial excision of the cervix for sarcoma is a dangerous procedure, because of the great danger of metastases.

5. Vulvar [illegible] though not suitable for review, is of great practical value and well illustrated by plates and case histories. [E. H. R.]

EDINBURGH MEDICAL JOURNAL.

MAY, 1914.

1. BRAMWELL, B. *Diffuse Sclerodermia.*
2. HALL, D. E. *Biometric Analysis of Some Insemination-Labour and Menstrual-Labour Curves in Certain Mammalia.*
3. MACCALLAN, A. *Subconjunctival Cataract Extraction.*
4. FRASER, J. S. *Acute Suppurative Otitis Media, etc. Without Rupture of the Tympanic Membrane.*
5. GARRISON, F. H. *The Anglo-Indian Surgeons.*
6. TURNER, G. G. *Arthroplasty of Elbow Joint.*
7. BEESLY, L., AND PRICE, E. *Avulsion Fracture of Os Calcis.*

THE INDIAN MEDICAL GAZETTE.

MAY, 1914.

1. DRAKE-BROCKMAN, H. E. *Itinerating Dispensaries.*
2. BARNARDO, F. *Chronic Intestinal Stasis.*
3. WHITMORE, A. *The Relationship Between Laboratory and Clinical Work.*
4. *REINHOLD, C. H. *Sclero-Corneal Trephining for Staphyloma of the Cornea.*
5. NEVE, A. *Abdominal Surprises.*
6. FRASER, F. C. *A New Operation for the Cure of Vesico-Vaginal Fistula.*
7. MACGREGOR, R. F. *Ascaris Infection.*
8. HOOTON, A. *A Case of Bilharzia Disease.*

4. Reinhold reports the clinical details of 17 cases in which during 1913 he successfully applied Elliot's operation to the treatment of staphyloma of the cornea. [R. M. G.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

NO. 2. MAY 19, 1914.

1. KISCH, B., AND REMEIZ, O. *The Surface Tension of Human Blood Serum and Cerebro-Spinal Fluid, and a Method for Its Determination.*
2. PFEIFFER, H. *The Occurrence of Proteolytic Ferments in the Serum of Scalded Rabbits. (Preliminary Communication.)*
3. STÜHMER, A. *Salvarsanized Serum. (Second Communication.)*
4. OLOFF, H. *Tuberculosis of the Retina.*
5. v. BAEYER, H. *A New Symptom in Tabes. (Preliminary Communication.)*
6. WEIL, S. *Thrombosis of the Mesenteric Veins.*
7. BRÜNING, A. *A Method for Excluding the Pylorus in Gastric Ulcer.*
8. KEIL, G. *Mesothorium in Gynecology.*
9. *RAPP. *The Treatment of Malignant Tumors with "Enzytol."*
10. ESCH, P. *A New Skin Reaction in Pregnancy.*
11. MAYER, O. *Typhoid-bacilli Carriers Discovered by the Examination of the Gall-Bladder at Operation.*
12. *HUISMANS, L. *Nephritis in Basedow's Disease.*
13. LOEWE, O. *The Treatment of Phimosis.*
14. TRAUGOTT, M. *A Method for Causing Venous Congestion.*
15. MENDE. *Nylander's Sugar Test.*
16. QURIN, A. *Eye and Head Electrodes for the Diatherm.*
17. KISSKALT. *The Necessity for Albumin and Meat Diets.*
18. SCHARNKE. *The Treatment of Delirium Tremens.*

9. Rapp reports on the effect of "enzytol" in the treatment of malignant disease. "Enzytol" is a boric acid salt of cholin, which is stable and non-toxic. It has been beneficial in various mouse tumors.

During the last year and a half, Rapp has made 25-30,000 intravenous injections of "enzytol" in malignant disease of different kinds. The dosage used has been from two to five or six c.c. of a 10% solution of "enzytol" diluted to twenty c.c. with physiological saline.

Rapp admits that his results are not striking and that they suffer from the fact that in the majority of the cases treated "enzytol" was combined with radium or other ray treatment. However, Rapp concludes that such a combined form of treatment in malignant disease produces subjective and objective results which are improving. Thus it is worth using until a better form of treatment is offered.

12. Huismans reports a case of sudden death which followed partial thyroidectomy for Basedow's disease. At autopsy a persistent thymus was discovered, and in the kidneys acute epithelial degeneration.

The similar cases which are reported have been attributed to a thyrogenic nephritis or to a condition of status-lymphaticus. Huismans believes that neither of these factors alone, accounted for his patient's death. It seemed more probable that the fatality occurred from a polyglandular intoxication which was exaggerated by the operation. Huismans considers that normally the secretions of the thymus and thyroid glands balance each other. Following the partial occlusion of the thyroid gland, an excess of thymus secretion entered the circulation, caused a severe intoxication and produced degenerative changes in the kidneys. Huismans suggests that in such cases, the complication may be avoided by the administration of thyroid tablets after operation. [R. F.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 17. April 27, 1914.

1. Koch, J. *Concerning Experimental Rhachitis.*
2. *Tietze, A. *Two Cases of Tuberculosis of the Liver.*
3. Leschke, E. *Concerning the Etiological Factor in Landry's Paralysis.*
4. Lange, C. *Investigations in Abderhalden's Reaction.*
5. Friedberger, E., and Goretti, G. *A Contribution to the Theoretical Basis of Abderhalden's Reaction.*
6. Friedberger, E., and Goretti, G. *Experiments in the Toxicity of the Serum of Rabbits Immunized Against Sheep's Blood.*
7. *Koblanck. *What Forms of Carcinoma Lend Themselves Best to Treatment with Radio-active Substances?*
8. Mann, L. *Concerning Diathermic Treatment.*
9. Soldin, M. *Another Simple Method for Preparing a Milk Rich in Albumin.*
10. Hergens. *Flexible Electrodes.*
11. de Pager, L. *On the Method of Boas for Detecting Blood in the Stools.*

2. Tietze reports two cases of children, each five years old, with tuberculosis of the lungs and also of the liver. In both the liver was much enlarged—in one case nodular, in the other smooth. There was also marked ascites. Talma's operation of omentopexy was done in each case, and the interesting fact was that there was no evidence of tuberculosis of the peritoneum or any other abdominal organ than the liver. Though the operation seemed to have no especially good result, both children were alive and in fairly good condition a year after they were first observed. In one of the two cases the diagnosis was confirmed by microscopic examination of a piece of the liver tissue.

7. As most favorable for radio-therapy the author mentions superficial growths on the face, cancer of the uterus, vagina and vulva, and also of the tonsil and parotid. Among those offering least hope are deep-seated growths of the face, and malignant tumors of the ovary and bones. Midway between the two groups he classes cancer of the breast, lungs, and gastro-intestinal tract. [R. H. M.]

No. 18. May 4, 1914.

1. Nicolai, G. F., and Zuntz, N. *The Filling and Emptying of the Heart During Rest and During Work.*
2. Saxl, P. *On the Proteolytic Enzymes in the Serum of Healthy and of Sick Persons.*
3. *Weleminsky, F. *Animal Experiments with Tuberculomucin.*
4. Goerke, M. *Intranasal Surgery in Diseases of the Tear-Ducts.*
5. *Tobias, E. *On the Question of Idiopathic Intercostal Neuralgia.*
6. *Wechselmann, W. *A Case Diagnosed General Paralysis and Cured by Salvarsan.*
7. Einhorn, M. *A Method for the Introduction of Instruments Into the Stomach.*
8. Koch, J. *Concerning Experimental Rhachitis.*
9. Briegeb, L., and Schwalm. *Proving the Presence of Ferments and Anti-Ferments by Color-plates.* (*Löffler.*)

3. From the culture media of a series of selected strains of tubercle bacilli the author has been able to extract a substance which is a pure mucin, which he calls tuberculomucin, and which he has administered subcutaneously, both for prophylactic and therapeutic purposes, to a series of guinea-pigs and cows. In the guinea-pigs there was apparently no noticeable prophylactic effect, but in both animals there was a certain amount of beneficial action when the injections were given after the disease had been contracted. The number of observations have not so far been enough to warrant definite conclusions, and the effect on human beings has not yet been tried out.

5. This is a statistical review to show the infrequency with which the diagnosis of intercostal neuralgia is made. From 1400 neurological cases in a large hospital clinic Tobias could collect only five such cases, and of these three were clearly herpes zoster; from a large series of private cases only eleven came under this heading. He found it commoner in men than women, and more frequent on the left than on the right side.

6. Wechselmann reports a case diagnosed as either general paralysis or "syphilitic pseudoparalysis," apparently entirely cured by a series of twelve injections of salvarsan and intermittent treatments with mercury and potassium iodide. [R. H. M.]

II. Policlinico.

February, 1914.

MEDICAL SECTION.

1. *Tedeschi, E. *The Influence of Muscular Fatigue upon the Functional Activity of the Vegetative Nervous System in Normal Persons and in Cases of Basedow's Disease.*
2. Silvan, C. *A Contribution to the Study of Neoplastic Metastases in Nervous Centers, with a Score of Observations.*
3. Sisto, P. *Studies on Progressive Pernicious Anemia.*

1. Tedeschi studied the effect of muscle fatigue on the vegetative nervous system, as indicated by its response to adrenalin, pituitrin, pilocarpin and atropin. The tests were made in normal individuals and in persons suffering from Graves' disease. In each case observations of the blood and the urine, heart tracings and blood-pressure readings were made. The writer finds that fatigue produces a greater irritability and sensibility to drugs in the nervous mechanism controlling circulation, both in health and disease. Further than this his results are inconclusive. [L. D. C.]

SURGICAL SECTION.

1. Paganelli, G. *Appendiculo-Cecal Actinomycosis, with Psoitis and Metastases in the Liver.*
2. Vecchi, A. *Lymphendothelioma of the Bladder.*
3. *Lay, E. *Decapsulation of the Kidney.*
4. Vaccari, L. *Gangrene and Perforation of the Appendix in a Congenital Inguinal Hernia in a Boy Eighteen Days Old.*
5. Leotta, N. *Pericecal and Pericolic Adhesions.*

(*To be continued.*)

3. As a result of functional tests with methylene blue and potassium iodide after experimental renal decapsulation in dogs, Lay concludes that decapsulation does not disturb the normal permeability or excretory function of the kidney or its ability to meet demands for increased work.

[R. M. G.]

MARCH, 1914.

MEDICAL SECTION.

1. *ANTONELLI, G. *Experimental Studies Concerning the Effects of Ovarian Castration upon the Blood.*
2. SISTO, P. *Studies on Progressive Pernicious Anemia.*
3. *FAGINOLI, A. *Symptomatologic Value of Krönig's Area of Resonance.*
4. BARBERIO, M. *The Preparation and the Use of Antiformin.*
5. COLESCHI, L. *Radiodiagnosis of Bilocular Stomach.*

1. Antonelli studied the effects of oöphorectomy in young bitches who had hardly reached sexual maturity. He found that this operation produced the following alterations in the blood: A considerable diminution in the number of the red corpuscles and in the amount of hemoglobin, with slight increase of color index, a diminution of globular resistance, a certain amount of leucopenia with lymphacytosis and relative increase in the number of mononuclears. These changes in the blood persist for about two months. The writer concludes that the ovaries in health have, by virtue of their internal secretion, a direct stimulative effect upon the erythropoietic and sometimes also upon the leucopoietic organs.

3. Faginoli discusses the area of resonance over the extreme apex of the lung, to which Krönig first called attention in 1889. The determination by percussion of the width of this "isthmus" is of practical value in the early diagnosis of phthisis for narrowing of the isthmus is a very early indication of apical infiltration. Examination of the respiratory apparatus is not complete without the mapping out of this area.

[L. D. C.]

SURGICAL SECTION.

1. LEOTTA, N. *Mechanic Ileus in Appendicitis.*
2. *CIGNOZZI, O. *Mesaraeocecum and Appendicitis.*
3. BECCHERLI, G. *On a Case of Pseudo-Neoplastic Tuberculosis of the Tendon-Sheaths.*
4. NOVARO, N. *Intestinal Invagination from Ascarides.*
5. *LEOTTA, N. *Pericecal and Pericolic Adhesions. (Conclusion.)*

2. Cignozzi makes clinical observations on two cases in which he did appendicectomy and cecoplication.

5. From his continued study of intestinal adhesions, Leotta concludes that in cases of soft adhesions, not extensive, and without constriction of the lumen, simple freeing of the adhesions is sufficient. In cases of extensive and solid adhesions, which have determined constriction or stenosis of the intestinal tract, a bypass should be done, preferably a typhlo-transverso-colostomy if the adhesions are associated with ptosis of the colon, otherwise a typhlo-sigmoidostomy. In very complicated cases, like some of Lane's forms, especially when associated with ileal reduplication and membranous pericolitis, resection of the intestinal tract may be indicated.

[R. M. G.]

Obituary.

AMOS LAWRENCE MASON, M.D.

DR. AMOS LAWRENCE MASON, of Boston, died suddenly June 5, 1914, at Albany, N. Y., having been taken seriously ill with cardiac weakness while on his way from home to a fishing camp in Canada, which he annually frequented, for salmon fishing, of which he was very fond. Funeral services were conducted at Mt. Auburn by his cousin, Bishop William Lawrence.

Dr. Mason was born in Salem, Mass., April 20, 1842, and was the son of Rev. Charles Mason, rector of a church there. His mother was Susannah Lawrence, daughter of Amos Lawrence. He fitted for college at the Boston Latin School and at the private school of Epes S. Dixwell. He was graduated at Harvard in the class of 1863. Being the grandson of an eminent jurist, Hon. Jeremiah Mason, who was at one time United States senator from New Hampshire, Mr. Mason entered the Harvard Law School, but continued the study of law only half a year, then devoting himself to belles lettres for a year and a half, and to travel in France, Spain and Italy. He then returned home and entered the Harvard Medical School, from which he received the degree of M.D. in 1872. After studying a year or more in Germany he returned to Boston, where he practised his profession for many years, having also a summer practice, at one time in the White Mountains, and later at Bar Harbor, Maine.

He was visiting physician to the Channing Home for Incurables and for twenty years a manager of the Boston Dispensary. In 1877 he was appointed physician to out-patients, and in 1878 he became visiting physician to the Boston City Hospital, to which institution he gave a quarter century of active, zealous service.

Early in his professional career, from July 1, 1876, to Jan. 1, 1881, he was a member of the editorial staff of this JOURNAL, with his classmates, Drs. J. Collins Warren and George B. Shattuck, part of the time as assistant and part as associate editor.

Dr. Mason was president of the Suffolk District Medical Society in 1895 and for some time a councillor of The Massachusetts Medical Society. In 1898 he was president of the Boston Society for Medical Improvement. In 1891 he became a member of the Association of American Physicians, and in 1900 joined the emeritus membership of that society.

For twenty odd years he was a teacher in Harvard University, doing his work chiefly in the City Hospital wards, at first as instructor in auscultation, then as assistant professor, and finally as associate professor of clinical medicine, from which he retired in 1899. He continued his duties as visiting physician till 1903. He was then made senior physician till 1908, when he became consulting physician, virtually

an emeritus position, which he held at the time of his death. This gave a total continuous connection with the City Hospital of 36 years.

Dr. Mason was married to Louisa Steedman in 1874 and survived his wife by six years. He left one married daughter and two grandchildren. With this daughter he passed most of his winters in the South of late years, and his summers mostly at York Harbor, Maine. He was a member of the Massachusetts Society of Colonial Wars.

Besides writing a large number of medical papers, which appeared in various journals, he published in 1912 the "Memoirs and Correspondence of Charles Steedman (his father-in-law), Rear Admiral U. S. N., 1811-1890."

For twenty-five years Dr. Mason passed through his hospital wards daily during the period of his annual service. Few men have left there a stronger or more lasting impression. His good health and his conscientiousness contributed to make his daily hospital visit prompt, unfailing and unhurried. He made it a rule to give his personal attention daily to every patient.

In his relations with his colleagues of the medical and surgical staff he was ever ready to give and to receive counsel; and his hospitable manner of receiving views, not always identical with his own, was of a part with the courtesy which marked his every relation with his associates. In the deliberations of the staff his opinions were sane and sensible and were tersely but mightily expressed.

Several volumes of the Medical and Surgical Reports of the Boston City Hospital have his name among the editors, and he himself contributed numerous articles involving painstaking work. He also was ones of the editors of the history of the Hospital, which appeared in 1904, forty years after its foundation. Prior to the establishment of the "South Department" for contagious diseases, Dr. Mason took his turn of duty in the contagious wards of the main hospital, which were often much overcrowded. As a diagnostician, particularly in his favorite field of diseases of the chest, he was thorough and careful, and the autopsy room rarely refuted his accuracy. But he never would strain a point of diagnostic *finesse* at the expense of the strength or comfort of a very sick patient. His dealing with the patients as *persons*, even though they were of the social flotsam and jetsam, was always kindly and humane.

Dr. Mason accepted his responsibility for imparting his skill. For years he gave formal clinical instruction as professor of medicine in the Harvard Medical School. The hospital records still bear his pencilling in the margins, made before his clinics, and show the salient and pivotal facts which he wished to bring out in his discussion of the cases.

More intimate and more grateful than his formal instruction of the students in the amphitheatre and in the ward visits, was his fatherly manner of talk and of demonstration to the young men who served from year to year as his house officers. To their mistakes he was indulgent, of their oversights and negligences tolerant. Of him they learned lessons of patient study, of helpful therapy, medicinal and moral.

One of them, affectionately and piously, lays this wreath upon his tomb.

Miscellany.

AN IMPORTANT SANITARY PROBLEM.

During the last week in May there met at New York City a joint board of Canadian and United States sanitary engineers who were invited by the International Waterways Commission to advise standards of allowable pollution in the rivers connecting the chain of the Great Lakes. Some while ago Dr. A. J. McLaughlin, of the United States Public Health Service made an official survey of the entire Great Lake watershed, and at that time made the four following recommendations for remedies against the spread of disease in cities of that region by polluted water:—

"1. Safe water supplies, that is, water shown to be safe by daily bacteriologic examination.

"2. Supervision and control of water supplies by the state, to insure efficiency and a safe effluent (output of drinking-water) at all times.

"3. Control of sewage discharge within permissible limits, to prevent an unreasonable burden or responsibility upon filter plants.

"4. Prevention of pollution from vessels.

He recommended the formulating of two sets of standards for water:—

"1. Standards for filtered or treated water.

"2. Standards for raw (untreated or unfiltered) water at the intakes, which supplied the various lake shore cities."

Recently Prof. George C. Whipple, of Harvard, one of the three United States members of the board of advisors to the Waterways Commission, has discussed this subject at length, and his commentary seems to deserve republication in part as follows:—

"The particular task now before the commission is to decide what 'system of remedial or preventive works,' shall guarantee that 'waters flowing across the boundary shall not be polluted on either side to the injury of health or property on the other.'

"With the exception of the matter of controlling pollution by the discharge of sewage from vessels traversing the Lakes, the really international part of the commission's task is confined to the connecting rivers, namely, the St. Mary's River, connecting Lakes Superior and Huron; the St. Clair and the Detroit, between Huron and Erie; and the Niagara, between Lakes Erie and Ontario. The St. Lawrence,

through the Thousand Islands, may be added to the list. Along these rivers are a number of large cities and towns drawing drinking water supplies from these rivers, and getting from them a very bad and dangerous article indeed. Vessel pollution has made the water of the St. Mary's unfit for drinking use without treatment, even above the two cities of Sault Ste. Marie, on opposite sides of the boundary; while these two cities discharge their sewage into the river, and make its lower course, down to Lake Huron, and for some miles out into that lake, even fouler than its upper reaches. The American city of Sault Ste. Marie has had enormously high typhoid mortalities in recent years. In 1910 it had fallen to 23.7 per 100,000 inhabitants; but within the decade before that it had had mortality rates of 92.9, 115.9 and 172.9.

"Port Huron, at the mouth of the St. Clair, had in 1910 a typhoid mortality of 74.4. Detroit fares much better on account of having Lake St. Clair just above it on the waterway; but below Detroit the river of that name is grossly polluted by the sewage of the city, added to the constant defilement from vessels. Worst of all has been the city of Niagara Falls, where typhoid death-rates, due to drinking-water taken from the much polluted Niagara River, ranged for seven consecutive years above 126.6 per 100,000. This led to the recent installation of the two filter plants, as a result of which the typhoid fever rates have been much lower.

"One of the tasks now before the sanitary advisers to the Waterways Commission is to be the establishing of general standards of pollution of the boundary waters from which both Canadian and United States cities are practically compelled to draw their water supplies. As Dr. McLaughlin and I have already separately reported, the water supply problem for the lake cities which are not on or very near the connecting rivers is in almost every instance a local problem. The great bulk of the lake waters is notably pure and clean—free not only from disease-producing bacteria, but with a very scanty content even of harmless organisms. But the broad waters of the Lakes cannot be used for water supplies because it is not practicable to extend intake pipes or tunnels to points where the water is much more than seventy-five feet deep. This limits the length of intakes to distances which are often if not always within the range of polluting sewage from the very community the intake provides with drinking water. The longest intake on the Lakes is that of Cleveland, which is 26,000 feet long, and which extends about four miles from the shore. Each lake shore city therefore faces the necessity either of thoroughly purifying its sewage before it is poured into the lake, which is impracticable for various weighty reasons, or of purifying either by filtration or disinfection the water supply it draws from the lake. The latter method is in the long run the cheapest and most efficient.

"Filters or disinfecting plants must not be overloaded, however; and here we have the main problem in connection with the waters of the boundary rivers. Water may be so grossly polluted that even disinfecting or filtration plants cannot purify them except at undue expense, and with too great a chance of disastrous breakdowns in the process. One obvious sanitary improvement is to check pollution of these rivers by sewage from vessels, which must be compelled to retain their sewage between river ports —and at ports, also, and made to discharge it where it will not endanger the water supplies of land communities.

"The problem as to the boundary rivers falls into several sub-problems. There is first to be considered how much pollution of these waters is compatible with thorough purification by adequate plants. Next, whether the existing plants, or such as the weakest of the communities affected can afford, can deal efficiently with this standard maximum pollution; and finally, what may need to be done in the way of more or less purification of the sewage from some of the cities to prevent their fouling the river waters beyond this allowable maximum of pollution.

"In the boundary rivers the problem is a health question of very serious importance. The solving of it can be carried by the commission only to the point of discovering all the facts, and making recommendations for improvement that are at once both adequate and within the financial capacity of the communities involved. After the standards have been set, and the recommendations made, there will be need of both official action on each side, and of a further campaign of education for the benefit of particular boards of health and health officers. While the situation of a considerable number of lake shore cities is bad, the gravity of the danger as a whole has in my judgment been much exaggerated. The problem is a local one for each community, and efficient purification plants have been built and successfully operated by a number of cities. Cleveland is to be commended for its recent action in deciding to filter its water supplies drawn through its long intakes, and to safeguard them still further by treating its sewage before discharging it into the lake. There is no valid reason why the water supply of every community cannot be made safe within an allowable limit of cost.

"The lesson of some of these plants, aside from the ability to ensure safe water supplies, is the need of competent superintendence, and on this head I would urge the recommendation of Dr. McLaughlin, that the operation and control of such plants be in the hands of competent graduates in sanitary engineering. His statement is worth repeating. He says:—

"'The greatest obstacle to proper operation and control of plants has been the difficulty of securing the right man to place in charge of the plant. I have seen filter plants designed by our best engineers—perfect mechanism which if

properly handled would produce safe water—placed in the hands of an assassin who was a promoted stoker and absolutely ignorant of bacteriology or chemistry The best type of man for this position is a graduate in sanitary engineering. He will not only be conversant with the mechanical details of the plant, but will be able to adjust his chemicals according to the constituents and needs of the raw water. Most important of all, he will be able to make daily bacteriological examinations to determine the efficiency of purification. Nearly all the disasters due to sewage-polluted water supplies which have occurred were due to lack of daily bacteriological knowledge of the public supply or the inefficient operation of plants by unskilled men.' "

In view of the previous frequency and virulence of typhoid epidemics in cities drawing their water supply from the watersheds of the Great Lakes, the task of safeguarding and controlling these supplies becomes a sanitary problem of magnitude and importance.

YALE MEDICAL SCHOOL.

In the issue of the Journal for June 11 (p. 927) we commented editorially on the plans of the Yale Medical School for the celebration of its centennial, and for raising sufficient funds for its endowment. At the annual dinner of the Yale Medical Alumni Association, held in New Haven, Conn., on June 15, President Hadley announced gifts of $1,725,000 towards this sum.

"The family of the late Anthony E. Brady of Albany, N. Y., has advised the University of their determination to establish the 'Anthony N. Brady Memorial Foundation' of $500,000. It is provided that the income of $25,000 from this foundation shall be given annually for ten years to the university to enable the latter to declare operative at this time the agreement with the General Hospital Society and conclude an alliance between the New Haven Hospital and the Yale Medical School.

"If the university receives within this ten-year period a total of $2,000,000 for medical school endowment and building funds, exclusive of the gifts from the Brady family, the half million dollars will become the absolute property of the university. The Brady family has given $125,000 for the erection and equipment of a clinical and pathological laboratory.

"Toward the $2,000,000 sought for endowment the general education board has offered $500,000, provided $1,500,000 is secured by Jan. 1, 1916; unnamed donors have pledged $400,000 conditioned only upon the establishment of at least one memorial professorship in the medical school; Charles W. Harkness, '83, has pledged $100,000, and an unnamed alumnus adds another $100,000.

"President Hadley said only $900,000 remains to be raised for the endowment of $2,000,000 necessary to receive outright the $500,000 from the Brady family."

On June 19 it was announced that the anonymous gift of $400,000 is from members of the Lauder family of Pittsburgh, Pa., and Greenwich, Conn. The memorial professorship is to be the "Anna M. R. Lauder Chair of Public Health."

The formal exercises in celebration of the centennial of the Yale Medical School were held in Woolsey Hall.

"The introductory address was given by President Arthur T. Hadley, followed by the historical address by Dr. Walter Ralph Steiner of Hartford, who spoke on the subject, 'The Evolution of Medicine in Connecticut, with the Foundation of the Yale Medical School As Its Notable Achievement.' A formal address followed by Professor William Henry Howell of Johns Hopkins University on the subject, 'Premedical Studies in Their Relation to General and Professional Training.' "

The history of the Yale Medical School is interestingly sketched in a monograph published in conjunction with the celebration. A professorship in medicine was proposed at Yale in 1777, the Connecticut Medical Society was chartered in 1792; and the Medical Institution of Yale College was established in 1810 as the sixth medical school in the United States.

"In 1813 instruction in the Medical School was begun under Professor Nathan Smith, professor of the theory and practice of physic, surgery and obstetrics; Eneas Munson, professor of materia medica and botany; Eli Ives, adjunct professor of materia medica and botany; Benjamin Silliman, professor of chemistry and pharmacy, and Johnathan Knight, professor of anatomy.

"In 1814 the present South Sheffield Hall was purchased for the school, with the aid of a contribution of $20,000 from the state, and the first medical class was graduated."

WRECK OF A HOSPITAL SHIP.

Report from Glasgow, Scotland, states that the hospital ship *Maine*, presented to the British nation by American women during the South African war, was wrecked in the Firth of Lorne in a fog on June 17.

"The *Maine*, which was attached to the home fleet of the British navy, had a large number of patients on board at the time of the accident. All were placed in the ship's boats, where they remained until the arrival of other vessels summoned by wireless telegraphy.

"The *Maine*, as presented to the British navy in 1901, was the gift partly of President Bernard N. Baker of the Atlantic Transport Com-

pany and partly of the hospital ship *Maine* committee. The former presented the vessel, and the latter gave the elaborate fittings, which made the *Maine* one of the best-appointed floating hospitals ever constructed up to that time.

"The *Maine* was originally loaned by the Atlantic Transport Company, through its president Mr. Baker, to a committee of American and Anglo-American women, of which Lady Randolph was chairman. The committee fitted up the vessel as a hospital ship, placed her in charge of American doctors and nurses, and sent her to Cape Town and Durban to care for the wounded and sick of the South African war. She received both British and Boer wounded, and afterward returned to Southampton with over 350 invalided British soldiers. She stayed there only nine days, being reëquipped with remarkable speed and sent back to South Africa to carry home another shipload of sick and wounded.

"It had been intended that the *Maine* should make a third voyage to South Africa, but when the crisis in China became acute it was decided that she could be used to better advantage in the Orient. She was therefore sent to Taku, and the *Maine* committee, through the United States representatives in Europe, informed the Powers of the departure of the vessel, and notified them that their wounded and sick would be cared for on her. Appreciative acknowledgments were made by all the Powers. The *Maine* returned from China in January, 1901.

"The ward capacity of the *Maine* was 210 beds. The surgeons and physicians, all of them first rank men from our best American hospitals, the nurses from the Mills training school, and the orderlies were all carefully selected. Despite the comparatively cramped quarters, modern scientific treatment had been carried out in the form of tub baths for the cases of enteric fever, with gratifying results. By means of an admirable Roentgen ray apparatus, sent out from New York, valuable assistance had been obtained in the treatment of gunshot injuries, and in a well-equipped laboratory diagnoses of doubtful cases have been made by bacteriological examinations. A strange and happy fact to be recorded was that during the three weeks' voyage of this hospital ship home from South Africa the second time, not a single death occurred. After her return from China, as above noted, the ship was tendered as a gift to the British Government, and accepted in July, 1901. Since then she has seen constant service."

RECENT DEATHS.

DR. GEORGE PERLEY BRADLEY, who died of cardiac disease on June 11 at South Lancaster, Mass., was born in 1845. After studying medicine, he entered in 1869 the United States Navy medical corps, in which he served for 38 years, retiring in June, 1907, with the rank of medical inspector. He is survived by his widow.

DR. OTTO G. RAMSAY, who died on June 12 at New Haven, Conn., was born in 1869. He received the degree of M.D. in 1890 from the University of Virginia, and since 1899 had been professor of obstetrics and gynecology at the Yale Medical School.

DR. GEORGE DRESSER, a retired Fellow of The Massachusetts Medical Society, died at his home in Chicopee, Mass., on May 16, 1914, aged 76 years.

DR. SIMON MARX, a well-known gynecologist and obstetrician of New York, died on June 16, after a long illness, at the age of 49. He was graduated from the College of Physicians and Surgeons, New York, in 1884 and afterwards studied at Vienna, Berlin and Munich. He was formerly on the teaching staff of the New York Post-Graduate Medical School and Hospital, and at the time of his death was gynecologist to the Red Cross Hospital.

DR. FREDERICK F. R. BERLIN of New York died on June 14, at the age of 55. He was a native of Germany, and after coming to this country practised for some years as an architect. He then took up the study of medicine, and was graduated from the University and Bellevue Hospital Medical College in 1900.

DR. MAUS R. VEDDER, formerly a prominent practitioner in New York City, died on June 13 at his home in Caldwell, N. J., in his 80th year. He was a graduate of the College of Physicians and Surgeons, New York, in the year 1861. His son, Dr. Harmon R. A. Vedder, succeeded to his practice in New York.

DR. SIDNEY H. GARDINER of Brooklyn, N. Y., died on June 11, after an operation for appendicitis. He was born in Kingston, Ontario, on May 6, 1862, and was graduated from Queen's University, Canada, in 1889. He served for six years as adjunct surgeon to the Long Island College Hospital and was associate physician to Bushwick Hospital. He was a member of the Clinical Congress of Surgeons of North America and of the Kings County Medical Society. He is survived by his widow and by three daughters.

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THE ANNUAL DISCOURSE BEFORE THE MASSACHUSETTS MEDICAL SOCIETY, JUNE 10, 1914.

THE EDUCATION OF THE PUBLIC IN MEDICAL MATTERS.

By Horace D. Arnold, M.D., Boston.

Permit me first to express my sincere appreciation of the honor conferred upon me by being chosen as orator for this occasion. The list of my predecessors includes the names of many men, eminent in our profession, whose success in this position I cannot hope to equal. If you go away without regrets at your present choice, and with a feeling that the time has not been wasted, I shall be satisfied.

In searching for a suitable subject, one naturally thinks of the wonderful achievements of modern medicine. During the past few decades progress in the advance of medical science and in the art of healing has been so great and so rapid that one is tempted to picture some of these achievements and to make a congratulatory address on what has been accomplished. This would not be inappropriate before a society whose members have taken an active part in this advance. However, the spirit of progress demands that we constantly press forward, and that we seek new problems and try to solve them. Instead of resting on our laurels, we must ask ourselves whether we have really done our best in all respects, and whether there are not still other ways in which we can render even greater service to humanity.

If I turn from the attractive field of the accomplishments of the profession and of our society, I hope it will not be interpreted as indicating any lack of appreciation of the great work of the past. Neither should a discussion of what may be done in addition, now and in the future, be understood as a criticism, because it has not been accomplished before. This is especially true of the problem of our duty in the education of the public in medical matters, for it is a relatively new one.

Why do people in general show so little appreciation of the advances made in medicine? Why has the medical profession so little influence in directing affairs which affect the public welfare? Few will maintain that conditions are satisfactory in either of these respects. We frequently hear medical men criticizing the public or the legislature for their attitude in matters of public health, and condemning their action as short-sighted and foolish. Yet practically none of these people are influenced by a desire to do injury, and relatively few would seek their own personal gain at the expense of recognized injury to others. The basic difficulty is ignorance about these matters, or at least the lack of appreciation of the significance of the problems presented.

It is not creditable to the medical profession that it merely criticizes and complains of the results. It should do its best to secure a remedy. We are dealing with an unhealthy condition of the community, yet we are too often satisfied to note the symptom of foolish health laws and customs, without studying out the cause of the trouble. Without knowing the cause, we are satisfied to treat the symptom with various remedies, —some of them borrowed from political quacks. This is empiricism,—a method of treatment more suitable a hundred years ago than in this age of scientific investigation. Why should we be satisfied to treat a disease of the community by an antiquated method, when we would be ashamed to treat an individual today in the same way?

If we look deeper, I think we shall agree that the underlying causes are ignorance on the part of the public and indifference on the part of the medical profession. The proper remedy is, then, for the profession to awaken to its responsibilities, and for it to give the public rational instruction in medical matters, to such an extent that they and their representatives may take intelligent action on problems of a medical nature that come before them for decision.

I do not expect every one to agree off-hand to this solution of the problem. There are those who will contend that this is not properly the province of the medical profession. There are others who will assert that such matters should be decided by experts of the medical profession and not by the public. There is much to be said in favor of both of these contentions. However, we must recognize the fundamental principle of the individual rights of the people. The right of the individual to have a voice in the government of the community of which he forms a part is perhaps the most cherished right of the citizens of this country. It is jealously guarded and the individual is very keen to appreciate when this principle is at stake. Before the public are willing to surrender to experts full control of matters of public health, they must be educated to believe that these are really matters that should be decided by experts, and they must have confidence in the experts who are to exercise such control. Only when they are satisfied on these points will the people be willing to delegate to experts the decisions that properly belong to them. The people have shown that in many instances they are not yet ready to surrender these rights; hence further education is needed

Note.—At an adjourned meeting of The Massachusetts Medical Society held Oct. 3, 1860, it was

Resolved, "That The Massachusetts Medical Society hereby declares that it does not consider itself as having endorsed or censured the opinions in former published Annual Discourses, nor will it hold itself responsible for any opinions or sentiments advanced in any future similar discourses."

Resolved, "That the Committee On Publications be directed to print a statement to that effect at the commencement of each Annual Discourse which may hereafter be published."

before this plan can be accepted as a solution of the difficulty.

Those who contend that the education of the public in medical matters is not properly a function of the medical profession are unmindful, it seems to me, of the progress that is going on all about us. They will hardly maintain that we should limit ourselves to the administration of remedies and should not concern ourselves with the prevention of disease. The education of the public in health matters is but one form of preventive medicine, and the profession should be willing to do its share in this work.

To the sensitiveness about individual rights, alluded to above, we find added, as an obstacle to progress in public health matters, the selfishness of individuals or of single communities. People are slow to learn that many public health measures can be successful only as community affairs which cover wide areas. The wishes of the individual must yield to the needs of the community in which he lives, and these in turn to the demands of larger communities. If people were better educated about matters of public health, they would more readily yield their personal privileges or advantages for the general good, and we should often have willing cooperation, where now we meet opposition.

Not only is an intelligent public opinion desirable for the purpose of securing wise health laws, but it is essential for their enforcement. We now have many laws of this kind which are not fully enforced, because public opinion is not prepared to accept such enforcement. The authorities are wise to rest satisfied with partial results, rather than by complete enforcement to arouse such opposition that the laws will be repealed. "Half a loaf is better than no bread." Nevertheless it is true that if the people fully understand the benefits to be derived from such measures, they not only consent to their enactment, but insist on their enforcement. The education of the public in health matters is, therefore, essential if health legislation is to be successfully carried out.

The history of our own state board of health is interesting, as showing the dependence of health measures on public support. In 1849 a commission of prominent citizens was appointed to consider public health questions in Massachusetts and to report to the Legislature the following year. A comprehensive report was made with most admirable recommendations including the establishment of a general board of health for the state. But these men were ahead of their time; the public was not intelligent enough in such matters to appreciate the value of the recommendations; and it was twenty years later, in 1869, that the legislature provided for a state board of health.

Massachusetts was a pioneer in public health work, and the excellence of this work has kept the Commonwealth always in the forefront of progress. This honorable record has been due to the ability and devotion of all members of the board, but more especially to the two eminent members of our profession who have held the position of chairman for long periods. Dr. Henry I. Bowditch, the first chairman, served for ten years. Then from 1879 to 1886 the three departments of health, lunacy and charity were merged in one board. When in 1886 the state board of health was again established on an independent footing, Dr. Henry P. Walcott became chairman and has served until very recently, when he declined reappointment.

We cannot speak in too high terms of the faithful and distinguished service which these men have rendered the state in directing this important work. The testimonial from the medical profession to Dr. Walcott, when he retired, was evidence of our appreciation of the value of the great work he has accomplished. Almost as great a tribute to him is the proposition made by the Governor, that the board of health be reorganized and the chairman replaced by a highly-salaried expert as commissioner of health. The reason for this plan lies in the acknowledged difficulty of finding any one who is both able and willing to do for the state, as a member of an unpaid board, what Dr. Walcott has done for so many years in the past.

It is not my intention to discuss fully the merits and details of this new plan. I favor it personally because, as I conceive the situation, it aims at a more complete organization of the work. By such an organization the department of health will be better able to cope with the increasing demands which will necessarily be made upon it. I wish, however, to point out that the decision of this question rests with the representatives of the people, and that they would be much more likely to accept the advice of experts, embodied in this bill, if they had themselves a better knowledge about health matters. Furthermore, no matter how excellent the plan may be, success must depend on the cooperation of an enlightened public.

The lack of knowledge about health matters in the past has been an important reason for the lack of support given to the board of health by the people and the legislature in some of the measures it wished to carry out. Had the legislature been willing to grant a sufficient appropriation, the board would have done much more on this very problem of educating the public. One of its duties as defined in the act of the legislature, was to "gather such information in respect to those (health) matters as it may deem proper for diffusion among the people." The board has had ample power, but not enough money. Even with limited means it has done some very good work in this direction.

Thus we see that in health matters, as in other affairs, it is not enough to have good laws on paper, but that we must have the support of public opinion if they are to be made effective by enforcement. Information as to the benefits to be derived from the health laws should be distributed systematically to citizens of the state,

and this duty should be performed by the state board of health. If the need of an appropriation for this purpose were presented with sufficient publicity, the legislature would not dare to withhold the funds.

Another matter in which it ought not to be difficult to secure protective legislation is the problem of clean milk. If the milk consumers,—practically the whole population of the state,—knew the real facts about our milk supply, they would not be satisfied with the present state of affairs. People are indifferent to this problem merely because they do not know the facts about it. If they fully realized the dangers from infected milk, there would be little trouble in securing reasonable legislation. No one can instruct them so well in this matter as the medical profession, yet the profession as a body has taken no effective steps in this direction. The surest way to secure proper legislation is to enlighten the public and not merely appear as a committee or association before the legislature.

It is not my intention to discuss in detail how the public should be instructed in this matter. It is clear, however, that they must be taught that milk is not merely a farm product nor an article of commerce, but a peculiarly unstable article of food which acts as an excellent culture medium for bacteria. They must understand something of the fundamental ideas about the growth of bacteria under favorable conditions, and the dangers of transmitting diseases by means of infected food. They must be made to realize how easily milk may become infected through carelessness in its preparation, transportation, and distribution, and that the time that elapses before it is consumed is often sufficient for an abundant growth of micro-organisms. They will then understand how readily it may become a dangerous article of food,—especially if consumed raw, as is frequently the case. Greater publicity should be given to epidemics which are proved to be transmitted by milk. These concrete instances should be used as object lessons for the public. They are too valuable for this purpose to be used merely for scientific reports before medical societies, or as news items in the hands of lay reporters or editors. The proper, judicious use of such information in the daily press, as a means of instructing the public, should be in the hands of wise medical men. When they know enough about this matter, the people will insist on having clean milk,—and will be willing to pay a reasonable price for it.

Our recent experience with the vaccination laws is another illustration of the danger of public indifference. Because of such indifference a good law may be weakened or even repealed, as the result of an active campaign by a noisy minority, even if it exists for the benefit of a vast majority of our citizens.

Our vaccination laws have resulted in such a widespread employment of vaccination that the community has been free from any serious epidemic of smallpox for several decades. The present generation knows practically nothing about this loathsome disease, which was formerly a veritable scourge; and a great many physicians have never seen a case. People have come to accept this freedom from smallpox as a matter of course, and they are apt to forget that constant vigilance on the part of health authorities and the continued protection of vaccination alone stand between them and the possibility of a serious outbreak of the disease. They need to be frequently reminded of these facts, or else they become so indifferent as not to care if the legal protection is relaxed.

During the present session of the legislature, people who were interested for various reasons introduced a bill which would have materially weakened the protection of the community, if adopted. It would undoubtedly have resulted in a large increase in the number of unvaccinated persons, and the danger of an epidemic would have been correspondingly increased. The bill passed the senate. For a time there was danger that it would also pass the house of representatives The advocates of the bill were extremely active, the general public appeared to be indifferent, and the medical profession did not seem to realize the danger.

Were it not for the seriousness of the matter, the situation would be amusing from its absurdity. Here was an important health measure to be decided by the majority vote of a body consisting almost entirely of laymen, few of whom had any knowledge on the subject. Without such knowledge they were responsible for defining the health policy of the state in regard to a serious and dangerous infectious disease. The legislators were flooded with literature from interested partisans in favor of the bill. At the public hearings and in personal interviews these persons plied their arguments vigorously. The legislators could not weigh this evidence from their own knowledge; they did not know that many of the so-called facts and statistics presented were unreliable; and many, at least, did not know that the precautions adopted by our state board of health, in the preparation and distribution of vaccine virus, remove all the legitimate objections of the anti-vaccinationists.

It is greatly to the credit of the representatives that they were not carried off their feet by the fierce onslaught of the advocates of this bill. It is to their credit that they turned to the state board of health for reliable information, and that they were guided by the advice thus obtained, and rejected the bill by a handsome majority.

The danger is passed for the time being, but it is not eliminated. Safety can come only when the community is convinced and has a realizing sense that general vaccination gives a much needed protection to the public in general. This information should be impressed on the public, partly by the state and local health bodies, but

partly also through efforts of the organized medical profession.

In this connection I believe the medical profession has another duty to perform toward itself. It should see that its members are above criticism in the way vaccination is performed. Let us be frank about the matter. There *is* danger in vaccination,—not in the vaccine itself, but in the careless methods of using it, which are altogether too prevalent. In Massachusetts a clean, safe virus is furnished by the state to all citizens free of charge. The necessary disturbance from its proper use is so slight that no one would question the desirability of its use in return for the safety conferred. But there is the same danger of infection connected with this proceeding that is inherent in any wound of the skin. If proper aseptic precautions are taken, this danger is averted.

Too many practitioners are careless in this matter. In such cases,—but in such cases only,—infection of a more or less serious character may ensue; sore arms, extensive inflammation, illness and suffering may result. The public have a right to remonstrate against such results, because they are unnecessary; but their opposition should be directed where it belongs,—against carelessness by physicians and not against the process itself.

It is not a proper answer by the profession to show that none or few of these cases are fatal. It is not a proper answer to show that in a vast majority of cases of vaccination no serious harm results. It is a fact that a certain small number of cases of infection do result, either because the physician is careless in the operation, or because he does not sufficiently instruct the patient about the after-care. It should be considered as much a disgrace to a physician to have an infected wound follow vaccination as it is to have it follow a surgical operation, for it is equally avoidable. This is the standard that the medical profession should set for itself, and it should free itself through its own efforts from the reproach of carelessness.

I do not wish to exaggerate the importance of this matter of carelessness in vaccination, but it is in reality an active issue between the profession and the public. A certain number of persons have just reason to complain of the results of vaccination, when it has been improperly performed. In their ignorance they attach the blame to the procedure itself, instead of to the carelessness of physicians, where it belongs. We know they are wrong in this, but we do not come out squarely and correct their error. Why? Because we fear for the reputation of the profession.

As a matter of fact the reputation of the whole profession suffers because we thus tacitly shoulder the errors of incompetent practitioners. Most of them have not been properly trained and do not come up to the standards of the profession set by educated physicians. We do not regard such men as properly belonging to the profession. Is it not time to make this fact clear to the people? Shall we go on indefinitely accepting without protest the low standard set by the public, and recognize all practitioners licensed on the present basis as members of the profession?

The reputation of the medical profession is a matter that we all have at heart, and properly so. We would all like to feel that our profession is held in high esteem by the community, but we know that it does not command the respect which it deserves. Is this not our own fault to a considerable extent, and not entirely the fault of the community?

I know I am treading on dangerous ground. I know the argument that it is for the public good that people should have confidence in the ability and wisdom of their physicians, and that anything which tends to shake that confidence is fraught with danger. But the public knows there are poor doctors, as well as good ones. Nothing we can say or do can cover up this very obvious fact, and to ignore it is not creditable to our intelligence. If the public is going to attempt to discriminate between good and bad doctors,—and we must confess they are justified in trying to do this,—are we not foolish if we do not instruct them as to the basis on which such discrimination should be made?

This is indeed a delicate and difficult problem. We may be pardoned if we have been reluctant to undertake its solution, or if we have hesitated because we realized that by injudicious action a bad matter could easily be made worse. But the problem of standards in medical practice,—the proper preparation of physicians before they are allowed to practice on the public,—is of vital importance to the community. It is actually before the public in our laws on medical registration and the recurring propositions to make these laws more strict or more lenient.

It is chiefly through the efforts of the medical profession that such laws have been enacted, and that the remarkable improvement in the standards of medical schools has been brought about in the past ten years. This movement is undertaken for the public good. We are in it, and we cannot keep out. It involves fundamentally the recognition of the fact that there have been, and are, poor practitioners. The medical profession, it seems to me, has no option in this matter,—it must take up with the public the problem of the proper qualifications of practitioners of medicine, or else it must accept the stigma of shirking its duty to the public. This duty may not be easy of performance, it may be disagreeable, it may involve admissions that hurt our self-esteem as members of the medical profession,—nevertheless, we should undertake it if we are to remain true to the high ideals of our profession. It must be undertaken on the high plane of public good, and must be kept free from considerations of personal gain.

Previous to 1894 there was no legal restriction in this state as to who should practice medicine. Any one could legally hold himself out as a practitioner, and the public was left to discriminate through its own experience. Such experience was often bitter, and knowledge of a "doctor's" incompetency was often obtained at the expense of health and even of life. Nevertheless people in general did not recognize the need of reform, and the law which was enacted in June, 1894, was due to the efforts of the medical profesion. This law was not ideal, it did not contain all that the profession knew was desirable, but it was the best that the public would consent to at that time. This is another illustration of the fact that satisfactory legislative action can be obtained only when backed by enlightened public opinion.

Massachusetts was the seventh state to enact a law for the examination and registration of physicians. Such laws now exist in all states, and Massachusetts had the credit then of being one of the leaders in the movement. But the earlier laws were more or less crude and imperfect. All the states that passed medical registration laws earlier than Massachusetts have since amended them in accordance with more advanced ideas on this subject.

Our law has not been amended in any essential feature since it was passed twenty years ago. It is now the oldest law on the subject in the country. In many respects it is a good law, but in other respects it is very unsatisfactory. The lack of change is not so much a tribute to the excellence of the law as it is to the ignorance and prejudice of the people and to the indifference of the medical profession. Thanks to the personal efficiency of the members of our board of registration in medicine, the results nevertheless have been fairly satisfactory,—as good as the average for the country, and in fact better than in some states which have more stringent regulations. It would be safer, however, to have the protection incorporated in the law itself and not so much dependent on the personnel of the board, which may change.

And so it is twenty years ago that the profession embarked on a campaign of establishing standards for medical practice and tacitly acknowledged that there are physicians who ought not to be allowed to practice on the public. The Massachusetts Medical Society has supported this movement from the start. Through its representatives it has from time to time advocated new measures to strengthen the law, and it has opposed measures which would weaken it. While it has succeeded in preventing any weakening of the law, it has met such violent opposition from interested parties, whenever greater stringency was urged, that nothing new has been accomplished.

Why have we not accomplished more? Is it not because we have gone to the legislative halls without a sufficient backing of public opinion? We have been beaten time and again because an active opposition has been shown by a small minority of the people, who are actuated either by selfish personal considerations or by a mistaken idea of what is for the public good. It ought not to be difficult to create a public sentiment in favor of better protection, if we would take the trouble to inform the public as to the actual state of affairs. Ask any individual if he wishes to entrust the health and life of the members of his family to incompetent physicians, and the answer will be an emphatic "No." Any one would readily approve of the general principle that only competent physicians should be allowed to practice medicine. The only difficulty lies in the question as to who shall be adjudged competent.

At present each individual citizen is apt to feel that he is competent to pass judgment on this question, although he knows nothing of standards of medical education. Few have any idea of the advances which medical science has made in the past few decades. They do not realize how much can now be done by the application of modern methods, to recognize conditions of disease more accurately, and to treat these conditions more successfully. They do not realize that a thorough preliminary mental training, a knowledge of the fundamental sciences, and then four years of hard study in a good medical school, are necessary if the student is to master even the fundamentals which would make him a skilful physician. It ought not to be difficult to make people understand these plain facts, if they are presented properly; and they must understand them before they can form an intelligent opinion about medical education. If they once grasp the significance of these facts, they will not be satisfied with a law which obliges the registration board to examine candidates without any restriction whatever as to previous medical training.

People have naturally assumed that the state was giving them adequate protection in this matter. Even the members of the medical profession do not generally realize how far Massachusetts has dropped behind, in comparison with the progress made in other states throughout the Union. It is hard to believe that Massachusetts, with her reputation for intelligence, for leadership in educational matters, and for progressiveness in the protection of her citizens, should be one of the states that gives the least protection to the public in the laws on medical registration,—but it is a fact.

Massachusetts merely requires that an applicant for registration shall furnish satisfactory proof that he has attained the age of twenty-one years and that he is of good moral character. There are no educational requirements whatever. If he fulfils these requirements and pays a fee of twenty dollars, the board must give him an examination, and must give him authority to practice medicine if he passes it. If he fails, he is entitled to re-examination without

charge within one year. By paying fees, he is entitled to further examinations. The examination is the only protection we have against untrained doctors.

There is only one other state, Tennessee, which is on this same low basis of requirements. Besides these two states, there is only one other, Oregon, which does not require that a candidate shall be a graduate of a legally chartered medical school. There are only six states in which the licensing board does not have authority to exclude graduates from schools of which it does not approve. These include Wyoming, Utah, and the District of Columbia. Fine company for the proud commonwealth of Massachusetts!

In thirty-two states the licensing boards are utilizing their authority to refuse recognition to low-grade medical colleges. As a result graduates of these colleges must flock into the other eighteen states, which thus become the dumping-ground for these poorly-trained medical students. (The District of Columbia and Porto Rico make a total of fifty "states" in these statistics).

Do we want to admit practitioners of this type from all over the country? Massachusetts is already overstocked with practitioners of medicine. There is not the slightest reason, as far as the benefit of the public is concerned, why a single poorly prepared physician should now be admitted to practice. It is the height of folly to have laws which invite these men to apply in this state. If it were not known that the examinations, as administered by our registration board, are difficult, they would flock here in very large numbers. Even as it is, 126 who were not graduates were examined in the past five years, and the number coming to this state is increasing. This number was 9% of all applicants examined in this period. Forty-eight, or 38%, of these non-graduates passed the examination and were licensed to practice medicine.

The statistics of medical registration for 1913 are still more convincing. In speaking of medical schools, the classification of the American Medical Association will be adopted. Those in Class A plus and Class A will be considered desirable, and those in Classes B and C will be considered poor, or low-grade schools. In 1913, of all applicants examined in Massachusetts,

45% were graduates of desirable schools in Massachusetts
25% were graduates of desirable schools outside of the state.
13.3% were graduates of poor medical schools
16.7% were non-graduates

100.0%

Thirty per cent. of the applicants, therefore, had had an inadequate training. Moreover, while 3.9% of all graduates examined in the country came to Massachusetts, 19.1% of all non-graduates were examined in this state. The relative proportion of non-graduates coming is, therefore, five times as great as of graduates.

Our only protection against poorly-trained practitioners lies in the state board examinations. It is a tribute to the members of our board of registration that, with so poor a law, the percentage of rejections is practically the same as for the country at large. But is the protection of this examination sufficient? It is generally recognized that a student can be coached for such examinations, and that there are physicians and cramming schools that make a business of such preparation. Candidates of this type do pass the examinations in Massachusetts, and in considerable numbers. Figures will be given later.

The examination is a weapon of defense, but alone it is an inadequate one. It is as if our board were equipped with muzzle-loading rifles, while the boards in most states use modern breech-loaders. Granted that the members of our board are sharp shooters and can do fairly effective work with muzzle-loading rifles, would they not do better work with modern weapons? Would our citizens rest satisfied if they knew that soldiers who would defend them from a foreign foe had only old-fashioned muskets? Would they be satisfied if they actually realized that the board of registration does not have modern, approved weapons of defense against the invasion of poorly-prepared candidates from all over the country.

The attitude of the licensing boards of the country toward medical schools is shown by the following figures. Out of the 107 medical colleges in the country, only

31 receive full recognition in all states.
33 are refused in from 2 to 9 states,
43 are refused in from 10 to 32 states.

The 20 schools in Class B are refused in from 10 to 15 states, with an average of 12.7 states. The 22 schools in Class C are refused in from 17 to 32 states, with an average of 30.2 states. None of these can be refused in Massachusetts under the present law.

The extent of the menace of poorly-trained candidates, and the fact that large numbers of these succeed in passing state boards is shown by the following figures. During 1913, the number of such applicants examined throughout the country was 2784,—43% of all those examined. Of these 1974, or 71%, passed the state board examinations and were licensed to practice medicine. They constituted 38% of all who passed. The reason why so large a percentage were successful is that these untrained men select the states in which the protection is least effective.

The figures in detail are as follows:—

	Examined.	Passed.
Graduates from schools in Class B (19 schools)	884	700
Graduates from schools in Class C (21 schools)	821	580
Total from schools in Classes B and C	1705	1280

Graduates from miscellaneous schools (Not A plus, or A)	698	466
Graduates from Canadian schools (Grades B and C)	41	25
Graduates from foreign schools (47.2% failures)	89	47
Non-graduates	251	156
Total	2784	1974

The statistics for Massachusetts show not only that we have a relatively large number of such applicants, but that our examinations do not make an effective barrier against them. Eighty-six, or 30%, of all applicants belonged to the group of poorly-trained candidates. Of these, 35, or 41%, passed the examinations. These constituted almost exactly one-sixth (16.3%) of all who passed the examinations. Let me repeat the statement that Massachusetts is overstocked with practitioners and we do not need a single one of these poorly-trained men.

For the proper protection of our citizens, we need to have our registration laws strengthened, Candidates for examination should have a degree in medicine from an approved medical school. The board of registration should be given power to establish standards of medical education, and to recognize only the degrees of schools which it approves. Accepted candidates should be required to pass a thorough written and practical examination.

Few of our citizens would be satisfied with less, if they understood the facts. Let us hope that an aroused public sentiment will demand such protection in the near future. Let us hope that Massachusetts will soon follow the example of Pennsylvania and demand in addition a year of training in an approved hospital. It is only common sense to require this amount of practical experience with sickness. It is better for the community that this training should be gained at the hospital, under the supervision and guidance of the hospital staff, than that it should be obtained, without that supervision, by experimenting alone on the public after one is licensed to practice.

I have cited four important health problems which have recently been under consideration, the decision of which rests with the representatives of the people. They are the policy of the state as to its board of health, the problem of clean milk, vaccination, and the standards for the practice of medicine. This does not exhaust the list of important measures of this character, but these illustrative examples show the importance of the health problems which come before the legislature for decision. They should, of course, be decided on the basis of the greatest benefit for the community as a whole, but unfortunately they are often decided in accordance with the clamor from a very small minority of interested persons, or in accordance with political expediency.

The remedy for this condition of affairs is for the people to demand their rights in health legislation. The legislature would not dare to oppose a general demand of this character, but no such demand will come as long as the people are so ignorant that they do not understand these problems and therefore do not realize that their welfare is at stake. They must be educated so that they will understand the situation, and no body of men is as well qualified to instruct them as the medical profession is.

I have already pointed out that the medical profession has done a great deal for the public in this direction. It is one of the honors of the profession that it has always given fully of its wisdom for the prevention of disease, and for the preservation of health, notwithstanding the fact that its members get their livelihood by treating the very conditions they are trying to prevent. Social service of this type has been assuming new forms, to meet new conditions that have arisen in recent years; and the systematic, direct instruction of the public in health matters seems to be a form which our service to the community must necessarily take in the immediate future.

One reason why this movement has not gained more headway is the magnitude of the task. We must recognize also that such work by the medical profession is performed without financial return, and that there is a practical limit to the amount of such a work a physician can perform. We cannot speak too highly of the generous service given by those representatives of our society who have been active in this work, as members of our committees. No criticism attaches to them, but the same cannot be said of the members of the society in general. With few exceptions they have been indifferent, or have been unwilling to make personal sacrifices. Unless our committees have the active support of a large number of the members of our society they cannot do any better than they have in the past, and they cannot undertake this new problem of education with any assurance of success.

That it is feasible for our society to carry out educational work of this character was demonstrated a few years ago by the excellent work in a campaign of education on the subject of tuberculosis, under the leadership of the late Dr. Arthur T. Cabot. This work was in charge of a central committee, and was carried on through individuals, or committees of our members, in all parts of the state. The success of this work led to the creation three years ago of a standing committee on public health, which could deal with such problems on a broader basis. The by-laws define the duties of this committee as follows: "The committee shall consider measures for the improvement of the public health, and shall perfect plans for educating the profession and the lay members of the community in the special subdivisions of this department of medicine." Our society is therefore on record in favor of the education of the public in health matters, we have the necessary machinery, and

all we need is the general coöperation of our members.

Such an educational campaign, however, does not belong to our society alone. All agencies which can help should coöperate in the movement, but there must be some central organization which shall direct and coördinate the work of these various agencies, if the best results are to be obtained. The problems are essentially medical in character and should have medical supervision. One reason why our standing committee on public health can advantageously undertake this general supervision is that it would better coördinate such work in our state with the educational work of the American Medical Association, which is nation-wide in its scope. This work on the part of the American Medical Association is under the charge of its council on health and public instruction. The council would naturally turn to a committee of The Massachusetts Medical Society, a constituent member of the association, for help in any work which it wished to carry on in this state. On the other hand, our society has the right to call upon the council for aid in any work which we may wish to undertake. Thus the united resources of the national and the state medical organizations can be brought to bear on this problem.

The council on health and public instruction has already performed valuable service in the instruction of the public. It has prepared pamphlets on a number of medical and health topics, which are especially designed for the public and can be distributed free or at a nominal cost. It has organized a lecture bureau, through which it can furnish to lay organizations various kinds of lecturers who stand in the front ranks of our profession. It has placed itself in touch with the lay press and furnishes interesting and reliable medical items for publication. Through this arrangement a weekly bulletin of such matter is sent to 5000 newspapers throughout the country.

These are but a few of the useful measures of this sort that the council has inaugurated in the past few years. In all of this work it asks the coöperation of the state societies, and our committee on public health will give such coöperation. In its last annual report the committee stated further that it was coöperating with other committees of our society and also with other organizations interested in public health.

The help of these various organizations will make it more practicable to carry out any systematic scheme of public education that may be inaugurated. Without such help the medical profession could hardly hope for success, because of the magnitude of the undertaking. On the other hand medical guidance should be of great value to the lay organizations, both in making their work more effective and in avoiding mistakes which a knowledge of medicine might prevent.

Much of this work of instructing the public in health matters would properly belong to the state board of health. That body will undoubtedly develop this side of their work. In the meantime, until the public better appreciates the value of such a plan and the legislature is willing to furnish the necessary funds, the initiative and the preliminary work must fall on the medical profession and on other public spirited individuals and organizations.

In any campaign of public education that we may undertake, the lecture platform and the public press must be utilized. It was not many years ago that the general sentiment of reputable physicians was against the use of either of these means of reaching the public. They were freely used by quacks and the patent-medicine makers. Reputable physicians did not wish to appear in such company, and they shrank from the possibility that efforts to reach the public through these channels might be interpreted as self-advertising. Times have changed. A physician today does not hesitate to lecture to lay audiences on subjects of general public interest. It is no longer considered bad form to have one's name appear in the newspaper in connection with medical and health problems. Nevertheless, many physicians shrink from publicity of this sort.

The hearty coöperation of the medical profession and the press in matters pertaining to the public health is very much to be desired. No single factor is more powerful than the newspaper in moulding public opinion, and in no other practicable way can we reach so large an audience as through the press. Such coöperation is easier today than it would have been a few years ago, because the better papers are now essentially free from the advertisements of quacks and patent medicines, and the press has recognized that the public is interested in legitimate medical information. Many papers have medical departments; and special articles on health topics, by laymen and physicians, are not uncommon. But such information is rarely contributed by the leading authorities in medicine, and the papers are still seeking what is novel, startling, or sensational, rather than information that is beneficial for the people.

Many physicians have been deterred from giving legitimate information to the press because, through mistakes due to ignorance, or through misrepresentation and exaggeration, a garbled statement has appeared in print which the author was ashamed to acknowledge. The editors and reporters who handle medical matters should be sufficiently well informed to give an accurate and intelligent account of such information as is furnished. Some papers appreciate sufficiently the importance of having such information reliable to have a physician on the editorial staff, who will censor all material of this sort. It would undoubtedly be a satisfaction to the press in general to know that the organized profession is ready to coöperate and that the papers could turn to our representatives

for reliable information. In turn, the papers should be willing to print such information as our committees wish to place before the public in a campaign of education. Such coöperation between the profession and the press must be handled judiciously, or else the profession will lose and not gain in public estimation. It is not desirable that every medical man who seeks notoriety should be allowed to rush into print as a representative of the profession. Self-advertising must be guarded against as much as ever. The press should recognize in this work an opportunity to perform a most important public service.

I wish finally to say a few words about health education in our schools. This subject has in the past received scant attention in the schools, and this is an important reason why people who are well-informed on other subjects are often ignorant about medical matters. Not only has the instruction in the schools been very deficient, but it has been difficult for those who were interested to get information from reliable sources elsewhere. Here is another new field for medical men of the highest type,—the preparation of popular books and treatises on medical subjects that have a general interest.

A reasonable knowledge about the body and its functions, and about hygiene and the proper mode of life to maintain health, should be an important aim in everybody's education. This study of hygiene and health should have its proper place in the school curriculum, yet no subject of anything like the same importance has been so much neglected. The result has been that people have grown up essentially ignorant of the fundamental medical truths. They have gathered information where they could, and have been ready to accept any statements that have appeared in books, magazines, or the daily papers. Unable to weigh the evidence, through lack of knowledge, they have accepted all kinds of statements with a strange credulity. They have believed the statements of the quack and the extravagant claims of the advertiser of patent medicines fully as readily as the statements of an educated and disinterested physician. Thus much misinformation has resulted from this lack of education.

Since 1885 the laws of Massachusetts have required that physiology and hygiene should be included in the list of subjects taught in the public schools. The law especially mentioned that instruction should be given as to the effects of alcoholic drinks, stimulants and narcotics on the human system. The law owed its origin to the temperance enthusiasts in a campaign against alcohol and tobacco.

This was reflected in the early text-books, whose excellence seems to have been measured chiefly by the degree to which they exaggerated the ill effects of these substances. The general problems of health received scant attention. Although the present system of health instruction, —excellent in many places,—has resulted from this movement, it is a question whether the large problem of general instruction in health was not retarded a number of years because of the narrow, prejudiced way in which it started. This has its lesson in considering our problem today. Better results would follow if the medical profession originated or directed movements of this sort, instead of leaving them to lay enthusiasts. There are problems of health education today, advocated by men and women with the best intentions, which will be adopted in an extreme and one-sided form unless the medical profession wakes up and contributes the knowledge, judgment, and breadth of view which it alone can give. Among the most important of these is sex-education and social hygiene. This subject is definitely before the community; it has attracted much attention, the interest of the public is deeper than mere morbid curiosity, and some solution of the problem must be found.

The medical profession as a whole has been strangely indifferent in this matter of sex education. Recognizing the many objections to the public agitation of this subject, we were perhaps justified in keeping out of the discussion when the subject first came up, in the hope that the excitement might quickly subside. But it has not subsided and is not likely to. We do not adequately meet the situation by deploring the fact that the agitation will not down, nor by criticizing the movements and its advocates as "hysterical." We should turn our superior knowledge and judgment toward a sane, constructive solution of this problem, and we should not be satisfied merely with destructive criticism. It may be a disagreeable job and we may not relish undertaking it, but it is none the less our duty to contribute our advice and influence toward a right solution.

Returning to the subject of instruction in physiology and hygiene in the public schools, as a means of educating the public,—from the limited scope of the early teaching the instruction has broadened out so that now more or less satisfactory instruction is given. Conditions vary in different places in the state. While in some places such instruction is but a poor fulfilment of the lowest requirement of the law, I am glad to say that the system of instruction in the Boston schools is unusually good, and is probably unsurpassed in the country.

Few of us realize how excellent this system is. It embraces not only instruction in physiology and hygiene, but physical training, and the supervision of the health of the pupils. In 1885 the school committee appointed a special instructor in physiology and hygiene to carry out the mandate of the law recently enacted for instruction in those subjects. In 1894 the Boston board of health inaugurated the system of medical inspectors of schools. But the most important step of all was the creation of the department of school hygiene in 1907. Dr. Thomas F. Harrington, a member of our so-

ciety, was appointed director of this department at its beginning and has held this position ever since. To his ability and energy the success of this work is chiefly due. A most important feature has been the appointment of school nurses. The supervision of the health of the pupils would be still more effective if the school physicians were transferred from the charge of the board of health to the department of hygiene under the school committee. This would make a compact organization, with the work more effective because controlled and directed by one head.

The aim of the department of school hygiene is to care for the health of the pupils, to develop healthy bodies, and to teach preventive medicine in its simpler forms in a practical way. The department has charge of the teachers and instruction in these subjects throughout the schools of all grades. Athletic training and sports are also included. Healthy morals are taught in an unobtrusive way. The pupils learn that a pure mind should go with a healthy body. There are no set lectures on sex hygiene, but the subject is taken up incidentally with small groups or with individuals in connection with physical training. This method is free from many of the objections to formal instruction and seems to be fully as effective. The department supervises the training of those in the normal school who intend to teach physical training, and is thus developing a more and more effective corps of special teachers. The practical application of the teaching in hygiene is insisted on in the schools, both as a practical demonstration of the teaching and for the health of the pupils.

This brief description of this system does it scant justice, but it shows that in Boston at least the problem of instructing the coming generation of citizens in health matters is receiving satisfactory attention.

A most excellent system has also been developed for extending the instruction in health matters beyond the limits of the schools. In each district a home and school association is formed, composed of the teachers and such parents as are willing to join. Monthly meetings are held, and through lectures and discussion the effort is made to teach the parents what their children are learning at school in these subjects. From the school point of view this is very useful because it secures the coöperation of the home in teaching the pupils right methods of living. For the community it offers a most desirable means of educating the public.

There are about seventy school districts in Boston. If it were possible to make an association in each district an active centre for disseminating health instruction, an immense benefit would result. This work is already developed to such an extent and has been so successful as to warrant great hopes for its future usefulness. One of the practical ways in which the organized profession can be of great help in the education of the public would be by coöperation with the department of school hygiene of the city of Boston in this work. A sufficient number of lecturers, who can be depended upon, could be furnished easily, and would add much to the effectiveness of this work.

In this brief discussion of a very large subject I have tried to show the importance of health measures to the community, and, by considering a few of the important measures, to show that progress depends upon intelligent public support. Efficiency and conservation are the watchwords of the present day, and the public is just beginning to realize the significance of the enormous waste of human life from preventable diseases. Medical science,—especially the branch of modern sanitary science,—can do a great deal to remedy this condition of affairs; and the public is sane enough to profit by this knowledge, if it only understands the problems. The people must be taught, and it seems incumbent on the medical profession to take the lead in such an educational movement. The Massachusetts Medical Society will not be true to its traditions, if it does not recognize the necessity for greater activity in this direction and does not take the leadership which rightfully belongs to it.

We have considered this problem entirely from the point of view of benefit to the general public. There is, of course, another side to the question,—the economic side for the profession. We often hear comments on our altruistic attitude, as if by endeavoring to eliminate preventable disease we were throwing away our bread and butter. Let us consider this problem for the moment from a purely selfish standpoint. To the extent that this movement is successful, there will of course be fewer cases of infectious diseases for us to take care of. But sanitation cannot go on properly without our help, and a relatively new field of public service opens before us. Many will be employed in preventing diseases instead of trying to cure them.

Nor is the future gloomy for those of us who do not take up sanitation. While there will be less acute disease, there will be plenty of chronic ailments and degenerative changes to occupy our attention, for the human body must deteriorate sooner or later. Furthermore, people will not learn the lesson that prevention is better than cure, as applied to the community, without demanding the same benefit for themselves as individuals. We may in the future direct the health of our patients more than we treat their diseases, but there will be more rather than less for us to do. We do not deserve any pity, for we shall not suffer unless we are so lazy or so unprogressive that we will not adjust ourselves to these changes. Such adjustments should be easy, for the changes can come only gradually, and if we have not sufficient knowledge or cannot learn the things that will enable us to be successful in these new fields of practice, the profession and the community will be better off

without us. An incompetent physician has no moral right to consideration at the expense of the public.

These changes only determine the direction in which we must develop. Progress is the life of the medical profession, and it should not be considered a hardship if we are obliged to be progressive. One thing is certain,—the physician of the future must be better educated and more capable than in the past. He must have a more thorough knowledge of the bodily functions, he must make a more careful analysis of the conditions of disease, and he must adapt his treatment more accurately to meet these conditions in individual cases. The mere treatment of symptoms, or the routine administration of drugs according to the name of a disease, does not meet the requirements of medical science today.

Medicine is progressing along the lines of a deeper study and a better understanding of physiology, and a better knowledge of the complex chemical and physical processes in the body. Therapeutics is placing less reliance on drug treatment and is laying greater emphasis on the regulation of bodily functions by physical measures. The prevention of disease by right living will be as important a feature of medicine in the future as the cure of disease has been in the past.

If, then, we keep pace with the demands of modern medicine, we shall profit rather than lose, by the education of the public to an appreciation of the benefits that medical science can offer. Such knowledge will lead to a higher respect for the profession at large and a better appreciation of our efforts as individuals. Therefore, from a selfish point of view as well as from our duty to the community, we should rouse ourselves—both as a society and as individuals—to make this educational movement a success.

PRESIDENTIAL ADDRESS OF DR. WALTER P. BOWERS, OF CLINTON, AT THE ANNUAL DINNER OF THE MASSACHUSETTS MEDICAL SOCIETY, JUNE 10, 1914.

It is customary for your president to make a few remarks before calling on the speakers who are to entertain you, and to review some of the important activities of the year, and to make suggstions.

In our Society there are two great divisions of labor; first, the work of the scientific sections, devoted to a study and elucidation of the important questions pertaining to the prevention of disease and the practice of healing; the other, necessary in order to coördinate effort, with a view to maintain efficiency and influence, which deals with the ways and means and the organization and management of the Society as a working machine.

The social functions of our Society are only incidental and subordinate.

Many of you, finding so much that is interesting in the study and practice of medicine, leave the consideration of the executive affairs of the Society almost entirely to those who have been elected to the several offices, and while the work of the sections has shown that those with scientific minds and training are doing most creditable work, it is fair to urge upon you, the responsibility of each one also to familiarize himself with the work of your officers to the end that we may weld the component parts into the most effective organization possible.

There are many plans under way which call for careful consideration in order that only those methods may be adopted which have been perfected and made to be instrumentalities for better conditions. These have been devised by thoughtful members with the hope of making this society more potent as an agent in promoting your usefulness and consequently the welfare of the state.

During the past year you have slightly changed your financial system so that now the expenditure of your funds is supervised and endorsed first by the committee on membership and finance, and then appropriations made by the council; not as heretofore, when it was the custom for officers and committees to spend money without any understanding of the proportionate demands of different departments.

The fiscal year has been changed so as to bring our affairs into harmony with those of the American Medical Association. Your by-laws have been revised and published for the twentieth time since they were first printed in 1804, so that you see the society is trying to adapt itself to changing conditions from time to time. We began this year with a membership of three thousand four hundred and thirty-two, and have lost by death thirty-nine, and in various other ways, sixty-five, but the admissions bring the enrollment up to three thousand five hundred and four. This is more than sixty-one per cent. of the legal practitioners of medicine in this state. But there are still a considerable number of men up to our own ethical standards who are not affiliated with us, and every district society should seek out these men and urge upon them the desirability of uniting with us to our mutual advantage.

Your committees have been actively at work along the lines of their several functions, and have reported progress. These reports have been accepted in most instances without much discussion or modification,—a testimonial to the high quality of the work done.

While some of your committees are able to manage and complete work entrusted to them, without requiring your coöperation or assistance, and thereby have relieved you of responsibility, one of the hardest working committees,

has often met with discouraging and baffling opposition. Reference is made to the committee on state and national legislation, which has opposed or endorsed bills before legislative committees as might seem best, and later disseminated literature to the auxiliary committee on legislation, with the purpose of reaching the legislators and instructing them in the advantages or disadvantages of the proposed measures. The results in some instances indicate either that your committee has not the ability to arouse the reasoning faculties of the average legislator, or else that these faculties are not in a highly developed state. There is one other possible explanation, that the field has been preëmpted in advance, and that with people of certain intellectual status, a change of mind is not to be expected.

This is not as it should be, for the weight of the whole society should be behind measures which concern the health of the people, and for which we are, under our charter, morally responsible, and if the legislature could be convinced of the definite endorsement of measures under consideration, by thirty-five hundred educated physicians, the result might be different.

It is a pleasure to report that it has not been necessary to convene a board of trial, and that your committee on ethics and discipline has not found it necessary to meet more than four times, and the subjects presented have been satisfactorily dealt with.

The progress of the age has made necessary the dealing with a most important and delicate situation, for although, as has been stated, in some ways our state has been remiss, she has, I am proud and happy to say, been in the forefront in some matters, and we may with the greatest pride refer to the Massachusetts law of 1797, which Dr. Kerr, who will later address you, has stated in the Public Health Bulletin No. 54, was "the first definite step taken in the direction of providing health organization." He further states that "The language of this statute was copied all over the land when the necessity for such bodies was realized."

This early provision was, however, for local boards, but when the necessity for *state* boards of health was recognized, Massachusetts again became the leader, and in 1869 created the first *state* board of health. And as it was in the pioneer stage, so throughout its development, Massachusetts was and is, in the front rank of health organizations. We take pride in its history; we have felt secure under its administration, and we shall never cease to be grateful for the men whose unselfish devotion has made for it and for the state, a glorious monument. And yet as the world moves, and as other organizations have been created, taking into consideration the conditions existing and likely to develop here, the question has arisen whether it might not be possible to create a department of health which would serve the state efficiently and yet be strong, and in the exercise of its strength, have an unhampered independence in the service of the Commonwealth.

Like all great effective organizations our board of health has been attacked and threats looking to its disorganization or damaging reconstruction, have been made.

Rather than wait for its enemies to act, members of your society have been at work under the advice and direction of the Governor, preparing a bill which, if enacted into law, it is earnestly hoped will be your agent for the preservation of health, and therefore the greatest prosperity.

So far as one can understand the underlying currents of opposition to this measure, it seems that the motives behind this movement for a reorganization are not understood, and possible weaknesses inherent in the product of human minds have been magnified and undue suspicions have been engendered as to the possibilities of degrading or objectionable political advantages which might be worked out under the operation of this department.

When you realize that the Governor has availed himself of the services of Assistant Surgeon-General Dr. J. W. Kerr, representing the United States public health service, has encouraged the study of this subject by many, that he has never refused to accept suggestions, and when shown to be of value, to incorporate them in the bill, and has given evidence of an appreciation of the great responsibility in advocating this measure, all such arguments seem futile.

A little later you will have the opportunity of hearing from that Governor, who has said that the health of the people is the most important problem of the day, and if a study of this proposed health legislation brings your approval, it is hoped that you will render all the assistance you can bring to bear to have it adopted.

Among duties of medical men and organizations, the responsibility for the standing of and the services rendered by hospitals, is tremendous. Almost all the leading members of our profession have had some relation to some hospital, and all practitioners of medicine have a direct interest in these institutions, either by reason of definite affiliation or because of the constant necessity of sending patients where better service can be rendered.

We are more dependent upon hospitals than upon any other agency for the maintenance of standards and the dissemination of knowledge relating to medical work. As students we learn our lessons either from and through hospitals, or from teachers who were themselves taught in hospitals. As practitioners, if connected with hospitals, we are constantly learning the lessons taught by our confreres and our patients. If not actively connected with hospitals, some of our patients go there from time to time, and we learn from their experiences and from the men who take care of them what advanced effective medicine is accomplishing.

Believing this, it must be conceded that we

individually and collectively should not only derive all we can from hospitals, but should in return do all that we can to assist in the development of that study of these institutions and their methods which will elevate the good and eliminate the bad hospitals.

First, there should be recognized any inherent weakness in hospital schemes and organization; and second, the quality of work done in each hospital should be estimated by disinterested men, competent to decide, so that none of these should be exploited under uncontested false statements of results. Communities are complacent in accepting results of hospital work, and it has been suggested that some incompetent and indolent men are shielded behind hospital organizations. The amount of hospital work done in our state is realized only by those who are familiar with actual facts. Omitting the insane, those connected with correctional institutions and directly under state control, there are 14,137 hospital beds now maintained in this state, and there must be over one hundred and fifty thousand occupants of these beds annually, and yet these institutions, assuming the greatest responsibilities, are independent to a great extent, of comparative study and coördinate supervision.

Many hospitals are of doubtful value, or even worse, and the time must come when every institution of this kind must justify its existence by demonstrating its scientific and financial results.

This state will be slow to attempt any standardization of them, but this society, through a committee, can do a tremendous amount of good by an analysis of the work done by hospitals. I am glad to report the organization of such a committee. The day for blind acceptance of results of hospital work has now passed, and I call to your attention the ringing words which are being spoken with the purpose of awakening you and this society to its responsibilities, and I congratulate you that you are soon to listen to a master in the art of expression who will deal with this subject, and I earnestly urge you to remain until the last word has been spoken.

Coincident with other states, about twenty years ago Massachusetts made laws requiring the registration of physicians, with the purpose of protecting the people from the incompetent and the pretender.

That law has been under trial long enough to warrant a reference to the results of its operation.

It has accomplished much good in ridding the state of the ignorant and fraudulent quacks; it has made the punishment of the criminal doctor more easy; it has elevated the standards of some medical schools. But even though it has done all this, there are certain inherent defects in this law, and its operation is an annoyance to certain well qualified practitioners. One defect consists in the possibility of the registration of a few who are actually below the theoretical standards established by the board of registration in medicine. This is possible by reason of the insufficient provision in this law, for examinations which would in every instance demonstrate the actual attainments of the applicant. It can be fairly well demonstrated that no well qualified applicant has ever been rejected, and thus is the law best justified. While the average results of the application of this law have been good, it has occasionally happened that a man has been registered who has shown later that he was not fitted for the practice of medicine. How can this be avoided?

If we are to proceed under this law with the likelihood that the state will never appropriate money enough to provide for examinations which would be real tests in every case, and which should cover a period of weeks, as is the English custom, consisting largely of practical demonstrations at the bedside and in the laboratory, there should be at least one amendment, which is the requirement that every applicant should be a graduate of a reputable medical school.

This should be made a vital issue, and the shame of the situation, which puts Massachusetts in the same class with Tennessee and Oregon, two states which also tolerate low standards, ought to lead to a protest so loud and so insistent that the legislature would not keep us in this humiliating position.

Better still, enact a law making your board of registration in medicine a body with power and authority to adopt educational standards and with the right to accept only graduates from approved medical colleges, and also such practitioners of medicine who have done creditable work for a definite time in the communities where they have lived, and who are vouched for by accredited state societies. The situation would thus be relieved of the inherent weaknesses of the present system, and also relieve the state of a considerable expense and the applicants from the payment of more than a nominal fee. The operation of such a law could properly be made a department under the board of health, or the board of education. Every other system is complicated, expensive, and somewhat defective. This is direct, simple, and relieves good men of any annoyance. It would relieve us of that bone of contention known as reciprocity, a scheme so defective that it is not only illogical but unconstitutional, and whose ablest exponents of a few years ago now concede it to be impracticable.

This plan would do more, it would by state inspection and standardization of medical colleges, right a great wrong which is now perpetrated and save a considerable number of honest, worthy, but misguided young people, who are trapped into the expenditure of money and the devotion of years of the best formative period of life by the unfulfilled promises of a local institution which does not have the proper equipment and does not teach scientific medicine in the modern way.

In corroboration of the statement just made the records of the Massachusetts board of registration in medicine, show the following results relative to the school referred to, covering the period of the past five years:—

Of the 135 individual examinations of graduates, 103 were rejected and 32 registered. The average rating of those rejected is 64.8%, of those who passed, the average rating is 76.3%. Further analysis shows that of the graduates examined during the five years, 76% were rejected.

Applying the same analysis to the non-graduate applicants for the same period of time, the results are as follows: 89 individual examinations conducted; 74 rejections and 15 registrations. The average rating of the rejected applicants is 61.1%; the average of those registered, 75.8%. The percentage of non-graduates rejected, is 83.

Is it fair to the youth of our country to allow a medical college to operate whose finished product shows a percentage of 76 unable to meet even the low standards of this state?

If the conditions under which this institution operates were generally known, it might lead to a different state policy, for the Commonwealth, in creating many other kinds of corporations, requires regular and definite annual reports of the condition of such corporations so that the public may be protected.

But Massachusetts allows this "Diploma Mill" to continue. Its standards may be best demonstrated by the published criticism of one of its professors, who is reported in the daily papers to have said within a week, "that this college was below the standard required by the state boards of medical examiners of many states. Outside of Massachusetts this college is almost ostracized."

When in 1831 this society received its charter, it was with the declaration that "health is essentially necessary to the happiness of society," and as the "benefit of medical institutions is universally acknowledged," it was therefore enacted that certain named persons hereby are formed into, constituted, and made a body politic.

Hence it is seen that this society was created not for the benefit of its members, the physicians, but for the promotion of health, and therefore the happiness of society. All medical legislation since has clearly kept this in view, and we as a society must fully appreciate the responsibility which each one assumes when accepting membership. But however faithfully each member of our society has devoted his time and energy to the service of his patients, or to the development of those departments of work or study which interest him, many do not show evidence of practical interest in the general affairs of our profession, nor is there apparent that spirit of co-operation in the different district societies which has led to a concerted effort in promoting the efficiency and influence of the society as an organization.

This evident want of coöperation and the absence of some great stimulating factor which might reach out to every member, helping both in elevating the scientific as well as the executive efficiency of the individual, and through him the district societies, and thus on to this larger organization, has led to the consideration of a scheme which has possibilities of a far-reaching nature. This scheme finds its principal justification in the fact that only a small proportion of our members have supported local medical literature, and therefore have not developed that loyalty to our most representative medical publication,—THE BOSTON MEDICAL AND SURGICAL JOURNAL,—which for many years has been the only really high grade local periodical interested in the affairs of this society.

This plan provides that through an amalgamation of the publications of the Society with those of THE BOSTON MEDICAL AND SURGICAL JOURNAL there shall be created a New England medical publication which shall be furnished to every member of our society, and which will give early and frequent information on all subjects of interest.

This project has been made possible by the generous and public-spirited attitude of the owners of THE BOSTON MEDICAL AND SURGICAL JOURNAL, who are willing to assume a considerable financial burden simply to render this great service to the society. Further, they agree that should this enterprise prove to be a source of income above the expense of maintenance, they will not derive any pecuniary benefit, but that all profit will be devoted to improving the quality and quantity of the JOURNAL, and to a reduction of the cost to this society. Nothing could be fairer or more promising, and the only question has been the financial ability of this society to enter into this partnership.

The probable benefit to our Society seems to be so great that it is felt that we ought to make every possible sacrifice which may lead to a consummation of the plan, and the greater expense over that of our present system of publishing the transactions, would be a good investment and true economy.

It is hoped that the appeal for your support in the way of personal contributions, as well as an assessment of a part of the expense of the annual banquet, will meet with your endorsement.

As we grow, and as opportunities for greater accomplishment are presented, the demand for the expenditure of money becomes more insistent.

You will undoubtedly feel disappointed if the custom of a free annual banquet should be changed, but you should realize that many state societies require the payment of larger annual dues than ours, and if we are to continue the plans designed to make this society more useful, there should be ready acceptance of this financial burden.

Many state societies publish a regular Journal

and a considerable number levy larger annual assessment than is the custom here.

Rhode Island, for instance, charges its members nearly twice as much as Massachusetts, and Dr. Moffitt (your Shattuck Lecturer of last evening) stated that the annual dues in the California state society amount to twelve dollars.

The question should not be, as has sometimes been asked, what do *I* get out of membership in the society, but rather, what more can each one of us do, and if you feel that your money is wisely spent, be ready to accept the blessing which comes with giving.

But time prevents more than a brief allusion to this matter.

I now ask you to turn your attention for a few moments from these matters of practical interest, and to unite with me in an inadequate expression of that feeling of sadness which pervades every large assembly on the occasion of an annual meeting, for our thoughts linger among the memories of those who have worked with and for us, and we can almost hear the echoes of the inspiring words of those who have led us on from one achievement to another and have made for this society an honorable history.

Among the thirty-nine who have gone from us this year, five contributed in a notable degree, not only to local medical affairs, but will be known wherever the history of medicine in Massachusetts is studied, as leaders in the profession.

We are all thinking of Reginald Heber Fitz, Thomas Morgan Rotch, Charles Pickering Putnam, Edwin Bayard Harvey, and Frank Bishop Harrington.

The first, endowed with a mind capable of the quickest perceptions, calm reasoning and logical deductions; the second, with alert appreciation of the great problems relating to the care and preservation of life of the little ones; the third, the ability to realize the needs of the application of known facts to the betterment of existing conditions; the fourth, sacrificing personal interests to devote himself to the service of the state and in that service created the medical practice bill, which under his guidance in the senate, was enacted into law; the fifth, whose death hangs like a shadow over this meeting, a skilful surgeon, a consultant with tact and judgment, whose work made him a personal friend to every patient,—and all five together, prominent and influential in this Society, moved by an unbounded love for the people, devoted their lives to the service of humanity. The results speak for these honored names, and as we recall the lucid, enthusiastic, and inspiring teaching of these men, coupled with personal charm individual with each, we raise our voices in thankful testimony of what they did, both personally and through their followers, for this community.

Their lives have placed a burden of responsibility on their successors.

Coming now to the end of a service which has been full of delightful experience, your president wishes to thank you for the honor conferred, and to wish for the Society a future notable for influence, harmony, and the maintenance of high ideals.

Original Articles.

THE PRESENT STATUS OF THE TREATMENT OF LARYNGEAL TUBERCULOSIS IN THE MASSACHUSETTS STATE SANATORIA.*

By Albert C. Getchell, M.D., Worcester, Mass.

This meeting has been arranged at the suggestion of the Trustees of the Massachusetts Hospitals for Consumptives in order to bring the question of the treatment of laryngeal tuberculosis in the state sanatoria before a body of Massachusetts physicians, first that the profession may know what the sanatoria are doing in this important matter and, second, that the trustees may have the benefit of the criticism of the work.

There are four state sanatoria in Massachusetts, located at Rutland, North Reading, Lakeville and Westfield. They bear the name of the towns in which they are situated. All are for men and women, except that Westfield has also a ward for 70 children. Rutland has 355 patients, North Reading a little less than 200, Lakeville more than 200, and Westfield about 250. Rutland is reserved for early and favorable cases. The others receive patients in all stages of the disease, the far advanced cases preponderating. Rutland has three resident physicians besides the superintendent; the others have two each. With more or less supervision by the superintendents, patients at all of the sanatoria are assigned to the assistant physicians who make and record all examinations and conduct all treatment.

I became trustee of the Rutland Sanatorium in 1898 and soon after asked the opportunity of studying the throats there with the local physicians. I made monthly visits. In 1908 I was made consulting laryngologist officially, but this made no change in the work. The monthly clinics have been held as before. When the Westfield Sanatorium was opened I did similar work there, seeing the throat cases with the physicians when I visited the institution as trustee, on an average about once in two months. Last summer I was made consulting laryngologist to the sanatoria at North Reading, Lakeville and Westfield. I visit all the sanatoria whenever I am asked to in special cases but also, in any event, at stated times, Rutland once every month

* Read at a meeting of the New England Otological and Laryngological Society, March 24, 1914.

and the other three, once every four months.

The most important lesson that the experience with laryngeal tuberculosis in the sanatoria has taught us is that it is a part of a general disease. I have never seen tuberculosis of the larynx when there had not been pre-existing disease of the lungs. If such ever happens it must be very rare. Successful treatment of the disease requires that the physician fully appreciates this relationship and that when he sees in a mirror a tubercular larynx, he at the same time can visualize, as it were, the pulmonary condition and that general state of the body which we express as well as we can by the term "resistance." If, through the limitation of his specialty, he cannot himself obtain this knowledge, he should not institute treatment until the patient has had a complete physical examination and he is in possession of all the facts relating to him, and then his treatment should be based upon the opinion of the internist as to its advisability as to time and character.

Treatment of tuberculosis of the larynx may be direct or indirect. By the direct method is meant the application of agents, medical or surgical, to the diseased laryngeal tissues. By the indirect method we endeavor to put the general system in the best possible condition in order that the body itself by the increased efficiency of its metabolism may bring about a cure of the disease in the larynx. There may be a combination of these two methods. But whichever method is employed one is as definite and active as the other. One would not say that a physician who carried his patient successfully through typhoid fever, without drugs, did not actively treat his patient.

The advent of tuberculosis of the larynx is always a matter of serious moment. Commonly it occurs when the system is fighting a losing battle with the disease. It is a signal for renewed care and application in the treatment of the patient. But, to continue our military figure, we should be careful not to train our batteries against our own side. The sufferer needs all the vital power that his organism can muster against the disease; the fatigue and irritation of local interference may divert these powers just enough to lose the battle. At this time a masterful non-interference may mean the difference between success and failure and it is the mark of the resolute and resourceful man that he knows when to withhold his hand and can do it.

In order to formulate our ideas of treatment gained from a study of the work at the sanatoria I would divide the cases into three classes:—

1. Those cases coming on in the course of actively progressive pulmonary disease.

2. Those cases of a more or less chronic type associated with the cessation of active pulmonary disease, or a slowly progressive disease of the lungs, without fever.

3. Those cases in which there is rapid and more or less extensive disease of the laryngeal tissues as well as of the epiglottis, associated usually with rapidly progressive and early fatal disease of the lungs.

1. Cases of the first class objectively are characterized by hoarseness and pain, although either or both of these symptoms may be absent. The appearance of the larynx is that of limited involvement: an unilateral redness of a cord with no thickening, roughness of the inner border of one or both cords with color like cooked sago, indicating deposit of tubercle, and later when these tubercles break down, ulcerations, infiltration of one ventricular band or of one arytenoid. Involvement of the epiglottis is not common at this time, but it may happen, showing itself by limited infiltration or ulceration. (It should be noted that superficial ulceration of the epiglottis sometimes occurs in the course of pulmonary disease which is not tuberculous.)

Successful treatment of a case of this kind demands on the part of the physician not only manual skill in the application of remedies, but sound judgment and definiteness of purpose, and, on the part of the patient, a willingness to coöperate in a long period of treatment the details and irksomeness of which will test the stoutest resolution.

The tripod upon which, up to this time, the treatment of pulmonary tuberculosis rests is fresh air, proper feeding and carefully regulated life. But these agents are not used to the exclusion of others such as suitable catharsis, digestive therapeutics, the proper use of sedatives, operative treatment of pleurisy, the use of tuberculin and of artificial pneumothorax, and so on. So, in the treatment of tuberculosis of the larynx, aside from these general measures, local measures also have their place, such as menthol inhalations, cleansing solutions, sedative solutions and powders, silver nitrate, argyrol and formalin, and intratracheal injections.

The advent of tuberculosis of the larynx is always a matter of serious moment, but it does not necessarily imply a fatal issue. We have seen such cases get well. In these fortunate instances the cure of the larynx has gone along with improvement in general condition. In my inspections of a larynx month after month I have been struck with the fact that my opinion of the larynx looking better or worse was usually in accord with the statement of the local physician that the general condition was better or worse. The principle of treatment, therefore, is to sustain and fortify the general metabolism of the body, and one should be very careful not to increase the already too heavy load by ill-advised local interference. As rest of the body is often of prime importance in the treatment of the lung disease, so rest of the larynx by absolute silence for a considerable period of time is of great importance in treatment of the local disease. The kind of local treatment to be used should be selected with great care, always subordinating it to these larger principles of general scope.

2. There is a wide difference of opinion as to the treatment of cases I have classified under Class 2. Therefore it will be well to consider the matter somewhat in detail.

The lesions are discrete. There may be infiltration or ulceration of one cord, perhaps of both, or localized ulcerations in other parts of the larynx. While the cords are not involved, one ventricualr band may be infiltrated or both. Granulomata are not uncommon, most often at the posterior commissure; or they may be present in other parts of the larynx. There may be an infiltrated or ulcerated epiglottis and infiltrated arytenoid, although these latter conditions are more uncommon. Many of these lesions are slow in their progress and are not attended with rapidly progressing disease of the lungs; hence the results of different methods of treatment are so deceptive. Sometimes these lesions heal without any local treatment and others, like granulomata, if left alone, cause no trouble but, if removed the subsequent satisfactory condition of the patient is attributed to the treatment. One is, therefore, in doubt as to how far or how actively to interfere by local treatment. Here, as in cases of the first class, the same underlying principle prevails.

The laryngologist must, as he sees the larynx, also visualize the whole system and before he begins treatment have a clear conception of the pulmonary condition and the fund of resistance of the patient.

Tuberculosis and syphilis have many features in common. As one would not interfere actively with a syphilitic larynx without first taking into careful consideration the systemic condition, so one will not institute treatment of a tubercular larynx without the same careful outlook.

In tubercular disease we must not over-estimate the importance of physical signs heard in the lungs or seen in the larynx. It is a familiar clinical fact that physical signs may persist in the chest of a tubercular person and yet he may be in good health. As an instance, take a case that has been under my care for nine years. He is a returned Saranac patient. During this time he has had râles and other local signs, slight hemorrhages and bacilli in his sputum, yet he has been in good health and at work most of the time. So, a larynx may remain damaged but the person be in good health. For instance, a man who has been at my house for work at times, now several years, was rejected at Rutland as too advanced, but he got himself well and has remained well and at work. He is very hoarse and has a bad-looking larynx.

Pulmonary tuberculosis is a very serious disease, especially when associated with laryngeal tuberculosis and the victim of it is fortunate if he can preserve or regain his health so as to be able to work. Regular observation of laryngeal cases has taught us that the laryngeal condition becomes better or worse as the pulmonary condition grows better or worse. Our local measures of treatment, therefore, should always be conditioned upon general conditions and they should be carefully weighed so that if they do no good, at least they shall do no harm. I have seen tubercular larynxes get well without any local treatment. Thus I have seen ulcers of the cord heal, infiltrated arytenoids subside and get well, granuloma in the posterior commissure disappear, infiltrated, ulcerated epiglottis heal. Here we see a similarity between tuberculosis and syphilis of the larynx. But there is this important difference: while the infecting agency in syphilis invades different parts of the body through the blood or lymphatic systems, the infecting agency of tuberculosis also passes over and rests on the surface of the larynx, and therefore local treatment of the larynx may be necessary, not only to keep the larynx clean but to increase the resistance of the laryngeal tissues as much as possible to an infecting agent.

In the treatment of tubercular laryngitis of this second class then our experience teaches us that first the general condition of the body should be thoroughly studied and that those measures should be employed which will probably help the human biological element struggling against disease. The same agents are to be used locally which were used in cases of the first class. In some ulcerated cases lactic acid also is especially indicated, to be thoroughly rubbed into the ulcerated surface.

The question of removing diseased tissue in a tubercular larynx is by no means a simple problem. We know that tubercular lesions of the larynx get well without any local treatment and we should not forget that the main object of treatment is to restore the patient to health and not merely to clear his larynx of diseased tissue. A patient well and able to work, even with a damaged larynx, is more useful to himself and society than a dead one with a clean larynx.

If a tubercular lesion in the larynx, a growth or other lesion, were a local process like a polyp, a papilloma, a fibrous tumor or even cancer, our duty would be plain. We should remove the growth. But it is not a purely local disease; on the contrary, it is a part of a general disease.

Every case presents these questions: (1) Is the lesion doing any harm? (2) Will its removal do any good? (3) Is the wear and tear of the operation likely to use up the patient's strength and resistance? And (4) Has the operator sufficient skill in laryngeal work to do the operation?

The general problem we are working out in the sanatoria on these lines. We hope that laryngologists will help solve this difficult question. At present, however, experience teaches us that surgical operations on a larynx of this class should be undertaken only by an experienced, skilful operator, after a thorough study of the general condition and prospects of the patient and then not in view of applying a remedy, but of working out a problem.

3. Treatment of tubercular laryngitis of the third class has but one object, namely, relief of

pain or obstruction in the final stages of a fatal illness. The whole larynx may be involved,—arytenoids, ventricular bands, cords,—with infiltration or ulceration, or both. Even the framework of the larynx may be diseased, as a tubercular perichondritis. In addition to these changes in the larynx a not uncommon and painful complication is infiltration and ulceration of the epiglottis and, rarely, the ulceration extends over the pharynx. I have seen all these lesions except perichondritis present at one time in one person. But usually the disease is less general. While pain in this type of larynx is the rule, particularly with involved epiglottis, curiously enough it is not always a symptom.

These cases task the resources of the physician to the utmost. The armamentarium is Dobell's solution, Dobell's with formalin, menthol inhalation, orthoform in powder or lozenge, heroin in spray, morphia, cocaine in tablet triturate 1-10 of a grain laid on the back of the tongue before eating, and powders which combine these agents. Of surgical measures there are deep injections into the region of the superior laryngeal nerve of alcohol or alcohol and eucaine, removal of a diseased epiglottis or arytenoids, and finally, in extreme cases of obstruction, tracheotomy.

In passing I would like to say a word about throat treatment for cough. We have had at Rutland several patients who for a considerable period before application for admission had been treated for cough without examination of the lungs, sometimes for even a year. These treatments had consisted of throat applications, intratracheal injections, removal of tonsils and uvulas and operations on the nose, I am not going into the question of a throat cough. Personally, I never treat a patient for a continued cough without a thorough examination of the lungs, the patient stripped to the waist, for the diseased part may be found at the base of the lungs. Probably these cases drift along because the laryngologist is not used to examining lungs and does not think the condition serious enough to send the patient to another for such examination. In some of these cases careful watching of the pulse and temperature would show that some constitutional trouble was afoot, acting on which hint a complete examination would save valuable time. Or if there were any sputum, an examination of the sputum in exceptional cases would clear up the diagnosis.

Let us now consider the question of the method of caring for throat cases at the sanatoria. Is the present system a good and proper one, or should there be another? In other words, should the resident physicians take care of the throats of their patients or should a laryngologist be brought in for this purpose? Aside from the question of expense and other considerations, I am satisfied that the resident physician can do the work better. From a pretty large experience with tubercular people both outside and inside of the sanatoria, I am definitely of the opinion that the average doctor with reasonable application can in a short time learn more of laryngeal tuberculosis in a sanatorium than can a trained laryngologist in a very much longer time and, unless he have exceptional opportunities, in his whole lifetime outside a sanatorium. Moreover, he can acquire a familiarity with a certain phase of laryngeal tuberculosis that is of the utmost importance in treatment and that can be learned nowhere else. I mean the appearance of a larynx when the tubercular process is just beginning to invade it, those slight changes of motion, color and form which are difficult to describe, but which one constantly observing tubercular patients comes to feel. The appearance of these conditions is of serious import and means an extension of the disease to a dangerous degree. They are signals for redoubling every effort of treatment and putting and keeping the patient under the best possible conditions.

Laryngeal examinations should be as much of the routine in a sanatorium as chest examinations, whether or not there are laryngeal symptoms. From my observations of sanatorium men I am satisfied that they can acquire skill in laryngeal examinations as they can in physical examinations of the chest and that they can manage the technic of ordinary laryngeal treatment. I do not mean that a sanatorium physician should be a nose and throat specialist, but that he should acquire practice and skill in the use of the laryngeal mirror and should become as familiar with the larynx of his patient as he does with the chest. Moreover, I think that they ought to do this and that they should feel that it is a part of their routine work as much as chest or other examination. It is a part of the treatment of consumption that has been neglected. Otherwise I am sure we should not so often find advanced disease in a larynx not before examined. I have thought that in a large institution like Rutland it would be well for one of the physicians to equip himself for throat work and do it all. We once tried the plan. But I am satisfied that it is better for each man to examine and treat his own patients, not only because it is and should be a part of his work, but because he is thereby getting the necessary training for his work. I think, however, that in our sanatoria there should be a more elastic working system whereby the services of the older, more experienced and skilful members of the staff can be available to the younger and less experienced men. Our superintendents are all medical men. They are medical directors of the institutions as well. But their time and energy are so taken up with administrative duties that they cannot do the work of medical men which they are expected to do. They should be freed of many administrative details that now engross their thought and time in order that they may be in fact as well as in theory expert clinicians in all that pertains to their work. Then they would be in a position not only to supervise the work of their subordinates but, natu-

rally, they would lend a hand in difficulties. If this system were perfected and persistently worked out I think it would be more efficient and satisfactory than any method of bringing in an outside laryngologist, except for counsel as to any question of disease of the upper air passages, for operations and, also, for general supervision of the work.

THE FREQUENCY OF LARYNGEAL TUBERCULOSIS IN MASSACHUSETTS.*

By John B. Hawes, 2d, M.D., Boston.

On the application blanks now in use for admission of patients to the Massachusetts State Sanatoria appears the question, "Has the patient tuberculous laryngitis?" On some of the blanks, but not on all, inquiry is made as to whether or not the patient is hoarse. There are at present about 236 men and women on our waiting list, 165 men, 71 women. Of these 236 patients, there are only 17 who are definitely said to have a tuberculous larynx, although a considerable larger number, over 35, were said to be hoarse. In many cases, probably a large majority, no throat examination was made.

In order to obtain further data on this subject, I have asked our superintendents to let me know how many of the patients now under their care were *said* to have a tuberculous larynx, and how many were actually *found* to have such a complication when examined by the sanatorium physicians. This is shown in the following tables:—

TABLE I.

Table Showing Patients Said to Have a Tuberculous Larynx on the Application Blank.

No. Reading 190 pts.	Lakeville 232 pts.	Westfield 240 pts.	Rutland 357 pts.	Total 1019 pts.
10	11	9	9	39

Thus, out of 1019 patients, in only 39 was a tuberculous process in the larynx suspected or discovered. The next table shows the number of patients found to have a tuberculous larynx on examination by the sanatorium physicians:—

TABLE II.

Table Showing Patients Found to Have a Tuberculous Larynx on Examination at the Sanatorium.

No. Reading 190 pts.	Lakeville 232 pts.	Westfield 240 pts.	Rutland 357 pts.	Total 1019 pts.
20	22	9	32	83

According to this table, out of 1019 patients, in 83, a tuberculous process in the larynx was found on careful examination. I do not feel inclined to draw any conclusions, or to offer any criticism because of the discrepancy between these two sets of figures. I frankly admit that in my own case, in many instances when the diagnosis of the lung condition is clear, where the course of treatment is obvious, and where there are no throat symptoms, that I do not make a detailed throat examination. That it should be done in every case, I quite agree. Some day, soon I hope, I intend to make it a routine part of my examination.

Continuing with these figures, adding the patients on our waiting list to those now in our sanatoria, we get a grand total of 1245. Of these, there are 100, a minimum figure, who have a tuberculous larynx. This is equal to 8%+ of the whole. The percentage is really a much larger one than this, owing to the fact that a large and constantly increasing number of advanced cases, among whom this complication is apt to occur, are now being cared for in local institutions.

There are today in Massachusetts at least 10,000 consumptives in the advanced or moderately advanced stages. Using 8% as a fair figure, would give 800 cases of tuberculous laryngitis. How to cure these patients, how to prevent the occurrence of this distressing complication, and at least how to alleviate the suffering it causes, is our problem, and one that deserves the utmost consideration.

* Read at a meeting of the New England Otological and Laryngological Society, March 24, 1914.

A REPORT OF TWO HUNDRED AND FORTY-ONE CASES OF LARYNGEAL TUBERCULOSIS TREATED AT THE RUTLAND STATE SANATORIUM.*

By James A. Lyon, M.D., Rutland, Mass.

Assistant Superintendent and Physician.

No attempt has been made in this article to theorize or to compare any given form of treatment, favorably or unfavorably, with another. We have merely briefly set forth the character of laryngeal tuberculosis, and the manner in which it is treated at the Rutland State Sanatorium, together with the immediate and subsequent results of that treatment. The material has been gathered from among the 8665 cases discharged from this institution, covering a period of thirteen years, from December, 1899, to December, 1912. The rules of the National Association for the Study and Prevention of Tuberculosis governing the classification of the pulmonary cases have been followed. We have, however, for descriptive purposes, divided them into three separate classes, namely, incipient, moderately advanced, and far advanced. For instance, when a case is mentioned as being in the

* Read at a meeting of the New England Otological and Laryngological Society, March 24, 1914.

moderately advanced stage of his pulmonary disease, and in the incipient stage of his laryngeal disease, we mean that those terms are applied to their respective conditions. If the National Association's classification were followed it would be necessary to classify all of the cases as being in the far-advanced stage, irrespective of the extent of their pulmonary and laryngeal disease.

Of the 241 cases which came under observation, 34, or 14%, were in the incipient stage of their pulmonary disease; 108, or 45%, were moderately advanced; and 99, or 41%, were in the far-advanced stage. Of the above, 73, or 30% were in the incipient stage of their laryngeal disease, 126, or 52%, were moderately advanced; and 42, or 18%, were in the far-advanced stage. Sputum was positive for tubercle bacilli in 224, or 93%, of the cases, and was negative in 17, or 7%. Of the latter, 5 were in the far-advanced stage of their pulmonary disease; the moderately-advanced numbered 7, and the incipient totalled 5. Hemoptysis had occurred at some time during their illness in 142, or 59%, of all the cases.

The following gives an idea of the relative susceptibility of both sexes to infection of the larynx. There were 25, or 10%, between the ages of 15 and 19, and of these 13 were males and 12 were females; 107, or 45%, were between the ages of 20 and 29, and of these 62 were males and 45 were females; 74, or 31%, were between the ages of 30 and 39, and of these 43 were males and 31 were females; 32, or 13%, were between the ages of 40 and 49, and of these 24 were males and 8 were females. There were 3, or 1%, between the ages of 50 and 59, and all of these were males. It will be observed that the female sex is less susceptible than is the male, and it also appears that after the age of fifty the former is practically immune.

The following table shows the respective occupations of the cases dealt with, and gives in varying percentages the degree of infection of a given vocation:—

	Occupation.	No. of Cases.	Male.	Female.
1.	Voice users	1 = .4%	1	
2.	Nurses, dentists and physicians	3 = 1.3	1	2
3.	No occupation	3 = 1.3		3
4.	Seamstresses and saleswomen	11 = 4.5	9	2
5.	Students and teachers	14 = 5.8	10	4
6.	Dusty occupations: Stone cutters and polishers	16 = 6.7	16	0
7.	Open air occupations: Laborers, cabmen and gardeners	31 = 12.9	31	0
8.	Housewives, domestics, and laundresses	46 = 19	1	45
9.	Clerks, other	35 = 14.5	19	16
10.	Sedentary occupations: Shoe makers, tailors mill operatives and seamstresses	81 = 33.6	57	24
	Totals	241 = 100%	145	96

From a perusal of the foregoing it will be seen that 14% comprise occupations mentioned in groups one to five inclusive, and that the remaining 86% comprise groups six to ten inclusive.

On entrance to the sanatorium each patient is given a thorough physical examination, particular attention being paid to the chest and throat. The character and extent of the lesions are noted, together with the outlined treatment, and are kept as a permanent record. Thereafter these throat examinations and the pulmonary ones are conducted bi-monthly, or oftener if necessary, and treatment given accordingly.

While we have found, quite naturally, that the early or incipient laryngeal lesions are the ones most amenable to treatment, caution is used against over-treatment. As a matter of fact, it is our practice to interfere as little as possible where these conditions are found to be present. The larynx in these cases is examined at least three times a week, and after each examination the parts are thoroughly sprayed with Dobell's solution, to which has been added 20% of rose water. This is followed with a spray of a 10% or 20% solution of argyrol. When tracheitis is present either a steam inhalant of eucalyptol four parts, tincture of benzoin sixty parts, and menthol two parts, is given, or else an intratracheal injection of guaiacol nine parts, eucalyptol two parts, and menthol one part in a saturated solution of iodoform into ether one hundred parts, is prescribed.

The intratracheal injections are admirably suited for soothing the mucous membrane of the trachea, loosening the tenacious mucous attached to it, thereby relieving the cough resulting from attempts to dislodge the particles of mucous attached to the upper portion of the trachea. We have refrained, in these cases, from using the cotton swab with which to apply medication to the larynx, for the obvious reason that it implies traumatism. Unless absolutely necessary, direct application is avoided. Our experience has demonstrated that the less these cases are interfered with the better.

Cases which have progressed beyond the above stage, and which have reached the stage of ulceration and are accompanied by a chronic or slowly progressing pulmonary disease, are handled on the general principles outlined above, with the addition of a more energetic treatment of the laryngeal disease. In these ulcerated cases it is our general practice to anesthetize the larynx with a 4% solution of cocaine, and gently to massage the ulcerated area two or three times a week with formalin on a cotton swab, beginning with a 2% solution and gradually increasing it to 8%. When we find a more active remedy necessary we have discontinued the formalin and substituted Lake's mixture. This mixture consists of lactic acid fifty parts, formalin seven parts, carbolic acid ten parts and water to 100 parts. We have found it expedient, how-

ever, to limit the use of this formula to not more than two or three times a week. Whenever the application of this solution causes considerable pain, undue suffering is obviated by reducing the strength of the lactic acid. The anesthetic power of the carbolic acid, however, usually permits the use of lactic acid in strengths ranging from 50% to 75%. On alternating days we spray the larynx with a 20% solution of argyrol. We also use iodine and vasogen in these ulcerated cases where they show signs of progressing toward healing, or when the ulceration is superficial. The mixture of iodine and vasogen is used in conjunction with argyrol in cases where an active caustic appears to be contraindicated. When tracheitis is discovered in these cases we follow the treatment outlined above for this condition.

The next class of cases with which this report deals includes those patients in whom the pulmonary disease is far advanced and is rapidly progressing. In these cases there is rapid loss of weight, hectic fever, night sweats, marked anemia, severe toxemia, dysphagia and diarrhea. In these there may also be a general infiltration of the epiglottis, arytenoids and aryteni-epiglottidean fold with ulceration. Our treatment in these cases has been for the most part palliative and symptomatic. Alcohol or quinine and urea hydrochloride injections into the superior laryngeal nerve are of value in these cases and, when successfully given, not only immediately relieve the intense pain, but also prevent its recurrence for a prolonged period. We have done this in three cases recently, in two of whom the results were excellent. In order to relieve the almost constant tracheitis present we have deemed it advisable, when the patient's condition is not too weak to permit it, to use intratracheal injections of the formula above stated for this condition. Expectorants are of value in relieving the cough necessary for the expulsion of tenacious sputum. We have frequently employed guaiacol carbonate, ammonium chloride or creosotol with beneficial results.

Steam inhalations in the form of tincture of benzoin compound sixty parts, eucalyptol four parts and menthol two parts are indicated, and their soothing effect upon the mucous membrane frequently lasts from two to four hours. Patients are not allowed to be exposed to cold air for at least one-half hour after each inhalation. Insufflations of orthoform have not proved successful in our hands. Sprays of heroin or cocaine have been found in many cases to relieve pain, and when used one-half hour before feedings allow the patient to take food which would otherwise be refused. Morphine is also given, but on account of its effect on the pulmonary secretions, and because patients of this class readily become addicted to its use and demand large quantities, it is administered only as a last resort.

Particular attention is given to the diet, and the rules laid down for the feeding of consumptives in general are followed. Not infrequently, however, dysphagia is present and the food then must be, of necessity, modified. Where there is mechanical difficulty in swallowing with resulting nasal regurgitation, and its attendant pain with every effort to swallow, both the character and quantity of the food, as well as the manner in which it is administered, require careful consideration. The quantity of a given feeding must be reduced to a minimum and yet possess the highest nutritive value. The food given must not be too hot nor too cold, and it should not be spiced, nor too sour, or otherwise irritating. Thin, liquid food causes more difficulty than semi-solid, or thick liquid foods. Kumiss, junket, milk toast, egg nogg, milk porridge, olive oil, butter, custards, jellies, gelatine, raw beef sandwiches, sweet bread and cornstarch pudding are some foods that are easily taken.

Tuberculin has been administered in a few moderately and far advanced laryngeal cases in which the pulmonary disease was found quiescent, the results of which have not been of much practical value.

Absolute silence is required in all stages of the disease. These patients are instructed to carry on all conversation by writing, or in a soft and low whisper voice. It is surprising how rapidly an infiltrated or ulcerated cord will respond to treatment if the patient can be induced to follow this rule. It is often extremely difficult to get the patients' coöperation in this regard, however, and it is only by firm and yet gentle urging that they can be induced to put it into practice.

Careful consideration is given to the nares, pharynx and mouth, each patient being supplied with an atomizer and Dobell's solution with instructions to spray the above-mentioned parts, as well as the larynx, three or four times a day. In general, it may be said that the success of treatment in these cases will uniformly vary according to the susceptibility of the patient, to the character and extent of the pulmonary disease, and to the faithfulness with which the patient coöperates with his physician.

The following table gives the condition of patients at the time of admission and at the time of discharge in relation to their pulmonary and laryngeal disease.

Of the 241 cases treated, 23 had lesions confined to the epiglottis, arytenoids and arytenoepiglottidean fold; 24 to the arytenoids alone; 99 had lesions limited to the vocal cords; 13 limited to the inter-arytenoid sulcus; 23 to the ventricular bands without serious involvement elsewhere; 29 to the cords and arytenoids 14 to the vocal cords and ventricular bands; and in 16 the location of the lesion was not definitely stated.

The following gives the mortality and subsequent history of the patients discharged.

Twenty-four died in the Sanatorium while under treatment, 49 died within one year after discharge, 24 died within from one to two years, 17 died within from two to three years, 6 died within from three to four years, 5 died within from four to five years, 9 died five or more years after leaving. Of those discharged within five years, 10 are still living. Sixteen are living who were discharged five or more years previously. The dates are unknown when 2 died, and 79 are untraced.

Pulmonary Condition.						Laryngeal Condition.					
			Discharge.						Discharge.		
Admission.		*A	I	U	D	Admission.		*A	I	U	D
Incipient	34=14%	4	19	10	1	Incipient	10		5	5	
						Mod. adv.	20	2	12	5	1
						Far adv.	4			4	
Mod. adv.	108=45%	21	61	22	4	Incipient	35	8	21	4	2
						Mod. adv.	58	5	30	22	1
						Far. adv.	15		7	7	1
Far adv.	99=41%	5	49	25	20	Incipient	28	2	18	5	3
						Mod. adv.	48	3	21	15	9
						Far adv.	23		3	12	8
Total	=241	30	129	57	25	Total	=241	20	117	79	25

* Arrested. Improved. Unimproved. Died.

SIGNIFICANCE OF THE ABSENCE OF TRYPSIN IN THE STOMACH IN THE PRESENCE OF ICTERUS.

BY A. EMMETT AUSTIN, M.D., BOSTON,

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MANY years ago Pawlow discovered that when oil was poured into the stomachs of his gastrostomized dogs, in one to two hours an emulsion began to flow from the fistulae which contained pancreatic juice and bile, in other words, duodenal contents which made their way back into the stomach through a relaxed pylorus. Boldyrew and later Volhard seized upon this physiological phenomenon to establish a clinical method of determining by the presence or absence of trypsin whether the functions of the pancreas were normal, impaired or lost. As the action of trypsin was most easily manifested by the often crude methods of the clinic, the presence of this enzyme was taken as a guarantee of the existence of the others in the content removed and proof of the integrity of the pancreas and the persistence of its functions. When this test was employed on patients in large numbers (more than 600 having been reported) it was found that individuals with normal digestions almost invariably showed trypsin in their gastric content, 45 minutes after the oil was taken. Some observers found it in only 70% of their patients but frankly confessed a probable error in their technic, while others, who eliminated all possibilities of error, reached an upper limit of 96% of all cases examined.

Perhaps, at this point, it will be well to speak of the sources of mistakes; if a content is examined directly after its removal trypsin may be found, when later the same content will be found free from it. An explanation of this seeming paradox is found in the well known fact that the ferment is readily destroyed by pepsin and hydrochloric acid. As these conditions, the intermingling of trypsin, pepsin and the acid, are present during the 45 minutes while the oil is in the stomach and we cannot eliminate the pepsin, we must proceed to render the acid innocuous by giving our patient ten minutes before and ten minutes after the oil, a half teaspoonful of calcined magnesium oxide, suspended in a little water or, a procedure I have proved works equally as well, a teaspoonful at the time the oil is taken. When this is done, free hydrochloric acid has never been found by me in the content removed. It is clear that when trypsin is not found in the stomach, we cannot at once declare that the pancreas is diseased even if the technic is followed most rigidly, for when there is pyloric stenosis, neither this ferment nor bile is usually found Furthermore, gastric cancer, when unaccompanied by pyloric narrowing, and pernicious anemia are both accompanied by this absence, possibly due to the fact that they are usually associated with a gastric achylia or, perhaps, the cause of it, and hydrochloric acid is known to provide a stimulus for pancreatic secretion. My attention, however, was attracted to the frequent combination of jaundice and absence of trypsin in the stomach after an oil meal. Whether the loss of the ferment at such a period has any significance, whether it means that a simultaneous obstruction of the choledochus and duct of Wirsung exists or whether a pancreatitis precedes or causes the jaundice are queries we would gladly have answered.

It would be of the greatest aid to have some means by which we might distinguish, early, a

mild cholangitis or catarrhal jaundice,—a simple affair,—from jaundice due to pressure on the common duct by the enlarged, inflamed head of the pancreas and, at first thought, the oil meal would seem to afford a means for this differentiation. Nor is this condition of affairs fanciful, for Oser, by deduction, and Robson, Kehr and Deaver have demonstrated at operation where no stone was found obstructing the common duct that pressure of an enlarged pancreas was sufficient to cause biliary stasis with jaundice, and so slight was the obstacle that with the hand the over-distended gall-bladder could be emptied into the intestine. Furthermore it has been fairly well established that, on account of the peculiar entrance of the pancreatic duct, or at least the main one, to the duodenum, either in common with the choledochus or adjacent to it, a primary inflammation and thickening of the duct of Wirsung may also lead to jaundice by pressure upon its near neighbor. Two observations lead to this deduction; first, it is not uncommon to find bile in the gastric content after the oil meal and no trypsin and, secondly, we may interpret the frequent association of fatty stools and jaundice as due to the lack, not of the bile, which aids absorption, but of the steapsin, which brings about the digestion of fat, and unsplit fat is but scantily absorbed. This would explain, too, the seeming paradox according to the old explanation of the association of stercobilin, an ultimate product of bile pigment and fat in the stool; the mere fact that much of the fat is split is no obstacle to this supposition, because when one gives a nutrient enema containing fat, upon the ejection of the unabsorbed portion much of the fat will be found in the form of fatty acid needles, due, as is explained, to bacterial action.

With the object of attempting to clear up this confusing complex, the oil meal was given to every patient appearing during my service for two years at the Boston Dispensary who showed marked jaundice, and an opportunity was given me by Drs. Fay and McEvoy to make an investigation of cases from their clinics in the same institution. It is somewhat remarkable that in two other clinics during my service of an equal period, not one markedly jaundiced person was found.

The routine method was to wash out the fasting stomach, give a glass of oil and immediately a teaspoonful of calcined magnesium oxide suspended in water; this was always taken without any difficulty and no subsequent nausea or vomiting ever occurred. After an interval of 45 minutes the content of the stomach was withdrawn with the tube into a cylinder whereupon the fat, of course, at once rose to the top and the clear fluid below was drawn off with a pipette. The fluid was tested with congo and litmus paper and if either reacted enough N/10 sodium hydroxide solution was added to make it neutral. Then, after filtration, five test tubes were made to contain 2 ccm. each of a solution of one gram of purified casein in a liter of 0.1% sodium carbonate solution, varying quantities of the gastric content ranging from 0.1 ccm. to 0.5 ccm. added, together with a few drops of chloroform water, and the whole allowed to remain in a brood oven for 24-36 hours. At that time a few drops of saturated sodium acetate solutions were added when, if the casein were digested, no precipitate occurred.

In all, ten cases were investigated, representing the extremes, of so-called malignant jaundice, where cancer is the cause of the obstruction, either by pressure of the growth on the biliary ducts or the direct involvement of the same by metastases from the original focus and of simple cholangitis or catarrhal jaundice, generally conceded to be due to a mild bacterial infection of the choledochus from the duodenum; that an infection may also take place through the blood current is possible, but the slight systemic disturbance which these patients suffer makes it quite improbable. The wide variation in the severity of the disease, of which the jaundice was only a symptom can better be shown by illustrative cases than by any words of mine.

Case 1. A married woman, 52 years of age, declared she was well until three months ago when she had an attack of pain in her right side accompanied by vomiting. She declared she had never had any digestive disturbances until that time. From then, however, she has had a steadily increasing "yellow jaundice," gaseous eructations and occasional vomiting. Pain has not been a prominent feature since the first attack until a week ago when she began to have pain in the back. She is the mother of four healthy children. There has been marked loss of weight since the onset of the jaundice. She has been constipated but can tell nothing about the color of the stools.

Physical Examination showed the tongue to be clean, the temperature, 99.8°, the pulse, 80, and the most intense yellowing of the sclerae and skin. The edge of the liver could be felt 6 cm. below the costal border on the right side and there was tenderness over the gall-bladder but no nodules could be felt on the liver's surface. Heart and lungs were negative. The urine was dark with a Sp. G. of 1021 and there was absence of both albumin and sugar. There was a most intense reaction for bile pigments. Washing of the fasting stomach gave a large amount of "coffee-ground" material, with fragments of meat eaten two days before, a large number of sarcinae and reactions for free hydrochloric acid The subsequent oil meal showed no trypsin in the contents removed. Death occurred a few weeks afterward and the autopsy of which the record was obtained by courtesy of the Peter Bent Brigham Hospital, showed primary malignant disease of the head of the pancreas, metastases in the liver and pressure on the pylorus which was not, however, involved in the tumor as the gastric bleeding led one to believe.

In this instance there were two reasons why one would not expect to find trypsin in the gastric content after the oil meal,—the destruction of the pancreas and the pressure on the pylorus. Were the pancreas uninvolved, apparently, pressure upon the pylorus sufficient to cause stasis would exclude any advantage to be gained by

absence of this enzyme from the stomach. Another instance of absence of trypsin from the stomach accompanied by deep jaundice, where we could not determine whether the former was due to pressure on the duct or actual involvement of the pancreas in the malignant process until the exploratory operation is the following:

CASE 2. A man of 57 years had always been well to eight months ago when he began to have constipation for the first time in his life. His weight then was 181 pounds; at present it is 129. He had some diarrhea during the summer (examination in October) and light pains on right side extending from the costal border up the middle line of the axilla. Three days ago this pain increased to a real spasm which required morphine. There was no vomiting after it nor eructation of gas. One month ago he began to be jaundiced, the stools became gray, nausea intervened but no vomiting and gaseous eructations were common.

Physical Examination showed a much-emaciated individual, intensely jaundiced with a rigid mass the size of a man's fist under the right costal border just outside of the rectus which possessed a peculiarly ready mobility with respiration. It could not be grasped from above nor could the fingers be inserted between it and the ribs. The liver was not enlarged but over the epigastrium nodules could be felt that clearly belonged to that organ. There was no edema. The stomach area was very much enlarged downward and the fasting stomach contained a large food residue. After the stomach was washed clean the oil meal was given but no trypsin was found. No free hydrochloric acid was found in the washings. Three months later he underwent an exploratory laparotomy when the condition which I am able to report through the courtesy of the Massachusetts General Hospital was found to be as follows: "The gall-bladder was the size of a large pear. There was a large, hard nodule of cancer in the liver and malignant disease, involving the bile passages and pancreas." (Abstract from the House Records.)

Here again we have involvement of the pancreas and pressure upon the pylorus, either of which conditions would be sufficient to prevent a reflux of pancreatic juice into the stomach and account for the absence of trypsin. Were we to content ourselves with these cases alone, we might regard the exclusion of this enzyme from the stomach in jaundice as indicating severe organic disease of the pancreas, but unfortunately for this deduction the other eight patients suffering from equally as deep jaundice, in only one of whom could trypsin be found, did not follow this disastrous course and were apparently examples of simple catarrhal cholangitis, in which the duct of Wirsung must have been primarily or secondarily involved to account for the failure of the pancreatic ferment. As an illustration of one with and one without trypsin, the following cases are reported:—

CASE 3. A woman, 56 years of age, had had jaundice at the age of 12, one year ago and again 12 days ago which still persists. The previous attacks lasted four to six weeks as near as can be remembered. The present attack began with pains in the right side under the ribs and went across to the "pit of the stomach." They are aggravated by hard work and stooping but have never been severe enough for the use of an opiate. She has had almost constant nausea but has not vomited. She has taken three cascara pills but has had no movement of the bowels. Relief was finally obtained by a large dose of Epsom salts. There has been no menstruation for ten years.

Physical Examination showed a moderate yellowing of both skin and sclerae, no edema anywhere but a moderate prolapse of the stomach was visible which could be verified by palpation as reaching a hand's breadth below the navel There was tenderness and resistance over the gall-bladder and tenderness between the tenth and twelfth ribs on the right behind near their insertion. No enlargement of the liver could be made out, no mass found nor were any nodules detected. The temperature was 100° and the pulse 132. The urine contained abundant bile pigments but was otherwise without significance. Upon washing out the fasting stomach, no residue was found nor did the washings contain any free hydrochloric acid. The oil meal was given and removed 45 minutes afterwards, guarded with magnesium oxide. The pipetted portion was neutral and found to be absolutely free from trypsin. The patient went to the Peter Bent Brigham Hospital where, without operative intervention, she gradually improved and at present reports herself absolutely well.

CASE 4. A woman, 33 years of age has had five miscarriages, one three months ago. Was well for four weeks afterward when she began to have pain in the right side and nausea which after a persistance of three weeks terminated in jaundice. After she became yellow, she had no more pain nor nausea. Bowels have been confined and urine very dark. Movements have been white and she has lost 24 pounds in two months.

Physical Examination shows her deeply jaundiced and poorly nourished with sunken epigastrium due to gastroptosis. There was tenderness over the gall-bladder but the liver could not be felt. No mass nor resistance was discoverable. The temperature was 99.2°, and the pulse 90. The fasting stomach contained no residue but the contents removed after the oil meal digested the casein mixture promptly which, as has been stated, is the only instance in the ten cases of deep jaundice where trypsin was found. Under diet and treatment as an ambulatory case the woman became freed from her jaundice.

The other individuals were apparently suffering from catarrhal jaundice or cholangitis; at least no definite lesion could be discovered and the slow but steadily diminishing yellowing confirmed this. Thus by comparison of the mildest with the most severe cases we may learn that, however valuable the absence of trypsin may be in the absence of jaundice, it seems to fail us when that symptom prevails, in our determination of the integrity of the pancreas. In none of the milder cases had there ever been an instantaneous severe access of pain such as is common where the jaundice is due to the sudden occlusion of the communis by stone so that the theory of coincident closure of the choledochus and the

Wirsung by swelling of the mucous membrane of their several outlets is most probable in acute cases of short duration. Apart from the two malignant cases, two individuals had residue in the fasting stomach, an explanation of which is hard to give. Delayed motility has never been mentioned as one of the features of icterus, but two cases out of eight would seem to prove something more than a purely accidental coincidence; not the slightest suspicion of a pyloric narrowing was present in either case.

The presence of any considerable amount of bile in the stomach I have never seen and much less bile without trypsin, as is reported by some. The hindrance to the flow into the duodenum from the choledochus probably accounts for the former. The absence of trypsin, then, in the presence of icterus may mean conjoint cholangitis and pancreatitis, cholangitis with mere pressure on the outlet of the pancreatic duct, pressure of the enlarged head (carcinomatous) of the pancreas on the common duct, or mere pressure of a growth originating in the ducts on the pylorus, nor do I see how the presence or absence of trypsin under these conditions is going to be of any aid in diagnosis of the particular pathological state. When, in conjunction with this fact, we find considerable residue in the fasting stomach, it is safe to conclude that there is pyloric narrowing, due probably to outside pressure, and when the rare instance of bile without trypsin is found the inference to be drawn is that pancreatitis is primary and icterus secondary, due to pressure on the choledochus.

Clinical Department.

CHORIOEPITHELIOMA.

By Frederick W. Johnson, M.D., F.A.C.S., Boston,

Gynecologist-in-Chief, Carney Hospital.

Mrs. L. M. P., aged 27 years, consulted me April 22, 1912, complaining of backache on standing which was relieved by lying down, intestinal indigestion and constipation. When unwell has sick headache and for the past five or six years has had severe pain in the lower abdomen with the flow, confining her in bed for three days. From the time she was eighteen years of age had anemia for year and a half. Family history negative. Menstruation began at fourteen. For the past year or two has usually gone over her time two or three days. Flows five days, flows freely, no leucorrhea, no vesical symptoms. On examination the uterus was found retroverted and not replaceable.

A dilating and curretting was done, the uterus was suspended and the appendix removed. The pathological report on the curettings and appendix was as follows: "Chronic hyperplastic endometritis with epithelial proliferations—chronic oblitering appendicitis."

June, 1913. Patient again consulted me giving the following history: September, 1912, menstruation ceased and she was supposed to be pregnant. January 1, 1913, delivered herself of a hydatidiform mole. From this time until March the 15th, when the uterus was curetted, there had been a bloody discharge. March the 24th, after considerable pain, a "fragment of placenta" was discharged. Following this the uterine discharge gradually subsided and she was free from it for one month, then the bloody discharge began again, she flowed profusely for a short time and ever since then there has been more or less bloody discharge. For the last two weeks the flowing has been more free and has been accompanied with cramp-like pains. The material from the March curettings was said by the pathologist not to be from deep enough tissues for a diagnosis.

On examination the uterus was found to be in good position, small and moveable, nothing found to account for the flowing.

January 12: Uterus curetted and the following is the pathological report: "Received fairly abundant curettings. Curettings consist of a new growth, largely necrotic, with enormous dilated vascular spaces about which occur masses of very large cells of indefinite outline with large deeply staining nuclei. Diagnosis: chorioepithelioma."

June 17, 1913: Pan-hysterectomy was done.

Pathological Report. S. 13.679.

The specimen consists of one piece of tissue, comprising the uterus, including the cervix, the tubes and the ovaries. The uterus is three and one-half by two and one-quarter by one and three-quarter inches in size. The peritoneal surface is smooth and the posterior wall is normal. In the anterior wall is a small projecting nodule suggesting an interstitial myoma. The cervix of the uterus has been closed with sutures: its mucous membrane is normal. As the tumor lies near the median line the uterus is completely bisected. The nodule corresponds to a dark red, soft mass of tissue like organized blood-clot, which is one inch in diameter, lying chiefly in the wall of the uterus, but projecting slightly into its cavity. It is separated from the peritoneal surface by nearly an inch of normal uterine wall. The margin of the tumor is rather sharply marked off from the myometrium, but close examination shows a somewhat serrated edge. The myometrium is normal. The endometrium, absent from the surface of the tumor, is thin, generally smooth, but slightly roughened between the tumor and the highest point of the uterine cavity.

The ovaries are normal in size, show a few fine adhesions and, on section, seem normal. No suggestion of excessive lutein formation.

The tubes are normal.

One-half the uterus, with corresponding tube and ovary, was placed in Pick's preserving fluid. The other half of the tumor was placed in Zenker's solution, the rest of the specimen in formalin. The Zenker material was imbedded in paraffin and stained with methylene blue and eosin; the formalin tissue in celloidin and stained with hemotoxylin and eosin.

Microscopical Examination. Tumor: The tumor consists of two kinds of cells which are intimately intermingled: (1) irregular masses of multinucleated protoplasm (syncytium); and (2) masses of

cells which show vesicular nuclei, very faintly staining protoplasm and cell boundary. Mitotic figures are seen in both syncytium (few) and in the separate cells (many). The margin between the tumor and the muscle is very irregular, from the invasion, and in places tumor cells, chiefly syncytium, are found in the blood vessels. Nothing is found suggesting chorionic villi.

Uterus: The wall of the uterus, at a distance from the tumor, is normal. The endometrium is thin and suggests granulation tissue. The glands are found only below the surface of the projecting muscle (curettage?). Such glands as are present are normal.

Ovary: The surface epithelium is fairly well preserved. There are a few strands of connective tissue attached (adhesions). The parenchyma of the ovary is normal. Follicles in various stages of development are seen. There is one well developed Graafian follicle but no part of the ovum appears in the sections. One small corpus luteum is seen, but nowhere is there any excess of the lutein-bearing cells. The stroma is normal.

Tube: The tube is normal.

Diagnosis: Chorioepithelioma.

June 12, 1914. There has been no evidence in any way of a return of the disease and as chorioepithelioma usually shows itself within a year after the operation, if it is going to return, we certainly can feel quite sure in this case that there will be no recurrence.

There is no vaginal discharge, no pain anywhere and there has been a gain of 20 pounds in weight.

Medical Progress.

RECENT PROGRESS IN THE TRANSPLANTATION OF TISSUES: A REVIEW OF THE LITERATURE.

BY R. H. MILLER, M.D., BOSTON.

IN view of the very large amount of literature which there is on this subject, it seems impossible to give at this time much more than a brief catalogue of some of the many diverse experimental and clinical results obtained by various men; and, moreover, in doing this it is difficult and bewildering to sort out the wheat from the chaff. I have intentionally left out any detailed account of bone transplantation, and have not gone extensively into the question of fascia transplantation, which was discussed here recently by Dean Lewis of Chicago. The viability and functioning power of these two, at least after auto-transplantation, is so generally accepted that a discussion of them would become one largely of technic and indications.

It seems to me fitting to consider first the preservation and growth of tissues outside the parent organism, and here we come at once to the remarkable work of Carrel. A tissue can be removed from the organism and be maintained in a condition of latent life, which means that its metabolism is so slight that it can hardly be detected, or even that it is tepmorarily suspended,—in other words, it is in a condition of unmanifested actual life or potential life. This unmanifested life is met with normally in all organisms as they progress from general death to elemental death. Following the "giving up of the ghost," so to speak, this condition exists till cadaveric lesions develop. The metabolism is suppressed, and it is conceivable that under favorable circumstances tissues in this condition of potential life could be preserved outside the body for an indefinite time. As long as 200 years ago Loewenhoeck first discovered latent life in the organism milnesium tardigradum,—which is very small but highly developed, containing nerves, nerve ganglia and muscle. After these had been dried up and apparently dead for a long time he obtained a resurrection and condition of active life simply by moistening them. Also some time ago Paul Best made successful transplants of rats' tails which had been kept in confined air at a low temperature for several days. Numerous experiments along this line emphasize that general death is merely the starting point of disintegrative phenomena which lead eventually to the destruction of the elemental living matter. Once this destruction has actually taken place, the tissue is, of course, beyond the possibility of life again. The point is that tissues for transplantation with life outside must be obtained shortly after the death of the organism. Highly developed structures, such as brain, hypophysis or thyroid, disintegrate rapidly, while others, such as skin and blood vessels, retain their latent life sometimes for hours.

Examples of latent life are numerous. Carrel has grafted successfully skin, arteries and veins kept in petrolatum in cold storage for days. He also preserved a lot of skin from an infant dying in labor and used it for grafts as much as seven weeks later, and even then some of it took. Tuffier has likewise preserved and later used, fat, bone, cartilage and peritoneum. He has used cold-storage fat from omentum and lipomata in plastic operations on the thorax. In the reconstruction of joints he has used omentum, peritoneum and cartilages; and in ten such operations there was neither elimination of the graft nor any other accident marring normal recovery. It is proved beyond doubt that human tissues preserved in cold storage can be used in human surgery, but, as will appear later, this has so far proved successful only for the less differentiated supporting and connecting tissues.

The actual life of tissues outside the organism is less important in clinical surgery, but a very interesting phenomenon, which has been observed in cultures similar to those in bacteriology. In the words of Carrel: "A culture consists of a plasmatic medium inoculated with small fragments of living tissues. It is essentially characterized by the active growth of the cells from the original fragment into the "plasmatic medium." After a period of growth in

one medium varying from 5-20 days, the cells will die unless transplanted to a fresh one,—in the latter event they will start again and grow luxuriantly. A culture of this sort transplanted into the body of an animal can take, and grow rapidly. Carrel has kept alive in media for months fragments of connective tissue, chick embryo heart and mammalian thyroid. The essentials for success are absolute asepsis, gentle handling, frequent washings and passages from an old medium to a fresh one. He succeeded in growing in vitro a portion of heart muscle which was still pulsating 104 days after removal from the body, and from this heart muscle he grew connective tissue which was still growing actively after sixteen months, having undergone 190 passages and washings. These cells were not in a state of survival, but of real life, because, like micro-organisms, they grew indefinitely. A striking feature of this experiment is that, practically, the occurrence of senility was prevented, and it suggests that permanent life of tissues in vitro is not an impossibility.

In contrast with life in culture media, is that obtained by Carrel in his experiments with the so-called "visceral organism," which I will describe briefly. In a series of cats, after he had tied off all the somatic vessels, he removed *en bloc*, all of the thoracic and abdominal viscera, without injuring them or disturbing their relations, and he immediately put them in a small tank of Ringer's solution at body temperature. The circulation of the lungs and abdominal organs was intact. He connected the trachea with an insufflation apparatus, which maintained artificial respiration; he connected the rectum and bladder with openings at the other end of the tank. In a few cases not enough blood was present in the splanchnic circulation and he had to do a transfusion into the organism's aorta. In several of these the organism kept alive for 12 hours,—in one for 13¼ hours. The heart kept on beating, the kidneys excreted, there was active peristalsis resulting in movements of the bowels, and in one case a stomach full of meat was digested. In other words, without any activation save the artificial respiration, the cat's viscera were maintained in a condition of active functionating life for 12 hours after the cat was dead and thrown away. It was noticed that before death the intestines became hyperemic and paralyzed, and Carrel assumed that the death was due to a progressive peritonitis. These experiments are a striking example of how much the viscera can do, even when all control from the central nervous system is cut off.

It does not seem absolutely necessary that a tissue be in a state of latent life to be of use as a graft, if its function is to be merely supportive, as, even if it is dead, it will often, if not usually, serve its purpose merely by virtue of its shape and consistency and other physical characteristics. For instance, the repair of defects in large blood vessels is difficult and dangerous, and yet it has been possible to close a hole 20 mm. x 10 mm. in the abdominal aorta of a dog by patching it with a piece of rubber, and the dog lived fifteen months, to all appearances perfectly normal. If a piece of rubber, an inert foreign substance, can be used in such an important piece of surgery as this, the wide scope of usefulness of animal tissues, even though dead, is at once apparent.

The methods of procedure in the various transplanting operations and experiments are too varied and minute to take up here. A great many, if not most, of the failures in the past have been due to errors or omissions in technic. Small points, which would probably not have much influence in the ordinary surgical operation, are enough to vitiate the results of a transplantation or graft. A slight break in asepsis, imperfect hemostasis, too rough handling of the tissue, or too much delay in getting the tissue from its original site to its new one,—all these are important factors which may prove unfavorable; and perfection of technic, skilful fingers, and rapidity, must be attained before good results can be hoped for from the work.

Taking up in more detail the different organs, the kidney has been the subject of much investigation. The first work I have found was that of Ullmann, who reported several cases in 1902. He first tried transplanting a dog's kidney from its normal location to the neck, suturing the renal vessels to the carotid and jugular; in this case the transplanted kidney secreted urine normally for five days. He reported also having successfully grafted a kidney from one dog into another, and also from a dog into a goat, planting it in the neck as above. Lubarsch and Alessandri tried at about the same time transplanting small bits of kidney tissue into the spleen and lymph glands, but they found that the fragments did not survive. Since that time Carrel, Enderlen, Lobenhoffer, Villard and Perrin and others have done kidney auto-transplantation with unquestioned functional success. They grafted the kidney onto the vessels of the neck, onto the pedicle of the spleen, and in some cases back again onto the renal vessels,—reimplantation. No one of these recent investigators has succeeded in transplanting from one animal to another,—whether or not of the same species. Villard and Perrin reported consistent failures in trying to transplant from one dog to another, from a cat to a dog and from a goat to a dog. A brief history of one of Carrel's cases will be of interest: On Feb. 6, 1908, the left kidney was removed from a dog; perfused, put in Locke's solution, and in thirty minutes restured to the renal vessels, together with six inches of ureter. Thirteen days later the right kidney was removed. Thirteen months after operation eleven pups were born, and twenty months after operation three more pups were born. The dog died of ileus twenty-nine months after the operation. The caliber of the artery and vein was normal, the ureter and renal pelvis were normal, and the renal tissue was normal histologically.

Lobenhoffer had five successful cases of transplantation of the left kidney onto the splenic pedicle, followed later by removal of the right kidney. He examined these cases with great care, and found that the function of the transplanted kidney, as determined by water, salt, milk sugar and phloridzin showed no marked departure from the normal, and that the characteristic histologic features were not changed. All these experiments prove that renal secretion can go on practically normally after all communication with the central nervous system has been cut off, and it is probable that the influence of nerve fibers from the cord and sympathetic system is merely a regulatory one. So far as I have been able to find, it has yet to be demonstrated that a kidney can be successfully transplanted from one organism to another, though autotransplantation must be accepted as a proven fact. The above principles have been applied to man in only two cases,—Jaboulay attempted in one case to anastomose a goat's kidney, and another a sheep's to a man's vessels in the bend of the elbow. In each instance the kidneys became gangrenous. It has not been proved as yet that transplantation of the kidney is a possibility of any clinical value.

The thyroid has long been a subject of interest in this connection, and in 1883 Kocher reported an unsuccessful subcutaneous transplant following complete thyroidectomy. Then many others, Kocher, Lanz, Bircher, Mercklen, Walther and Collins, attempted various methods, with at the most only temporary improvement. Many different procedures were tried. Kocher and Lanz transplanted a dog's thyroid into the tunica vaginalis. Bircher did an intraperitoneal graft of a piece of the gland from another patient, while Merckler, Collins and Walther planted lambs' and sheep's thyroids under the breast. Most all of the cases showed temporary good results from absorption of thyroid tissue, but no benefit that lasted long enough to indicate that the transplanted thyroid survived in actual life. Schiff, Carle, Fano and Zando early tried the same procedures without encouraging results. As far back as 1892 von Eiselsberg reported four successful transplantations of thyroid into the abdominal wall of cats, between the peritoneum and fascia transversalis. In each case he removed half of the thyroid, transplanted it, then waited some months and extirpated the other half. There were no untoward symptoms till later on, when he operated a third time and removed the graft from the abdominal wall, and then each cat died promptly with symptoms of thyroid deprivation. In these cases the results were apparently sound and the transplanted organs were alive and functioning. Enderlen has tried similar experiments in many cats and dogs, with several successes, but he thinks that though the transplanted organ may apparently function for weeks or months, it may later on give out, causing death by its insufficiency. Stich and Makkas in three cases removed the thyroid from dogs and then sutured it back in place immediately—in seven cases they transplanted a thyroid from one dog directly into the neck of another whose thyroid had been removed. Of the three former, two were successful, and the gland, examined some time later, was normal in all its main characteristics. The latter seven cases were all complete failures. These authors felt that a thyroid could be removed, then be replaced, with vessel suture, and maintain all its normal anatomical and physiological characteristics. As all their attempts at transplantation from one animal to another had failed, they naturally felt pessimistic about its possibilities. Moskowicz in 1908 presented a six-year-old child with congenital myxedema who showed improvement for 95 days following the implantation of a bit of thyroid into the marrow cavity of the tibia. Kolzenberg reports two cases of the same disease showing marked improvement,—in the first case following the graft of a portion of the mother's thyroid into the spleen; and in the second case, into the marrow of the tibia. Payr reports numerous successful transplants in animals, into the spleen, followed later by removal of the rest of the thyroid. No untoward symptoms arose till later, when, following splenectomy, each one of the subjects died of thyroid insufficiency. Payr had one striking success, often quoted, in a six-year old cretin, who for three and one-half years had been treated medically without success. He removed a part of the mother's thyroid, imbedded it in the child's spleen, reinforced the wound in the spleen with omentum, and in six months the child showed marked and continuous improvement. Reading these cases leads one to think that they are in truth successful and that the future holds out great possibilities in this phase of the subject.

Of almost, if not quite as much importance as the thyroid, are the parathyroids. Von Eiselsberg, in his thyroid experiments just mentioned, transplanted the parathyroids also, and they lived and functioned in the abdominal wall, apparently as well as in the neck. Payr, Enderlen and Biedl have done similar work with equally good results. Leischner in 1907 reported a long series of transplants in rats, done in the following manner: In the first group he transplanted the parathyroids from one side into the abdominal wall, and later removed the others from the neck. In a great many of these the transplanted organs functioned normally, and the rats lived on without symptoms. In the second group he removed all the parathyroids at one time from the neck and placed them in the abdominal wall. All of this group had tetany, but some recovered, showing that the function was being carried on. He reports also success in transplanting from one rat to another; this operation followed later by the removal of the recipient's own glands, without evil effects. Pfeiffer and Mayer have had successful cases of auto-transplantation in dogs. Halsted of Johns

Hopkins has tried similar grafts, but has given no very definite results. His work led him to formulate the interesting idea that transplanted parathyroids would not live unless they were called upon to work,—that is, that for the glands to grow there must be a definite parathyroid deficiency in the body. This same fact will appear later in another connection. Halsted and Leischner agree, apparently with good reason, that transplantation of parathyroids in man is a logical procedure, that it is indicated in severe lasting tetany, and that following a thyroidectomy which has had to be finished in haste, owing to the patient's poor condition, the specimen should be searched for these glands, with the idea of reimplanting them.

Grafts of the genital organs have always been of interest and ovaries and pieces of ovary have been planted in various parts, chiefly the pelvis, fundus uteri, abdominal wall and leg. Brennan, Quénu, Sauvé, and Casalis have reported such cases, in which they attained varying degrees of success,—they were all auto-transplants. Davidson presented in Edinburgh three cases in which after double oöphorectomy he placed the ovaries in the rectus muscle. One was a failure; the other two continued to menstruate and felt much better than before the operation. In these two the presence of the ovaries in the abdominal wall made the wounds feel rather stiff and sore during catamenia. Tuffier of Paris reports 44 similar cases, namely, abdominal implantation following double oöphorectomy, and in 43 out of the 44 menstruation began again after the operation. Tuffier regards this procedure as a logical, conservative measure, and indicated especially where there is any evidence of hyperthyroidism, as in the latter event the disturbances of an artificial menopause may be great. There is a unique case, for which I cannot vouch, reported to the Edinburgh Society in 1907 by Sir Halliday Croom,—that of a woman, into whose pelvis was transplanted an ovary from another woman. The patient later not only menstruated, but conceived and gave birth to a full-term child. As to the testicle, experiments in the hands of some have failed, while others, notably Lode, Hanan and Foges, using the rooster as a subject, have succeeded in restoring male characteristics by implanting testicles or pieces of testicle after previous castration. Berthold, as long ago as 1849, succeeded in this experiment. Lespinasse reports a series of unsuccessful grafts in dogs, planting the gland both intraperitoneally and intramuscularly. This writer, however, presents one striking result in man. The patient, aged 38, had had one testicle removed in an operation for hernia with undescended testis, and the other he lost in an accident. A healthy donor was obtained, one testicle removed and cut in slices about one mm. thick. Of these slices two were placed in the rectus muscle and one in the scrotum. The man regained his sexual characteristics and retained them for two years, when he was lost sight of. This case is authentic and a strikingly successful one, and such an operation seems perfectly feasible,—it can at least do no harm.

Much work, mostly of physiological interest, has been done with the pancreas, chiefly to learn more about its internal secretion. I will mention only the experiments of J. H. Pratt and F. T. Murphy of this city, who transplanted parts of the pancreas into the spleen. Owing to technical difficulties most of the cases were unsatisfactory. One, however, which was more successful than the average, was as follows: A part of the pancreas, with a stalk containing its vessels left intact, was grafted into the spleen. Then later this vascular stalk was destroyed and the remaining pancreas removed, leaving only that which had previously been implanted in the spleen. The dog lived thereafter 187 days, with a low carbohydrate tolerance but without persistent glycosuria. This proves that pancreatic tissue planted in the spleen and separated from its original vascular and nervous connections can live and functionate for months, enough to prevent the development of diabetes. Besides being a recipient for grafted organs, the spleen has been removed entirely and sutured back in place, by Carrel, with perfect recovery of the animal; and, as shown later after death, a spleen apparently normal both macro- and microscopically. This again does not lend itself, so far as we can see now, to clinical use.

The surgery of the blood vessels offers a great field for the grafting of both fresh and preserved tissues. Carrel has replaced part of the aorta of a dog with a segment of the popliteal artery of a man, the segment having been kept in cold storage for 24 days. The result was excellent; the animal lived over four years and gave birth to pups several times. Equally successful was the case in which he transplanted a piece of jugular vein, preserved 24 hours, into the thoracic aorta. Lexer has resected an aneurysm of the femoral artery in man and filled in the gap with a piece of the saphenous vein, freshly obtained, 18 cm. long, with a brilliant functional and therapeutic result. Unger has successfully used the same method after resection of a popliteal aneurysm, and a femoral arterio-venous aneurysm, using segments of the saphenous vein respectively 15 cm. and 10 cm. long. Carrel has also successfully closed a hole in the abdominal aorta by substituting a patch extirpated from the abdominal wall and composed of peritoneum, subperitoneal connective tissue and transversalis muscle. Anatomically the patch adapted itself perfectly, the animals lived, and later histological examination showed that the elements, though unchanged in nature, assumed almost the same appearance as those of the aorta. Carrel says that the power of redintegration of an artery renders possible its patching with tissues which have by themselves very little resistance.

Transplantation of the intestine has not been a subject of much investigation, but recently Horsley, having in mind a clinical case in which

there had been a large gap in the sigmoid, tried in two dogs the implantation of a segment of ileum about 4½ inches long, to fill in such a loss of sigmoid,—in one case leaving the ileum attached to its mesentery and in the other cutting it free. Both dogs died of peritonitis resulting from gangrene of the transplanted segment. This procedure does not strike one as feasible.

The suture of nerves, even direct, is by no means always satisfactory, and the interposition of a nerve graft, either fresh or preserved, is necessarily an operation which cannot promise much as to functional result. Murphy has recently collected 22 such cases; 3 showed slight to moderate return of motion and sensation, 11 had varying degrees of return of sensation without motion, and the other 8 showed no improvement. Büngner has used a section of artery and Brewer a vein, to bridge over similar gaps. The former was said to have had a good result; the latter did not in two months, when it was reported.

A remarkable case has been reported by Magitot of Paris, of transplantation of the cornea. He resected a corneal scar in a man who had been burned with alkali, and replaced the defect with a section of cornea which had been removed eight days previously, in an enucleation for glaucoma, and preserved in human serum at +4° C. Seven months later the cornea was transparent and the man could see, though not very well. Of interest in connection with skin-grafts is the work of Stern in using amniotic membrane for this purpose, the membrane having been preserved aseptically in petrolatum. His results are not given in detail, but he found that in old leg ulcers these grafts took unevenly and only in spots, that in 11 cases of burns and scalds there was an even and diffuse adaptation of the graft, and there was one very successful case following traumatic denudation of the palm of the hand.

Coming to the less differentiated tissues, which I shall consider only briefly, the dura has been used experimentally, and it offers a substance which may prove of use in surgical technic, as it is easily and satisfactorily preserved, is strong and resistant to absorption, and it would clearly be a good medium for repairing dural defects.

Considering the transplantation, not so much of bones, as joints, Lexer reports two interesting cases. In one he transplanted, after resection, a complete knee-joint into the leg of a girl of 18. In a year and a half she walked with but a slight limp and some rocking of the knee joint. In a man of 38, following resection of the upper articular end of the tibia for sarcoma, he inserted a similar segment from a freshly amputated leg, and in three months the function of the joint was practically normal. Rehn and Waksabayashi report experiments in 12 rabbits, in each one of which they resected the upper third of the radius, including the joint surface, and interchanged them, operating on them two at a time. In every case reported the result was given—firm union, callus formation, apparently normal functioning cartilage, and free joint movements. In a child of four, following total removal of the ulna for sarcoma, they fitted in a fibula, still warm from another patient's leg, shaped the malleolus so as to form an olecranon, and sutured it in place. The child obtained flexion of the elbow to 90°, extension to nearly 180°, and fair movements of the hand—these were not given in detail. Tuffier has used with excellent results, following resection of the elbow, tibio-tarsal cartilage and cartilage from the scaphoid and astragalus of freshly amputated legs, to help form a new joint surface.

The transplantation of tendon is a procedure of value, and experimental and clinical work have both given brilliant results. Gluck, Peyrot, Monod and Mainzer report good functional outcome, not only from auto-grafts, but in those from one animal to another and from animal to man. Lewis and Davis have transplanted segments of Achilles tendons from one dog to another, and though the transplant, if examined later, shows regressive change in small areas, it as a whole remains alive, not being invaded by leucocytes or round cells. However, if a piece of tendon is transplanted into the abdominal wall, later examination will show that, though alive, it is shrunken, small, without signs of active life or active proliferation. In other words, if in its new situation it is not given a definite function, its course is retrogressive. Lexer speaks of this and advises motion, even as early as the sixth day. The scope of usefulness of tendon graft is very wide, as it can be applied to any part of the body where there is tendon defect, and the essentials for success are, asepsis, careful, firm suturing, freedom from adhesions, early motion, and patient after-care.

That fascia can be freely transplanted, will maintain its actual life and even grow stronger as more demand is put on it, is granted freely, and it is probable that one could think up innumerable uses to which it could be put, successfully, and which have never been tried. The best and commonest method is to dissect the necessary amount from the fascia lata or ilio tibial band of the patient's thigh, and use it as desired, still warm. Some uses to which it may be or has been put are covering defects in pleura, dura or hollow organs, re-enforcing blood vessels, fixation of prolapsed organs, strengthening of hernias, interposition between organs grown together, and as a suture material or ligature.

As to the possibilities which the future may hold, I do not think one can predict. That the transplantation of the less differentiated supporting tissues will be more worked out,—the use of fascia bone, tendon, etc.,— goes without saying and probably a great deal will be done which has not yet been attempted. It seems probable that auto- and hetero- transplantation

of the ductless glands, or pieces of them, will assume a more important place in surgery—especially the transplantation of the thyroid, parathyroid, and possibly the genital glands. The ductless glands are much more favorable to successful grafting than the other specialized organs. Though the removal and replacing *in situ* of an important organ has been successfully done, that particular procedure will probably not be of much use in surgery, and I should surmise that the transplanting of an organ in toto,—I mean a highly differentiated organ,—from one person to another, will hardly become an accepted or successful measure. To use the words of Carrel: "From a surgical standpoint, the problem of the graft of organs can be considered as having been solved. But from a biological standpoint, no conclusion has thus far been reached, because the interaction of the host and of its new organ are still practically unknown."

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REORGANIZATION OF THE STATE BOARD OF HEALTH.—On June 27 the House, by a rising vote of 72 to 23, passed to be engrossed the redrafted bill (House No. 2742) providing for the reorganization of the Massachusetts state board of health. An amendment was adopted providing that the enforcement of local regulations by the state department in cases of emergency shall be subject to the approval of the governor.

Reports of Societies.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

MEETING OF WEDNESDAY, MAY 6, 1914, AT 8 P.M.
THE PRESIDENT, DR. JAMES C. WILSON IN THE CHAIR.

THE ORGANIZATION OF THE BUREAU OF CHILD HYGIENE OF THE DEPARTMENT OF HEALTH OF NEW YORK CITY; AND ITS RESULTS.

DR. S. JOSEPHINE BAKER, Director of Child Hygiene, Department of Health, New York City: Up to the middle of the last century, illness was considered as a purely individual or personal matter, the community's responsibility being considered as a negligible factor. The exigencies of commerce caused the first marked change in this attitude. Cholera has been aptly called "the best lobbyist for public health funds that any city has had." Any corrective measures that are not based upon a constructive program for the ultimate health betterment of a community will not be satisfactory. The corrective attitude alone will not solve the problem. Education of the individual in wholesome living is a vital factor in sanitary progress. This educational aspect, with the full recognition of the importance of preventive health work has led to its most important expression—the conservation of the health and life of the child. New York City was the first community to take cognizance of the importance of child welfare work. The development of the attempt to work out a logical system for effective work is detailed in the paper. The Bureau of Child Hygiene was organized late in 1908 as a division of the Sanitary Bureau. In accordance with the idea back of the organization of this Bureau, that the main work was the prevention of disease and the education of the public to do its share, as rapidly as possible all activities relating to the health of children were co-ordinated and placed under the Bureau's control. The work at present starts with the prenatal care of the child and intensive studies show a probability of a distinct lessening in infant mortality. The Bureau of Child Hygiene has felt that the unsupervised, uneducated midwife, even at her best, is a distinct source of danger and should be subject to some definite control, and recommended to the board of Health a resolution prohibiting any midwife who had not previously practiced, from doing so after January 1, 1914, unless she had received a diploma from a school for midwives recognized by the Board of Health. Ophthalmia neonatorum has practically disappeared in New York City. Last year about 16,000 babies were under the care of our nurses with a mortality of 1.4%. There are probably about 5000 babies who at present are not properly cared for and we hope within the next year to have such an equipment that no baby shall be neglected. Educational publicity has been widely used. Instruction of groups of girls over twelve in the care of babies has been one of the most valuable factors of the work. The point of attack has been the well baby, and our efforts have been directed to the keeping of the well baby well. To secure the fullest efficiency effective co-operation has been obtained with all infant welfare organizations in the

city. Since the organization of the Bureau of Child Hygiene the death-rate of babies under one year of age has been reduced from 144 per 1000 births in 1907 to 101.9 in 1913. Of the largest ten cities in the United States, New York ranks second in its low rate of infant mortality, being outdistanced only by St. Louis with its rate of 99.5. Without prejudice it may be said that St. Louis can hardly be compared with New York in the complexity and size of its health problem. The Bureau of Child Hygiene controls the matter of the foundling baby by supervision of homes in which these children are boarded out from the big foundling asylums.

The care of the child of pre-school age is a most difficult problem. It is the intention of the Bureau to develop to the fullest extent the great possibilities in this matter. The day nurseries and orphan asylums of the city are under the control of the Bureau of Child Hygiene. The main care of the child from five to fifteen years falls within the work which is known as the medical inspection and examination of school children. This title, I believe, is a misnomer, and should be changed to "health supervision of children of school age." Since the organization of the Bureau of Child Hygiene it has not been necessary to close any public school in New York City because of an epidemic of contagious disease. Our methods are those of prevention, with the exclusion from school of any child presenting premonitory symptoms of a contagious illness. In the most congested parts of New York it is difficult to discover cases of ringworms, scabies or impetigo. Trachoma has been reduced from 20% to 3%. In 1909, 13.1% of the children examined had defective vision; in 1913 this was reduced to 8.5%. The percentage of defective nasal breathing has decreased from 18.7% in 1909, to 8.9% in 1913.

Adequate systems of ventilation have not yet been put into effect in the New York City schools. This matter is under the control of the Board of Education. It is hoped that all schools will soon recognize the value of the open-window class. The enforcement of that part of the child labor law relating to the issuance of employment certificates falls naturally as the last of the Bureau's activities. The year previous to the organization of the Bureau of Child Hygiene, but one child was refused an employment certificate because of physical inability. Last year, practically 600 were refused outright and nearly double that number had their applications held pending their obtaining the necessary care to secure good health. Where we allow children to work we believe it is the duty of the community to see that they are physically able and that their work may not react injuriously upon them at the most important stage in their development. The Bureau has 705 employes, including physicians and nurses. Its budget appropriation for 1913 was $652,000. It is the youngest bureau of the department of health and the largest. The results of its five years' work show that it is possible for any community to have a constructive program for the health of children, and that such a program to be effective must be founded upon the idea of educational hygiene in preventive medicine.

MUNICIPAL SANITATION.

MR. M. N. BAKER, Editor *Engineering News*, New York City; President Board of Health, Montclair, N. J.: The subject of municipal sanitation is as broad as it is vital. It is a matter of life and death. Broadly, municipal sanitation embraces all those works or activities which it is the duty of the city to conduct or regulate in the interest of public health. One of the most neglected first principles of municipal administration is that consistent progress demands a clear conception of relative values of different lines of municipal work, both between the great division of municipal concern and within the divisions themselves. By a municipal program I mean not merely the planning of a city's activities for a single year but for many years to come, all with careful regard to the city's financial resources. Current practice in most American cities consists altogether too much in considering each division of municipal activity entirely by itself without regard to the other financial needs of the city. The result often is that the activity which has the most able orator, or whose administrative head has most political influence or backing, gets an undue share of the municipal funds, while other activities suffer accordingly. We must measure relative values in the field of public sanitation by vital statistics, which applied impartially and intelligently to the whole field, show that many lines of endeavor classed as sanitary, must seek their justification chiefly from serving other than health protective functions. When the promotion of public health is being considered far greater weight should be given to water purification than to sewage treatment. While water purification purifies, sewage purification does not, so far as the removal of the germs of communicable disease is concerned. Sewage purification is a misnomer. A clear-cut distinction should be made between municipal health on the one hand, and municipal cleansing or some other form of decency or convenience on the other. In my opinion, the work of municipal boards of health should be confined almost wholly to direct measures for the control of communicable and perhaps occupational diseases, to the reduction of infant mortality extended to cover child hygiene, and to certain regulatory and educational work designed to promote general health. If all municipalities were awake to their health department needs, tomorrow, there would be an instant demand for hundreds of trained health officers with comparatively few men of proper education and experience to meet this demand. I trust you will pardon me if I say that for many years I believed that our engineering schools far outdid our medical schools in offering the sort of training needed to make good health officers. I am still strongly inclined to that belief, but I now think that with a proper delimitation of the work of health departments so as to exclude all responsibility for the construction and operation of cleansing and other municipal work, which can best be entrusted to the engineer, and with the great improvements which have recently taken place in medical education, the medical rather than the engineering schools should be drawn upon for the vast majority of health officers; but the medical schools are not yet equipped and probably never will be equipped to give, nor medical students have time to take, all the instruction needed to make a good health officer.

DISCUSSION.

DR. A. C. ABBOTT: I do not believe that those of us living in Philadelphia, realize what it has meant for New York City to accomplish the results that

have been laid before us. In that city there is an area more densely populated than any other known spot on earth, and in 26 years there has been a reduction of mortality among children under one year of age of over 50%. They are far ahead of us in New York, on the matter of saving infant life. We are glad to be told that good health is purchaseable. When one decides to purchase a thing or a condition, one must not have in mind the purchasing of all outdoors. One should contemplate that which can be paid for. Mr. Baker, in his paper, has clearly indicated this idea. The prevention of illness is the function of our health authorities and should come first. The activities of our health boards in matters of general sanitation, are diverting energies from the more important phase of health work. In the matter of purification of sewage, we have an enormously expensive task if it be carried to the ideals advanced by some of our enthusiastic advocates. A moderate degree of purification costing a great deal less and thereby leaving more funds for real health work, would meet all demands. At the University of Pennsylvania, we have been offering instruction in public hygiene since 1906. Our effort is not to train specialists but to give the student a comprehensive understanding of the many-sided problem. It is significant of the spirit of the times that several other important educational institutions are also offering instructions in problems of public health significance. I think it desirable that a health officer should have a medical training, because he is dependent upon the professional men of the community for support, and he is much more apt to get it if he has had medical training, and is in sympathy with medical ideals. The man who has had, in addition to medical training, special instruction in public hygiene, is a much better health officer than he who has not.

The papers were further discussed by Dr. Jos. S. Neff, former Director of Public Health, Mr. Alexander M. Wilson, and Dr. Walter S. Cornell.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of Wednesday, April 22, 1914, 8.30 P. M.

The President, Dr. William D. Robinson, in the Chair.

THE PROPHYLAXIS OF VENEREAL DISEASES FROM THE STANDPOINT OF A PHYSICIAN.

Dr. Alexander A. Uhle: It has been due chiefly to the efforts of the societies of moral prophylaxis that the public has been educated to a rational consideration of the prevalence, severity and far-reaching consequences of venereal diseases. From the standpoint of the physician the prevention of these diseases resolves itself into the study of the source; measures for the protection of those exposed, and thorough treatment of those already infected. With the idea of ascertaining just how far venereal diseases could be traced to prostitution inquiry of 1265 patients showed that 614 were infected by women who commercialized vice, the balance or more than 50 per cent. were infected by indulgence for other than monetary consideration. The grave and difficult problem of limiting the spread of venereal diseases will never be accomplished without most active support and coöperation of the physician. At no time as at the present has syphilis been so well treated. The Wassermann reaction has called attention to a knowledge of uncured syphilis and Ehrlich's remedy has given us a most effective weapon for the spirocheta infection.

It cannot be too strongly emphasized that the gonococcus can, and does, lie dormant in the urethra and adnexa for years and that the exacerbations, frequently attributed to reinfections, are autoinfections. The patient's criterion of cure is a cessation of a urethral discharge, and it would appear that the criterion of cure of many physicians is much the same. We can safely say without fear of contradiction that a great percentage of patients annually treated remark that, not only are microscopic examinations and urethral examinations neglected, but the character of the urine is not even determined. We can never expect to eradicate gonorrhea until the future generation attains a higher ideal of morality, the present generation realizes the far-reaching consequences of the disease and the physician has a thorough understanding of the pathogenesis and scientific treatment of the disease. Statistics compiled during the time of an effort made by the Law and Order Society and the Department of Public Safety of this City to wipe out public prostitution showed an increased clandestine prostitution as a source of venereal infection of 200%; a diminution of the number of infections contracted in public houses of 300%; increased infections from street walkers of 1000%, and an actual increase of the total number of infections of almost 10%. During the past few years it has been demonstrated by scientific investigation that prophylactic measures can be employed successfully against venereal diseases. These measures properly and promptly applied will do more toward the elimination of these diseases than any other effort in this direction. Another most important step is the complete cure of already infected cases. Every physician should impress upon his patients that gonorrhea is infectious until cured, no matter how long it may have existed. The only time that syphilis can be promptly cured is before the infection has become general. After this the only index of cure is a negative reaction over a prolonged and, as yet, indefinite time. The public can best coöperate with the physician in this vital question by demanding that every hospital receiving state or municipal aid shall provide proper facilities for the care and treatment of those afflicted with these diseases.

THE PREVENTION OF VENEREAL DISEASES IN THE NAVY.

Dr. Charles F. Stokes: We feel that we are justified in using prophylactic measures in the navy, in that we regard the men as so many mechanical units, and that it is our prime duty to keep each man fit. If we have a lot of cripples through venereal disease we are inefficient. In 1912 we had 147,787 sick days attributable to venereal disease. This means a dreadnought which carries 1000 men is put out of commission; a whole crew is disabled for 147 days—roundly, five months. We have practiced venereal prophylaxis for some time, but in this we have never have had sanction or official recognition. We have prefaced our instructions regarding treatment by lectures upon sex hygiene. That this prophylaxis will encourage immorality is not

true, as shown by our statistics since our institution of lectures upon sex hygiene and instruction regarding prophylactic treatment.

DISCUSSION.

DR. EDWARD MARTIN: In considering the prevention of venereal disease the factors leading to exposure must be carefully studied and first among the predetermining factors is rum,—which blunts the perceptions and brings forgetfulness of consequences. It has been said that if every drop of liquor could be wiped from a given town, every house of prostitution would have to close its doors. A second step is to make consequences inevitable by detection of the disease and lessening of income. Perhaps no movement will so much help in this respect as the Employer's Liability Law. This will mean a careful physical examination for every man applying for a position. With the knowledge of the presence of the disease will come the inevitable consequences. Therefore the precautions to be observed will more certainly be taken. For the first time in the medical history of the world we have a means of prevention; not the ideal means of continence, but a means by which in the majority of cases after exposure the disease consequence may be avoided.

PREVENTION OF VENEREAL DISEASE. HOSPITAL ASPECT.

DR. LEONARD D. FRESCOLN: It is unfortunate that we have not hospitals for venereal cases and other cases not admitted in the ordinary hospital, but only in the city hospital. Many of such patients are reluctant to go to the free hospital, where, however, they would be prevented from spreading the disease. In the city hospital there are separate wards for these cases, and the syphilitics should be separated from chancroids and gonorrhea cases, the male wards having male nurses, and the female, female nurses. It is lamentable that cases of gonorrheal ophthalmia are permitted to develop, as we see them in the special eye-ward, from urethral gonorrhea. Every physician should caution his gonorrhea cases against this complication. Cases of congenital syphilis have the chance in the hospital of starting treatment early, after positive Wassermann reaction. Gonorrheal vaginitis in children is to be controlled by thorough sterilization of the diapers in the hospital and not allowed to spread throughout the institution. There are many cases of syphilis contracted innocently. The hospital, especially, should set the example of precautions against such spread of the disease. There should be installed some form of "bubbler" or fountain in the building so that no one's lips need touch anything in drinking but the water as is done on our modern battleships.

The system of baths such as are used at the St. Louis' Hospital, Paris, are to be commended as a first step in preventive medicine, the medicine of modern day progress. Friendly consultation on the part of venereal and dermatological chiefs is also to be commended when there is question about diagnosis. Reporting of venereal cases, in a tactful way, is to be looked for in the future just as reporting other transmissible diseases. It is pitiable to know that rape cases are brought to us frequently because of a pernicious idea of foreigners that gonorrhea can be cured by intercourse with a young girl. These cases deservedly are handled strenuously by the law.

DR. ALICE WELD TALLANT: My experience with disease of this sort is largely drawn from one of the reform schools of the State. The great proportion of the girls admitted to this school are committed for immorality and at least 25% of all girls admitted are infected with venereal disease. The serious question presented to us is the treatment and prevention of the spread of the disease, and I cannot too strongly echo what has been said regarding the difficulty of getting such cases treated. Not until proper hospital facilities for the treatment of this disease are obtained can we hope for anything to prevent its dissemination. I don't believe the private doctor's treatment of these cases is worth anything in the sort of case we have to deal with. The girls are not kept under supervision long enough to determine the duration of the disease. With regard to our treatment; the girls are isolated from the others; all have single beds; they are required to wash their own clothing and their own dishes. In the eight or nine years of my association with the school there has been no case of infection resulting from any girl in the institution. We are at least protecting the community for a certain length of time in having these girls under supervision for at least two years. I believe with Dr. Martin that the control of the liquor traffic would do a great deal toward the prevention of public prostitution, clandestine prostitution, and thus toward the prevention of venereal disease. We have many girls from eight to eighteen who have not been immoral in houses of prostitution, but with boys in school, or who have been outraged in their homes. It is not realized how great danger the girls in the ordinary walks of life run in the matter of intercourse with boys. Having once broken down the barrier, it is easy to make a second step. I strongly believe the important question is not that of teaching sex hygiene, but of the teaching of self-control and the putting of a moral backbone into children as early as possible. The proportion of immorality, and so the proportion of venereal disease among defectives is far and away higher than in those of normal mentality. Until something is done to control defectives the problem of prostitution and of illicit intercourse will remain unsolved. It is a disgrace that in Pennsylvania there is no place where a feeble-minded woman can be sent. We have at our school one or two hundred girls, feeble-minded, over whom we have jurisdiction until they are twenty-one. When they are 21 we send them out. They go back to their families or to the Philadelphia Hospital. They are of age, and there is no place in this state where they can be kept from being sources of procreation, of prostitution and of the spread of venereal disease. Until the state wakes up to the importance of this point we shall continue to have the spread of immorality and of venereal disease with it. Much has been said of the failure to stamp out vice in the redlight districts. With all the enforcement of laws we may never expect success until the public conscience is behind the movement. The only way to get the public conscience awakened is to get the conscience of every private individual fully awake on the matter.

DR. H. M. CHRISTIAN: The only way to prevent venereal disease is to bring about the moral regeneration of the race,—a consummation to be hoped for, but not to be expected. The only thing for us to do is to safeguard the community by prophylaxis.

Dr. John W. West: One thing to my mind most needed in the prevention of venereal disease is the proper care of the girls of our country. If the good women of this country who are so ardent for suffrage—which I would not deny them—would spend their time teaching women how to take care of their children, they would do large service toward the prevention of venereal disease. I am in accord with Dr. Martin that elimination of the rum business would do a great deal. There must be also intelligent supervision of the housing conditions in our big cities. A large part of the source of infection is in the boarding houses of our cities, and in the interest of the city or state the authorities have the right to inquire whether unprotected young girls are being maintained in that particular form of residence who are being led astray and being made to add to the source of infection and to the terrible curse brought about by venereal disease.

Dr. Robert N. Willson, Jr.: To my mind woman is rapidly taking the position which she has failed to take in the past and I believe she will determine whether prostitution is to continue, whether venereal disease is to be a permanent thing, and whether present measures of prevention or others more effectual are to be the successful ones. One means of prevention women can carry out is to instruct every young girl as she comes toward the marriage age that there are clean men and unclean. The moment that attitude is taken great progress will have been made. The boy should be instructed, not for his own sake, but for the sake of her whom he will marry, and for the sake of the child. I believe there is manhood enough, chivalry enough in our boys, to determine whether they shall doom some girl to a crippled life or children to disease or death. I believe we have gone a long step toward that position. In reference to the attitude taken by our army and navy, although considered from the standpoint of each man regarded as a mechanical unit, I question whether the introduction of such a method amongst the general profession might not lower the tone of our influence upon the boys and girls as they grow up.

Dr. Stokes, closing: I am thoroughly in accord with reporting these cases. You will not get the true percentage of cases but you will warn the community to some extent of the prevalence of these diseases. It is not necessary to report the cases by name. If a community knows that there are so many cases of syphilis in this or that social sphere they will take educational measures seriously. Let the board of health publish the cases by number.

Book Reviews.

Organic Chemistry. For Students of Medicine. By James Walker, LL.D., F.R.S.; professor of Chemistry, University of Edinburgh. London: Gurney and Jackson. Edinburgh: Oliver and Boyd, Tweeddale Court. 1913.

It has long been the practice to teach organic and physiological chemistry together. All works on the latter subject contain usually sufficient medical organic chemistry for the understanding of the basic principles of the latter. This work by Walker contains a description of the usual means of ultimate analysis for identification of known products and the detection of new substances. The author, however, does not bring out clearly the connection of the different compounds described with medicine, for instance, the association of carbon monoxid with poisoning is barely mentioned. Methyl alcohol receives the same scanty consideration, though the book is said in the preface to be written for medical men. It contains, however, a mass of uncorrelated facts, which will arouse little enthusiasm, particularly in medical students. The close pathological association between oxybutyric and diacetic acids and acetone is not mentioned at all, while the broad statement of how the first is made cannot interest a class of students for whom the book was written, but might those who expect to devote their lives to chemistry. A fair index accompanies the work.

How to Diagnose Smallpox. By W. McC. Wanklyn, B.A. Cantab., M.R.C.S., L.R.C.P., D.P.H. With illustrations. New York: Paul B. Hoeber. 1914.

This monograph, as indicated by its subtitle, is intended to be "a guide for general practitioners, post-graduate students, and others" in the early recognition of smallpox. It represents a series of clinical lectures based upon the author's experience, as medical superintendent of the river ambulance service of the London Metropolitan Asylums Board, with 10,000 cases of smallpox during the London epidemic of 1901 and 1902. The book is an exceedingly lucid exposition of the disease well illustrated with six plates, four diagrams, and a chart. In diagnosis, Dr. Wanklyn believes the most importance should be assigned to the evidence afforded by the distribution of the rash. His work is a valuable contribution to the literature of the exanthemata.

The Evolution of the Study of Anatomy. By J. Ewing Mears, M.D., LL.D. Philadelphia: William J. Dornan. 1914.

This monograph, reprinted from the Transactions of the American Surgical Association, is a brief essay on the history of anatomic teaching, especially in "its important relation to the development of surgical knowledge." Dr. Mears reviews the subject, and the great men associated with it, from Hippocrates to the present time. His work is illustrated by four full-page plates and three figures in the text. It is a useful compendious contribution to the literature of the history of anatomy.

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Medical and Surgical Journal

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NOTICE TO FELLOWS OF THE MASSACHUSETTS MEDICAL SOCIETY.

The BOSTON MEDICAL AND SURGICAL JOURNAL, hereafter the official organ of the MASSACHUSETTS MEDICAL SOCIETY, will be sent only to those Fellows whose dues for the current financial year (Jan. 1, 1914, to Dec. 31, 1914) are paid in full.

CHARLES F. WITHINGTON, M.D.,
WALTER L. BURRAGE, M.D.,
FREDERICK T. LORD, M.D.,
Committee of the Massachusetts Medical Society Having in Charge the Affiliation.

AFFILIATION WITH THE MASSACHUSETTS MEDICAL SOCIETY.

WITH this issue of the JOURNAL begins an official affiliation with the Massachusetts Medical Society. From time to time for many years past some form of association between the Society and this JOURNAL has been contemplated but no consummation was reached until the matter was again taken up in the fall of 1913 and after careful consideration a formal affiliation voted by the councillors of the Society at its June, 1914, meeting.

A brief statement of the steps leading up to this final arrangement should be of interest to our readers. At a meeting of the councillors of the Massachusetts Medical Society held October 1, 1913, certain motions were offered by Dr. Homer Gage of Worcester looking toward a closer relationship with this JOURNAL than had hitherto existed, in the hope that the Society might thereby secure an official organ for the publication of its papers and transactions. A consideration of these propositions was undertaken by the committee on publications and scientific papers, with the result that at the February meeting of the councillors a definite plan of procedure was presented looking toward an official affiliation. The importance of the matter was felt to be such that the recommendations of this committee were not adopted forthwith and a second committee of nine was appointed by the president for a further consideration of the plan suggested by the committee on publications and scientific papers. Shortly after this committee began its deliberations the ownership of the JOURNAL changed hands. The former owners, Dr. William L. Richardson, Dr. J. Collins Warren and Dr. F. C. Shattuck, after a long and devoted service in the interests of the JOURNAL, transferred their ownership for a nominal sum to Dr. J. E. Goldthwait, Dr. Edward C. Streeter and Dr. Hugh Williams, who in their published announcement appearing in our issue of June 18 have expressed their purpose to maintain the position of dignity which the JOURNAL has held and to extend its influence so far as lies in their power. They felt that an affiliation between the Massachusetts Medical Society and the JOURNAL would be a significant step in the realization of this aim, and therefore entered with enthusiasm into the spirit of the negotiations with the committee of nine. A plan was finally presented to the meeting of the councillors held June 9, embodying recommendations for an alliance with the JOURNAL. These recommendations were unanimously accepted by the council and further final details were ratified at a special meeting held June 20. At this meeting a committee of three, composed of Dr. Charles F. Withington, president of the society; Dr. Walter L. Burrage, secretary of the Society; and Dr. Frederick T. Lord, a member of the committee on publications and scientific papers, were appointed with power to act in effecting the final arrangements with the MEDICAL JOURNAL. At this meeting also, Dr. W. L. Burrage and Dr. F. T. Lord were appointed editors of the Massachusetts Medical Society, to act in association with the present editorial staff of the JOURNAL. An additional advisory board of four from the Massachusetts Medical Society will later be appointed to act in conjunction with the three owners and Dr. Robert B. Osgood in relation to

matters of policy and such questions in the conduct of the JOURNAL as may be referred to them.

By this general arrangement, the details of which it is not possible to give in the space here at our command but which will later be published in full in our columns, it will be seen that the JOURNAL, while maintaining its position of independence will, nevertheless, have the benefit of advice and criticism from a body of men representative of the best traditions of medicine in this state. The interests of the JOURNAL and of the Society are identical, and it is not to be questioned that this affiliation assumed with a due sense of responsibility both by the Society and the JOURNAL, will result in wider influence in all matters pertaining to the progress of medicine, not only in this state, but throughout New England and so far as may be throughout the country. It is our hope, as expressed in the preliminary announcement of the owners, that in the future the JOURNAL may become the most important medium of expression for scientific and clinical medicine in the East and with courage and timeliness may serve the needs of the community. This has been the aim of the JOURNAL since its inception nearly one hundred years ago, and through various vicissitudes and occasional misunderstandings it has sought to express and reflect the best medical opinion liberally and unselfishly.

The predecessors of the present owners for many years unostentatiously stood behind the interests of the JOURNAL, and following their long stewardship have been glad to pass their responsibilities on to the present owners, who in the same spirit are pledged to carry on their ownership as a trust, deriving no personal profit therefrom.

At this time of transition to what is hoped will prove a larger work, it is fitting that the devotion of the former editor of the JOURNAL, Dr. George B. Shattuck, should be mentioned. For thirty years Dr. Shattuck served the medical community without other thought than maintaining the JOURNAL as a medium of progressive medical thought, according to the traditions of its past. It is hoped that the editorship may be carried on in the same spirit.

In entering, therefore, upon this expansion of our work we ask for cöoperation and beg to assure the profession that our aim will be to represent in the broadest and most liberal possible way the interests of practical medicine and scientific advance.

MEDICAL LEGISLATION. THE MILK PROBLEM.

THE legislative season in Massachusetts is now nearly at an end, and as yet no satisfactory action has been taken on that perennially important topic, the milk question. Though it seems unlikely that any such action will be taken at the present session, it is worth while to review the status of the situation and to consider briefly the relative merits of the several bills introduced this year in the attempt to solve this much-vexed problem.

On Jan. 1, 1914, there appeared a report of the dairy inspection division of the Boston board of health, which served to point out some of the evils in the present milk traffic and the urgent necessity of suitable legislation to correct them. According to this report by Dr. Patrick H. Mullowney, 70% of all market milk sold in Boston is subject to one or more heating processes before sale, and of this only 5% is perfectly pasteurized by an approved process.

"Large milk contractors in this city maintain that it would be practically impossible to pasteurize all their milk in the final container, as it would require ten times the amount of space as at present occupied and would entail an additional yearly expense of $300,000; that the price of a quart of milk to the consumer would be increased two cents over the present price. Another method of pasteurization is in bulk form, milk being held in a holding device for at least twenty-five minutes at a temperature of 145° F., at the end of this time being cooled immediately to a temperature below 50° F., then bottled and capped by mechanical means."

As a matter of fact, when the inspectors began the work upon which this report is based, it was found that 95% of the pasteurized milk was being treated by the flash method at producing stations in the country.

"The practice of 'making' milk obtains at all the contractors' receiving stations in Boston and, while it may be of little importance from a sanitary point of view, it enables the contractor to bring a low-grade milk hauled from a long distance, and by the addition of solids or fats, bring the milk into competition with high-grade milk produced near Boston." Dr. Mullowney says: "One contractor in times of shortage extends his condensed milk product into market milk, and as yet there is no legal redress that can be obtained. It is the opinion of the writer that no milk should be pasteurized for sale in Boston unless each step in the process is watched by an inspector of this department. To carry

out this plan in detail inspectors are being placed in the different receiving plants in Boston, whose duty it will be to maintain close supervision over this work during the day and night. Pasteurization, no matter how perfectly performed, will never make milk that is loaded with extraneous matter more sweet and palatable. It has been the practice of some of the contractors to use pasteurization as a cloak to hide dirty, sour milk, rather than to use it legitimately to make milk of a doubtful quality safe."

"Boston's milk is now supplied by about 7300 dairy farms, the longest haul being 400 miles. There are several districts under the supervision of the board of health. The dairies provided with proper milk rooms for the handling of milk, at the time the report was written, numbered 3717, and the dairies without milk rooms numbered 3907. The total number of cows inspected was 94,941. The number of dairies prohibited from selling milk in Boston, on account of unsanitary conditions or lack of coöperation with the Boston Board of Health, was 347, and the number of dairies prohibited on account of the presence of communicable diseases on the farms totalled 38."

These data, showing the nature of the milk problem in Boston, suggest its nature also in other cities and towns of the Commonwealth, where the welfare and safety of consumers is less adequately protected by action of local boards of health. Central control of the milk supply throughout the state is essential to any satisfactory and equable solution of the problem.

Early in the present legislative season the Massachusetts Milk Consumers' Association introduced before the General Court the "consumers' clean milk bill" (House No. 936), which essentially represents the Ellis milk bill that has been before the legislature for several previous seasons. The chief provisions of this bill in its present form may be summarized as follows:—

"1. Regulations governing the production and sale of milk are to be passed by a board of five, appointed by the governor, of whom two shall have had practical experience in milk production. This is fair to the producer and makes it certain that nothing unreasonable or expensive will be asked of him. Two members are to be physicians or bacteriologists, and the fifth a sanitarian. This board serves without compensation, as it has nothing to do after the passage of the regulations, except to amend them when it seems necessary.

"No regulation can go into effect until after a public hearing and until approved by the governor and council. This gives producers absolute protection.

"2. The regulations will be administered by the health authorities, state and local. The general supervision of the work will rest with the state board of health in order to secure unity and efficiency in health protection, but the actual inspection will be done by the local inspectors where possible. Milk health work and other health work are so closely related that they should be supervised by one and the same authority. Otherwise the maximum saving of lives and sickness cannot be attained because of the division of responsibility which would be fatal to efficiency. Such supervision will enable it to prevent annoying and uneconomical duplications of inspection, thereby affording relief to such producers as are now over-inspected.

"3. The powers of the local boards of health are carefully preserved.

"4. As the out-of-state boards of health pay no attention to milk sent into Massachusetts, most of the actual inspection of the state board of health under the bill will be confined to out-of-state dairies, from which about two-thirds of our milk comes.

"5. In order to control the out-of-state milk and to obtain a complete list of handlers of milk, dealers must register all their producers and also take out permits from the state board. This can be done by mail. No fee is charged.

"6. The out-of-state milk will be subject to the same inspection as Massachusetts milk, thus securing uniformity of treatment and protecting Massachusetts producers from the unfair competition of uninspected out-of-state milk."

The Massachusetts state board of health at present has no power to enforce its suggestions for cleanliness in the production and distribution of milk. The supervision and control of the milk supply is vested in the state board in 27 other states of the Union, the latest of which to give its state board this important power being New York. Some of the reasons why similar legislative action is desirable in Massachusetts were stated as follows by the consumers' association in conjunction with its bill:—

"1. Over 270 towns in Massachusetts have no milk inspectors.

"2. Many local boards which have milk inspectors do very little systematic dairy inspection.

"3. Our present laws give no adequate means of preventing the spread of milk-borne epidemics, of which we have a number every year at great cost of life and health.

"4. Over 60% of our milk comes from without the state and there is no one with authority to prevent the bringing of unfit milk into the state.

"5. There is, likewise, no power in the state board of health to prevent unfit milk condemned in one town from being sold in another, and there is no way in which individual towns can obtain protection except by an absurd and impossible duplication of inspection.

"6. Most of our local boards have neither the expert knowledge nor the laboratory equipment for the prevention of disease by a proper supervision of their milk supplies.

"7. Milk produced or distributed under dirty conditions and, for that reason excluded from a city, may be sold anywhere else in the state. The state board of health now has no power to exclude such milk from the entire state market.

"8. For this reason, milk supposed to be excluded is often actually sold in the city ordering its exclusion, not only as milk, but in the form of butter, cheese or ice cream.

"9. Wherever concerted action has been taken to make sure that children are given pure milk, there has been a tremendous reduction in the infant mortality. In New York City, for instance, chiefly for this reason the infant mortality rate has been reduced from 125.6 in 1910 to 105.3 in 1913.

"10. In Massachusetts 117 children out of every thousand die in their first year, the rate for 1912 being 117.8.

"If New York City's rate had prevailed in Massachusetts in 1912, there would have been over 1100 less infant deaths here.

"11. Three thousand one hundred and eighty children under two years of age died in Massachusetts of diarrhea and enteritis in 1912.

"12. In the last ten years in Massachusetts there have been 17 important milk-borne epidemics, covering 7300 cases.

"13. From 20% to 25% of the tuberculosis among infants is caused by the milk of tuberculous cows.

"14. There is now no system of control to minimize the possibility of milk-borne epidemics and the spread of bovine tuberculosis among children.

"15. Because there is no proper state-wide system of milk and dairy inspection, there is a lack of public confidence in milk which keeps down the demand and hurts the milk business.

"16. As the greater part of our milk is now mixed together in tanks, the milk of our conscientious producers is contaminated by that of careless producers. The two or three untidy producers in every ten not only constantly menace the public health but hurt the business of the other conscientious seven or eight.

"17. Many Massachusetts producers whose places are inspected have to compete with milk from farms which are not inspected, especially out-of-state farms.

"18. Two state commissions have investigated the subject and reported the need of legislation, because, as one of the reports stated, the lack of law both creates a constant menace to the public health and also places an undue burden upon producers."

The Ellis bill was approved by over 400 organizations in this state. A petition in its favor was sent to the House, signed by 500 residents of Canton, Mass., where at the time a milk-borne epidemic of streptococcus tonsillitis was epidemic. Eight such epidemics have occurred this year in various Massachusetts towns. The importance of milk inspection in their prevention is evidenced by the order of the state board of health this spring,—

"That, beginning March 1, 1914, it shall be the duty of the officers in charge of any city or state institution, charitable institution, public or private hospital, dispensary or lying-in hospital, or any local board of health or any physician in any city or town to give immediate notice (preferably by telephone or telegram, 'collect') to the State Board of Health, Room 145, State House, Boston, Mass., in every case coming to their notice in which typhoid fever, diphtheria or scarlet fever has occurred in the household of any person engaged in the production, transportation or distribution of milk for public sale; and in every case coming to their notice in which typhoid fever, diphtheria or scarlet fever has been due, or presumably has been due, to the consumption of milk infected with material derived from persons infected with said diseases."

Committee hearings on the Ellis bill were held on March 3, 4, and 5. Physicians and consumers generally spoke in its favor, and it was generally opposed by producers. Many other milk bills were also introduced and considered. Most important among these were the Bigelow bill, the Clark bill, the Lydon bill, and the Walker bill.

The Bigelow bill provided for "the better supervision of the conditions under which milk is produced, transported, and sold." It was generally approved by cattle owners and opposed by consumers.

The Lydon bill gives to the Massachusetts state board of health the right to exclude from market in this Commonwealth any out-of-state milk not produced or handled under sanitary conditions which it deems satisfactory.

The Walker bill (House No. 2595), backed by the state cattle bureau, provided "that, except in cases of contagious diseases now under the jurisdiction of the state board of health, no inspections shall be made by that board of barns, stables, pastures, yards or other places where neat cattle, other ruminants or swine are kept." This was tantamount to taking from the state board of health what little control it now has over the milk situation and transferring the entire authority and control to the hands of the board of animal industry.

After much discussion in committee and before the legislature, the Walker bill was defeated in the House on May 22 by a vote of 44 to 74. The Bigelow bill was given leave to withdraw. On June 11, to the great disappointment of its hopeful advocates, the Ellis bill was defeated in the Senate by a vote of 15 to 22.

The Clark bill is a substitute measure brought forward in the argument against the Ellis bill. "It centres the power of regulating dairies and milk agencies in the local boards of health, with the added provision that as soon as a local board shuts off a dairy on the grounds of its product being unsatisfactory, it shall notify the state board of health, which shall at once have the power to bar the sale of the milk in all other communities." Amendments to this bill in behalf of the Massachusetts Milk Consumers' Association were refused on June 15 by the Senate, which ordered the bill to a third reading. On June 18 the Lydon bill, though reported adversely by committee, was taken up by the House for consideration. As they stand, these bills are not a satisfactory substitute for the Ellis bill, and their passage is therefore on the whole not to be desired.

The repeated failure of the Ellis bill, and indeed of all milk legislation is a disheartening phenomenon since it represents apathy on the one hand and private interest on the other. The uncertainty of the situation has affected milk production so that between 1906 and 1912 the number of cows in Massachusetts decreased by the amount of nearly 20,000. The milk industry is important, from the standpoint of economics as well as of hygiene, involving an expenditure by the Massachusetts consumers of over $25,000,000 a year. These consumers deserve legislative protection and security.

In his annual discourse before The Massachusetts Medical Society on June 10, Dr. Horace D. Arnold said of the milk situation:—

"If the milk consumers—practically the whole population of the state—knew the real facts about our milk supply, they would not be satisfied with the present state of affairs. People are indifferent on this problem merely because they do not know the facts about it. If they fully realized the dangers from infected milk there would be little trouble in securing reasonable legislation. No one can instruct them so well in this matter as the medical profession, yet the profession as a body has taken no effective steps in this direction. The surest way to secure proper legislation is to enlighten the public and not merely appear as a committee or association before the legislature.

"It is clear that the public must be taught that milk is not merely a farm product nor an article of commerce, but a peculiarly unstable article of food which acts as an excellent culture medium for bacteria. They must be made to realize how easily milk may become infected through carelessness in its preparation, transportation and distribution, and that the time that elapses before it is consumed is often sufficient for an abundant growth of micro-organisms. They will then understand how readily it may become a dangerous article of food—especially if it is consumed raw, as is frequently the case.

"Greater publicity should be given to epidemics which are proved to be transmitted by milk. These concrete instances should be used as lessons for the public, and not merely for scientific reports before medical societies, or as news items in the hands of lay reporters and editors.

"When they know enough about this matter the people will insist on having clean milk—and will be willing to pay a reasonable price for it."

It is time that concerted action by the medical profession, based on unanimous professional opinion, should accomplish this popular education and compel the passage of the proper milk legislation which becomes imperative in any progressive community.

MEDICAL NOTES.

THE JOURNAL OF PARASITOLOGY.—It is announced that a new medical journal, dealing with parasitology, is about to begin publication. The advisability of establishing an American publication in the field of parasitology has been under discussion for some time. Such a journal is clearly demanded by the increasing amount of work in this field, the growing importance of the subject in its broader aspects as related to disease in man and other animals, and the intense biological interest in associated theoretical problems, together with the evident advantage of a representative publication and the lack of adequate opportunity for printing such papers elsewhere.

The *Journal of Parasitology* will be a medium for the prompt publication of briefer papers and research notes on animal parasites. Emphasis will be laid on the morphology, life history, and biology of zoöparasites, and the relations of animals to disease. Longer contributions of exceptional value may be printed occasionally, but or-

dinarily single papers will be limited to ten or fifteen text pages. For illustrations zinc etchings will be used.

The *Journal* will publish the reports of the Helminthological Society of Washington and a brief record of personal and institutional items in parasitology. Critical summaries in special fields have been secured from American and foreign contributors. It is not planned to review individual papers, but books or monographs of striking character and technical methods of especial merit will receive appropriate notice. A final policy will be developed in the light of experience and the editorial board will aim to contribute as effectively as possible to the dissemination of knowledge and the encouragement of teaching and research in parasitology.

A guaranty fund subscribed by various individuals and institutions assures the regular appearance of this periodical quarterly at least for a three-year period so that the editorial board will devote its attention to determining broadly the needs of the field and the best methods of serving them.

Manuscripts of articles offered for publication, copies of books for review, subscriptions, and correspondence relative to the management of the *Journal* should be sent to the managing editor, Henry B. Ward, University of Illinois, Urbana, Illinois.

The *Journal* will be issued quarterly. Each number will contain 70 to 80 pages of text and illustrations and the subscription price will be $2.00 a year.

The good wishes of the Boston Medical and Surgical Journal are cordially extended to this new special publication of medical science.

The Wellcome Historical Medical Museum.—The Historical Medical Museum, which was founded by Mr. Henry S. Wellcome in connection with the Seventeenth International Congress of Medicine, was reopened on May 28 as a permanent institution in London. It is now known as the "Wellcome Historical Medical Museum" and is open daily from 10 a.m. to 6 p.m., closing at 1 p.m. on Saturdays; entrance 54A, Wigmore Street, Cavendish Square, W. Since closing last October the collections in the museum have been considerably augmented and entirely rearranged. Many objects of importance and interest have been added, which it is hoped will increase the usefulness of the museum to those interested in the history of medicine. Members of the medical and kindred professions are admitted on presenting their visiting cards. Tickets of admission may be obtained by others interested in the history of medicine on application to the curator, accompanied by an introduction from a registered medical practitioner. Ladies will be admitted, only if accompanied by a qualified medical man.

Health of British Army and Navy.—Recent health reports of the British army and navy show gratifying improvement of morbidity and mortality of late years. In the decade from 1888 to 1898 there was in the navy an annual average of 997 hospital admissions and 9 deaths per 1000 men. In 1912 there were only 426 hospital admissions and 3.25 deaths per 1000. In the army from 1906 to 1911 there was an annual average of 666 hospital admissions per 1000 men. In 1912 the number of admissions was 642 per 1000.

Sick Rates at Vera Cruz.—Report from Vera Cruz, Mexico, on June 20 states that among the United States troops in that city on June 18 there were only 68 cases of sickness. The sick-rate for the week ended June 17 was 2.15% for the army and 2.88% for the marines. These rates are lower than those prevailing in these entire services throughout the past year.

The First British Leprosarium.—The first leprosarium in Great Britain is to be established next fall in Essex with a legacy of £5000 from the late Lord Strathcona. There are at present 20 known lepers in the country.

BOSTON AND NEW ENGLAND.

Boston Milk and Baby Hygiene Association.—Several weeks ago we published an appeal from the Boston Milk and Baby Hygiene Association for $2000 to provide extra nurses for carrying on its summer work. Of this sum $600 are still needed. The association is at present caring for 1451 babies, as against 1090 at the corresponding time last year. Contributions should be sent to Mr. Charles E. Mason, 26 Bennett Street, Boston.

Infant Mortality in Springfield.—The Springfield (Mass.) bureau of municipal research has published a report of a recent survey of health conditions in that city. Of the infant

mortality rate the report speaks in part as follows:—

"Springfield is to be congratulated upon its low infant mortality rate. Out of 3105 births during 1913 there were only 295 deaths during the first year of life. This is an infant mortality rate of 95 per 1000 births, a lower rate than that of any other city in the country of which there is accurate record. The factors to which credit is mainly given for this favorable showing are: a remarkably good milk supply, due to the regulations of the health department, and the efforts of the Baby Feeding Association, a private organization, which employs visiting nurses to educate mothers in proper care and feeding."

This is another illustration of the immense importance of infant feeding, and of the efficacy of modern administrative methods in controlling infant death-rates.

MASSACHUSETTS ANTI-TUBERCULOSIS LEAGUE.—An important leaflet is being sent out by the recently organized Massachusetts Anti-Tuberculosis League. In a few short paragraphs, it calls attention to the most important laws relating to the tuberculosis problem, clearly indicates the duty of each city and town, and suggests that every agency receiving the leaflet find out whether or not the law is being complied with in its particular community. Three of the most important laws on our statute books relating to tuberculosis are those requiring every case of tuberculosis known to a doctor or householder to be reported to the local board of health, that which compels every town of over 10,000 inhabitants to maintain a tuberculosis dispensary, and the one requiring cities to build tuberculosis hospitals. The public is not generally awake to the importance of strict enforcement of these laws. The information contained in the leaflet is both complete and full of suggestions to the organization that wishes to take part in stamping out the disease.

GROWTH OF FREE PUBLIC MEDICAL DISPENSARIES.—Statistics recently published show the remarkable growth of free public medical dispensaries in this country during the past century. In 1800 there were only three such dispensaries in the United States, at New York, Philadelphia, and Boston. In 1900 there were 100. In 1904 there were 156 dispensaries in 21 of the 48 states, 18 of these dispensaries being for tuberculosis. In 1910 there were 574 dispensaries and out-patient clinics, and only 10 of the states were without any. In 1913 there were 700 such institutions, 263 of them being for tuberculosis. These dispensaries treat annually about 3,000,000 patients, of whom, however, one-half make only one visit.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending June 23, 1914: Diphtheria, 35, of which 2 were non-residents; scarlatina, 45, of which 3 were none-residents; typhoid fever, 6; measles, 121, of which 1 was non-resident; smallpox, 1; tuberculosis, 44, of which 1 was non-resident. The death-rate of the reported deaths for the week was 13.89.

NEW YORK.

MORTALITY FOR THE WEEK ENDING JUNE 20, 1914.—There were 1222 deaths reported during the past week and a death-rate of 11.42 per 1000 of the population, as against 1370 deaths and a rate of 13.10 for the corresponding week of 1913, an absolute decrease of 148 deaths and of 1.88 points in the rate, which is equivalent to a decrease of 210 deaths.

This is the third time in the history of the city that the weekly death-rate has gone below 12 per 1000 of the population. The first time that the rate went below 12 was that of the week of November 2, 1912, and the rate went down to 11.59; on June 28, 1913, the rate was 11.48, so that the rate during the past week has gone a shade lower than upon the dates above mentioned..

The contagious and infectious diseases showed a considerable decrease in the mortality. There were 25 deaths reported during the past week from measles, scarlet fever, diphtheria, whooping cough and typhoid fever, against 84 in the corresponding week of 1913. The mortality from diarrheal diseases was very small and a little lower. The following causes showed materially decreased mortality: Digestive diseases other than diarrheal, organic heart diseases, tuberculous diseases other than pulmonary, Bright's disease and nephritis, diseases of the nervous system and violence. Pulmonary tuberculosis showed an increase of 23 deaths, lobar pneumonia of 12 deaths.

Viewed from the point of age grouping the greatest decrease was at the age group below five years of age, all the other age grouping of the population showed a decreased mortality, but not to the extent of the infants.

The death-rate for the first twenty-five weeks of this year was 14.91 per 1000 of the population, as against 15.18 during the corresponding period of 1913, a decrease of .27 of a point.

Mortality in May.—The weekly reports of the health department show that during the month of May the mortality in the city represented an annual death-rate of 14.67, as against 14.99 in April and 14.49 in May, 1913. Among the diseases in which there was a decline in fatality were the following: The weekly average of deaths from scarlet fever decreased from 18 in April to 16 in May; the weekly average from whooping cough, from 7.5 to 6.75; from diphtheria and croup, from 40.5 to 38.25; from influenza, from 15.25 to 3; from pulmonary tuberculosis, from 197.75 to 180.5; from acute bronchitis, from 12.25 to 10; from pneumonia, from 132.5 to 113; from pleuro-pneumonia, from 116.25 to 110.25; from apoplexy and softening of the brain, from 24.75 to 22.5; from hernia and intestinal obstruction, from 14.75 to 11; from cirrhosis of the liver, from 18.75 to 15.71; and from puerperal diseases, from 17.5 to 14.25. Among the diseases in which there was an augmented mortality were the following: The weekly average of deaths from typhoid fever increased from 3.75 to 6.75; from measles, from 20.5 to 24.75; from epidemic cerebrospinal meningitis, from 3.75 to 8; from tuberculous meningitis, from 18 to 20.25; from cancer, from 87 to 91; from organic heart diseases, from 208 to 213.25; from diarrheal diseases under five years, from 33.25 to 42.75; from appendicitis and typhilitis, from 14.75 to 15.75; and from Bright's disease and acute nephritis, from 110 to 117.25.

Tuberculosis Among Immigrants.—Dr. Walter Rathbun, physician in charge of the health department's Otisville Sanatorium, reports that among the 1,197,892 immigrant aliens arriving at Ellis Island during the year ending January 30, only 38 were debarred on account of having tuberculosis. There can be no doubt, he says, that this small number represents but a small fraction of immigrants actually tuberculous, though the failure to recognize a larger number of infected individuals is not surprising in view of the immense numbers of immigrants to be examined and the wholly inadequate number of examining physicians. In a number of New York City Institutions the proportion of foreign-born patients is given as follows: Otisville Sanatorium, 45%; Metropolitan Hospital, 51%; Riverside Hospital, 45%; Seton Hospital for Contumptives, 39%; Bellevue Hospital, 48% (25% of them aliens); Bedford Hills Sanatorium, 84% (most of them aliens). Dr. Rathbun suggests that the federal government appoint a commission of experts to study the situation and outline a more thorough system of examination of immigrants.

Bureau of Public Health Instruction.—In accordance with recent action by the municipal authorities, a bureau of public health instruction has been established in the health department. The directorship of the bureau is a Civil Service position, with an annual salary of $5,000, and it is understood that the appointee must devote his time and attention to the work, to the exclusion of all conflicting interests. Pending the appointment of a permanent director, Dr. C. F. Bolduan, of the department, has been assigned to organize a division of public health instruction and temporarily act as its chief. Among the suggested functions of the bureau are the following: To prepare and publish popular leaflets on matters of public health, issue press bulletins, and edit the regular publications of the health department, to organize and direct public health lectures, both independently and in connection with existing agencies; to prepare traveling exhibits to be shown in various parts of the city, designed to educate the public in various phases of public health; to prepare and exhibit moving picture films dealing with public health work; to administer the library of the department and conduct in connection therewith a journal club for the study by department officials of public health literature; to assist in the organization of a school of sanitary science, or in the preparation of practical courses in public health in conjunction with medical colleges; to organize educational lectures and study courses within the department for the training of various groups of workers.

Reduction of Infant Mortality.—The statewide campaign for the reduction of infant mortality is now well under way. The state health department reports that three exhibits are "on the road," and up to June 1 had been shown in twenty cities. Twenty-six other cities were to be visited, and, commencing early in August, the exhibits are to be shown at the county fairs. The attendance at the exhibits and meetings in connection with them has been most gratifying,

and in a number of the cities has averaged over 3,000. The local press has been of material service in aiding the work. For ten days previous to the coming of the exhibit to a city the newspapers publish articles referring to it each day, and when it arrives devote several columns a day to an account of the exhibit and the meetings.

Current Literature

MEDICAL RECORD.

JUNE 13, 1914.

1. CASE, J. T. *A Word of Caution Concerning Palpation Under the Fluoroscopic Screen.*
2. JUDSON, A. B. *Trigger-Finger, Its Cause and Mechanism.*
3. LYNCH, J. M. *Pruritus Ani.*
4. SMITH, O. C. *Needle Protruding Through Wall of Stomach.*
5. *MAUNHEIM, G. *Subsequent Report of Patients Who Received Injections of Friedmann Vaccine Over a Year Ago.*
6. ROSENSTIRN, J. *Should the Sanitary Control of Prostitution Be Abandoned?*
7. AUSTIN, C. K. *Clinical Estimation of the Cholesterinemic Index.*
8. NAUNNACK, C. E. *The Management of Cardiorenal Disease.*
9. GREELEY, H. *The Cause and Treatment of Chronic Rheumatism.*

5. Maunheim gives a report of the progress of eighteen cases of pulmonary tuberculosis treated with the Friedmann vaccine in March, 1913. Of these, three are now dead, five are worse, and five show no change in condition. In seven of the eighteen patients abscesses developed at the site of the initial inoculation. One patient has since developed genital tuberculosis and one tuberculosis of the knee-joint. The writer is convinced that the vaccine is not of therapeutic value and may do harm. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

JUNE 13, 1914.

1. WOOLLEY, P. G. *Insolation.*
2. WOOD, H. C., JR. *The Treatment of Rheumatic Fever.*
3. PEDERSEN, V. C. *Urethral and Prostatic Symptoms Caused by a Large Internal Pile.*
4. BOGGS, R. H. *The Modern Trend in the Treatment of Malignancy.*
5. CLAIBORNE, J. H. *Hypertrichosis in Women.*
6. CRUIKSHANK, W. J. *The Practice of Medicine Act.*
7. SPIVAK, C. D. *Post-Mortem Examinations Among the Jews.*
8. NEILSON, C. H. *The Teaching of General Medicine.*
9. BRODHEAD, G. L. *Cesarean Section for Double Multilocular Ovarian Cyst.*
10. STIMSON, C. M. *A Magnetized Needle Holder.*
11. KAHN, A. *Facilitating the Crile Method of Transfusion.*

THE ARCHIVES OF INTERNAL MEDICINE.

MAY, 1914.

1. *LUSK, G., AND RICHE, J. A. *Animal Calorimetry: The Alleged Influence of the Adrenals on Diabetic Metabolism.*
2. *BALDWIN, E. R. *Experimental Studies of the Blood Serum of Cows Immunized Against Tuberculosis. Sensitization of Living Tubercle Bacilli.*
3. HARTWELL, J. A., HOUGET, J. P., AND BEEKMAN, F. *An Experimental Study of Intestinal Obstruction.*
4. CRAIG, C. F. *The Classification of Amebas. With Observations on Morphology and Life Cycle of Entameba Coli, Craigia Hominis and Vahlkampfia Lobospinosa.*
5. OERTEL, H. *The Physiologic Degeneration of the Mesonephros. With a Consideration of Antagonistic Action of Organs and of Functional Mutation with Morphological Persistence.*
6. FIELD, C. M. *A Method Developed for Obtaining a Standard Wassermann Antigen.*
7. *HERRICK, W. W. *A Study of the Action of Atropin on the Eosinophil Cells of the Blood.*
8. *CARTER, E. P. *Clinical Observations of Defective Conduction in the Branches of the Auriculoventricular Bundle. A Report of Twenty-two Cases in Which Aberrant Beats Were Obtained.*

1. Lusk and Riche, in a series of experiments on dogs, tested the influence of the adrenals on diabetic metabolism, their work dealing especially with the question whether or not epinephrin glycosuria is due to an inhibition of the internal secretion of the pancreas, which thereby renders the organism truly diabetic in the sense that there is a decreased power to oxidize glucose. Their findings answer this question in the negative. Previous experiments of Lusk and others have shown that epinephrin does not cause the production of sugar from fat and does not increase protein destruction through thyroid stimulation.

2. Baldwin reports a large number of observations of the properties of the blood serum of a cow repeatedly immunized against tuberculosis during a period of ten years. Specific agglutinin, precipitin, opsonin, and complement-deviating antibody were demonstrated in varying degree in the serum but never reached a high content. The presence of a bacteriolysin was not demonstrated. Living human tubercle bacilli "sensitized" with the immune serum showed increased infective power in guinea-pigs and rabbits as compared with normal cow serum. The increased infective power was manifested by earlier and more marked reactions or inflammation following inoculation, and a wider spread of the disease than in controls. The writers conclude that a sensitized living tubercle-bacillus vaccine is not safe or practicable when prepared from immune bovine sera.

7. Herrick studied the action of atropine on the eosinophiles of the blood in guinea-pigs. He found that in ordinary non-toxic doses it had no striking influence. Given in toxic doses resulting in loss of weight, and other signs of disturbed nutrition, atropin caused a diminution in the number of these cells, and the eosinophilia following interval injections of serum was diminished or absent. The writer thinks it probable that this effect of atropine is not specific, but is the depression of a highly specialized function by the general effect on nutrition of large amounts of a strong poison.

8. Carter presents a description of twenty-two cases in which evidence of defective conduction in one or the other branch of the auriculoventricular bundle was observed by means of the electrocardiograph. He finds that in the presence of lesions involving conductivity in these branches a characteristic electrocardiogram is obtained indicating aberrant ventricular contractions. These are frequently associated with aortic valve disease. Bundle branch defects are usually accompanied by defects in the main trunk, suggesting that the junctional tissues as a whole have a special pathology. [L. D. C.]

Münchener Medizinische Wochenschrift.

No. 21. May 26, 1914.

1. *Schittenhelm, A., and Wiedemann, G. *The Treatment of Tuberculosis by Friedmann's Vaccine.*
2. Verploegh, H., and Kehrer, J. K. W. *Bacteriological Studies in Lymphogranulomata.*
3. Klieneberger, C. *The Blood Picture of Acute Leukemia as a Transitory Symptom.*
4. Widmer. *The Out-door Treatment of Pneumonia.*
5. Traugott, H. *Intra-spinous and Local Anesthesia in Laparotomy.*
6. Hauptmann, A. *Protective Ferments in Abderhalden's Reaction.*
7. Flatow, L. *The So-called 'Protective Ferments.'*
8. Rominger, E. *The Treatment of Phimosis in Childhood.*
9. Pfeiffer, E. *The Treatment of Diabetes.*
10. Kebsten, H. E. *Intramuscular Injections of Neosalvarsan.*
11. *Fischer, A. *Thymectomy for Thymic Tracheal Stenosis.*
12. Finck, J. *Antiseptic Solutions of Turpentine.*
13. Loewe, O. *The Treatment of Ingrowing Nails.*
14. Hübener, W. *The Apparatus of Lotsch for Anesthesia.*
15. v. d. Portein, E. *The Treatment of Delirium Tremens with Veronal.*

1. In a critical study of Friedmann's tuberculosis cure, Schittenhelm and Wiedemann report upon forty unselected cases of tuberculosis treated with Friedmann's "avirulent and atoxic" vaccine, administered according to Friedmann's directions. Five cases out of twenty-five of pulmonary tuberculosis showed certain signs of subjective improvement without change in physical examination. However, in one case renal tuberculosis was observed to develop during the course of treatment, and in a few cases death seemed to occur directly as a result of the second injection of the virus. The few cases of joint tuberculosis which were treated seemed to improve. Renal tuberculosis was unaffected. One case of Addison's disease undoubtedly was injured.

From these results, Schittenhelm and Wiedemann do not advocate the general use of Friedmann's vaccine in the treatment of tuberculosis. The risk of doing harm appears large. The beneficial results obtained from this form of treatment in their hands might have occurred from other more certain means.

10. Fischer describes the symptom complex to which he gives the name "thymic tracheal stenosis." It occurs in children as a somewhat characteristic dyspnea due to mechanical obstruction of the trachea from an enlarged thymus gland. It is not, necessarily, associated with status lymphaticus.

Fischer considers that the treatment of such a condition is surgical. Partial intracapsular thymectomy should be performed to relieve the obstruction.

[R. F.]

No. 22. June 2, 1914.

1. Abderhalden, E., and Grigorescu, L. *The Reaction of Animals Possessing Abnormal Ferments in the Blood to the Parenteral Introduction of Certain Peptones, Proteins and Sera.*
2. Meyer-Betz, F., Ryhiner, P., and Schweisheimer, W. *The Clinical Significance of Abderhalden's Reaction.*
3. *Boveri, P. *A New Reaction of Cerebro-spinal Fluid.*
4. DeCrinis, M., and Frank, E. *The Gold Reaction in Cerebro-spinal Fluid.*
5. *Falta, W. *A Mixed Vegetable Cure in Diabetes Mellitus.*
6. Geigel, R. *The Clinical Value of Orthodiagraphy.*
7. Rühl, K. *The Use of Salvarsan or Neosalvarsan in Ambulant Cases.*
8. König, F. *Problems in the Treatment of Malignant Disease in Relation to Radio-therapy.*
9. Müller, C. *Operation and Ray Treatment.*
10. Weicksel, J. *Dystrophia Adiposo Genitalis.*
11. Peterka, H. *The Treatment of Photophobia in Eczematous Conjunctivitis.*
12. Reinzenstein, A. *Internal Conditions Predisposing to Prolapse of the Mucous Membrane of the Sigmoid Flexure and Rectum.*
13. Merzbach, G. *Toxic Manifestations of Embarin.*
14. Trautmann, G. *A Plastic Operation in Extracapsular Tonsillectomy.*
15. Böttcher. *A Method to Prevent Breakage in Cleaning Cover Glasses.*
16. Lange, F. *The Imperial Orthopedic Clinic in Munich.*

3. Boveri's reaction consists in the addition of 1 c.c. of 1-10% potassium permanganate solution to 1 c.c. of cerebro-spinal fluid. Normally, the mixture becomes a reddish-violet color, but if the cerebro-spinal fluid is pathological the mixture becomes a clear yellow. The advantages of the test are simplicity and delicacy. Positive results give certain evidence of an abnormal cerebro-spinal fluid, although without relation to the degree of pleocytosis. The most marked readings have been obtained in inflammatory conditions of the cord.

5. Since Von Noorden advocated the oatmeal cure for diabetes, this form of treatment has been generally used in severe cases. A disadvantage with it has been that patients have not borne it well over long periods of time. Recently Falta has obtained striking results in the treatment of severe diabetes by giving instead of oatmeal alone, other similar vegetable soups, including corn, rice, barley, tapioca, etc.

In the twenty cases which he has studied, the different patients have reacted variously to these different vegetables. But all have remained nearly sugar-free, and without acidosis.

Falta considers theoretically that the efficacy of this treatment depends on the exclusion of animal albumin from the diet. For the presence of albumin diminishes glycogen formation in the liver, and thus more sugar passes through this organ into the blood. In severe diabetes the organism is unable to use this sugar on account of injury to the islands of Langerhans in the pancreas. [R. F.]

Revue de Chirurgie.

May, 1914.

1. Laurent, O. *Aneurysms and Nerve Injuries in Military Surgery.*
2. Quénu, E. *Mammary Sporotrichosis.*
3. *Duval, P. *Operative Technic of Cecopexy.*
4. *Hayem, L. *Wounds of the Knee and Their Treatment.*
5. Potel, G. *Essay on Congenital Malformations of the Limbs, Their Pathogenic Classification. (To be continued.)*
6. Walter-Sallis. *The Liver in Appendicitis.*

3. Duval describes the technic of fixation of the cecum to the tendon of the psoas parvus.

4. Hayem's consideration is exclusive of gunshot wounds. [R. M. G.]

Il Policlinico.

April, 1914.

MEDICAL SECTION.

1. Pisano, G. *On Primary Sarcoma of the Liver and the Better Anatomic and Clinical Understanding of Hepatic Neoplasms.*
2. Trulli, N. *Pedunculated Tumors of the Liver.*
3. Martinelli, P. N., and Pizzetti, D. *The Reaction of Moriz-Weisz; Its Pathologic Significance and Clinical Value.*

3. Martinelli and Pizzetti discuss the urinary color test for tuberculosis described by Weisez in 1910. The test consists in adding several drops of a solution of potassium permanganate (1:1000) to urine diluted with twice its volume of water. If the reaction is positive, a more or less intense yellow color develops. The writers find that a positive reaction indicates a rapid destruction of the tissues and especially an abnormal elimination of protein substances. The reaction is present in typhoid fever, in scarlet fever, in the acute paroxysms of malaria, and generally in severe infection. In advanced phthisis the test is positive; in well marked cases often negative: in incipient cases only occasionally positive. The disappearance of the reaction in cases where it has been constantly present is a good prognostic sign and evidence that treatment is efficient. [L. D. C.]

SURGICAL SECTION.

1. BONOLA, F. *New Technic for Neurolytic Injections into the Trunk of the Inferior Maxillary Nerve at the Level of the Foramen Ovale.*
2. PIRONDINI, E. *Amylolytic Determination in the Urine as a Method of Diagnosis of Renal Function.*
3. *LONGO, L. *Three Interesting Cases of Echinococcus Cyst.*
4. ZAPELLONI, L. C. *Homoioplastics of the Dura. (To be continued.)*

3. Longo reports cases of echinococcus cyst of the glutei, of the adductors, and of the kidney, the third in a child of seven. There is an excellent alphabetic bibliography of 56 titles. [R. M. G.]

MAY, 1914.

MEDICAL SECTION.

1. VERDOZZI, C. *Fat Necrosis of the Pancreas and the Peripancreatic Tissue.*
2. PISANO, G. *Primary Sarcoma of the Liver and the Better Understanding, Anatomical and Clinical, of Hepatic Neoplasms.*
3. *BOSCO, P. *The Practical Value of Thick Films for the Microscopic Diagnosis of Malaria.*

3. Bosco discusses the use of thick films in examining the blood for malaria, a method first described by James in 1910. He finds that by increasing the number of parasites in a given preparation it shortens the time necessary for microscopic examination. The method is valuable, he says, for hematological examination in other diseases. He obtained excellent results with it in the study of relapsing fever at Tripoli. The spirilla of this disease have a tendency to clump, and the writer has been able by means of the thick film to make the diagnosis with the naked eye. [L. D. C.]

SURGICAL SECTION.

1. MINGAZZINI, G., AND ALESSANDRI, R. *Indications for the Late Extraction of Projectiles from the Interior of the Cranium.*
2. *ZAPELLONI, L. C. *Homoioplastics of the Dura. (Conclusion.)*
3. IDALGI, G. *Hematuria from Vesical Varices. (To be continued.)*
4. SOLIERI, S. *Stab Wounds of the Brain Through the Base of the Skull.*

2. Zapelloni completes and summarizes his interesting study of plastic procedures on the dura, and concludes with an alphabetic bibliography of 246 titles on the subject. [R. M. G.]

Miscellany.

IMPORTANT MEDICAL MEETINGS.

SEVERAL important medical meetings have been in progress in the United States during the past fortnight.

On June 19 and 20 the annual meeting of the American Orthopedic Association was held in Philadelphia. Of particular interest among the subjects discussed were papers on bone-grafting presented by Drs. C. William Nathan, W. E. Gallie, H. P. Galloway, and F. H. Albee. June 21 was observed in Philadelphia as "Health Sunday," and addresses by physicians were made in many churches of the city. Dr. W. C. Rucker, of the United States Public Health Service, spoke on occupation diseases; Dr. Howard A. Kelly, of Baltimore, on alcoholism and prostitution; Dr. Walter B. Cannon, of Boston, on vivisection; Dr. Hugh Cabot, of Boston, on the control of disease by public opinion; and Dr. Joel E. Goldthwait, of Boston, on the relation of proper habits of posture to health.

In New York on June 19 the second annual conference of the Eugenics Research Association was held at Columbia University. Dr. J. A. Rasanoff presented a paper showing that the ratio of insane persons in the United States has nearly trebled in the past 40 years, having risen from 86.5 to 232 per 100,000. In Oklahoma this ratio is only 67 per 100,000, but in Massachusetts it is 413.4 per 100,000, the highest figure in any state.

In Atlantic City, N. J., the annual meeting of the American Academy of Medicine was held on June 20, and the sixty-fifth annual meeting of the American Medical Association on June 22, to June 27. Dr. Victor C. Vaughn was installed as president and made his inaugural address on "The Service of Medicine to Civilization." About 3500 members were in attendance.

"The council on medical education presented its tenth annual report showing that in 1904, when the council was created, there were 160 medical colleges in the United States, many of which were organized and conducted on a purely commercial basis; that, due largely to the council, the number of colleges has been reduced to about 100, and that, whereas in 1906, there were only four medical colleges having a high standard of entrance requirements, there are now eighty-two colleges which require one or more years of college work in addition to a standard four years' high school course as condition for entrance. A striking feature has been that in many cities in which a number of weak medical schools existed they have, through merger and absorption, been combined to form one strong and well equipped institution."

The newly elected officers are Dr. William L. Rodman, of Philadelphia, president; Dr. Alexander Craig, of Chicago, secretary; and Dr. William A. Pusey, of Chicago, treasurer.

CONSTITUTIONALITY OF THE WISCONSIN EUGENIC MARRIAGE LAW.

Report from Madison, Wis., states that on June 17 the so-called eugenic marriage law of that state was sustained by the Wisconsin supreme court before which a suit had been brought to test its constitutionality. The opinion of the court, written by Chief Justice Winslow, is in part as follows:

"Neither the legislative idea nor the legislative purpose in the passage of the present law can be a matter of serious doubt. The idea plainly was the transmission of venereal diseases by newly married men to their innocent wives and the purpose just as plainly was to remedy that evil so far as possible by preventing the marriage of men who, upon examination, were found to possess such disease.

"In view of the fact that the Legislature wished to reach practical results, it seems unreasonable to suppose that they intended to prescribe tests which the great majority of the official examiners were not able to make. We prefer to construe the words 'recognizel test' as intended to refer to the tests recognized and used by the people who were to make them. This construction sustains the law, makes it reasonable, accomplishes its evident purpose and provides for a guard to marriage fully as effective in the vast majority of cases as the application of the Wassermann test.

"We have not been able to appreciate the force of the contention that the law interferes in any respect with religious liberty. We know of no church which desires its ministers to profane the marriage ties by uniting a man afflicted with a loathsome disease to an innocent woman."

The elimination of the compulsory Wassermann test removes much of the difficulty in the administration and enforcement of the law. This decision is of importance as a precedent in the future establishment of similar legislation in other states.

Correspondence.

EDUCATION OF THE PUBLIC IN MEDICAL AFFAIRS.

Boston, June 15, 1914.

Mr. Editor: Moved by the inspiring address of Dr. H. D. Arnold before The Massachusetts Medical Society, at its annual meeting, and by reason of the evident need of public information, and the growing conviction by physicians that this need should be met, the attention of the profession is called to the following facts:

On June 9th inst., report was received by the State Board of Health of the death of a girl, stating that this child was treated for several days by a "Scientist." A physician was not called until death seemed imminent.

Inquiry at the office of the local Board of Health, showed that another child in the same family was afflicted with diphtheria.

An investigation by a state physician was made, and the following report submitted:

The child took sick on Sunday, May 31st., "with a swelling on the outside of the throat." The child's parents are Christian Scientists, and a Christian Scientist practitioner was called to see and treat the child. The case was diagnosed by the family as one of mumps. The child was sick for a week. On Friday night, June 5th, about 11.30 o'clock, the mother noticed that there was "something wrong with the child as she was not breathing right," and called a registered physician to see the child, who was either dead or died shortly after the doctor reached the house.

The doctor, according to his statement over the telephone, made no examination of the child, but signed the death certificate giving as the cause of death "Inflammation of the parotid gland" (mumps). A member of the local board of health refused to accept the diagnosis. Meanwhile a brother of the girl took sick on Saturday, June 6th with diphtheria. (The diagnosis of diphtheria was confirmed by the examination of a bacteriological culture submitted to the laboratory of the State Board of Health.) The doctor then changed the death certificate of the girl, giving diphtheria as the cause of the death.

The house was quarantined by the local board of health, and a private burial took place on Tuesday morning, June 9th.

When I talked with the doctor relative to the facts in the case he told me that he was quite sure that the child died of mumps and not of diphtheria and that he changed his diagnosis to satisfy the local board of health. When I pointed out to him that it was extremely unlikely that mumps was the cause of death, he explained the vital result by the fact "that the child went bathing the day before she took sick" ! ! !

I asked the doctor whether he used antitoxin for the boy now ill with diphtheria and he said he did not believe in antitoxin; that from his experience and observations, antitoxin did much harm; that he could cure cases of diphtheria without resorting to the use of antitoxin and that in all his years of practice he used it in only one case. While this case came out well, he said, nevertheless, he would not continue its use and added that there was not sufficient money that would buy him to permit the administration of antitoxin to himself or to any member of his family.

On my suggestion that he suggest that the family permit some physician from the board of health to administer antitoxin to the boy now sick with diphtheria, he stated that so far as he was concerned the board of health could give antitoxin, but that he could not make the suggestion to the family.

When I visited the family with a member of the local board of health this morning, June 10th, the boy impressed me as being very sick. His tonsils were much swollen and angry looking and covered with patches of membrane. A culture was taken which proved positive on the swab examination.

The family consists of the father, mother and six children, one a girl of sixteen assists in the house and does not go to school; a boy of fourteen who does not go to school and is not now at home. The boy that is now sick attended school until June 5th. The girl of eight who died, attended school on May 20th. Two other children are two and four years of age respectively.

The local board of health has now established the recognized procedure to combat extension of disease.

The following analysis of the situation has been made by an official of the State Board of Health:

The salient features of the entire situation are these:

1. A Christian Science family allowing a disease in all probability contagious, certainly contagious if diphtheria, to run its course and permitting the child to die without any attempt to save the child's life by proper medical care.

2. A registered physician in Massachusetts signing a death certificate of a child who is either dead or who died a short time after the physician's arrival, without an examination, and accepting the diagnosis of a mother as mumps,—a disease practically never ending in death,—and then later promptly changing the death certificate to "satisfy the board of health."

3. A registered physician in Massachusetts, who refuses to use antitoxin in diphtheria.

4. The failure to summon the medical examiner after the death of the little girl, who unquestionably died from diphtheria.

In view of this situation, I want to urge earnestly that the profession read carefully Dr. Arnold's paper, and then act: Start a campaign of education in every community so that the people may know the beneficent results of modern medicine in the treatment of certain diseases, and the power which preventive medicine has in controlling the extension of communicable diseases and the terrible responsibility assumed oftentimes by parents and certain classes of unqualified practitioners.

Establish in the profession a definite knowledge of the low standards of medical registration in Massachusetts so as to lay the foundation for a movement which will induce the legislature to put Massachusetts in the same rank with her progressive sister states.

Convince the public that we are not creating a medical trust but that every advance in medical practice and medical legislation has brought benefit and protection to the people and not to the profession.

The present degrading situation can be changed only by concerted effort on the part of the medical profession.

WALTER P. BOWERS, M.D.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE THREE WEEKS ENDING JUNE 13, 1914.

May 25, Asst. Surgeon G. M. Faulkner, M.R.C., commissioned May 5.

Asst. Surgeon C. Wheatley, M.R.C., commissioned May 8.

Asst. Surgeon J. A. Omer, M.R.C. commissioned May 6.

May 27, P. A. Surgeon T. W. Reed, detached, *San Francisco* to W. O.

Asst. Surgeon H. R. McAllister, detached, Training Station, San Francisco, to Training Station, Guam.

Asst. Surgeon William McKinney, M.R.C., commissioned May 1.

May 28, Asst. Surgeon W. E. Eaton, detached, *Connecticut* to W. O.

May 29, P. A. Surgeon D. H. Noble, from *Ohio* to *San Francisco*.

P. A. Surgeon E. C. White, to Navy Recruiting Station, N. Y.

P. A. Surgeon J. R. Phelps, from Boston Hospital, to *Connecticut*.

June 2, P. A. Surgeon H. A. Giltner, from Naval Hospital, Norfolk, Va., to *San Francisco*.

June 5, P. A. Surgeon W. N. McDonell, from Annapolis to Boston Hospital.

Asst. Surgeon R. M. Lhamon, to Las Animas Hospital.

June 9, Surgeon E. M. Shipp, detached, Navy Yard, Puget Sound, Washington, to Bureau of Medicine and Surgery, Navy Department.

Surgeon G. B. Whitmore, detached, Naval Hospital, Puget Sound, Washington, to Pacific Fleet.

Act. Asst. Surgeon M. E. Rose, to Navy Recruiting Station, New York, N. Y.

June 11, Surgeon J. R. Dykes, to Receiving Ship, at Navy Yard, Mare Island, Cal.

P. A. Surgeon A. R. Hayward, detached, Naval Hospital, Philadelphia, Pa., to *Milwaukee*.

Asst. Surgeon S. D. Hart, detached *Prairie* to home W. O.

Asst. Surgeon G. E. Faukner, M.R.C., to Norfolk Hospital.

Asst. Surgeon W. E. Stoops, M.R.C., to Great Lakes Hospital.

June 13, P. A. Surgeon J. B. Mears, detached, Naval Training Station, St. Helena, Va., to Receiving Ship at Norfolk, Va.

P. A. Surgeon J. G. Omelvena, commissioned October 1, 1913.

P. A. Surgeon L. L. Pratt, commissioned October 1, 1913.

P. A. Surgeon J. V. Howard, commissioned October 1, 1913.

P. A. Surgeon C. C. Kress, commissioned from Oct. 5, 1913.

Asst. Surgeon E. K. Scott, commissioned from May 5, 1914.

APPOINTMENTS.

TUFTS MEDICAL SCHOOL.—*Dr. Frederic M. Briggs* has been elected Professor of Surgery Emeritus in Tufts College Medical and Dental Schools.

Dr. F. M. Meader, formerly associate professor of bacteriology and pathology at Johns Hopkins, and at present professor of preventive medicine and hygiene at the College of Medicine, Syracuse University, has been appointed director of the division of communicable diseases in the New York State Health Department and *Prof. William H. Park* of New York, consulting bacteriologist to the department.

RESIGNATION.

It is announced that *Dr. Edward A. Spitzka*, son of the late Dr. Edward C. Spitzka, has resigned his professorship in the Jefferson Medical College, Philadelphia, and will return to New York to reside.

RECENT DEATHS.

DR. RUPERT NORTON, who died of typhoid fever on June 19, at Baltimore, Md., was born in Cambridge, Mass. He received the degree of A.B from Harvard in 1888, and that of M.D. in 1893. He was assistant superintendent of the Johns Hopkins Hospital. He is survived by his widow.

DR. EDWARD M. SHIPP, a United States naval surgeon, who died recently at Puget Sound, Wash., was born at Barboursville, Va., in 1868. During the Spanish War he served aboard the *Bancroft* and the *Lancaster*, and at other times had served on the *Wilmington*, the *Illinois*, and the *Pennsylvania*. His land duty had been at the New York Naval Hospital and the Washington Navy Medical School Hospital. He had been commander of the Naval Hospital at Yokohama, Japan, and at the time of his death was commander of the Puget Sound Hospital.

DR. CALEB S. MIDDLETON, of Philadelphia, died at Ardmore, Pa., on June 24, at the age of 76. He was a former president of the Pennsylvania State Board of Medical Examiners.

DR. CALEB WAKEFIELD CLARK, a Fellow of The Massachusetts Medical Society, died at his home in Melrose Highlands, Mass., June 13, 1914. aged sixty years.

Original Articles.

ACUTE ABSCESS AND GANGRENE OF THE LUNG.*

By I. J. Walker, M.D., Boston.

History. Surgery of the lung dates back to the time of Hippocrates, who it is said, opened an abscess of the lung. The writer recognized the fact that a lung abscess might break into a bronchus and heal spontaneously, also that it might rupture into the pleural cavity, necessitating drainage of the latter. His prognosis in diseases of the lung was based upon the character of the pus, as we learned from the following statement: "When empyema is treated, either by the cautery or by incision, if a pure white pus flows from the wound, the patient recovers; but if mixed with blood and fetid, he dies." Schenk, in 1584, and Putnam, in 1696, recommended operative treatment in pulmonary abscess. In 1664, Baglini opened a lung abscess resulting from a sabre thrust, but it was not until the eighteenth century that the thorax was approached in a scientific manner by DeBarry, in 1776, and later by Sharpe. In 1797, Page reports a case of lung abscess cured by incision. VonHerff, Krimer, and Stokes, in the early part of the last century, opened lung cavities with the trochar. Many other surgeons, influenced by Trousseau, abandoned opening of the pleural cavity, and were content with exploratory puncture and evacuation of the pus with the needle. This was all the progress that had been made in lung surgery for several hundred years.

In 1864, Koenig wrote upon the subject. His work was soon followed by the experiments of Jaezenko on penetrating thoracic and pulmonary wounds. In 1859, Rose had proposed resection of the ribs in empyema, but Mosler, in 1873, struck by the poor success of the conservative method of evacuating pus, was the first to inaugurate an active procedure in certain cases of lung infection. New impetus was given this line of surgery by the writings of Gluck, Hans, True, Schmidt, and Block. Following this, come reports of Reclus, Quincke, Tuffier, Karewksai, and Garré.

Today, the literature abounds in reports of cases of lung abscess. However, in reviewing the cases of acute abscess and gangrene recorded during the last decade, it is most difficult, because of inadequate histories and data, to eliminate the chronic cases. These are not considered in this paper, since the diagnosis and treatment of this condition should constitute a study in itself. Clinically, there is no hard and fast borderline between the acute and chronic cases, but pathological changes which are made manifest in the chronic condition limit the acute cases to those in which the lesion is of not more than two months' duration. In the series of cases reviewed below, none have been reported in which the condition is not absolutely known to have been acute, and for the same reason many doubtful cases were not considered.

Most writers agree with Tuffier that in many cases it is most difficult to distinguish between acute gangrene and abscess of the lung. There is a gross difference anatomically, pathologically, and clinically between a pulmonary abscess containing only pus, and gangrene of the lung, in which the cavity contains necrotic lung tissue floating in bloody fluid; but between the typical abscess and gangrene exist intermediate types in which the differences are less marked, and which have been called putrid abscess and gangrenous abscess. Lord says that at operation, and even at autopsy, the distinction may often be difficult to make. The lesion beginning as an abscess may later develop into gangrene; or a case starting as gangrene may, by partial absorption of the diseased area and subsequent infection, result in the formation of an abscess cavity. Thus, it is often difficult to decide whether to classify a certain case with the abscess or the gangrenous type. Perhaps it was for the above reasons that Tuffier thought it best to disregard the differences of classification and study abscess and gangrene under the term "septic cavities of the lung."

Etiology. The etiology of abscess and gangrene is identical. Diseases in which the vitality of the individual is lowered are predisposing factors. Among these are diabetes, alcoholism, typhoid fever, fatigue, and starvation. Again, there must be a predisposition of the lung itself in order that the infecting organisms should grow. Certain causes produce a lowered vitality of the cellular elements by pulmonary congestion. Among these are lobar pneumonia, bronchial penumonia, influenza pneumonia, bronchitis, peri-bronchitis, embolism, foreign bodies, immersion, inhalation of pus, vomitus or irritating gases, penetrating wounds, contusions of the chest, tumors, empyema. Since in every case there is a lowered resistance of some part of the lung with congestion of that area, this portion is a fertile culture medium for the growth of bacteria already there, or which may be carried there through the air passages or through the circulation. Again, abscess and gangrene may be produced by direct extension in empyema, subphrenic, sub-diaphragmatic, and appendiceal abscess. Pneumonia, including lobar, broncho, and influenza pneumonia, causes by far the greatest number of cases of abscess and gangrene of the lung. In 2500 autopsies in the Pathological Report of the Montreal General Hospital, 9 cases of gangrene, and 18 cases of abscess of the lung are cited. In 1620 autopsies at the Middlesex Hospital, London, 7 cases of lung gangrene were found. In review of the records of the Boston City Hospital for eighteen

* Read before the Boston Surgical Society, March 19, 1914.

years, Withington reports 36 cases of abscess and gangrene. Thirty-eight cases of gangrene and abscess in 1400 autopsies are reported from the Massachusetts General Hospital. In the last 200 autopsies of the Rhode Island Hospital ending in 1903, 6 cases showed abscess of the lung. Osler in 100 cases of pneumonia reports gangrene in 3 patients. Norris found gangrene 3 times in 500 cases of pneumonia; Pomeranzoo, 5 times in 727 cases. Grasolle in 305 cases of pneumonia, reports not a single instance of gangrene or abscess. On the other hand, in review of 170 cases of gangrene, the same author found that pneumonia was responsible in 5 instances. Fränkel in 1200 cases of pneumonia reports abscess of the lung in 1.5%. In 74 cases of lung abscess, Tuffier found the etiology to be pneumonia in 23. McKenzie reports 11 cases of gangrene, of which 9 were due to pneumonia. Aufrecht, in 1501 cases of pneumonia did not find a single case of gangrene. McRae, in June, 1902, at the meeting of the American Medical Association, reported 75 post-mortem cases of lung abscess. Holt found abscess in 7% of autopsies on lung cases. Eisendrath collected 53 cases of acute abscess following pneumonia. Selts in 750 cases of pneumonia found 11 cases of abscess of the lung. In the statistics gathered by the writer, pneumonia caused acute abscess or gangrene of the lung 97 times in 147 cases, a percentage of 66. In 25 cases the cause was not given.

Bronchitis, especially the putrid form, is mentioned as a cause of gangrene and abscess, as is also peri-bronchitis. Foreign bodies cause gangrene of the lung, but it is usually of the chronic rather than of the acute type. Among the foreign bodies most commonly found are teeth, pieces of wood or grass, bits of evergreen, pins, buttons, and fruit stones. T. Clarke and D. Maine (*American Journal of Medical Sciences*, Philadelphia, 1906, n.s. cxxxi, page 505) have contributed a most interesting article in review of the literature on pulmonary gangrene due to foreign bodies. Hoffman, Laponte, Cohen, Karewski, and others have reported similar cases.

Pulmonary embolism is mentioned by Garré and Sultan, Sennenburg, Solman, and Körte as the cause of lung abscess. It is most common in puerperal cases or after operation in the pelvis, especially if pus has been present; also in appendectomy, especially the retro-cecal type; and following operations on the stomach.

Gangrene and abscess of the lung have been reported following immersion and inhalation of pus, vomitus, and irritating gases. It may also be caused by contusion of the chest, by penetrating wounds of the lung, by tumors, and aneurysm.

Males seem to be more predisposed to abscess and gangrene than are females, in a proportion of three to one, according to Pauchet. Kissling reports 51 cases in males and 45 in females; Körte, 44 in males and 22 in females; Tuffier, 142 in males and 54 in females; McKenzie, 8 in males, 3 in females. In the series reviewed in this paper, 125 have been found in males and 37 in females.

The condition is one of adult life, being most common between the ages of 20 and 40. According to Miller, it is six times more frequent in adults than in children. Bacon, however, reports 7 cases in nursing infants. Cases occurring during the first year of life have been cited by Kots, Carr, Thinon, Dednar, Stener, and Newrettes. Most of the cases in early life occur between the ages of two and sixteen. The average age of the writer's review is 31.6 years, the youngest being two months, and the oldest 61 years.

Pathology. Although in many ways acute gangrene and abscess of the lung resemble each other, their pathology in typical cases is somewhat different, so that in this respect it becomes necessary to study each separately. Just what the determining factor is in a given case,—as to whether it shall be one of gangrene or of abscess of the lung,—is hard to say. Indeed, gangrene may later develop into an abscess; and a case which was primarily one of abscess may later assume the gangrenous type. There is one more or less distinct difference as an etiological factor which is generally constant, that is the predominance of putrefactive organisms in gangrene and of pyogenic organisms in the abscess. Laennec, in 1819, was the first to describe pulmonary gangrene. Traube, in 1823, further described the lesion and classified it according to whether it originated in (*a*) the blood vessels, (*b*) the bronchi, (*c*) the lung parenchyma.

A better classification seems to be that advocated by Bergman and Mikulicz, namely, the circumscribed and the diffused forms. Gangrene is found most commonly in the lower lobe of the right lung, near the surface. The process starts with an intense hyperemia of a whole or part of a lobe, depending upon whether the process is of the diffuse or circumscribed form. With stagnation of circulation in this area, necrosis of lung tissue takes place. This necrosed area with poor blood supply is a most fertile culture medium for the growth of those organisms which reach the part by way of the bronchi or circulation and occasionally directly through stab wounds. The organisms found are the putrefactive anaerobes, also the pneumococcus, streptococcus, staphylococcus, colon bacillus, etc. Of the pyogenic organisms found in gangrene, the pneumococcus and streptococcus are the most common and are those which produce the intense and often fatal toxemia. With the growth in the number of organisms, there takes place a liquefaction of the central portion of the area with the formation of a sequestrum of lung tissue and generation of fetid gases. Sometimes this cavity opens into a bronchus, through which pus is discharged. When it attacks the surface of the lung, the abscess cavity tends to rupture into the pleural cavity. If this process be slow

enough, adhesions will form, uniting the two layers of the pleura in the region of the gangrene. If, by chance, bacteria find their way into the pulmonary vein, they are carried to the heart, and thence over the whole body, producing septicemia and pyemia. This abscessed cavity is sometimes surrounded by a zone of calcareous tissue. The latter increases in extent with the duration of the lesion.

Acute abscess is generally found in the base of the left lung, and usually three or four centimeters from the surface. Occasionally it may be very deep, as in the case reported by Lenhertz, where it was fourteen centimeters from the periphery. If the abscess is due to the inhalation of a foreign body, the cavity is more likely to be in the lower lobe of the right lung, because of the ease with which the foreign body falls into the bronchus leading to that lobe. Lung abscesses are usually single, excepting those embolic in origin and those following grippe pneumonia. The pathological process in the formation of an abscess of the lung must be similar to that of gangrene, that is, there is hyperemia of a portion of a lobe, followed by infection, with pyogenic organisms with pus formation. As this abscess enlarges, it tends to rupture through the line of least resistance, into a bronchus or into the pleural cavity, as the case may be. The predominance of the pyogenic organisms over the saphrophytes is characteristic of abscess. Adhesions may form between the two layers of the pleura, and there may be a dry or moist pleurisy accompanying the abscess. The latter phenomenon is also true of gangrene.

Diagnosis. The accurate diagnosis of acute abscess and gangrene of the lung may at times be most easy to make, and at other times almost impossible. The difficulty is due to the fact that the signs are so changeable and so often resemble those of other pulmonary lesions. First of all, acute abscess and gangrene should, if possible, be differentiated from each other even though the treatment of each may be similar. Again, each must be distinguished from the following conditions: bronchiectasis, putrid bronchitis, rupture of an empyema into the lung, putrefactive changes in the walls and contents of a tubercular cavity, and empyema. Echinococcus cyst, and a liver abscess which has ruptured into the lung, should not be overlooked.

The duration of the process should be ascertained. The patient should be questioned in regard to his previous health, especially as to recent symptoms of pneumonia, bronchitis, influenza; also as to the possibility of having inhaled a foreign body, pus, vomitus, or irritating gases; whether there has been a recent history of immersion, of a contusion or penetrating wound of the chest, of recent pelvic infection, or of operation upon the appendix. Clinical charts should be examined, since these will show an elevation of temperature and probably rise in respiration if lung abscess is present. Thus, we can from the history alone determine whether or not the process is acute or chronic, and often decide upon its etiology. An accurate diagnosis between the circumscribed and diffuse forms of gangrene is generally difficult. Percussion, auscultation, and the x-ray should be employed. Diagnosis between gangrene and abscess, while generally not so difficult to differentiate as the two forms of gangrene, may at times be impossible, even at operation. This is not of so great importance, since both conditions have the same susceptibility of spontaneous cure, both have the same therapeutic indications, and the same treatment.

In examining the patient, both objective and subjective symptoms should be carefully studied. The breathing rate in abscess and gangrene is usually increased (24 to 44 to the minute), shallow, with lessened excursion of the chest wall on the side in which the lesion is located. Breathing may cause pain near the site of the lesion. Cough is sometimes present. This may vary from a slight hacking, such as is sometimes heard in irritation of the pleural surfaces, to violent paroxysms in which the patient has difficulty in getting breath, and later raises a large amount of pus mixed with blood and lung tissue. In cases where there is a well defined abscess cavity, the coughing and raising comes on at more or less regular intervals, as the abscess cavity is filled. The odor of the breath varies: in gangrene, it is generally most offensive and can be detected the minute one enters the patient's room; while in abscess the odor is commonly absent. This offensive odor is due to the gases produced by the presence of putrefactive organisms.

Examination of the sputum should always be made, macroscopically and microscopically; that of gangrene is bloody, while that of abscess contains much yellow pus, possibly mixed with some blood. The three-layer test is said by some writers to be characteristic of gangrene, while others say it is also found in bronchiectasis. In making this examination, the specimen should be allowed to stand in a conical glass at least one hour, when it will be seen to have separated into three layers. At the bottom is a greenish-brown, heavy sediment. Some of this spread upon the glass and examined under the microscope will show fragments of lung tissue; or, if boiled with a two per cent. solution of potassium hydrate and then examined, will show bundles of elastic tissue. The absence of the latter may be explained by the fact that the gangrenous process has been temporarily arrested, or that the elastic tissue has been dissolved by the peptonizing action of the fluid,—a result due to bacterial activity. The middle layer of the settled sputum is a thin liquid with a greenish or brownish tint. The top layer is thick and frothy. In microscopic examination of the sputum, stained slides should be used in order to determine the presence of putrefactive organisms as well as the pathogenic bacteria. The tubercle bacillus should not be overlooked.

Auscultation in acute gangrene and abscess may reveal almost any sound heard in examination of a diseased lung, depending upon the state of the lesion. No one point in auscultation can be called diagnostic. The most characteristic features are moist râles, more or less localized in a given area, which persist from day to day. There will also be diminished breathing in this region, and if the abscess cavity has just been emptied, the breathing sound will be found to be amphoric. In the more acute cases, signs of a cavity formation are likely to be absent. Large cavities which gave no auscultory signs have been reported by Galey, Lawson, and Renchu.

If the lesion is superficial, there will be dullness on percussion over a certain prescribed area. This dullness will be constant from day to day, and so may be differentiated from the changeable areas of dullness, sometimes found in bronchial pneumonia. This area will not generally be found to correspond to an entire lobe of the lung, except in case of diffuse gangrene. In cavity formation, the cracked-pot sound may be elicited.

Localization of the Lesion. Fortunately, in most cases of gangrene and abscess, the cavity is located near the surface; in gangrene, in the lower right lobe; and in abscess, in the lower left lobe. In some cases, however, the lesion may be deeply situated. In these, there may be no change from the normal in the percussion note, and even auscultation may reveal very little. The latter may even be misleading for the following reasons: According to Tuffier, in the lower lobe of the lung, the cavity is always higher; and in the upper lobe, always lower than one presumes it to be. This is due to the way the sound is carried in the bronchi, reaching its maximum intensity in the lower lobe, below where the abscess is situated, and in the upper lobe, above the site of the abscess.

X-ray examination of the chest should, if possible, be made in every suspected case of lung abscess or gangrene. It will locate more exactly an abscess of the lung than any other means of diagnosis, and will reveal multiplicity of lesions should this condition exist. The interpretation of the plates, however, should be made only by the skilled Roentgenologist, as the shadow of other lesions may be confused with those found in abscess and gangrene. As in other conditions where the x-ray is indicated, diagnosis should not be made by this means alone. This should serve as an additional method in deciding for or against the presence of the suspected lesion.

Exploratory Puncture. Writers seem to disagree as to the advisability of exploratory puncture. The danger is that of infecting a previously healthy pleural cavity. Delanglade and Foille are among those who advise against exploratory puncture, since this procedure may be misleading. Tuffier, on the other hand, advocates its use, but cautions against laying too great stress on negative puncture. Schulz thinks it should not be used until the pleural cavity is opened, but at that time it may be a valuable means of localizing a focus. If the needle is used, it should be made to enter the skin at about the centre of dullness. One should make sure that the needle enters the lung and has not merely penetrated the pleural cavity. If pus is not found at the first puncture of the lung, the needle should be withdrawn into the pleural cavity and again made to perforate the lung in one or more directions. If pus is located, the needle should be left in place until the patient is operated upon or careful note taken of the point at which the needle pierced the skin; also the direction taken in entering the lung. Suffice it to say that if the diagnosis and localization of lung abscess can be made by other means, exploratory puncture should be omitted. If, however, other means fail or leave the case in doubt, and puncture may possibly make clear the diagnosis, one should not hesitate to use this method of procedure. The diagnosis of lung abscess and gangrene should be made, not by one sign or symptom, but by a compilation of data, including history and the consideration of all signs and symptoms, examination of the sputum, x-ray examination, and, if necessary, the use of the exploratory needle.

Prognosis. The prognosis in acute abscess and gangrene of the lung depends upon the duration of the disease, the virility of the organism, and the site and extent of the process. Briefly, the prognosis in abscess is more favorable than in gangrene. Statistics also show that in both processes a larger percentage recover with surgical than with medical treatment. McArthur and others say that in gangrene of the lungs treated medically, the mortality is about 80%. The mortality in acute gangrene treated surgically, according to Eisendrath, is 22%; Tuffier, 30%; Garre and Sultan, 35%. The mortality in acute abscess treated surgically is not over 23%, according to Tuffier, Tilton, Garre, and Quincke. Eisendrath reports 24 cases of acute abscess with no deaths. In our review of the literature, mortality in acute abscess treated surgically is 25%. The mortality in acute gangrene was found to be 44%.

Treatment. Treatment may be either medical or surgical. Undoubtedly, many cases of abscess and gangrene of the lung have healed spontaneously. On the other hand, certain cases will be fatal, no matter what the treatment may be. Naturally, the earlier the case is seen, other factors being equal, the more chance there is of curing it; and the longer its duration, the more difficult the cure, either by medical or surgical means. Certain cases are unquestionably medical. These are, unfortunately, very diffuse forms of gangrene and those of bilateral abscess of the lung. Here operation is contraindicated. Some writers agree that every case should be given reasonable time to heal spontaneously before recommending operation; while

others think operation should be performed, once the diagnosis is made. Should an abscess seem to be drained well through a bronchus, and the patient gain in general condition, one would hesitate before advising surgical method.

Medical treatment of abscess and gangrene of the lung aims at evacuation of the cavity, combined with tonic treatment of the individual. The former consists in the inhalation of pulmonary antisepsis, such as sulphite of soda, eucalyptus, crotaline oil, etc. Guisez and Mosny report cases cured by the use of bronchoscope. Jacobs reports good results following the use of vaccine. Combined with local treatment, stimulants should be given as may seem necessary to build up the patient's general condition. But statistics of cases treated medically do not show so good results as those treated by operation. One should not, however, propose surgery, have it refused, and then state that the patient will surely die, as he may finally recover under medical treatment. The following conditions briefly indicate when surgery should be advised: (*a*) Gangrene if not diffuse; (*b*) when the abscess is unilateral, or at most if deep lesions do not exist on both sides; (*c*) when the patient is still in condition to stand operation; (*d*) when the site of the lesion is determined.

The technic of the operation varies greatly with the individual surgeon, also with the case at hand. There is no classical operation for pneumotomy. The most one can do is to choose procedures best adapted to the situation. Like other operations, but more especially those of lung surgery, the first thing to be considered is the saving of time, thus sparing the patient as much shock as possible. The anesthetic should be general, preferably ether. Local anesthesia is usually not sufficient. The exception to the latter statement are those cases where the abscess has been located superficially. In acute cases, intratracheal insufflation of ether is not deemed advisable because of the danger of spreading pus into some uninfected area. Again, one need not fear collapse of the lung, since pleural adhesions are present in most cases.

The most desirable position of the patient upon the operating table is that recommended by Picot; that is, prone for those cases where the lung is to be approached from behind, the dorsal position when the incision is to be made in the front of the chest, and the lateral position when the abscess is to be approached from the axillary region. The body should be inclined slightly upwards. The incision to be used depends upon the knowledge of the exact location of the abscess. If it has been found to be upon the surface, it will be sufficient to resect portions of one or two ribs. If there is doubt as to the exact location, an opening must be made large enough to admit the hand for exploration. In this case, one should make a curved incision with base upward, and remove sections of three to five ribs. The intercostal vessels should be picked up with hemostats or cut between two ties. At this stage in the operation, Tuffier recommends that the lung be palpated through the parietal pleura to determine, if possible, the location of the abscess. The opening in the pleura should be small at first, and air allowed to enter very slowly. If respiratory difficulty takes place, the opening may be temporarily closed with gauze. When the pneumothorax is complete, the opening in the pleura is sufficiently enlarged to allow the hand to enter. The presence or not of pleural adhesions must then be determined. Statistics show that these are present in about 53% of cases. Their presence prevents collapse of the lung, but may also hide a neighboring pleural abscess, which should not be overlooked. When absent, one is confronted with the advisability of at once draining the abscess or adopting measures to promote adhesions, and several days later opening the abscess. The danger of opening the abscess in the absence of adhesions is, of course, that of pneumothorax and pleural infection. If the condition of the patient is such that he will tolerate the pus a few days longer, it is undoubtedly better to wait until a barrier of adhesions has formed. If, however, the toxemia is so profound that a delay of some days would, to any extent, diminish the patient's chance, one should not hesitate to open the abscess at once, using all precautions to prevent spreading of pus into the pleural cavity. Either of the two methods may be used for walling off the infected area from the clean pleura. The first method is that of uniting by suture the two pleural surfaces around the periphery of the abscess. The second consists in packing gauze between the pleural surfaces so that the pleural cavity is shut off from the abscess.

If the abscess is easily felt upon the surface, it may be opened with some blunt instrument, and the finger then used to explore the pus pocket. If it is not readily felt, exploratory puncture with the needle should be made to determine its location. Care should be taken not to break any firm bands felt in the cavity, since they may be vessels which if divided would give rise to hemorrhage. Lavage of the cavity should never be practised, since its use may disseminate pus into uninfected regions. One or two gauze drains should be placed in the cavity, but without great compression lest they cause ulceration of blood vessels and secondary hemorrhage. Interrupted silkworm gut sutures are then used to close the wound, the drains being brought out at the lower angle. The use of iodoform gauze for drains is advised against by Lenhartz and Kissling because of cases of poisoning which have been observed following its use. Garré and Quincke, however, still employ it. A plentiful amount of gauze should be used for dressing the wound since the discharge will be considerable. If the operation is done in two stages, the second part should be carried out on the third to the fifth day. At that time the abscess is opened and drained as in the one-stage operation.

Post-Operative Care. The patient should be kept in bed with the chest elevated, lying upon the operative side; on the following day the dressing should be changed; and on the second day, the drain started. The latter should be withdrawn gradually until removed. It may be necessary to place a new drain from time to time, until a good sinus is established. Lavage should never be used.

Complications. These may arise during the operation, or during the after-care. The first danger encountered during operation is that of bursting of the lung abscess into a bronchus, causing flooding of both lungs and immediate death by asphyxia. Three other accidents may happen at the time the pleura is opened, namely, sudden asphyxia due to pneumothorax from too large an opening in the pleura, syncope of reflex origin, and a sort of tremor or convulsion of the lung,—the *lungenflattern* of Garré. Symptoms due to pneumothorax may be prevented by making a small incision through the pleura, admitting a small amount of air at a time, and temporarily closing the opening should the least untoward symptom arise. Syncope is a fatal complication of reflex origin. Körte has observed it three times in 28 pneumotomies, and Lenhartz four times in 60 cases. It may occur at the moment the lung is incised, toward the end of the operation, or even hours after the operation is completed. It cannot be attributed to the anesthesia, since in the three cases reported by Körte only one was given a general anesthetic; nor to pneumothorax, for in all three pleural adhesions were present, and there was no collapse of the lung. The *lungenflattern* of Körte is less grave. This writer says that it is caused by large costal resection. The complications arising during convalescence are hemorrhage and infection. Should the former occur, it may be necessary to open the incision and ligate the bleeding vessel. If this cannot be done, gauze should be packed into the cavity, in the hope that pressure will arrest the bleeding. Empyema may follow the opening of a lung abscess in spite of all precautions taken to prevent infection of the pleural cavity. Likewise, infection of the edges of the wound may take place. Secondary lung abscesses may form in the lung, adding to the seriousness of the situation. Good drainage of the lung abscess should be maintained at all times, in order to guard against this complication. Lesions in other parts of the body may be caused by septicemia and pyemia.

The following statistics are the result of a review of the literature of the last ten years:

Total number of cases of acute abscess of the lung, 132; males, 98; females, 32; sex not mentioned, 2.

Total number of cases of acute gangrene, 40; males, 27; females, 5; sex not mentioned, 8.

Average age in cases of acute abscess, 24.5 years; in cases of acute gangrene, 38.6 years.

In acute abscess of the lung, the right side of the chest was involved in 60 cases, the left in 45, both sides in 5 cases; side not mentioned in 22 cases.

In gangrene, the right side of the chest was involved in 21 cases, the left side in 9 cases, both sides in 2 cases; sides not mentioned in 8 cases.

In acute abscess the lobes were found to be involved as follows: upper, 21 times; lower, 76 times; middle, twice; both upper and lower, 5 times. In 28 cases, the lobe was not mentioned.

In acute gangrene: upper, 10 times; lower, 24; middle, none; both upper and lower, 6 times.

In acute abscess cases, adhesions were present in 63, absent in 2, not mentioned in 57. In acute gangrene, they were present in 17 cases; not mentioned in 23 cases.

In 104 cases of acute abscess the lesions were single, multiple in 16, not mentioned in 12.

The mortality in cases of acute abscess treated medically was 54%; in those treated surgically, 25%. The mortality in cases of gangrene treated medically is 89%; those treated surgically, 44%.

NOTES ON SCABIES IN BOSTON.

BY F. M. PAINTER, BOSTON.

A HISTORY of a long run of scabies in a family of eleven recently brought the subject before the Social Service Department of the Massachusetts General Hospital. To see whether such instances were of frequent occurrence it was planned to follow up a group of cases taken at random from out-patient records in order to learn what the outcome had been. The group selected was the patients coming for the first time to the Out-Patient Department of the Massachusetts General Hospital in 1913. There were found to be 158* cases in which an unquestioned diagnosis of scabies was made. In 36 of these the medical records indicated that the disease was considered cured at the time of the patient's last visit to the hospital. Of the 122 cases unsatisfactory when last seen, reports were obtained on 48 of the more accessible by visits made in January, 1914. The outcomes of this sample group of cases may be classified roughly as satisfactory and unsatisfactory, as follows:

SATISFACTORY.

"Cured," no return	32
"Cured," some return of itching several months later, but patients vigorous as to treatment	3
Still have irritation, but no lesions	3
Hospital treatment "helped," but cure was finally effected by other treatment	3
No treatment given at hospital. Cured by private physician	1
	42

* The number given on the charts (Charts 1 and 3) includes cases of questioned diagnosis and also the patients previously treated for other complaints. The method of recording made it impracticable to include these last in the investigation.

UNSATISFACTORY.

Still diseased, after 2-3 months	4
Diseased six months after visit to hospital.	
No certain evidence as to date of cure	1
Diseased two months after last visit	1
	6

Of the 32 cases cured by the clinical treatment all but nine reported that the cure was effected *in two weeks or less.* In general the patients seem to have carried out the treatment vigorously. Many of them went home with their pockets full of a supply of sulphur ointment for the whole household, who all followed the hospital directions. One thorough-going housewife required her entire family, including a married son and daughter and their children, to anoint themselves with sulphur ointment, regardless as to whether they showed signs of scabies or not. A young Swedish girl used the ointment for two weeks instead of three nights, and, naturally, came back to the hospital with a sulphur dermatitis. Of the three patients who sought treatment outside the hospital, one belonged to a family of prosperous Hebrews who had especial difficulty in getting rid of the disease. In spite, apparently, of vigorous measures the trouble ran on for months, reducing the man of the family to a wreck, and the family doctor to something not unlike it. A Jewish mother, a notably good housekeeper by the appearance of her home and children, had faithfully followed directions for months in a case of stubborn irritation following scabies. She turned with tears in her eyes as she asked, "What shall I do?"

Of course not all the patients have taken the matter so seriously or dealt with it so rigorously. Some of the families have the lowest standards of living. In one case although our own patients, school children, are cured, the father lets his trouble run on. In some other places all the conditions were so squalid that it was surprising people living on such a scale had been made to take seriously an itching of the cuticle. It is a credit to doctors and nurses that out of 48 cases only six—one in eight—proved unsatisfactory.

"UNSATISFACTORY" CASES.

These six cases do not, either collectively or individually, present any serious problem. One was never treated at all for the scabies, having in the course of transfer for other ailments somehow missed being sent to the skin department. Another is an untidy and unmanageable grown son in a scrupulously clean German family, all of whom except the patient regard the disease with horror, and are making the most strenuous efforts to guard themselves and cure him. A third, a tiny girl, complained that the "salve burned." The family said no one else had the trouble, and promised to send the child back for a milder application. A fourth, an American girl of eighteen, has come to the clinic five times at intervals of from three weeks to a few days, and shows improvement if not actual cure. Of the two other cases, one was a feeble-minded child at home on vacation from the Waverley, school, the other a State charge transferred from a private society apparently without diagnosis. Neither of these children can have failed later to receive proper treatment. Of the six unsatisfactory cases, then, at least three were found to be in a fair way to cure. Even considering, however, the whole six as bad, a showing of 42 good outcomes in 48, or only 12½ per cent. of failure, is far from unsatisfactory in out-patient work.

DECREASE IN FREQUENCY OF SCABIES.

The reassuring results of the field investigation are confirmed by definite statistical evidence indicating a very great decrease in the frequency of scabies in Boston during the past few years. (See Charts 1 and 2.) The figures were taken

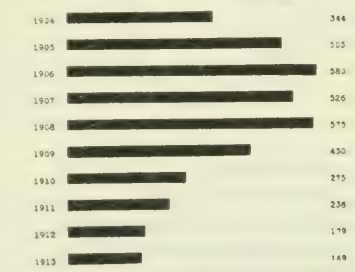
CHART 1.

Number of Cases of Scabies.
Massachusetts General Hospital Out-Patient Department.



CHART 2.

Number of Cases of Scabies.
Boston Dispensary Skin Department.



from the records of the Massachusetts General Hospital Out-Patient Department and of the Boston Dispensary. Chart 1 gives a picture of the relative number of cases coming to the Massachusetts General Hospital Skin Department during the years 1904-1913. It shows a steady falling off from 1907 to 1912, the number

of cases being reduced to less than half during that period. Chart 2 gives the corresponding pictures for the Boston Dispensary, where the decrease, which began a year later, has been equally steady and much greater, the number of cases being reduced to less than a third of what it had been.

The continued increase of scabies at the Dispensary through 1908, when the decline at the Massachusetts General Hospital begins, corresponds to a very large increase in the total clinic of the Dispensary that year. The attendance was over 700 more than that of 1907. The only change in conditions which might account for this rise, so far as I can find, was the appointment as assistant in January, 1908, of Dr. John H. Bufford, present chief of the dermatological service. The fluctuations in scabies at the Massachusetts General Hospital similarly correspond with fluctuations in the total attendance at that clinic. The total number of cases given for the Dispensary for 1913 is probably much lower than it should be, owing to a change in the method of record-keeping by which the count for the last five months is made far less accurate than for the preceding periods. For all these reasons the diagrams based on the *proportion of scabies to all skin diseases* (Charts 3 and 4) give a much truer picture of conditions than those based on the gross numbers.

CHART 3.

Percentage Scabies of all Cases Treated.
Skin Department, Massachusetts General Hospital, O. P. D.

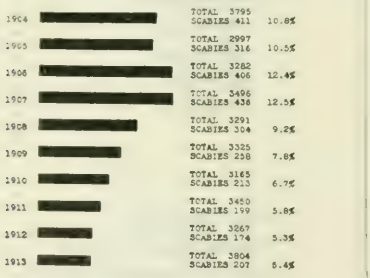
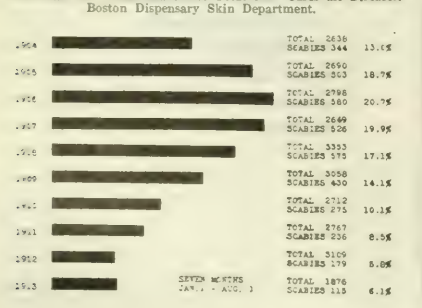


CHART 4.

Percentage New Cases Scabies of Total New Cases all Diseases.
Boston Dispensary Skin Department.



These charts show interesting points of resemblance,—a general increase of scabies from 1904 to 1906 in both clinics; almost no change in 1907; then a decided and regular decrease until 1913, when there is again a slight increase. The Dispensary clinic shows much larger numbers, both absolute and relative, for scabies; the ratio of this disease to the total clinic being in 1906 as high as one case in five, while at the Massachusetts General Hospital it never rose above one in eight (1906 and 1907). Still, the resemblance between the two diagrams is sufficient to point to wide-spread conditions throughout the city.

SCHOOL NURSES ARE THE CAUSE OF THE DECREASE.

The credit for the decrease I have found is not only claimed for the school nurses but ascribed to them by other branches of public medical service. The school physicians have a sharp eye for the disease. But with an ailment characteristic of the recent immigrant it takes more than a mail notice to secure treatment in 95 per cent. of cases. This 95 per cent. is followed up by the nurses. The diagrams offer a graphic and interesting indication of the results of their work, which began in 1907, the year before the marked and steady decrease in the disease begins in both clinics.

INCREASE OF IMMIGRATION AND INCREASE OF SCABIES.

What, however, is the cause of the increase in the early years, and, what is more important, in 1913? For that we must turn to the ultimate source of the whole trouble, namely, the tide of South and East European immigration. Chart 5 illustrates the rise and fall of this tide during

CHART 5.

Immigration of Hebrews and Italians to the United States.



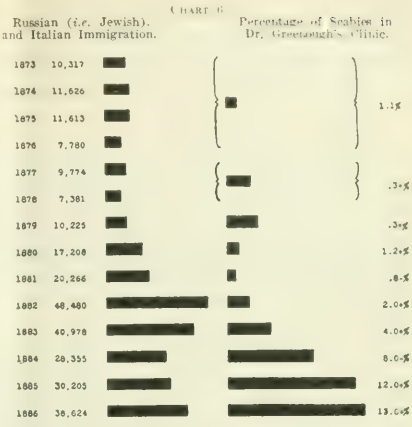
the years with which we are dealing. Because of the immense preponderance of Jews and Italians in the immigration to Boston during these years, as well as in the clintèle of both clinics, I have taken from the reports of the Bureau of Labor the figures for these two races as a basis for the charts. It will be noticed that the increase of scabies in 1904-1906 and the very in-

significant changes in 1907 correspond with the variations in immigration for these years. The good work of the school nurses, it appears, was able to maintain a steady decrease of scabies until the end of 1912, in spite of the increase of immigration in 1910 and 1911. But the enormous increase of immigration in 1913 has been more than they could quite cope with, so that while they have made an admirable opposition to it, the disease has gained a little upon them.

It is extremely interesting to trace the same parallel when we go back nearly thirty years to the beginnings both of scabies as a clinical problem and of Italian and Jewish immigration. Writing in the BOSTON MEDICAL AND SURGICAL JOURNAL of September 23, 1886, Dr. F. B. Greenough observes: "That scabies is much more prevalent at present than formerly in Boston and its vicinity is shown not only by my individual experience, but by that of my colleagues who have charge of hospital dermatological services, as well as by the testimony of private practitioners. . . . The probable reason for this very decided increase is to me one of the most interesting points of the subject. . . . Why, after being for some years comparatively rarely seen, it should all at once take a start, and increase in frequency very rapidly, is not so easily explained."

He goes on to count up that during the preceding year 276 cases in all had come under his personal cognizance, including six in his private practice, and comments "Up to three years ago I had never seen a case of scabies in private practice." It is an interesting illustration of the the slight attention paid to the incoming flood of immigration at its beginning, that in spite of his interest in the spread of scabies and its causes Dr. Greenough does not once take this factor into consideration. Yet the great flood of Jewish and Italian immigration began just four years before he wrote, in 1882, when the May Laws expelled the Jews from Eastern Russia. Dr. Greenough's percentages, computed from the records of his clinic at the Boston Dispensary, side by side with the immigration figures, form the basis of the final chart, (Chart 6).

CHART 6



NOTE.—The immigration chart is on a scale five times greater than that used in the preceding chart. Dr. Greenough's years date from July 1. The first two periods cover July 1, 1873, to November 26, 1876, and November 26, 1876, to June 30, 1878.

AGE AND RACE.

In this connection I give for what they are worth the facts as to age and race for the group of our investigation. Small as the figures are, they are not without interest, taken in connection with other information.

RACE IN SCABIES AT THE MASSACHUSETT GENERAL HOSPITAL, 1913.

Jewish	54	34 per cent.
American	37	23 per cent.
Italian	20	13 per cent.
Irish	17	11 per cent.
Miscellaneous	30	19 per cent.

Over a third of the patients are Jews, and an eighth are Italians. This includes both the foreign-born and the American-born of foreign parentage, so far as it was possible to distinguish the latter. In the case of those not visited, however, the basis for classification was merely birthplace; in the case of the native-born taking into account names of obvious racial significance. No doubt the "American" group includes a number who belong elsewhere, and indicates too large a proportion of the cases, nearly a quarter, as occurring in Americans.

The next table shows how these races, so far as our 158 patients are concerned, compare as to the carrying out of treatment for scabies.

	Total.	"Cured."	Per Cent. "Cured."
Italian	20	13	65
Jewish	54	31	57
"American"	37	16	43
Irish	17	7	41
Miscellaneous	30	11	37
Total	158	78	49

Of the 158 nearly half (78) were apparently cured. Of the Italians, 65 per cent. showed "cures," against 57 per cent. of the Jews and only 41 per cent. of the Irish. These figures, in themselves unimportant, bear out, like the statistical evidence as to the decrease of the disease, general statements made to me by a skilful dermatologist, whose accurate observation has been most helpful to us in making this inquiry.

The *age figures* are at variance with the general impression that the majority of scabies patients coming to hospitals and dispensaries are children.

AGE IN SCABIES AT THE MASSACHUSETTS GENERAL HOSPITAL, 1913.

Under 6 years	21	68, or 43 per cent.
6 -14 years	47	
Over 14 years	90,	or 57 per cent.
Total	158	

Considerably over half the group, 90 of the 158, or 57 per cent., are over 14 years of age. Dr. Greenough's figures, though they show a proportion of nearly four-fifths, 417 out of 549, between the ages of 5 and 30, nevertheless show an even larger proportion than our own above the age of childhood; 378, or 69 per cent. of his patients, are 15 or over.

SCHOOL AND SCABIES.

	Of School Age. Number.	Per Cent.	Not of School Age. Number.	Per Cent.	Totals.
During school months	42	32	90	68	132 (84%)
During vacation	5	19	21	81	26 (16%)
Total	47	30	111	70	158

Classifying again in order to relate the group to school conditions, I find that five-sixths of the cases came during the school months, and that during those months about one patient in three was of school age, against one in four during the vacation.

SUMMARY AND CONCLUSIONS.

1. The out-patient cases followed up show a proportion of 7 satisfactory outcomes in 8, or 87½ per cent., by a rather strict interpretation of "satisfactory"; by a freer definition, 15 fairly good outcomes in 16, or 93¾%.

2. Statistical evidence from two large clinics shows the frequency of the disease to have been reduced in one case to less than half, in the other to less than a third of what it was seven years ago.

3. The facts brought together indicate that the present methods of dealing with scabies are on the whole successful. Even the slight increase during the past year is a very minor matter in comparison with the other problems introduced by the incoming tide of immigration.

THE ANATOMY AND PHYSIOLOGY OF THE SEMINAL VESICLES WITH REGARD TO THE TREATMENT OF THEIR LESIONS.*

BY WILLIAM C. QUINBY, M.D., BOSTON.

THE general anatomies describe the seminal vesicles as a pair of convoluted organs derived from the Wolffian ducts, lying at the base of the bladder between it and the rectum, and converging diagonally toward the mid-line to empty into the ejaculatory ducts. The relations of the vesicles to the vas deferens and its ampulla, to the ureter, to the peritoneum, and to the fascia of Desnonvilliers, are points important in the surgery of these organs familiar to you all.

It is to the macroscopic anatomy of the vesicle itself, and the convolutions of its system of ducts, that I especially wish to call your attention, our knowledge of this having been much enlarged recently by the newer injection methods as used by Pallin, Picker, Barnett, and Belfield.

The first to study the canal system of the human vesicle whom I have been able to find, was Pallin in 1901, who made observations by the corrosion method in 20 adult cases. He divides the forms of vesicles found into, (*a*) those with slightly convoluted main channels, and (*b*) those with the main channel markedly convoluted. Under each division he makes two subheads, according as the diverticula of this main channel are short and uniformly developed or irregularly developed and themselves convoluted.

A still more important communication has rerecently been made by Picker, who examined the vesicles in 150 subjects by the injection of collargol or of bismuth paste. The prostate and vesicles were first made accessible in Douglas' fossa, their contents expressed, and the urethra clamped off just below the prostate. The vesicles were then injected from each vas till they were moderately tense, and then examined either by dissection or by the x-ray. He divides his material thus prepared under the following headings:—

A.	Simple straight tubes,	3.5%
B.	Thick twisted coils, with or without very small diverticula,	15%
C.	Thin twisted tubes, with or without small diverticula,	15%
D.	Straight or twisted main channel, with large bulbous diverticula,	33%
E.	Short main channel; large branched irregular accessory channels	33%

The blood supply of the seminal vesicle is large. It is derived mainly from the middle hemorrhoidal and inferior vesical branches of the internal iliac artery. The main point of entry of these arteries is the upper outer border of the vesicle. This point has been brought out by Barnett, who calls it the vessel pole, and advises its careful ligation before enucleation of the organ. One should also remember that in this region the vesicle is in its closest relation to the ureter.

The veins are similar to the arteries.

The nerves are from the pelvic plexus of the autonomic system.

The lymphatics empty into the glands lying on the common and internal iliac arteries.

(Lantern slides illustrating the above anatomical points were shown.)

* Read at the Winter meeting of the New England Branch of the American Urological Association, Feb. 17, 1914.

Physiology. For many years there was active argument as to whether the seminal vesicles were secretory organs, or only reservoirs for the semen. Newer and more comprehensive observations have settled the question, so that today we know that these organs subserve both functions, their more important one being, without doubt, the secretory.

The evidence for their acting as reservoirs rests mainly on the fact that they practically always are found to contain spermatozoa in varying numbers; that fluids injected into the vas appear first in the vesicle, before passing out of the ejaculatory duct, and that they contract by means of their elastic and muscular fibers during ejaculation.

The secretory evidence is based on the investigations into the comparative anatomy of the accessory genital glands in animals, which show that such are necessary in one way or another for proper impregnation. The function of these accessory glands, of which the seminal vesicle is one, is to add certain necessary constituents to the seminal fluid. Often this constituent is one which causes coagulation. This has been shown very interestingly by Walker of Baltimore to be the property of a special gland in rodents, and is also known to the French writers as the origin of the so-called "vaginal plug" of coagulated semen. Furthermore, the secretory character of the cells of the seminal vesicle is demonstrated beyond question by the newer staining methods of Bensley, by which the cells are shown to contain numerous mitochondria.

Treatment. In view of the points above noted it is evident that some of the ways of attacking disease of the seminal vesicles used heretofore, should probably be modified. I refer in the first place to vesicular massage by rectum for chronic vesiculitis. It must be quite evident that in those very convoluted anatomical types of vesicle already shown massage can do no real good, and may very conceivably do much harm. Indeed, Picker has attempted to correlate the clinical course of inflammation of the vesicle directly with its anatomical form. He demonstrates great differences in the duration of the process, in the presence or absence of ardor urinae, and in the course of the febrile reaction.

It seems to me that Dr. Belfield has demonstrated by far the most logical way in which chronic inflammation of these organs should be attacked, that is by lavage from below through the vas. Even if one is not prepared to advocate a course of vesicular lavage, I feel that the chronic, obstinate case of vesiculitis should at least have an injection of collargol followed by x-ray, to show the anatomical type of ducts with which one is dealing, rather than be subjected to a long course of massage with the constant danger of an epididymitis, or even joint involvement.

So, too, in regard to operation for removal or drainage of the vesicle, I feel that inasmuch as we know that the organ has a physiological function, our efforts should be first to employ lavage rather than to sacrifice the organ.

The question of the relation of the vesicle and its lesions to sterility is an important one, but one which does not come within the scope of my communication.

RECENT STUDIES IN THE PATHOLOGY OF THE SEMINAL VESICLES.*

By J. Dellinger Barney, M.D., Boston,

Genito-Urinary Surgeon to Out-Patients, Massachusetts General Hospital; Assistant in Genito-Urinary Surgery, Harvard Medical School.

In the study of the seminal vesicle, as applied to the cure of certain arthritides of obscure origin, we are entering upon a field comparatively untrodden. From the time of the description of these organs by Fallopius in 1562, up to comparatively recent date, but little has been known of their function, their structure, or their share in the production of disease. The burden borne by them in genital tuberculosis has long been recognized and studied in both the living and the dead. The surgical attention bestowed upon them by eminent men all over the world, over a period of many years, has brought about, owing to the unsatisfactory results, a generally adopted *laissez faire* policy.

But now we are awakened to the fact that not only are the seminal vesicles attacked by and during the course of a gonorrheal infection, but also that they may, and often do, harbor other organisms. We know that these organs not only act as reservoirs for a portion of the semen, but also have a special secretion of their own. That this secretion is highly essential to the formation of a normal semen has been amply demonstrated by the work of Steinach (quoted by Huet), and more recently by Walker (Johns Hopkins Hospital Report, 1911). These observers extirpated the seminal vesicles in white rats and reached practically the same conclusions, namely, that while the sexual capacity was unimpaired, the percentage of fertility was not only greatly reduced, but also impregnation was more or less delayed.

The recent work of Huet (*Cent. f. Bakt.*, 1909, lii) throws light on the pathological physiology of the seminal vesicle. Although he worked entirely with animals (horses, cattle, pigs, and laboratory animals) his observations undoubtedly are applicable to a certain extent to man. He finds in the first place that bacteria may be present in the seminal vesicles of healthy animals. This corresponds to the well-recognized findings in other parts of the genito-urinary tract, not only of animals, but of man. He further has found that in animals dying of acute septicemia, the specific organism can-

* Read at the Winter meeting of the New England Branch of the American Urological Association, Feb. 17, 1914.

thrax, pneumococcus) is to be found in the vesicular secretions. Furthermore, it was definitely shown that an infection with which the male was suffering could be transmitted to the female during the act of copulation. If we are willing to accept Huet's conclusions may they not explain, at least in certain cases, the mode of transmission to the woman of the gonococcus and the spirocheta pallida with which the contents of her partner's seminal vesicles are contaminated?

The bacteriological investigations of the seminal vesicles by other writers show conflicting results. Squier (*Cleveland Medical Journal*, Dec., 1913, xii, 801) has recently reported a series of negative findings from his cultural studies. In the two or three cases so examined by us a sterile culture was also obtained. In one seminal vesicle, however, the microscope has shown a large colony of cocci, possibly diplococci, some of them intracellular, lying within one of the vesicular cavities. Voelcker (*Zeit. f. Chir.*, No. 28, July 12, 1913) reports finding the pneumococcus in vesicles removed at operation, and Picker (*Zeit. f. Urol.*, 1909) has repeatedly shown not only this organism, but also the gonococcus. It is more than likely that further investigations with improved technic will demonstrate that ubiquitous germ, the colon bacillus.

The rôle of the seminal vesicles in chronic infection of the genital tract and in certain types of arthritis was long ago demonstrated by Belfield and by Fuller. The former suggested and, so far as I know still attempts, a cure by means of irrigation through the vas deferens. It remained for Fuller to wade boldly into the perineum and attack under cover of darkness a foe which might far better be vanquished in the light. The more recent work of Young, Squier and Cabot in America, and of Voelcker in Germany, has proven the truth of this statement.

While the pathology of the non-tuberculous seminal vesicle seems to have been but little studied, our own brief experience solves some of the problems, and points out certain fallacies in the procedures of the past. Before entering upon the field of morbid anatomy let us first glance briefly at what is presumably normal.

We know that in very young animals, including man, the seminal vesicle is rudimentary and comparatively undeveloped. A similar simplicity of development obtains in the other genital organs. Likewise in the aged, after a cessation of sexual activity, and barring infection, the vesicles atrophy and assume more and more a resemblance to those of the child. Cruveithier (Testut, Traité d'Anatomie Humaine) has reported a case of monocryptochidism in which the corresponding vesicle was distinctly atrophied, and it has been observed clinically (Testut) that a similar phenomenon occurs after castration. This latter observation is confirmed by the experimental work of de Bonis (*Arch. Ital. de Biol.*, lii), who found in rats, bats and guinea-pigs distinct evidence of inactivity of the seminal vesicles, not only after castration, but also during hibernation (bats); on the other hand, during sexual excitement and just before coitus the microscopic picture was one of immense activity. All of which goes to show that the seminal vesicles and testes are indissolubly interdependent, and form with the prostate, a procreative triad essential to posterity.

The question naturally arises, how are we to know in any given case, whether the arthritis or other evidence of a chronic toxemia, is due to involvement of the seminal vesicles? In the absence of other demonstrable foci, and in the presence of undoubted seminal vesiclulitis, especially with evidences of a latent gonorrhea, the answer is not far to seek. The large sclerosed seminal vesicle is appreciable to the touch even of a comparative tyro. In other cases the organs are not to be palpated, either because of the small size, or, more often the case, because of the cake of plastic exudate in which they lie imbedded. We have attempted to answer this question by the x-ray. The vas is isolated at a convenient point near the top of the scrotum by a transverse incision one-quarter of an inch in length. One per cent. novocain gives good anesthesia, but must be injected not only into the skin, but also into the tissues immediately surrounding the vas. The latter is then elevated on a probe-pointed director, and along the groove of this, between it and the vas, a strand of silkworm gut is inserted. This is tied in a loop and serves as a convenient handle. The vas is now opened by a tiny longitudinal incision and a drop or two of novocain is injected into its lumen. This serves a double purpose, that of anesthetizing the vas for future manipulation, and of determining its patency. In a few of our cases the vas was found to be occluded at some point along its course, making injection of the vesicle impossible. The patient is then placed on the x-ray table, and a small soft catheter is inserted, with its eye lying just *within* the prostatic urethra. Injection of first one seminal vesicle and then the other is done, using a filtered 10 per cent. solution of collargol. The capacity of the seminal vesicle, or at least the point at which it overflows into the urethra (as determined by the flow of collargol from the catheter), has been found to vary. In some cases 2 c.c. sufficed, in others 4 or 5 c.c. When each vesicle has been thus distended the radiogram is taken. Our practice thus far has been to have the bladder empty, the patient flat upon his back, and the x-ray tube placed with its centre over the symphisis. The excess of collargol is then withdrawn from the bladder and urethra (although no evidence has appeared of an irritating effect on these structures). The silkworm gut loops are removed and the vasa allowed to sink back into the scrotum. There has been no bleeding from the wound, and it has not beeen found necessary to close the opening by suture. A plain sterile sponge is wrapped around the scrotum and the whole enveloped in

a suspensory bandage. Convalescence (if this term may be here used) is uneventful, except in the case of an infiltration of the perideferential tissues with collargol. This has produced a marked reaction in every instance, with great tenderness, pain and induration of the parts. Belfield (*J. A. M. A.*, March 15, 1913) has also warned against this event. After a few days, however, this disappears. In two of my cases distinct vesicular colic has been produced. It began very shortly after distention of the vesicle, was localized definitely at a point near or at the sacro-iliac joint of that side, was a dull, steady, aching pain, not requiring morphine or producing nausea. It gradually wore off as the vesicle emptied itself. In a few cases the urine showed traces of the silver salt more or less constantly for as long as a week after injection, and in one or two massage of the vesicle (usually painful) has brought forth much brown detritus as late as ten days after injection. In most instances, especially where the vesicle was the undoubted factor, the arthritis has been temporarily improved to a greater or less degree, thus substantiating Belfield's observations. The latter's method of fastening a small, flanged silver tube into the lumen of the vas for repeated irrigation of the vesicle has not been tried; we can assert, however, that attempts to maintain the permanency of the deferential opening by suturing it to the skin have met with failure.

The question next to be answered is, "Does this incision, injection and manipulation of the vas deferens obstruct its lumen, thus producing a sterility which did not previously exist?"

A definite answer cannot as yet be given, as we have not yet carried out our plan of examining the semen of such cases previous to operation. We have, however, picked those patients on whom this procedure was carried out with great care, selecting only those in whom, owing to age, or to the serious and protracted nature of their infection, the question of sterility carried little or no weight. We believe that, barring infection or other accident, the simple operation described will not disturb the patency of the vas. Time will prove us right or wrong when those on whom we have so proceeded furnish us with samples of their semen.

It is our conviction that careful study will eventually enable us to tell by the x-ray whether a vesicle is pathological and to what extent. Our optimism leads us to think that the situation may some day be comparable to our diagnostic ability with collargol in the renal pelvis. Two cases already operated upon, and with satisfactory radiograms, bear out this opinion. Both had marked arthritis of long standing, one of a gonorrheal, the other of probable colon bacillus origin. In both the vesicles were much enlarged, firm, and with a large amount of detritus. At operation they were extracted with difficulty from a bed of dense scar tissue. Microscopically, they were extensively diseased, one showing an ancient process, the other more acute; in both the walls much thickened, the cavities contracted and the whole a clear attempt at obliteration on Nature's part. It is striking that in both, the preliminary injection with collargol produced considerable improvement in the condition of the joints. Subsequent events show very brilliantly in one case, less so in the other, that in excising these vesicles we had removed the true focus of injection.

The radiograms of each show dense masses of collargol with few and coarse lobulations, corresponding to the contracted and thick walled cavities seen in microscopic section. Contrast these pictures with those of some other cases, and a marked difference is to be seen. One case especially, illustrates this point. This patient complains of pain, indefinite, but persistent, in the lower abdomen, and the vesicles are moderately distended with a detritus which shows microscopic pus. Massage of these organs brings no relief, and the only effect of injection with collargol was the production of a severe vesicular colic, not at all resembling the pain of which he complains. The x-ray picture shows a vesicle composed of many fine lobulations, a striking contrast to those already described. While these observations are scanty and not thoroughly digested, it is believed that they show the direction of the wind.

At autopsy we have removed the vesicles from a dozen cases. These, together with the organs removed by Dr. Cabot or myself at operation, have been studied microscopically. As already mentioned, the organs removed surgically were buried in dense scar tissue. In one of my own cases the vesicle on one side was so adherent that its removal was impossible, while in another neither organ could be excised. We believe this failure to be largely due to a faulty technic. In many of the autopsy specimens dissection was a mere matter of shelling out the vesicles from their capsule. Microscopically these organs were normal. In others their dissection involved the cutting of dense adhesions. It is important to observe that this deposit of scar tissue has always been found most freely distributed about the lower end of the vesicle and the vas deferens, resulting in a firm artificial union of these structures.

The operator who hopes, as we have hoped, to be able to preserve the patency of the vas by separating the vesicle from its ampulla and amputating the gland at that point, must bear this in mind in his prognosis.

Microscopically the seminal vesicles have presented an interesting study. The normal organ with its multilocular and numerous cavities lined with a cylindrical epithelium, with its dense muscular wall, composed of an inner and outer longitudinal coat and a middle circular coat, with its numerous sympathetic ganglia arranged around the periphery, with its profuse blood supply, and its thick layer of elastic tissue surrounding especially the cavities, is a

striking picture. We have had the opportunity to study the vesicles from two infants a few months of age. The difference in the number and complexity, as well as the size of the secreting cavities, as compared with the adult, is unmistakable. Furthermore, specimens stained to show elastic tissue have shown a marked development of this in favor of the adult. Whether this deposit of elastic tissue is increased in disease we are not yet prepared to say.

Pathological specimens have shown various degrees of inflammation. One shows acute abscess formation in various places, areas of hemorrhage, and much newly formed connective tissue. Other specimens show later stages of this inflammatory process. The walls are enormously thickened and muscular fibres have been largely replaced by bands of connective tissue. In some specimens otherwise normal, areas of round cell infiltration were found to be scattered throughout the section. It seems worth while in the present incomplete state of our knowledge, to state that one of the operated cases which resulted so brilliantly showed a fairly active inflammatory process throughout the vesicles, whereas another case, in whom the joints have relapsed since operation, showed a sclerosing process, which had evidently existed for years. It is possible that in cases so relapsing the joint lesions are sufficiently well established to perpetuate themselves.

Another observation of possible importance is that in the radiograms, as well as microscopically and clinically, the inflammation of the vesicles has been found to be shared by both organs. From their proximity one to the other, especially at their junction with the vas deferens, it is easy to see how this might arise. It is of practical importance in that if we consider one vesicle to be worthy of excision, we must likewise indict and excise its fellow.

It has also been found that when the vesicle was diseased, its vas, at least at the ampulla, was in a similar pathological condition. Sections of the vas at this point show a marked complexity of its lumen, and even if the vesicle could be successfully dissected off, we should leave behind a series of infected pockets in the ampulla, which might carry on the work begun by the vesicle.

Although we have not as yet undertaken a study of the prostate in connection with the seminal vesicles, we are of the opinion that such an examination will show the condition of the former, normal or pathological, to compare closely with that of the latter.

The investigations of the late Dr. Samuel Alexander, of New York, in infections of the prostate, and our own studies of genital tuberculosis give weight to this opinion. If this assumption is true it may account, at least in part, for the failure to relieve symptoms which we sometimes see after vesiculectomy.

Dissection of our specimens at autopsy, radiograms during life, and one celloidin injection which we have made, show an astounding complexity of the interior of the seminal vesicle. In more than one specimen we have found, attached to one or both organs, by a slim pedicle, a sort of accessory vesicle, varying in size from that of a split pea, to, in one case, a bean. Microscopically this was identical with the vesicle, and as its connection with that organ was tortuous and narrow, not only did collargol, injected before operation, fail to enter, but also theoretically, massage of the organ would fail to eliminate its inflammatory content. These facts make us seriously doubt the efficacy of a multiple puncture of the vesicle at apparently favorable points, nor do we believe that the deep longitudinal splitting, practiced by Fuller, is of value in certain cases.

This investigation has as yet disclosed no neoplasm of the seminal vesicle. Such growths are excessively rare. Ceelen (*Virchow's Arkiv.*, 1912, 207) gives a very complete report of a case of fibromyoma of this organ. He also reviews the literature of the subject and finds that Teubert has collected four cases of cancer, and that Zahn has described one case of primary sarcoma of the vesicle.

These remarks are to be considered only as preliminary. Further studies now being carried out may cause us to eliminate, modify, or add to them. But so far as we have gone, we can say that,—

1. Vesiculitis may occur from infection with tubercle bacillus.
2. When one vesicle is involved its fellow may also be safely accused.
3. Radiograms with collargol seem already to demonstrate the presence of inflammatory changes, and their future as a diagnostic aid seems bright.
4. Dense adhesions, usually surrounding the junction of vas and vesicle, not only make operation difficult, but in most cases would make successful separation of the two structures impossible.
5. Disease of the vas at its ampulla accompanies disease of the vesicle, and the conservation of the former structure, in the hope of preserving the continuity of the seminal duct, is of doubtful value to the patient.

HOSPITAL ARRANGEMENTS AT SALEM.—The terrific conflagration which devastated the business section of the city of Salem, Mass., on the evening of June 25, required the removal of all patients from the Salem Hospital to the hospitals of Beverly and Peabody, Mass. The Salem Tuberculosis Hospital has been temporarily converted into a hospital for contagious diseases, while the tuberculous patients are all in camp at Salem Willows.

ARTHRITIS ASSOCIATED WITH LESIONS OF THE GENITO-URINARY TRACT.*

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[From the Orthopedic Clinic, Massachusetts General Hospital.]

With the constantly increasing experience with the origins of the arthritides, and the recognition that they all are practically a manifestation of some form of toxemia, the recognized sources of the infection are being given more attention in two particulars: (1) the various conditions of the special portals of entry under which the infection may take place; and (2), the special joint manifestations which are associated with the various sources of toxemia. It is not to be expected that a toxemia from a given source will always develop distinctively characteristic joint symptoms, and there is no reason why the clinical picture of the inflammatory process caused by one particular germ should, at any given period of the disease, be clearly distinct from that caused by another similar one, acting on the same material, and yet in the same way that the tubercular bacillus produces suggestive clinical signs and symptoms, so it may be expected that other forms of intoxication will have some characteristic features in the joint involvement. Approaching a case by the arthritic doorway, which is the usual one, the method of attack must be similar to the procedure of the detective,—to ferret out the hidden source of the disturbance. The special characteristic joint manifestations may give a clue for the direction of the search, and one after another must be run down until the hidden source is found. In order to make a thorough examination a definite route, which will include the common known causes, is of help, and although no schedule can replace a thorough method of examination, it may be of value in expediting that part of the examination which has already become routine, in order to cover quickly the well recognized sources of infection, and allow time for the study of the unusual and less evident factors.

The well known sources of infection can be divided into three general groups, which although today may not be absolutely proved, yet serve as a working basis until further knowledge either demonstrates their validity or modifies their position in physiological chemistry.

ETIOLOGICAL FACTORS.

(*a*) Bacteria or bacterial toxins
- Naso-pharynx
- Tonsils
- Teeth
- Nasal cavities
- Neisser
- Grippe
- Acute infectious diseases
  - Exanthemata
  - Typhoid
  - etc.
- Suppurative processes
  - Otitis media
  - Puerperal
  - etc.
- Tuberculosis

(*b*) Chemical toxins
- Auto-intoxication, gastro-intestinal

(*c*) Chemical irritants
- Uric acid
- Oxalic acid

Among the sources of infection there are three which are now actively prominent among the larger number known to exist, viz., the tonsils, the teeth, and the genito-urinary tract, and none more prominent than the latter. When, in the detection of the source, it is found that the portal of entry is the genito-urinary tract, the case can be studied in the light of some well established data. This portal of entry differs from some others in one respect, in that the bacillus in question is more definite, that is, we are to expect either the gonococcus or the colon bacillus, and the arthritic conditions having a more uniform origin should have more definite characteristics, and this seems to be in general true, either because of the definite relation between the origin of the toxemia and the arthritis, or because this group has had the opportunity of more isolated study, and is better understood.

We may consider the joint manifestations connected with the genito-urinary tract under two heads: (1) those from the Neisser germ, and (2) those from the colon bacillus.

(1). Gonococcus infection. The occurrence of an arthritis in the course of the acute urethritis is so familiar that reference to it only need be made. The usual result is recovery with little or no permanent impairment, but unfortunately this is not always the case, and it is with this less common and less favorable type that we should interest ourselves, both in its detection and in its treatment. Of this we have two distinct types.

First, the acute mon-articular or residual mon-articular involvement, running an acute and persistent clinical course, and resulting in loss of joint function. This infection has certain characteristics.

NEISSER—BACTERIAL.

- Onset, sudden
- Mon-articular or residual mon-articular
- Clinical symptoms, extreme
  - Pain, acute
  - Sensitiveness, acute

* Read at the Winter meeting of the New England Branch of the American Urological Association, Feb. 17, 1914.

Deformity, marked
Capsular thickening, marked
Pericapsular swelling, marked
Indication of involvement of articular structures
Persistent acute symptoms
Joint Damage: From acute inflammatory process; Obliteration of joint cavity; Cartilage destruction; Ankylosis: fibrous, bony (incomplete)

Bacillus found in joint.
End result,—

(*a*) Loss of motion from obliteration of joint cavity by complete adhesion of the capsule to the surfaces of the joint, or by

(*b*) Destruction of the cartilage with ankylosis (incomplete).

The cases operated upon, and open to inspection have shown a very high degree of vascularity of the synovial surface, deep red in color, a very great thickening of the capsule, not only of the synovial portion, but also of the fibrous portion (often wrongly called peri-articular thickening). It is not common to find the gonococcus free in these joints, yet sometimes pure cultures are obtained, and in view of this and of the fact that the gonococcus is short lived and not always easy to find, and of the very great clinical contrast with the usual arthritis, the logical inference is that these cases are due to the presence in the joint cavity of the bacillus itself, and that the inflammatory process is a pure bacterial one. This has the analogy of other infections of the suppurative forms, in which the joints directly infected show greater clinical severity, and tendency to actual suppuration.

Therefore we have for distinctive characteristics:—an arthritis of sudden appearance, giving evidence of a very acute synovial inflammatory involvement, as shown by acute pain, sensitiveness, deformity, persistent symptoms, all of which indicate an inflammatory process in both parts of the capsule,—a process which later shows an inherent tendency to marked contraction, with very strong adhesions, or even destruction. In addition to those clinical signs, the presence of the bacillus is frequently found in very many cases. In other words, an acute inflammatory, non-suppurative, destructive arthritis, a very distinctly different picture from that of the other forms of arthritis, and one which, for the contrast, we may term a "bacterial infection."

The second type of infection is the more common variety. The characteristics of this infection are:—

NEISSER—TOXIC.

Onset, sudden or gradual
Repeated infections
Polyarticular (usually)
Clinical symptoms: mild, acute
Capsular thickening, moderate
Persistent symptoms
Joint Damage: cartilage, nutritive; adhesion; from prolonged attacks; from repeated attacks
Bacillus not found in joint

Adhesions, as a result, are not uncommon, and impairment of the integrity of the joints comes after prolonged and after repeated attacks, but ankylosis from destruction is rare. When the joint is opened the bacillus is not found, the injection of the synovial membrane shows less congestion, and the fibrous capsule is much less thick.

Therefore we have for distinctive characteristics: an arthritis, not of sudden appearance; perhaps with a history of previous attacks; often of acute but not extreme virulence; polyarticular in distribution; with marked but not extreme pathological changes in the capsule; with a strong tendency to the formation of adhesions, but not tending to destruction, except by prolonged and repeated attacks. In other words, we have a mildly inflammatory process, multiple, slowly damaging arthritis from toxic infection. The injury in these cases is by interference with nutrition rather than by the acuteness of the inflammatory process.

Both of these types of joint affections are seen in the course of urethral infection, and they are so different in their pathology and in their clinical results that it is essential to recognize them for what they are. Moreover, it is necessary to so bear in mind that this joint invasion does occur at any period after the primary urethritis, that it is always an expected guest. An apparent (to the patient) freedom from the urethritis for years is no surety of safety. The lingering trouble is far back in the posterior urethral region, which serves as a resting place for many years. The acute form of the arthritis naturally is associated with the early stages of the urethral infection, but also appears in the later. It is, however, a question if this form occurs at a time when the urethral condition is entirely quiescent. This differs decidedly from the second toxic form, which so often appears with an entirely external, quiescent urethral condition. Moreover, there is no relation between the apparent extent or activity of the latent urethral disease and the virulence of the toxic arthritis.

(2). Colon bacillus infection. The second form is the involvement of the joints by the invasion of the colon bacillus. Much less is known of the special joint manifestations of this than of the Neisser germ, and the actual differentiation must rest on the localization of the focus, and through this of the detection of the kind of infection. It is perhaps less important to determine the identity of the bacillus than to lo-

cate its workshop, since the radical method of treatment is the absolute eviction of the tenant. Undoubtedly many cases, which in the past have been suspected to be of Neisser origin have been of colon bacillus sources, for it is often the experience that an arthritis with an old Neisser history, showing post-urethral or prostatic troubles, but without positive Neisser culture, has shown decided improvement after clearing up of the local trouble. Although much less is understood of the characteristic joint manifestations of this infection, some general points are suggestive.

COLON BACILLUS.

Onset { sudden / gradual
Polyarticular
Spine frequently invaded
Persistent acute involvement
General condition—affected.
Detection of focus

Other than that we are dealing with a severe, persistent arthritis of multiple distribution, having a predilection for the larger joints, and very frequently for the spine, there is no suggestion that the infection is due to this rather than to another cause. The differentiation must rest on the detection of the focus.

It is interesting to see how the method of treatment has undergone the change from directing the attention to the joint manifestation to that of the cause alone, and how only until after the source of the infection has been eliminated does the condition of the joint receive attention. Moreover, this is the only reasonable method of treatment. With the detection and elimination of the focus, the repair of the damage already done can then have attention, and the methods used must necessarily depend on the amount of, and on the kind of damage which the joint has suffered. In the toxic cases, the injury is in general of the character which may be called nutritive, rather than purely inflammatory, and must consist of those many means of improving nutrition, promoting absorption of old exudate, increasing motion, etc., which the particular joint demands. The treatment of these is so general and so long, that mention only of it should be made here.

It is the acute joints, described as the first of the group, that demand our interest in this connection. The course to be pursued with them depends on the acceptance of the theory of their etiology, and it is necessary to first decide whether the joint is the host of the germ itself, and this must be done by the clinical picture, and the relation to the urethral condition. If the arthritis is of the bacterial type radical treatment offers the best and surest method of relief. Joint surgery is too often left until the damage is done and no good can be expected, or further harm possible. The essential is that it should be done in the way of joint surgery.

In the very early periods of this type of joint the thorough hot lavage of the joint offers the best chance of the rapid disappearance of the acute joint involvement, at least in the period in which the persistent acute clinical signs indicate that the germ is still an occupant of the joint cavity. Under no condition must the joint be left open; on the other hand, it must be sewed up by the most secure method possible.

The later stage of this acute form is a long, persistent period, in which the capsule, so extensively infiltrated, is beginning to contract, clinging to the bone and forming the strong adhesions to which this form of arthritis is particularly prone, and which are most extensive and most firm. The short lived bacillus is in all probability dead, and has left the results of the inflammatory process with which to be dealt. The chief indication now is to prevent the formation of adhesions during this contracting stage. This stage is the ideal one for the use of the oil inflation, but to be successful two conditions must be thoroughly complied with. First, it must be done by the open incision, in order that the adhesions already formed may be disposed of, and the pockets resulting from them be obliterated. This must be accomplished with the least possible violence to the joint cavity. Second, the oil must be left in the joint with the capsule under a very distinct tension. The capsule must be kept ballooned out sufficiently to keep the synovial surfaces from coming in contact, either with each other, or with the bone surfaces.

Of the local treatment of the colon bacillus form, my experience is too limited to formulate any plan, but in the present state of knowledge, it is to act on the general plan of elimination of the focus, and the local treatment of the joint according to the method used in the toxic infection.

Clinical Department.

A REPORT OF THREE CASES OF THE ERYTHEMA GROUP.*

By H. Morrison, M.D., Boston.

I wish to report three cases which may be grouped under what Osler, following the French writers, calls the Erythemas. He includes under these, simple erythema, erythema multiforme, erythema nodosum, erythema exudativum, urticaria and angioneurotic edema. He reported 29 cases. To quote him, "The whole group of symptoms is really a manifestation of as yet an unknown mischief, which in varying doses in different constitutions, at one time at-

* Read at a clinical meeting of the Mt. Sinai Hospital, Boston, March 19, 1914.

tacking the skin, causes any of the manifestations of the erythema group, from simple purpura to angioneurotic edema, attacking the intestines or stomach, causes vomiting, colic, or bleeding, or attacking the kidneys causes an acute or sometimes fatal nephritis."

My first case is one of erythema multiforme associated with arthritis in a girl of eleven who was under my care two years ago. She became ill with malaise, slight sore throat, some vomiting and fever. On the second day, pain in the joints of the extremities and of the neck set in, without signs of inflammation. On the following day there began to appear over the trunk and extremities, an annular and circinate eruption, with clear centre, and varying in size. The temperature rose to 103. There was no hyperleucocytosis. The eruption faded after two days. The fever gradually subsided. The joint symptoms persisted for two weeks. There was no cardiac or renal involvement. The girl has been well since, except for recurrence of pain in the joints.

My second case presented the syndrome known as Henoch's purpura. Henoch first reported four such cases in 1874. It is characterized by recurrent attacks of purpura and crises of abdominal colic, often accompanied by vomiting and diarrhea, the stools and vomitus may have blood; arthritis may be present; nephritis is a serious complication. The case I am to cite came under my observation this winter. The patient was a boy of nine, of healthy parentage. He had had pneumonia twice. During the two weeks preceding the illness under consideration he had two attacks of tonsillitis. I saw him first Dec. 28, 1913, when he began to have pain in the right knee and in the right shoulder. With this came extreme itching over the whole body; here and there was an urticarial wheal. The next day the left lower eyelid and the back of the left hand became swollen; this swelling was angioneurotic in character, for it disappeared after a few hours. The same day, also, the boy began to vomit; he continued to do so for 36 hours. There was some blood in the vomitus. The bowels were constipated; there was no blood in the stools. With the subsidence of the vomiting, the boy began to have recurrent attacks of abdominal colic. At first the pain was general and the abdomen was soft. On Dec. 31, there was slight tenderness on the left side. The temperature was 101, pulse 100. The tenderness became more localized over the right side of the abdomen and about the umbilicus; there was slight abdominal distention. The joint pain and itching persisted; the scrotum became edematous, but here again the edema was of short duration. At this time I took the boy to the Children's Hospital, where he was seen by Drs. Stone and Morse; both made the diagnosis of Henoch's purpura, basing it on the symptom complex of abdominal colic associated with urticaria, angioneurotic edema and arthritis. He remained at the hospital for five days; the attacks of colic became less frequent and less severe. The day after his return from the hospital, Jan. 6th, there appeared over both legs a fine purpuric eruption; this faded in about two days. The boy improved, though the temperature was slightly elevated and the pulse accelerated. He had lost considerably in weight. There was no cardiac involvement. His urine was negative. Throughout the illness there was joint pain, more or less, but on Jan. 10th the right ankle became definitely inflamed—there was swelling, tenderness and limitation of motion. Temperature 99, pulse 96; no cardiac involvement. This phase lasted one week. Subsequently the convalescence was uneventful. The boy is now well.

My third case presented a picture greatly resembling the syndrome known as Schönlein's disease, or purpura rheumatica, or peliosis rheumatica. It is characterized by arthritis with an eruption which varies greatly, sometimes purpuric, more commonly associated with urticaria or with erythema exudativum. It occurs most commonly in males between the ages of 20 and 30; it not infrequently starts in with sore throat, and runs a febrile course. My patient is a young man of 24. His family and past histories are not remarkable. On Feb. 18, 1914, he began to have general malaise and pain in the joints. He kept at his work. On the evening of Feb. 20th his face and the back of the right hand suddenly became swollen,—the swelling was gone by the next morning. I saw him Feb. 22d. He was then suffering with general malaise, pain in his knees, and in the back of the neck, indefinite abdominal pain, slight sore throat, and slight cough. He vomited during my visit. The temperature was 101.5; the pulse 100. The throat was congested; the heart was clear; there was rough breathing over the base of the left lung. The abdomen was soft, but slightly tender; the joints showed no inflammatory process; the skin was clean. The urine was high colored, acid, and showed a slight trace of albumen and a few finely and coarsely granular casts.

I observed him for a week. He ran a slightly elevated temperature. The joint pains persisted. There was another attack of angioneurotic edema over the right hand. On Feb. 25 I first observed a soft systolic murmur at the apex of the heart; no cardiac enlargement was made out. To account for the cough there were fine and medium moist râles at the base of the left lung. There were attacks of slight abdominal colic. The urine did not change in character.

At this time I had to send my patient to the Peter Bent Brigham Hospital, for he had no home of his own. He is still there. His general condition has remained unchanged, except that soon after admission he began to have crops of purpura with here and there urticarial wheals—purpura urticans. He has had three such crops to date. The temperature has been slightly elevated. The systolic murmur at the apex persists; in addition there is a slight presystolic roll. The urine is clearing.

The impression I got from observing these cases is that they were all infectious in origin, probably rheumatic. Many writers regard this group of diseases as a special affection of which the arthritis is a manifestation analogous to that which occurs in scurvy. In my three cases, however, the onset with malaise and sore throat, the febrile course, the persisting joint symptoms in the first case, the unmistakable inflammatory process about one of the joints in the second case, the cardiac and renal involvement in the third case, all point to an infectious process and suggest strongly true rheumatism. The skin phenomena may be a manifestation of the in-

fection as is seen in typhoid, the exanthemata, and in typhus fever.

The pathology of the skin manifestations in these affections is a vascular change with exudation of blood or serum, alone or in combination. The gastrointestinal crises, *i.e.* colic and vomiting are due to the same process in the mucous membrane of the digestive tract, localized edema and congestion, analogous to angioneurotic edema and to the skin eruptions. The pathological phenomena of the intestinal tract occurring in this group of cases, especially in Henoch's purpura, have been studied chiefly by the surgeons, for, owing to the non-recognition of the visceral crises, a considerable number of patients have been subjected to exploratory operations. Osler in the *American Journal of Medical Sciences*, May, 1904, makes an appeal that in children with colic, the greatest care should be taken to obtain a full history, which may bring out previous attacks of skin lesions, arthritis or intestinal crises, also that a most careful inspection of the skin should be made for angioneurotic edema, purpura or erythema.

The duration of these affections is a matter of weeks. The renal and cardiac complications are of course serious. There have been reported fatal cases.

The treatment is symptomatic. Rest is as essential as in the ordinary types of infection.

Reports of Societies.

NEW ENGLAND BRANCH OF THE AMERICAN UROLOGICAL ASSOCIATION.

Winter Meeting, Boston Medical Library, February 17, 1914.

President, Dr. Hugh Cabot, Boston;

Secretary, Dr. R. F. O'Neil, Boston.

Demonstration of Specimens, Etc.

SPECIMEN OF URETERAL CALCULUS.

Dr. J. B. Blake: I wish to show a ureteral stone, one of the lesions which is becoming less and less common in the experience of the general surgeon. It sometimes happens that the general surgeon mistakes the ureteral stone for chronic appendicitis. At all events, the symptoms leading to an operation for chronic appendicitis, which are also consistent with a ureteral stone, sometimes lead to an operation in which the appendix is found practically normal and the stone has passed on into the bladder. In this class of cases, symptoms, at all events, point toward the position of the stone.

The case from which this stone was removed did not, at any time, have any symptoms referable to the point where the stone was found. Dr. Binney's catheter passed directly by the stone and beyond it. The x-ray showed a rounded shadow and the complaints of the patient centered about the kidney. In spite of this, and the presence of a shadow at the same spot on two successive plates, and a temporary obstruction at the tip of the catheter at a point corresponding to the x-ray shadow lead to the operative attack upon the ureter, rather than upon the kidney. A rounded incision (an incision warmly recommended by Dr. Gibson, of New York) permitted a beautiful and satisfactory exposure of the ureter. The stone was found just beyond the pelvic brim, pushed upwards, and removed by small incision immediately closed with silk. Convalescence was uneventful.

REPORT ON A METHOD OF LOCAL ANESTHESIA FOR PERINEAL PROSTATECTOMY.

Dr. W. C. Quinby: I wish to call your attention to a method of local anesthesia for removal of the prostate, and would say that this is not original although it is the first time that I have had occasion to use it. It has been advocated, I think, by Posner and probably by others.

In a man in whom one does not care to use either general or spinal anesthesia, the problem of getting the prostate out with local anesthesia comes up. The nerves to be anesthetized are principally the pudic nerve and then a few rather minor branches from the pelvic nerve, questionable branches as regards their sensory function. Then, of course, there are the sensory skin nerves. The method of anesthesia of the pudic nerve is by the applying of the anesthetic to the nerve trunk at some distance from the area one is about to operate. I find that this it not at all hard to do, using a long needle,—say, five inches, such as is used for lumbar puncture. The guide to the pudic nerve is the spine of the ischium which is felt by rectum at the median end of the lesser sacro-sciatic ligament. First, make two spots of anesthesia in the skin of the perineum just to the side of the anus and about one centimeter in front of it. With the index finger in the rectum, locate the spine of the ischium. Through one of the anesthetized areas, insert the needle and under the guidance of the rectal finger, push it forward until its tip rests on the spine. Then depress the point of the needle, insert it still another centimeter, and here inject about 10 c.c. of urea and quinine hydrochloride. The pudic nerve running on the dorsal side of the spine is thus anesthetized. Then withdraw the needle until only about one centimeter remains in the tissue, and alter its position so that it runs to the posterior surface of the prostate between this and the rectum. Here inject about 5 cc. of solution. Repeat this process on the other side reversing hands. The deep anesthesia is thus completed, and there remain only the superficial nerves of the perineum. These are controlled by a line of anesthesia about 8 cm. long, running antero-posteriorly just to the median side of the ischial tuberosities.

Carried out in the above manner, I was much pleased to find that the anesthesia secured was a real one, wholly sufficient for performing a perineal prostatectomy.

SYMPOSIUM.

THE GENITO-URINARY TRACT AS A FACTOR IN THE PRODUCTION OF CHRONIC TOXEMIAS AND JOINT LESIONS.

PHYSIOLOGY AND ANATOMY OF THE SEMINAL VESICLES IN REGARD TO THE TREATMENT OF THEIR LESIONS.*

DR. WILLIAM C. QUINBY, Boston.

RECENT STUDIES IN THE PATHOLOGY OF THE SEMINAL VESICLES.†

DR. J. D. BARNEY, Boston.

ARTHRITIS ASSOCIATED WITH GENITO-URINARY LESIONS.‡

DR. E. G. BRACKETT, Boston.

INDICATIONS FOR OPERATION ON THE SEMINAL VESICLES, WITH SUGGESTIONS AS TO THE TECHNIC AND THE RESULTS SO FAR OBTAINED.

DR. J. BENTLEY SQUIER, New York.¶

DISCUSSION.

DR. C. F. PAINTER, Boston: *Mr. Chairman and Gentlemen*: At the present time when there is so much discussion with reference to focal lesions and their relation to systemic disease, it seems to me that your Association is rendering a great service to the profession at large in bringing together a symposium such as we have had the opportunity of listening to tonight.

I am sure that in this way our ideas will be clarified and our enthusiasm checked up. One cannot but have in mind the many instances in which one's enthusiasm has run away with his better judgment, and therefore it is of the utmost importance that in this matter we should be very definitely convinced of the rôle played by focal lesions in the genito-urinary tract upon systemic diseases, particularly so, if radical and operative treatment is to be the means of attempting to remedy these focal lesions.

We must be able to convince the doubters who do not believe that there are such things as focal lesions responsible for the systemic disease, and we must not run into the error of attributing all systemic disturbance to the particular focal manifestation in which we are interested. It is because of this error that there are so many doubting Thomases. If Mr. Lane were more reasonable in his contention in regard to the desirability of doing short-circuiting operations for the relief of Pott's disease; if orthopedic surgeons were less dogmatic in their claims that sciaticas were due to sacro-iliac lesions, and many other extravagant claims were less prominently advanced, it would be easier to convince the profession of such truth as lies in many matters under investigation.

It seems to me that the genito-urinary tract is unquestionably in a certain number of instances responsible for arthritic manifestations, but I am fully convinced that the ordinary types of genito-urinary infection, namely the gonorrheal variety, are not responsible directly for but very few arthritic signs, and these are almost invariably of the acute type. The chronic arthritic lesions are the result of mixed infections. Beyond a doubt many of these are connected with the genito-urinary tract and may have been superimposed upon an original gonorrheal infection, but they are not gonorrheal in the etiologic sense.

I believe that the treatment of acute polyarticular gonorrheal infections of the tarsus, which are the commonest perhaps of all that we see, should include the absolute removal of the patient from the use of the feet, and that the chronic character of such lesions is due to the imposition of the trauma of walking upon the capsular infiltration of the acute gonorrheal lesion. These are distinctly different in type from the multiple lesions of a chronic character occurring in the large and small joints.

Another matter which we should be very careful about in interpreting these phenomena and determining whether the relief of a local infection has anything to do with the cure of a generalized systemic process, is that the putting of a patient with such lesions to bed, as is necessary after any surgical procedure, is invariably associated with a very decided betterment of the local conditions in the joints. This improvement amounts to a very considerable degree of betterment, enough to justify the belief that the special procedure was curative, if one did not have the experience to draw upon of having put these patients to bed and done nothing else to them, and had them manifest an equal amount of improvement.

Again I wish to emphasize what I believe to be a matter worth emphasis, and that is the value of a frank discussion of such a subject as this by those who are interested in it from different points of view, and I believe that one of the chief values of such discussion will be the imposition of checks upon the hyper-enthusiasm of those of us who are prone to regard a surgical method of attack upon a constitutional condition as a desirable thing to undertake without giving as much consideration to the results which are obtained and attempting to estimate whether or not they are proportionate to the permanent improvement that results.

DR. HUGH CABOT, Boston: I find myself on the program through the goodness of our secretary. The subject has come to us in connection with the orthopedic department, largely in the study of the chronic cases. I confess I have had no experience with the acute cases, because they have seemed to me to behave reasonably well without operation, and I have been frankly afraid of what seemed to me a very radical procedure. The more I see of it, the less I regard it as a radical procedure, and I am in accord with Dr. Squier that we have been afraid largely on account of the type of operation being mutilating. I believe that Dr. Fuller's operation has been unnecessarily radical and has frightened us.

I have long been unable to believe that the tendency of gonococcus infectious relapse was wholly due to the condition of the prostate. They have been laid at the door of the prostate but it has not seemed to me that the anatomy justified that view. I have generally taken the view that there was a lapse of memory and that reinfection accounted for some of them. Increasing knowledge of the vesicle leads to the belief that in the vesicle, not in the prostate, lies the difficulty. I have had no experience with the acute cases. With the chronic cases we have had a little experience. At present I am inclined to require very clear demonstration of the presence of suppuration in the vesicle and of a

* See page 58.
† See page 61.
‡ See page 63.
¶ See JOURNAL, Vol. clxx, No. 24, p. 908.

chronic arthritis before I am willing to take radical measures. Beyond that, I think there ought to be reasonable demonstration of the absence of other probable foci, but if you can always get evidence of a suppurative vesiculitis, if there is chronic arthritis, it is reasonable to suppose that this is the focus of infection and that drainage will be efficient. I have not believed that incision of these structures for the drainage of chronic suppuration was satisfactory. The condition of the patients is such that I have not thought it important to dodge the issue by a palliative operation. It seems to me their condition is so serious they are clearly entitled to an operation as radical as a removal of the vesicle.

On the other hand, if we are to regard the radical operation as appropriate to the acute cases, we must be prepared to go the distance, prepared to assure these patients of good results, and we must be prepared to advise them of certain sterility, which in comparatively young men is a serious business. There is clearly going to be room for such operations as Dr. Squier's for cases with severe symptoms in whom sterility would be a serious matter. A good many patients have reached middle life and the question of sterility is comparatively unimportant.

I am interested in the work which Dr. Barney has done, because I think it may enable us to separate the pathological vesicle from the normal vesicle, which though it may show evidence of chronic inflammation can hardlly be expected to be a sufficient cause of the arthritis. Certainly our experience is too limited to enable us to decide from an injected radiograph that a given vesicle is or is not pathological. The dense shadows showing dilated cavities, as compared with the thin shadows showing thin shadows of collargol, are sound evidence of chronic dilatation.

The difficulty in my mind lies in the fact that a good many patients with marked infection of the vesicles have in the past been treated by massage with good results. The demonstration which seems sound enough now that massage is not likely to cure these patients, seems to me to break down somewhat in the face of the fact that whether from the massage or something else they did get well. I remember a patient with enormously dilated vesicles. A large amount of secretion was obtained each time. After treatment the amount of secretion steadily diminished. At the end of a year he was free from pus; an unfavorable appearing case, but one which I think massage practically cured.

I am unwilling to recede from the position I think we have all of us occupied, that massage is of much benefit in sub-acute and chronic cases and should be applied before we go on to the more radical measures. The severe cases of arthritis, however, have not been benefited by massage. I think we should apply it chiefly to the cases without arthritis.

Dr. A. L. Chute, Boston: The papers of the evening and the discussion have interested me greatly, but have not convinced me.

For some reason this discussion reminds me of the meeting on vaccines some years ago, where a good deal of optimism was expressed that failed later to materialize. In this matter, too, I want to be shown. In the first place, people with seminal vesiculitis have certainly gotten well under the older and milder treatment by means of massage. Not only has vesiculitis gotten well, but so have cases of arthritis that had their origin in the process in the vesicles. I have seen such cases on several occasions. It seems to me that to open the vesicles of these patients, until it has been shown that they cannot get well by use of the milder means is of doubtful wisdom. The procedure suggested by our president—the excision of the vesicles—I do not think should be entertained, especially in the younger men, unless he can show definitely that sterility does not result from the scarring following operation. At least it should not be considered until the less radical means have proved useless.

There is another point that I think is important. Our president has laid the whole blame on the seminal vesicles as the source of infection in these cases of arthritis. He does not think the prostate plays an important part. The late Dr. Alexander thought that the prostate played a very important rôle in the keeping up of chronic urinary infection; so much so, that he advised prostatectomy as a means of clearing up these infections. Dr. Alexder's work, if I remember rightly, did not have particular reference to arthritis. It seems to me that the anatomy of the postate, with the lobule at the end of a long duct, after the manner of a grape at the end of its stem, gives an ideal condition for the retention of infection. You may have you duct occluded and your gonorrheal or pyogenic process shut off in one of these lobules. Before subjecting a man to vesiculotomy or vesiculectomy, I feel that one must be able to rule out the prostate as a cause, even a contributory one.

Dr. Barney spoke of the importance of drainage in these cases. I believe drainage will undoubtedly cure them, but I think, too, that massage will also cure most of them. It not only empties the vesicles, but it brings about the hyperemia that is necessary for curing any ordinary focus of infection.

This operation is one of considerable technical difficulty, and I do not believe that we should encourage the public in the belief that the routine treatment for arthritis, that depends upon a urinary focus, should be vesiculotomy.

Dr. J. H. Cunningham, Jr., Boston: I want to express my appreciation of the comprehensive group of papers, which we have listened to this evening. My operative experience upon the seminal vesicles has been limited. I have operated on some vesicles with chronic gonorrheal infection, associated with gonorrheal infections with variable results, some good, none brilliant, and some of them better left alone.

The drainage of the seminal vesicles, for retained products of inflammation, without joint involvement, I have never done. In this group of cases I have resorted to massage after the usual method and deep injections. All my joint cases have also received massage, deep injections and vaccines with some benefit, and some may be considered cured. Only those cases which have not improved under this form of treatment have been subjected to operation. Several times in years past I have opened and washed out knee joints infected with gonorrhea. Some of these cases were benefited, while others had periods of quiescence with subsequent recurrences. I am convinced that this method, of treatment is not to be continued in view of further knowledge of this subject.

I think that the injection of the vas with the hope of controlling seminal vesicles infection is of no value. I have done this sufficiently to prove it to myself at least.

I have been reluctant to operate on vesicles infected with gonorrhea for the reason that many

cases are benefited by massage, deep injections and vaccine, and because of the nature of the operative technic. I have seen many of Dr. Fuller's cases which have been operated upon and they are certainly brilliant enough. Nobody could expect more from an operative procedure, but the technic of the operation has never appealed to me. Dr. Squier convinced me some time ago that this technic is one that offers more than that with which we have previously been familiar.

I have not as yet the experience which I am desirous of getting in view of the new light upon this subject. The selection of the cases is to my mind the difficult part of the whole problem. We all know that these cases of joint involvement originating from infected vesicles form a class, some of which will get well by massage and vaccine, after a long course of treatment, while others will receive little benefit. If incision of the vesicles will get them well quicker in the majority of cases of course we want to do it. I am at a loss to know what case should be operated upon in the early stage of the disease. On this account I have always waited until we have gone through the old form of treatment without improvement before an operation is undertaken. On the other hand when we have an opinion in regard to the operative results, such as Dr. Squier has given us, together with the experience furnished by Dr. Fuller, we must give the subject of early operation serious consideration.

DR. GEORGE O. CLARK, Boston: I have had no experience whatever with these operations, but the papers have been very interesting, and certain things have been of great value to me.

For the past five or six years it has fallen to my lot to massage a great many prostates and vesicles in the course of treating patients with chronic processes resulting from gonorrheal infection.

Two things are definitely established: first, we do know that the prostate and the vesicles, owing to their histologic anatomy, are both readily liable to gonorrheal infection; secondly to eradicate this infection and its sequellae from these sites is arduous, time-consuming, and uncertain.

By massage we unquestionably can and do get something out of these chronic prostates and vesicles. Further, we can differentiate between vesicular and prostatic detritus. As Dr. Chute has said, massage does undeniably do good. By friction and pressure it relieves the distended or atonic walls of their accumulated contents, increases the local circulation, and perhaps stimulates the local nerves. After the conservative treatment has been applied to these patients for about a year they are, clinically speaking, a whole lot better. After several years, in nearly all cases it is next to impossible to establish the presence of gonococci in bacterial culture from the detritus, though not rarely I have recovered other bacteria. It is difficult to define the term "cured" as applied to the conditions we are discussing. Personally, I do not believe that I have taken part in what I interpret as a genuine cure in more than three instances of chronic gonorrheal prostatitis and vesiculitis; for I have never yet found more than that number from whose prostate or vesicles—even after bacteriologic and previous so-called clinical cure—I could not recover some abnormal detritus by massage.

Hence my enthusiasm for the old-fashioned conservative treatment is only moderate, and the fair-minded attitude expressed in this evening's papers seems to me to offer valuable suggestions for improved future results in appropriate cases.

Until some method shall be developed,—as suggested by Dr. Barney's research—to differentiate early the very obstinate from the less obstinate cases, my personal feeling is that before adopting as a routine the proposed radical procedures, the average patient is entitled to have the old-fashioned massage and conservative treatment for perhaps a year. Then, if not measurably improved, a vesiculotomy in a younger man or a vesiculectomy in an older man might be not only warrantable but actually *conservative*.

DR. B. TENNEY, Boston: I have nothing to add to the surgery of this subject but I do want to express my appreciation of the work the president and secretary have done in getting together these very interesting papers.

I can distinctly recall five cases of seminal vesiculitis which have passed through my hands with arthritic complications. Three were monarticular and two were polyarticular. It happens that the three monarticlar cases all completely recovered, all married, and all have children. The two with multiple arthritis have also recovered with deformed joints, and in spite of generous diet and free living they have been free of symptoms for a year.

I really do believe that some of these vesicular infections must result in so closing the ejaculatory duct that a vesiculotomy or vesiculectomy is the only proceeding that will permanently get rid of a dangerous focus, though I have not personally seen such a case.

DR. WM. C. QUINBY, Boston: I do not wish to go on record as defending vesicular lavage in all these cases. It is merely a measure of less degree than the operation. Only in some cases I feel that it should be used before resorting to operation.

In regard to the subsequent papers. I wish to ask Dr. Barney as to his method of making radiographs, and secondly, about his data for interpreting them.

The vesicle is going to appear foreshortened in the x-ray plate, if the axis of the tube is at a certain relation to the long axis of the vesicle. I have had a couple of cases in which this was brought out quite clearly,—namely, those in which changing the position of the tube made the vesicle look like an absolutely different organ; so that I feel that the relative position of the x-ray tube to the vesicle and the inclination of the pelvis to the horizontal are important points, and should always be kept the same. I also feel that a definite known quantity of fluid distention should be used before making radiographs.

Secondly, in interpreting a radiograph after it is made, I understand that you feel that if you get a large quantity of densely showing collargol in a vesicle, this leads you to infer that it is dilated and probably more pathological than if you find one showing rather less distended and possibly more tortuous but not so bulbous.

Without having had as much experience as you have in this regard, I should take an exactly opposite view.

If the vesicle has acquired infiltrated and sclerotic walls through inflammation, it would seem incapable of being much distended by collargol. The ability of normal vesicle to show distention by collargol should be studied in the cadaver.

Dr. J. D. Barney, Boston: In regard to Dr. Quinby's questions, a uniform technic has been used. However, it has been so little used that I am perfectly open to conviction as to whether it is right. The screen on the tube that they use in the x-ray has always been placed with its center over the symphysis pubis, and at a plane parallel with the table. The patient is put on his back without any artificial elevation of the pelvis. The bladder has been in some instances filled with fluid, but in most cases has been practically empty, except for what urine might have collected. Whether that is the right way to go at it or not, I am not prepared to say, as I have done so little of it. It is possible that further investigation may show us that tilting the pelvis, tilting the x-ray tube, or filling the bladder, or emptying it, may bring better results.

As regards the interpretation of the shadow, there again I am a comparative novice, but as all the x-rays were taken under like conditions, I think we can make a like interpretation.

If you could see the actual x-ray plates you would see more clearly what I meant to bring out, that in the cases where we operated after injection, and thus were able to see the specimens macroscopically and microscopically, the density of the shadow in the plate was due, not to dilatation in the cavity of the vesicle, so much as to a few rather large cavities which were not of a very complex kind, which we see in the normal vesicle, but more of a unilocular type.

One more thing, in regard to what Dr. Chute said about the work of the late Dr. Alexander. I was fortunate enough to see Dr. Alexander demonstrate his specimens to me. They convinced me that in the cases where the vesicles are involved, the prostate is also involved, and vice versa. One is involved with the other. I think the prostate is also involved in colon bacillus infection. I have not at all lost sight of the importance of that, and when the opportunity offers, shall examine the prostate with the vesicles and see how they correspond.

Dr. E. G. Brackett, Boston: A meeting like this one of tonight writes whole pages in the chapters of the work of clearing up the etiology of arthritis. The orthopedist is frequently a distributor. One case of arthritis he sends to the laryngologist, who removes the tonsils; another to the dentist, who puts the mouth in order; another to the surgeon, who suspends or removes a portion of the intestines; and still another to genito-urinary specialist, who may find several possible portals of entry. All of this merely shows how important it is that we should regard arthritis from a local point of view. The treatment of these cases is being worked out along detective lines, regarding them purely as focal conditions, with the joint manifestation as the indication of some form of toxemia, and the only reasonable way of conducting the case is by ferretting out the source of the infection. When once this is found the method of dealing with the infected area should not be difficult to determine. Some may require mild measures of correction and others radical measures of removal, but the only requisite is that, as a productive factor, it shall be eliminated. This accomplished, we can begin to repair as completely as possible the damage already done to the joints, and the earlier this can be done the less there will be to do, and the more complete will be the repair. This emphasizes the important fact to bear in mind; namely, the necessity of dealing with the causative agency early in the disease, before there is irreparable damage to the joint structures.

Dr. J. B. Squier, New York: I have not very much to add except that I would not like to return to New York leaving the impression that I was indiscriminately subjecting patients to drainage of the seminal vesicles.

I wish to go on record that in cases of chronic vesiculitis, conservative treatment should be faithfully tried out before operation is advised.

As regards the question of sterility following drainage of the vesicles; I can not see why there should be any more chance for such a condition to arise after than before operation.

The occluding inflammation is already present and the damage done and in a properly performed operation the ducts are not injured.

When we drain a gall bladder the cystic duct is not damaged by the operation.

Replying to Dr. Chute: I might say that it is hardly necessary to defend the principle of surgical drainage. That it is a proven procedure of value has been adequately demonstrated in many parts of the body which are subject to chronic inflammatory processes.

We have learned to open the ear drum early in order to guard against involvement of the mastoid. This one example is enough to demonstrate the principle and clinch the argument.

The discussion tonight has gratified me deeply and I am glad that most of the speakers have assumed a "show me" attitude. I am not pleading a cause, I only hope that I may stimulate a desire on the part of some of you to use this method in carefully selected cases and am more than willing to abide by your dicision after you have done so.

A visit to Boston and the opportunity to take part in this symposium has been a great privilege and in closing I beg to express my grateful appreciation of the honor.

Book Reviews.

Arteriosclerosis. By Louis Fangeres Bishop, A.M., M.D. London: Henry Frowde and Hodder and Stoughton. 1914.

This monograph in the series of Oxford Medical Publications is devoted, according to its subtitle, to "a consideration of the prolongation of life and efficiency after forty," and represents the results of the author's clinical and laboratory studies on cardiovascular diseases and metabolism. He believes that "the key to the riddle of arteriosclerosis lies in the sensitization of individuals to particular proteins or to split products of particular proteins." In other words, arteriosclerosis becomes a phenomenon of anaphylaxis. A large part of the work is devoted to the treatment and prophylaxis of the condition on the basis of this theory, which, therefore, has a practical application and is not purely speculative. The book is illustrated with 12 full page plates and 25 figures in the text. It seems a valuable addition to the literature of the subject.

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SANITARY CONTROL OF OYSTER BEDS.

TWENTY years ago, H. W. Conn called attention to the occurrence of typhoid fever in epidemic form as the result of eating oysters contaminated by sewage. Ever since that time there has been an increasing tendency to assign this cause for otherwise inexplicable outbreaks of typhoid in certain districts.

The result of recent investigations by Joseph in the Laboratory of Hygiene and Bacteriology at Johns Hopkins seems somewhat to minimize the dangers from this source. He found that the oysters sold in Baltimore are, as a rule, free from sewage contamination. This is especially true during the winter months. In the late spring and early fall, several lots were found which were contaminated with B. coli. and B. cloacae, which surely indicate that sewage pollution of the oyster is at least a possibility. The reason that the bacterial count of the oyster is lower during the winter months is because it hibernates during the cold weather. Its ciliary movements cease and it does not feed at all, so that during the winter season it may lie in badly contaminated beds without becoming infected. With the extension of the oyster season well into the summer months, and with the capitalization of the oyster business so that the output of many beds in widely different localities is all bought up by the wholesale dealer and then sold indiscriminately to the retailer, the danger from this source is probably greater now than in former times. So long as people restricted their oyster appetites to the months which contained the letter "r," the sanitation of the beds was not so important as at present. Likewise, when a Baltimore oyster was known to come from Baltimore, one could be reasonably sure of safety. But times and customs change, and to keep abreast of both we should demand clean oyster beds at all seasons of the year and in all places. In an article on the pollution of total waters by Hugh S. Cummings (Public Health Report, April 10, 1914), this subject of sewage contamination of shell fish is reviewed from all angles. He calls attention to the fact that every oyster passes through itself 10 or 12 gallons of water daily, and quotes Prof. Brooks as saying that probably all the waters of the Susquehanna go through oysters before reaching the ocean. He believes that the larger portion of the oysters on the market are perfectly safe food when bought by the consumer, but that this safety might be made universal by proper legislation. As the matter stands at present there are many polluted beds which supply their quota to the general market. The situation is somewhat analogous to that which obtains in the milk industry. Many dealers would furnish pure milk without legal compulsion; some through ignorance sell dangerous milk, and a few unscrupulous ones will sell any kind at all for money. Uniformity of sanitary requirements is what is needed in the oyster as well as the milk industry. While much may be done by individual states and municipalities in regulating the pollution of oyster beds and the handling of oysters in the market, the question in its entirety seems to be incapable of solution in this way. This is on account of the interstate traffic in shell fish. The federal government controls interstate commerce and navigable rivers.

The shell fish industry is one of national importance in control of infectious diseases, therefore it would appear reasonable that the government should exercise a supervision of oyster beds which would equal that of the meat supplies undertaken by the Bureau of Animal Industry.

MEDICAL LEGISLATION. VETO OF THE CROCKER BILL.

AMONG the pieces of medical legislation passed by the Massachusetts General Court at its pres-

ent session was the Crocker bill, providing for the establishment of an institution for the care of the feeble-minded, to be located in the western part of the state.

"This bill provides for the appointment of seven trustees to govern the proposed institution. It authorizes them to expend, between 1914-1918, not more than $800,000 for the construction of school buildings, to care for one thousand feeble-minded patients.

"Not more than $200,000 would be expended the first year and not more than $150,000 in any of the other years. The school would be under the supervision of the state board of insanity.

"The school shall maintain a school department for the instruction and education of feeble-minded persons who are within the school age or who, in the judgment of the trustees, are capable of being benefited by school instruction, and a custodial department for the care and custody of feeble-minded persons beyond the school age or not capable of being benefited by school instruction.

"The school shall gratuitously receive and educate in the school department such indigent feeble-minded persons from Massachusetts as shall be designated by the governor upon the recommendation of the secretary of the board of education. The trustees may also at their discretion receive in the school department other feeble-minded persons upon such terms as they may determine."

On June 18 this bill was returned with Governor Walsh's veto as an undertaking unwarranted at present. In conclusion of his veto message the Governor said:—

"There has been no study of a definite policy or plan for the classification and care of afflicted persons of this type which would have in mind both humanitarian considerations and efficient administration. In order that there may be no delay in the consideration of the great problem of efficiently and humanely providing for the care of the feeble-minded, and with the view to provide the basis for action by the legislature of next year, it is my purpose to call upon the reorganized commission of economy and efficiency, to be provided by your action this year, to take up, with the trustees of existing institutions, as one of its first duties the study of this great question so that a definite policy may be determined."

Doubtless the Governor has acted from the best motives in vetoing the Crocker bill, but at a time when such an institution is so much needed, his veto seems unfortunate. It remains to be seen whether the legislature will override it with a two-thirds vote.

MEDICAL LEGISLATION. MASSACHUSETTS STATE BOARD OF INSANITY.

In the issues of the JOURNAL for April 9 (Vol. clxx, p. 584) and June 18 (Vol. clxx, p. 965), we commented editorially on the proposed reorganization of the Massachusetts State Board of Insanity. The tentative bill, described in the latter editorial, has been considerably modified by amendments. The new board is merely given supervision, not direct charge, over insane, feeble-minded, epileptic and intemperate persons. The provision for an annual inventory of each institution is eliminated. The chairman of the board is to receive an annual salary of $5500, the two other members $5000 each. It is provided that none of the present employees of institutions shall be removed from office except under civil service rules. In its amended form this bill was on June 29 passed by the Senate without debate to be engrossed. On July 2 it was also passed by the House.

LOSSES TO PHYSICIANS IN THE SALEM FIRE.

Among the large number of sufferers from the calamity by fire in Salem, six were physicians, three of whom lost all their possessions and are in urgent need of assistance. Four of the six are members of the Massachusetts Medical Society. The distress caused to physicians by this disaster should be a matter of special concern to all members of the profession. The Essex South and North District Medical Societies are soliciting contributions for the sufferers and any outside help would be welcome. All contributions should be made payable to Dr. George L. Goodell, Treasurer, Salem, Mass.

MEDICAL NOTES.

INTERNATIONAL HAHNEMANNIAN ASSOCIATION.—The thirty-fifth annual meeting of the International Hahnemannian Association was held in Atlantic City, N. J., on June 25-27 inclusive. Boston men who presented papers were Dr. Henry L. Houghton and Dr. Richard S. True.

AMERICAN INSTITUTE OF HOMEOPATHY.—The seventeenth annual meeting of the American Institute of Homeopathy was held in Atlantic City, N. J., on June 29 and 30, under the presidency

of Dr. Dewitt C. Wilcox, of Boston. Dr. Byron E. Miller, of Portland, Ore., was elected president for the ensuing year.

TEACHING FELLOWSHIPS IN THE UNIVERSITY OF MINNESOTA.—It is announced that the University of Minnesota has adopted the method of teaching fellowships in the clinical departments of its medical school.

"It is arranged that the fellowships be in three grades; viz., first year, $500; second year, $750; third year, $1,000. To be eligible to a first year fellowship a candidate, as a general rule, must have received his M.D. degree from an acceptable school and have served one year as interne in a good hospital. The fellows appointed under this system will give their entire time to study, research and such assisting in clinics as they may be prepared for. A course of study will be laid out for each fellow, adapted to prepare him for the specialty chosen by him. This course will include work in the laboratory branches, dispensary service, hospital service and investigation. It is probable that the course (of two or three years) will lead to a degree properly recognizing the specialty in which the candidate has worked. Arrangements may be made whereby these fellows can spend one year at the Mayo clinic and count the same toward the advanced degree. In order to inaugurate the system, the board of regents of the university has authorized the following teaching fellowships for the next school year: one each in medicine, in surgery, in obstetrics and gynecology and in eye, ear, nose and throat, each of $500. There is also provision for one $500 fellowship and one $1000 fellowship in mental and nervous diseases, or in lieu of these a $1500 instructorship."

BUBONIC PLAGUE IN NEW ORLEANS.—Report from Washington, D. C., on June 29 states that two cases of bubonic plague have recently occurred at New Orleans, La. One of the patients has died. Active measures of fumigation and rat-catching have been initiated by the United States Public Health Service. Quarantine has been declared at New York against vessels from New Orleans and from Santiago, Cuba.

FRENCH POPULATION AND VITAL STATISTICS.—Statistics published at Paris on June 26 show that, while the population of Germany increased about 800,000 during 1913, that of France increased only 41,901. The number of births in France in 1913 was 5112 fewer than in 1912, making the French birth-rate of 1913 the lowest yet recorded, with the exception of 1911.

"The number of births for every 10,000 inhabitants in 1913 was 188, compared with 190 in 1912, 187 in 1911 and 196 in 1910. The number of living children born in 1913 totalled 745,539, while in 1872 the total was 945,000. Births exceeded deaths in 1913 by 41,901, or an average of 10 births in excess of deaths for every 10,000 inhabitants. This compares with an excess of births over deaths in Germany of 127 for every 10,000, in Austria of 107, in Italy of 140 and in Hungary of 130. There were 298,760 marriages in France in 1913, or 13,169 fewer than in 1912. Divorces increased from 14,599 in 1912 to 15,076 in 1913."

SICK-RATES AT VERA CRUZ.—For the week ended June 24 the reported sick-rate among United States troops at Vera Cruz, Mexico, was 2% for the army and 2.3% for the marines. There were 43 new cases sick in hospital and 17 in quarters.

"Of those sick, 52 are incapacitated by disease and 8 by injury, 3 have diarrhea, 3 dysentery, 1 malaria; all other diseases, 45. There is a decrease in those suffering from malaria and a marked decrease in the intestinal diseases. Those remaining sick at the end of the week number 84, as compared with 88 remaining sick last week."

In the Mexican War of 1846 to '48 only 1549 United States soldiers were killed or died of wounds, while 10,986 died of disease, and 12,535 were discharged from the service for physical disability. In the Spanish War, 862 men were killed in battle, 106 died of wounds, and 5438 of disease.

AWARD OF RUMFORD MEDAL.—It is announced that the Rumford medal of the American Academy of Arts and Sciences has been awarded to Dr. William David Coolidge of New York, for his invention of a process for manufacturing ductile tungsten and its application to the new form of x-ray tube which bears his name. This discovery, which was described at length editorially in the issues of the JOURNAL for Jan. 8 (Vol. clxx, p. 64), and Mar. 19 (Vol. clxx, p. 431), is of great importance in the diagnostic and therapeutic use of Roentgen rays.

"The Rumford medal fund was given during his lifetime by Benjamin Thompson, Count Rumford, who was born at Woburn, Mass., in 1753, and its interest is used in awards of money for research and for medals. The medals have been given at irregular intervals since 1839. Some of the recipients have been Ericsson, for his heat engine; Clark, the telescope maker, of Cambridge; Corlis Rutherford of New York, for astronomical photography; Langley, Michelson, E. C. Pickering, Edison, Brush of Cleveland,

George E. Hale, E. F. Nichols, now president of Dartmouth, for his work in pressure of light; Acheson, the inventor of carborundum; Curtis, of the steam turbine; James M. Crafts, sometime provisional president of Technology, for high temperature researches; and Ives, for his color photography."

PREVALENCE OF POLIOMYELITIS IN MAY.—During the month of May, 9 cases of poliomyelitis were reported in Virginia and 4 in Massachusetts.

BUBONIC PLAGUE IN THE ORIENT.—During the week ended June 23, 53 cases of bubonic plague were reported at Hongkong, China, 4 at Tokyo, and 4 at Yokohama, Japan.

BOSTON AND NEW ENGLAND.

DEFEAT OF THE LYDON BILL.—The Lydon out-of-state milk-labelling bill, described editorially in last week's issue of the JOURNAL, was defeated in the House on June 30 by a vote of 63 to 55.

A LIVING CENTENARIAN.—William F. Thayer, of Cohasset, Mass., is said to have been born on June 27, 1814. He has three aged living children, 24 grandchildren and 11 great-grandchildren.

BOSTON FLOATING HOSPITAL.—The Boston Floating Hospital made its first trip for the season of 1914 on Saturday, June 27.

"Last summer 336 different permanent patients received care for an average of 20 days of 24 hours each, or a total of 6831 full days' service; 702 day patients made 5873 day trips; mothers who accompanied their sick children and received instruction in nursing, helping in their care, made 4966 day trips; 631 day trips were made by well children too small to be left at home by their mothers. This represents a service to the beneficiaries of this work of a total of 18,301 days for the summer of 1913."

PSYCHOPATHIC DEPARTMENT OF BOSTON STATE HOSPITAL.—The recently published second annual report of the Psychopathic Department of the Boston State Hospital records the work of that institution for the year ended Nov. 30, 1913. During this period 1484 patients were admitted, of whom 726 subsequently became regular court commitments, 250 were discharged as not insane, and 52 died. The director discusses problems of hospital management, medical problems, social problems, general and medical educational activities. He closes his report with a list of the 34 publications of the hospital staff during 1913, many of which appeared in the columns of the JOURNAL.

SMALLPOX IN BOSTON, SPENCER, AND MARLBORO.—A case of smallpox was discovered in Boston on June 24. It was presumably contracted by the patient during a recent visit to Spencer, Mass, where there have been about 200 cases among unvaccinated persons during the past three months. During the last week in June, 7 cases of smallpox were reported in Marlboro, Mass.

HOSPITAL BEQUESTS AND GIFTS.—The will of the late Luther S. Johnson, who died in Lynn, Mass., on June 21, was filed on June 27 at Salem, Mass. It contains a bequest of $10,000 to the Lynn Hospital.

Mrs. Frank A. Day has recently given to the Newton (Mass.) Hospital a fund of $10,000 to endow two permanent free beds in memory of her late husband.

NEW YORK.

RUSSELL SAGE INSTITUTE OF PATHOLOGY.—A meeting of the board of directors of the Russell Sage Institute of Pathology was held in New York City on June 5.

"Dr. Lusk reported for Dr. DuBois that 142 observations had been made upon patients and on some normal controls during the past year and a half, using the respiration calorimeter established in the second medical division of Bellevue Hospital. In certain individuals an exact agreement between the actual heat production and the heat calculated from the gaseous exchange during hourly periods was obtained for the first time in man. In the total of all experiments involving the measurement of 23,000 calories, these two methods of direct and indirect calorimetry agree both in health and disease within 1¼%. The investigated cases included nine cases of typhoid during both fever and convalescence, one cretin, seven cases of exophthalmic goiter, one of splenic anemia, another with pernicious anemia, one man with acromegaly, one with hypopituitarism, one with malaria, and one with auricular fibrillation, mitral stenosis and greatly enlarged heart."

The following officers were elected for the ensuing year:—

"President, Dr. D. Bryson Delavan; vice-president, Dr. Simon Flexner; secretary, Dr. Theodore C. Janeway; treasurer, Dr. Graham Lusk.

"Appointments to the scientific staff were as follows:—

"Scientific director, Dr. Graham Lusk; medical director, Dr. Eugene F. DuBois; chemist, F. C. Gephart, Ph.D.; assistant, Dr. A. L. Meyer."

BEQUESTS.—By the will of the late Mrs. Maria De Witt Jesup, widow of Morris K. Jesup of New York, $8,450,000 are left to religious, charitable and educational institutions and societies; $5,000,000 of this is a bequest to the American Museum of Natural History, of which Mr. Jesup was president at the time of his death. During his lifetime he gave more than $1,000,000 to it, and under his will it inherited an additional $1,000,000. The bequest of Mrs. Jesup is to establish a permanent fund in memory of her husband, and in a statement issued in regard to it Prof. Henry Fairfield Osborn, president of the museum, says: "Mr. Jesup devoted twenty-eight years of the best years of his life to the museum, and at the close of his administration left it in a very advanced position among the museums of the world. This gift of Mrs. Jesup is the most important that the museum has received, and it will greatly advance its scientific and educational interests. The fund will be used solely for exploration and for the scientific and educational work upon the collections." Among the other bequests in Mrs. Jesup's will are $150,000 to the Woman's Hospital, $100,000 to the Presbyterian Hospital, $50,000 to the Manhattan Eye, Ear and Throat Hospital, $10,000 each to St. Luke's Hospital and the Memorial Hospital for Cancer, and $25,000 to the New York Botanical Garden.

DEGREE FOR DR. PISEK.—The University of Vermont has conferred the degree of Doctor of Science upon Dr. Godfrey R. Pisek, of New York, professor of diseases of children in the medical department of the university and adjunct professor in the New York Post-Graduate Medical School.

MORTALITY FOR THE WEEK ENDING JUNE 27, 1914.—There were 1258 deaths and a death-rate of 11.75 per 1000 of the population reported during the past week as against 1132 deaths and a rate of 11.48 for the corresponding week of 1913, an absolute increase of 76 deaths and of .27 of a point in the rate, which is equivalent to a relative increase of 29 deaths when the increase in population is taken into consideration.

The following causes showed a decreased mortality: diphtheria and croup, whooping cough, typhoid fever, diarrheal diseases under five years, organic heart diseases, lobar pneumonia, broncho pneumonia, and epidemic cerebro-spinal meningitis. The following causes showed an increased mortality: measles, scarlet fever, digestive diseases other than diarrheal, bronchitis, pulmonary tuberculosis, Bright's disease and nephritis. The mortality from the diseases of the nervous system and from violence was approximately the same.

Viewed from the point of age grouping, there were 5 less deaths of infants under one year, and 24 less deaths of infants between one and five years. Between five and sixty-five years there was an increase of 86 deaths and of 19 deaths over sixty-five years of age.

The death-rate for the first twenty-six weeks of this year was 14.79 per 1000 of the population, against a rate of 15.03 for the corresponding period in 1913, a decrease of .24 of a point.

Massachusetts Medical Society

ANNUAL MEETING OF THE COUNCIL.

JUNE 9, 1914.

THE annual meeting of the council was held at the Copley-Plaza Hotel, Boston, June 9, 1914, at twelve o'clock noon. The president, Dr. Walter P. Bowers, was in the chair, and the following 135 councillors present:—

BARNSTABLE.
E. E. Hawes, M.N.C.
C. W. Milliken.

BERKSHIRE.
L. A. Jones, M.N.C.
J. H. Riley.

BRISTOL NORTH.
A. R. Crandell.
R. D. Dean, V-P.
F. A. Hubbard, M.N.C.

BRISTOL SOUTH.
E. F. Cody.
C. F. Connor.
W. A. Dolan.
R. W. Jackson, V-P.
H. G. Wilbur

ESSEX NORTH
R. V. Baketel.
I. J. Clarke, V-P.
G. E. Kurth
F. B. Pierce
F. W. Snow.
F. E. Sweetsir, M.N.C.
F. Tigh

ESSEX SOUTH,
R. E. Bicknell
H. C. Boutelle
N. P Breed
H. K. Foster
B. Metzger, M.N.C.
H. E. Sears

FRANKLIN.
G. P. Twitchell, M.N.C.

HAMPDEN,
T. S. Bacon
R. S. Benner
J. M. Birnie
J. L. Bliss
E. L. Davis
M. B. Hodskins
S. A. Mahoney, M.N.C.
A. G. Rice
H. W. VanAllen

MIDDLESEX EAST.
C. J. Allen, V-P.
J. P. Bixby
E. S. Jack
W. H. Keleher, M.N.C.
E. D. Richmond

Middlesex North.
J. A. Gage, C.
W. P. Lawler
R. J Meigs
C. E. Simpson, M.N.C.

Middlesex South.
M. H. Bailey
H. T. Baldwin
F. J. Barnes
F. E. Bateman
E. H. Bigelow
J. E. Cleaves
C. H. Cook
H. F. Curtis
E. A. Darling
G. W. Gay
C. M. Hutchinson
A. A. Jackson
J. B. Lyons
S. F. McKeen
A. E. Merrill
C. E. Prior
Godfrey Ryder
Joseph Stanton
Julia Tolman
H. P. Walcott

Norfolk.
E. F. W. Bartol
G. G. Bulfinch
P. W. Carr
A. H. Davison
H. C. Ernst, C.
M. H. A. Evans
G. H. Francis, V-P.
T. F. Greene
E. W. Finn
John Homans, C.
S. A. Houghton
G. W. Kaan
Bradford Kent
Harry Linenthal
T. J. Murphy, M.N.C.
A. P. Perry
M. W. Richardson, C.
T. M. Shay
B. E. Sibley
F. W. Sleeper
C. F. Stack

Norfolk South.
C. S. Adams, V-P.
W. A. Drake, M.N.C.
O. H. Howe
E. N. Mayberry

Plymouth.
C. E. Lovell, V-P.
A. A. McKeen
A. E. Paine, M.N.C.
F. G. Wheatley

Suffolk.
H. D. Arnold, V-P.
S. H. Ayer
F. G. Balch
J. W. Bartol
G. W. W. Brewster
E. M. Buckingham, T.
W. L. Burrage, S.
David Cheever
A. L. Chute
E. A. Codman
J. A. Cogan
G. A. Craigin
R. L. DeNormandie
C. Frothingham, Jr.
W. H. Grainger
W. C. Howe
H. T. Hutchins
J. J. Minot, M.N.C.
J. L. Morse
Anna G. Richardson
D. D. Scannell
R. M. Smith
F. B. Talbot
H. F. Vickery
C. F. Withington

Worcester.
F. H. Baker
W. P. Bowers
W. J. Delahanty
J. T. Duggan
Homer Gage
David Harrower, M.N.C.
W. L. Johnson
G. O. Ward
C. D. Wheeler
L. F. Woodward
S. B. Woodward

Worcester North.
C. E. Bigelow
A. P. Mason
H. W. Page, V-P
E. A. Sawyer, M.N.C.
J. W. Stimson

V-P., Vice-President *ex-officio*.
M.N.C., Member Nominating Committee.
C., Chairman of a standing committee.
S., Secretary.
T., Treasurer.

The minutes of the last meeting were read and accepted.

The names of the Nominating Committee were read by the secretary, and the committee retired.

The secretary reported for the Committee on Publications and Scientific Papers, that the Shattuck Lecturer for 1915 will be Dr. Joel E. Goldthwait of Boston.

The report of the Committee on Membership and Finance was read by the secretary at the chairman's request, as follows:—

Boston, June 9, 1914.

To the President and Councilors of the Massachusetts Medical Society.

Gentlemen:

The Committee on Membership and Finance makes the following recommendations:

(1) That the following Fellows be allowed to retire, under the provisions of Chapter I, Section 5, of the by-laws:

Ezra Warren Clark, of Brockton; Seth Wight Kelley, of Woburn; Joseph Hubert Matte, of North Adams; Olney Windsor Phelps, of Warren.

(2) That the following named Fellows be allowed to resign, under the provisions of Chapter I, Section 7, of the by-laws:

Winthrop Shirley Blanchard, of Windsor, Vt.; Daniel Clark Brennan, of Worcester; Richard Fitch Chase, of Boston; Frederick Dugdale, of Lowell; Alice Josephine Hopkins, of Madison, Wis.; Abraham Myerson, of Taunton; Richard Wynne, of Boston; Louisa Juliet Zimmerman, now Mrs. Meikle, of Schenectady, N. Y.

(3) That the following named Fellow be deprived of the privileges of Fellowship for non-payment of dues, under the provisions of Chapter I, Section 8, of the by-laws:

Arthur Vinal Lyon, of Brockton.

(4) That the following named Fellows be allowed to change their District Membership, without change of legal residence, under the provision of Chapter III, Section 3, of the by-laws:

John Washburn Bartol, from Norfolk to Suffolk.
Gerald Blake, from Norfolk to Suffolk.
Frederic Jay Cotton, from Norfolk to Suffolk.
Reginald Fitz, from Essex South to Suffolk.
Elisha Flagg, from Barnstable to Suffolk.
Henry Demarest Lloyd, from Middlesex South to Suffolk.
Samuel William Myers, from Norfolk to Suffolk.
Cyril Godfrey Richards, from Norfolk to Suffolk.
Edwin Wallace Smith, from Middlesex South to Suffolk.
Russell Bradford Sprague, from Norfolk to Suffolk.
Frederick Herman Verhoeff, from Norfolk to Suffolk.
Richard Goodwin Wadsworth, from Norfolk to Suffolk.
Edward Lorraine Young, Jr., from Norfolk to Suffolk.

For the Committee on Membership and Finance,
Charles M. Green, *Chairman.*

Voted, To accept the report and adopt its recommendations.

The committee appointed at the last meeting of the council to consider the petition of Dr. N. N. Morse for reinstatement, reported recommending that he be restored to the privileges of fellowship provided he pay within one month of June 9, 1914, the amount he owed the society at the time he was deprived of the privileges of fellowship plus the dues for the current year.

Voted, To accept the report and adopt its recommendations.

The secretary presented a report on his attendance at the conferences in Chicago, Feb. 23-25, 1914, as follows:—

Report of the Secretary on Attendance at Conferences in Chicago.

To the Council:

The secretary has the honor to report that in accordance with the vote of the council, February 4, 1914, he attended the conferences on Medical Legislation and on Medical Education held under the auspices of the American Medical Association, in the Congress Hotel, Chicago, February 23 and 24, 1914, and the Conference of State Secretaries, at the building of the American Medical Association in Chicago, February 25, 1914.

The Massachusetts Medical Society was represented at the Conferences on Medical Legislation and Medical Education by the following members of the Society: H. D. Arnold, W. P. Bowers, E. H. Bradford,

W. L. Burrage, W. B. Cannon, C. H. Cook, H. C. Ernst, C. F. Painter, and C. F. Withington.

The meetings were well attended and were regarded as most successful in promoting their objects. The regularly appointed delegates to these conferences will report on them.

The conference of the secretaries of the state medical societies consisted of morning and afternoon sessions, with a luncheon at a nearby hotel between. Thirty-eight states were represented at the meetings. The roll of the states being called alphabetically, each representative reported for his state on the subject of Uniform Regulation of Membership, the eight recommendations of a committee appointed at a previous conference being used as a basis of report. After considerable discussion, it appeared that most of the states regarded the county society as the proper judge of the fitness of physicians for membership in their state societies, and that there was a decided disinclination on the part of the different states to admit to membership in their societies, members of other state societies except upon approval by the county societies of the admitting states.

A majority of the states now have the calendar year for the fiscal year.

At the afternoon session, your secretary read a paper on the "Plan of Organization of the Massachusetts Medical Society" which was well received. The paper has been published in full in the American Medical Association Bulletin, Vol. 9, No. 4, March 15, 1914.

There was extended discussion on the topic, "How to Coördinate the County, State, and National Branches of the American Medical Association," participated in by a dozen representatives.

On recommendation by Dr. Wisner R. Townsend, secretary of the New York State Medical Society, it was voted, That it would be a wise plan to hold the annual meeting of the state secretaries at the time of the annual meeting of the American Medical Association; that the delegates' expenses should be paid by the American Medical Association; that the American Medical Association consider the question of a modification in the method of collection of the income tax so that this tax will not work an injustice to the medical profession nor necessitate, on the part of the members of the profession, the reporting of a large number of data of necessity submitted from uncollected accounts; that the Council on Health and Public Instruction investigate the subject of workmen's compensation acts and endeavor so to arrange with the various states in which such acts have already been introduced that the best interests of the public, employees, employers, and the medical profession be cared for.

Respectfully submitted,

WALTER L. BURRAGE, *Secretary.*

Voted, To accept the report and place it on file.

Dr. J. Arthur Gage presented the report of the Committee on Ethics and Discipline:—

Report of the Committee on Ethics and Discipline.

To the Council:

The Committee on Ethics and Discipline has held during the year four meetings with full attendance, the dates being November 25, December 30, 1913, and February 4, and May 8, 1914.

Two Fellows were found guilty of practices incompatible with the ethics of our Society and were allowed to resign. One of these cases presented much difficulty and required the services of an attorney to secure the evidence from another state.

Seven Fellows reported guilty of neglect in the care of ophthalmia neonatorum cases by the Massachusetts Society for the Prevention of Blindness were reported to the president, who sent admonitory letters.

Recommendations for changes in the state laws dealing with this disease submitted by Dr. F. E. Cheney were endorsed by your committee and referred to the Committee on State and National Legislation.

Ten cases have been reported to your committee charging Fellows with minor acts unbecoming members of our Society. These included failure to observe health regulations, improper professional treatment of patients, attempts to use the society to further political ends and personal gain, and cases of improper advertising. Each case has been carefully investigated by your committee, and letters requesting compliance with our standards sent either by the president or by the chairman of the committee. It is gratifying to report that the replies have very generally expressed a willingness to conform to the Society's code when its purpose was defined.

The resolution offered by Councilor Dr. Hugh Cabot in regard to physicians who are alleged to sign midwives' certificates and referred to this committee has been duly considered, but no cases have been reported to this committee and it seems difficult to secure evidence.

The committee has discussed the advisability of revising our code of ethics. While recognizing the difficulty of improving morals by the codification of specific rules of conduct, we find practically that many errors occur because of ignorance of the exact standard of the Society as applied to various modes of conduct. We feel, therefore, that it is desirable to make more specific rules for the guidance of our members, particularly those assuming their responsibilities for the first time.

Respectfully submitted,

J. ARTHUR GAGE, *Chairman.*

Voted, To accept the report and place it on file.

Dr. H. C. Ernst presented the report of the Committee on Medical Education and Medical Diplomas:—

Report of the Committee on Medical Education and Medical Diplomas.

To the Council:

I beg to present herewith the report of your Committee on Medical Education and Medical Diplomas.

I. MEDICAL EDUCATION.

Your delegate was in attendance upon the annual meetings of the Council on Health and Public Instruction and the Council on Medical Education of the American Medical Association, upon the meeting of the Federation of State Medical Boards of the United States, and of the Association of American Medical Colleges, these having been held in Chicago, on February 23, 24, and 25, 1914.

At the Conference on Public Health and Legislation an interesting discussion was brought up by the report of the Secretary of the State Board of Health, Dr. C. A. Harper, on "Wisconsin's Experiment in Marriage Legislation," the results of which did not appear to be encouraging for the future of this form of activity.

A plea was made by Dr. J. W. Pettit of Ottawa, Illinois, for "Public Education through the Daily Press," in which the discussion of medical matters in the public press was vigorously advocated. In spite of the agitation that tends in this direction, it is impossible to believe that a free discussion of medical questions such as is advocated in this paper could be productive of good results.

The Conference on Medical Education was opened with the address of the Chairman, Dr. Arthur Dean Bevan, which will be found in the *Journal of the American Medical Association* (pages 821 and 876 of the number appearing under the date of March 14, 1914). The first part consists of a general review of the work accomplished by the Council on Medical Education in the nine years of its existence, and discusses

especially the question of "Medicine, a Function of the State." It contains an analysis of the conditions obtaining in other countries, notes the growth in this country of medical schools connected with State Universities, and predicts that, in the future, medical education will become a state function so that all medical schools shall be associated with and under the control of the State authorities. It assigns the place of Harvard, in Massachusetts, Yale, in Connecticut, and Columbia and others, in New York, as "a part of the great machinery that will carry on properly for the state the function of medicine. Take as a concrete example, Harvard. Harvard shall so affiliate itself with the State Board of Health of the State of Massachusetts, with the educational and research functions of the great state and municipal charities, that it can for such purposes carry on the functions of a great state medical school. In this work it should receive the support and recognition by the state."

The second and third parts of this address take up the question of clinical professors in University Medical schools and the requirements of a hospital year as a part of medical education before granting the medical degree. The possibility of accomplishing these ends is doubtful at present.

An interesting part of the program was furnished by the paper of President Lowell on "The Danger to the Maintenance of High Standards from Excessive Formalism," a paper that criticized in particular the requirement of certain studies at a fixed period of a student's career. It brought out some discussion, and much private comment.

A short report was distributed from the Committee on Public Health Education among Women. Pamphlet No. 4, giving a history and outline of the work and suggesting a number of subjects in which the activity of this committee could be carried on. This report is submitted at Appendix "A". (See appendix attached to original report.)

The Federation of State Medical Boards of the United States met on Wednesday, and at its meeting your delegate presented a paper entitled, "Some Thoughts on the Standardization of Medical Education," emphasizing certain points that appeared to him to be of importance. Too great praise cannot be given to all efforts to raise the standard of medical education, but occasionally a generalized standardization results in standardizing down as well as up.

An interesting paper upon "Public Health Administration" was presented by Assistant Surgeon-General W. C. Rucker, and the question was taken up as to whether or not the Federation should recommend "a uniform minimum curriculum for medical schools," and upon what in particular seems to be of great importance, "What instruction ought medical colleges to give in Pharmacology and Therapeutics? The point of view of the State examiner." The discussion was opened by Dr. Walter R. Bierring of Des Moines, Iowa.

The work of this Federation is of very great importance for the future of medical practice in this country. The confusion created by different laws governing registration in different states can only be overcome by the concerted action of some such body as this.

The meeting of the Association of American Colleges was also devoted, in part, to a discussion of the question, "Should a Hospital Internship be required as a prerequisite to graduation; if so, when should this requirement be obligatory?" The decision of this question is a matter of grave importance to many medical schools, and there are radically different opinions. There is no difference of opinion as to the need of hospital practice before going into general practice; but there is a difference of opinion as to whether this hospital practice shall be required before the granting of the degree in medicine, or shall be required by the State Boards before an applicant be allowed to apply for examination for license to practise.

II. Medical Diplomas.

The function of your committee having to do with medical diplomas has not been prominent during the past year. But two questions have been submitted to the chairman, neither of them appearing to be of sufficient importance for calling a meeting of the committee; but the committee would be glad to know the feeling of the council under the following conditions:

The question was put to the chairman of the committee at the annual meeting of the council of last year as to what his attitude would be towards the admission to fellowship in the society of an applicant who was a graduate of a not recognized school but who had practised in a locality for a number of years and had established himself as a skilful and conscientious practitioner of medicine. The chairman, replying personally, said that his attitude would be favorable towards the admission of such a candidate, provided he was recommended by a number of his neighbors who were already Fellows of the Society.

The chairman cannot close this report without referring at some length to the recent reorganization of the staff of the Children's Hospital. Upon going into the new building on Longwood Avenue, and at the initiative of the clinical members of the visiting staff, there were appointed as members of the visiting staff a visiting physiologist, a visiting chemist, a visiting pharmacologist, a visiting pathologist, and a visiting bacteriologist. The name indicates a new function attached to these representatives of the laboratory side of medicine. Not satisfied with this, the clinical members of the visiting staff have gone further and have made one of the laboratory members chairman of the visiting staff of the hospital, with the direct intention of placing the future scientific progress of the hospital in the hands of the laboratory men. This is so widely separated from the feeling of a clinical colleague who, not many months ago, said your chairman would not be interested in certain clinical details because he is not a medical man, and is so complete a departure from the ordinary custom, that it should not be passed by without notice and approval.

Respectfully submitted,

Harold C. Ernst, *Chairman.*

Voted, To accept the report.

Dr. Ernst moved, and it was

Voted, That the Committee on Medical Education and Medical Diplomas have power to recognize a medical degree coming from a not recognized medical school presented by a candidate for fellowship in the Massachusetts Medical society, provided such candidate has practised in a given locality for a minimum of five years, has proved himself to be a skilful and conscientious practitioner of medicine, and is recommended by a number of his neighbors who are already Fellows of the Society.

The report of the Committee on State and National Legislation was read by Dr. A. K. Stone.

Report of the Committee on State and National Legislation.

To the Council:

The Committee on State and National Legislation have had a strenuous season. In their work, they have had the assistance of an auxiliary committee of about forty Fellows of the Society, and in addition their thanks are due to work rendered by Dr. James S. Stone, Dr. James J. Minot, Dr. Joseph A. Capen, Dr. Roger I. Lee, and to Dr. Herbert B. Howard and above all to the interest and devotion that Dr. E. H. Bigelow, House Chairman of the Public Health Com-

mittee, has displayed towards all matters pertaining to the public health, and for his coöperation with the members of your committee.

There has been an unusually large number of matters of major importance before the legislature during the present season, besides many of minor interest. All of these had to be studied by your committee, and their action or non-action determined upon.

After conference with various committees, it seemed wise to request that a special meeting of the council should be called to consider what position the Society should take in regard to the midwife question and in the proposed legislation regarding ophthalmia neonatorum, and the proper safeguarding by the State Board of Health of the production of milk. The council voted to support the legislation regarding milk inspection and the care of children with ophthalmia, when introduced, and directed the Legislative Committee to appear in behalf of these matters. The question of signing birth certificates by members of the Society when the actual delivery had been done by midwives, was referred to the committee on Ethics and Discipline.

The proposed legislation of greatest importance was the general sweeping plan of the Commission of Economy and Efficiency to do away with the unpaid boards conducting the affairs of the various state institutions for sick, insane, and delinquent, and combining them under a bureau which should run all these institutions and direct their policy, the State Boards of Charity and Insanity also being abolished. Your committee strenuously opposed this proposition, as tending to establish a bureaucracy which would in the long run not be in the interest of economy, nor would it work out otherwise than to the distinct disadvantage of the various wards of the state. The committee's position has been sustained by resolutions passed by a number of the district societies.

Measures have been before the legislature for the reorganization of four departments of the state: The State Board of Health, the State Board of Registration in Medicine, the State Board of Registration in Dentistry, the State Board of Registration of Nurses. All of these were considered by your committee to be distinct advances over the statutes under which these departments were organized, and have been advocated at legislative hearings. The bills for the reorganization of the Board of Registration in Medicine and of the Board of Registration of Nurses were killed in committee; and the bill introduced by the Civic League for the reorganization of the Board of Registration in Dentistry is still in abeyance.

Members of your committee were invited by Governor Walsh to confer with him regarding the bill for the reorganization of the State Board of Health. All these conferences have been long and careful discussions with no attempt on the part of the Governor or the members of the conference to hurry matters, and have taken much time. Those attending the conferences have been impressed with the real interest and sincerity of Governor Walsh in his desire to treat the health matters of the state on the highest plane; and the whole committee have given this bill their unreserved support.

An attempt was made early in the season to have the vital statistics of the state transferred from the office of the Secretary of State to the Board of Health; but what to us seemed like a self-evident fact in its desirability, did not meet with the favor of the legislators.

A mild anti-vaccination measure, apparently unsupported, passed the committee of the legislature on public health, the medical men alone protesting, and later passed the Senate. It met defeat in the House after a very bitter fight. An immense amount of influence was exerted on the legislators to have this bill become a law. Letters and telegrams poured in upon the members, and it seemed as though every one who had any opposition to scientific medicine tried to make his influence felt. Dr Gay acted for the committee, and Dr. Bigelow did valiant work upon the floor of the House. The State Board of Health aided with pictures, statistics, etc. The work in favor of this bill shows that there is a well organized opposition to medical protective work in the state at large. Its strongest center seems to be in the southeastern part of the state, and it would seem as though it might be well to start a campaign of education in Bristol County and help out the local societies there in their opposition to these various anti-medical ideas.

A recess committee of the last legislature considered the State policy regarding tuberculosis and concluded that on the whole it was a good one, and that all that it needed was rounding out, and for that purpose recommended a number of bills to make the laws on the statute book more complete. Other bills appeared, some going further than the recommendations of the recess committee. Another, the so-called Baker Bill, which was advocated by one of the members of our auxiliary committee, proposed placing all the tuberculosis institutions throughout the commonwealth under state control. This is against the present opinion of those who have most carefully studied the tuberculosis problem, it being the general consensus of opinion of such students that local care of advanced patients is most desirable, even when it is attained at greater cost. Your committee voted to support the majority of the bills presented by the recess committee, believing as they did in the general principles on which these bills were founded. In the consideration of these tuberculosis bills, the Legislative Committee met in conference with the similar committee of the Massachusetts Anti-Tuberculosis League.

A number of bills appeared in the Legislature to regulate the sale of narcotics; practically all of them were introduced with a desire to protect the innocent public and to prevent "dope doctors" and pharmacists from doing a large business. Many of them were so irksome in their detail as to make the practice of medicine almost impossible for the conscientious practitioner and apothecary. Most of these bills your committee opposed; but they approved of one which was finally evolved in the Committee on Public Health and supported in the Senate by Dr. Clark of Brockton.

Although the total result in the matter of legislation is often small and disappointing compared with the thought and energy and time that the committee has to expend, none the less the committee thoroughly believes that its work has not been in vain.

Respectfully submitted,

A. K. STONE, *Secretary.*

Voted, To accept the report and place it on file.

Dr. Stone read preambles and resolutions as to the National Immigration Act now before Congress, and it was

Voted, That they be approved by the council and submitted to the annual meeting of the society on the following day (see minutes of annual meeting).

Dr. M. W. Richardson reported for the Committee on Public Health:—

Report of the Committee on Public Health.

To the Council:

The Committee on Public Health herewith presents the following report:

The committee held several meetings during the fall and winter and has considered the following subjects:

1. The recommendation of the Reference Committee to the House of Delegates at the meeting of the American Medical Association held at Minneapolis, Minnesota, June, 1913. "We therefore recommend:

That the council in developing its activities, which we again say are paramount in keeping this Association in a proper light before the public, shall work through the constituent state associations and their committees, rather than by the creation of new or special committees; and that all committees or persons representing any department of the American Medical Association or representing any of its activities within the borders of any constituent state association, shall be appointed by the executive officers of the state associations; and such committees shall be under the jurisdiction and control of the state association and responsible to the Council on Health and Public Instruction through the state associations." "We recommend that no committee shall be appointed by the sections or by any subcommittee with duties extending into the territory of any constituent state association. All such committees shall be appointed by the constituent state association and be under the jurisdiction and control of the state association." (*Journal of the Am. Med. Asso.*, June 28, 1913, p. 2088.) It was voted that Dr. Hamilton be authorized to represent the Society in the work of the Committee on Public Health Education among Women of the American Medical Association.

2. It was the sense of the committee, as reported at the meeting in December, that syphilis and gonorrhea should be made reportable, that the State Board of Health should be prepared to make such examinations as would be necessary, and that suitable hospital arrangements be made for such cases.

In this connection, the committee is pleased to report that the Legislature acted favorably on an appropriation of $4000 to establish laboratory facilities for the diagnosis of venereal disease. When these diagnostic facilities have been procured, the State Board of Health will undoubtedly consider seriously the desirability of making these diseases reportable.

3. It was recommended that the State Board of Health be given increased appropriations for the advancement of the tuberculosis campaign, and an increased appropriation of $10,000 was asked of the Legislature, in order to increase the salaries of the state inspectors of health to whom this work would naturally be delegated, but the request of the Board for this increased appropriation was denied.

As far as the Society and its members are concerned, the committee believes that every effort should be made to secure:

1. Earlier discovery of cases;
2. More adequate hospital facilities in various localities;
3. More active support of local health officers in their efforts to stamp out disease.

4. Concerning ophthalmia neonatorum and its prevention, the committee recommended that members of the Massachusetts Medical Society be urged not to attempt to treat such cases alone, but in all possible instances to act in consultation and with the advice of an oculist. This principle was incorporated in Chapter 177 of the Acts of 1914, which reads in part as follows:

"Section 49 of Chapter 75 of the Revised Laws, as amended by 1905, C. 251, Sect. 1; 1907, C. 480; 1910, C. 269; 1914, C. 177.

". . . On receipt of such report, or of notice of the same symptoms given by a physician as provided by the following section, the board of health shall take such immediate action as it may deem necessary, including, so far as may be possible, consultation with an oculist and the employment of a trained nurse, in order that blindness may be prevented. . . ."

5. As regards the milk legislation, a draft of a bill prepared by the committee and approved by the council was presented as House Bill No. 775 by Dr. Enos H. Bigelow. This bill was reported unfavorably by the Joint Committee on Agriculture and Public Health. Final action by the Legislature has not yet been taken.

6. Your committee stands joint with the State Board of Health and the State Board of Insanity in their report recommending further impediments to marriage, in cases of insanity, imbecility, and feeblemindedness; and of gonorrhea and syphilis in its communicable stages.

7. Concerning medical advertising in the newspapers, an investigation was made by the special committee of the Women's Municipal League, but it was found that little improvement as regards such advertising can be expected until the laws defining the practice of medicine in Massachusetts are materially changed.

A letter sent by the secretary to each district secretary asking for a report of the work done with regard to public health matters in each district brought the following answers:

Middlesex North: no action as a body, one meeting held. Hampshire: one meeting. Essex South: one or two meetings. Middlesex South: no special action as yet; one meeting held. Bristol North: one meeting. Essex North: two meetings. Hampden: no meeting. Middlesex East: no meeting. Plymouth: no meeting. Suffolk: several meetings. Worcester: series of lectures on Public Health open to the public.

Respectfully submitted,

MARK W. RICHARDSON, *Chairman*,
MILTON J. ROSENAU,
WILLIAM I. CLARK, JR.,
ANNIE LEE HAMILTON, *Secretary*,
ENOS H. BIGELOW.

Addenda to above report:

Report of the Public Health Education Among Women in Massachusetts, 1913-1914.

With the exception of the Worcester, Middlesex, Norfolk, and Essex Counties, the work of the committee has been centered in Suffolk County, especially in Boston, where it has been ably conducted by Dr. Margaret L Noyes, whose report of the work is made separately.

In addition to the formal course in Hygiene given by women physicians to the large body of students in the following women's colleges of the state: Wellesley, Smith, and Mt. Holyoke, our speakers have reached, excluding Suffolk County, a total of 2085 men, women, and children.

In Worcester County, Dr. Myrtle Smith, chairman, talks have been given to parent teachers' associations, church clubs, mothers' clubs, girls' clubs, Y. W. C. A. classes and domestic science schools.

Speakers: Dr. Myrtle Smith, Dr. Anna F. Murphy, Dr. Hanna C. Simmons, Dr. Clara P. Fitzgerald, Dr. Mary Charteris.

Total attendance, 945.

In Middlesex County, Dr. Emma Young-Slaughter, chairman, talks have been given before various Y. W. C. A. clubs, church audiences, parents' associations, and women's clubs.

Speakers: Dr. Nathan Pulsifer, Dr. Margaret L. Noyes, Dr. H. H. Sumner, Dr. Edith Hale Swift, Dr. Emma Young-Slaughter.

Total attendance, 545.

In Norfolk County, Dr. A. Caroline Cox, chairman, a series of public health talks was given in the Pope Memorial Church, Sunday afternoons, to men and women.

Speakers: Dr. Alice H. Bigelow, Dr. Margaret L. Noyes, Dr. O. H. Howe, Dr. Edith Hale Swift, Dr. A. Caroline Cox, Dr. Eliza J. Dadmun.

Total attendance, 320.

The Federation of Women's Clubs has done much to further throughout the state the cause of public health education.

Respectfully submitted.

SARAH ADAMS BOND.

Report of the American Medical Association Committee on Public Health Education Among Women of Boston.

There have been given in Boston, during the eight months from October to June, thirty-one talks before twelve different organizations, with an attendance of approximately 1783 people.

Three Better Baby Contests have been held with the examination of 190 children between the ages of one and three years.

In all 25 physicians and two nurses have, without pay, contributed their time, serving 56 times. Probably 30 volunteers and five nurses gave of their time for the necessary preliminary work for talks and helped during the baby contest, acting as scorers for the physicians and in other capacities.

The rooms of twelve different organizations were chosen as suitable places to give talks, some of which were used several times. Ten were given before the Women's Municipal League, three before several societies, as the Central Directory Nurses Club; the Roxbury Neighborhood House; the Ruggles Street Neighborhood House, etc.

Several physicians from out of town were asked to speak, Dr. Rachelle Yarros coming from Chicago, and giving up practically four days to speak before the Women's Municipal League, and Dr. Kate C. Mead, from Middletown, Connecticut.

The subjects spoken on have covered a wide range of medical public health.

The attendance at various meetings has been from 15 to 200.

Acting as chairman of the Child Hygiene Committee of the Children's Welfare League of Roxbury, I was able to have three Better Baby Contests with the help of that society. The others on the committee were: Dr. Edith Swift and Mrs. Sales, Ruggles Street Neighborhood House; Miss Harriet Park, Roxbury Neighborhood House; Mr. Bedinger, Milk and Baby Hygiene Society; Mr. Ralph Thompson, Children's Welfare League.

The contests were held, two in the neighborhood houses, and one in a school; all in Roxbury. Preliminary talks were given, and also an after-talk, at which a copy of the score card used was presented to each mother. The nature of the talk was one of general health, explaining the physical examination of the children, and the meaning of the crosses which scored off points on their particular card.

The district Nursing Association provided a Child and Health Exhibit, with explanatory talk.

The bronze medal, furnished by the Woman's Home Companion was presented to the child scoring the highest. The Woman's Home Companion also provided the score cards and other literature and certificates which were given each child.

Respectfully submitted,
MARGARET L. NOYES,
Boston Dist., A.M.A.P.H.E.C.

Voted, To accept the report and place it on file.

Dr. Withington reported as a delegate to the tenth annual conference on medical legislation, at Chicago, February 23, 1914.

Report of the Delegate of the Massachusetts Medical Society to the Tenth Annual Conference on Medical Legislation, held under the auspices of the Council on Health and Public Instruction of the American Medical Association, at Chicago, February 23, 1914.

To the Council:

Reports were presented from some nineteen states as to recent legislation. A considerable number, by reason of their having only biennial sessions, were enjoying this year a grateful sense of immunity from legislative hyperactivity. Indeed, at this conference, the social and economic side of the public health movement was emphasized, rather than the purely legislative; for, as has been often pointed out, good legislation can only follow an enlightened public sentiment. And this is equally true for defeating pernicious measures as for promoting constructive policies.

Reports were made by committees on expert testimony, on conservation of vision, on, resuscitation from electrical shock and mine-gases, on protection of scientific research, on coöperation with the National Education Association. Other papers were read on railway sanitation; on the preventive medicine campaign against venereal diseases; on Wisconsin's experiment in marriage legislation; on the relation of the medical profession to the secular press.

As these reports and papers will all appear in the *Journal of the American Medical Association*, it is unnecessary to give any detailed discussion of them here.

The conference closed with a long report by Dr. F. R. Green, the Secretary, on sixty-six years of medical legislation, which embodied a criticism of the past and a program for the future. The lack of a due sense of proportion has sometimes given to fads and trivial matters the energy that should have been devoted to fundamental essential problems.

An instructive canvass, made of some one thousand persons prominent in official and public life and in preventive medicine, as to the subjects calling most urgently for educational and legislative activity should in the opinion of the respondents be given the following order of importance:

Tuberculosis,
School Inspection,
Water and Sewerage,
Milk and Dairy Laws,
Contagious Diseases,
Food and Drugs,
Reporting Venereal Diseases,
Public Health Laws,
Vital Statistics,
Regulation of Habit-forming Drugs.

Respectfully submitted,
CHARLES F. WITHINGTON.

Voted, To accept the report and place it on file.

Dr. Cotton reported for the Committee on the Workmen's Compensation Act. He said that this was only a report of progress, and that the Advisory Committee has had the matters pertaining to this Act mostly in its charge; that the Workmen's Compensation Act is working tolerably well; and that the committee has been unable to get medical men to appear before the Legislative Committee to favor amendments to the Act now pending. He suggested that as it was difficult for members of the society to follow the doings of the legislative committees, a paid legislative agent was necessary, and he recommended that the Committee on State and National Legislation be empowered to choose and employ counsel.

The recommendation of the committee was referred to the Committee on Membership and Finance to report to the next meeting of the council.

Dr. Arthur N. Broughton presented the report of the Committee of Nine. He outlined the objects of the committee, and asked for the privileges of the floor for Drs. Cotton and Goldthwait, to further explain the proposition, and it was so voted.

Report of the Committee of Nine to the Council of the Massachusetts Medical Society.

The Committee of Nine appointed at the meeting of the council held in February, present the following report:—

Repeated meetings have been held through the winter and spring. Shortly after the appointment of your committee, it was announced that the JOURNAL had been handed over to new ownership, as follows: Dr. Joel E. Goldthwait, Dr. Edward C. Streeter, and Dr. Hugh Williams. At a joint meeting with these owners, they made a frank statement of their plans with regard to the future management of the paper. In essence, these plans are as follows:

The paper is to be made thoroughly representative of all parts of the state, and eventually, it is hoped, of New England. It will be made, if possible, the best journal of its kind, with the hope that it will appeal to subscribers because of its excellence and usefulness rather than by reason of their loyalty to past tradition. Its editorials will, as far as may be, express definite views on all the important questions of the day. Fuller news of the medical profession of New England will appear in its columns. It will not be managed for personal profit, but all net profit beyond legitimate expenses will be turned over for medical education or a similar broad and general use. Only advertisements of ethical medicinal preparations, of sanatoria, institutions, and firms which have been approved by the board of editors, will appear in its advertising columns. In event of an affiliation with the Massachusetts Medical Society, the caption, "Official Organ of the Massachusetts Medical Society," will be placed under the title, "BOSTON MEDICAL AND SURGICAL JOURNAL" on the front cover.

Also, in case of such affiliation the direct management of the JOURNAL will rest in an editorial board, with equal representation from the BOSTON MEDICAL AND SURGICAL JOURNAL and the Massachusetts Medical Society, matters concerning the Society being in sole charge of the editor or editors of the Society. From this board there will be the privilege of appeal to an advisory board, which will be constituted on lines hereafter to be determined, but of such a representative nature that the interests of both parties will be securely safe-guarded. Furthermore, all the books and finances of the JOURNAL will be open to the Massachusetts Medical Society's representatives in common with the owners.

In approaching the proposed affiliation from the side of the Massachusetts Medical Society, your committee felt that it had, as one of its duties, to determine upon some method, if possible, whereby some living, interesting, democratic, stimulating agency might bring all the different parts of the Massachusetts Medical Society into close, cordial, continuous touch with each other. Your committee was clearly convinced that, so far as its powers and functions go, any recommendation looking toward an improvement of the existing situation must be justified by the assurance that such improvement would be a welcome one to the majority of the Fellows, and would actually add to the material benefit of the Society at large, while the more remote effects and value of a general reform must take a subsidiary, even if closely related, position. The committee declared itself interested in any project that would make the bond of fellowship stronger, the common interests of the various districts more vivid, the general activities more aggressive, and the medium of exchange more prompt and effective. At the present time, the only means for accomplishing these ends may be said to rest in the stated meetings, the distribution of the transactions, and the personal efforts of the various officers. Great help would naturally accrue, if to these forces could be added the power of a strong, fearless, ably edited, securely financed journal, commanding the interests and support of a large body of voluntary subscribers.

In view of the generous and high-minded statements of the owners, your committee has felt most anxious to discover some plan for recommendation to the council whereby the Society could coöperate in making the JOURNAL what its owners desire and accomplishing for the Society an effective means of meeting its needs. Obviously, the controlling factor in the problem was a financial one.

Your committee, therefore, after considering several plans based upon estimates furnished by the owners, have unanimously supported, as the most desirable one, the following, which they recommend for discussion:

That the BOSTON MEDICAL AND SURGICAL JOURNAL be adopted as the official organ of the Massachusetts Medical Society, having its official title on the front cover, as above stated; that the whole of the JOURNAL be sent to the entire paid-up membership of the Massachusetts Medical Society weekly, containing all such matters as are now contained in the publications of the Massachusetts Medical Society complete, with papers, proceedings, editorials, directory, program of annual meeting, notices, news items, book reviews, and miscellany, papers from the district societies, activities in the legislature, etc., as may be determined upon by the board of editors; that the cost to the Society of such a plan shall not exceed $3.00 per annual subscription.

To meet these expenses the committee has neglected the consideration of any possible advantage accruing from the additional circulation, from the increased value of advertisements, and from other expected sources. The owners have positively stated that the JOURNAL will be published for the Society at absolute cost, and that all influences which better the financial condition of the JOURNAL will operate to reduce the cost of publication and will be so applied.

In aiding the council to get at the exact cost to the Society of affiliating with the Journal, inquiries have been sent to all of the present subscribers of the JOURNAL as to continuing subscriptions voluntarily at $5.00 for a year. In addition to this, all the members of the Society not at present subscribers have been asked if they would be willing to contribute anything, from one dollar up, toward the support of such an affiliation if it recommended itself to the council and Society.

Dr. Cotton thought that the new owners have been generous, and that the cost of the plan will be reduced after the first year, and when well started, it will be "immensely worth while."

Dr. Goldthwait explained that the present owners did not seek the ownership of the JOURNAL; that they plan to make it a live representative journal of medicine for New England; and they hope to have the coöperation of the medical schools and of the medical societies in New England. He would welcome the coöperation of the Massachusetts Medical Society; that the owners have not as yet arranged for the new editorial board, and have not considered the matter of advertisements or management, because they were waiting to see what attitude the Massachusetts Medical Society will take.

Dr. Gay said that he was in favor of the plan. He wished to make a suggestion as to the annual dinner which he thought cost too much. He believed that the dinner should be paid for by those who attended, and by no one else, and said that he hoped that the money so saved could be used for the affiliation with the JOURNAL. He moved that the report of the Committee of Nine be accepted and its recommendations adopted, and it was so voted.

Dr. E. A. Codman presented the subject of hospital efficiency and offered the following resolutions, which were adopted:

Whereas, it has been brought to the attention of the councillors of the Massachusetts Medical Society

that committees have been appointed by the American Medical Association, the American Hospital Association, and the Clinical Congress of Surgeons, to further the subject of hospital standardization:

Be it resolved, that the council of the Massachusetts Medical Society endorses the main object of these committees, namely, to institute a movement to increase the efficiency of hospitals.

Be it further resolved, that the council of the Massachusetts Medical Society hereby recommends that the president of the society be empowered to appoint for the state of Massachusetts a committee on hospital efficiency of five members with instructions as follows:

1. To make a report at the annual meeting of the council in 1915 as to the present state of medical and surgical efficiency of the hospitals of Massachusetts as far as can be determined from the annual reports of these institutions.

2. To obtain from the superintendent of each institution a statement as to which individual or departments are held responsible for the high standard of results in the medical and surgical treatment of their cases.

3. To obtain from each individual or department an answer to this question: Will you adopt some simple form of morbidity report for in-patients if the majority of the hospitals of the state agree on a uniform plan?

Be it also resolved, that the sum of one hundred dollars be appropriated for the use of the above mentioned committee upon approval by the Committee on Membership and Finance.

On nomination by the president, the following committee was appointed to carry out the purpose of the resolutions:

Dr. Lincoln Davis, *chairman;* Dr. P. P. Johnson, Dr. P. E. Truesdale, Dr. Homer Gage, Dr. John T. Bottomley.

The secretary read letters from Dr. F. J. Cotton and Dr. J. S. Stone, nominating for honorary fellowship in the Massachusetts Medical Society, Dr. Herbert C. Moffitt, of San Francisco.

Voted, To refer the matter to the Committee on Membership and Finance.

The president nominated Dr. M. W. Pearson, of Ware, to fill vacancies as commissioner of trials and as censor for the Hampshire District, and he was duly appointed.

The report of the librarian was read and accepted.

Report of the Librarian.

The librarian reports that during the past year he has attended to the various duties of his office. He has distributed the society publications, kept a record of all changes in the membership and addresses of the Fellows, reporting to the proper officers, and compiled the annual Directory of the Officers and Fellows.

There has been much labor in preparing the directory, as many of the Fellows have failed to report changes of residence to the librarian, and this information has been secured through correspondence, medical directories, newspapers, etc. In this work he has had the most able coöperation of the secretary, and some assistance from district secretaries.

The annual directory he believes to be most useful, and he has been so assured by many Fellows, who hope that it will be continued. The librarian will give his most earnest efforts to have it correct if this recommendation is approved.

During the past year by arrangement with the Post Office Department, which demanded a slight change of title of the publications and that they should be issued quarterly, they have been registered as second class matter at one cent per pound. Previously they were third class, at eight cents per pound. By this change in the classification, a considerable saving in postage has been made.

Respectfully submitted,
EDWIN H. BRIGHAM, *Librarian.*

The Nominating Committee, consisting of E. E. Hawes, L. A. Jones, F. A. Hubbard, E. F. Cody, F. E. Sweetsir, Butler Metzger, G. P. Twitchell, S. A. Mahoney, W. J. Collins, E. D. Richmond, C. E. Simpson, T. J. Murphy, W. A. Drake, A. E. Paine, J. J. Minot, David Harrower, and E. A. Sawyer, presented the following list of officers and orator for the ensuing year, and they were elected by ballot:

President: Charles F. Withington, Boston.
Vice-President: Samuel B. Woodward, Worcester.
Secretary: Walter L. Burrage, Boston.
Treasurer: Edward M. Buckingham, Boston.
Librarian: Edwin H. Brigham, Brookline.
Orator: Everett A. Bates, Springfield.

Upon nomination by the president, the following standing committees were appointed:

Of Arrangements: Beth Vincent W. W. Howell, J. D. Barney, E. L. Young, Jr., J. H. Young, J. L. Huntington.

On Publications and Scientific Papers: G. B. Shattuck, E. W. Taylor, R. B. Osgood, J. S. Stone, F. T. Lord.

On Membership and Finance: C. M. Green, A. Coolidge, Jr., Samuel Crowell, E. W. Taylor, Alfred Worcester.

On Ethics and Discipline: J. A. Gage, J. W. Bartol, Henry Jackson, G. deN. Hough, S. B. Woodward.

On Medical Education and Medical Diplomas: H. C. Ernst, C. F. Painter, H. W. Newhall, J. F. Burnham, C. Frothingham, Jr.

On State and National Legislation: C. F. Withington, F. G. Wheatley, A. K. Stone, G. W. Gay.

On Public Health: M. W. Richardson, M. J. Rosenau, W. I. Clark, Annie L. Hamilton, E. H. Bigelow.

Adjourned at 1.55 p. m.

WALTER L. BURRAGE, *Secretary.*

SPECIAL MEETING OF THE COUNCIL.

A special meeting of the Council was held at the Boston Medical Library, June 20, 1914, at 11 o'clock, a. m. The president was in the chair and the following twenty-one councillors and these invited guests were present: Alfred Worcester, F. J. Cotton, Hugh Williams, R. B. Osgood. BERKSHIRE, L. A. Jones. BRISTOL NORTH, Sumner Coolidge. HAMPDEN, G. D. Henderson, MIDDLESEX SOUTH, F. E. Bateman, H. T. Baldwin, J. E. Cleaves, H. F. Curtis, E. H. Stevens, M.N.C., J. O. Tilton. NORFOLK, G. H. Francis, V-P.; G. W. Kaan. SUFFOLK, E. M. Buckingham, T.; W. L. Burrage, S.; E. A. Codman, W. C. Howe, J. B. Hawes, 2d; J. J. Minot,

H. F. Vickery, C. F. Withington. Worcester, W. P. Bowers, S. B. Woodward, V-P.

The minutes of the last meeting were read and accepted. The call of the meeting to take definite action on the proposed affiliation between the Massachusetts Medical Society and the Boston Medical and Surgical Journal was read by the secretary and the recommendations of the Committee of Nine. (See page 82 of the Journal.)

Dr. R. B. Osgood stated for the owners of the Journal at the request of Dr. Hugh Williams, that the owners would make the same proposition which appears in the report of the Committee of Nine, namely, to furnish a copy weekly of the Boston Medical and Surgical Journal to all of the paid-up members of the Massachusetts Medical Society for the sum of $3.00 apiece.

Dr. Bowers presented the three following motions and they were all passed unanimously: *Moved:* That the recommendations of the Committee of Nine appointed by the Council February, 1914, to consider the matter of the affiliation of the Massachusetts Medical Society with the Boston Medical and Surgical Journal which are below, be and they are hereby adopted.

Recommendations: That the Boston Medical and Surgical Journal, be adopted as the official organ of the Massachusetts Medical Society, having its official title on the front cover, as above stated; that the whole of the Journal be sent to the entire paid-up membership of the Massachusetts Medical Society weekly, containing all such matters as are now contained in the publications of the Massachusetts Medical Society complete, with papers, proceedings, editorials, directory, program of annual meeting, notices, news items, book reviews, and miscellany, papers from district societies, activities in the legislature, etc., as may be determined upon by the board of editors; that the cost to the Society of such a plan shall not exceed $3.00 per annual subscription.

Moved, That for the purpose of carrying out the provisions of this vote that a sum not exceeding nine thousand five hundred dollars is hereby appropriated, provided first; that this expenditure is approved by the Committee on Membership and Finance, and second; that a sum not less than three thousand dollars be voluntarily subscribed by members of and made payable to the Society, to aid in carrying out this project.

Moved, That a committee of three, consisting of the President, Secretary, and Dr. F. T. Lord, be and hereby is appointed with full power to act for the Massachusetts Medical Society in perfecting details, making arrangements, agreements or contracts necessary to carry out the provisions of all votes which provide for an affiliation of the Massachusetts Medical Society and the Boston Medical and Surgical Journal.

On a question by Dr. Kaan as to how long the agreement was to be in force Dr. Bowers answered that it was to be for one year.

Dr. Alfred Worcester said that the Committee on Membership and Finance anticipating that this question would be referred to it and having Dr. Bowers' motion in hand had *Voted,* That the Committee on Membership and Finance in order to promote the proposed affiliation between the Massachusetts Medical Society and the Boston Medical and Surgical Journal, recommends an appropriation of $9500, less the amount of special subscriptions received by the Journal for this purpose.

Dr. Bowers stated that the Journal will take the burden of collecting the subscriptions and will credit them to the Society, thereupon the report of the Committee on Membership and Finance was adopted.

The President nominated the Secretary and Dr. F. T. Lord as editors on the part of the Society to carry out the affiliation.

On nomination by the President Dr. W. P. Bowers was appointed a member of the Committee on State and National Legislation to fill a vacancy.

Dr. Worcester presented the following vote passed by the Committee on Membership and Finance: That the Council be requested to give the Committee on Membership and Finance information as to the expense that would be entailed by the employment of a paid legislative agent by the Committee on State and National Legislation. Dr. Cotton, who was given the privileges of the floor, said that he thought that the interests of the committee on the Workmen's Compensation Act should be in the hands of the Committee on State and National Legislation; that he did not want to specify the amount which would be required. The President pointed out that this opens the entire question of employing paid agents and that the Committee on State and National Legislation, of which he had been a member for many years, had not been in favor, in the past, of employing such an agent for that committee; in the case of the Committee on the Workmen's Compensation Act the conditions were different.

On motion by Dr. Bateman and amendment by Dr. Bowers it was *Voted,* That an amount not exceeding $250.00 be placed at the disposal of the Committee on State and National Legislation for a paid legislative agent provided it is found necessary.

Adjourned at 12 noon.

Walter L. Burrage, *Secretary.*

Current Literature

Medical Record.

June 20, 1914.

1. *Porter, W. H. *Uric Acid Over-production.*
2. Harrower, H. R. *The Langerhansian Hormone, and the Hormone Treatment of Diabetes.*
3. Camp, C. D. *The Treatment of Trifacial Neural-*

gia by the Injection of Alcohol Into the Gasserian Ganglion.
4. AMBERG, E. *Some Injuries of the Inner Ear.*
5. ABRAHAMS, R. *The Medical Management of Exophthalmic Goiter.*
6. DICKINSON, G. K. *Wright's Solution: A Substitute for Antiseptic Solutions.*

1. Porter presents a valuable paper on the significance of uric acid in the body. Uric acid, he says, is a normal product of protein metabolism, secreted by the renal cells only. It is never found normally in the blood. When its excretion exceeds physiological limits it indicates simply suboxidation, and this overproduction is the true index of many disturbances of metabolism. The determination of uric acid excretion is of much importance in diagnosis and treatment. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

JUNE 20, 1914.

1. SEVER, J. W. *A Report of the Scoliosis Clinic of the Children's Hospital, Boston.*
2. MALONEY, W. J. M. A. *The Determinants of Tabes.*
3. WILLIAMS, L. L. *The Alien in Relation to the Spread of Acute Infectious Disease.*
4. ROSENBERG, J. *The Antituberculosis Campaign.*
5. COBURN, R. C. *Erroneous Deductions from Tracheal Insufflation.*
6. KENNEDY, J. W. *The Identity of the Lane Kink with the Joseph Price Elbow.*
7. SELLENINGS, A. E. *Idiopathic Splenomegaly; Splenectomy.*
8. STONE, C. T. *Sources of Error in the Wassermann Technic.*
9. GIRSDOWSKY, J. *Neosalvarsan in Concentrated Solution.*
10. *HEACOCK, J. H. *A Possible Solution of the Mercury Bichloride Problem.*

10. Heacock suggests that all bichloride tablets be made in coffin shape and colored a jet black or intense scarlet, the word "poison" to be stamped on both surfaces; also that they be placed in dark-colored bottles having spinous projections. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JUNE 20, 1914.

1. *FERRELL, J. A. *Hookworm Disease, Its Ravages, Prevention and Cure.*
2. *V. ADELUNG, E. *Induced Pneumothorax.*
3. *SCHAMBERG, J. F., AND KOLMER, J. A. *The Germicidal Activity of Calomel.*
4. *WALKER, I. J. *Spontaneous Rupture of the Healthy Esophagus.*
5. *CRAIG, C. B., AND COLLINS, J. *Four Years' Experience with Salvarsan and Neosalvarsan in the Treatment of Nervous Disease Due to Syphilis.*
6. SUDLER, N. T. *Case of Poisoning by Scopolamin (Hyomoscin) Hypobromate.*
7. FRAZER, T. *Pellagra with Late Skin Lesions: Case Report.*

1. Ferrell's article on hookworm disease is very thorough and of practical value. It is a clear, concise treatise on the subject.

2. Adelung's paper is also a very thorough and well written treatise on this method of procedure. The article is well worth reading though not suited to abstract.

3. The authors find calomel of equal germicidal power with mercuric chloride.

4. Walker gives an interesting review of this rare condition and cites an instructive case of his own. He appends a valuable bibliography.

5. These authors find that the nervous system may be attacked within a few weeks after the initial lesion of syphilis. Salvarsan is the most potent remedy we have, but it is not all-sufficient. It should be combined with regular mercurial treatment. [E. H. R.]

JUNE 27, 1914.

1. VAUGHAN, V. C. *The Service of Medicine to Civilization.*
2. AARON, C. D. *Aerophagy.*
3. *HOLT, L. E. *Medical versus Surgical Treatment of Pyloric Stenosis in Infancy.*
4. *DOWNES, W. A. *Pyloric Obstruction in Infants. A Report of Twenty-Two Personal Cases with Operation.*
5. BYFORD, H. T. *An Internal Alexander Operation.*
6. *IRONS, E. E. *The Treatment of Tetanus by Antitoxin.*
7. BLAND, P. B. *Vaginal Drainage.*
8. RAVENEL, M. P. *History of a Typhoid Carrier.*
9. PITZMAN, M. *Rationale of the Use of Antiseptics and Germicides in Inflammations of the Mucous Membranes.*

3. Holt's paper on pyloric stenosis in infancy is a most excellent and critical study of the subject. His analysis of symptoms, pathology, diagnosis and treatment brings out forcibly many important points. He prefers not to call the condition a congenital one because, with the onset practically always three to four weeks after birth, he considers evidence lacking that it is a congenital condition. He does not believe either that a definite persistent spasm of the pylorus, without hypertrophy, is ever present, and that spasm as the sole pathologic condition does not exist and has led to many errors in treatment because patients who needed operation have not been given it, on the supposition that the spasm would eventually let up. He suggests aspiration of the stomach by means of Hess's duodenum aspirator, as a great diagnostic aid and more valuable than the x-ray, as it is more reliable and easier to use. He believes that no sharp division into spasmodic and hypertrophic is possible either on pathologic or clinical grounds, but that a better practical division is, into mild and severe types; and the question of treatment lies in the decision as to whether the symptoms are severe enough to warrant operation or whether the patient will or can live long enough for the pathologic condition to subside.

4. Downes' paper on the same subject is viewed from the surgical point of view and is worth reading in contrast to Holt's paper.

6. Irons finds the mortality of cases of tetanus treated with anti-tetanic serum about 20% less than the average mortality of cases treated without serum, and the mortality of cases treated by efficient methods (intraspinal and intravenous) and adequate dosage is considerably lower than that of cases receiving small doses subcutaneously. Three thousand units intraspinally and ten to twenty thousand units intravenously are considered efficient doses. [E. H. R.]

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.

JUNE, 1914.

1. *BAETGER, W. A., AND SELLARDS, A. W. *Continuous Propagation of Amebic Dysentery in Animals.*
2. *BUNTING, C. H. *The Blood Picture in Hodgkin's Disease.*
3. *BUNTING, C. H. *Hodgkin's Disease.*
4. *YATES, J. L. *A Clinical Consideration of Hodgkin's Disease.*
5. CORSON, E. R. *Some Unpublished Water-Color Sketches of Sir Charles Bell, with Observations on His Artistic Qualities.*

1. The writers describe in detail how they secured continuous propagation of amebic dysentery by subinoculation through a series of animals, one strain being carried through eleven successive passages in kittens.

2 and 3. Bunting presents an amazingly large amount of material on the blood pictures of Hodgkin's disease. In his second article he describes his method of isolating a diphtheroid organism which he believes to be the cause. The organism and its toxin show a special affinity for lymphoid tissue and produce in this the characteristic changes of the disease.

4. Yates discusses Hodgkin's disease from the clinical point of view. He accepts Bunting's theory that it is an infectious process, and as a primary part of treatment urges radical tonsillectomy, care of teeth, throat, mouth, etc. Removal of large masses of glands seems to help. X-ray treatment is a valuable auxiliary measure. [J. B. H.]

THE LANCET.

MAY 30, 1914.

1. *JONES, R. *The Surgical Treatment of Infantile Paralysis.*
2. THOMSON, S., AND C. *Intrinsic Cancer of the Larynx: Complete Excision Apparently Effected by Endolaryngeal Operation.*
3. *BALLANCE, C. A. *A Note on a Method by Which Remedial Agents May Be Mingled with the Cerebrospinal Fluid.*
4. CAMPBELL, H. *The Treatment of Parenchymatous Syphilis by Intra-cranial Medication.*
5. *SPENCER, G. W. *The Intrathecal Injection of Salvarsanized Serum.*
6. POYNTON, F. J., AND PATERSON, H. *The Occurrence of Ascites of a Non-Tuberculous Origin in Chronic Recurrent Diarrhœas in Childhood.*
7. TOMPSON, R. *An Operation for Undescended Testicle.*

1. Cf. *British Medical Journal*, May 30, 1914.

3. Ballance describes his method of mixing salvarsan and other remedial agents with the spinal fluid.

4 and 5. Campbell and Spencer describe their methods of introducing salvarsan or salvarsanized serum into the spinal cord, etc. [J. B. H.]

JUNE 6, 1914.

1. *HOPKINS, F. G. *The Oliver-Sharpey Lectures on Some Effects Which Follow upon Changes in the Reaction of the Blood. Lecture I.*
2. *BARKER, A. E. *Acute Pancreatitis: a Clinical Study of Seven Cases; Five Treated by Operation Successfully.*
3. *HARTLEY, P. H. *The Use of Neosalvarsan in Active Pulmonary Tuberculosis.*
4. ROGERS, L. *Two Cases of Sprue Treated by Mouth Streptococcal Vaccines and Emetine Hydrochlorides Hypodermically.*
5. FRASER, J., AND HOBARTS, H. H. *Congenital Deficiency of the Radius and a Homologous Condition in the Leg.*

1. In this first lecture Hopkins discusses the analysis of the blood, its chemical reaction, respiratory mechanism and blood reaction, oxyhemoglobin variations in blood reaction and changes in blood reactions in disease.

2. Barker describes seven cases of acute pancreatitis on which he has successfully operated.

3. Hartley feels that salvarsan, while by no means a specific, seems to influence favorably certain cases of active and febrile tuberculosis of the lungs which have resisted other treatment and that it merits a more extended trial. (It would be interesting to know whether or not syphilis was a factor in these cases thus favorably influenced.—J. B. H.). [J. B. H.]

BRITISH MEDICAL JOURNAL.

MAY 30, 1914.

1. *JONES, R. *On Infantile Paralysis (Acute Anterior Poliomyelitis), Its Early Treatment and the Surgical Means for the Alleviation of Deformities.*
2. *GRIFFITH, A. S. *Further Investigations on the Type of Tubercle Bacilli Occurring in the Sputum of Phthisical Persons.*
3. *EMRYS-ROBERTS, E. *Alterations in the Blood Occurring in Hay Fever.*
4. THOMSON, D. *Remarkable Variations in the Leucocytes in Certain Diseases.*
5. KILLIAN, G. *The Semon Lecture on Suspension Laryngoscopy and Its Practical Use.*

1. Jones emphasizes the need of early and aggressive treatment of infantile paralysis; he speaks of the danger of over-stretching disabled muscles, as caused by improper posture, in efficiently opposed muscular action and deflection of body weight. He discusses tendon transplantation, the technic and after-treatment, operations to produce increased stability of joints, the utilization of tendons as ligaments, and nerve crossing.

2. This article on the forms of tubercle bacilli occurring in the sputum of consumptive persons is of scientific interest and value to those working along this line. In 1 out of 43 Edinburgh cases and in 2 out of 159 London cases he found bovine tubercle bacilli present in sputum from the lungs.

3. Emrys-Roberts presents details of his work to prove that hay fever is associated with definite changes in the blood picture consisting in a decreased hemoglobin percentage, a polycythemia, an increase in the large mononuclears, and the presence of vacuolated and degenerated leucocytes. [J. B. H.]

JUNE 6, 1914.

1. *CHAMPTALOUP, S. T. *The Prophylactic Use of Sensitized Bacterial Vaccines in Puerperal Sepsis.*
2. BROUGHTON-ALCOCK, W. *Treatment of a Uterine Abscess by Sensitized Bacilli Proteï.*
3. *MORTON, C. A. *Excision of the Bladder for Malignant Disease.*
4. SIMPSON, T. Y. *A Case of Ectopia Vesicae in Which the Ureters Were Grafted Successfully into the Rectum.*
5. THOMAS, J. L. *On a Direct Intragastric Method of Treating Certain Ulcers of the Stomach.*
6. MAYLARD, A. E. *Cholecystotomy in Lieu of Cholecystostomy in Certain Cases of Cholelithiasis.*
7. HUMPHREY, L. *The Urinary Diastase Test and Loeve's Reaction in Pancreatic Lesions.*
8. COOMBS, C. *Acidosis Terminating Chronic Myocardial Disease.*
9. OLIVER, J. *A Suppurating Hydatid of the Crura of the Diaphragm.*
10. PHILLIPS, J. *Dyspareunia and Its Surgical Treatment.*
11. YORKE, W., AND BLACKLOCK, B. *The Identity of T. rhodesiense with the Trypanosome of the Same Appearance Found in Game.*
12. DENMAN, R. *Electrargol in Smallpox and Plague.*

1. Champtaloup describes his results with sensitized streptococcal vaccine in puerperal sepsis, and urges its use and free distribution in dispensary practice as a prophylactic measure. He gives the details of preparation of the vaccine and of illustrative cases.

3. Morton describes four cases in detail in which he has performed complete or partial excision of the bladder for malignant disease with good results. [J. B. H.]

Miscellany.

MASSACHUSETTS BABIES' HOSPITAL.

IT is announced that beginning on July 1, the Massachusetts Babies' Hospital, founded in 1868 as the Massachusetts Infant Asylum, will suspend its medical functions and restrict its work solely to the boarding of infants. The directory for wet nurses has already been transferred to the Infants' Hospital. The following statement is issued by Mr. Edward R. Warren, president of the institution:—

"Our board of trustees has given this matter very careful consideration, and the decision has been reached with the advice of a number of the leading physicians engaged in specializing in work for babies and young children in Boston, and also after consulting with representatives of the chief non-medical charitable societies dealing with children.

"The opening of the Infant Hospital in its new location near the Harvard Medical School, provides a centre for the care of babies which will give ample opportunity for the development of research work in infantile diseases, which is of such great importance in increasing our knowledge of their treatment and prevention. The location of the Massachusetts Babies' Hospital in Jamaica Plain is not advantageous for the development of extensive research work, nor for a large out-patient service for babies, to which many sick children are brought by their mothers and afterward placed in the hospital.

"It is the opinion of some of the leading physicians that Boston needs not only such a research centre for infant diseases as the new Infant Hospital will be, but also hospital wards for babies in the centre of the city, associated with out-patient clinics, such as the children's department of the Massachusetts General Hospital and the children's department of the Boston Dispensary provide.

"It was the feeling of these physicians that the hospital in Jamaica Plain could not be made to fulfil in the best way either of these two functions, which are now required of a babies' hospital in Boston. Our hospital has for many years undoubtedly served a very important need in the community, notably in specializing in difficult feeding cases and as a pioneer in encouraging and advocating the use of breast milk. It is because two new hospitals are now prepared to carry on this good work that it seems wise for us to close ours. Henceforth, our society will confine its work to placing babies at board. The board of trustees has taken this important step, believing that it will be a gain to the community from the standpoint of economy and also in effecting better working relations between the chief institutions dealing with babies and young children in Boston."

The name of the institution will probably be again changed to correspond with the new specialization of its work.

APPOINTMENTS.

COLUMBIA UNIVERSITY.—*Dr. Warfield T. Longcope* has been appointed Bard professor of the practise of medicine, and medical director of the Presbyterian Hospital. *Dr. Samuel W. Lambert* has been appointed professor of clinical medicine; *Dr. Charles C. Lieb*, assistant professor of pharmacology; and *Dr. William Darrach*, assistant professor of surgery.

UNIVERSITY OF ALABAMA.—*Dr. J. Howard Agnew* has been appointed full-time professor of medicine.

UNIVERSITY OF CALIFORNIA.—*Dr. Karl F. Meyer* has been appointed professor of bacteriology and protozoölogy.

RECENT DEATHS.

DR. GEORGE STRAWBRIDGE, who died on June 27 at Philadelphia, was born in 1844. He was an otologist and ophthalmologist and was formerly professor of otology at the University of Pennsylvania. He was a founder of the Pennsylvania Eye and Ear Infirmary in 1895.

DR. HUGH WYTHE DAVIS, who died on June 29 at Richmond, Va., was born in 1840. He had practised medicine in Richmond since 1864.

DR. DEAN SAMUEL ELLIS, a Fellow of The Massachusetts Medical Society since 1883, died at his home in Worcester, June 30, 1914, after an illness of three months, aged 58 years. He was a graduate of the Jefferson Medical College, Philadelphia, in 1883, and was a Fellow of The American Medical Association.

BOOKS AND PAMPHLETS RECEIVED.

Diseases and Deformities of the Foot. By John Joseph Nutt, B.L., M.D. E. B. Treat and Company, New York. 1913.

Transactions of the American Urological Association, Twelfth Annual Meeting. 1913.

Thirty-Eighth Annual Report of the Free Hospital for Women, Boston, 1912-1913.

Year-Book of the Pilcher Hospital, April 1, 1912, to March 31, 1913. Brooklyn, N. Y.

Disease and Its Causes. By W. T. Councilman, A.M., M.D. Henry Holt and Company.

The Psychopathology of Hysteria. By Charles D. Fox. Richard G. Badger, Boston, Mass.

The Supposed Death-Rates of Abstainers and Non-Abstainers and Their Lack of Scientific Value. Phelps.

The Practitioner's Visiting-List. 1914. Lea and Febiger.

A Preliminary Report on 120 Cases of Tuberculosis Treated with the Friedmann Vaccine. By Dr. Harry Lee Barnes. Reprint.

Spezielle Pathologie und Therapieinnerer Krankheiten. Von Friedrich Kraus und Theodor Brugsch. Rebman and Company, 1913, Nos. 1-8.

Spatpsychosen Katatoner Art. Von Dr. med. Mauryey Urstein. Rebman and Company, 1913.

Uber die Pathogenese der Salvarsantodesfälle. Von Dr. Wilhelm Wechselmann. Rebman and Company, 1913.

Die ambulante Therapie der Lungentuberkulose und ihre häufingsten Komplikationen. Von Dr. Karl Blümel. Rebman and Company, 1913.

Die Malaria nach den neuesten Forschungen. Von Prof. Dr. Angelo Celli. Rebman and Company, 1913.

Rontgentiefentherapie. Von Dr. C. J. Gaub and Dr. H. Lembcke. Rebman and Company, 1912.

Diagnose und Therapie der Herzkrankheiten. Von Prof. Dr. Ludwig Braun. Rebman and Company, 1913.

Die Krankheiten der Nase und Mundohle sowie des Rachens und des Kehlkopfes. Von Dr. Alfred Bruck. Rebman and Company, 1913.

Addresses.

FIFTIETH ANNIVERSARY OF THE BOSTON CITY HOSPITAL, JUNE 20, 1914.

Introductory remarks of the Honorable A. Shuman, President of the Board of Trustees.

It gives me much pleasure to welcome, on behalf of the Trustees,—His Honor the Mayor and representatives of the City Government; members of the Staff, past and present; the Alumni; and other guests, to this observance of the Semi-Centennial of the Boston City Hospital.

On May 24, 1864, after many years of earnest endeavor on the part of public-spirited citizens, the Boston City Hospital was dedicated to the cause of the sick and suffering of our city, who without its beneficence would be unable to command the necessary care and treatment for the alleviation of the "ills that flesh is heir to."

The half century that has passed since then has been one of marvellous progress, not only in the growth of the hospital itself, but in the advancement of medical and surgical science, and the work done by those earnest and devoted men who have given so liberally of their time and skill for the mitigation of pain and the restoration to health of their fellow men. I gladly take this opportunity of offering my personal tribute to this long line of high-minded, stout-hearted men, many of whom it has been my pleasure to know well during my long connection with the hospital, who have from the foundation to the present day, done so much to raise it to its enviable position. Two members of the original staff, Dr. David W. Cheever and Dr. John G. Blake, are still with us, to participate in these exercises, and look back with just pride and satisfaction on the work in which they have played so important a part.

It may be interesting to review briefly the successive steps that have been taken in the development of the hospital during the fifty years of its existence. Four buildings constituted the original group: the administration building, two pavilions, and the boiler house on Albany Street. The bed capacity was 208. Today we have 46 buildings with a bed capacity of 1061. The number of patients treated has increased from about 800 in 1864, to 116,729 in the last fiscal year. This includes both ward and out-patients. On June 20, 1864, there were 16 patients in the hospital; today, fifty years later, there are 892. The maximum number of patients for the past year was 1067 on March 16th. The original medical and surgical staff consisted of 21 members; the present complete staff consists of 103.

While some of this wonderful growth is due, of course, to the natural increase in the population of our city, the greater part is due to the fact that the pleasant surroundings, the skill and humanity of the physicians, and the faithful and sympathetic care of the nurses and attendants have gradually overcome the almost superstitious dread of hospitals that formerly possessed the general public. It is not now a question of finding patients for the beds, but of finding beds for the patients.

In 1864 no rubber gloves were worn in operating; there was no sterilizing of surgical dressings; catgut ligatures were rarely used; instruments were not sterilized. Sera for the treatment of diseases were unknown. Scientific feeding for certain diseases had not received any attention. The x-ray had not been discovered. The radium treatment for superficial cancer was unknown. There were no microscopes in use at the hospital that at the present time would be worthy of the name of a scientific instrument. When all these things are taken into account, it will readily be seen that it is much more expensive to carry on a hospital today than it was fifty years ago, yet in spite of this fact the per capita cost has been but slightly increased during that time. In 1865, the cost per patient was $1.77 per day; in the last fiscal year it was $1.81. This showing is a tribute to the business principles of strict economy on which the hospital is conducted. All purchases are made by competition from specifications prepared by the Trustees, and contracts are awarded to the lowest bidders. All appointments, professional and otherwise, are made strictly upon merit. This method has brought the hospital to its present high standard of efficiency.

It is a matter of pride and satisfaction that the Boston City Hospital has never had to take a low position in the ranks of such institutions. From its inception until the present day, the generous appropriations of the City Government have enabled the Trustees to keep it abreast of the times, and in many cases ahead.

Let us glance at some of the achievements of the hospital during this half century. Chief among them, it seems to me, has been the triumph over the dread scourge of pyemia and sepsis. The present generation has little knowledge of the horrors and dangers that attended the surgery of those early days. Our hearts should be filled with gratitude to those who by their labors and researches have made possible the present happy conditions.

In later years the discovery of the x-ray and the use of radium have opened up unlimited possibilities for good. Wonderful results in the treatment of surface cancer, in the early diagnosis of pulmonary tuberculosis, the more exact knowledge of fractures and diseases of the bones, and in the location of foreign bodies, have been attained by these agencies. The hospital has been most fortunate in having the incalculable benefit of the knowledge and skill of Dr. Williams in this important branch of the service.

The x-ray department occupies the entire lower floor of the Lamont G. Burnham Memorial

Building. Mr. Burnham became a trustee in 1896, and realizing the good work the hospital was doing, soon became greatly interested, particularly in the x-ray department. He died in 1902, bequeathing to the hospital the munificent sum of $150,000, from which has been erected the building which bears his name.

The great good accomplished by the South Department must not be overlooked. Opened in 1895, it was the first separate hospital in this country for the care and treatment of infectious diseases. A volume could be written and still not do justice to the noble work that has been done by this department in the saving of human life and the relief of suffering, as well as the prevention and control of epidemics of scarlet fever, diphtheria and measles in our city and community. As an evidence of what this department has accomplished let me merely say that in 1894 the death-rate in Boston from diphtheria was 18 out of every 10,000 inhabitants; in 1913 it was two and a fraction. This diminution of mortality is largely due to effective isolation, fresh-air treatment, and especially the use of anti-toxin. Equally gratifying results are recorded in the treatment of scarlet fever and measles. Through the generosity and coöperation of the former Mayor and the Honorable City Council, the Trustees are now engaged in an extensive addition to this department, following the latest and most approved methods for the construction of such hospitals.

Fifty years ago, there was no ambulance station. Patients came to the hospital in hacks or carriages. The hospital now has four-auto-ambulances for the main hospital and three horse-ambulances for the use of the Relief Stations.

The two Relief Stations are of great benefit to the citizens of Boston in the rendering of prompt and efficient aid in emergency cases, while the Convalescent Home is a boon for women who are considered well enough to be discharged from the hospital, and yet who, through lack of proper home surroundings, need care and comfort in their convalescence.

The history of the Boston City Hospital for the past fifty years is a history of faithful, unselfish, devoted service on the part of all who have contributed to its growth: superintendents and their assistants, members of the staff, house officers, nurses and other attendants, employees of all grades—all by their earnest efforts and attention to duty, combined with the labors and coöperation of successive mayors, boards of aldermen and city councils, and the long line of trustees, have contributed to the success and progress of the hospital, and placed it in its present high rank among such institutions.

Many names come to my mind worthy of special mention, many men to whom the hospital and the community are especially indebted, but I feel that I should be lacking in appreciation if I did not call your attention to two names; those of Dr. G. H. M. Rowe, superintendent from 1879 to his retirement in 1909, to whose wise and able administration the hospital owes much, and Dr. John H. McCollom, the present efficient incumbent, who has given the hospital most faithful and distinguished service, not only in this position but in his former capacity as head of the south department.

We, who are gathered here today, cannot foresee what the future may hold for the Boston City Hospital. But we have faith to believe that the traditions of the past will be a source of inspiration to those who will come after us; that the activity, intellect, skill and loyalty that characterized the men who, in the face of almost insuperable obstacles, attained success and victory, will animate their successors through many generations to come, so that the Boston City Hospital and the welfare of the people may be safe in their hands.

We are fortunate in having with us this day, the chief executive of the City of Boston, a warm friend of the hospital as alderman, councillor, and mayor; in full accord with the trustees in their endeavors to carry on its work and maintain its high standard; who has the confidence, sympathy and support of the people of Boston in his efforts to give them a wise and economic administration. It affords me much pleasure to present to you HIS HONOR THE MAYOR.

Mr. President, Trustees of the Hospital, Members of the Alumni Association, Ladies and Gentlemen:

It is exceedingly unfortunate that the duties of the office which I hold are such as to make it extremely difficult to apply the amount of thought, attention and study that is necessary to an address, brief thought it may be, delivered on an occasion as important as the occasion which we are gathered here today to commemorate.

However, it has been my good fortune at all times to be in close touch during the last 14 years, in some measure, with the work performed at the Boston City Hospital. And if there is anything that I may say here today that may be in the nature of criticism, it is intended solely for the good of the institution in which we are all interested, and which has accomplished so much for our city.

No institution of a similar character in the entire country has occupied a place in the field of medicine and surgery such as has been held by the Boston City Hospital; and it is my desire, and I believe I voice the wish and thought that are uppermost in the mind of every woman and man present, when I say, I sincerely hope that in the next half century we shall continue to occupy first place among institutions of this kind.

To my mind, the two most important essentials to the accomplishment of this most neces-

sary and laudable object are brains and money. Boston is essentially the birthplace on this continent of brains and service. That it is possible for us to supply the brains for the future, no man can question. And that it should be possible for the municipality to supply the money, no man is justified in contending against. I wish to say that it is my purpose to aid in every way the matter of furnishing the money to make possible the first place among institutions of this kind in the United States of the Boston City Hospital. I depend upon the trustees and upon the staff to supply the brains!

I recognize that we have been lax in some particulars with respect to the City Hospital. It is my experience that the service rendered by a low-paid official is usually in proportion to the wages received; and if increased wages to nurses and other employees is going to make more successful the work of the physicians and surgeons, I believe it is the duty of the city to supply the money.

We are expending this year in new buildings and improvements for the City Hospital, $400,000; for maintenance, $600,000; making a total expenditure of approximately $1,000,000. It is my purpose, during my administration, to take up one department after another and place each department on a first-class basis. The work has begun at our institution known as the Boston Infirmary Department at Long Island. And if I am compelled to practice economy in every branch of the city service in order to provide the money that is necessary to make this institution the best of its kind in the country, I am prepared to do it. I believe that it will require probably an increase of approximately 16 to 20 per cent. to provide the necessary additional help, and to provide a reasonable living-wage for those employees who serve as nurses, orderlies, or in other capacities.

I do believe, Mr. Chairman, that perhaps more publicity would not do the City Hospital a bit of harm. It would serve to dissipate that undercurrent of criticism on the part of patients. People come to the hospital in pain of body and distress of mind; and it is only natural that they become critics. But if the general public were aware of the number of cases treated monthly, in a little publication, it is my opinion that the City Hospital might occupy a more enviable position in the mind of the entire public than it does at the present time.

I believe there is a great field for our convalescents' hospital; and the city has the available area on which to erect the necessary buildings. If a system might be devised by which we could give greater care to the men or women who, because of crowded conditions, are consigned to the out-patient departments and who, thereupon, become chronic critics, I think most of such criticism might be allayed.

I want to say that I stand ready to do my part to provide such funds as may be necessary to increase the amount of good possible for this institution to accomplish. We are gradually placing the various city departments on an efficiency basis. I believe your institution has always been on an efficiency basis. I believe you can expend more money to advantage in this institution. Every time $100,000 is saved in other departments, we ought to allow at least one-tenth of that sum,—and it *will* be available—for the Boston City Hospital. And *that* is not an inconsiderable sum; for, in the last four months, by merely insisting on old-fashioned honesty, we have succeeded in saving approximately $800,000—without serious injury to any individual who was rendering honest service in return for his salary, and with increased efficiency in every branch of the city service.

Finally, if the City Hospital exceeds its appropriation this year by thirty, forty, or fifty thousand dollars, I shall make it my business to secure the necessary money. If the trustees will map out a definite program anticipating the needs of this community for the next twenty or thirty years, I shall make it my business next year to provide the necessary money. In short, I'll furnish the money, if the trustees will furnish the ideas, the program, and the brains.

The President then introduced with the following remarks David Williams Cheever, M.D., LL.D., former president of the Massachusetts Medical Society, demonstrator of anatomy, professor of surgery 1882, professor of surgery emeritus 1892, surgeon at the Boston City Hospital since 1864. The eminent surgeon. The careful, painstaking teacher, whose lectures at the Medical School were models of concise and accurate English and conveyed more information than that of most lectures, and whose example has had an important influence in elevating the standard of the medical profession in New England.

Mr. President, your Honor the Mayor, Trustees of the Hospital, my Colleagues, Members of the Alumni Association, Ladies and Gentlemen:

Fifty years is a long while. The history of the Boston City Hospital is the history of my life. I was here as one of its surgeons when its doors were opened, and I am still connected with it in an honorary and sinecure position. But I do not stand alone. By my side for fifty years has been my medical colleague, Dr. John G. Blake. His *bonhomie* has cheered us on our way.

Although tempted to speak on personal matters, I will first address to you some plain truths, interesting to you all.

This hospital numbers 1000 beds: it is as large as those of Paris, Vienna, Berlin, and excels them in lavish comfort. It is in just propor-

tion to the growth of the city. In 1864 the hospital had 200 beds, and Boston about 150,000 inhabitants; in 1914 the hospital has 1000 beds, and the city 700,000 inhabitants. It is large enough. It should be allowed to grow *no larger*. One administrator cannot do justice to a larger one. This hospital for fifty years has been free from any scandal, pecuniary or moral. It is a municipal hospital and the municipal government has always been more than liberal to it. This is a good deal to say but it is true. One member of its board of trustees has served over a quarter of a century, and as president of the trustees has been its wise financial adviser. Mr. Sprague also served twenty-eight years as a most valuable trustee, and secured the incorporation of our governing board. We owe very much to our trustees. It is apt to be forgotten that they, as the staff do, give time, and labor, and oversight without salary.

In fifty years we have had only four superintendents, and one of these is in office now. Our first had administrative talent widely trained; our second brought the rigid virtue of a regular army officer; our third was strenuous, and faithful to the last; our fourth, as a caretaker, too solicitous, but always to be remembered as a great saver of human life in contagious diseases.

The staff of doctors of this hospital has maintained harmony by compromise; has, above all, been coherent and united; and it is noteworthy for its stability. With one exception no one has been dropped from it by the trustees; that exception being in a minor appointment, in the earliest years of the hospital, when personal pique resulted in an unjust substitution. The staff has ejected not less than two of its own members for cause. It has purified itself; it has called on the trustees to remove men for gross neglect of duty, and for bad personal habits. A high standard of devotion to duty and to humanity has been its aim. I would not say this, were it not true, and I believe I am not prejudiced.

I dwell especially on its stability, freedom from change, permanent appointments and promotions. In this, it contrasts favorably with its sister institutions in Boston. The young doctor who devotes his earlier years to service here, has a good assurance of the advantages and rewards of the highest positions. The privilege of nominating its colleagues—the competitive examination of its house doctors—the establishment of trained nurses—clinical teaching year after year—the publication of its professional experiences in hospital transactions for fifty years: these are the accomplished facts of our medical staff.

At this twenty-fifth anniversary of our hospital student alumni, I can count up a body of 750 practitioners of various ages, educated by us, and scattered over all New England and even all the United States, as creditable results of our hospital teaching.

We have advanced medical knowledge by some novel operations, by some pathological discoveries. We have furnished medical literature with sixteen volumes of hospital reports on professional subjects.

So we stand today, honorable and honored, one of the best municipal hospitals in our country. This is no boastful record. It is strictly true. But to me personally has everything always been so agreeable? Let me recall the dark days of my youth, when blood-poisoning cursed surgery, and death followed our hardest efforts. Let me give an example. During one winter, I was called up here 16 winter nights to relieve suffocation by opening the windpipes of children suffering from membranous croup, as diphtheria was then called. Heavenly relief and calm sleep followed. But how many cures? Within three days twelve of the sixteen would die, and four recover. He who saved one in four did well; he who saved one in three was a hero.

Now, for 1913, the statistics of laryngeal diphtheria in our hospital show a mortality of 27.73 per cent., and of recovery, 72.26 per cent. Formerly three out of four died. Now three out of four recover. Alas! Those discouraging days! Well I remember walking home one day tired and depressed from a bad case,—an unexpected death after operation,—and saying to myself, "I cannot go back!" Before I reached home a voice within me said, "You must go back!" I used to call the City Hospital a sink of misery. We all labored hard to relieve, and a fair percentage recovered; but many died then who now would live.

The undiscovered appendix was causing fatal peritonitis without recognition and without redress. Acute peritonitis was almost always fatal. Compound fractures lay for months unhealed, and if they finally required amputation, amputation was often fatal; the mortality of thigh amputations at the middle third rising to 50 per cent. Wounds suppurated before they healed, and suppuration not infrequently ended in pyemia. In this respect we were not worse than any hospital of that time. The dregs of the great Civil War were in 1864-66 drained into all civil hospitals, and brought us the legacy of hospital gangrene. Meanwhile, the surgeons toiled hard and exhausted every known means of remedying these sad evils. Sometimes wards were emptied for two weeks; cleansed, painted and whitewashed. Hospitalism was a fact and not an idea. Home was safer than the hospital, even if a poor home. Obstetric cases were interdicted from general hospitals on account of the increased risk of puerperal fever and sepsis. Ovarian cysts were allowed to distend until the general health was influenced before the desperate operation of ovariotomy was justifiable. Trephining was a critical operation, not to be lightly undertaken.

Surgery was external or surface surgery. Tumors were removed, plastic operations begun, amputations practised, but I have seen a poor

victim of a large burn of the back die of exhaustion because we knew not the possible relief of healing by transplanted skin.

A sombre picture, not overdrawn; and yet surgery was the only resort open; and the anxious and care-taking surgeon toiled and toiled, maintaining the cheerfulness of hope, which alone held death aloof.

Such were the conditions when halfway down my surgical journey, 25 years ago, asepsis dawned, and slowly, like a summer morning, brought on the perfect day,—gradually, little by little, step by step, first carbolic antisepsis and carbolic spray, then corrosive sublimate, then heat, then alcohol, then dryness and sterilized gauze and gloves; until suppuration vanished, surgery became a joy, recovery was the rule, and death was often not unjustly ascribed to a failure of technic.

Now surgery advanced boldly and assailed the vital cavities of the body, until today no region is sacred from the surgeon's knife,—the abdomen, which means *hidden;* the chest; and even the heart; and finally the brain were safely and beneficently entered, and treated.

What a glorious future this meant to humankind! Who can measure, who can estimate?

In medical cases, as great an advance has been made in preventive medicine.

Such is hospital life and hospital practice today. The surroundings are the same, the personnel the same, the skill and devotion no greater, but science has enabled us to reap a tenfold harvest of lives saved. What wonder that I, lingering on the threshold, wish that I could begin again?

A word for the dead. Fifty years has thinned the ranks of my colleagues down to two. May we not reasonably expect that the good they did here in this hospital may count to their credit in moulding their characters? And, when, swinging on the tide, the moment comes that the hawser parts, and the bark is swept away into the illimitable sea, they finally may float into the calm waters of the river of Lethe, of Oblivion (as Virgil puts it) which skirts the shores of the Elysian fields.

"Interea videt Æneas in valle reducta
Seclusum nemus, et virgulta sonantia sylvis
Lethaeumque, domus placidas qui praenatat, amnem."

"Animae, quibus altera fato
Corpora debentur, Lethaei ad fluminis undam
Securos latices et longa oblivia potant."

"In the meantime Æneas sees in a sequestered valley a retired grove, the whispering twigs of a wood, and the river Lethe swimming before the quiet homes."

"Those souls to whom it is given by fate to enter other bodies drink in, by the Lethean wave, care-free waters and long oblivion."

It now becomes my pleasure to introduce John George Blake, M.D., connected with the Boston City Hospital since 1864. The kind and skillful physician, whose presence at the bedside has always brought hope to the patient, whose medical knowledge and tact have served as an example to other practitioners. Many of the younger men of the profession, particularly those who have been house officers at the Boston City Hospital, owe much to Dr. Blake for his careful instruction in the diagnosis of obscure cases.

Mr. President, your Honor the Mayor, Trustees of the Hospital, Members of the Alumni Association, Ladies and Gentlemen:

Fifty years ago, the medical cases at the City Hospital were exactly as they are today—rheumatism, pneumonia, pleurisy, stomach difficulties, kidney diseases, heart diseases, diseases of the nervous system, etc.

The treatment of them is very different. Take rheumatism for example. Articular rheumatism, with pain and swelling of the joints, was a very painful disease. The old remedy, six weeks in bed, was irksome and, as I go back fifty-five years in medicine, the only remedy I recall was propylamin which had but very little influence on the disease. In the early days of the hospital, our hospital, the alkaline treatment was becoming popular, and with the claim that the heart was free from complication and the duration of the disease lessened, most cases getting well in four or five weeks. There is a record of five hundred cases reported in the first volume of the reports of the City Hospital. In our day, under salol and its different preparations, the time comes down to about one week.

Pneumonia was a common disease treated largely by alcohol in some form and terminating usually in about one week. In our day, the use of alcohol has largely diminished in this, as in other diseases, and also the use of drugs, so that on the score of economy the city's finances are the gainer. Pleurisy with effusion was treated largely by aspiration, and empyema by permanent openings. Dr. Gross, while on a visit to Boston, learned of our success in this affection and reported, in his work on surgery, a list of twenty cases.

In the diseases of children we have made a great success. In the twenty years of the South Department, as the following letter will show, we have saved according to its figures about eight thousand lives.

"The South Department was opened on Aug. 31, 1895. To Jan. 1, 1913, 45,434 patients have been admitted. The diphtheria mortality at the Boston City Hospital, from 1888 to 1895, including 3067 cases, was 43.2%. The diphtheria mortality at the South Department from 1895 to 1914, including 25,590 cases, was 10.43%. If the previous rate of mortality had continued,

there would have been lost 8385 persons who are now saved."

Typhoid, we have in diminishing numbers. If we could only vaccinate the community in its entirety, we could exterminate this disease, as we have smallpox. This has been done in the army; we are doing it in our navy. The treatment of the disease has not changed, as the writer can testify from personal knowledge thirteen years ago.

Stomach diseases, resisting medical treatment, are now sent to surgeons and a fair amount of success has attended their operations. Physicians and patients are inclined to avoid surgery and the mortality attending the operations on members of the medical profession has not been hopeful. Modern gastric treatment at the hands of skillful men, such as our staff contains, prolongs life until the stomach affection, probably malignant, becomes almost hopeless for the surgeon. This is also true of diabetes. Dr. Joslin, for example, keeps his patients alive year after year, and, by careful attention to diet enables them to enjoy life and attend to their business in a reasonable degree. And so of renal and cardiac diseases.

The advance in the treatment of medical diseases has been due to the presence on the staff of a large number of eminent men who cordially coöperate in their scientific work with the visiting physician. Among these, we may name Dr. Williams of the X-ray Department, who lights up our insides and pours in light, where before all was darkness, and curing epithelial cancers in large numbers; Dr. Sanborn with his vaccine therapy; Dr. Overlander with his care of the structure and function of the kidneys; Dr. Granger with his electric department in its different varieties. The fresh air method of treating disease with which all the modern structures will be equipped; the Wassermann reaction; the examination of spinal fluid; examination of the blood and the blood pressure; the nursing system; the uterine ward; and a host of other subjects which time will not allow me to allude to are all deserving of praise and skill.

What I desire to show is, that the medical department of the City Hospital is up to date. That its staff, composed largely of young men, are in the front rank of their profession and that their whole heart and soul is in their work for the relief of suffering and for enhancing the hospital's reputation.

This condition is very different from what it was in my day. It was the old man then, it is the young man now; that is right. Let the young men do the work, and, if they want any advice on ancient history, I shall be only too glad to volunteer. I think I can speak for my friends, Drs. Gay and Cheever. We all see their work. I won't be misunderstood if I take for example Dr. David Cheever and a couple of boys in whom I take a deep interest. If there is anything that pleases the paternal heart, it is to see his boys following a noble profession There is no fortune to be gained by money-making, but the love and friendship from life prolonged, pain saved, and loved ones saved from death. This is the mission of the City Hospital.

As time goes on and the city grows in population, new buildings, one of which I now call to mind, the Thorndike Hospital for deformed children, will be added; the present buildings will be enlarged and the out-patient relief stations, to accommodate a greater number. We need a convalescent home for men quite as much as for women, and we don't want to be a home for delirium tremens for all time, as we are now. Our hospital was never intended for this and has never been fitted up to treat the disease according to the modern methods in mental institutions. We tried last year to have a bill passed to have such a hospital and succeeded till it reached the governor, who did not approve of its form. Perhaps another year we may be more successful. Most of these cases go to the Relief Station but many come to us, and we are called upon to treat them. Their presence and violence disturb other patients and it is on this account that we object.

In this short paper, one can give only slight and incomplete impressions of the life in a great hospital managed as ours has been by very able and competent men as superintendents. From Mr. Cutler, our first, to our present worthy incumbent we have had but two, Dr. Cowles and Dr. Rowe. After several years, Dr. Cowles went to the McLean as superintendent and his place was taken by Dr. Rowe, who served us faithfully for 30 years. The modesty of the present incumbent is so marked that I will only state that he is as efficient as he is modest and possesses the entire confidence of the trustees and staff.

And now in closing, a word about the trustees. Half a century ago, we had Otis Norcross, Theodore Metcalf, Dr. Lawrence, Thos. L. Amory, and men of their class. They were earnest and devoted. Today, we have men equally qualified, serving us with their whole strength. Take our chairman for example. Thirty years ago on a trying occasion, he rang true as steel and that has been his attitude ever since. A statesman by nature, diplomatic, persuasive, heart and soul in his work for the hospital, he always succeeds in getting us the large sums needed for the hospital. Long may he be spared to us!

I have great pleasure in introducing GEORGE WASHINGTON GAY, M.D., A.M. (HON.), former president of the Massachusetts Medical Society, distinguished surgeon, house officer of the Boston City Hospital in 1867, connected with the hospital since 1869, surgeon to out-patients, visiting surgeon and senior surgeon. He has performed many of the most difficult operations in surgery, and his skill as a surgeon is known and

recognized throughout New England. He has accomplished much for the advancement of public health as a member of the Committee on State and National Legislation of the Massachusetts Medical Society.

Mr. President, your Honor the Mayor, Trustees of the Hospital, Members of the Alumni Association, Ladies and Gentlemen:

The Boston City Hospital has three important functions in its keeping. First and foremost, the care of the sick and injured. Second, the instruction of physicians who are to care for the communities in which they live. And third, the training of nurses. That the institution has been faithful to its trusts is shown by the fact that, in its fifty years existence, it has cared for nearly two millions of patients; it has graduated 752 house doctors, and has given instruction to several times that number of medical students; it has graduated 1154 nurses and given instruction to many others; and for many years, the institution has occupied a leading position among those of its kind the world over. Its record is clean and satisfactory.

Since opening its doors on that Wednesday morning fifty years ago, the hospital has never been closed a moment to those for whom it was intended. Its policy has been a liberal one. It has received every legitimate applicant that it could accommodate and has striven to do its duty for the welfare of the community.

That the professional services rendered to the patients have been of a high standard, is shown by the character and high standing of the gentlemen who have served upon the staff. No hospital could fail to do good work that has upon its roster such men as the Cheevers, the Buckinghams, the Thorndikes, the Williams, the Bowditches, the Reynolds, the Stedmans, the Blakes, the Homans, the Arnolds, the Coolidges, a Borland, Upham, Sinclair, Derby, Thaxter, Ingalls, Curtis, Post, Bradford, Watson, Councilman, Mallory, Shattuck, Rotch, Doe, Jackson, Mason and a host of others who have achieved an enviable position in the community.

Through the courtesy of the public-spirited trustees, the staff has been enabled to publish sixteen volumes of medical and surgical reports and papers, giving an account of much of the work done here. These publications speak for themselves. They have received commendation from those high in authority in such matters and have been received with much satisfaction by the profession. A history of the hospital of 432 pages was published ten years ago.

The hospital began its career with a staff of 21 physicians and surgeons; it now has 102. There were four internes and one externe; there are now 42. Each physician and surgeon had one house officer while now he has four. During the first complete year of the hospital's existence, 1167 patients were treated in its wards and nearly as many more in the out-patient departments. Last year over 18,000 received ward treatment and nearly 100,000 came to the numerous out-patient departments. So much for the figures as showing the growth of the institution in its first half century.

Fifty years ago, few well-to-do persons sought relief in hospitals and dispensaries, it being considered derogatory to one's character or to his financial standing in the community. Only the poor resorted to these places. In the early days of this hospital, between one and two per cent. of the population of this city applied for treatment; while last year, over 16 per cent. came here for that purpose. There are about one hundred hospitals and dispensaries in this city for the care of the sick and injured. The number receiving treatment therein every year is equal to about half the population. The public has been quick to realize the advantages to be obtained in a well-conducted hospital and has governed itself accordingly.

The house officers of this hospital have always been chosen by competitive examination, thereby eliminating favoritism as much as possible, and also securing the best men, who apply for the positions. That the system has given good results is shown by the character and standing of the graduates, who are to be found all over this country. The reader trusts that it will not seem invidious on his part, if he ventures to mention the names of a few of the 752 gentlemen, who have served as internes in this hospital.

First upon the list should be placed the name of Dr. R. H. Fitz, writer, teacher, and the "discoverer," *i.e.* the elucidator of modern appendicitis. Gen. Leonard Wood, M.D., brilliant organizer, efficient sanitarian, and successful commander; L. F. C. Garvin, politician and for two years the Governor of Rhode Island; George F. Jelly, for years the leading alienist in New England; H. L. Burrell, organizer, teacher and president of the American Medical Association; George B. Shattuck, for many years the accomplished editor of the Boston Medical and Surgical Journal; Frank W. Draper, the first medical examiner in Suffolk County and for twenty-eight years the most efficient incumbent of that important office; J. H. McCollom, the present superintendent and medical director of the hospital, a leading authority in contagious diseases and the originator of the practice of giving mammoth doses of antitoxin in diphtheria, thereby demonstrating the fact that no one need die of that disease, if this agent be applied in the proper manner and at the proper time; W. P. Bolles, inventor of numerous surgical appliances; O. F. Wadsworth, C. H. Williams, and L. S. Dixon, well known oculists; C. J. Blake, G. A. Leland, aurists; F. I. Knight and E. O. Otis, specialists in pulmonary affections; C. F. Folsom, Morton Prince and Henry Hun of Albany, neurologists; George T. Tuttle, superintendent of the McLean Hospital; Charles P. Bancroft, superintendent of the New Hamp-

shire Insane Asylum; John B. Walker and George E. Brewer, prominent surgeons in New York; Royal Whitman, J. E. Goldthwait and R. W. Lovett, orthopedists; H. L. Smith, who did so much to establish the acute angle treatment of certain fractures of the elbow; E. E. Southard, medical director of the Psychopathic Hospital; George B. Magrath and Timothy Leary, medical examiners of Suffolk County; Charles F. Withington, president of the Massachusetts Medical Society, and a host of others too numerous to mention who occupy positions of trust all over the country. Our graduates, wherever located, have done and are doing most commendable service. They are an honor to this hospital and to their profession.

At the close of the annual dinner of the Massachusetts Medical Society at the Vendome in June, 1888, Dr. Rufus A. Kingman invited a dozen or more of the graduates of this hospital to meet in an adjoining room for the purpose of considering the formation of an alumni association. The proposition met with the heartiest approval and the Alumni Association of the Boston City Hospital was created then and there. Five hundred and fifty-two of the 752 graduates have joined the Association. Annual meetings are held, known as the "Hospital Day." The members are invited to visit the hospital, see patients, witness operations, and accept the courtesy of the trustees at luncheon in the library. A banquet at some hotel or club in the evening with the usual post-prandial exercises terminates a very happy occasion. The interest of the graduates in the hospital and its work is hereby fostered, old associations are kept alive, professional enthusiasm is stimulated, a fine camaraderie is maintained and a faithful loyalty to the institution is encouraged.

A marked influence in the same direction is exerted through the clinical meetings, held by the staff every season for the alumni and others interested in hospital work. Patients are shown, cases described, discussion invited, etc. The interest in these meetings has justified their continuance for several years. This is only one of many functions looking to the advancement of the medical science in this vicinity. Medical teaching has always been a prominent activity in this hospital. It is to be hoped that it will never be less prominent than it has been in the past.

Did time permit, it would be interesting to contrast the present system of nursing the sick with that in vogue in some of the foreign hospitals a century or more ago. In some instances, only the most depraved class of women were employed there as nurses. This is not surprising in view of the manner in which they were treated. To quote a few lines from Nutting and Dock's interesting *History of Nursing*, they were "lectured by committees, preached at by chaplains, scowled on by treasurers and stewards, scolded by matrons, sworn at by surgeons, bullied by dressers, grumbled at and abused by patients, insulted if old and ill-favored, talked flippantly to if middle-aged and good natured, tempted and seduced if young and well-looking." They received no consideration whatever, being poorly paid, ill fed and compelled to sleep on a pile of rags or shavings in the wards, or any out-of-the-way corner. As might be expected, they were a brutal, drunken set, fighting and quarrelling among themselves or with their patients and totally unfit to care for the unfortunate victims committed to their charge.

No one needs to be told that the conditions existing in the nursing world today are just the reverse of the foregoing. The nurse of the present age is a woman of high character, faithful, intelligent, considerate and well trained. She is a blessing in the sick-room. As the result of this marvellous development, the sick and helpless were never so well cared for as they are today, and in no country do they receive better care than in our own.

No factor has had a greater influence in bringing about the present high standard of nursing than the modern training school. In 1878, the fifth training school for nurses in the United States and the first one to be organized and controlled by a board of hospital trustees, was established in this institution by the superintendent, Dr. Edward Cowles. Miss Linda Richards, the Florence Nightingale of America, was the first superintendent of nurses. Having received the first diploma ever issued in this country from the first school established here at the New England Hospital for Women and Children in 1872, she devoted many years to the organization of these schools, her activities extending even to Japan. Her career has been one of singular usefulness and success.

Today, over 200 nurses are necessary for carrying on the work of this hospital. The course of instruction comprises three years of theoretical and practical nursing and study, including a probationary period of three months. During the 36 years of this school's existence, 1154 nurses have graduated and received their diplomas. Quoting from an interesting paper by the assistant superintendent, Dr. Frank A. Holt, their careers after graduation are as follows: executive positions in hospitals, 114; public health work, 53; missionary work (in China), 4; private nursing, 561; married, 315; died, 75; retired from active work, 32. Our nurses are to be found all over this country rendering services of which their teachers need not be ashamed and for which the public should be profoundly grateful. There can be no question as to the wisdom of the founders of this school; the work speaks for itself.

There have been but four superintendents of nurses in this school. Miss Richards was followed by Miss Amelia C. Davis, who did good work for three years. In 1885, Miss Lucy L. Drown was appointed and occupied the position for a quarter of a century, when by reason of ill health, she was compelled to resign. She had

much to do in raising the school to its present high standard. Quoting from Lavinia L. Dock's *History of Nursing*, "Miss Lucy L. Drown must be singled out for honors for her long years, as superintendent of nurses in the Boston City Hospital and for her classic New England type; so high-minded; so scrupulously submissive where she thought her duty lay, so gentle, so immovable, with such an unexpected little flash of revolutionary spirit! With her retirement went one of the cherished figures of her time."

Miss Emma M. Nichols succeeded Miss Drown and most ably has she maintained the standard of efficiency established by her predecessors. On the National Committee of the Red Cross Nursing Service, composed of representatives of the United States Army and Navy, the Red Cross Society and the American Nurses' Association, three of the nine nurses are graduates of the Boston City Hospital Training School. Miss Nichols is one of the three. She is also president of The Massachusetts League of Nursing Education. By reason of her appointment upon the National Committee of Nursing and Health, she becomes a national figure in the field of nursing education. Miss Nichols thus honors her alma mater and her profession.

The rich and the poor in this vicinity are well supplied with nursing in time of need; the former by the trained nurse, and the latter by the hospitals, district-nursing associations, etc. A much larger class in the community, however, is at a disadvantage from the fact that many of them cannot afford to pay three to ten dollars a day for nursing, nor can they be admitted to the hospitals for obvious reasons. They are obliged to accept the services of a domestic, or non-graduate nurse, who may have had little or no systematic training and who, therefore, is able to work for less money. While this service may be satisfactory in many instances, yet if these attendants, receiving from eight to fifteen dollars per week, could have a few months' training in a hospital, it would add very much to their efficiency without additional expense to their patrons.

Is it not possible for this hospital to devise and put in operation some plan by which these attendants can be given six months' training, more or less, at little or no expense to themselves? The one and two dollar a-day nurses are here to stay. The public need demands them. Why should they not be made as efficient as possible? The suggestion has received the approval of many leading authorities in our hospitals and training schools. It would seem worthy of further consideration.

Ten house doctors and thirty-two nurses have died while on duty in this hospital during its first half century. Ten perished from typhoid fever. None have died from this disease, however, since the introduction of preventive vaccination in 1910. Seven have died from diphtheria. The fatalities from this malady among our house force would seem to be at an end from the fact that since the introduction of antitoxin in 1895, 488 cases of the disease among our house officers, nurses and employees have been treated with this agent and every one has recovered. There has not been a death from this affection among the employees of this hospital since 1894. About two thousand cases of contagious diseases are treated in this hospital every year. Considering the constant and unavoidable exposure of these faithful servants to contagious and infectious disease in this institution, it is remarkable that so few have lost their life from these causes.

These faithful men and women perished while doing their duty on the firing line. Ought they not to receive a more prominent recognition by this institution than has hitherto been accorded their memories? It has been suggested that their names be inscribed upon a tablet placed in an appropriate position in the hospital, as a token of our appreciation of their faithful devotion to duty and of their sacrifice in performing the same. It is to be earnestly hoped that some appropriate tribute may be paid to their memories in the near future.

Finally, it may be said that the record of the house officers and of nurses of the Boston City Hospital for fifty years has been one of credit and general satisfaction. Character has been developed; professional loyalty has been encouraged; efficiency in the considerate care of the sick and injured has been the constant aim of all in authority. May the coming half century be productive of even more faithful and efficient service in the welfare of the community!

It is now my pleasant duty to introduce Fred Bates Lund, A.M., M.D., lecturer in surgery, Harvard Medical School, connected with the Boston City Hospital since 1895. A wise surgeon. A brilliant operator combining boldness with caution—a rare combination. He has performed some of the most difficult operations in surgery.

Mr. President, your Honor the Mayor, Trustees of the Hospital, Members of the Alumni Association, Ladies and Gentlemen:

The changes in the character of the surgery at the City Hospital since my connection with it, which covers a period of nineteen years, have been considerable and important. Refinements in technic have made operations less dangerous, and modern aids to diagnosis—such as the x-ray, the cystoscope, and the bronchoscope—have substituted accurate observation for more or less blind guessing in diagnosis, in a manner to conduce very greatly to the safety of the patient, the peace of mind of the surgeon, and the comfort of the patient's friends.

The added safety given to surgery by modern technic has rightly increased the confidence of

the medical public in the safety of seeking surgical aid, and cases, especially acute cases, are sent to the hospital in time for the operation to accomplish its object; and results not only in the sparing of the patient's life, but in the shortening of his convalescence, which is usually free from the horrors of suppuration, frequent dressings, their attendant agony and pain, and exhaustion of the patient's vitality.

The mortality in acute appendicitis in the hospital, twenty years ago, was three or four times what it is now; the patients came late, and the technic had not settled into quick, accurate, and efficient methods, which are now so successful.

Compound fractures in those days were well treated, and the results of some of our staff were usually aseptic and remarkably good. Operative interference in simple fractures, however, was rare, although we were fast beginning to operate upon fractured patella. The advent of the x-ray has wonderfully aided in the accurate diagnosis of fractures; and certain operative methods, such as the use of steel plates and bands, and even the transplantation of pieces taken from the uninjured bones of the patient and used as natural splints have enabled us in many of the most peculiar cases, which used to be the opprobrium of the hospital,—lying here for months till we were all heartily tired of them, and then leaving with a permanent deformity,—to obtain in less time and with infinitely less trouble accurate anatomical and functional results, which means straight and useful arms and legs for our patients.

The technic of our work in the hollow viscera has also improved, so that we no longer approach an operation in the stomach or intestine with anxiety; and short-circuiting of the intestines and resection, and of tumors of the stomach can be performed without undue risk, thus extending the benefits of our art to many sufferers from benign and malignant disease, who have hitherto been incapable of relief or cure.

In the diagnosis of obstruction and ulcerative disease, the x-ray aided by the bismuth meal has again come to our aid and greatly assisted in the accuracy of diagnosis and the consequent safety and facility of treatment.

We have been enabled also to invade the cavity of the skull with a view to the treatment of tumors and other diseases of the brain, with greater safety than in the old days; but the physical conditions existing within the cranial cavity have so far prevented our efforts from being of great permanent value to the majority of the patients, though pain has been relieved and comfort secured for long periods, often resulting in almost perfect health. Surely, a period of months or years of comfort stolen from death's oblivion are results worth the trouble and effort.

Our modern technic, the employment of plenty of accurately-made instruments for the several purposes and their management by skilled nurses and assistants who know their business, have greatly improved our results by shortening the time of operation, lessening hemorrhage and trauma, and making shock almost to disappear.

The improvements in anesthesia, a practical knowledge of the benefits and the possibilities of local anesthesia, the use of the non-toxic novocain, etc., have extended our field of work to a class of cases hitherto beyond surgical aid, and vastly increased the safety and comfort of border-line cases. Intratracheal anesthesia has made possible extensive operations in the chest wall, and the possibility of radical operations upon the lungs, esophagus, and even the heart, has been demonstrated. The trustees, by the appointment of visiting anesthetists to the hospital, have greatly facilitated the progress of our surgical work.

Time is not given me to touch on many other directions in which our art has progressed; such as, transplantation of muscle and tendons, nerve anastomosis, joint mobilization, etc. This progress which we can see so plainly, when we stand off a little way and look back upon it, has not been easy nor accomplished without hard work and study, and occasional mistakes and many discouragements.

The satisfaction of having contributed something permanent to the relief of human illness and pain, will, we hope, cheer us in the future, as it has in the past, over many difficulties. Much has been accomplished. In some directions, we seem almost to have reached the limits of human possibility; but he would be a rash prophet who would assert that the future does not hold for us fresh wonders in store as great, perhaps greater than those which we have seen and perhaps have helped to bring to pass.

Original Articles.

SALPINGITIS — THE RESULTS OF TREATMENT BY THE ABDOMINAL APPROACH.

BY CHARLES L. SCUDDER, M.D., BOSTON,

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THE material upon which this study is based is taken from the cases suffering from pelvic inflammation upon my service at the Massachusetts General Hospital. Only those cases are recorded here in which the result of the treatment is known a number of years subsequent to the operation. These forty cases do not represent all of the cases treated, but only those in which the end result is known.

Sources of Material. These cases came from a social status known to all physicians as applying for treatment at a public hospital. As a rule such individuals suffering from pelvic inflammation seek hospital aid as a last resort. These cases, therefore, represent pretty extensive pelvic disease.

Kinds of Infection. The majority of these cases had a gonorrheal infection, and many of them had a mixed infection. In a number of cases the disease followed attempted abortion. Cases of this latter group were most ill. I cannot give the bacterial report in each instance from the record, as it was not recorded in all cases. In most cases cultures were made at the time of the operation, and also were taken from the cervix preceding operation. It was very evident in the majority of cases from associated conditions what the chief infection was. An associated gonorrheal infection, and the puerperal infections afforded a clue to the infecting agent. In the latter cases careful cultures were taken and reports from the pathological laboratory were filed.

Expectant Treatment. I believe that the expectant treatment of pelvic inflammation originating in the Fallopian tube is a very important method of treatment. A large number of these cases which I am reporting received this expectant treatment. By the expectant treatment I mean rest in bed, laxatives, and some form of periodical hot application to the abdominal parietes with frequent, copious hot douches, the ingestion of large quantities of water and a simple diet, and last, but not least important, exposure in the open air and sunshine (Young). Under this régime many of the gonorrheal and mixed infections will become quiescent. The inflammatory process becomes localized. The involvement of neighboring organs, like the ovaries, the broad ligaments and uterus will gradually subside.

Following a careful expectant treatment the surgeon will find at operation a much more localized and definite area of infection, practically a residual abscess to deal with, than if no expectant treatment had been followed. Consequently the whole operative procedure can be undertaken with less risk to the individual. Following the expectant plan of treatment more cases will be suited to a conservative operation.

When it was possible in these cases to make a diagnosis between an appendicitis and a right pyo-salpinx with a localized peritonitis—and it is evident to everyone seeing abdominal cases that the diagnosis is often difficult—when a diagnosis could be made of right-sided salpingitis, operation was postponed in every instance and the patient treated expectantly. This was done so commonly that the resulting localization of the infection in the pelvis was anticipated and invariably looked for after such expectant treatment had been undertaken.

It has been interesting in connection with these cases and with this method of preliminary treatment, that is, preliminary to operation, that the house officers upon my service without exception in the early period of their connection with the service exclaimed when a very sick woman received into the accident room was sent to the ward to be put to bed and treated by poultices and douches. They thought she should be operated upon at once. After three or four days or a week or two had elapsed, the temperature subsided, the patient began to improve in appearance, the tenderness of the abdomen diminished, and a localized mass could be felt which was not distinct at the time of entrance to the hospital. The house officers then would express themselves as convinced of the wisdom of such treatment. This expectant treatment is of positive value. It may be a nice point to decide when to wait and when to operate.

There are those who advocate the vaginal approach to pelvic infections in a large proportion of these cases. And they believe this approach is a satisfactory one, resulting, they think, in less mutilation, resulting in a more speedy convalescence, resulting in a lessened mortality from the operation, and often resulting in a functionally useful Fallopian tube, which if the approach had been through the abdominal wall would have been sacrificed. There are cases of very ill patients with pelvic infection having a large collection of pus which is obviously pointing in the vaginal vault in which, I believe, vaginal drainage of the presenting abscess is the best operation. In this particular series of cases, however, I believe that abdominal approach to the pelvis was the best approach. It was used in every one of these forty cases.

The advantages of the abdominal route it seems to me are: The exact location of the disease can be undoubtedly determined. The procedure decided upon in any given instance can be more safely carried out under the eye. Exposure of the involved parts can be more safely made. The adhesions to the small bowel and the rectum can be more carefully dealt with. The exact condition of the pelvic organs can be accurately determined. I believe that even in pretty ill patients by a very careful technic the abdomen can be safely protected by moist gauze packs from the operative area, so that no new infection will take place. I have never seen any serious infection of the abdominal wall following this operation. I believe that shock to the individual is, under ordinary conditions, comparatively slight in the abdominal approach to localized infections.

Exact Operation Done. Inspection of the parts involved in the infection is necessary before an exact procedure to be used in any individual case can be decided upon. If one tube only is involved in a pyo-salpingitis the remaining tube may be left intact, provided the inflammatory process is well localized to one side.

I believe that the evidence thus far available

shows that the tube left *in situ* does not in a majority of cases become infected subsequently to an operation for the removal of the other tube. An ovary should be left if one tube is left. If both tubes are removed the ovaries should be removed if they are diseased. I believe that it is a good thing to leave at least a bit of ovarian tissue, particularly in young individuals. The likelihood of subsequent trouble with the ovary is not great, particularly if the ovarian blood supply and ovarian position be good. I have never removed the uterus as a routine in a case of salpingectomy. In this series of cases there has been subsequent trouble in two because the uterus was left. I am sure the patient in these two or three cases would have been better had the uterus been removed. If the appendix is involved in the inflammatory mass it should be removed. I did not remove the appendix in a great many of these cases, but I believe today that the appendix should be removed whenever the abdomen is opened, unless the patient is too ill for the necessary three minutes delay.

The uterus was thoroughly curetted six times in this group of cases. I believe that curettage and sterilization of the interior of the uterus by antiseptic applications is a good procedure preliminary to pelvic operations. This group of cases emphasizes the fact that as a routine procedure it is not essential.

Drainage. If the removal of the diseased tube necessitates, as it sometimes does, separation of and dissection of adhesions deep in the pelvis, it may be necessary to insert a rubber tissue wick behind the uterus for forty-eight hours or longer. This rubber tissue wick had best have no gauze in it unless there is considerable oozing in the pelvis; if there is considerable oozing then the gauze at the end of the wick serves to favor hemostasis. A few times I have removed the Fallopian tube in these cases of pyosalpingitis and closed the wound without drainage. These cases have done well. In no instance have I drained the abscess through the vagina. A vaginal puncture and vaginal drainage may very properly be used following closure of the abdominal wound.

Results. The accompanying table gives at a glance the total number of cases, the procedure in each of these cases and the condition following operation.

A SUMMARY OF THE FACTS IN THESE CASES.

In this series of 74 cases there were 69 operations. There were three deaths following the operation, or an operative mortality of 4%. One of these deaths was from shock following a right salpingectomy and an appendectomy, with drainage. There was one death due to a septic abortion, the operation being a dilatation and curettage. There was one death, evidently due to shock, following a right salpingectomy with drainage of pelvic cellutitis, and an appendectomy.

A report was received from 40 of the 71 living cases out of the 74 total. Of the five cases treated without operation, only one reported and she was unrelieved. Thirty-six of the 39 operative results were reported relieved, or 92.3%. Three of the 39 operative results were reported unrelieved, or 7.6%. There were no extra-uterine pregnancies reported in the remote result of any case.

Four cases reported a subsequent pregnancy. One followed a right salpingo-oöphorectomy with drainage. One followed a left salpingo-oöphorectomy. One followed a right salpingectomy with a drainage of a tubo-appendix abscess. One followed a left salpingo-oöphorectomy with drainage. That is, out of 9 cases having had a right salpingectomy and 3 cases having had a left salpingectomy, there were reported four subsequent pregnancies. In this series there was one salpingostomy. No pregnancy has resulted in this case.

Of the 39 operative results two cases reported a further operation, both of which followed a double salpingectomy. Case No. 50 was operated upon four times for a sinus in the drained wound during a period of six years following the original operation. Her general health, however, was much improved. Case No. 61 was operated upon for a uterine fibroid two years after her original operation. She reported that

	Double Salpingectomy.	Right Salpingectomy.	Left Salpingectomy.	Div. of Adhes.	Exp. Lap.	Hot Douches.	Totals.
No. of cases	42	16	8	2	1	5	74
Married or single	28M-14S	13M-3S	6M-2S	1M-1S	M	1M-4S	50M-24S
Average age	29 yrs.	29 yrs.	30 yrs.	20 yrs.	27 yrs.	24 yrs.	26 yrs.
Average duration of symptoms	2 mos. 26 days	1 mo.	4 mos.	1 mo.	2 mos.	6 days	1 mo. 25 days
Vaginal suspension	—	—	1	—	—	—	1
Curettage	5	—	1	—	—	—	6
Appendectomy	12	4	—	1	—	—	17
Immediate result:							
Relieved	40	14	7	2	—	5	68
Unrelieved	2	—	—	—	1	—	3
Died	—	2	1	—	—	—	3
Remote result:							
Relieved	22	8	3	2	1	—	36
Unrelieved	2	1	—	—	—	1	4
Died	—	—	—	—	—	—	0
No report	18	5	4	—	—	4	31

her general health was much improved during the four years since the original operation.

There were five cases which developed herniae in the operation scar,—four following a double salpingectomy with a partial oöphorectomy, and one following a left salpingo-oöphorectomy with drainage.

Of the 39 operated cases from which a report was received two had double salpingo-oöphorectomies. Both of these cases were relieved and there were no sequelae excepting a hernia in the scar in one case.

Of the total 42 operations of double salpingectomy a report was received from 24 cases, 22 of which were relieved,—91.6%. There were no operative deaths. Two cases were unrelieved by the operation. A double oöphorectomy was done in three cases and a single oöphorectomy in 18 cases, 5 cases had a curettage, and 12 cases had an appendectomy.

Of the 16 total operations of right salpingectomy a report was received from 9 cases, 8 of which were relieved,—88.8%. There were two operative deaths. One case was unrelieved by the operation. A right oöphorectomy was done in 8 cases, and an appendectomy in 4 cases.

Of the 8 operations of left salpingectomy a report was received from 3 cases, all of whom were relieved. There was one operative death. A left oöphorectomy was done in 4 cases and a right oöphorectomy in one case; a ventral suspension was done in one case, and a curettage was done in one case.

Of the two operations of division of adhesions a report was received from both, both being relieved,—100%. An appendectomy was done in connection with one case.

An exploratory laparotomy was done in one case in which nothing was found to account for the symptoms. The patient recovered and has had no acute symptoms since.

Of the five cases treated by hot douches, the symptoms in all rapidly subsided, and they were discharged relieved from the hospital. One of the five cases made a later report complaining of chronic symptoms. Four cases were not heard from.

HISTORIES OF CASES OF SALPINGITIS WITH END RESULTS FOLLOWING THE OPERATIVE TREATMENT.

Case 4. M. A. B., a married woman 27 years old, entered the Massachusetts General Hospital in September, 1904. She had had one child. There was a history of no catamenial period for two months, during which time she had had a slight vaginal discharge streaked with blood. Ten days previous to her entrance to the hospital she had cramp-like pain in the lower abdomen. There was tenderness to the right of the median line above the pubes, with spasm on deep pressure. The abdomen was tympanitic. The patient was pale. Vaginal examination showed some resistance in right broad ligament with marked tenderness. There was a slight mucoid discharge which was not tinged with blood.

At the operation the right tube was found to be the size of a lemon and filled with pus. The veins in the abdominal wall were enlarged. Right salpingectomy with drainage was done and an appendectomy. The pathological report upon the specimens removed was chronic salpingitis and chronic appendicitis.

The patient made a good recovery from the operation and was discharged in good condition.

April 14, 1911, seven years following the operation, the patient reported that her health had improved since the operation; her periods were more regular. She had been pregnant twice.

Case 6. M. F. B., a married woman 39 years old, entered the Massachusetts General Hospital on August 15, 1905. There was a history of trouble with the gall-bladder five years previously and an appendectomy and a cholecystostomy were done. One year previous to entrance she had had an attack of pain in the lower abdomen with some nausea, but no vomiting. At the time of her entrance to the hospital she had been troubled with a similar attack of pain and nausea for five days. This attack followed a catamenial period of 19 days' duration. Vaginal examination showed tenderness in the left cul-de-sac, together with a mass high up. Rectal examination also showed a mass high up on the left.

At the operation the right tube and ovary appeared as a red, swollen mass. The left tube was swollen and red. A right salpingo-öophorectomy and a left salpingectomy were done. The pathological report was chronic salpingitis and cystic ovary.

The patient was discharged in good condition on September 6, 1905. April 14, 1911, six years following the operation, she reported that her health was better than before the operation. She had had but one period since the operation and had not been pregnant. She had pain at the end of the spine after sitting any length of time.

Case 8. S. M. B., a married woman, 42 years old, entered the Massachusetts General Hospital on April 22, 1907. She had had two children and no miscarriages. There was a history of two weeks of sharp, intermittent pain in the left abdomen, accompanied with a bloody vaginal discharge. The patient stated that she could feel a "lump" during the attacks of pain. Her periods were always regular, with a slight leucorrhea preceding them. Vaginal examination found a hard mass on the left 3-4 inches in diameter. There was a foul discharge from the os.

At the operation the left tube was found to be dilated and filled with thick, greenish pus. The right tube was dilated and filled with a clear fluid. The left ovary was cystic. A right salpingectomy and a left salpingo-oöphorectomy were done. The pathological report was hydrosalpinx and pyosalpinx.

The patient made a good recovery from the operation and was discharged in good condition May 13, 1907. May 19, 1908, one year following the operation, examination found the scar solid. The cervix was held high. The perineum was very solid. The patient had gained several pounds in weight and felt well excepting for a "stitch in the right side." April 14, 1911, four years following the operation, she reported that her general health was very little improved by the operation. She had a

slight leucorrhea and morning headaches. She had not been pregnant. She had had no periods for about eight months.

CASE 9. H. B., a married woman, 24 years old, entered the Massachusetts General Hospital on April 5, 1908. She had been married two years and had one child. There was a history of several attacks of pelvic pain during the last three months. The pain was worse on the right than on the left. There was no vomiting or nausea. There was a foul vaginal discharge.

At the operation the right tube and ovary were found to be inflamed and bound in adhesions. The appendix was also inflamed. A right salpingectomy and an appendectomy were done. There was no pathological report.

The patient made a good recovery from the operation and was discharged April 20, 1908, in good condition. April 14, 1911, three years following the operation, she reported that her general health was better than before the operation. She had considerable leucorrhea. Her periods were regular and not painful. She had not been pregnant.

CASE 10. M. E. B. A married woman 28 years old, entered the Massachusetts General Hospital on August 19, 1903. There was a history of an attack of "aching" in the pelvis accompanied with soreness and lameness three years previously. Ten days previous to her entrance to the hospital she had a second similar attack. Vaginal examination found the uterus pushed to the right and adherent to the right tube, which was enlarged and tender. The left tube was somewhat enlarged, but not tender.

At the operation the right tube and ovary were found to be badly inflamed, and the left tube and ovary somewhat less inflamed. A double salpingectomy and a right oöphorectomy with a partial left oöphorectomy were done. The pathological report was salpingitis and cystic ovary.

The patient made an excellent recovery from the operation and was discharged in good condition on Sept. 16, 1903. April 14, 1911, eight years after the operation, the patient reported that her general health was better than before the operation. She had no local trouble. Her periods were regular. She had not been pregnant.

CASE 11. S. B., a married woman, 43 years old, entered the Massachusetts General Hospital on July 5, 1906. She had had no children and no miscarriages. Her periods were always irregular. Five weeks previously she had an attack of pain in the lower abdomen. This pain was worse on the right side. There was some tenderness on the right. The pain was accompanied with nausea and vomiting.

Vaginal examination showed a rounded, semi-fluctuating mass in the posterior cul-de-sac.

An incision and drainage of the pelvic cellulitis was accomplished and twelve days later a partial right salpingo-oörphorectomy, with drainage of the pelvic abscess, was done. The right tube and ovary were found in a mass of inflamed tissue and pus.

The patient made a good recovery from the operation and was discharged much relieved August 10, 1906. April 14, 1911, five years after the operation, the patient reported that she had been perfectly well excepting for persistent constipation. She had not been pregnant. Periods were regular until three months ago. There have been none since. March 5, 1913, seven years after the operation, she reported a second time. She had had some backache and constipation. The uterus was retroverted and retroflexed and held down on the right side. She had had no periods for nine months.

CASE 13. M. E. D., a single woman, 21 years old, entered the Massachusetts General Hospital on June 29, 1906. There was a history of abdominal pain and soreness for 7 months. Her periods were regular but painful. Examination found a slight tenderness on deep pressure over the pubes. The spleen was enlarged.

At the operation both tubes and the right ovary were found inflamed and bound down in firm adhesions. A double salpingectomy and a right oöphorectomy was done and the wound drained. Eighteen days later an ischio-rectal abscess was incised and drained. The pathological report was chronic salpingitis.

The patient was discharged August 8, 1906, with a small sinus in each wound. Her general condition was poor.

August 22, 1907, she re-entered the hospital for the treatment of a persistent sinus in the laparotomy scar. Excepting for the sinus she was improved in general condition. She was discharged with the sinus unrelieved September 5, 1907.

CASE 15. J. M. F., a married woman, 35 years old, entered the Massachusetts General Hospital on June 11, 1906. There was a history of intermittent abdominal pain low down on the left for two years. There was occasional vomiting, but no chills. Her periods were regular. She was constipated. Vaginal examination found a mass on the left side.

At the operation thick pus was found in the left tube and ovary. There were many adhesions and a large cyst was bound down to the sigmoid. A left salpingo-oöphorectomy was done. The cyst in the mesentery of the sigmoid was removed. The pathological report was "Cystic tube and adherent ovary."

The patient was discharged much relieved July 16, 1906. August 1, 1907, the patient reported for examination. She was in good condition excepting for a hernia in the scar.

CASE 16. B. F., a married woman, 23 years old, entered the Massachusetts General Hospital on July 1, 1903. She had had two children and one miscarriage. Her periods were regular. One week before her entrance to the hospital she began to have very severe pain in the abdomen on the left, low down. There was marked spasm and tenderness over the whole abdomen. She vomited and was nauseated. She also had chills. Vaginal examination found a mass and tenderness in both culs-de-sac.

At the operation both tubes and the right ovary were found enlarged. The appendix was bound in adhesions. A double salpingectomy and a right oöphorectomy were done. An appendectomy was also done.

The patient made a good recovery from the operation and was discharged much relieved July 29, 1903. Sept. 15, 1904, one year later, the patient reported that she was well. She had a little rare pain in the left abdomen. Her periods were irregular.

Case 17. L. E. G., a married woman, 27 years old, entered the Massachusetts General Hospital on June 16, 1906. She had had one child and two miscarriages. Two years previously she had had an attack of severe pain in the abdomen, accompanied with vomiting and prostration. There was tenderness on deep pressure on the right. Three months before entering the hospital she had a second attack similar to the first. Vaginal examination showed a tenderness on the right, but no mass was made out.

At the operation the right tube was found to be red and swollen. A right salpingectomy was done. The pathological report was chronic salpingitis.

The patient made a good recovery from the operation and was discharged much relieved, July 7, 1906. The patient reported one year after the operation that she had leucorrhea, menorrhagia and indigestion. There was abdominal tenderness on the left. Five years after the operation she reported that her general health was not so good as before the operation. She had not been pregnant since the operation. Her periods were regular, but she had some local trouble. March 22, 1913, seven years after the operation, the patient reported that she had not been well since the operation. She states that she has the same trouble at present for which she was operated upon.

Case 23. J. M. A married woman 30 years old, entered the Massachusetts General Hospital on July 4, 1906. She had had one child and two miscarriages. Ten days previous to her entrance she had had an attack of sudden, severe, cramping pain in the lower abdomen. This pain was accompanied by a chill. She had leucorrhea and slight menstruation out of time. Vaginal examination found a lacerated cervix and tenderness in both culs-de-sac. No masses were made out.

At the operation the right tube and ovary were found to be thickened and adherent. Pus was evacuated. A right salpingo-oöphorectomy was done. The pathological report was chronic salpingitis.

The patient made an excellent recovery from the operation and was discharged much relieved. August 15, 1907, one year later, she reported by letter that she was "getting along nicely."

Case 24. M. A. McC., a married woman 43 years old, entered the Massachusetts General Hospital on Sept. 23, 1906. She had had one child and three miscarriages. One week before entrance she began to flow for the first time in two months. She had severe abdominal pain in the kidney region, accompanied with severe vomiting. She had a severe chill and a temperature of 103°. There was practically suppression of urine. Both sides of the abdomen low down were tender. Vaginal examination showed a mass on the right side and tenderness in the right cul-de-sac.

At the operation an inflammatory mass was found on both sides of the abdomen, from which pus escaped. The uterus was only slightly enlarged. A double salpingo-oörphorectomy was done. The pathological report was chronic salpingitis.

The patient made an excellent recovery from the operation and was discharged much relieved on October 27, 1906. On November 8, 1907, one year after the operation, the patient was examined at the hospital and there was hernia in the wound. There was a mass on the anterior wall of the vagina.

Case 25. S. A. M., a girl, 21 years of age, entered the Massachusetts General Hospital on September 18, 1903. Three weeks previously she began to have attacks of sudden, sharp pain on the left side of the abdomen. She had a severe chill and vomited. There had been pretty constant flowing since her last period. Otherwise catamenia was regular. There was moderate tenderness in the left lower quadrant. Vaginal examination found the cervix pushed forward by a mass the size of a fist occupying the posterior cul-de-sac directly contiguous with the cervix.

At the operation the right tube and ovary were found to be infiltrated and the left tube was enlarged. The appendix was thickened. A double salpingectomy and a right oöphorectomy were done. An appendectomy was done. The pathological report was purulent salpingitis.

The patient made a good recovery and was discharged much relieved on October 12, 1903. June 1, 1904, one year later, the patient reported that she had no trouble whatever. There was a bulging in the scar.

Case 26. C. McD., a girl, 21 years old, entered the Massachuestts General Hospital on March 2, 1902. Six days previously she had an attack of sudden sharp pain in the lower abdomen. The abdomen was rigid. There was tenderness but no mass. The pain was accompanied with vomiting. There was leucorrhea. Her periods had been normal. Vaginal examination showed tenderness in both culs-de-sac. No mass was felt.

At the operation both tubes were found to be reddened and contained pus. A double salpingitis was done and a lavage of the peritoneal cavity for general peritonitis. The pathological report was acute salpingitis.

The patient made a good recovery from the operation and was discharged in fair condition on March 23, 1902. December 3, 1902, eight months after the operation, the patient reported that she was well. She had no hernia and no leucorrhea.

Case 29. F. J. M., a girl 10 years old, entered the Massachusetts General Hospital on September 1, 1904. Three weeks previously the child had an attack of pain in the right lower abdomen, lasting from two to ten minutes, intermittently, and there was tenderness during the pain. She had vomited. There was considerable muco-purulent discharge from the vagina.

At the operation fibrin was found on the right tube, which was injected and swollen. The tube and appendix were fairly well glued together. The tube was freed from adhesions and an appendectomy with drainage was done. The pathological report was acute appendicitis.

The patient made an excellent recovery from the operation and was discharged, much relieved, September 30, 1904. October 30, 1905, one year later, she reported that the result was perfect. She had had no symptoms.

Evidently the initial lesion in this case was an appendicitis and the Fallopian tube was simply involved secondarily upon its peritoneal surface.

Case 32. L. M. M. B., a woman, 29 years old, entered the Massachusetts General Hospital on September 23, 1906. There was a history of a series of attacks of pain and tenderness low down in the abdomen since a miscarriage two years pre-

viously. The last attack was two weeks before her entrance to the hospital. Vaginal examination showed a slight vaginal discharge. There was a mass on the left the size of a lemon and moderate tenderness in both broad ligaments.

At the operation a mass the size of an egg was found in the left broad ligament associated with the ovary. A left salpingo-oöphorectomy was done. The pathological report was chronic salpingitis and corpora hemorrhagica.

The patient made a good recovery from the operation and was discharged much relieved October 11, 1906. October 15, 1907, one year later, she reported for examination and a mass was found the size of a small egg in the right cul-de-sac. April 14, 1911, five years after the operation, she reported that her health was decidedly better. She had a disagreeable vaginal discharge. She had had two perfectly healthy children, since the operation.

CASE 33. N. M., a married woman 42 years old, entered the Massachusetts General Hospital on May 15, 1908. Four weeks previously she began to have intermittent flowing accompanied by pain and vomiting. There was tenderness in both culs-de-sac, and she had some leucorrhea. Her periods were previously regular. She was troubled with indigestion.

At the operation both tubes were found to be swollen. A fibroid in the posterior surface of the uterus was not removed. Double salpingectomy was done and dilatation and curettage for sepsis.

The patient made a good recovery from the operation excepting for a persistent sinus in the wound. She was discharged relieved on July 2, 1908. March 1, 1913, five years later, she reported that she was well for three years. Then she began to have pain in her back and abdomen. Her periods were regular but painful and accompanied with a foul discharge. The uterus was retroverted one degree and bound down firmly. There were no masses made out. There was a hernia in the old scar.

This case probably would have been better had a hysterectomy been done at the time of the original operation. Certainly a hysterectomy at present is indicated.

CASE 34. K. P., a married woman 28 years old, entered the Massachusetts General Hospital on February 18, 1908. She had had three children and one miscarriage. The present attack began a few days after a normal labor 12 days previous to her entrance to the Hospital. There was a dull aching pain in the right lower quadrant and she was feverish. Vaginal examination found resistance and tenderness in the right cul-de-sac and there was a foul-smelling vaginal discharge.

At the operation the right tube was found to be perforated and there was an abscess of the appendix. The appendix could not be found. A right salpingectomy was done with drainage of the tubo-appendiceal abscess. The pathological report was chronic salpingitis.

The patient made a good recovery following the operation excepting for a phlebitis of the ankle. She was discharged much relieved on March 18, 1908. April 14, 1911, three years after the operation, she reported that her general health was better. She had no local trouble. Her periods were regular. She had had two children since the operation.

CASE 35. M. P. H., a single woman, 24 years old, entered the Massachusetts General Hospital on February 19, 1902. There was a history of irregular periods for three months following a cold taken during a period. She had fever, abdominal pain and tenderness and there was almost constant flowing. Vaginal examination found a large, tender mass in the left cul-de-sac. There was leucorrhoea.

At the operation both tubes were found to be swollen and bound in adhesions. The right ovary was edematous. A laft salpingectomy and a right salpingo-oophorectomy with drainage of the pelvis were done. The pathological report was chronic salpingitis.

The patient made a good recovery from the operation and was discharged well, March 7, 1902. April 14, 1911, seven years later, the patient reported that her general health was not so good as before the operation. Her periods were less regular and she had some local trouble.

It is a question in this case if a hysterectomy was not indicated.

CASE 36. C. P., a married woman 43 years old, entered the Massachusetts General Hospital on March 17, 1908. There was a history of dragging pain in the pelvis with leucorrhoea for four years. She had had one child. Menopause one year previous to her entrance to the Hospital. Vaginal examination showed a small mass in the left cul-de-sac and a small hard mass in the uterus.

At the operation both tubes and the right ovary were found to be enlarged and bound in adhesions. A plum-sized fibroid was found in the uterus. A double salpingectomy and a right oophorectomy and a myomectomy were done. The pathological report was chronic salpingitis and fibromyoma.

The patient made a good recovery from the operation and was discharged much relieved, April 9, 1908. July 19, 1910, two years later, she reported that her health was "fair, but not extra good." Her periods had ceased and she had no more of the old local trouble.

CASE 37. S. A. P., a married woman 43 years old, entered the Massachusetts General Hospital on June 9, 1903. She had three children. Her periods were regular. There was a history of severe, cramping pain in the right lower abdomen for three days. Her right leg was drawn up, her temperature was 103.6 degrees and there was vomiting. She was flowing out of time. Vaginal examination showed a large tender mass in the posterior cul-de-sac. There was marked voluntary spasm.

At the operation both tubes were found to be badly reddened. A double salpingectomy was done. The pathological report was purulent salpingitis.

The patient made a good recovery from the operation and was discharged much relieved, July 9, 1903. March 31, 1913, ten years later, the patient reports that she was perfectly well. The wound was solid and she had had no local trouble. She was never pregnant after the operation. The uterus was small, and there were no masses or tenderness in the culs-de-sac.

CASE 40. E. R., a married woman 49 years old, entered the Massachusetts General Hospital on July 25, 1906. There was a history of pain and tenderness in the right lower abdomen for ten days. She had vomited almost daily and had chills. There

was a history also of a previous similar attack one year ago. Her periods were regular but painful. Examination found a moderate tenderness low down on both sides of the abdomen. The abdominal wall was fat and thickened and the vaginal examination on account of this was unsatisfactory.

At the operation many adhesions were found. The right ovary could not be found. A right salpingectomy and a left salpingo-oöphorectomy were done. Also a dilatation and curettage of the uterus was done. The abdominal wound was drained. The pathological report was salpingitis and a question of endometritis.

The patient was discharged from the hospital on August 18, 1906, much relieved. There was a small wick left in the wound. One year later, August 20, 1907, the patient reported with no complaints excepting a hernia in the scar.

Case 44. G. V. S., an unmarried woman 23 years old, entered the Massachusetts General Hospital on June 20, 1905. There was a history of dull pain in the right iliac region for four months. There was a thick vaginal discharge. There had been an appendectomy and drainage of a vaginal fistula. There was a hernia in the appendectomy scar. Vaginal examination showed a large, tender mass in the right cul-de-sac.

At the operation the right ovary was found to be cystic and the right tube enlarged. The left ovary was absent. A right salpingo-oöphorectomy and a radical cure of the ventral hernia in scar was done. A curettage of the persistent vaginal sinus was also done.

The patient made a satisfactory recovery from the operation and was discharged much relieved July 21, 1905. July 25, 1906, she reported that the scar was solid. There was no vaginal sinus. She had a sarcoma of the left femur from which she died a few years later.

Case 45. G. S., a girl 18 years old, entered the Massachusetts General Hospital on August 9, 1906. There was a history of severe pain throughout the lower abdomen, especially marked on the right for three days. The pain was accompanied with vomiting and was increasing in severity. The abdomen was not distended. There was considerable tenderness and a slight spasm low down on the right. Vaginal examination showed tenderness and an indefinite mass high up on the right. There was considerable vaginal discharge.

At the operation both tubes were found to be enlarged and bound down with adhesions. A double salpingectomy was done. The pathological report was chronic salpingitis.

The patient made a good recovery from the operation and was discharged relieved August 24, 1906. March 6, 1913, seven years later, she reported that her health was "pretty good." Once in a while she had pain in the old location. Four years after the operation she reported that her periods were regular and not painful.

Case 49. N. S., an unmarried woman 22 years old, entered the Massachusetts General Hospital on May 6, 1901. There was a history of pain in the abdomen ten days previously which came on suddenly with the beginning of her period and practically ceased when it ended. Vaginal examination showed a mass on either side of the uterus.

At the operation a dense mass of adhesions were found involving all but the left ovary. A double salpingectomy and a right oöphorectomy with drainage were done. The pathological report was acute salpingitis.

The patient made a good recovery from the operation and was discharged much relieved June 4, 1901. April 14, 1911, ten years later, she reported that her general health was better than before her operation. Her periods were regular but profuse.

Case 50. J. T., a single woman 27 years old, entered the Massachusetts General Hospital on August 9, 1903. There was a history of an abortion four and a half months previously. Two weeks later the pain became sharp and cutting in the right pelvis. She was not nauseated and she had no chill. Her bowels were constipated. There was a palpable tumor between the umbilicus and symphysis. Vaginal examination showed tenderness in the right cul-de-sac.

At the operation both tubes appeared swollen. The ovaries were both normal. A double salpingectomy with drainage and a dilatation and curettage of the uterus were done.

The patient made a good recovery from the operation and was discharged much relieved September 9, 1903.

One year later, June 1, 1904, it appeared from the record that the patient had been in the Hospital four times for the treatment of a persistent sinus in the abdominal wound. Six years later, Feb. 10, 1909, she came to the Hospital because of appendicitis. An appendix abscess was evacuated and a necrotic appendix removed. The abdominal sinus connected with the previous operation had been closed for some time. One month after the appendectomy the patient again entered the Hospital with a fecal fistula connected with the appendectomy wound.

Case 53. G. S. W., an unmarried woman 25 years old, entered the Massachusetts General Hospital on June 7, 1904. There was a history of severe abdominal pain low down on the right two weeks previously, accompanied with nausea and vomiting. There was a history of two attacks of gonorrhœa. Catamenia was regular. Vaginal examination found a large mass in the posterior cul-de-sac extending more to the right than to the left.

At the operation the right tube and ovary were found to be badly involved in an abscess. A right salpingo-oöphorectomy with drainage of the pelvic abscess was done.

The patient made a good recovery from the operation, but convalescence was prolonged because of discharging sinus in the wound. She was discharged from the Hospital relieved, on July 25, 1904. March 5, 1913, nine years after the operation, the patient reported that her periods were regular; during menstruation she occasionally notices that a drop of blood comes from the abdominal wound. For two years after the operation an abscess formed in the scar occasionally and broke down, but has not since. Vaginal examination showed what might have been the right ovary adherent to the abdominal wall, that is, a small mass corresponding to the right ovary. When the bowels are [illegible] little gas passes through the vagina. The patient does not think that the recto-vaginal fistula is causing her sufficient trouble to refer her to the inconvenience of having an operation for its cure.

CASE 54. A. W., a married woman, 30 years old entered the Massachusetts General Hospital on Mar. 27, 1907. There was a history of sudden, intermittent attacks of pain low down in the abdomen on the right. The pain was accompanied with chills and vomiting. There was an indefinite mass low down on the right side of the abdomen. Vaginal examination showed a large mass in the right cul-de-sac.

At the operation the right tube and ovary were found to be involved in a mass of adhesions. An exploratory laparotomy with division of adhesions was done.

The patient made a good recovery from the operation and was discharged much relieved May 8, 1907. May 16, 1908, one year later she reported for examination. The wound was solid, the cul-de-sac free. March, 1913, six years later, she reported that she had had no local trouble excepting some pain in her side during an attack of pneumonia.

CASE 55. D. W., a married woman, 27 years old, entered the Massachusetts General Hospital on June 11, 1906. There was a history of intermittent attacks of abdominal pain in the left side for two months. The abdomen was soft but there was some tenderness in the left iliac fossa. There was tenderness vaginally on the left but no masses.

At the exploratory operation the whole pelvis was apparently normal.

The patient made a good recovery from the operation and was discharged well on July 3, 1906. July 22, 1907, one year later, the patient reported that she had had some pain in the side but no severe attacks.

It was thought previous to operation that this case was suffering from a salpingitis. It is the only case in this series in which no pathology was found.

CASE 56. M. J. W., a married woman, 35 years old, entered the Massachusetts General Hospital on Sept. 27, 1904. There was a history of a constant "dragging feeling" in the abdomen for four weeks. Occasionally there was sharp, shooting pain in the right abdomen, chest and shoulder. Her periods were regular. Her appetite was fair and she had had no jaundice. She had recently become constipated. She had fainted several times. Vaginally there was a mass the size of a lemon in the right cul-de-sac.

At the operation the right tube and ovary were found to be involved in a mass of adhesions. The right ovary was also cystic. A right salpingo-oöphorectomy with drainage was done. The pathological report was retention cysts.

The patient made a good recovery from the operation and was discharged well, Oct. 19, 1904. March 1, 1913, nine years later, she reported that she was in perfect health and has had no recurrence of the pelvic trouble. Her periods were regular. She had had no children. Wound solid.

CASE 59. M. L. D., a married woman, 37 years old, entered the Massachusetts General Hospital on Feb. 4, 1909. She had had six children. There was a history of an attack of sudden, severe abdominal pain low down on both sides two days ago. Three days ago her period began. The pain was accompanied with a chill. There was no vaginal discharge at that time, but there had been a profuse discharge for the previous two years. There was spasm on pressure and shifting dulness in the flank. Vaginally the left cul-de-sac was contracted and tender.

At the operation both tubes were found to be thickened and inflamed. The right ovary was cystic. The appendix was roughened and contained considerable feces. A left salpingectomy, a right salpingo-oöphorectomy and an appendectomy were done. The pathological report was acute salpingitis.

The patient made a good recovery from the operation and was discharged relieved. April 14, 1911, two years later, she reports that her general health had slightly improved. Scar solid. No leucorrhea. Menopause one year ago. She had an inguinal hernia which showed signs of strangulation. Operation for the cure of the inguinal hernia.

CASE 61. A married woman, 46 years old, entered the Massachusetts General Hospital on April 6, 1909. Her youngest child was 23 years old. There was a history of a bunch appearing on the right side of the abdomen about the size of an egg which was particularly painful when over-tired. The abdomen became entirely filled, apparently with a firm, non-fluctuating mass. There was tenderness and spasm on pressure. Vaginally the mass seemed to fill the whole pelvic space.

At the operation both tubes were found to be adherent and filled with pus. There were large uterine fibroids. A double salpingectomy with drainage was done. The uterine fibroids were not removed on account of the very poor condition of the patient. The pathological report was chronic salpingitis.

The patient made a good recovery from the operation and was discharged relieved April 27, 1909. In 1911, two years later, her health had been a good deal better since the operation. A second operation, a hysterectomy, was done for the fibroids of the uterus at this time. March 6, 1913, four years after the first operation, the patient reported that she had slight pain in the left loin. There were no pelvic masses or tenderness. There was diastasis of recti at the site of operation. Her general health was very good.

There are circumstances which render it impossible to do a complete operation which should include a hysterectomy. The above case was an instance of this sort. The woman gained in weight and in health after the removal of the infected tubes, and then in a clean field without danger of reinfection a complete hysterectomy was done.

CASE 62. K. G. D., a married woman, 32 years old, entered the Massachusetts General Hospital on May 23, 1909. There was a history of abdominal pain in the right lower quadrant for three weeks. The onset of pain was accompanied with a chill and vomiting. Her temperature had remained from 99 to 100.5 degrees ever since. Vaginally there was a hard mass to the right of the fundus which was more or less tender.

At the operation both tubes were found matted down and inflamed. A double salpingectomy and appendectomy were done. The pathological report was chronic salpingitis.

The patient made a good recovery from the operation and was discharged much relieved June 5, 1909. April 14, 1911, two years later, the patient

reported for examination. Her periods were normal. She had not been pregnant. Vaginally both culs-de-sac were free. March 20, 1913, four years after the operation she reported that she weighed twenty pounds more than at the time of the operation and her general health was very good. She was bothered with her nerves.

Case 63. M. A. G., a married woman, 30 years old, entered the Massachusetts General Hospital on May 6, 1909. Her youngest child was four months old. She had had no miscarriages. There was a history of pain in the abdomen low down on the left side since the birth of her last child. This pain kept increasing and now there is pain on both sides of the abdomen. There was a very marked vaginal discharge at times. There was an irregular tumor, tender to touch in the left lower quadrant. Vaginally the mass seemed connected with the uterus.

At the operation the left tube and ovary were found to be inflamed and contained pus. A left salpingo-oöphorectomy with drainage was done.

The patient made a good recovery from the operation and was discharged in fair condition, May 26, 1909. June 3, 1910, one year later, the patient reported for examination. Her periods were regular. She was seven and a half months pregnant. The wound was firm. April 1, 1913, four years later, she reported that she was well. There were no local symptoms.

Case 65. M. E. K., a single woman, 22 years old, entered the Massachusetts General Hospital on May 3, 1909. There was a history of attacks of vomiting followed by pain in the epigastrium for two days. During this time there had been no movements of the bowels. Her periods had been painful for one year. Examination found tenderness across the epigastrium, spasm of the right rectus and slight spasm over the whole abdomen. The vaginal examination was negative.

This patient's pulse and temperature became normal after a few days in bed with hot applications to the abdomen. An operation was not advised and she was discharged May 10, 1909.

May 25, 1910, the patient reported that she had been able to work but she had to remain in bed two days during her periods. She had some slight pain between her periods. April 14, 1911, two years after leaving the hospital she reported that she had not improved. Her periods were regular, but painful.

Case 67. M. W. K., an unmarried woman, 24 years old, entered the Massachusetts General Hospital on March 4, 1909. There was a history of pain in the lower abdomen for the past three weeks. This pain was very severe on both sides. Over the right lower half of the abdomen there was a slight muscular spasm. At the pelvic brim on the right there was tenderness to pressure. Vaginal examination showed a cord-like tumor on the right.

At the operation both tubes were found to be matted down and inflamed. A left salpingo-oöphorectomy, a right salpingectomy and an appendectomy were done.

The patient made an excellent recovery from the operation and was discharged much relieved, April 2, 1909. July 19, 1910, one year later, she reported that her health was good. Excepting for pain in the left hip she felt much better than before the operation. Her periods were frequent and very profuse. Vaginally the cervix was freely movable, the fundus was in good position, but large and tender on the left. There were no masses felt.

This patient might have been better had a hysterectomy been done.

Case 68. C. A. L., an unmarried woman 25 years old, entered the Massachusetts General Hospital on May 11, 1909. There was a history of pain in the left side one year ago which had varied in severity. The pain increased and six months ago there began to be pain on micturition. There was pain in the back also and she had lost weight. The last two months the pain in her side disappeared but the pain on micturition increased. Vaginal examination was negative.

At the operation both tubes were found to be much thickened, inflamed and adherent. A double salpingectomy and an appendectomy were done. The pathological report was chronic salpingitis.

The patient made a good recovery from the operation and was discharged in excellent condition, June 15, 1909. April 14, 1911, two years after the operation, she reported that her health was much improved. She still had some pain in the right side. Her periods had been irregular after the operation but were now normal. Both culs-de-sac were free. March 5, 1913, four years after the operation, she reported that there was no local disturbance of any sort.

Case 69. M. B. O., a married woman, 35 years old, entered the Massachusetts General Hospital on April 12, 1909. She had had five children and no miscarriages. There was a history of considerable pain in the lower abdomen for three months. Her periods had recently occurred at two weeks' intervals. Her health was poor.

At the operation both tubes and both ovaries were found to be an inflamed mass. The appendix was inflamed chronically. A double salpingo-oöphorectomy and a shortening of the round ligaments were done. The pathological report was chronic salpingitis.

The patient made a good recovery from the operation and was discharged in excellent condition May 5, 1909. April 14, 1911, two years after the operation, she reported that her health was improved. She had had no local trouble. She had had no periods since the operation. February 25, 1913, four years after the operation, she reported that she was entirely well.

A CASE OF SUPPOSED PROGERIA (PREMATURE SENILITY) IN A GIRL OF EIGHT YEARS. WITH REMARKS.*

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In 1886, Jonathan Hutchinson reported a remarkable case in the Medico-Chirurgical Transactions under the descriptive title, "Congenital

*From the Surgical Clinic of Dr. Harvey Cushing, Peter Bent Brigham Hospital, Boston, Mass.

Absence of Hair and Mammary Glands, with Atrophic Condition of the Skin and Its Appendages in a Boy Whose Mother Had Been Almost Bald from Alopecia Areata from the Age of Six."[1] At this time the case was unique in the literature and only two similar typical cases have since been recorded.

The subject of Hutchinson's case was a boy three and a half years old, who "presented a very peculiar, withered or old-mannish look, all his features being thin and pinched." The head was quite large and the scalp entirely bald, with the exception of a quantity of down. The veins, which were larger than natural, were everywhere conspicuous. The child was ill nourished and the integument over the abdomen and extremities was extremely loose and withered. "He had no nipples, their sites being occupied by little patches of scar," no trace of a mammary gland could be found. There was extensive atrophy of the subcutaneous tissue of the entire body, together with an almost complete absence of hair. However, the eyelashes were "present, but very weak; the eyebrows almost entirely absent." He is said to have been intelligent and of a cheerful disposition. He was subsequently carefully studied by Hastings Gilford of Reading, England, who first saw him when he was fifteen and a half years old and had attained a height of 109.7 cm. (3 ft. 7+ in.) and weighed 17.25 kg. (38 lbs.). At this time the patient presented the picture of a decrepit old man, with extreme emaciation, conspicuous ribs, veins and tendons. He died of senility at the age of seventeen and a half years. (Fig. 1.)

Two other similar cases are described by Gilford in *The Practitioner*, 1904.[2] One in a woman of 41, with hair on the scalp, in whom the senilism set in relatively late in life and whom he cites elsewhere[7] as an atypical example of progeria or "consecutive senilism." The second was almost identical to Hutchinson's case. This was a boy of seventeen, 104 cm. (3 ft., 4 7-8 in.) tall, with grey hair, wrinkled skin and stooping posture, who presented every characteristic of a very precocious senility. Indeed the two so closely resembled one another that when the father of Mr. Hutchinson's patient saw the photograph of Mr. Gilford's case, he thought he was looking at a picture of his own son. (Cf. Figs. I and II.)

Mr. Gilford's description of this second case is in striking terms: "He was brought to me. . . when a little over fourteen years old. His appearance as he came into my room was suggestive either of a child of five, or a wizened and dwarfish old man. On the one hand his size . . manner of dress and the fact that he was brought by his sister in a mail-cart, were indicative of childhood. On the other hand, had he come by himself in the clothes and other accessories of old age, I think there are few who would have detected the deception. The senile appearance was occasioned not only by the baldness and the wrinkled condition of the skin, but by his leanness and by the complete absence of hair and the inactivity of carriage and expression which is one of the chief features of early life. The veins of the backs of the extremities, and of the neck, forehead and scalp were large and extremely conspicuous. . . But what contributed more than all to his old-mannish appearance was the withered and juiceless look of his skin and the absence of color in the scanty hairs of his scalp. His intelligence was uncommonly good. . . his ideas those of a man, and he could take his part in the small talk of adults with interest. . . He seemed to age rapidly. . . His features became manifestly more shriveled, and as he grew older he became still older in his ideas, etc. . . " He died at the age of eighteen years, a picture of senile debility. Mr. Gilford adds, "We may describe the condition as one of infantilism upon which has descended the blight of premature senile decay."

In 1910. Variot and Pironneau[3] described a third case of progeria in a girl of fifteen years, which was practically identical with those above cited. They hold that the cause of the condition is to be sought in a disorder of the adrenal glands.[4] Mr. Gilford, on the other hand, refers to the pituitary body as a possible factor, judging purely from analogy.

Progerians are few. In view of the paucity of reported cases it seems important that allied conditions should be reviewed and hence liberty has been taken in quoting the above cases. The striking similarity which the patient to be described bears to those already cited has led to this report.

The following case was referred to Dr. Harvey Cushing's clinic at the Peter Bent Brigham Hospital, Boston, by Dr. R. W. Lovett of this city.

The patient, Elizabeth G., eight years, three months of age, was admitted on Jan. 28, 1914. She was born in Pittsfield, Mass., Oct 10, 1905, of Russian-Jewish parents and is one of a family of twelve children, three of whom died in infancy. The paternal grandfather is 89 years old; the paternal grandmother died at 45. The maternal grandfather died at the age of 25, of a "bad cold"; the maternal grandmother is 90 years old and still living. No definite data has been obtained regarding the father and other children. The mother is now living.

Elizabeth was the next to the youngest child and during her pregnancy the mother had two severe nervous shocks; the store in which she lived was burned and she had a bad quarrel with her husband. The patient was a full-termed child and the birth was easy. She was very thin and nursed poorly. When eight months old she was taken to a hospital where a diagnosis of rickets was made. She remained there two years. She was late in learning to walk. So far as is known she has never had any serious illness.

She was admitted to the Massachusetts Hospital School for Children, Canton, Mass., on Jan. 16, 1913, being sent there upon the recommendation of Frederick E. Greene, Special Agent of the Massachusetts Society for the Prevention of Cruelty to



FIG. I.—*Jonathan Hutchinson's Case* of Progeria at 17. Note the peaked nose, with ill development of the lower jaw and clavicles, absence of hair; extreme leanness, poor muscular development and backward sexual development with absence of pubic hair. Height 109.6 cm. (3 ft. 7 in.). Weight 17.2 kg. (38 lbs.). This patient died at 17½ years. (Note the striking similarity to Fig. II.) (Taken from Mr. Gilford's article in *The Practitioner*, 1904, lxxiii, 188, 217.)



FIG. II.—*Hastings Gilford's Case.* Shows [illegible] characteristics as Fig. I. The bowing of [illegible] abdomen are more accentuated. Height [illegible]

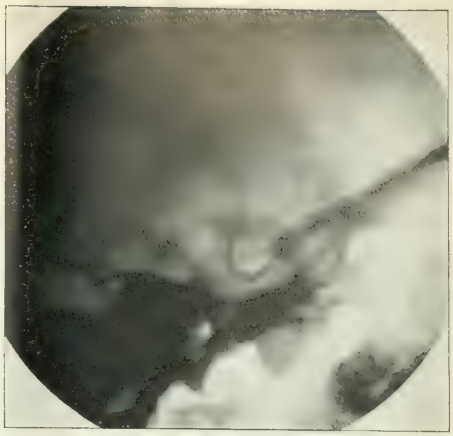


FIG. VII. (Eliz. G.) Sciagram of Sella Turcica. (Nat. size.) Essentially normal in contour and size. Longest diameter 6 mm., depth 7mm., the entrance measures 7 mm. No abnormal shadows seen in sella or interpeduncular regions.



FIG. VIII. (Eliz. G.) Sciagram of hand (nat. size), showing smallness of the bones. The epiphyseal lines are all open, and [illegible] respecting practically to the age (18 yrs.). No evidence of cutting



FIG. III.—(Elizabeth G.) aet. 8 yrs. 3 mos. Adult figure introduced to give an idea of patient's size and general appearance. Height 90 cm. (2 ft. 11 in.); weight 14.1 kg. (31 lbs.). The bowing of the legs and dislocated hips are well shown.



FIG. IV.—(Elizabeth G.) (Front view standing.) Showing general contour of body, absence of secondary characteristics of sex, pendulous, full abdomen; and pes planus. Gives appearance of a miniature old woman. Note many points of similarity with Figs. I and II.



FIG. V.—(Eliz. G.) Side view standing showing well the outstanding veins on arms and legs, also the large ear and sort of age. Note the large ear, drawn features, pigeon breast and general dorsal kyphosis.



FIG. VI.—(Eliz. G.) Front view sitting: Brings out well the numerous wrinkles of the skin; and senile appearing breast. The eyes are bright, the face resembles as in childhood. A mixture of youth and age.

Children. He has furnished the information that her home surroundings were very bad; that it was impossible to keep her in school on account of the effect of her peculiar appearance on the other children, and that her expression and general appearance were more like a woman of seventy-five than that of a child of seven. She was an inmate of the Hospital School for a year, during which time her conduct was good and her habits cleanly. She gained four pounds in weight. She is said to have been lively, playful and childish in spite of her wizened body. Mentally she was considered a little below normal.

Physical examination upon admission reveals a person of dwarfish dimensions, with a double congenital dislocation of the hips and every appearance of being a miniature old woman (Fig. II-V). She is, however, vivacious and childish in her actions, being of a rather inquisitive nature and making friends readily.

Height, 96 cm. (3 ft. 1¾ in.), practically corresponding to a normal child of four years (96.7 cm., 3 ft. 2 in., Boas), about 26 cm. below normal for her age (122.1 cm., 4 ft., Boas); weight 14.1 kg. (31 + lbs.), about 10 kg. less than normal for her age (24.1 kg., Boas).

The head is well proportioned, but quite small, no suggestion of true microcephaly being present. Circumference 47.5 cm., but 1 cm. less than the normal for a girl of eight. The forehead is quite narrow and the hair-line low, almost touching the eyebrows. Both anterior and posterior fontanelles are closed. The skull is symmetrical, and the normal bony prominences are rather marked. The hair alone contributes an appearance of youth to the child, it being quite abundant, very dark and not touched with grey. The veins over the temples show a blue network under the thin skin and there is a marked cyanotic cast about the inner canthus of the eyes.

The face is unique, being typical of age save for the presence of many freckles and a fair complexion. The nose is thin, pointed and rather long. The cartilages, however, are not visible through the integument as in Gilford's case. The mouth is tightly set, with the under lip drawn in. There are prominences in each cheek in the usual situation of the fat pads of childhood (Fig. IV-VI).

The eyes are small, globes parallel, pupils equal and react to light and accommodation, and the sclerae are clear. Vision is apparently normal. Fundus examination reveals an optic disc considerably paler than is normal for her age. The lamina cribrosa is clearly defined at the bottom of a deep optic cup (2 D.). The venous condition is normal. The arteries show a heightened reflex and slight tortuosity, but do not indent the veins at points of crossing. Macular region and peripheral fundus are in good condition.

Her hearing is acute. The ears are very large, but not particularly protruding (Fig. V). There are no stigmata of degeneration except a suggestive Darwinian tubercle on the right. The tongue is small, smooth and quite clean. It protrudes in the mid-line with no tremor. The mucous membranes are of good color; hard palate rather high; tonsils both large, but not injected.

The teeth show slightly delayed second dentition, only seven permanent teeth being present (normal for her age, 12). They number seventeen in all, of which 10 are deciduous and 7 permanent. The permanent teeth include two upper central incisors fairly well developed; four lower incisors, the two lateral ones erupting in a line back of the central ones; and one lower first molar. The rest are milk teeth in various stages of decay.

The neck is thin, and the skin very loose, elastic and wrinkled. There is marked enlargement of the posterior cervical glands, measuring .25 to 5 cm. in diameter. There is no evidence of softening in these glands. The thyroid gland is not enlarged. The external jugulars stand out markedly as do also the sterno-cleido-mastoid groups. The supra and infra-clavicular as well as the supra-sternal fossae are very deep. (Cf. Fig. IV.)

The skin of the entire body is remarkable, being extremely soft, thin, very elastic and thrown into innumerable wrinkles (Fig. VI). These are particularly noticeable at the flexures over the dorsum of the hands and fingers, under the breasts, across the abdomen, in the infra-scapular region, about the thighs and over the dorsum of the feet. There is almost complete atrophy of the subcutaneous tissues over the entire body except about the breasts and external genitalia where there is a very limited amount. A fine network of venules is noted in the subcutaneous tissues over the entire body forming a reticulum which shows through the almost transparent skin. This can be demonstrated best by drawing the skin tense. The larger superficial vessels as the veins of the dorsum of the hand, the basilic, cephalic, long and short saphenous, etc.—stand out with great prominence (Fig. V). The breasts resemble the senile type in miniature, with merely a suggestion of subcutaneous fat. The nipples are present, being small, almost flat and not pigmented. No vestige of hair is present over the entire body, even in the axillae and over the pubes, save a very fine down over the dorsum of the hands and an inconspicuous dark patch in the interscapular region. The genitalia are still infantile.

There is great laxity of all joints, the fingers being easily bent back at right angles to the dorsum of the hand without causing pain. The little finger can be bent back through an angle of 120°. There is terminal enlargement of all long bones, but this is accentuated by the degree of emaciation. The knuckles of the hands are large. The nails show no lunulae. They are fine, fairly developed and not particularly brittle. There is marked bowing of the lower extremities (as in Gilford's cases)—involving the tibiae mostly. The patellae are quite prominent, but not abnormally so. A most interesting feature is the double congenital dislocation of the hips (Fig. III) with the typical "waddling gait" so characteristic of the condition. A relatively increased dorsal kyphosis is present. There is marked pes planus and undue laxity of the ankle and tarsal joints. The individual bones of the tarsus are very mobile and each can be separately palpated.

Skiagrams of the skull show that the sutures have not completely united, and the presence of Wormian bones in the lambdoidal sutures. There is no suggestion of hydrocephalic configuration. The structure of the bone is normal. The sella turcica is small, measuring 6 mm. in the longest diameter; 7 mm. in depth and 7 mm. across the entrance (Fig. VII). There are no abnormal shadows in the peduncular or pineal regions. The skeleton of the hand is very little advanced for her age. The cortical and medullary portions of the bones, however, show marked contrast (Fig. VIII). Further examination of the long bones gives no evidence of rickets.

Examination of the lungs reveals nothing remarkable. No thymus dulness is made out, nor does radiographic examination of the chest reveal a shadow. The heart is not enlarged and no bruits are heard in any valve area. The sounds are loud, the beat forceful and P^2 is greater than A^2. The liver and spleen are not palpable. Nothing abnormal is found in the abdomen except a partial diastasis of the recti muscles. The entire musculature of the body is poorly developed and the child tires rather easily. She is less feeble than the other cases referred to, but it should be mentioned that she is only half as old.

In contrast to the old-mannish ways of Gilford's patients one is impressed with the abandon of this child. She is seldom pensive, and rarely enters into serious conversation with older patients. On the contrary she prefers her doll and the society of other children. She is a curious little body, peering into books and investigating new objects with interest, like a gnome out of one of Rockham's pictures. She is very active, cleanly in her habits, shy to strangers, affectionate and easily influenced.

An attempt was made to gauge her mental development as interpreted by the Binet-Simon Scales, As near as could be determined her mentality is about that of a normal child of seven. It should be taken into consideration that she has had neither home nor school advantages; and has not been taught to read or write. She cannot tell the time of day.

The neurological examination is essentially negative. The following measurements show her diminutive physical development.

Mento-occipital circumference of head	52	cm.
Circumference of neck	24	"
Inter-canthus	2	"
Across nares	3	"
Length of clavicle	9	"
Length of arm	46	"
Circumference of arm	12	"
Circumference of forearm	12.5	"
Circumference of hand	12	"
Length of hand	13	"
Length of middle finger	6	"
Circumference of thumb	4.25	"
Circumference of chest	53	"
Circumference of abdomen	54	"
Length of leg	54	"
Circumference of thigh	25.5	"
Circumference of leg	16.5	"
Circumference of ankle	10	"
Circumference of foot	13.5	"
Circumference of big toe	3	"

Blood Examination. Differential count (Hasting's and Wright's stain), 200 cells.

Polymorphonuclear neutrophiles	66.5%
Polymorphonuclear eosinophiles	6.5%
Small mono-nuclears	24.5%
Large mono-nuclears	0.5%
Transitionals	2.5%
Total	100 %

The red blood cells in the stained specimen show nothing abnormal.

White blood count, 11,200 cells, per cubic mm.

Blood pressure, 84 systolic, 50 diastolic.

Wassermann (blood) reaction is negative.

Urinalysis. Specific gravity 1.026. No albumin or casts present.

Urine output 200-700 cc. q.d.

Temperature 97-99°, pulse 80-90, respirations 20 per minute.

Progeria (πρό — before; γῆρας — old age), as defined by Mr. Gilford, does not occur in normal children. It only affects those who are the subjects of a form of delayed or arrested growth,—infantilism. True progeria always occurs in youth. The body arrested in its growth becomes prematurely the subject of senile changes. Infantilism and senilism are both present in the same body at the same time. Progerians pass from delayed childhood directly into a premature old age.

Reference should perhaps be made to one other form of dwarfism, in some ways resembling progeria. It is known as ateleiosis (α priv. + τελειωσις — completeness), a name generally applied to dwarfs of the Tom Thumb type. Progerians are usually dwarfs, but premature senile changes are not factors in ateleiosis. On the contrary, longevity is the rule in the latter condition. Hutchinson refers to two somewhat similar cases of "Dwarfdom with Arrested Development of the Skin and Appendages, etc.," in the *Archives of Surgery*.[5]

Under the title "Progeria and Ateleiosis"[6], Arthur Keith discusses fully the condition in reference to Gilford's, and Variot's and Pironneau's cases and gives a most careful description of the skeletal changes in Hutchinson's first case, the skeleton of which is in the museum of the Royal College of Surgeons of England. He gives a minute description of the skull and long bones and considers the conditions as the reverse of acromegaly.

Mr. Gilford in his book entitled, "The Disorders of Post-Natal Growth and Development"[7] divides ateleiosis into two major classes, (*a*) sexual, and (*b*) asexual. In the former the secondary characteristics of sex develop late in life, often not till the third decade. The individual is, however, sexually potent and often, like Tom Thumb, has a wife and family. He is of average intelligence and usually lives to old age. In the second class, the secondary sexual characteristics are never acquired and the patient retains the baby features and body contour through life. The persistence of a major variation is seen in both ateleiosis and progeria. In the former infantilism persists; in the latter premature senility predominates. Persons suffering from ateleiosis look alike because they are dwarfs and retain their childish features; those suffering from progeria also resemble each other because they are petite and are prematurely aged. Ateleiosis, like progeria, may occur at different stages of life, but the earlier it occurs, in either condition, the more characteristic is the picture.

It is interesting to note that Mr. Gilford, in discussing the etiology of ateleiosis and progeria emphasizes this reversion or regressive development of some major variation ,(infantilism, senilism, etc.) through which the race has passed in prehistoric times. Different types of men must have existed, giants, dwarfs, etc., with even greater contrast than appear among numbers of the human race today, and hence there may be reversion to one or more types of this discontinuous nature. The reversion is seldom if ever general, so that one predominant character is retained.

Little, if anything, is known definitely of the pathology underlying progeria. There have been so few cases reported that the condition is seldom recognized as a physiological or pathological entity. The results of but one autopsy are reported; that performed by Gilford, in his first case. Nothing definite was found beyond "an extraordinary mixture of youth and seeming old age." There was a large, healthy liver and slightly degenerated kidneys and suprarenal bodies. The brain was healthy, the stomach and intestines of paper-like tenuity. There was a persistent and degenerated thymus gland. The thyroid, pituitary and pineal bodies appeared to be healthy. Some lymphatic structures were normal, others wasted. There was marked atheromatous and calcareous degeneration of the aorta, coronary arteries and valves of the left side of the heart.

In the case of Elizabeth G., especial attention is called to the condition of the arterial system. The rigidity of the radials is remarkable for a child of eight. No shadow, however, is seen in the skiagrams. The heart sounds are relatively intensified, and although this organ is not definitely enlarged and no murmurs are heard, it is evidently working against a relatively inelastic arterial system. F. Parkes Weber reports a case of "Mitral Dwarfism" in *The British Journal of Children's Diseases*,[5] in which he attributes the under development as being due to a general hypoplasia of the body tissues, a result of inadequate arterial supply. A diseased mitral valve was present in this case. The condition is not uncommon. Guthrie Rankin furthermore reports a case of premature senility in a man of about fifty due to aortic and mitral insufficiency. The heart in the case here reported is not diseased.

Unfortunately the pituitary gland in Gilford's case was not examined histologically. He considered it possible that this gland constituting the "growth center" might prove the key to the situation. Indeed, he seriously considered terming the disorder "micromegaly," as contrasted with acromegaly. In the case of Elizabeth G——, the Roentgen ray examination does not help us. The sella turcica is of normal configuration and its size is well within physiological limits. Its influence upon body growth and general development has been pointed out by Cushing[16] and others on animals. It has been found diseased many times in certain conditions of gigantism, dwarfism, etc. In progeria it is conceivable that one may be dealing with a polyglandular syndrome. Although the ductless gland question is very much run into the pond, nevertheless one is tempted in this case to seek a possible endo-secretory cause for the disorder. With this in view opotherapy, in the form of anterior lobe pituitary gland feeding, has been instituted in this case, but with no apparent change in the patient's condition.

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MUSHROOM POISONING. GENERAL REMARKS WITH REPORT OF ATYPICAL CASES.

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OWING to the increasing influx of foreigners, especially those from the South of Europe, to our shores, the question of mushroom intoxication has come to be of somewhat greater importance than formerly. These people make fungi of various sorts almost a staple article of diet during the proper season. Inasmuch as "toadstool poisoning" is a very vivid entity to the common people, it very often happens that this very palatable and highly nutritious product is neglected as an article of food. The common "Agaricus campestris" is regarded by many as the only edible variety, whereas in fact there are only about a dozen or so, of over a thousand American varieties that are toxic. The foreign population are probably better acquainted with these facts than are our own people, but unfortunately some of *our* poisonous agarici may be mistaken for their edible varieties. The Count de Vecchi of the Italian Embassy in 1898 mistook Amanita muscaria for Amanita caesaria and died as the result. It seems to be pretty definitely established that the same fungus, in different parts of the country may vary in its toxic content, quantitatively if not qualitatively. Contrary to the belief of some, [illegible] are a great majority of species that never contain toxins.

In Germany, Italy and France, stringent laws regulate the sale of mushrooms.

Mushrooms have been used as a food for a great many hundred years and have figured prominently several times in history. The wife, daughter and two sons of Euripides, the Greek poet, died in this way, as did also Pope Clement VII, Emperor Claudius, and the widow of the Tsar Alexis. At one of Nero's banquets, he served muscaria to his guests and numbers of them died.

In the fall of 1911 the September rains produced an ideal condition for an abundance of fungus growth. In one ten-day period, there were twenty-two deaths in the vicinity of New York City. In 1906, there were fifteen or sixteen deaths; in 1905 about thirty cases were reported, with twelve deaths. This year was productive of a large number of cases in the vicinity of Hartford, Conn., totalling twenty-six in a few weeks.

The fungus responsible for most of the fatal poisoning in this country is Amanita phalloides. Poisoning by Amanita muscaria is also common, but not so apt to be fatal. Amanita muscaria demonstrates its presence by the muscarin symptom complex, and atropin forms a perfect physiological antidote for the muscarin. Unfortunately, however, there are other toxins present. Weight for weight, the preparations from the fresh plant are twice as toxic as pure muscarin. Harmsen called the remaining toxin "pilz-toxin," but his work was never confirmed. Ford, however, found an agglutinin which did not withstand heat, and which, therefore, would not figure in poisoning with the cooked fungus. The fact remains that in poisoning with the muscaria, atropin is the best specific remedy, and with its use, the mortality is very low. Symptoms usually appear one-half to two hours after ingestion. It is Amanita muscaria that is used by the Russian peasants as an intoxicant, producing a state of hilarity. This probably contains less muscarin than the American variety, or perhaps has a different effect on these people.

The Amanita phalloides was said by Kobert to owe its toxicity to phallin, a toxalbumen. Ford, of Baltimore, has, however, apparently proven conclusively that the toxins are amanitatoxin and amanita hemolysin, the latter a glucoside and one of the most powerful of vegetable hemolysins, but relatively unimportant because easily destroyed by heat and by digestive juices. The Amanita toxin is very powerful (.0004 gram killing a guinea-pig in twelve hours). This has been shown by Ford to produce all the symptoms and pathological lesions produced by the whole cooked plant. It is interesting to note that Ford found that forty times the lethal hypodermic dose in rabbits could be given enterically without any symptoms.

Amanita phalloides is a pure white fungus growing in damp woods. It has white spores, nearly white top, with perhaps traces of greenish yellow around the margin. The stem is bulbous at the base, and it has the ring below the pileus. It is most often seen near oak trees.

The symptoms come on usually with sudden intense pain in the abdomen after from six to fifteen hours. There is vomiting, intense thirst, diarrhea (choleric or bloody), and the victim gradually wastes away, usually dying in coma in three or four days. Post-mortem examination shows ulcers in the intestinal tract, hemorrhage into the serous membranes, and fatty degeneration of the parenchymatous organs, especially the liver and kidney. The mortality is sixty to one hundred per cent. A third of the top of a small plant has killed a child twelve years of age.

Among the other poisonous varieties are Amanita rubescens containing a thermo-labile but powerful hemolysin. This fungus is considered edible, probably because usually eaten cooked. In group with the Muscaria toxicologically are several other species, among which Amanita pantheria, Inocybe infida, Clytocybe illudens, Clytocybe suderifica and Inocybe decipiens are the most prominent. Helvellic acid has been mentioned as one of the toxins to be reckoned with, but examination of the Helvella esculenta in this country has failed to show any toxicology whatsoever. The European variety, however, produces a poisoning with the pathology and symptoms typical of a hemolytic agent. The following cases present an unusual group of symptoms.

Case History. A. R., an Italian chef, aged forty-two years (Hospital No. 69,855) was admitted to the Hartford Hospital on September 19, 1913, at 6.00 A.M., with the history of having eaten mushrooms three days previously. Twelve hours later he began vomiting and bowels had moved every two hours since. He vomited everything eaten, and had complained of griping pains located over the entire abdomen accompanied by great prostration. He had not slept since onset of symptoms. Physical examination showed pupils dilated, reacting very slightly to light stimulus but immediately returning to dilated condition. The throat was dry. The pulse at the wrist was not obtainable but the rate at the heart was 160. The temperature was 99.4 degrees. The patient had voided no urine during the previous sixteen hours, and could not void after admission. Cerebration was not disturbed at any time, but the throat was so dry that speech was difficult. The strength gradually failed and death occurred at 4 P.M. Temperature at 3.30 P.M. was 102 degrees. Post-mortem catheterization resulted in about two drops of thick yellowish material which unfortunately was lost without microscopic examination.

Eight cases were admitted three days later from an Italian boarding house, with a history of having eaten mushrooms on the previous evening at seven o'clock. Between six and seven-thirty next morning, each had been awakened with sudden abdominal cramps and vomiting. These conditions had continued during the morning, and the stools had become mucous, and in some cases bloody. Patients showed on examination at noon dilated pupils, dry

throats and skin. The pulses were normal or slightly accelerated in rate, but of decreased tension. One patient had abdominal cramps of very severe grade at intervals of ten or fifteen minutes, each lasting several minutes. These were relieved by morphia. One had involuntary defecation and urination. The white blood counts showed an increase varying between 11,000 and 20,000, and the polymorphonuclears ranged from 70 to 83%. Blood smears showed no abnormality with Wright's stain. Satisfactory data concerning the other cases in this vicinity could not be obtained.

With the previous fatal case in mind, these cases were all treated with vigorous prophylactic measures for the kidneys (hot packs for an hour and a half every three hours—only water till the third day). The urinary findings showed a decrease in the twenty-four hour amount during from one to three days. The majority of cases showed albumen in varying amounts, from a slight trace to a trace. The sediments in a few cases showed rare red blood corpuscles, few leucocytes, and some casts (hyaline and coarse granular). The temperature remained normal or slightly subnormal. All cases showed 96.2 to 97 on the sixth day. The pulse-rates were slightly elevated, but the quality in every case indicated stimulation for a time. On the ninth day all were discharged well and a subsequent visit to the house found them in perfect health.

As regards treatment, atropin for the Muscarin type is the specific. For the phalloides, nothing but symptomatic treatment is available. Ford endeavored to produce a specific serum from guinea-pigs, but was not able to attain sufficient potentiality to make its use practical. In the cases above cited atropin was, of course, contraindicated and its use, therefore, should not be recommended as a specific for mushroom poisoning in general. Each case must be observed symptomatically and be thus treated. Castor oil is the best cathartic, as the salines are said to facilitate absorption.

Summary. These cases strongly suggest the presence in the mushrooms of atropin or a similar substance. There is said to be pilz atropin in the Amanita muscaria in small amounts, but the symptoms in muscaria poisoning develop in one-half to one hour or, at most, three hours. The symptom-complex in these is more like that of phalloides than of any other group described. Several attempts were made with the aid of the patients to locate and identify the mushroom which produced the symptoms. One lot obtained and thought to include all varieties eaten, was sent to prominent mycologists in Boston, but all these specimens proved to be of edible varieties. We are not, therefore, able to draw any well founded conclusions as to the fungus responsible for poisoning in these cases.

These cases occurred on the service of Dr. William Porter, to whom I am indebted for permission to report them.

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Clinical Department.

AN INTERESTING CASE FOR DIAGNOSIS.*

By B. T. Burley, M.D., Worcester, Mass.

This boy, ten years old, was first seen by me in December, 1913. The family history is rather unimportant. He is one of four children, one brother having died of spinal meningitis. One uncle has tuberculosis of the lungs. Otherwise there is no nervous disease in the family, and no "family disease" so-called.

The boy had always been well up to seven months ago. Then it was noticed that he walked with a slight limp on the left side. This limp was more marked on slow motion and was not noticed much when he walked rapidly or when he ran, after he got started. The father had the shoes changed two or three times, thinking they were the cause of the trouble. At that time, the inner hamstring muscle was tense and the leg was adducted.

Finally, early in December, the father consulted a physician about it, and the physician sent the case to an orthopedic surgeon, who examined the boy and finding nothing the matter with the hip, referred the case to me. At that time, there was marked spasm of all the muscles of the left thigh, especially around the upper part. The leg was adducted. There was no evidence of spinal involvement, no change in reflexes, no trouble with the sensory nerves anywhere evidently.

I advised an x-ray of the hip, thinking that it was rather difficult to rule out hip trouble. The first x-ray was not satisfactory, and I advised having another x-ray; but instead, the father took the case to Boston, to one of the leading orthopedic men here. This gentleman examined the boy, and, according to the father's story, felt that he had found the trouble in the patient's ankle. He had an x-ray taken of the ankle, and demonstrated to the father that the trouble was there, telling him that the x-ray confirmed his suspicions. He strapped the ankle, and had the child wear the adhesive strap on the ankle for a month, directing that certain exercises be given.

On the next visit, the exercises were changed somewhat. The boy was under the care of the orthopedic surgeon for three months. At the end of that time, he was satisfied with the position of the foot, but the spasm of the muscles had been increasing during all that time. After the first month, the boy had been on crutches, and has been ever since when able to get about, and the spasm of the muscles has continued progressively. There is now

* Presented before the Boston Society of Psychiatry and Neurology, April 16, 1914.

marked contracture of the left leg in flexion and adduction.

Finally, this orthopedic surgeon advised consulting a neurologist and the father returned to me with the boy. I found the condition had progressed markedly since I had seen him, three months before. I referred him to the hospital for x-ray to see what change there had been. There was so much spasm through the lower back and left side that an x-ray could not be taken satisfactory without ether. The muscles did not fully relax under ether. The inner hamstring especially was tense even then, but the leg could be moved with much less resistance than without ether. X-rays of the pelvis, hip, and back showed nothing abnormal in the bony structure.

In consultation with Dr. Emerson it was decided, partly for psychic effect, to see if we could straighten out that leg, and we put it in a plaster cast which extended from the ankle to the armpit. The cast was fairly comfortable considering the contracture, but it did not make any difference in the boy's general condition; the contracture still remained. We decided it was not successful, and after a few days it was removed.

The present physical condition is as follows: Sitting posture cramped, left leg partly crossed over right, causing a compensatory right bowing of lumbar vertebrae. Left thigh muscles in tonic spasm. This spasm involves also the lower abdominal muscles and slightly the right thigh muscles. There is no anesthesia or paraesthesia. The eyes react normally and the fundus is clear. The superficial and deep reflexes are within normal limits, the knee-jerk on the left side being somewhat impaired by contracture. The plantar reflex is at times not well marked. There is no ankle clonus, Babinski, Gordon or Oppenheim. No disturbance of sphincters. No tenderness or pain, except in overcoming the contracture. The mechanical irritability is increased over the affected parts but the response to faradic and galvanic stimulation is within normal limits. Blood examination reveals nothing abnormal. Von Pirquet negative. Wassermann negative in the blood serum by one observer, positive by another. Both obtained a negative test of the spinal fluid, however, and the globulin test was also negative. The spinal fluid cell count was not increased.

That practically covers the case. When I first saw him I thought it was impossible to rule out either tuberculosis of the hip or of the spine, but the x-rays do that. Then I considerd hysteria as being the cause of the contracture, but there are a number of things about it that tend to rule that out. There are no hysterical stigmata, no anesthesiae, no contraction in field of vision. The boy is not apparently of an hysterical make-up. He is not suggestible; and, further, if he had been suggestible, I think the orthopedic surgeon's definite decision that the boy's foot was the cause of the trouble, with so much confidence, would perhaps have effected a cure.

Another disease I have had to consider is myatonia, congenita or acquisita, but the disease does not seem to be typical at all. His spasm is practically constant, and the progress has been rather rapid. Up to the time he was ten years old, he did not have any of it. It began a little about six months ago.

I should be glad of any advice from you gentlemen as to the possibility of that diagnosis, or some other better one. I will now bring the boy in, and we will have a look at him.

DISCUSSION.

Dr. H. C. Baldwin thought pain was not necessary for diagnosis of tumor of the cord, and referred to a case he reported some nine years ago.

Dr. W. E. Paul spoke of the lack of evidence of organic disease of the spinal cord, and thought it more probably involved the peripheral nerves.

Dr. E. E. Southard thought it more suggestive of that than of anything else.

Medical Progress.

PROGRESS IN GYNECOLOGY.

BY STEPHEN RUSHMORE, M.D., BOSTON.

OVULATION, CORPUS LUTEUM AND MENSTRUATION.

The etiological relationship of the ovary to menstruation has now been generally recognized for a considerable period of time. The view that the corpus luteum, by its internal secretion, in some way produces the changes in the uterus which precede and perhaps accompany menstruation, is more recent, and has not received universal acceptance. The view of Fraenkel is that ovulation and menstruation, while not simultaneous, have a close temporal relationship. The view expressed by Leopold is that the two processes are simultaneous. Recently Ricker and Dahlmann have denied that there is any connection between these two functions.

On account of the conflicting opinions, Ruge[1] undertook a study of uteri and ovaries, material obtained from operations by total extirpation for various causes. The tissues were subjected to careful examination and the histories were studied to determine as accurately as possible the dates of onset and cessation of menstruation. The series (one hundred and six cases) is large enough to give a basis for trustworthy conclusions.

Ruge's studies of the endometrium confirm in a general way the findings of Hitschman and Adler, dividing the menstrual cycle anatomically into four stages. Following the changes in the follicle which terminate in rupture or ovulation, four periods in the cycle of development of the corpus luteum are to be made out. In the first, the proliferation stage, there is increase in the lutein cells which are derived in part from the membrana granulosa (epithelium) and in part from the theca interna (connective tissue). Then follows the stage of vascularizа-

tion, in which the capillaries of the theca interna grow into the epithelial portion of the corpus luteum. This explains the origin of the blood in the core of the corpus luteum, for rarely does such blood result from the rupture of the follicle. The corpus luteum is at its acme in the third period, the vascularization is complete and the lutein-bearing cells, reaching their greatest development, are shut off from the central lumen by a connective tissue and vascular layer. Regression then ensues with further ingrowth and contraction of connective tissue.

Studying these histological findings in the light of the data derived from the histories and reckoning from the beginning of menstruation, the stage of proliferation was found to be present from the first to the fourth day. It was not possible to state exactly from the histological picture on which day the rupture of the follicle occurred. But in a general way it can be said that the early stages of corpus luteum formation were found only in the first fourteen days and not in the second half of the menstrual cycle. The stage of vascularization occurs from the tenth to the sixteenth day, and the acme of development from the sixteenth day to the beginning of menstruation.

Considering now these findings with the changes in the endometrium, it is to be noted that the proliferation stage coincides in most of the cases with the interval stage, rarely with the menstrual stage of the menstrual cycle. Vascularization accompanies the beginning of the premenstrual stages; in the acme, the endometrium was almost always in the premenstrual stage. Regression was found during the menstrual flow or in the interval.

From this it is seen that the rupture of the follicle and the beginning of the development of the corpus luteum fall in the first half of the menstrual cycle. The vascularization and acme of the corpus luteum are in the second half of the cycle and are found with the premenstrual changes in the endometrium. A freshly ruptured follicle and a corpus luteum at its highest development are never found at the same time; they appear to exclude each other.

OVARY AND ADRENAL GLAND.

There is some functional connection between ovary and adrenal gland because osteomalacia is favorably influenced by removal of the ovaries as well as by the exhibition of adrenalin. It is thought that in some way adrenalin antagonizes or neutralizes the secretion of the ovary, but it seems clear also that, following castration, there is not simply a continued normal activity of the adrenal gland, but a hyperactivity (found by a number of investigators). Removal of the adrenal glands has been followed by such varying results that no conclusions could be drawn as to the effect on the ovary of diminishing the adrenalin.

Varaldo[2] tested the effect of increased adrenalin by injecting it hypodermically into rabbits. He found that castration increased and pregnancy decreased susceptibility to adrenalin as compared with normal rabbits, death resulting from smaller or larger doses respectively. Repeated non-lethal doses were given and the animals killed at various stages. At autopsy, in every case careful examination was made to exclude intercurrent cause of disease or death. For example, all animals having coccidia in the liver were rejected.

It was found that macroscopically the ovaries were smaller than normal. Under the microscope, the early cases showed degeneration of the specific elements of the ovary, with dilatation of the vessels of the parenchyma and small hemorrhages and fatty degeneration of the stroma. In more advanced cases the specific elements had disappeared entirely, being replaced by connective tissue.

There is, therefore, an antagonism between the function of the cortical portion of the adrenal gland and the female sexual glands. This is suggested also by the relief of "idiopathic" uterine bleedings and "metropathies" following the use of adrenalin.

OVARIAN OPOTHERAPY IN PRURITUS VULVAE.

Babesch and Buia[3] are of the opinion that the pruritus vulvae, which often appears in elderly women in the course of the climacteric, is to be ascribed to ovarian insufficiency. They have accordingly treated such cases with the extract of corpora lutea. The results were very satisfactory, so that further investigation along this line is indicated. The explanation of the pruritus is to be sought in vascular changes produced by ovarian insufficiency.

It is well known that subcutaneous injection of ovarian extract will produce signs of heat in animals, hyperemia, and even hemorrhage in the female genitalia. Aschner[9] has shown that phenomena similar in character, but even more marked in extent, may sometimes be produced by the use of placental extracts.

DIFFERENTIAL DIAGNOSIS BETWEEN UTERINE AND ECTOPIC PREGNANCY.

Fueth[4] has seen so many cases of extra-uterine pregnancy subjected to curettage for incomplete abortion, before being brought to the hospital, that he has called attention at some length to the points in differential diagnosis between these two conditions. Curettage is not only inefficacious but may be dangerous, as infection of the hematocele may result.

In making a differential diagnosis the history is of prime importance; in no other condition in the whole field of gynecology is it as important as in the diagnosis of extra-uterine pregnancy. There may be a history of gonorrhea or a disturbance of the puerperium, either following an

abortion or a birth at term. Disease of the tube may manifest itself by sterility for a period of years. The subjective manifestations are less marked in the ectopic than in the uterine pregnancy in the first months.

A symptom most constant in its presence, but variable in its character, is pain. Such pain may seem to be but an exacerbation of an old pain from tubal disease, or it may come on for the first time. It is due to the stretching of the tissue and to the irritation of the peritoneum. It is of considerable importance when, with an early pregnancy it comes on suddenly and severely and is sharply localized on one side or the other of the pelvis.

Objective changes in vagina and cervix speak rather for intrauterine than for ectopic pregnancy. Bimanual examination may show nothing characteristic in either case, if the pregnancy is very early. Very slight changes in the tube cannot be distinguished from the results of old inflammation, especially if there is a history of former tubal disease. Irregular bleeding may be simply an accompaniment of the tubal or extra-tubal disease, and not due to the pregnancy.

If a mass can be made out on one side (a well marked tumor on each side is against tubal pregnancy), it must be kept in mind that recent cases of pyosalpinx may also give rise to delay of menstruation and then to a protracted flow. A careful study of the character of the bleeding may be of value. In the first place the bleeding is persistent, not ceasing after the normal duration of menstruation. Three types of persistent bleeding may be noted (with reference to the time of normal menstruation): (1) beginning before the end of the menstrual interval, (2) beginning at the time of normal menstruation, or 3) after one or two periods have been missed. The bleeding of ectopic pregnancy begins chiefly in the second month; of uterine pregnancy, it is as a rule in the third month at the earliest.

As to the practical question of the use of the curette in these cases it is important to recall what has been emphasized by Ahlfeld and by Sellheim, that before the formation of a placenta, uterine abortion as a rule takes place with the expulsion of the whole fetus; after the formation of a placenta (the third month and later) abortion occurs generally in two stages. In these early cases then, the curette is not indicated even if uterine abortion is present. The use of the uterine sound may be of value, though it, too, may cause infection. If there are irregularities of the surface of the uterine cavity, or if introducing the sound causes increase of the bleeding, abortion is probably present.

The character of the blood may help in the diagnosis, and it should be examined carefully for traces of membrane or fragments of tissue. If the blood clots quickly it indicates a fresh source of bleeding, as in an abortion. Clots indicate that the alkaline secretion of the uterus is too small in amount to prevent clotting and suggests abortion. The persistent slight bleeding of ectopic pregnancy rarely gives clots. The color of the blood is generally dark red in ectopic and bright red in uterine pregnancy. Fragments of tissue should always be subjected to microscopical examination. Decidua-like tissue is found apart from pregnancy, but the history will help in diagnosis.

While Fueth acknowledges that it is not possible to make a diagnosis in every case, he is especially anxious to emphasize the fact that these patients should not be curetted as a matter of routine, as it is unnecessary in a certain number of cases and a source of considerable danger in others.

EXPLORATORY VAGINAL CELIOTOMY.

Robb[5] calls attention to this recognized but neglected method of determining the condition of the pelvic organs in doubtful cases. It is not infrequent that even under anesthesia the exact condition of the ovaries cannot be made out; much less can adhesions of the tubes be detected. The danger of a celiotomy through the vagina is much less than through the abdominal wall, and for purposes of exploration is often as satisfactory. The patient is prepared as for abdominal operation. The posterior vaginal vault is incised, opening the cul-de-sac, and thus the pelvis can be easily explored. The incision is closed with or without drainage, according to the condition found.

In this way the decision as to the presence or absence of organic disease in the pelvis has a firm basis. Numerous exploratory abdominal operations may be prevented, and many patients relieved by operation, in whom bimanual examination under ether showed no evidence or doubtful evidence of disease. Strict asepsis should be observed, as in any case of opening the abdominal cavity. Such an exploratory operation may prove very useful in cases of suspected ectopic pregnancy.

NEW OPERATION FOR TEMPORARY STERILIZATION.

The indications for the operation for temporary sterilization are scarcely discussed in this paper but the advantages of such an operation in certain cases are obvious. Blumberg's[6] method is to fold back the ala vespertilionis against the posterior surface of the uterus, and by a continuous silk thread attach the mesosalpinx and the broad ligament to the posterior surface of the uterus, from just below the uterine cornu to below the ovary. This folding over of the ligament encloses the ovary in a cavity in which it is freely movable, for the lining is covered with intact peritoneum. As neither tube nor ovary is injured the possibility of pregnancy when the stitch is removed, is not destroyed. Blumberg has operated on six cases, none of which has had the slightest discomfort or inconvenience following the procedure. He

has hitherto employed uniformly the vaginal route without difficulty, but either vaginal or abdominal method is applicable. In no case yet has the second operation been done.

RELAPSE AFTER INTERPOSITION OF THE UTERUS.

Interposition of the uterus for prolapse, known abroad as the Schauta-Wertheim, and in this country as the Watkins operation, has occasionally failed to cure the descensus, so that a secondary operation has been necessary. Weibel[7] reports eight cases from Wertheim's clinic and discusses the mechanism of the failures and of the later permanent relief. Recurrence may be of two types, with intermediate stages. In the first type the fundus remains practically at the level at which it is fixed at operation, but the cervix rotates around this fixed point, backward, downward and forward, finally protruding at the vulva. In the second type the whole uterus descends and finally protrudes with little, or at any rate less, rotation. Recurrence depends on three factors: (1) firmness of fixation of fundus to vaginal wall and lateral fascia, (2) relaxation of the utero-sacral ligaments, and (3) strength of perineal support. Success depends on paying due attention to all these points.

The steps of the secondary operation found satisfactory and recommended by Weibel are: the uterus is separated from the vaginal wall and bladder, and the peritoneum opened until the parts are exposed as in the original operation. The utero-sacral ligaments are then shortened through the anterior vaginal incision. If they cannot be thus shortened they are attacked by the abdominal route at the close of the vaginal operation. The uterus is then sutured under the bladder and to the vagina, attaching it laterally to the anterior portions of the levators. The perineum is then made as strong as possible. The abdomen is opened for the shortening of the utero-sacral ligaments, and for the obliteration of the cul-de-sac, if necessary. Six of the eight cases were operated on in this way and were cured from seven years to one year after the operation.

RADIOACTIVE TREATMENT OF CANCER.

In order to determine the result of operation for cancer, a period of five years must elapse, following the operation. The same criterion must be preserved for other methods of treatment, as for example, with radioactive substances. But the matter is of so great importance that reports of the progress and results to date may very properly be made from time to time, before the expiration of the five years. Doederlein and Seuffert[8] report very fairly the year's work in the clinic in Munich, calling attention to the tentative nature of the results and the conclusions.

As a result of the dissemination of information as to the curative effects of radioactive substances in cancer, the number of cases coming to the Frauenklinik in the past year was remarkably increased and the average condition of the patients was much worse. The operability, tested by the standards previously employed, fell from between sixty and sixty-five per cent. to between thirty and thirty-five per cent. These advanced cases constitute a severe test for any method of treatment, and if deaths and failures occur, the character of the material must be kept in mind. Mesothorium is the radioactive substance employed.

Of one hundred and fifty-three cases of cancer of the uterus, twenty-four were dead at the end of the year. Of these deaths none could be attributed to the treatment, they were all very advanced cases when first seen. In thirty-one cases the result was complete disappearance of all subjective and objective signs of carcinoma. In some there remained no sign of disease at all; in others no sign of carcinoma, but some cicatrization in vagina or cervix. Of these thirty-one cases, nineteen were considered operable, twelve inoperable. While some cases seem easily amenable to treatment, others are much less so.

The other cases of the series are still under treatment, or at least under close control; they are too recent to judge. Among them are a number of recurrences after operation, always more unfavorable than the primary cases, but even some of these are markedly improved. The cancers of the female genitalia are more accessible and therefore more amenable to treatment than cancer of the rectum, intestine and esophagus, and the results are more favorable than could be expected in cancer outside of the uterus and vagina.

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Book Reviews.

A Way of Life. By William Osler. New York: Paul B. Hoeber. 1914.

The first volume in Dr. Osler's series of essays, "Man's Redemption of Man," was reviewed in the issue of the Journal for July 31, 1913 (Vol. clxix, p. 168). This second volume consists of an address delivered to Yale students

on Sunday evening, April 20, 1913. Like its predecessor, it may properly be called a lay sermon.

Dr. Osler writes in his most charming literary vein. His philosophy of life is surely a sane and rational way of conduct, and in our day many would be the better to follow it devoutly. If one were to criticize it,—as criticism of the great by the lesser is always tempting,—one might say that it is a bit too pragmatic.

To "live in day-tight compartments" may perhaps be sufficient unto the day, but it can hardly yield the highest fruition of the whole life. To garner the full harvest and profit of experience, one must learn to survey past and future habitually, dispassionately, and *in extenso*. He who would not do this, should be indeed a monad without windows.

To look before and after is not necessarily to pine for what is not, but rather to aspire clear-eyed to what may be. What were the world without the reflections and visions of the wise? Singleness of purpose is indispensable, but narrowness of outlook is unpardonable.

> "Sure He that made us with such large discourse,
> Looking before and after, gave us not
> That faculty and godlike reason
> To fust in us unused."

Moreover, it seems that Sir William's injunction to bury the past and stifle the future might have a more hedonistic interpretation. The Freudians have taught us the dangers of suppression. Doubtless the evil, the error, the unhappiness of the past must be got rid of, if there is to be happiness in the present or future, and they must be got rid of by elimination, by eradication. But that is no reason for sacrificing the gold with the dross. Like Hamlet's mother, we must learn, when our hearts are cleft in twain, to "throw away the worser part and live the purer with the other half." Or better still (to borrow again the Freudian phrase), to sublimate past experience into a form in which all the evil is expunged and all the good exalted, idealized, transfigured, and perpetuated.

Who would wish to live without the treasures of memory, not of his own life only, but of all time? Or who without the joys of anticipation?

> "Vivre sans rêve, qu'est-ce?"

It is not in the day-tight compartment that we should seek to house ourselves, but ever, like the nautilus, in the "dome more vast."

To close the day-tight compartments is wise provision when storm or other disaster threatens; but in the everyday of fair weather, let us be on deck under full sail in the breezes of eternity, with an outlook as wide as the ocean of life, and as high as the blue heaven that arches overhead.

Myelogonie. By DR. STANISLAUS KLEIN, Warsaw. With 10 colored tables. Berlin: Julius Springer. 1914.

This monograph, dedicated to Paul Ehrlich on his sixtieth birthday anniversary, is based on six cases of myeloblastic leukemia, which the author reports. With a special stain, he believes he has discovered a new type of cell, hitherto previously never described, which he terms the myelogonocyte, and regards as the parent cell of the bone marrow cells in the blood and in the hematopoietic organs. He discusses its significance under normal and pathologic conditions. He believes his observation and theory have an important bearing on the histogenesis of the blood and on the etiology of the myeloid diseases. The book will be of interest to special students in hematology.

A Reference Handbook of the Medical Sciences. By various writers. Third edition, completely revised and rewritten. Edited by THOMAS LATHROP STEDMAN, A.M., M.D. Complete in eight volumes. Volume III. New York: William Wood and Company. 1914.

The appearance of the third volume in the third edition of this well-known handbook marks the continued progress of an important medical work, "embracing the entire range of scientific and practical medicine and allied science." This volume, which embraces the subjects from chloroma to embryology, consists of 539 individual articles by 121 contributors. Among the more distinguished of the latter may be mentioned Dr. Hugh Cabot, the late Dr. John Green, Dr. John B. Huber, Dr. Charles S. Minot, Dr. Edward O. Otis, Dr. Charles J. White, and Dr. Charles F. Withington. The book is illustrated with 665 half-tone and wood engravings and numerous chromolithographs.

Tropical Medicine and Hygiene. By C. W. DANIELS, M.B. Cantab., F.R.C.P. Lond. In three parts, with colored and other illustrations. Part II. Diseases Due to the Metazoa. Second edition. New York: William Wood and Company. 1914.

The first volume of this second edition was reviewed in the issue of the JOURNAL for April 16 (Vol. clxx, p. 622). This second volume deals with the advances made in metazoan diseases during the past three years. There is an excellent chapter on "Snakes and Snake-Venoms," by A. Alcock, M.B., LL.D., F.R.S. The volume contains more illustrations and fewer pages than its predecessor in the first edition. There is a valuable index.

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ANNOUNCEMENT.

THE following men have accepted membership on the advisory board for the MASSACHUSETTS MEDICAL SOCIETY according to the terms of affiliation with the BOSTON MEDICAL AND SURGICAL JOURNAL: Dr. Lyman A. Jones of North Adams, Dr. Alfred Worcester of Waltham, Dr. Walter P. Bowers of Clinton and Dr. Homer Gage of Worcester.

CHARLES F. WITHINGTON, M.D.,
President Massachusetts Medical Society.

MEDICAL LEGISLATION. REORGANIZATION OF THE STATE BOARD OF INSANITY AND THE STATE BOARD OF HEALTH.

THE Massachusetts General Court adjourned on July 7, after one of the longest sessions in its history. During its closing week two important measures of medical legislation were enacted.

The bill for the reorganization of the State Board of Insanity, upon which we have made previous editorial comment, was passed on July 6th, and has already been signed by the Governor. It will go into effect on August 1. The bill, in general, provides that this board, hitherto composed of five unpaid members with a paid executive officer, be constituted by three paid officials, one to receive $5500, and the others $5000, all to give their entire time to the work of the board. Evidently the success of this reorganization will depend wholly upon the constitution of the board, one of whom must be an expert in insanity. If the proper persons are selected, with individual knowledge and interest in the problems which they will have to meet, and willing to give their entire time for the recompense offered, we believe such a board should prove highly efficient. It is to be hoped that the Governor will make these appointments with wisdom.

After considerable opposition and in decidedly amended form, the bill, an abstract of which is published in another column of this issue, for the reorganization of the Massachusetts State Board of Health was passed on July 7. The bill as originally drafted received, on the whole, the cordial support of the medical profession. Since its passage through the legislature it has so far been altered that one of its chief sponsors, Dr. M. J. Rosenau, professor of preventive medicine at the Harvard Medical School and a member of the State Board of Health, has withdrawn his approval, and it must, in general, be felt that the bill as amended is far less satisfactory than in the original draft. The chief objection to the modified form of the bill as it finally was passed, is that it does not give adequate power to the new offices which it creates. This, we believe, is a misfortune in the organization of any public board. The moral effect of a health board's opinions may be of considerable weight, but if it lacks the power to enforce action which it regards as just and necessary, public confidence in its efficiency must be shaken. It is to be hoped that, from a practical standpoint, the limitations placed upon the proposed board will prove to be largely technical and will not interfere greatly with its effectiveness. This the future must show. In the meantime the Governor has the extremely difficult task of selecting a commissioner, who will receive a salary of $7500, to head the new organization. It is not for a moment to be supposed that this will prove an easy task. It has been shown that politics cannot be excluded even from so important a board as that which guards the public health. The difficulties of reorganization are apparent. The salary is not large enough to be tempting to men of highest ability, and we see no reason why a spirit of self-sacrifice should induce anyone to accept the position. Here, again, the efficiency of the new plan must depend entirely upon the capacity of the men composing the board. If, as we trust may be the case, the

Governor is able to procure the services of a man of the highest standing in health work, we may confidently look forward to progress in matters of state health legislation even under the modified provisions of the bill. A poor appointment to this place will be a calamity.

At this time of transition to an untried plan, the services to the Commonwealth of the present board of health, under the leadership of Dr. H. P. Walcott and executive management of Dr. Mark W. Richardson, should not be forgotten. Under the former organization, whatever its defects may have been, Massachusetts has stood at the very forefront of advance in matters of public health. We believe, however, that the time has come for a certain change of policy, and we trust that the standard set by the board now being legislated out of existence may be reached by those who are about to assume this great responsibility.

SEMI-CENTENNIAL OF THE BOSTON CITY HOSPITAL.

THE fiftieth anniversary of the foundation of the Boston City Hospital was observed with appropriate exercises at that institution on Saturday, June 20. The addresses on that occasion, which are published in full in this issue of the JOURNAL, form a valuable contribution to the medical history of this community. The half-century in which has fallen the activity of the City Hospital has been a time of important progress in medical science, whose growth has been ably represented in its work. One of the most notable and creditable of the advances in which the hospital had a pioneer part was the early demonstration of the practical use and efficacy of von Behring's diphtheria antitoxin by Dr. John H. McCollom, now superintendent, then chief of the south department, of the hospital. This was a work of which the hospital and the Boston profession may well be proud.

The Boston City Hospital Alumni Association held its twenty-fifth annual meeting and dinner on the evening of the day of celebration. Nearly 100 members were present. Dr. Philip Coombs Knapp was toastmaster, and addresses were made by Mr. Samuel W. McCall, Dr. Josiah N. Hall, of Denver, Col., Dr. Henry C. Baldwin, of Boston, Dr. John G. Blake, of Boston, and Dr. Lemuel F. Woodward, of Worcester, Mass., the president-elect of the association. Dr. Baldwin's address is published in another column of this issue of the JOURNAL.

The Boston City Hospital is to be cordially congratulated and commended on the completion of its first fifty years of growth and activity, and has the best wishes of the JOURNAL and of the medical profession which it represents, for a future of equal distinction, progress and success.

MEDICAL NOTES.

BUBONIC PLAGUE AT NEW ORLEANS.—A third case of bubonic plague was discovered on July 7 at New Orleans, La., the patient having died on July 2. Though many thousand rats have already been killed, none has as yet been found infected with the disease.

A LEPER IN CLEVELAND.—A case of leprosy was discovered on July 6 at Cleveland, Ohio, the patient being a Sicilian laborer of 28.

HONORS FOR BRITISH PHYSICIANS.—Among the king's birthday honors, recently published in England, the order of knighthood was conferred on the following physicians:

"Dr. W. P. Herringham, Vice-Chancellor of the University of London and Physician to St. Bartholomew's Hospital, Dr. William Milligan, Aurist and Laryngologist to the Manchester Royal Infirmary, Dr. S. J. Sharkey, Consulting Physician to St. Thomas's Hospital and Medical Referee to the Treasury, Lieut.-Col. Leonard Rogers, C. I. E., M.D., I.M.S., Professor of Pathology at the Calcutta Medical College, Dr. J. E. Godfrey, of British Guiana, Dr. T. G. Roddick, of Montreal, Dr. T. P. Anderson Stuart, Dean of the Faculty of Medicine at Sydney University, and Dr. A. E. Thomson, of Cape Town."

LONDON DEATH-RATES IN MAY.—Statistics recently published show that the total death-rate of London for May, 1914, was only 12.9 per 1000 inhabitants living. Among the several districts and boroughs, the highest rate was 18.6 in Holborn, a crowded central slum, and the lowest was 9.2 in Wandsworth, a densely populated residential district on the south.

UNIVERSITY OF PITTSBURG MEDICAL SCHOOL.—It is announced that Mr. Richard Beatty Mellon, of Pittsburg, Pa., has endowed a fellowship in internal medicine at the University of Pittsburg Medical School. The Fellow will be a

resident of a Pittsburg Hospital. Dr. Ralph Edward Sheldon has been appointed professor of anatomy, and Dr. Davenport Hooker, assistant professor of histology and neurology.

Canadian Medical Association.—The opening session of the forty-seventh annual meeting of the Canadian Medical Association was held on July 7 at St. John, N. B. There were addresses by the president, Dr. Murray MacLaren, of that city, and by Dr. Thomas McCrae of Philadelphia.

Thyroid Implantation for Myxedema.—A press report from Paris states that on June 30 Dr. Veronoff reported before the Academy of Medicine a successful case of implantation of a baboon's thyroid into a child of 14 with acquired cretinism.

Fourth of July Casualties.—Statistics published in Chicago on July 5 indicate that the total reported casualties in the United States from the celebration of Independence Day this year are 13 deaths and 243 injuries. In 1913 there were 32 deaths and 1121 injuries; in 1899, 3 deaths and 1074 injuries. The largest number of injuries in any city this year was 170 in Philadelphia.

Two Vigorous Centenarians.—M. François Fertiault, the French poet, is said to have been born on June 25, 1814, in Burgundy. He is believed to be the oldest living man of letters.

The Reverend John Merrick, of York, Pa., is said to have been born in 1813. He graduated from Rutger's College in 1834, and is believed to be the oldest living college alumnus.

BOSTON AND NEW ENGLAND.

Cases of Infectious Diseases reported to the Boston Board of Health for the week ending July 7, 1914: Diphtheria, 45, of which 3 were non-residents; scarlatina, 42, of which 4 were non-residents; typhoid fever, 4; measles, 81; tuberculosis, 44, of which 1 was non-resident. The death-rate of the reported deaths for the week was 11.18.

Boston Mortality Statistics.—According to figures just issued by the health department of the city, the number of deaths from infectious diseases during the first 26 weeks of the year is less by 29 than the number during the corresponding period of last year. All the infectious diseases show a decrease in the number of deaths except typhoid, which shows an increase of 16 deaths, due to the epidemic in Jamaica Plain. The total deaths from infectious diseases this year have been 868. During the same period of last year the number was 897.

The number of cases for the two periods varies. Measles, whooping cough and tuberculosis all show a great decrease this year. Diphtheria cases, though, number 1317, as against 1124 last year, yet the deaths this year were fewer by 18. There were 2723 cases of scarlet fever this year, as compared with 1116 cases last year, yet the scarlet fever deaths this year were 23% less.

Deaths from causes over which the board of health has little or no control show an increase this year of 376. These include those from Bright's disease, cancer, heart disease, and violent causes.

The total deaths this year of infants under 1 year of age is 968, corresponding to a rate of 111 per 1000 births, as against 1060 of last year. The total deaths over 60 years of age numbered 2081 this year, against 1886 last year.

Hospital Bequest.—The will of the late Sarah Warner Clark, of Beverly, Mass., which was filed on July 6 for probate at Salem, Mass., contains a bequest of $5000 to the Beverly Hospital.

Medical Treatment of Boston Public School Children.—Statistics recently published show that, during 1913, the 35 Boston school nurses visited 27,412 homes and gave 10,287 talks on hygiene. Vision was corrected in 2203 cases, hearing in 154, tonsils and adenoids were removed from 267, and 23,250 children had their teeth treated. There were 555 pupils in 15 open-air classes.

Adams Nervine Asylum.—The recently published thirty-seventh annual report of the managers of the Adams Nervine Asylum records the work of that institution for the year ended May 1, 1914. During this period 240 patients were under treatment, of whom 194 were new admissions and 52 were free. Four nurses were graduated from the training-school. There is need of new buildings for the accommodation of chronic cases.

SEPTIC SORE THROAT IN WEST ROXBURY.—Several cases of septic sore throat have recently been reported in West Roxbury, Mass. It is believed that the infection has been traced to a milk supply in Dedham, Mass., which in consequence has been excluded by the board of health from the Boston market.

REGISTRATION IN DENTISTRY.—Of 197 candidates who took the recent examinations before the Massachusetts State Board of Registration in Dentistry, 116 passed and 81 failed.

FIRE IN HYDE PARK HOSPITAL.—A small fire in the basement of the Hyde Park (Mass.) General Hospital on July 4 necessitated the removal of its patient to a house across the street.

CASE OF SMALLPOX IN WORCESTER.—A probable case of smallpox was discovered in Worcester, Mass., on July 4 in a man of 42.

NEW YORK.

BABIES' WEEK.—A special feature of "Babies' Week" in New York was the awarding of prizes for the best babies. This took place on June 25, and was made the occasion of a public demonstration. A procession of some 75 automobiles, including 12 of the large Fifth Avenue 'busses, preceded by a band of music in a sight-seeing car, and carrying 1,000 "competitive" babies and their mothers, passed up Fifth Avenue from Washington Square to the plaza at the entrance of Central Park, where the prizes were awarded by Mayor Mitchell. Johanna Wiggers, the two-year-old daughter of a baker, declared to be perfect in all the requisites demanded, received the first prize for all boroughs, as well as the Manhattan prize for the borough of her residence, and Health Commissioner Goldwater held the child in his arms while the mayor presented the token and the prize money to the proud mother.

REINSTATEMENT OF DR. MORTON.—Dr. William J. Morton, who with Julian Hawthorne, was convicted in a mining scheme, and thereby debarred from practicing medicine in the state, has been reinstated in his profession by the board of regents of the University of the State of New York. In a statement issued by the board it is mentioned that its action was based particularly upon a letter of the president of the United States, a letter of the judge who presided at his trial, a letter of the prosecuting attorney, and upon the attitude of medical societies and prominent physicians and surgeons of high standing. The action was taken under the authorization of a special act of the legislature passed at the last session.

WORK OF CHILDREN'S COURTS.—A large part of the report of the justices of the Court of Special Sessions for the year 1913, just made public, is devoted to the Children's Courts, and in it is included a report by Dr. M. G. Schlapp, professor of neuro-pathology in the New York Post-Graduate Medical School, of the examinations of some 3,000 apparently defective children. The examinations were made at the Post-Graduate Clinic by Dr. Schlapp, assisted by a considerable staff of experts, and he states that the work has grown so rapidly that the present force is not able to cope with it, so that much of the social and research work for which there is great opportunity is of necessity not even attempted. The purpose, he says, is to register every mental defective in New York, the adult as well as the child, and to this end the clinic has become a sort of clearing-house for the city.

NEW YORK POLYCLINIC.—With the installation, on July 1, of a new superintendent, Dr. James U. Morris, a new plan of management went into effect at the New York Polyclinic Medical School and Hospital. While the board of trustees and the faculty will remain the same, a board of managers has been newly organized which will have an important part in the direction of the institution. This board consists of Dr. John A. Wyeth, president of the faculty and surgeon-in-chief of the hospital, and the following members of the teaching staff: Drs. John A. Bodine, Charles N. Chetwood, D. Bryson Delavan, William Van Valsah Hayes, W. H. Katzenbach, and A. R. Robinson.

Dr. Morris, the new superintendent, has for the last eight years been assistant manager of the Rockefeller Institute.

RETIREMENT OF DR. FISHER.—Dr. C. Irving Fisher, for the past twenty-two years the efficient superintendent of the Presbyterian Hospital, retired from that position on July 1, and is succeeded by Dr. Charles H. Young, who for some time has been assistant superintendent. Since 1872, two years after his graduation from the Harvard Medical School, Dr. Fisher has been actively engaged in hospital work. For

three years he served as health officer of the port of Boston, and during the eight years following was superintendent of the Massachusetts State Infirmary.

Boylan Act.—The Boylan act, to restrict the sale of habit-forming drugs, went into effect on July 1. In accordance with its provisions all prescriptions for such drugs must be written upon specially prepared order blanks, serially numbered and duplicated, which are furnished by the Health Department. The name and address of the person for whom the prescription is issued must also be recorded. Not only must the prescribing physician make a physical examination of his patient before giving the prescription, but the druggist is required to verify the prescription, by telephone or otherwise. No prescription can be filled which has been made out more than ten days before the date of presentation. Each prescription becomes the property of the druggist to whom it is presented, and he is forbidden to give the patient a copy of it. The filled prescriptions must be kept for five years, and must be open at all times for inspection by the proper authority.

Case of Smallpox.—On July 5 a case of smallpox was discovered aboard the steamship *Batavia* on her arrival in this port from Hamburg, Germany. The patient was removed to Swinburne Island for treatment, and 27 contacts were isolated on Hoffman Island for observation.

Extermination of Rats.—With a view to the prevention of the possible admission of bubonic plague to New York by means of rats from vessels coming from ports where the disease exists, the health department is carrying on a work of extermination among the rats under the piers and along the water front. This is under the charge of deputy commissioner Haven Emerson, and thus far the laboratory reports show that no infected specimens have been discovered.

Lowest Death-Rate.—In the week ending July 4 the death-rate in the city reached the lowest ever recorded, 10.80; and this is also worthy of note as the first time that the rate has ever fallen below 11. It is the more extraordinary that this low record should have been made at a season of the year when in former times the death-rate was often extremely high, and this happy circumstance is no doubt to be attributed, in some measure at least, to the unusually cool weather which prevailed. Even with the figures of the past few years, in which the rate has been progressively decreasing it contrasts very favorably. Thus for the corresponding week of 1913 the death-rate was 12.54; for that of 1910, 15.04; for that of 1906, 19.20, and for that of 1905, 21.42. The lowest record previously was that of June, the week ending June 20, the present year, when the rate was 11.42.

Massachusetts Medical Society

PROCEEDINGS OF THE SOCIETY.

Annual Meeting.

First Day, June 9, 1914.

Clinics and demonstrations were held during the morning at the principal hospitals in Boston.

The annual meeting of the supervisors was held in the foyer of the Copley-Plaza Hotel, Boston, at 11.30 o'clock.

The annual meeting of the council was held in the foyer, at 12 o'clock noon.

Meetings of the sections were held in the Copley-Plaza Hotel, in the afternoon. The sections were officered and papers presented according to the following program:

MEETING OF THE SECTION OF MEDICINE.

Foyer, Copley-Plaza Hotel.
2.30 o'clock.

Officers of the Section of Medicine:
Dr. Lyman Asa Jones, North Adams, *Chairman.*
Dr. Gerald Blake, Boston, *Secretary.*

Symposium on Industrial Diseases.

1. The Relation of General Medicine to Industrial Diseases.—Dr. David L. Edsall, Boston.
2. Industrial Diseases as an Insurance Problem.—Mr. Frederick L. Hoffman, Newark, N. J.
3. Industrial Diseases as a Public Health Problem.—Dr. Harry Linenthal, Boston.

Discussion opened by Dr. Elliott Washburn, Rutland, and Dr. C. E. Simpson, Lowell.

Attendance, 120.

MEETING OF THE SECTION OF SURGERY.

Ballroom, Copley-Plaza Hotel.
2.30 o'clock.

Officers of the Section of Surgery:
Dr. Halbert Q. Stetson, Greenfield, Chairman.
Dr. Edward P. Richardson, Boston, *Secretary.*

Symposium on Cancer of Certain Pelvic Organs.

1. Cancer of the Uterus. Dr. Farrar Cobb, Boston.

Discussion: Dr. William P. Graves, Dr. Ernest B. Young, Dr. Stephen Rushmore, Boston.

2. Cancer of the Rectum.—Dr. Daniel Fiske Jones, Boston.

Discussion: Dr. John T. Bottomley, Boston; Dr. Ralph W. Jackson, Fall River.

3. Cancer of the Bladder.—Dr. Arthur L. Chute, Boston.

4. Cancer of the Prostate.—Dr. Horace Binney, Boston.

Discussion of papers of Drs. Chute and Binney: Dr. Paul Thorndike, Dr. Richard F. O'Neil, Dr. John H. Cunningham, Jr., Boston.

5. The Use of Radium in Cancer and Allied Conditions at the Huntington Hospital, Boston. Illustrative Cases.—Dr. Thomas Ordway, West Roxbury.

Attendance, 150.

MEETING OF THE SECTION OF TUBERCULOSIS.

State Dining Room, Copley-Plaza Hotel.

2.30 o'clock.

Officers of the Section of Tuberculosis:

Dr. Albert C. Getchell, Worcester, *Chairman.*

Dr. John B. Hawes, 2d, Boston, *Secretary.*

Symposium on the Diagnosis and Treatment of Pulmonary Tuberculosis.

1. Treatment of Pulmonary Hemorrhage.—Dr. Newell B. Burns, North Reading State Sanatorium, North Wilmington, Massachusetts.

2. The Present Status of Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis.—

A. Dr. Cleaveland Floyd, Boston.

B. Dr. James B. Lyon, Rutland State Sanatorium, Rutland, Massachusetts.

C. Dr. H. D. Chadwick, Westfield State Sanatorium, Westfield, Massachusetts.

D. Dr. F. T. Lord, Boston.

3. The X-ray as an Aid to the Diagnosis of Pulmonary Tuberculosis.—Papers presented by:

A. Dr. P. Challis Bartlett, Boston, late superintendent of the Rutland State Sanatorium.

B. Dr. H. W. Van Allen, Springfield.

C. Dr. Philip H. Cook, Worcester.

4. Diagnosis and Treatment of Tuberculosis in Childhood.—Papers presented by:

A. Dr. Walter C. Bailey, Boston.

B. Dr. Walter J. Dodd, Boston.

C. Dr. Richard M. Smith, Boston.

General Discussion.

Attendance, 150.

Officers of the sections for the ensuing year were elected by the sections as follows:

Section of Surgery: Chairman, J. B. Blake, Boston. Secretary, E. P. Richardson, Boston.

Section of Medicine: Chairman, E. P. Joslin, Boston. Secretary, W. W. Palmer, Boston .

Section of Tuberculosis: Chairman A. C. Getchell, Worcester. Secretary, J. B. Hawes, 2d, Boston.

The Shattuck Lecture was delivered in the foyer of the Copley-Plaza Hotel, in the evening, by Dr. Herbert C. Moffitt, of San Francisco, California, on "The Functions of the Spleen with Particular Reference to Hemolysis and the Hemolytic Anemias."

Following the lecture, there was a popular concert in the ballroom, and refreshments were served, the attendance being about 600.

Second Day, June 10, 1914.

The Society met at the Copley-Plaza Hotel for the exercises of the one hundred and thirty-third anniversary. The President Dr. W. P. Bowers, was in the chair, and about 150 Fellows were present during the morning.

The minutes of the last meeting were read and accepted.

The secretary announced that during the past year the Society had lost 39 Fellows by death, 28 by resignation, and 37 by deprivation of the privileges of Fellowship, making a total loss of 104. The Society had gained 177 members as follows: Restoration by council, 11; readmission by censors, 1; new Fellows, 165; making the total membership on that day, 3504.

ADMISSIONS REPORTED FROM JUNE 11, 1913, TO JUNE 10, 1914.

Year of Admission.	Name.	Residence.	Medical College.
1913	Allen, Arnold Noble,	Roslindale	12
1913	Allen, George Edgar,	Boston	14
1914	Ayres, Harold Winslow,	West Somerville	11
1913	Bagg, Edward Parsons, Jr.,	Holyoke	11
1914	Baker, Donald Vinton,	Boston	11
1914	Baker, Harold Woods,	Boston	11
1913	Barone, Joseph,	Boston	12
1913	Beale, Samuel Marsden, Jr.,	Sandwich	20
1914	Behrman, Roland Augustus,	Mattapan	12
1914	Bell, Clarence John,	Wellfleet	7
1913	Bigelow, James Bernard,	Holyoke	12
1914	Bisbee, Ernest Sydney,	Boston	19
1913	Bouvier, Charles William,	Holyoke	22
1914	Brady, Cecil Norbert,	Lowell	12
1913	Breslin, John George,	East Boston	11
1914	Bresnihan, Frank Nesdel,	Lawrence	12
1914	Brown, Ralph Neally,	Malden	12
1914	Browne, William Edward,	Boston	12
1913	Brunelle, Arthur Lord,	New Bedford	12
1913	Capeles, Thomas Francis,	Haverhill	12
1914	Carroll, Michael James,	Lenox	4
1914	Carvill, Alphonso Holland,	Somerville	11
1913	Castleman, Philip,	Roxbury	3
1914	Caswell, Bertram Horace,	Somerville	12
1913	Chace, Fenner Albert,	Fall River	11
1914	Cleary, Robert Emmett,	Holyoke	12
1914	Coburn, Harry Ray,	Tewksbury	12
1914	Cochran, Robert Carlyle,	Boston	11
1914	Coppinger, Sarah Elizabeth,	Needham	12
1914	Courtney, Thomas Joseph,	Waltham	12
1913	Cox, Stanley Cullen,	Holyoke	13
1913	Croke, Louis Ward,	Dorchester	12
1913	Cunningham, Allan Rowe,	Boston	11
1913	Cushing, Harvey (Williams),	Roxbury	11
1914	Dawson, Roger Paul,	Boston	11
1914	Deacy, John Joseph,	Lowell	12
1914	Deering, Charles Fuller,	Danvers	5
1914	Dervin, Laurence James,	Somerville	28
1913	DeWolf, Charles Wentworth,	Tewksbury	12
1914	Dodd, Walter James,	Boston	22
1913	Dunham, Harry Bartlett,	Pittsfield	14
1913	Dunn, William Ambrose,	Boston	29
1913	Eisner, Maurice Solomon,	Pittsfield	7
1914	Eliot, Henry Whitney,	Belchertown	22
1914	Feeley, Walter Clarence,	Cambridge	11
1913	Felch, George Alfred,	Lowell	12
1913	Finnegan, Philip Joseph,	Salem	11
1913	Flaherty, Edward James,	Tewksbury	22
1914	Foss, George Herbert,	Springfield	14
1914	Friedman, Benjamin,	Boston	12
1914	Gilfillan, Donald Robert,	Worcester	5
1914	Greeley, Hugh Payne,	Boston	11
1914	Grover, Joseph Isaac,	Mattapan	11
1913	Guthrie, Andrew Doherty,	Roxbury	12
1914	Hamblet, Mary Lucia,	Wallum Lake, R. I.	16
1914	Hanifin, John Francis,	Holyoke	7
1914	Higgins, George Vincent,	Randolph	12
1914	Hill, Lewis Webb,	Boston	11
1914	Hilton, John Joseph Herron,	Lawrence	8
1913	Hinton, William Augustus,	Boston	11
1913	Holmes, Daniel Henry,	Middleboro	5
1914	Holmes, Louise Dodson,	Athol	30
1914	Hornor, Albert Aurelius,	Boston	11
1914	Horsman, Hiram Lionel,	Worcester	5
1914	Houghton, Neidhard Hahnemann,	Boston	31
1913	Hurley, Patrick Eugene,	Holyoke	7
1914	Irwin, Grattan George,	Holyoke	22

Year of Admission.	Name.	Residence.	Medical College.
1913	Jakmauh, Paul John,	South Boston	12
1913	Johnson, Alfred Emil, Jr.,	New York City	12
1914	Johnson, Herbert Lewis,	Hadley	5
1914	Judd, Ernest Hart,	Springfield	12
1914	Kaplovitch, Henry,	Boston	12
1913	Keany, Francis Joseph,	Boston	11
1914	Kelley, Lawrence Kendall,	Peabody	12
1914	Kelley, Robert Edward Stack,	Mattapan	7
1914	Kenworthy, Marion Edwena,	Gardner	12
1913	Kilburn, Ira Nelson,	Holyoke	14
1914	Killelea, Edward Vincent,	Fitchburg	8
1914	Kinne, George Lyman,	Holyoke	32
1914	Kline, George Milton,	Hathorne	13
1914	Lally, William James,	Pittsfield	4
1913	LaRochelle, Fred Désiré,	Springfield	20
1913	Lewandowski, Julia Mary,	Holyoke	33
1913	Lemay, Alfred Mederie,	Lowell	12
1914	Levek, Joseph Arthur,	Lawrence	12
1914	Lindsey, John Hathaway,	Fall River	19
1913	Lyle, Eveline Burton,	Roxbury	12
1913	Lynch, Henry Edmund,	Holyoke	12
1914	Lyons, George Aloysius,	Lynn	11
1913	Macauley, Joseph Arthur,	Dorchester	12
1913	MacAusland, Andrew Roy,	Boston	11
1913	Macdonald, John Bernard,	Hathorne	5
1913	Mahar, Harold Robert Collins,	Orange	12
1913	Maroney, Patrick Joseph,	Westfield	12
1913	Martin, John Foley,	Boston	12
1914	McGann, Pierce Powers,	Boston	12
1914	McGinity, Joseph Taney,	Springfield	22
1914	McIntire, Frederic Joseph,	Lynn	12
1913	McMahon, Francis Joseph,	Brookline	12
1914	McRobbie, Alexander,	Lynn	34
1913	Metcalf, Julia Tracy,	Brookline	12
1913	Millett, Frank Albertus,	Greenfield	12
1913	Moncrieff, William Armitage,	New Bedford	12
1913	Moore, Howard,	Newton	10
1913	Morrison, William Reid,	East Boston	11
1913	Mulcahy, William Edward,	Springfield	25
1914	Murphy, Edward Frederick,	Roxbury	24
1913	Mysel, Philip,	Dorchester	12
1914	Ober, Frank Roberts,	Boston	12
1914	Oeser, Paul Richard,	Lawrence	10
1913	O'Hare, James Patrick,	Dorchester	11
1914	O'Reilly, William Francis,	Lynn	11
1913	Overlander, Charles Leonard,	Boston	11
1914	Parker, Frederick Daniel,	Needham	24
1914	Percy, Karlton Goodsell,	Boston	11
1913	Peter, Alphonse Joseph,	Newburyport	12
1914	Pettingill, Olin Sewall,	Rutland	5
1913	Phaneuf, Louis Eusebe,	South Boston	12
1914	Pierson, Philip Hale,	Boston	11
1913	Pratt, Ezekiel,	Boston	11
1914	Rabinovitz, Bernard,	Springfield	12
1913	Regan, James Joseph,	South Boston	12
1913	Richardson, Oscar,	Boston	11
1914	Robinson, Henry Ashton,	Marlborough	11
1914	Rogers, Orville Forrest, Jr.,	Dorchester	11
1914	Rothblatt, Harry Lewis,	Boston	8
1913	Ruel, Joseph Adjutor,	Haverhill	12
1913	Ryan, William Patrick,	Holyoke	22
1913	Saunders, Edmund Louis,	Boston	22
1914	Seavey, Hollis Lester,	Cambridge	12
1913	Sewall, Edgar Floyd,	Somerville	12
1914	Shapira, Victor Isaiah,	Dorchester	8
1913	Shaw, Walter Augustus,	Springfield	8
1913	Sheridan, Philip Edward Anthony,	S. Boston	12
1914	Shields, Ellwood Emlen,	Gloucester	19
1914	Shulman, David Hermann,	Roxbury	35
1914	Simmons, Ralph Hayward,	Fall River	12
1913	Sisson, Mitchell,	East Boston	11
1913	Slattery, John Richard,	Boston	11
1914	Smith, Conrad,	Boston	10
1914	Smith, William Benjamin Tyng,	Bondsville (Palmer)	7
1913	Stafford, Frank Dalmon,	North Adams	22
1914	Sternberg, Joseph Edward,	Roxbury	10
1914	Stevenson, Effie Allyne,	North Grafton	10
1913	Stone, Charles Edwin,	Lynn	22
1914	Stone, Henry Edward,	Dorchester	12
1914	Streeter, Edward Clark,	Boston	36
1913	Strom, Marie Charlotte,	Worcester	12
1913	Strong, Richard Pearson,	Boston	6
1914	Sullivan, Edward Coppinger (readmitted)	Springfield	11
1913	Sullivan, Joseph Cornelius,	Springfield	4
1913	Sullivan, Patrick Joseph,	Dalton	12
1913	Swanson, Axel Fridolf,	Cummington	15
1913	Tennis, Matthew Nicholas,	Boston	12
1913	Tomkies, James Scott,	Boston	11
1914	Torney, George Henry,	Brookline	19
1914	Turetzky, William Leo,	Dorchester	12
1914	Uniac, Thomas Vincent,	Lawrence	14
1914	Varney, Elton Murray,	Peabody	5
1914	Wagner, Emma Julit,	West Somerville	12
1914	Walker, Isaac Chandler,	Boston	6
1913	Walsh, Edmund Francis,	Boston	11
1913	White, Robert Marshall,	Dorchester	12
1914	Willoughby, Earle Carlisle,	Tewksbury	12
1914	Worthen, Clarence Field,	Weston	11
1913	Zimmerman, Henry,	Springfield	32

Total, 165 + 1 = 166.

3 George Washington University, Department of Medicine.
4 University of Georgetown, Medical Department.
5 Medical School of Maine.
6 Medical Department of the Johns Hopkins University.
7 College of Physicians and Surgeons, Baltimore, Md.
8 Baltimore Medical College.
10 Boston University School of Medicine.
11 Harvard University Medical School.
12 Tufts College Medical School.
13 University of Michigan, Department of Medicine and Surgery.
14 Dartmouth Medical School.
15 Albany Medical College.
16 Cornell University Medical College.
19 Department of Medicine, University of Pennsylvania.
20 Jefferson Medical College.
22 University of Vermont, Medical Department.
24 McGill University, Medical Department.
25 Faculty of Medicine of Queen's University.
28 Munich University, Medical Department.
29 University and Bellevue Hospital Medical College.
30 Women's Medical College of Cincinnati (previous to 1903).
31 New York Homeopathic Medical College and Flower Hospital.
32 University of Maryland, School of Medicine.
33 Woman's Medical College of Pennsylvania.
34 Maréchal College, Aberdeen, Scotland.
35 Medical College of Virginia.
36 Northwestern University Medical School.

Deaths Reported from June 11, 1913, to June 10, 1914.

Admitted.	Name.	Place of Death.	Date of Death.	Age.
1905	Abbott, Harry Daniel	Danvers	July 16, 1913	34
1882	Banfield, Francis Loring	Worcester	June 25, 1913	69
1903	Barnes, Allan Foster	Boston	Apr. 12, 1914	38
1861	Bass, William	Lowell	Feb. 28, 1914	82
1874	Brockway, Charles Henry	Worcester	Apr. 17, 1914	62
1906	Campbell, Matthew Philip	Provincetown	June 18, 1913	37
1883	Collins, Edgar Clarence	Springfield	Nov. 14, 1913	55
1906	Cornwall, Anna Marlin	Brookline	Mar 1, 1914	39

Admitted.	Name.	Place of Death.	Date of Death.	Age.
1851	Dwelly, Jerome	Fall River	Dec. 4, 1913	90
1868	Fitz, Reginald Heber	Brookline	Sept. 30, 1913	70
1892	Fitz-Hugh, John Alexander	Amesbury	Mar. 21, 1914	59
1894	Fitzsimmons, Philip Mansfield	Cambridge	Apr. 4, 1914	50
1886	Flagg, Payson Jonathan	Mittineague	Mar. 22, 1914	55
1865	Frisbie, Jesse Frank	Newton	Dec. 17, 1913	75
1880	Fuller, George Ephraim	Monson	Dec. 23, 1913	74
1870	Greenleaf, Richard Cranch	Lawrence, L. I.	Dec. 3, 1913	68
1880	Harrington, Frank Bishop	Brookline	June 8, 1914	59
1866	Harvey, Edwin Bayard	Westborough	Sept. 28, 1913	79
1881	Johnson, John Waldo	Boston	Mar. 24, 1914	57
1872	Jones, George Warren	Boston	June 5, 1913	64
1868	Kemp, Edwin Augustine	Providence, R. I.	June 12, 1913	79
1905	Longfellow, Henry Nathan	Georgetown	Oct. 31, 1913	44
1864	Mackie, William Basilio	Brookline	Aug. 8, 1913	79
1870	Marion, Horace Eugene	Boston	Feb. 8, 1914	70
1872	Mason, Amos Lawrence	Albany, N. Y.	June 5, 1914	72
1897	McCarthy, William Henry	Brockton	Aug. 22, 1913	46
1895	McLennan, Roderick	Quincy	July 23, 1913	53
1872	Morrill, Charles Plummer	North Andover	June 27, 1913	73
1885	Mossman, Alvaro E	Westminster	Dec. 20, 1913	56
1884	Norwood, Ephraim Wood	Spencer	Sept. 11, 1913	67
1912	Porter, Charles Hunt	Taunton	Apr. 16, 1914	42
1869	Putnam, Charles Pickering	Boston	Apr. 22, 1914	69
1873	Roteh, Thomas Morgan	Boston	Mar. 9, 1914	65
1909	Sanders, Orren Burnham	Quincy	Sept. 25, 1913	57
1898	Stodder, Charles William	Marshfield Hills	Dec. 12, 1913	48
1877	Swift, John Baker	Waverley	July 29, 1913	59
1911	Van Riempst, Theodore Schaepkens	Saranac, N. Y.	Aug. 21, 1913	39
1875	Ward, Rollin Clayton	St. Johnsbury, Vt.	Dec. 9, 1913	75
1888	Welch, John Frederick	Quincy	Feb. 23, 1914	59

Total, 39.

The following resolutions on immigration, previously presented to the council by the Committee on State and National Legislation, were read by the secretary, and were passed unanimously.

RESOLUTIONS ON IMMIGRATION.

Adopted by the Massachusetts Medical Society, at its Annual Meeting, June 10, 1914.

Whereas, the Massachusetts Medical Society believes that it is of the greatest importance that all immigrants coming into the United States should be sound both in body and mind, and that the exclusion of the mentally defective is of great importance, as their admission soon puts a heavy burden upon the states for their immediate maintenance; and, more important still, their admission can but produce most direful consequences of their being allowed to marry and to propagate in our midst and so deteriorate the mental health of the nation;

The Massachusetts Medical Society would call the attention of their Senators and Representatives, and of others in authority, to the fact that, while the unsound both physically and mentally are excluded by law, nevertheless, at present, there is not adequate provision by the employment of trained experts in mental disease to properly exclude mildly insane and mentally defective immigrants, nor are there effective measures in force for the return of insane aliens who come into our institutions soon after landing; Therefore,

Resolved, That the Massachusetts Medical Society urges that Congress provide measures for the proper mental examination of immigrants by physicians in the United States Public Health Service well trained in the diagnosis of insanity and mental defects, providing adequate facilities for the detention and careful examination of all suspects at the large ports of entry; and to further provide for the detail of United States medical officers on vessels bringing immigrants to this country, in order the more easily to gain a knowledge of those afflicted with either mental or physical disease; and further to provide assistance to the states on whom falls the burden of caring for many of these defectives at present; and finally to provide for the return to their own homes in the most humane and safe manner possible, of all of those whom it shall be found desirable to exclude, and that in proper time new treaties shall be drawn with foreign nations sending us immigrants, whereby the exclusion shall take place in the home ports.

The secretary is hereby directed to send properly attested copies of these resolutions to the President and Vice-President of the United States, to the Secretary of Labor, the Surgeon-General of the United States, the Commissioner General of Immigration, the chairman of the Senate and House Committee on Immigration, and to each member of the Massachusetts State Delegation in Congress.

The president introduced Dr. Samuel M. Garlick, of Bridgeport, Connecticut, as a delegate from the Connecticut State Medical Society.

On motion by Dr. A. K. Stone, it was

Voted, That the thanks of the Society be given to the Committee of Arrangements for their excellent plans for the annual meeting.

Papers were read as follows:

Symposium on Syphilis, with Especial Reference to Its Importance in Massachusetts.

1. Syphilis in Massachusetts.—Dr. Abner Post, Boston.

2. Syphilis of the Eye in Hereditary Syphilis.—Dr. George S. Derby, Boston.

3. Syphilis of the Heart and Blood Vessels.—Dr. George G. Sears, Boston.

4. Primary Syphilis of the Tonsil.—Dr. C. Morton Smith, Boston.

5. Syphilis of the Lung.—Dr. E. A. Burnham, Boston.

6. Syphilis of the Internal Organs.—Dr. David L. Edsall, Boston.

7. What the City Should Do to Control Syphilis.—Dr. Thomas B. Shea, Boston.

Discussion by Dr. F. T. Lord, Boston, and Dr. E. O. Otis, Boston.

The oration was delivered at 12 o'clock noon, by Dr H. D. Arnold, of Boston. Subject, "The Education of the Public in Medical Matters."

On motion by Dr. L. A. Jones, it was

Voted, That the thanks of the Society be tendered to Dr. Arnold for his able, instructive, and stimulating address.

In the afternoon there was a combined meeting of the sections of medicine, surgery, and tuberculosis, in the Out-Patient Department of the Massachusetts General Hospital, the program consisting of a symposium on tuberculous cervical adenitis, as follows:

COMBINED MEETING.

1. The Relation of Tonsils, Adenoids, and Other Throat Conditions to Tuberculous Cervical Adenitis.—Dr. George L. Richards, Fall River.
2. The Sanatorium and Hygienic Treatment of Tuberculous Adenitis.—Dr. H. D. Chadwick, Superintendent of the Westfield State Sanatorium, Westfield, Massachusetts.
3. The Surgical Treatment of Tuberculous Cervical Adenitis.—Dr. Charles A. Porter, Boston.
4. The Treatment of Tuberculous Cervical Adenitis in Out-patient Departments, Dispensaries, and Private Practice, by Conservative Surgery, Hygiene, and Tuberculin.—Dr. John B. Hawes, 2d, Boston.

Discussion opened by Dr. A. N. Broughton, Jamaica Plain; George H. Wright, D.M.D., Brookline; Dr. D. Crosby Greene, Boston; Dr. James S. Stone, Boston.

The annual dinner was served in the ballroom of the Copley-Plaza Hotel, in the evening, to about 700 members and guests. The president spoke of the work of the Society during the past year, and introduced the following speakers: His Excellency, Governor David I. Walsh, The Right Reverend William Lawrence, Bishop of the Eastern Diocese of Massachusetts, Dr. Frederick C. Shattuck, Dr. John W. Kerr, Assistant Surgeon General of the United States Public Health Service, Dr. Edward Martin, of Philadelphia, and the newly-elected president of the Society, Dr. Charles F. Withington, of Boston.

Adjourned at 11.15 p. m.

WALTER L. BURRAGE, *Secretary.*

OFFICERS OF THE MASSACHUSETTS MEDICAL SOCIETY

Chosen June 9, 1914.

Charles F. Withington, Boston, President.
Samuel B. Woodward, Worcester, Vice-President.
Walter L. Burrage, Boston, Secretary.
Edward M. Buckingham, Boston, Treasurer.
Edwin H. Brigham, Brookline, Librarian.

STANDING COMMITTEES.

On Arrangements.—Beth Vincent, W. W. Howell, J. D. Barney, E. L. Young, Jr., J. H. Young, J. L. Huntington.

On Publications and Scientific Papers.—G. B. Shattuck, E. W. Taylor, R. B. Osgood, J. S. Stone, F. T. Lord.

On Membership and Finance.—C. M. Green, A. Coolidge, Jr., Samuel Crowell, F. W. Taylor, Alfred Worcester.

On Ethics and Discipline.—J. A. Gage, J. W. Bartol, Henry Jackson, G. deN. Hough, S. B. Woodward.

On Medical Education and Medical Diplomas. H. C. Ernst, C. F. Painter, H. W. Newhall, J. F. Burnham, C. Frothingham, Jr.

On State and National Legislation.—C. F. Withington, F. G. Wheatley, G. W. Gay, A. K. Stone.

On Public Health.—M. W. Richardson, M. J. Rosenau, W. I. Clark, Annie L. Hamilton, E. H. Bigelow.

PRESIDENTS OF DISTRICT SOCIETIES.

Vice-Presidents Ex Officiis.

(Arranged according to seniority of membership in the Massachusetts Medical Society.)

Godfrey Ryder, Malden ..... Middlesex South
C. E. Lovell, Whitman ..... Plymouth
T. C. McGannon, Lowell ..... Middlesex North
J. F. O'Shea, Lynn ..... Essex South
G. H. Francis, Brookline ..... Norfolk
I. J. Clarke, Haverhill ..... Essex North
H. D. Arnold, Boston ..... Suffolk
F. H. Clapp, North Grafton ..... Worcester
R. W. Jackson, Fall River ..... Bristol South
H. W. Page, Baldwinsville ..... Worcester North
C. S. Adams, Wollaston ..... Norfolk South
R. D. Dean, Taunton ..... Bristol North
F. C. Downing, Lanesboro ..... Berkshire
E. W. Brown, Northampton ..... Hampshire
C. G. Allen, Winchester ..... Middlesex East
W. D. Kinney, Osterville ..... Barnstable
J. E. Urquhart, Ashfield ..... Franklin
A. L. Cooley, Chicopee Falls ..... Hampden

COUNCILORS, 1914-1915.

NOTE.—The initials M.N.C. following the name of a councilor indicate that he is a member of the Nominating Committee. V.P. indicates that the member is a councilor by virtue of his office of president of a district society, and so vice-president of the general society. C. indicates that he is chairman of a Standing Committee.

BARNSTABLE,
E. E. Hawes, M.N.C., Hyannis.
W. D. Kinney, V-P., Osterville.
C. W. Milliken, Barnstable.

BERKSHIRE,
J. F. A. Adams, 114 Wendell Ave., Pittsfield.
F. C. Downing, V-P., Lanesboro.
J. J. Hassett, Main St., Lee.

L. A. Jones, M.N.C., 141 Church St., North Adams.
J. H. Riley, 103 Main St., North Adams.

BRISTOL NORTH,
Sumner Coolidge, Lakeville St. San., Middleborough.
A. R. Crandell, 48 Church Green, Taunton.
R. D. Dean, V-P., 152 High St., Taunton.
F. A. Hubbard, M.N.C., 157 High St., Taunton.

BRISTOL SOUTH,
E. F. Cody, 105 South 6th St., New Bedford.
C. F. Connor, 11 North Orchard St., New Bedford.
W. A. Dolan, 546 South Main St., Fall River.
J. H. Gifford, M.N.C., 320 Rock St., Fall River.
R. W. Jackson, V-P., 251 Cherry St., Fall River.
A. H. Mandell, 25 Sycamore St., New Bedford.
H. G. Wilbur, 292 North Main St., Fall River.

ESSEX NORTH,
R. V. Baketel, 7 Hampshire St., Methuen.
J. E. Bryant, 50 Merrimack St., Haverhill.
I. J. Clarke, V-P., 112 Emerson St., Haverhill.
Hugh Donahue, 21 White St., Haverhill.
G. E. Kurth, 8C E. Haverhill St., Lawrence.
F. B. Pierce, 132 Main St., Haverhill.
F. W. Snow, 24 Essex St., Newburyport.
F. E. Sweetsir, M.N.C., Merrimac.
E. Tigh, 134 High St., Newburyport.

ESSEX SOUTH,
R. E. Bicknell, 148 Burrill St., Swampscott.
H. C. Boutelle, 14 Putnam St., Danvers.
N. P. Breed, 9 Washington Sq., Lynn.
J. F. Donaldson, 32 Lynde St., Lynn.
J. J. Egan, 52 Pleasant St., Gloucester.
H. K. Foster, 2 Park St., Peabody.
Butler Metzger, 153 Lewis St., Lynn.
P. P. Moore, M.N.C., 58 Middle St., Gloucester.

J. F. O'Shea, V-P., 31 Broad St., Lynn.
W. G. Phippen, 88 Washington Sq., Salem.
H. E. Sears, 25 Broadway, Beverly.

FRANKLIN,
G. P. Twitchell, M.N.C., 171-2 Federal St., Greenfield.
J. E. Urquhart, V-P., Ashfield.
N. P. Wood, Main St., Northfield.

HAMPDEN,
T. S. Bacon, 67 Maple St., Springfield.
R. S. Benner, 25 Maple St., Springfield.
J. M. Birnie, 6 Chestnut St., Springfield.
J. L. Bliss, 231 High St., Holyoke.
A. L. Cooley, V-P., 130 Broadway, Chicopee Falls.
E. L. Davis, 142 State St., Springfield.
G. D. Henderson, 276 Maple St., Holyoke.
M. B. Hodskins, Monson State Hospital, Palmer.
S. A. Mahoney, M.N.C., 630 Dwight St., Holyoke.
L. E. Mannix, 112 Main St., Chicopee Falls.
A. G. Rice, 42 Maple St., Springfield.
H. W. VanAllen, 19 Maple St., Springfield.

HAMPSHIRE,
E. W. Brown, V-P., 39 Main St., Northampton.
W. J. Collins, M.N.C., 90 Main St., Northampton.
P. A. Hudnut, Chesterfield.

MIDDLESEX EAST,
C. J. Allen, V-P., 33 Church St., Winchester.
J. P. Bixby, 55 Elm St., Woburn.
E. S. Jack, 56 W. Emerson St., Melrose.
W. H. Keleher, M.N.C., 48 Pleasant St., Woburn.
E. D. Richmond, 24 Woburn St., Reading.

MIDDLESEX NORTH,
W. G. Eaton, 417 Middlesex St., Lowell.
J. A. Gage, C., 64 Central St., Lowell.
G. O. Lavalée, 790 Merrimac St., Lowell.
W. P. Lawler, 53 Central St., Lowell.
T. G. McGannon, V-P., 226 Merrimac St., Lowell.
R. J. Meigs, 226 Merrimac St., Lowell.
A. G. Scoboria, Chelmsford.
C. E. Simpson, M.N.C., 9 Central St., Lowell.

MIDDLESEX SOUTH,
M. H. Bailey, 1569 Massachusetts Ave., Cambridge.
H. T. Baldwin, 96 Middlesex Rd., Chestnut Hill.
F. J. Barnes, 67 Brattle St., Cambridge.
F. E. Bateman, 163 Highland Ave., Somerville.
E. H. Bigelow, P. O. Box 213, Framingham.
J. E. Cleaves, 8 Salem St., Medford.
C. H. Cook, 35 W. Central St., Natick.
H. F. Curtis, 145 Perkins St., Somerville.
E. A. Darling, 138 Brattle St., Cambridge.
G. W. Gay, 665 Boylston St., Boston.
C. M. Hutchinson, 5 Garden St., Cambridge.
A. A. Jackson, 512 Broadway, Everett.
J. B. Lyons, 1 Dexter Rd., Charlestown.
S. F. McKeen, 556 Cambridge St., Allston.
A. E. Merrill, 367 Medford St., Somerville.
C. E. Prior, 1 Mountain Ave., Malden.
Godfrey Ryder, V.P., 321 Pleasant St., Malden.
Joseph Stanton, 433 Washington St., Newton.
E. H. Stevens, M. N. C., 1911 Mass. Ave., Cambridge.
J. O. Tilton, Lexington.
Julia Tolman, 695 Massachusetts Ave., Arlington.
G. T. Tuttle, McLean Hospital, Waverley.
H. P. Walcott, Cambridge.
C. T. Warner, 75 W. Main St., Marlborough.

NORFOLK,
E. F. W., Bartol, 6 Reedsdale Rd., Milton.
G. G. Bulfinch, 526 Harvard St., Brookline.
P. W. Carr, 16 Neponset Block, Hyde Park.
A. A. Cushing, 108 Marion St., Brookline.
A. H. Davison, 564 Washington St., Dorchester.
W. W. Duckering, 2 Warner St., Dorchester.
H. C. Ernst, C., 240 Longwood Ave., Boston.
M. H. A. Evans, 137 Newbury St., Boston.
G. H. Francis, V-P., 295 Walnut St., Brookline.
T. F. Greene, 322 Warren St., Roxbury.
E. W. Finn, 5 Franklin Sq., Dedham.
W. W. Harvey, 516 Warren St., Roxbury.
S. A. Houghton, 14 Pleasant St., Brookline.
G. W. Kaan, 419 Boylston St., Boston.
Bradford Kent, 798 Blue Hill Ave., Dorchester.
E. N. Libby, 638 Beacon St., Boston.
Harry Linenthal, 483 Beacon St., Boston.
F. P. McKenna, 382 Centre St., Jamaica Plain.
W. H. McMann, 328 Centre St., Jamaica Plain.
T. J. Murphy, M.N.C., 372 Dudley St., Roxbury.
A. P. Perry, 419 Boylston St., Boston.
M. W. Richardson, C., 144 State House, Boston.
W. H. Robinson, 338 Centre St., Jamaica Plain.
T. M. Shay, 88 Warren St., Roxbury.
B. E. Sibley, 1595 Beacon St., Brookline.
F. W. Sleeper, 41 Virginia St., Dorchester.
C. F. Stack, 1315 River St., Hyde Park.
R. T. Stearns, 24 Hazelton St., Mattapan.

NORFOLK SOUTH,
C. S. Adams, V-P., 62 Brooks St., Wollaston.
W. A. Drake, M.N.C., North Weymouth.
O. H. Howe, Main St., Cohasset.
E. N. Mayberry, South Weymouth.

PLYMOUTH,
C. E. Lovell, V-P., Whitman.
Gilman Osgood, 258 Union St., Rockland.
A. A. McKeen, Whitman.
A. E. Paine, M.N.C., 439 Belmont St., Brockton.
F. J. Ripley, 12 Cottage St., Brockton.
F. G. Wheatley, North Abington.

SUFFOLK,
H. D. Arnold, V-P., 520 Commonwealth Ave., Boston.
S. H. Ayer, 318 Shawmut Ave., Boston.
F. G. Balch, 279 Clarendon St., Boston.
J. W. Bartol, 3 Chestnut St., Boston.
H. I. Bowditch, 86 Bay State Rd., Boston.
E. H. Bradford, 133 Newbury St., Boston.
G. W. W. Brewster, 99 Commonwealth Ave., Boston.
E. M. Buckingham, Treas., 342 Marlborough St., Boston.
W. L. Burrage, Sec., 282 Newbury St., Boston.
Hugh Cabot, 87 Marlborough St., Boston.
David Cheever, 355 Marlborough St., Boston.
H. A. Christian, 252 Marlborough St., Boston.
A. L. Chute, 350 Marlborough St., Boston.
E. A. Codman, 227 Beacon St., Boston.
J. A. Cogan, 419 Boylston St., Boston.
G. A. Craigin, 18 Hereford St., Boston.
R. L. DeNormandie, 355 Marlborough St., Boston.
W. H. Devine, 595 Broadway, South Boston.
C. Frothingham, Jr., 51 Hereford St., Boston.
W. H. Grainger, 408 Meridian St., East Boston.
C. M. Green, C., 78 Marlborough St., Boston.
F. B. Harrington, 201 Beacon St., Boston.
J. B. Hawes, 2d, 29 Gloucester St., Boston.
W. C. Howe, 303 Beacon St., Boston.
H. T. Hutchins, 374 Marlborough St., Boston.
Henry Jackson, 380 Marlborough St., Boston.
J. J. Minot, M.N.C., 188 Marlborough St., Boston.
J. L. Morse, 70 Bay State Rd., Boston.
Anna G. Richardson, 483 Beacon St., Boston.
D. D. Scannell, 366 Commonwealth Ave., Boston.
G. B. Shattuck, C., 183 Beacon St., Boston.
G. C. Smith, Hotel Westminster, Boston.
Mary A. Smith, 33 Newbury St., Boston.
R. M. Smith, 329 Beacon St., Boston.
F. B. Talbot, 311 Beacon St., Boston.
H. F. Vickery, 263 Beacon St., Boston.
Beth Vincent, C., 295 Beacon St., Boston.
John Warren, 58 Beacon St., Boston.
C. F. Withington, 35 Bay State Rd., Boston.

WORCESTER,
F. H. Baker, 4 Linden St., Worcester.
W. P. Bowers, 264 Chestnut St., Clinton.
C. A. Church, Elm St., Millbury.
F. H. Clapp, V-P., North Grafton.
W. J. Delahanty, 5 Trumbull Sq., Worcester.
J. T. Duggan, 226 Southbridge St., Worcester.
Homer Gage, 72 Pearl St., Worcester.
R. W. Greene, 21 West St., Worcester.
David Harrower, M.N.C., 9 Elm St., Worcester.
W. L. Johnson, Main St., Uxbridge.
G. O. Ward, 875 Main St., Worcester.
C. D. Wheeler, 18 Chestnut St., Worcester.
L. F. Woodward, 52 Pearl St., Worcester.
S. B. Woodward, 58 Pearl St., Worcester.

Worcester North,
C. E. Bigelow, 2 Park St., Leominster.
A. P. Mason, 355 1-2 Main St., Fitchburg.
H. W. Page, V-P., Baldwinsville.
E. A. Sawyer, M.N.C., 402 Elm St., Gardner.
J. W. Stimson, 101 Prichard St., Fitchburg.

CENSORS, 1914-1915.

Barnstable,
E. E. Hawes, Supervisor, Hyannis.
E. S. Osborne, West Dennis.
J. H. Sears, Yarmouth Port.
C. E. Harris, Hyannis.
S. F. Haskins, Cotuit.

Berkshire,
J. F. A. Adams, Supervisor, Pittsfield.
William Galvin, Blackinton.
H. B. Holmes, Adams.
G. P. Hunt, Pittsfield.
H. E. Stockwell, Stockbridge.

Bristol North,
F. A. Hubbard, Supervisor, Taunton.
H. B. Baker, Dighton.
T. J. Robinson, Taunton.
T. F. Clark, Taunton.
D. J. Mehegan, Taunton.

Bristol South,
W. A. Dolan, Supervisor, Fall River.
W. T. Learned, Fall River.
J. C. Pitta, New Bedford.
I. N. Tilden, Mattapoisett.
J. F. Weeks, Acushnet.

Essex North,
F. B. Pierce, Supervisor, Haverhill.
A. N. Little, Newburyport.
T. R. Healy, Newburyport.
J. J. O'Sullivan, Lawrence.
J. P. Torrey, Andover.

Essex South,
N. P. Breed, Supervisor, Lynn.
O. C. Blair, Lynn.
R. E. Bicknell, Swampscott.
W. V. McDermott, Salem.
F. B. T. Logan, Gloucester.

Franklin,
G. P. Twitchell, Supervisor, Greenfield.
C. L. Upton, Shelburne Falls.
C. C. Messer, Turner's Falls.
E. H. Best, Greenfield.
J. W. Cram, Colrain.

Hampden,
J. L. Bliss, Supervisor, Holyoke.
G. L. Weston, Springfield.
F. J. Mahoney, Springfield.
J. P. Schneider, Palmer.
A. M. Clapp, Springfield.

Hampshire,
W. J. Collins, Supervisor, Northampton.
F. H. Smith, Hadley.
M. W. Pearson, Ware.
C. A. Byrne, Hatfield.
N. C. Haskell, Amherst.

Middlesex East,
E. D. Richmond, Supervisor, Reading.
Richard Dutton, Wakefield.
C. T. O'Brien, Woburn.
R. R. Stratton, Melrose.
C. W. Averell, North Reading.

Middlesex North,
W. G. Eaton, Supervisor, Lowell.
J. A. Gage, Lowell.
J. V. Meigs, Lowell.
J. E. Lamoureux, Lowell.
E. J. Clark, Lowell.

Middlesex South,
E. H. Bigelow, Supervisor, Framingham.
Albert August, Cambridge.
J. F. O'Brien, Charlestown.
E. S. Abbot, Waverley.
F. W. Rice, Brighton.

Norfolk,
T. F. Greene, Supervisor, Roxbury.
E. P. Starbird, Dorchester.
R. W. Hastings, Brookline.
W. C. Kite, Milton.
B. N. Bridgman, Jamaica Plain.

Norfolk South,
W. A. Drake, Supervisor, North Weymouth.
V. M. Tirrell, South Weymouth.
N. S. Hunting, Quincy.
E. H. Bushnell, Quincy.
F. E. Jones, Quincy.

Plymouth,
F. J. Ripley, Supervisor, Brockton.
Joseph Frame, Rockland.
R. B. Rand, North Abington.
W. W. Fullerton, Brockton.
J. H. Drohan, Brockton.

Suffolk,
G. A. Craigin, Supervisor, Boston.
J. S. Stone, Boston.
C. N. Cutler, Chelsea.
W. H. Robey, Jr., Boston.
J. W. Cummin, Boston.

Worcester,
C. D. Wheeler, Supervisor, Worcester.
M. J. O'Meara, Worcester.
F. H. Washburn, Holden.
A. G. Hurd, Millbury.
G. E. Emery, Worcester.

Worcester North,
J. W. Stimson, Supervisor, Fitchburg.
A. P. Lowell, Fitchburg.
B. H. Hopkins, Ayer.
A. A. Wheeler, Leominster.
W. F. Robie, Baldwinsville.

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1914-1915.

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Berkshire, A. K. Boom, Adams.
Bristol North, C. S. Holden, Attleborough.
Bristol South, E. E. Foster, New Bedford.
Essex North, J. F. Croston, Haverhill.
Essex South, J. E. Simpson, Salem.
Franklin, F. E. Johnson, Erving.
Hampden, G. L. Schadt, Springfield.
Hampshire, M. W. Pearson, Ware.
Middlesex East, G. F. Dodge, Wilmington.
Middlesex North, F. E. Varney, North Chelmsford.
Middlesex South, E. M. Plummer, Charlestown.
Norfolk, A. H. Hodgdon, Dedham.
Norfolk South, N. S. Hunting, Quincy.
Plymouth, F. J. Hanley, Whitman.
Suffolk, F. B. Lund, Boston.
Worcester, E. V. Scribner, Worcester.
Worcester North, F. H. Thompson, Fitchburg.

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1914-1915.

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Hampshire.—E. W. Brown, Northampton, President; O. W. Cobb, Easthampton, Vice-President; J. D. Collins, Northampton, Secretary; J. G. Hanson, Northampton, Treasurer; F. E. Dow, Northampton, Librarian.

Middlesex East.—C. J. Allen, Winchester, President, C. F. McCarthy, Winchester, Vice-President; A. E. Small, Melrose, Secretary; Charles Dutton, Wakefield, Treasurer; G. W. Nickerson, Stoneham, Librarian.

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Middlesex South.—Godfrey Ryder, Malden, President; W. D. Swan, Cambridge, Vice-President; L. S. Hapgood, Cambridge, Secretary; C. A. Dennett, Arlington, Treasurer.

Norfolk.—G. H. Francis, Brookline, President; M. V. Pierce, Milton, Vice-President; Bradford Kent, Dorchester, Secretary; G. W. Kaan, Brookline, Treasurer.

Norfolk South.—C. S. Adams, Wollaston, President; F. C. Granger, Randolph, Vice-President; F. H. Merriam, South Braintree, Secretary, Treasurer and Librarian.

Plymouth.—C. E. Lovell, Whitman, President; N. C. King, Campello, Vice-President; A. C. Smith, Brockton, Secretary and Treasurer.

Suffolk.—H. D. Arnold, Boston, President; Paul Thorndike, Boston, Vice-President; W. C. Howe, Boston, Secretary; A. K. Stone, Boston, Treasurer; B. J. Jeffries, Boston, Librarian.

Worcester.—F. H. Clapp, North Grafton, President; R. W. Greene, Worcester, Vice-President; E. L. Hunt, Worcester, Secretary; G. O. Ward, Worcester, Treasurer; Merrick Lincoln, Worcester, Librarian.

Worcester North.—H. W. Page, Baldwinsville, President; J. B. Donnelly, West Gardner, Vice-President; C. H. Jennings, Fitchburg, Secretary; F. H. Thompson, Jr., Fitchburg, Treasurer; A. P. Mason, Fitchburg, Librarian.

Current Literature

NEW YORK MEDICAL JOURNAL.

JUNE 27, 1914.

1. VAUGHAN, V. C. *The Service of Medicine to Civilization.*
2. FRAZIER, C. H. *The Cerebrospinal Fluid and Its Relation to Brain Tumors.*
3. SHIVELY, H. L. *A Visit to Lourdes.*
4. BROOKS, H. *The Liver in Acquired Syphilis.*
5. LIND, J. E. *Diagnostic Pitfalls in the Mental Examination of Negroes.*
6. ROBINSON, B. *Treatment of Whitlow and Felon.*
7. MUSSER, J. H., JR. *Auscultatory Inflation of the Colon.*
8. *BRODHEAD, G. L. *Pituitary Extract in Obstetrics.*
9. PABST, C. F. *The Effect of the New Regulation Restricting the Sale of Bichloride of Mercury.*

8. Brodhead gives his experience and that of other prominent obstetricians with pituitary extract. He concludes that when used intelligently in the absence of disproportion and with good cervical dilatation it is a very valuable and comparatively safe therapeutic agent. The fetal heart must be watched, and anesthetics and forceps must be ready for instant use. [L. D. C.]

ARCHIVES OF INTERNAL MEDICINE.

MARCH, 1914.

1. CONNER, L. A. *A Pulmonary Attack Simulating Primary Lobar Pneumonia, Caused by Pulmonary Embolism and Infarction from a Latent Venous Thrombosis.*
2. *JANEWAY, T. C. *The Comparative Value of Cardiac Remedies.*
3. *HOOKER, D. R., AND SOUTHWORTH, J. D. *Interpretation of the Auscultation Blood-Pressure Sounds.*
4. KRUMBHAAR, E. B. *A Pathological Study of Two Cases of Heart-Block with Adams-Stokes Syndrome.*
5. *LEE, K. I., AND VINCENT, B. *The Coagulation of Normal Human Blood. An Experimental Study.*
6. GROSS, M. H., AND HELD, I. W. *Ulcus Ventriculi.*
7. *GAY, F. P., AND FORCE, J. N. *A Skin Reaction Indicative of Immunity Against Typhoid Fever. Studies in Typhoid Immunization.*
8. DANIELS, A. L. *The Influence of Lithium and Atophan on the Uric Acid Excretion of a Gouty Patient.*
9. AGNEW, J. H. *Comparative Study of Phenolsulphonephthalein Elimination and the Incoagulable Nitrogen of the Blood in Cardiorenal Diseases.*
10. BOOTHBY, W. M., AND PEABODY, F. W. *A Comparison of Methods of Obtaining Alveolar Air.*

2. Janeway reviews the studies of recent years on the comparative value of cardiac remedies. The more completely a given circulatory disturbance is dependent on a rapid rate which can be controlled by digitalis, the more brilliant is the therapeutic effect of the drug. The best example of this is the case of well-compensated mitral disease in which auricular fibrillation with great tachycardia sets in acutely. The bundle of His is peculiarly susceptible to digitalis in fibrillating hearts, the seats of old rheumatic mitral disease. The cases of gradually progressive cardiac insufficiency with general venous stasis and edema also respond well to digitalis as a rule, although sometimes only after the institution of accessory measures, such as the Karell diet. In cases of extreme secondary tricuspid regurgitation with pulsating liver, strophanthin intravenously seems the ideal method of administration. As a general rule the choice of a preparation of digitalis is largely a matter of taste, provided the one used is known to be effective. In all fibrillating cases with a tendency to rapid rate, the indications for continued digitalis after-treatment are absolute. In cardiac insufficiency with normal rhythm the effects of digitalis treatment are much less prompt and certain; the dosage should be more cautious than in fibrillating hearts. In insufficiency secondary to hypertension the cactein diuretics are often valuable when digitalis alone fails. For anginoid pain of moderate intensity the nitrites are almost invariably effective. Nitroglycerin is preferred by the writers to amyl nitrite. It is peculiarly effective in hypertensive cases but frequently acts well in coronary angina associated with low pressure. The relief is probably due to local dilatation of the coronary arteries, not to lowering of aortic blood-pressure. The continued use of the nitrites is not of great value, the best remedy for diminishing the frequency of the paroxysms being iodide in small doses. In severe angina pectoris the nitrites are valueless and morphine is the strict indication. Here it is possible that digitalis may support the heart. When anginal attacks are followed by dilatation and insufficiency brilliant results have been obtained with

digitalis. The treatment of the circulatory failure of acute infectious disease must recognize that the vasomotor system, not the heart, is the predominant factor. The ideal drug would be a substance acting like epinephrin, whose effect was persistent. Only in pneumonia is the fleeting action of epinephrin likely to be of service.

3. Hooker and Southworth studied the auscultatory blood-pressure sounds, the interpretation of which has been the subject of some dispute. They recorded photographically the brachial sounds simultaneously with the records of systolic and diastolic pressures as given by the Erlanger apparatus. Their records show a very close agreement between the results of the two methods. They conclude that in normal subjects the onset of the brachial sound is coincident with systolic and the cessation of the sound is coincident with diastolic blood-pressure.

5. Lee and Vincent report upon an elaborate experimental study of the coagulation of normal human blood along the lines recently worked out by Bordet and Delange. They were able to confirm most of the work of these writers on "cytozyme," a thromboplastic substance contained in the blood-platelets, in tissue juice, and (to a less extent) in the leucocytes of the blood. Human blood-platelets keep their coagulating activity, even after heating at 120° C., for fifteen minutes. The red corpuscles possess no activity of this sort. The "serozyme" of Bordet and Delange is that substance in the blood serum which under certain conditions unites with the cytozyme of the platelets to furnish thrombin. It is not present as such in the circulating blood or in oxalated plasma. It is best obtained from the serum of recalcified plasma. Serozyme is destroyed at 56° C. for thirty minutes. It is absorbed by barium salts. It is probably attached to the globulins of the blood, but not to the serum albumins. Active thrombin formation can be prevented by the presence of concentrated sodium chloride solution, by sodium citrate, by the absence of calicum and by the presence of barium. Once thrombin is formed, however, none of these substances will prevent its action on a fibrinogen solution. Thrombin requires a definite amount of time for its formation. It deteriorates rapidly. It is not a ferment and can coagulate only a certain amount of fibrinogen solution.

7. Gay and Force, in an effort to find an index of immunity among persons vaccinated against typhoid fever, have tried out an adaptation of the von Pirquet skin test. They find that a preparation of the typhoid bacillus in all respects similar to Koch's old tuberculin produces a clear-cut cutaneous reaction by the von Pirquet method in 95% of cases that have recovered from typhoid fever. The reaction is negative in 85% of individuals without history of typhoid fever. Of 15 persons vaccinated by the army method from eight months to five years previously, 9 gave a positive skin reaction. Twenty-five persons vaccinated by the Gay-Claypole sensitized vaccine from one to eight months previously gave uniformly a positive reaction. [L. D. C.]

APRIL, 1914.

1. *STOBER, A. M. *Systemic Blastomycosis. A Report of Its Pathological, Bacteriological and Clinical Features.*
2. KROST, R. A., STOBER, A. M., AND MOFS, M. J. *A Case of Systemic Blastomycosis.*
3. LEWISON, M., AND JACKSON, H. *A Case of Systemic Blastomycosis.*
4. MYERS, H. J., AND STOBER, A. M. *A Case of Systemic Blastomycosis.*
5. BOUGHTON, T. H., AND STOBER, A. M. *A Case of Systemic Blastomycosis with Recovery.*
6. JACKSON, H. *A Case of Systemic Blastomycosis.*
7. BECHTEL, R. E., AND LECOUNT, E. R. *A Case of Systemic Blastomycosis with Necropsy.*
8. EISENTAEDT, J. S., AND BOUGHTON, T. H. *A Case of Systemic Blastomycosis.*
9. SHAFFNER, P. F. *A Case of Systemic Blastomycosis.*
10. CHURCHILL, T., AND STOBER, A. M. *A Case of Systemic Blastomycosis.*
11. BOUGHTON, T. H., AND CLARK, S. N. *A Case of Systemic Blastomycosis.*
12. RILEY, F. B., AND LECOUNT, E. R. *A Case of Systemic Blastomycosis.*
13. BARTLETT, F. K. *Multiple Primary Malignant Tumors. With Report of Two Cases in Dogs.*
14. NUZUM, F. *Fatty Infiltration (Lipomatosis) of the Auriculoventricular Bundle of His, with Sudden Unexpected Death.*
15. *BARACH, J. H., AND MARKS, W. L. *Blood-Pressures. Their Relation to Each Other and to Physical Efficiency.*
16. FISHBERG, M. *The Mechanism of Cardiac Displacements in Pulmonary Tuberculosis.*

1-12. Stober and others report in detail 29 cases of systemic blastomycosis with photographs and charts. All the cases occurred in Illinois, Kansas and Iowa.

15. Barach and Marks studied the blood-pressure in 742 healthy young men with special reference to the diastolic and pulse pressures. They found no constant relation between pulse pressure and diastolic pressure or between physical (or circulatory) efficiency and the pulse pressure percentage of diastolic pressure. [L. D. C.]

THE PRACTITIONER.

JUNE, 1914.

1. *THOMSON, ST.C. *Some of the Symptoms and Complications of Sinusitis.*
2. DIGHTON, A. *The Blood-Clot Method as Applied to the Mastoid Operation.*
3. WOOD, J. W. *The Use of the Naso-Pharyngoscope in Oto-Rhinology.*
4. *WILSON, W. *Relation of Throat and Nose to Diseases Met With in General Practice.*
5. *BUCKLEY, C. W. *Painful Affections of the Shoulder: Their Diagnosis and Treatment.*
6. HORNABROOK, R. W. *Some of the Difficulties with Which the Anesthetist Has to Deal.*
7. *DALLY, J. F. *The Intensive Nascent Iodine Treatment of Tuberculosis.*
8. *REESE, E. G. *The Treatment of Early Tuberculosis by Intensive Nascent Iodine.*
9. WALKER, I. W. T. *Recent Work in Urinary Surgery.*
10. TURNER, J. G. *Recent Dental Work.*
11. WILSON, J. H. *Neuro-Electricity. The Electropathology of Disease and Therapeutics.*
12. LUKE, T. D. *The Field for High-Frequency Treatment.*
13. COBB, I. G. *Treatment by General Rhythmic Faradization.*
14. DAVIES, N. *Neuritis: Treatment by Electricity.*
15. GREVES, H. G. *Treatment of Chronic Constipation by Electric Massage.*

1. Thomson discusses the symptoms of sinusitis in four groups: (*a*) those in neighboring regions, (*b*) those in more distant organs, (*c*) symptoms of interference with general health, (*d*) intracranial complications. These symptoms he describes by means of excellent plates and diagrams in great detail. The article is a clear and valuable presentation of this subject.

4. Wilson discusses the relation of certain abnormal conditions in the nose and throat to various other diseases or symptoms. Such abnormal conditions may lead to cough, etc., closely resembling phthisis or asthma. Various dyspepsias may be caused by the dropping of mucus or pus into the stomach, etc.

5. Buckley describes at some length certain painful affections of the shoulder, giving illustrative cases and discussing causes and the work of others on this subject, especially that of Codman of Boston.

7 and 8. Dally and Reeve describe their results with the nascent iodine treatment of pulmonary tuberculosis, discussing the general effects and clinical features. Reeve presents the details of nine cases. They both believe that this method, in combination with sanatorium treatment, is worthy of an extended trial. [J. B. H.]

EDINBURGH MEDICAL JOURNAL.

JUNE, 1914.

1. MACKENZIE, J. *George Alexander Gibson: An Appreciation of the Man and His Work.*
2. *WALKER, J. W. T. *Urinary Antiseptics.*
3. *GILMOUR, A. *Hypertrophic Pulmonary Osteo-Arthropathy (Marie's Disease).*
4. CRESWELL, C. H. *The Royal College of Surgeons in Edinburgh: Their Professors of Surgery.*

2. Walker discusses urotropin as an antiseptic and some conditions which affect its composition, as well as certain conditions which influence the action of urotropin on the urine. He then discusses the various tests for urotropin in the urine, urinary antiseptics as prophylactic agents, and the limits of urinary antiseptics. He believes that the dosage of urotropin should be increased until an antiseptic action is obtained or limits of tolerance are reached. It may be necessary to increase the acidity of the urine. Diuretics and diuretic-water should be avoided during administration of urotropin.

3. Gilman presents a case of hypertrophic pulmonary osteo-arthropathy in great detail and discusses the subject in an interesting and practical manner. [J. B. H.]

DIE THERAPIE DER GEGENWART.

MAY, 1914.

1. BENTHIN, W. *The Ovary and Internal Secretion.*
2. *FRAENKEL, A. *The Treatment of Sleeplessness in Cardiac Insufficiency.*
3. ENGEL. *The Dosage of Medicine in Childhood.*
4. HEINEMANN, O. *The Curability of Multiple Abscesses of the Liver and Their Diagnosis.*
5. FEILER. *Anesthesia in Throat Operations.*

2. Fraenkel gives his experience with various remedies for sleeplessness in cardiac decompensation, citing eight cases in detail. When loss of sleep is the predominant symptom, he says, intravenous use of strophanthin is the rational procedure. For sleeplessness due to cardiac asthma strophanthin is surer than any form of digitalis by mouth. For long continued dyspnea unrelieved by digitalis, intravenous injections of strophanthin are very satisfactory. Morphine should be be given regularly for sleeplessness in chronic cardiac insufficiency only when digitalis therapy, even in the form of strophanthin injections, is unsuccessful. [L. D. C.]

BULLETTINO DELLE SCIENZE MEDICHE.

APRIL, 1914.

1. CARATI, E. *The Cerebral Lipoids of Chloroformed Dogs and Their Biologic Action.*
2. BONOLA, F. *A Technic for Neurolytic Injections into the Maxillary Nerve at the Level of the Foramen Rotundum.*
3. *FORNI, G. *Complete Bony Hyoid Apparatus.*
4. *ANDRIANI, S. *Action of the Sodium and Potassium Cations on the Development of the Beer Ferment.*

3. Forni reports, with figures, a case of complete stylo-hyoid ossification. His bibliography, however, does not include the case reported by the late Professor Dwight.

4. From an experimental chemical study, Andriani concludes that sodium chloride inhibits the development of the beer ferment in any solution, and that potassium chloride favors it, giving an optimum in 3% solutions, and with an incubation of an hour and a half. [R. M. G.]

MAY, 1914.

1. GAMBERINI, C., AND MASSI, W. *Abderhalden's Reaction.*
2. BERTI, G. *Congenital Teeth.*

Obituary.

FRANCIS BISHOP HARRINGTON, M.D.

No adequate obituary can be written of Dr. Harrington. The purity of his character set him apart from other men so that he may not be measured by ordinary standards. He was successful, honored, respected, loved, and he had no enemies.

He was born August 15, 1854 and was graduated from Tufts College in 1877. He thereafter took a year of post-graduate study and the degree of A.B. at Harvard and was graduated from the Harvard Medical School in 1881. He served as surgical house pupil at the Massachusetts General Hospital during 1880-1. In October, 1882, he married Miss Abbie Josephine Ruggles. He was appointed physician to the out-patient department of the Massachusetts General Hospital April 18, 1884, and surgeon to the out-patient department on March 12, 1886. His later appointments at the hospital were visiting surgeon April 13, 1894, and surgeon-in-chief August 1, 1911. The latter position he resigned February 4, 1914, and was appointed consulting surgeon on the same date.

Dr. Harrington was a lecturer on surgery at the Harvard Medical School and had served as a member of its administrative board. He was also honored with the position of medical adviser to the trustees of the Peter Bent Brigham Hospital. His society membership included the American Surgical Association, The Massachusetts Medical Society, the Boston Society of Medical Sciences, the Obstetrical Society of Boston, the Boston Society for Medical Improvement and the Boston Medical Library.

He died June 11, 1914, of intestinal obstruction following an operation which revealed duodenal ulcers and gall-stones. He left a wife and two daughters, Mrs. Arthur W. Brooks and Miss Ruth Harrington.

Though not especially distinguished as an operator, a teacher, an investigator or as a pioneer in any particular branch of surgery, Dr. Harrington was one of the best general surgeons of his day. Although his personal contributions were few, it may be said that no man in his generation in Boston did more for the science of surgery than he. He was naturally

disposed to state the plain truth—and this is science. He was not one who equivocated as to diagnosis or results, nor did he offer excuses when his cases did not do well. Nevertheless, he analyzed them critically to find the error lest it should be repeated. His own modesty and dread of publicity, always insisted in pushing someone else forward to take the credit for his own work. He was ever on the watch for new methods of operating which had shown good results in other clinics, and always ready to give some of his juniors opportunity to study out the details and to try them in his own clinic. If there was failure, he bore the responsibility and if there was success, it was freely attributed to the junior.

For the last twenty years there have been few attempts at progress at the hospital in which he did not do more than his share of the work. He was always the one to do the hard and tedious labor on committees, and his sturdy common sense and fairness won him the implicit confidence of his colleagues. To his own contributions he seldom alluded. Few of the younger surgeons today know that we owe to Dr. Harrington the technic of "walling off" in abdominal surgery, or that it was he who introduced in Boston intravenous saline infusion for the relief of shock and hemorrhage. His work on "Carbolic Gangrene of the Extremities" has been generally recognized in the text-books. An ingenious device, the "segmented ring," for intestinal anastomosis, attests his originality and should be more widely known. The same ingenuity of mind made him resourceful in operating when unexpected or unusual conditions presented themselves.

As an operator he was slow and careful rather than dextrous and brilliant. The result to the individual patient on the table was the paramount idea in his mind. Though he did not care for showy technic he was a very successful surgeon, if one may judge a surgeon by the actual outcome of his operations. This was not so much because of his great skill as because of his faithfulness and care and the thoughtful consideration he gave to the purpose of the operation. It was certainly not because he considered statistics. He had no pride in mere operating. He was free from the characteristic faults which have often marred as well as made the success of great surgeons. Vanity, boastfulness, egotism and avarice were foreign to his nature, so that he reached the highest honors in his profession not by seeking positions of responsibility but by conscientiously attending to the duties for which he was chosen by his colleagues. Perhaps the greatest honor accorded him was his selection as medical advisor to the trustees of the Peter Bent Brigham Hospital, at the time when its policies were being shaped and its staff selected.

If there were any flaw in his character, it was lack of aggressiveness. At times it seemed that he was afraid to make an enemy by vigorous insistance for his cause. He obviously dreaded any unpleasantness. It was because of his firm belief that human, like mechanical friction, is wasted energy. Long ago he found that in helping the good causes of others he could accomplish more than by riding his own hobbies. One is seldom considered aggressive for helping on the plans of some one else, and yet the good accomplished may be the same. Sometimes it seemed as if he let his own pleasure in earning the gratitude of the individual weigh perhaps too heavily against the broader but relatively joyless work of helping the race by aiding in conquering the diseases which are decimating it. He certainly had a keen clinical sense and could have investigated and written much more had he chosen to do so. The devotees of surgery may regret that he did not spare more energy to investigation, but his patients and pupils were the gainers by many a kindly and encouraging talk, for which he always found time. Many of his juniors still at work in Boston recall with gratitude his timely help in their first years of practice.

The attitude of his patients toward him is exemplified by the following tribute of Ellen Douglas Deland printed in the *Boston Evening Transcript*:—

"For fifteen years he has been my friend. I went to him a stranger, for I lived then in a distant city. He gave me of his time, his wonderful skill, and above all, his friendship. Who that has been his patient can forget his tender care, his interest in the human being as well as in the case, his cheery presence, his invigorating personality? Who that has been his friend can forget his loyalty, his sincerity, the honest friendship in his eyes? Unselfish in all the relations of life, he remembered ever to do the little kindly acts which, although small in themselves, count for so much. It was remarkable that so busy a surgeon could manage to find time even to think of them, but they were never left undone. He was a quiet man, simple in his tastes and liking simplicity in others, but he was a man of undeniable strength and wisdom. And his was a radiant nature. He made one think of sunshine and blue skies. I have heard people say that it cheered them merely to receive his greeting when he passed them on the street, he gave such a cordial bow, so friendly a smile. He was always ready to help and encourage others, and ready too—oh, rare gift!—to see the best in others. He has left the world a sadder place because he is no longer in it; he has left it a better place because he once was here."

Miscellany.

RELATIONS OF THE MASSACHUSETTS GENERAL AND BOSTON CITY HOSPITALS.*

When the City Hospital was opened, June 1, 1864, the relations between the Massachusetts

* Address by Dr. Henry C. Bowen, [illegible] Boston City Hospital Alumni Association, June 20, 1911.

General and the infant City Hospital would appear to have been pleasant.

In their first annual report the trustees say that, "We take pleasure in stating that the most kindly feeling has existed between the officers of the Massachusetts General Hospital and ourselves." In the second annual report the harmony and close relationship between the two hospitals are again referred to, and in a statement that seems almost prophetic of what has already taken place, the trustees write that they "see no reason why the united and harmonious action of the medical gentlemen connected with the two hospitals should not build up a school of medicine in the City of Boston second to none in the United States."

Here, although the most kindly feeling may have continued to prevail, either the City Hospital, which had probably begun to toddle about on its own sturdy legs, required no further nursing, or it asserted its own independence, for there are no further references in the reports to the sister hospital.

All greatness and littleness are relative. "When the traveler from the great star Sirius discovered our own little solar system and lighted upon what we call the majestic planet Saturn, he was naturally astonished at the pettiness of everything compared with the world that he had left. That the Saturnians were in his eyes mere dwarfs—they were only a mile high instead of twenty-four miles like himself—did not make them contemptible to his philosophic mind, for he reflected that such little creatures might still think and reason. But when he learned that these puny beings were also correspondingly short-lived and passed but 15,000 years between the cradle and the grave, he could not but agree that this was like dying as soon as one was born: that their life was but a span and their globe an atom. Yet it seems that when one of these very Saturnian dwarfs came afterwards with him to our own little ball, and by the aid of a microscope discovered certain animalculae on its surface, and even held converse with two of them, he could not in turn make up his own mind that intelligence could inhere in such invisible insects, until one of them it was an astronomer with his sextant) measured his height to an inch, and the other (a divine) expounded to him the theology of some of these mites according to which the Heavenly Host, including Saturn and Sirius itself, were created for them."

The same attitude may have been held by some towards the City Hospital at one time, but the City Hospital had its astronomer and its divine to demonstrate facts.

In 1866 it provided for the care of contagious diseases like smallpox and cholera, and in 1888 made provisions for the care of patients ill with diphtheria and scarlet fever. This has led to the establishment of the splendid South Department of the Boston City Hospital, which was the first separate hospital in this country for the treatment of infectious diseases. To this South Department is largely due the decrease in these diseases among our children, and it has saved the lives of thousands of them.

In 1869 the hospital began to publish reports of medical and surgical cases and to send them to the various hospitals and libraries here and abroad. These reports, valuable in themselves, have made the hospital one of the best known in the country.

It was rumored once that certain cases of stone were escaping the observations of people whom they should not escape, and a special envoy was sent to the City Hospital to ascertain the facts. From what was ascertained there is no doubt in my mind that those stones, which could not be discerned by the naked eye of the first investigator and were rejected, have become the cornerstones of some of the splendid new buildings of your hospital.

There always has been and always will be a strong bond of union between the two hospitals through their staffs. The first staff had over a third of its members from the Massachusetts General Hospital, and ever since, among the physicians and surgeons, the ratio has continued about the same. Nor has the Massachusetts General Hospital failed to follow the example of the City Hospital. The late Dr. Fitz, who brought so much honor and prestige to the Massachusetts General, had the City Hospital for his alma mater. Other men in the various departments have been and are still being taken from your ranks.

We are living in an age of change and as it seems to us of the greatest enlightenment. We no longer creep along the old paths; we run. In the rush and *furor secandi*, I doubt if any modern hospital has time to open even an abdomen with prayer. Such might have been the case in olden times, when religion and mysticism were strangely mixed with medicine. But today medicine has ceased to be an experiment; it is a science.

Hospitals are not merely blocks of buildings in which patients are treated and where students and nurses are developed. They have a real atmosphere each of its own. It has been said that they have a local deity which is worshipped by the children of the hospital, although they may look upon the deities of the other hospitals as idols.

Every hospital man loves his hospital for its traditions, for its customs, and for what he learned in that hospital, and to the deity of the hospital he is always ready to bring his gifts and to make his sacrifices.

The proudest moment of a medical student's life is when he receives the appointment to his hospital, and the happiest year of his life is the year that he spends in that hospital.

According to a person's age and standpoint, fifty years seems venerable or not. It is but the

beginning of the life of a hospital; and whatever your hospital has accomplished in the past —and it has accomplished great things—these accomplishments will pale before the achievements of the next fifty years.

I was asked to respond to the toast of the Massachusetts General Hospital. The Massachusetts General Hospital has bid me bring you greetings and to wish you Godspeed!

REORGANIZATION OF THE MASSACHUSETTS STATE BOARD OF HEALTH.

The following is an abstract of the amended measure for the reorganization of the Massachusetts state board of health, as finally passed by the legislature:—

"Section one creates a state department of health which shall exercise all the powers and perform the duties now conferred and imposed by law upon the state board of health. It shall consist of a commissioner of health and a public health council with directors of divisions, district health officers and other employees as hereinafter provided.

"Section two provides that the commissioner of health shall be appointed by the governor, with the advice and consent of the council, and shall be a physician skilled in sanitary science and experienced in public health administration. His term of office shall be five years. He shall receive an annual salary of seventy-five hundred dollars and shall devote his entire time to his official duties. He shall be the administrative head of the department. His powers and duties shall be to administer the laws relative to health and sanitation and the regulations of the department; to prepare rules and regulations for the consideration of the public health council; to appoint and remove, with the approval of the public health council, directors of divisions, district health officers, inspectors and other necessary employees, and fix their compensation, subject to the approval of the governor and council, within the limitations of appropriations therefor. Directors of divisions and district health officers shall be exempt from civil service regulations. The commissioner shall submit annually to the public health council a report containing recommendations in regard to health legislation, and shall perform all executive duties now required by law of the state board of health, and other duties incident to his position as chief executive officer. He may direct any executive officer or employee of the state department of health to assist in the study, suppression or prevention of disease in any part of the Commonwealth.

"Section three provides that the public health council shall consist of the commissioner of health and six members hereinafter called the appointive members, at least three of whom shall be physicians, all to be appointed by the governor, with the advice and consent of the council. Of the appointive members first appointed, two shall hold office until May 1, 1915, two until May 1, 1916, and two until May 1, 1917, and the terms of office of the members thereafter appointed, except to fill vacancies, shall be three years. Vacancies shall be filled by appointment of the governor, with the advice and consent of the council, for the unexpired term. The council shall meet at least once in each month, and at such other times as they shall determine by their rules or upon the request of any four members, or upon request of the commissioner of health. The appointive members shall receive ten dollars a day while in conference and their necessary travelling expenses while in the performance of their official duties. It shall be the duty of the public health council to make and promulgate rules and regulations; to take evidence in appeals; to consider plans and appointments required by law; to hold hearings; to submit annually to the general court, through the governor, a report, including recommendations as to needed health legislation, and to discharge other duties required by law; but it shall have no administrative or executive functions.

"Section four provides that there shall be in the department such divisions as the commissioner of health may, with the approval of the public health council, from time to time determine. The commissioner shall appoint and may remove, with the approval of the public health council, a director to take charge of each division, and shall prescribe the duties of such division. The compensation of directors of divisions shall be fixed by the commissioner of health, within the limits of appropriations therefor, and subject to the approval of the governor and the council.

"Section five provides that the commissioner, with the approval of the public health council, shall, from time to time, divide the state into eight health districts and shall appoint and may remove a district health officer for each district, with the approval of the public health council, at a compensation, subject to the approval of the governor and council, not exceeding $3500 a year. The district health officers shall not engage in any other occupation and shall give their entire time to the performance of their duties. The commissioner may, from time to time, order two or more of said district health officers to work in one district in order to study, suppress or prevent disease. Every district health officer shall have all the powers and perform the duties now provided by law for inspectors of health and further shall, under the direction of the commissioner of health, perform such duties as may be prescribed by, and shall act as the representative of the commissioner of health and under his direction shall secure the enforcement within his

district of the public health laws and regulations.

"Section six carries an appropriation over and above the amount already appropriated for the state board of health for the year 1914, the sum of $10,000.

"Section seven provides that present employees shall be continued in office until their successors are appointed and qualified or until removed by the commissioner; provided, however, that no employee shall be removed who was appointed under the provisions of the civil service laws other than for cause, except division heads and district health officers who shall be appointed as hereinbefore provided.

"Section eight repeals sections one, two and three of chapter seven of the revised laws and all other acts and parts of acts inconsistent herewith."

ANNOUNCEMENTS.

THE AMERICAN HOSPITAL AT PARIS, FRANCE, is in need of a young physician for the position of resident physician at the hospital, with a salary of $500 a year, including board, lodging and laundry, including a course at the Pasteur Institute. This position gives one an opportunity to learn a good deal about ordinary practice. The term of service begins September 1, 1914, to last one year. Application should be made by letter, including recommendations, to R. W. Turner, M.D., 42, Rue De Villejust, Paris, France.

THE MEDICAL SCHOOL OF THE UNIVERSITY OF MINNESOTA has adopted a plan of giving men a three-year post-graduate training in special work such as they may desire. An appointment to such a position carries with it a compensation of $500 the first year; $750 the second year; and $1000 the third year. The Department of Obstetrics is looking for one of these men. It will be possible for these men, if they desire, to spend one of the three years at the Mayo clinic.

A. B. EMMONS, 2D, M.D.,
Director for Appointments for Medical Alumni,
Harvard Medical School.

RECENT DEATHS.

DR. DEAN SAMUEL ELLIS, who died on June 30 in Worcester, Mass., was born at Vermontville, N. Y., in 1856. He was educated at the New Salem Academy, and received the degree of M.D. from the Jefferson Medical College in 1883. He was a Fellow of The Massachusetts Medical Society, and a member of the American Medical Association, the Worcester District Medical Society, and the New England Alumni Association of Jefferson Medical College. He is survived by his widow, by two daughters, and by two sons.

DR. GEORGE S. MORGAN, who died on July 5 at New London, Conn., was born in 1854. After graduating from Yale College, he received the degree of M.D. in 1879 from the New York Homeopathic Medical School.

DR. SUMNER FERDINAND QUIMBY, of Gloucester, died in that city, July 10, 1914, aged 62 years. Dr. Quimby was born in Sandwich, N. H., and was educated in medicine at the New York University Medical College from which he received a diploma in 1881. He had practised in Gloucester since that time, being City Physician for several years. At the time of his death he was medical examiner for the first district of Essex County. He was a Fellow of The Massachusetts Medical Society and a Mason and an Odd Fellow. He is survived by a widow, who was Miss Maria Frances Ladd, of Ashland, N. H., and a son and daughter.

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Transactions of the American Surgical Association. Vol. 31. 1913.

Cunningham's Text-Book of Anatomy. Edited by Arthur Robinson, M.D. Wm. Wood & Co. 1913.

Mental Diseases. By R. H. Cole, M.D. University of London Press. 1913.

The Surgical Clinics of John B. Murphy, M.D., at Mercy Hospital, Chicago. December, 1913. W. B. Saunders Company.

Essentials of Bacteriology. By M. V. Ball, M.D. W. B. Saunders Company. 1913.

The American Pocket Medical Dictionary. Eighth Edition. 1913.

A Text-Book of the Practice of Medicine. By James M. Anders, M.D. W. B. Saunders Company. 1913.

A Text-Book of Physiology for Medical Students and Physicians. By William H. Howell, Ph.D. W. B. Saunders Company. 1913.

Principles of Surgery. By W. A. Bryan, M.D. W. B. Saunders Company. 1913.

Practical Prescribing with Clinical Notes. By Arthur H. Prichard. Oxford University Press. 1913.

The Elements of Bandaging Fractures and Dislocations. By William Rankin. Oxford University Press. 1913.

The Practitioner's Practical Prescriber. By D. M. Macdonald, M.D. Oxford University Press. 1913.

An Introduction to the History of Medicine. By Fielding H. Garrison, M.D. W. B. Saunders Co. 1913.

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Poisons and Habit-Forming Drugs. By Martin I. Wilbert and Murray Galt Motter. Public Health Reports. 1913.

Doctor Steevens' Hospital. A Calendar of Anniversaries. Compiled by T. Percy C. Kirkpatrick, M.D. 1913.

Annual Report of the Rhode Island Hospital. 1913.

United Fruit Company, Medical Department. Annual Report, 1912. Annual Report, 1913.

The Great Danger of Incomplete Operations for Cancer in the Early Stage of the Disease. By Joseph C. Bloodgood, M.D. Reprint.

Mental Tests by Charles L. Dana, M.D. Reprint.

The Serological Tests in Cerebral Hemiplegia. By Charles L. Dana, M.D. Reprint.

X-Ray Studies of the Ileocecal Region and the Appendix. By James T. Case, M.D., Reprint.

Incompetency of the Ileocecal Valve-Disorders Arising from This Condition and Their Treatment. By James H. Kellogg, M.D. Reprint.

Surgery of the Ileocecal Valve. By J. H. Kellogg, M.D. Reprint.

Text-Books of Pathology. Edited by A. E. Boycott, M.A. The Pathology of Growth Tumors. By Charles Powell White, M.D. Paul B. Hoeber. 1913.

Diseases of the Heart. By James MacKenzie, M.D. Third Edition. Oxford Press.

Medical Jurisprudence from the Judicial Standpoint. By W. Ramsay Smith. Stevens & Sons, Ltd. 1913.

Transactions of the Thirty-fifth Annual Meeting of the American Laryngological Association. 1913.

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Remarks of Hon. John D. Works, of California, in the Senate of the United States, Dec. 20, 1913.

Original Articles.

ULCERATIVE ANGINA. AN OCCASIONAL EARLY SYMPTOM IN TYPHOID FEVER.

By Nathaniel Bowditch Potter, M.D., New York,

Assistant Professor of Clinical Medicine, Columbia University (College of Physicians and Surgeons); Visiting Physician to the New York City Hospital, and to the French Hospital.

In April, 1910, at the meeting of the medical section of the New York Academy of Medicine, I reported in three cases of typhoid fever an ulcerative angina as an unusual and sometimes confusing symptom. The scanty mention of this condition in American medical literature is the reason for the following report and review.

Seven years ago my attention was first brought to this so-called "ulcerative typhoid angina" by my incorrect diagnosis of syphilis in a woman of 27, who, although still at work when I saw her, had for some days been suffering from malaise, headache, sore throat, and general febril symptoms. In addition to a moderate elevation of temperature, a considerable acceleration of pulse, and a thick yellowish vaginal discharge, she presented a coated tongue and a superficial oval, yellowish grey ulceration, the size of a small bean, at the upper third of the left anterior pillar of the fauces. This ulcer was surrounded by a narrow zone of reddened mucous membrane, and the lymphatic glands at the angle of the left jaw were a little enlarged and tender. A culture upon blood serum showed a staphylococcus aureous. In the course of a few days an aggravation of the constitutional symptoms, the development of a palpable spleen, the exhibition of a few rose spots, and the change from a negative to a positive Widal reaction, revealed the correct diagnosis. Within ten days from my first observation the ulcer gradually contracted and healed without visible scar. The course of her disease was severe and complicated by several hemorrhages and a consecutive relapse.

Four years ago a woman of 40 was transferred for examination and diagnosis to my wards at the New York City Hospital, after several days' observation and treatment upon the syphilitic service there. Before admission to the hospital several physicians had diagnosed her malady as ulceration of the throat secondary to syphilis. She, too, ran a severe course of typhoid fever, complicated with hemorrhage and later with intestinal perforation, followed by laparotomy and eventual recovery.

The third case occurred at the French Hospital upon the service of one of my colleagues, Dr. McConnell. A tentative diagnosis of diphtheria was at first made, but the negative throat culture and later a positive Widal and blood culture, in addition to the subsequent course of the disease, proved it to be typhoid fever.

A fourth case, a young man of 27 years, was admitted to my service at the French Hospital, Oct. 28, 1911, with a temperature of 103°, pulse of 96, and respiration of 28, complaining of malaise, sore throat, headache, and general febrile symptoms. It was impossible to determine accurately the onset of his disease. He had been confined to bed with a cold and dry cough for a few days nearly three weeks before, returned to bed with diarrhea and vomiting five days before, and had a nose bleed three days before entrance. His trunk and extremities were covered with a maculo-papular eruption, resembling somewhat a secondary syphilis. He complained of sore throat, exhibited slight salivation, and marked pyorrhea. His tongue was moist, coated with a yellowish covering and presented three ulcerations. In size they varied from 0.5 to 1.5 cm. in their longest diameter. The smallest was situated beneath the tip of the tongue. The second, the largest and deepest, on the left edge an inch from the tip, opposite a jagged tooth, exhibited irregularly excavated edges, and was filled with a dirty gray slough, upon removal of which a base of muscle fibres was disclosed with very little bleeding. The third was smaller, half way between this and the tip. Three other similar ulcerations were noted upon the faucial pillars, respectively; on the left anterior pillar near the soft palate, on the left posterior pillar at about its middle, and on the upper third of the right anterior pillar. These were discrete, superficial, oval or elliptical, of approximately the same size as the largest ulcer upon the tongue, greyish yellow in color, and were surrounded by a light hyperemic zone. Upon very carefully wiping away the greyish exudate they exhibited a somewhat reddened base, but did not bleed. Smears and cultures from these ulcers revealed only staphylococci and a few short plump non-motile rods (Bradbury.) No spirillae nor spirochetae were to be found. The Widal reaction, negative at entrance, became positive three days before his death (November 4th, one week after entrance). The lymphatic glands draining these ulcers were at first neither tender nor appreciably enlarged; but became greatly swollen within four days coinciding with an increase in the leucocyte count (5,200 to 11,400) and in the percentage of the polynuclear leucocytes (68 to 84). Permission for a post-mortem examination was refused, so that unfortunately a histological examination of the ulcers was not made.

A fifth case: Male, Austrian, age 23, waiter, entered my service at the French Hospital, Oct. 21, 1913, admission No. 24,514. For nine days before entrance, he complained of malaise, insomnia, constipation, anorexia, chilly feelings, and headache, two days later feverish, weak and dizzy; next day vomited after a purge, and this was followed by a diarrhea which persisted till entrance. Gave up work four days before and took to bed three days before entrance, with a temperature of 104.5°. Headache had persisted and increased in severity. No

nose bleed. Upon entrance patient presented the typical appearance of typhoid at the height of the disease with a dicrotic pulse, tympanites, a spleen enlarged to percussion but not palpable, and a very profuse macule-papular eruption covering the trunk and extending to the arms and forearms but not involving the thighs or legs. Many of the spots were hemorrhagic. The tongue was coated and moist, with very prominent papillae at its tip; there was marked gingivitis and salivation. The pharynx was uniformly congested and largely covered with tenacious mucus. There were two tiny ulcers the size of the head of a white pin at the edge and upper extremity of the right anterior faucial pillar and a single one of slightly larger size and an irregular outline at the corresponding position on the left anterior pillar. These ulcers were covered with a thin grayish exudate which could be wiped away only with some difficulty on account of the patient's gagging. There were no palpable glands nor was there any tenderness. Hemoglobin 100%, leucocytes 4500 with 48% polyneuclears, 46% lymphocytes, 5% large mononuclears and 1% eosinophiles, Widal positive, blood culture positive, Diazo marked. The fever intermitted between 101° and 105.5°; the pulse usually about 100 varied between 90 and 112, the respirations usually below 30 varied between 24 and 32; and the urine, at first normal, showed a few days before death, a moderate febrile reaction. The treatment included bathing or sponging, hexamethylenamine, and two doses of typhoid vaccine administered on the 21st (60 million); and the 24th (100 million) October 23d. Smears and cultures were made from ulcers of pharynx by Dr. Bradbury. No typhoid bacilli but a staphylococcus aureus and a streptococcus were found. Oct. 24th, the ulcers on right side had nearly healed; that on the left pillar was larger, deeper, still more irregular in contour, covered with a white exudate and surrounded by a much reddened mucosa. A small irregular ulcer was found upon the left edge of the tongue and two tiny ones on the uvula. Oct., 25th, ulcerations of left pillar smaller and cleaner, less redness of surrounding mucosa. Tongue dry, congested, and bleeding. Three tiny ulcerations on right edge of tongue. Oct. 26, all remaining ulcers healing, tongue very dry, glazed and bleeding. Oct. 27th, ulcers scarcely visible except upper one on uvula. Severe hemorrhage from post nares. No bleeding point found. Oct. 28th, 7 p. m., severe epistaxis uncontrolled by packing. Oct. 29th, profuse crop of hemorrhagic spot from one-eighth to one half inch in diameter on back and on calves of legs; large irregularly-shaped ecchymoses of some depth in skin over interscapular, and sacral regions and on calves and anterior surface of legs. Hemorrhage from nose nearly controlled by packing. Hgb. 68%. Leucocytes 8000, polyneuclears 51%, eosinophiles 1%. Oct. 30th, patient very weak and restless, urine involuntary, pallor striking, nose still bleeding despite packing. Systolic blood pressure 130, consolidation of right upper lobe. Patient died that night. Unfortunately no autopsy was permitted.

A sixth case: (For the privilege of observing and reporting this case, I am indebted to the courtesy of Dr. Lipset.) Male, Italian, age 26, cook, entered French Hospital, November 1, 1913, admission No. 24,569. For eight to ten days before entrance, complained of continuous severe frontal headache; seven days before entrance, epistaxis and fever; next day went to bed and remained there. Ran a typical but short course of rather severe typhoid with delirium or stupor; continuous fever at about 104°; rather rapid respirations (32 to 44) corresponding to a severe bronchitis; considerable rather tenacious sputum; dicrotic pulse (90 to 120, usually about 100); an enlarged spleen; a moderate crop of rose spots; tympanites; involuntary urine; and a positive Widal reaction and blood culture.

On the eleventh day* of the disease his pharynx was red, swollen, and the uvula markedly edematous. Two small ulcers were noted on the left anterior pillar and a third, slightly larger at the top of the right anterior pillar of the fauces; each covered with a thick yellowish white exudate and surrounded by an edematous and congested mucous membrane. The uvula was covered in spots with a similar exudate. There was no glandular enlargement nor apparent tenderness, but the patient's stuporous condition made it impossible to determine whether or not the throat was sore or swallowing painful. By the thirteenth day, the exudate upon the upper half of each pillar and uvula had coalesced and entirely obscured the ulcerations. The exudate disappeared by the fifteenth day and the ulcer upon the right side, about the size of a pea, was seen to be granulating and somewhat elevated above the rest of the mucous membrane while those of the left were much smaller, one almost healed and the other healing. By the eighteenth day the latter had healed, the congestion had faded and the edema had disappeared, and by the nineteenth day the right one had also healed. At no time were any glands made out to be enlarged. On the 14th day smears and a culture from these ulcers were made by Dr. Bradbury. Great care was exercised to avoid producing bleeding, and no typhoid bacilli were found; but a staphylococcus aureus and two streptococci.

Synonyms: Typhoid angina, pharyngeal typhoid, Bouveret's ulcers, Duguet's ulcerations.

Louis[1], Chomel[2], Murchison[3], and Jenner[4] were cognizant of the occasional occurrence of an inflammation and ulceration of the pharynx in typhoid, but they certainly did not distinguish these ulcers from other types of pharyngeal involvement in enteric fever. Nonat[5] was the first (1843), so far as I can determine, to publish a clear and distinctive description of this lesion: "Les ulcerations dont il s'agit affectent ordinairement l'un des piliers du voile du palais; elles sont ovalaires; leur étendue varie; il en est qui ont la grandeur d'une pièce de vingt-cinq centimes; d'autres sont un peu plus petites; leur bords sont taillés à pic; leur font est grisâtre; la membrane muqueuse qui les entoure est injectée, rouge sur une surface plus on moins grande. . . Elle existait déja vers la fin du première septenaire ou au commencement du second."

I find no further mention of the lesion until 1876 when Bouveret[6], for whom the ulcers are

* Although his febrile course was brief, the day the patient took to his bed was reckoned as the first day of disease.

frequently named, published the account of a carefully observed case. He failed to mention Nonat's previous communication. In 1883 the condition was ably presented to the "Société medicale des hôpitaux de Paris" by Duguet[7] and thoroughly discussed there by a number of eminent clinicians, several of whom cited illustrative cases. Among them Landouzy[7] dilated upon the features essential to differentiate this from similar throat lesions in tuberculosis and in syphilis. He also cited several cases from his own experience, one of which apparently exhibited an active and early tuberculous lesion at both apices.* Shortly before and after this communication several contributions from the French school ([8] to [10] and [11] to [14]) appeared, some of them attempting to compare the pharyngeal with the intestinal ulcers upon the basis of a similar involvement of lymphoid tissue and an analogous histological architecture, but this contention could be supported neither theoretically nor anatomically.

The Germans were not interested in Bouveret's ulcer until some years later ([15] to [19]). In 1887 Landgraf[20] published a comprehensive and critical analysis of this lesion. He refused to acknowledge its specificity, mentioned a case occurring 48 days after the onset of the fever, denied any involvement of lymphoid tissue, and condemned the lack of bacterial investigation. We are indebted to the Strassburg Clinic ([16], [21], [22], [23]) for the most prolonged, persistent and carefully planned clinical observations as well as for the first account of the occurrence of the identical lesion in another disease, tuberculosis.[23]

England and America have paid but scanty attention to its existence. Osler[24] merely states that the pharynx may be the seat of catarrh or ulceration. McCrae who contributed the article on typhoid in Osler's System of Medicine[25], does not mention it. J. Lorrain Smith in Albutt's System[26] alludes to it briefly and quotes Rénon's opinion that the ulceration is caused not by typhoid bacilli, but by staphylococci and streptococci. The English translations of two notable German works[27], [28] discuss it; one of them (Nothnagel) in some detail. Curschmann, the author of the latter, describes the lesion fully, comments upon its practical disappearance from medical literature for many years, and quotes four cases where the throat symptoms gave rise to erroneous diagnoses of croup, diphtheria, scarlet fever, and syphilis.

Frequency. Devic and Schaefer estimated their frequency at 20% (1 in 5 or 6 cases), Hofmann quoted by Landgraf[20] at 11% (28 in 255), Novotny[29] from Chvostek's clinic at Vienna at 6% (6 in 102), Ludin[30] from Gerhardt's clinic at Basle at 12% (8 in 68), and Samuel[22] from Krehl's clinic at Strassburg at 7% (76 in 1102). Blum[23] regards the last mentioned percentage a minimum. The percentage varied markedly in the different years as well as in the different epidemics. At Strassburg there were no ulcers noted in 80 cases from 1888 to 1890. From 1890 on, the number noted began to increase except in 1900, when there were 56 cases, and none of them exhibited ulcers. In 1901, 2 in 38 cases; 1902 to 1905, 8 to 12%; in 1906, 17 in 127 cases; in 1907, 7 in 63 cases. Blum contrasts 10 in 512 (2%) cases from 1888 to 1900 with 66 in 590 cases (9%) from 1901 to 1907. At Basle 4 of 30 cases in 1907 exhibited ulcers, 2 of 13 in 1908, 1 of 15 in 1909, 1 of 10 up to April, 1910.

Numbers. Although most cases previously reported presented but a single ulcer, at Strassburg two or more occurred in 15 of the 76 recorded, and in 5 of my 6 cases, whereas the greatest number exhibited in any one case was eight. Letulle[31] pictures the throat of a patient with seven ulcers.

Healing. Trouillier[32] states that the ulcers heal from within five to thirty days; most writers specify from two to three weeks. They healed within ten days in the four of my six cases who survived. All agree that they leave no scar.

Glandular Involvement. Only two of my six cases were accompanied with enlarged and tender glands. Wagner[18] describes a slight swelling, and Derignac[14] recorded several with tender glands. Rapin[12], Von Willer[33] and Trouillier[32], on the contrary, found neither enlargement of the lymph glands draining the ulcers nor any appreciable tenderness there.

Subjective Symptoms. In most instances the throat lesion was discovered, not because of any complaint upon the part of the patient, but as a result of a detailed routine examination. Sore throat or dysphagia occurred in three of my six cases, in two of Nonat's[5] seven, in one of Duguet's[7] three, in two of Lécorché and Talamon's[10] three, and in one of Von Willer's[33] seven, whereas at Strassburg pain occurred in but four of seventy-six cases, and in only one of them was it severe, in which instance the pain persisted as long as the ulcers lasted. Hoarseness, cough and dyspnea have also been noted.

Histology. As these ulcers are seldom late lesions, autopsy records are available in but few instances. The French writers at first claimed that the lymphoid tissue of the phayngeal ring was involved, but they presented no anatomical evidence in proof, and Landgraf plainly showed that the same type of ulcer is also found where there are no lymphoid follicles (lip and epiglottis); and he believes that they belong to the ordinary superficial nutritional disturbances of the mucous membrane under the head of catarrh and that redness and erosion are only milder stages of the same process. The only case of Duguet's[7] three which came to autopsy showed merely a disappearance of the more superficial epithelial cells without

* See Ludin's and Blume's communications.

any involvement of lymphoid elements. Letulle[31] shows a section through a deep ulcer, the floor of which is formed by the muscular and fibrous tissue of the faucial pillar; there is a pronounced accumulation of lymphoid elements below the floor and at the edges of the ulcer. Two of the Strassburg[23] cases were examined histologically by Schmidt of Zurich. They showed neither the large cell infiltration of the intestinal lesion nor anything characteristic or suggestive of typhoid fever, so that Blum concludes that the ulcers are merely catarrhal. This opinion is supported by the description of one of Duguet's cases in which an ulcer gradually developed upon a very much reddened mucous membrane; of one of Roque's 34 cases in which the ulcer was preceded by an herpetic-like vesicle and of one of Derignac's[14], in which a very small greyish ulcer developed the day after the appearance of a slight elevation of epithelium like an indistinct herpatic vesicle. Further support of their catarrhal nature is furnished by their healing without leaving a scar.

Bacteriology. As one might expect, and very likely depending upon the care employed to avoid producing bleeding, the results of the smears and the cultures that have been made in the published cases are at great variance. Renon[35], Bonnette[36], Letulle[31], and Schaefer[37] found only staphylococci or streptococci. Neither Vamossy's[38] case nor Wagner's[18] three cases showed any typhoid bacilli. Bendix and Bickel[5] report one positive finding in ten cases of various types of angina in typhoid. Besson[40] found typhoid bacilli six times in ten cases, but he punctured the tonsils each time. Novotny[29] claims to have isolated in pure culture, a paratyphoid bacillus B. from a pharyngeal ulcer on about the twelfth day of the disease in a patient whose blood, urine and stools showed typical typhoid bacilli. Blum found typhoid bacilli in three of five cases; but in sections of the buccal mucous membrane and of the ulcerations from two of Blum's cases, Schmidt[23] was unable to find any typhoid bacilli. Staphylococci were found alone in my first case; and despite painstaking and repeated attempts in my fourth case, Bradbury only discovered staphylococci and a short, thick, non-motile bacillus. In neither my fifth nor my sixth cases were any typhoid bacilli found, but in both staphylococci and streptococci. While making the smears and cultures in each of these three cases, Bradbury was especially careful to avoid producing any bleeding. This evidence seems to show that these ulcers are caused by or are secondarily infected by germs other than typhoid bacilli. Even a larger number of positive findings would hardly convince one of their dependence upon the typhoid bacillus itself since smears and cultures from such an ulceration might very readily be inoculated by organisms directly from the blood.

Cause, Relation to Other Infections and Specificity. From a study of the reported examples of this lesion, the very few histological and relatively few bacteriological examinations, we are led to the conclusion that these ulcers are superficial nutritional catarrhal processes produced by dryness of the mouth and occluded nose (Landgraf[20]), possibly involving largely parts exposed to pressure and poorest in lymphatics (Fraenkel[10], Trouillier[32]), and in all probability caused by some secondary infection, staphylococcus or streptococcus (Blum[23]), in turn dependent upon improper cleansing of the mouth (Friedlander[15]). The same type of ulceration has been noted in paratyphoid (Blum[23] three in nine cases, Novotny[29] once), so that it cannot be used to differentiate a typhoid from a paratyphoid fever, as was claimed by Letulle.[31] An apparently identical ulcer has also been described in four cases of tuberculosis (Blum[32], Ludin[30], possibly one of Landouzy's cases), so that despite the claims of most of the abovementioned writers. Bouveret's ulcers are not absolutely specific, although most suggestive of enteric fever.

Relation to the Severity of the Disease, Prognosis, and Relapses. Letulle's[31] experience, based upon more than sixty cases, leads him to believe that it occurs most frequently in mild forms of the disease. Von Willer[33] and Landgraf[20], on the contrary, found it more frequently in severe cases of typhoid. Trouillier[32] quotes 54 in grave, 44 in moderate, and 17 in mild forms of the disease, while Blum cites 30 in grave, 29 in moderate, and 17 in mild forms. Two of my six died and two others were very severe forms of the disease. Their existence from the above evidence, therefore, makes a severe course of typhoid probable and suggests a guarded prognosis.

If the ulcers fail to heal, a relapse seems more probable (Fohanno[41], Devis, Trouillier[32]). The last named quotes eleven relapses in eighty-one cases, in five of which the persistence of the ulcers made the possibility of a relapse a probability.

Diagnostic Value, Time of Appearance, Differential Diagnosis. As is now well recognized, a simple sore throat of a catarrhal nature[18, 12, 42], a tonsillitis [26, 18], or a phlegmonous pharyngolaryngitis[43, 18], may usher in the early symptoms of enteric fever, but in America and in England the diagnostic value of the ulceration so frequently named for Bouveret has hardly been appreciated. In three of my six cases an erroneous diagnosis of syphilis and in one of diphtheria was made by more than one competent observer; nearly all the writers upon this condition mention such difficulty, and Curschmann[27] in particular cites diphtheria, scarlet

fever, croup and syphilis as being wrongly applied to four cases of typhoid with angina. Blum [28] and Ludin[30] have, to be sure, described the same type of ulceration accompanying tuberculosis, but the paucity of such observations detract but little from the positive diagnostic value of these ulcers of the pharynx in a febrile patient.

Most of the published cases, it is true, did not exhibit the ulcers early enough to be of striking value in the differential diagnosis of a fever in which modern laboratory methods have so nearly supplanted clinical observation. The ulcers anticipated the appearance of the rose spots, however, in the cases reported by Bonnette[36] (fourth or fifth day), by Du Costel (8 days before spots), in two of Duguet's[7] three cases, in two of the three cases reported by Lécorché and Talamon, in one of Cahn's[17] five cases, and in one of Wagner's[18] three cases. In two of my cases they preceded both the spots and a positive Widal. In most of the cases, however, the ulcers coincided with the appearance of the roseola during the second week; and although Nonat[5] claimed that they never began after the second week, Fohanno[41] cites one on the 17th, Bendix and Bickel[39] one on the 18th, and Landgraf[20] one on the 48th day of the disease.

Derignac[14] and Laségue laid some stress upon the differential diagnosis between typhoid angina and pharyngeal tuberculosis; Kussmaul at first regarded Schott's case as one of tuberculosis, but at this time the connection between these ulcers and typhoid fever was not generally known in Germany. Although they occurred in tuberculous individuals, neither Blum nor Ludin considered the ulcers in their four cases to be due to a tuberculous process, because three of them healed promptly without a scar, and because in Blum's second case the microscopical examination showed that the lesion was a simple catarrhal ulcer exactly like the histological picture of the corresponding ulceration in typhoid, and with no suspicion of any tuberculous change, caseation or tubercle formation. With modern laboratory methods a tuberculous ulcer can be promptly and accurately diagnosed as such so that we need only bear in mind the same type of simple catarrhal ulcer has been noted to accompany tuberculosis as well as typhoid. As far as scarlet fever is concerned, the enlargement of the spleen, the presence of rose spots, the absence of a leucocytosis, the relatively slow pulse, the gradual onset, and especially the serum test and the early blood culture will prevent any mistake. The same may be said of diphtheria with the addition of a prompt examination of a throat smear and culture. A differentiation of the mucous patches of secondary syphilis may be more difficult, especially if, as in my fourth case, a suspicious rash covers the body (in this case I attributed the rash to some drug administered before the patient's entrance). The absence of a primary lesion, scar or enlarged lymph nodes, the history, the onset, the eruption, the slow pulse rate, the Widal or Wassermann reaction, and an early blood culture should clear the difficulty. Besides which the location, numbers, and especially the appearance are more or less distinctive. Derignac[14] contrasts the greyish white or greyish granite of the typhoid with the whiteish opalescent porcelain-like appearance of the syphilitic ulceration. He also mentions the possibility of confusion with mercury, antimony, carbolic or salicylic poisoning, as well as a chancre, herpes, thrush, aphthae or variola. Their distinction should be readily made.

SUMMARY.

1. In enteric fever there appears not infrequently (6 to 12%), it may be before, but as a rule about the same time as the roseola, one or more small superficial ulcers, usually situated upon the anterior pillars of the fauces, the so-called typhoid angina or Bouveret's ulcer.

2. These ulcers may appear sufficiently early to be of some value in the clinical diagnosis of typhoid.

3. An appreciation of this lesion will prevent the mistaken diagnosis of syphilis, diphtheria, croup, and scarlet fever, as well as of other local lesions.

4. The ulcers are probably due to a secondary infection upon a mucous membrane altered by the existing disease.

5. Although an exactly similar lesion has been described in four cases of tuberculosis and so detracts from its credited specificity in typhoid fever, such are evidently very infrequent exceptions, lessening but little its diagnostic value.

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MEMORIAL TO MISS CLARA BARTON.

IT is announced that three memorial buildings are to be erected at Red Cross Station, Glen Echo, Md., as a monument to Miss Clara Barton, founder of the American Red Cross, who died there in April, 1911.

"There is to be a main memorial building with a frontage of 100 feet and a depth of 160 feet, which is to be an auditorium for lectures, meetings of women's clubs and a treasure house for the curios, decorations and certificates of honor conferred upon Miss Barton.

"The main auditorium building is to cost $100,000. The First Aid Building and the Nurses' Home are to cost $75,000 and $50,000 respectively.

"The main building is to be T-shaped, the front 100 feet across and 60 feet deep. Then it is to run back another 100 feet, making the total depth 160 feet. A striking feature of this auditorium is to be a recess in which a large painting of the only picture ever made of Clara Barton while in actual battlefield or hospital work is to be placed. It is being painted from a small photograph made by a relative at Havana in 1898. The rooms on the second floor in the rear are to contain the Barton curios, trophies and decorations, most of which are now in safe deposit vault in Boston. These include ninety-four certificates of honor from crowned heads and states and cities which had been aided by Miss Barton in times of great disaster.

"The First Aid Building is to be equipped with all latest appliances for surgical work and in charge of surgeons who will have in constant training teachers to be sent throughout the states. The building is to be endowed. The Nurses' Home is to contain rest rooms, library, reception hall, parlor, dining-room, kitchen and bedroom accommodations for twenty-five nurses."

SOME OF THE PROBLEMS OF PRIVATE SANATORIA FOR TUBERCULOSIS AS OBSERVED DURING TEN YEARS' EXPERIENCE IN THE POTTENGER SANATORIUM FOR DISEASES OF THE LUNGS AND THROAT.

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THE Pottenger Sanatorium for Diseases of the Lungs and Throat has just completed its tenth year. It was the writer's pleasure to conceive, build, equip, and finance, and organize this institution. He has been intimately connected with every detail of its running from the start. As medical director he has literally lived with the patients of the institution during nearly all of this period, having his home on the grounds and being intimately connected with the life of the place.

During this time there have been 1521 patients treated in the institution. The stay of these patients has varied from one day to three and one-quarter years. The majority of patients remained in the institution and were under close observation during a period of seven or eight months. This has afforded an exceptional opportunity to study both the laboratory and clinical side of tuberculosis; to acquaint oneself with every phase of its development and progress both toward dissolution and toward arrestment; to study all the various complications, tuberculous and non-tuberculous; to learn to know the patient from both a physical and psychological standpoint, and, in fact, to study every peculiarity of the disease and the patient.

Coincident with this sanatorium experience the writer has treated patients in his city office, a majority of whom were charity cases and many of whom were compelled to work during the time that they were taking treatment. This has afforded a splendid opportunity of studying the disease as it presents itself in different social conditions and of comparing methods of treating the disease under home and institutional environment. He has been led to the conclusion that the advantages which the sanatorium offer those who are able to avail themselves of it are many. The patient is isolated. He is removed from home and business with their interests and

worries. He is taken away from the influence of solicitous and other meddlesome friends. He is kept away from many of the acute respiratory infections which are common among people in the ordinary walks of life. He is placed in hygienic surroundings in the open air, such as are rarely fully obtained in the home, which raise his resisting power and help him to overcome infections should he be exposed to them. He is placed in an environment which is especially adapted to his needs, along with other people who are trying to overcome the same disease; consequently he is profiting by the moral support of many others trying to accomplish the same purpose. Another great factor is the close association with the physician. In an institution the man at the head must stand responsible for practically every act of the patient's life. He must tell him what to do, he must also see that he does it. He regulates the patient's mode of living, his hours of exercise; his hours of rest. He furnishes his food and knows what and how much he is eating. He knows his mental attitude; and, in fact, learns to know the patient intimately so that he can help him to make his fight for life in every way possible.

Where the patient must be treated in the home, on the other hand, there are many difficulties. He is compelled to associate with people who are well, and he must necessarily, to a greater or lesser extent, adapt himself to their environment. He is often discouraged in doing the things he should do and encouraged to do the things he should not do. He is constantly annoyed by solicitous friends. The physician, not being near where he can be consulted, the patient is advised by the neighbors and friends who see him and he is often compelled not only to fight his disease, but his friends as well. His food cannot be so well controlled; his hours of rest and exercise are more apt to be disturbed and his surroundings, as a rule, are less hygienic. He fails to have the help derived from an intimate association with his physician. He sees the physician in his office or when he calls, two or three times a week; at other times he is compelled to fight his own battles.

One of the most serious problems in the treatment of tuberculosis is keeping up the patient's interest long enough for him to get well. Tuberculosis is a chronic disease which develops slowly, taking years probably, as a rule, in reaching the clinical stage. It also takes a long time to cure it. During a great portion of this time the patient feels fairly well; at other periods he feels depressed and discouraged. The physician must curb his enthusiasm during the periods when he is feeling well and must supply him with encouragement and optimism during the periods of depression.

It is extremely trying for the physician to face the same patient day after day, week after week, month after month, during a period of one, two or three years, as is sometimes necessary in the treatment of tuberculosis, and still hold the patient's interest, respect and confidence. This is one of the most serious difficulties in treating the disease. There are few men in medicine who are really fitted either by nature or by training to treat tuberculosis. It requires a special type of man. As a first requisite he should have an excellent training and a wide experience in general medicine, for he will have most of the problems of internal medicine to solve. He must be one capable of appreciating and caring for detail, one with an inexhaustible store of patience, an unlimited optimism, yet one which is tempered by knowledge and judgment. He should not set himself on a high pinnacle, simply because he is head; he should be in sympathy with his patients; he should study the peculiarities of his patients as individuals, also the peculiar psychological characteristics produced by the disease; he should recognize the difficulties with which the cure of tuberculosis is surrounded from the pathological standpoint and also the meaning of the struggle, sacrifices and deprivations which the patient is compelled to make in order to attain a cure. He should be a man of firmness, but his firmness should be tempered with a broad and intelligent sympathy.

The difficulties encountered in conducting an institution for the tuberculous are many. Some of them are inherent in the disease itself; some are on the side of the patient, and many of them on the part of the institution itself. One great difficulty is to fill the positions in an institution, particularly the responsible ones, with people who are capable of taking a broad view and who are in sympathy with their work. Tuberculous patients are much like children,—they are easily angered, they are easily pacified. Those at the head of departments must remember that they are dealing with the sick and consequently they must have charity in dealing with them. On the other hand, the patient must learn that his personal ideas and personal whims must give

away to the better judgment of those who are in charge and that he must adapt himself to the institution instead of expecting the institution to adapt itself to him. He must further be charitable, knowing that he himself is not perfect. He must not expect perfection in an institution made up of a great many assistants and employees.

There are two methods of running an institution. One is by military discipline, and the other by considering the entire community as a family and expecting mutual regard and support.

There must necessarily be certain rules that must be lived up to rigidly; but in the private institution, where the result in the individual case is the thing to be attained and hoped for, most of the rules must be somewhat elastic. The patient must be taken as an individual with an individual mind and individual temperament; and it is the province of those in authority to work with that mind and temperament and mould it into obedience. Personally, I prefer the family spirit. It is the one that has sway in my institution. I have endeavored to secure the coöperation of the patient through a sense of duty to himself and friends and to the other patients; and through a respect for but not fear of, those in authority. I believe in a spirit of frankness in dealing with the patient and a willingness to explain and talk over difficulties. A heart-to-heart talk often secures coöperation where military discipline would call for expulsion. I prefer the plan where the patients look upon those in authority as their friends rather than as their masters. This engenders a good, friendly, helpful spirit and the patient feels that he is being guided by someone who understands him and is in sympathy with him. During ten years' experience in sanatorium work, I have only expelled four patients from the institution. At times, it seemed an injustice to myself to allow others to remain, yet patience finally secured coöperation and a stable state of affairs. Excellent results have been obtained where military dicipline would have expelled the patient.

The patients who enter an institution belong to three classes. The first comprises the great majority of patients and consists of those who want to do what is right, who are conscientious and earnest in their desire to get well. To be sure these, at times, fall from grace; but most of the time they are working conscientiously for recovery. Then, there is a small class, probably about twenty per cent., who have no well defined principles, but who are willing to be conscientious if they fall in with the conscientious class, and who are just as willing to be insincere if they are led that way. Then there is still a small number, less than five per cent., who are vicious, willful and unfaithful to themselves and all with whom they come in contact. This class, however, can often be controlled by patience and firmness. It is important to recognize those of this class early and upon the first refraction of a rule let them understand that the offense must not be repeated. The patient must be given to understand that he requires the service of the institution more than the institution needs him; that, while the institution has little to gain by his presence, he has a life at stake.

There is a general belief that there are many people who for one reason or another, particularly because of lonesomeness, or through the depressing influences of other sick people, cannot undergo sanatorium treatment. This is incorrect. It is not necessary that a sanatorium should be either lonesome or depressing. I have seen only three or four patients in my institutional experience who apparently could not adjust themselves to the institution; and, as might be expected, these particular patients would not adjust themselves to any régime. They were not willing to make the struggle or sacrifices necessary to get well. Whether or not an individual will undergo sanatorium treatment depends largely on the manner in which the question is presented to him. If he desires to get well and is impressed with the seriousness of the disease and the advantage of institutional treatment, he will nearly always adopt this policy if it lies within his power. He will usually be willing to sacrifice personal likes and comforts temporarily that he may recover his health. If unwilling to do this, as a rule, it is an indication that he will not be a patient who can be trusted for a whole hearted coöperation during a protracted convalescence.

It is a great mistake for physicians to tell patients that they are not sick enough to go to a sanatorium or that they should not go there because of the danger of becoming infected. There is never a time too early for treatment to begin and there is no place where less danger of infection exists than in a properly-conducted sanatorium. The importance of early treatment cannot be better emphasized than by the results

which we have obtained in the past ten years, which are as follows:

	First Stage.	Second Stage.	Third Stage.
Apparently cured and arrested	97%	81%	38%
Improved	3%	14%	40%
Unimproved or died		5%	22%

The above results are far more eloquent than any comment could be in the plea for the early treatment of this disease. These results are tabulated according to the original definition of apparently cured and arrested. When the physician advises his patient not to undergo treatment early but to wait, he is taking upon himself the responsibility of advising him to wait until the disease has passed from the stage where 97 per cent. can be apparently cured or arrested to where 81 per cent. or 38 per cent. can be apparently cured and arrested.

The private sanatorium differs from those of the public and partly endowed class.

The tuberculosis problem is mainly connected with the poor but not wholly so, for the disease is found in all walks of life. It permeates every stratum of society; and, in our solution of its problems, we must make provision for fighting it along all classes.

We must recognize that it is most common among the poor and it is to this class that social workers and economists must direct their greatest efforts. The problem here is also greater because of the conditions under which these people live and work, also because of their helplessness and inability to care for themselves and their families during a long siege of illness such as that produced by tuberculosis.

In our warfare against this disease, however, we must not forget those who are not dependent. There are many people who are not wholly helpless but who are able to pay their way in part. Those deserve as careful consideration as the helpless and every precaution should be taken to prevent the spread of the disease among them, and every opportunity for cure should be offered them that is offered to those who are wholly dependent. Then, there is a third class made up of those who are wholly able to pay their way; who, in spite of means and opportunity to live in hygienic surroundings will, at times, develop this disease. The problem of the prevention and cure of tuberculosis must include these, the same as it does the others. The cure of these lies wholly in the province of the private sanatorium. The problem of handling these three different classes is the same in general, but different in detail. There is no hard and fast line separating these three classes, yet an acquaintance with the patient will usually determine to which class he belongs. It is just as wrong to pauperize the two upper classes by giving them free treatment as it is to compel the dependent to pay for their cure.

The position of the private sanatorium in the warfare against tuberculosis is misunderstood both by laymen and physicians. It is sometimes criticised where a greater knowledge of its real function would call for praise. If there is reason for the existence of private hospitals of any kind, general or special; or if there is reason for the existence of private physicians, there is the same reason for the existence of private sanatoria for the treatment of tuberculosis. The sanatorium is simply the man at the head with enlarged opportunities. The only rational excuse for the existence of a private sanatorium is for some man who is expert in treating the disease to thus have a better and larger opportunity to give his services to those who are in need of them. The private sanatorium for tuberculosis the same as the partially endowed and wholly charitable institution is in harmony with the fact that has been thoroughly established in modern medicine, that institutional treatment is the best treatment for practically all diseases.

The sanatorium problem in many particulars differs in no wise from the general problems of medicine. The institution should be governed by the same rules of ethical conduct and should be conducted on the same line of high scientific standards as holds in private practice. The sanatorium differs, however, in that it occupies a conspicuous place and is open to comment, favorable and unfavorable by the public at large, which the private practitioners largely escape. It is patent to all that it is a genuine success, that it is barely making a go, or that it is failing; and accordingly it is looked upon with admiration, even jealousy, indifference or contempt.

The private sanatorium is the most difficult type of institution to conduct. In a charitable institution the undesirable patient can always be discharged. In partly endowed institutions the patient knows that he is getting more than his money could otherwise purchase and he must of necessity be fairly well satisfied. The patient in the private sanatorium, on the other hand, must be taken as he is and dealt with tactfully. He must be made to overcome his whims and educate his tastes so that he will put himself in harmony with the institution and coöperate with the physicians in his cure, and make himself comfortable and contented long enough to get well. This is often an extremely difficult thing to do. It is much more difficult for the physician in an institution than it is for the one in private practice, because in private practice

the doctor sees the patient once a day, or once every few days and there his responsibility virtually ends. In an institution, on the other hand, the responsibility of the entire life of the patient is upon him. The physician must guide him in his every act; he must tell him what to do and see that he does it. He must not only deal with the patient and his peculiarities himself; but the tact or lack of tact employed by all of his assistants and subordinates eventually reflects upon him.

One of the serious problems in the private sanatorium and, for that matter, in all sanatoria, is the question of finding occupation for the patients. There are so few games and sports that the average patient can enter into advantageously that it forces those in authority to keep the patients happy and contented without employing the usual forms of diversion. Where the patients are in the earlier stages, croquet, photography, chess, checkers, cards, walking, and a certain amount of driving can be permitted. When the patients are in the more advanced stages of the disease, even these must be denied. No game must be entered into by the tuberculous patient that he cannot quit at any time should it be wearing upon him. It is an unfortunate but well recognized fact that as soon as patients get to the place where they are permitted to do much driving or engage in very vigorous sports they at once begin to overrate their strength and underrate the desirability and the necessity of further treatment. They lose interest in the cure. The old adage of giving an inch and taking an ell is all too true of the tuberculous patient. This pitfall must always be guarded against. The best way of helping a patient to occupy his time in the sanatorium is by breaking up his day and having some little thing in treatment carried out at intervals during the entire day! In the institution with which I have been connected we have taken this into consideration and planned rather a continuous program.

Quoting from a former paper, "The Tuberculosis Sanatorium and What It Stands For," (*Monthly Cyclopedia and Medical Bulletin*, April, 1911):

"Success in the treatment of tuberculosis depends on keeping the patient cheerful, optimistic, and interested in his own cure. To this end he must be kept busy, not busy working, for this is not consistent with the best treatment; but the day's program must be so arranged as to leave little time at his own disposal. Probably I can best illustrate what I mean by keeping the patient busy by describing the usual routine in our own institution:

The patient's day begins at 7.00 o'clock in the morning, at which time the nurse calls to waken him and carry out any regular orders given by the physicians. The patient arises and takes a cold sponge bath, or, if he is not in condition to take it himself, it is given him by the nurse.

At 7.30 the medical director begins his daily rounds and continues until he has visited each bed patient. These visits are made in company with the assistant physician who has charge of the individual case. The condition of each patient is carefully noted, and the plan of treatment for the day agreed upon.

At 8.00 o'clock breakfast is served, all patients who are able to be up and around going to the dining room. Those who are confined to bed are served in their rooms and bungalows. After breakfast each ambulant patient reports to the medical director for consultation. If any special treatment is needed he is referred to the assistant physician having charge of the case. All who are suffering from local complications, as of the ear, throat, or nose, are also treated at this time.

On one day of each week, between 10.00 and 11.00 o'clock the patients are weighed by one of the staff.

During the time between 9.00 and 1.00 o'clock the nurses are busy carrying out the physicians' orders and looking after the wants of the patients, devoting most of their time to those confined to bed.

From the time that the patients are through with their treatments until 1.00 o'clock, they while away the time in croquet or other allowable games, in visiting friends, and doing little things of a personal nature, and in exercising as prescribed by the medical staff.

The medical director, aided by the assistant physicians, makes a careful examination of each patient monthly, charting the chest so as to note the changes in the tuberculous process. These examinations are made between 10.00 and 1.00 o'clock.

Lunch is served from 1.00 until 2.00 o'clock. From 2.00 to 4.00 o'clock are rest hours, during which time all the patients recline in their rooms and bungalows, and are instructed to rest, to sleep, if possible, providing it does not interfere with their sleep at night.

At 4.00 o'clock the nurses begin their rounds, carrying out the physicians' orders and attending to the wants of the patients. The assistant physicians make calls upon each bed patient in their respective service and any ambulant patients who are not feeling well, and administer any special treatments that are required. They likewise prescribe for any new symptoms or complications that may have arisen since the morning visit.

From 6.00 to 7.00 o'clock dinner is served. After dinner the patients usually amuse themselves by reading or games until bed time. Bed patients, as a rule, go to sleep about 8 or 8.30, and all are required to be in bed with lights out by 9.15.

This aggressive plan of treatment requires an efficient corps of attendants. I think one of the greatest mistakes that is usually made in a sana-

torium is attempting to run it with too small a number of medical attendants. The sanatorium should stand for results. Results in tuberculosis are only obtained by keeping the patient interested. The patient can only be kept interested by association with and receiving encouragement from those who know. To this end a corps of medical men, sufficient in number to look carefully after the wants of all patients is essential.

In this short paper I have endeavored to take up some of the important questions bearing upon the sanatorium treatment of tuberculosis which are usually omitted from discussion. I have endeavored to show the relationship which the private sanatorium bears to the public on the one hand, and the members of the medical profession on the other; I have further attempted to show the true relationship which should exist between the patient body and the medical staff and other attendants; thus pointing out the true place of the private sanatorium in the warfare against tuberculosis.

ROCKEFELLER INTERNATIONAL HEALTH COMMISSION AND THE WORLDWIDE ERADICATION OF HOOKWORM DISEASE.

Mr. Wickliff Rose, director-general of the International Health Commission of the Rockefeller Foundation, has recently returned to Washington, D. C., from a trip on which he investigated the distribution of hookworm disease throughout the tropics. The commission has issued a statement describing his observations and its plans for the worldwide eradication of uncinariasis.

"In Egypt Mr. Rose found Lord Kitchener keenly interested in the work and eager to have the coöperation of the commission in a systematic campaign against the disease. Measures against hookworm disease were instituted in Egypt by the medical missionaries some fifteen or sixteen years ago, and more recently the government has undertaken the work in certain localities. Now that the International Health Commission has agreed to lend its coöperation, the work will begin on a much larger scale. The disease is extremely prevalent and of tremendous importance in lowering the vitality of the people.

"Journeying eastward, Mr. Rose visited Ceylon, Malaysia and the Philippine Islands, where he studied the existence of the disease and conferred with authorities concerning measures for its control. Returning by the Pacific route he had an opportunity to secure information about the existence of hookworm infection in China, Japan and Korea.

"In British Guiana an intensive campaign is being undertaken in the Peters Hall District, which has been divided for convenience into three sanitary districts. In one of these districts every person has been examined for hookworm disease; more than fifty per cent. were found to be infected; all of these infected have been placed on treatment; and a second microscopic examination is now being made of persons treated in order to determine the results of the work. In the second of these districts the work of examining all the inhabitants is well under way and practically complete."

THE DEVELOPMENT OF MODERN ARTIFICIAL PNEUMOTHORAX.

A Brief Sketch of Forlanini.—Limitations and Possibility of the Treatment.—Remarks on the Technic.

By Gerardo M. Balboni, M.D., Boston,

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Professor Carlo Forlanini, the originator of the modern method of artificial pneumothorax, was born in Milan, Italy, June 11, 1847. He completed his medical course at the University of Pavia from which he graduated in 1870. From 1871 to 1884 he was first an assistant physician and later an associate in medicine at the Ospedale Maggiore of Milan. In 1881 he was appointed chief of the dermatological department in the same hospital. In 1884 he was appointed professor of clinical medicine in the University of Pavia.

He was a student of Mantegazza, a friend and companion of Bizzozero and Golgi, and was among the first to understand the importance of the experimental method, and the necessity of applying it to the field of clinical medicine. All his works show his love for truth and for clear and skillful research, and are a clear interpretation of the observed facts.

In looking at the numerous contributions one is surprised at the number and variety of subjects to which he applied his activity. There are studies and researches in anatomy, histology, experimental pathology, ophthalmology, dermatology and internal medicine, notes on therapeutics, especially aero-therapeutics and mechano-therapeutics, all forming a series of valuable contributions to medical science.

The study with which Forlanini's name is especially bound is the artificial pneumothorax treatment of phthisis. He first suggested treating certain forms of pulmonary tuberculosis by artificial pneumothorax in 1882, and has been its most persistent advocate ever since. Between 1882 and 1894 he made many experiments on the immobilization of the lung, both in animals and human beings. In 1895 before the Italian Congress of Internal medicine he reported the first clinical cure of an advanced case of unilateral pulmonary tuberculosis. This was a case that had developed a spontaneous pneumothorax. Forlanini simply maintained the pneumothorax complete by frequent injections of nitrogen. No other report was made by him on this method of treatment until 1906, although he carried on the work both in his clinics at the San Giovanni Hospital in Turin and at the University of Pavia, and in his private practice. Since 1906 he has given us some of the most valuable contributions on the subject.

In 1898 Murphy of Chicago reported five cases. The next year Lemke reported fifty-three cases. The technic was unlike Forlanini's. Murphy used the incision method and introduced into the pleural cavity large quantities of nitrogen, in amounts ranging from 1200 cc. to 4500 cc., repeating the injections after two or three weeks. Neither Forlanini's nor Murphy's technic was such as to inspire confidence and both were not devoid of serious danger to life. In Italy, no one took up the work outside of Forlanini's clinic and in America it had no enthusiastic followers after Lemke died, outside of Harris and Mary Lapham. It was not until Brauer and Spengler took up the work following Murphy's technic and published their brilliant work in 1906 that any marked attention was given to the treatment of phthisis by artificial pneumothorax.

A further important step was made by Saugman in adding a manometer to the apparatus to denote when the point of the needle was in the pleural cavity. By the addition of the Roentgen ray, artificial pneumothorax treatment has reached its present position of safety. Now every civilized country has its adherents, nearly all following Forlanini's puncture method. At the International Tuberculosis Congress held in Rome in 1912 it was the chief subject of discussion, and an international association was formed to keep the workers in this field in closer touch with each other.

The literature on this subject at present embraces over 600 articles. The leading contributions are from Italian, German and French clinicians. With the exception of Murphy's and Lemke's articles in 1898-99, only in the last few years have valuable contributions been made by American and English clinicians. The tenor of all these reports is favorable. Considering the large number of cases treated, few clinical recoveries have been reported. Still one must bear in mind that the treatment has been undertaken in almost all of the cases as a last resort; also that the method is naturally limited to unilateral cases or to cases with slight involvement of the better lung. A fair estimate of the patients suitable for artificial pneumothorax according to the present accepted indications may be gathered from the following observations.

Volhard found 56 suitable cases out of 789 patients examined. Burnand found 23 out of 628 patients. Keller attempted it in 40 out of 583 patients examined. During my six months' service in the out-patient clinic of the Massachusetts General Hospital, out of 100 tuberculous patients examined in the general clinic only five would have been suitable for artificial pneumothorax. From my series of 64 cases treated by pneumothorax, in only 23 was a complete collapse possible. In many cases attempted the practical value of pneumothorax is limited on account of the impossibility of creating a pneumothorax of sufficient therapeutic value. This is due to partial or complete adhesions, cicatrized or indurated lung which cannot be compressed, and to severe lesions in the "better lung."

THE MANOMETER.

It is worth repeating here that the manometer may show respiratory oscillations of three kinds: Negative, even (namely the excursions on the manometer are equal on inspiration and expiration) and positive.

1. Negative respiratory oscillations always mean that the point of the needle is in the pleural cavity.

2. Even respiratory oscillations at a primary injection mean that the point of the needle is beyond the pleural cavity, *i.e.* in lung. No matter how much nitrogen is introduced under these conditions, the oscillations will vary but slightly.

3. Positive respiratory oscillations indicate that the point of the needle is either in a pocket of gas, a complete pneumothorax, or a hydropneumothorax; under these conditions the pressure becomes higher on the introduction of a very small amount of nitrogen.

4. At a secondary injection when a pleural effusion has formed, the point of the needle may be in the pleural cavity and the manometer may show only slight or feeble respiratory oscillations slightly negative or markedly negative in character. Or there may be simply a negative rise on inspiration, with no oscillations whatever. Under these conditions, when the needle is removed a drop of fluid may be observed on the end of the needle especially if the stylet is passed through its lumen.

If the point of the needle is in a blood vessel only a rising pressure will be noted.

VALUE OF ROENTGEN FLUOROSCOPIC AND PLATE EXAMINATION.

Before the induction of an artificial pneumothorax is attempted, whenever possible, a Roentgen examination of the chest should be made, both fluoroscopic and plate. It shows the precise topography of the lesions, and any enlargements of the larger blood vessels. A preliminary plate and fluoroscopic examination is advisable before instituting pneumothorax treatment. Not only can the extent of the tuberculous process in both lungs be determined more exactly than by physical signs, but also the presence of adhesions to the diaphragm and the costo-phrenic sinus can be demonstrated. It is of especial value after the first few insufflations, because it shows clearly just what has been accomplished and in just what manner the lung is being collapsed: 150 cc. of nitrogen injected into the pleural cavity will show a distinct outline; 1000 cc. will show the lung approximately half collapsed.

The pressure readings of the manometer alone are not sufficient to inform one of the degree of lung collapse, nor are percussion and auscultation at all times sufficient. The Roentgen rays

are the most precise and accurate means at our command not only to show in what manner the lung is collapsed but also to tell us how much the mediastinum and heart are displaced.

In the absence of adhesions, the lung is seen to be uniformly compressed around the hilus, and the pneumothoracic cavity sharply defined. Variations from this normal disposition of the pneumothorax are due to various causes: viz: Pleural adhesions, which are the most frequent; large cavities encapsulated in fibrous tissue, which permit one part of the lung to collapse more than another part; calcified areas, which are incompressible; and fibroid changes which are also incompressible.

Pleural adhesions are well defined and attempts to inject nitrogen into an adherent pleura must be made with great care. If the pneumothorax increases (which will be shown by the extent of the manometer's excursions) careful introduction of small quantities of nitrogen may be continued. Pleural adhesions appear either as single bands running from the lung to the thoracic wall, or as a net-work of such bands. Adhesions have been noted most frequently in the upper lobe.

When the pleural cavity is free, the collapsed lung appears to be a homogeneous mass. In one case the lobes were plainly discernible. Where adhesions exist, their length, form and distribution are readily ascertained. Case 12 showed the lung held in the center by a thick adhesion, which prevented a complete collapse posteriorly. Subsequent plates showed that this adhesion was decreasing and the collapse increasing, but it was impossible to effect a complete collapse.

The plate in Case 31 showed a net work of adhesions to the superior lobe, which, however, did not prevent a satisfactory compression. In Case 32 the pleura was adherent posteriorly and three bands extended from the superior lobe, thus preventing a good collapse. In this case it was impossible to secure a complete compression of the superior lobe which contained the cavity. In Case 21 (a lung abscess), the lung collapsed in an almost semicircular shape with the concavity outward, as a result of adhesions from the upper portion of the superior lobe and from the tip of the lower lobe. In Case 8 a small portion of the upper lobe was found to be adherent. In Case 20, the left lung showed a wholly adherent superior lobe, a condition that remained wholly unaffected by the injections. The activity in the process of the superior lobe continued unchecked although considerable relief in the symptoms was obtained. In Case 25 a similar adherence was found at the base of the right lung. In one case the lung was irregularly compressed and bands of adhesions from different parts of the lung were visible. This resulted in the formation of pockets of gas and sufficient collapse was obtained in this case to obtain marked symptomatic relief. The sputum was diminished from one-half cup to a teaspoonful in twenty-four hours, with only a little cough in the morning and improvement in the general condition. These adhesions varied from very thick bands to mere threads.

These examples of abnormality are cited to show the value of the Roentgen examination. It helps in the selection of the proper place for the injection; it shows more accurately than physical examination the exact progress of the lung collapse, and the rate of gas absorption; it also shows whether the gas was actually introduced into the pleural sac or not.

The fluoroscope is invaluable in detecting an effusion in its very incipiency. Small amounts of fluid will be discovered by its rise before the physical signs or even the Roentgen plate can show any definite evidence.

COMPLICATIONS.

An operator who has a thorough knowledge of the technic and has made a proper selection of cases will not meet with any serious immediate accidents. Gas embolism ought to be avoided and the so-called "pleural reflex" will rarely be met with if novocaine-adrenalin is used as a local anesthetic.

Spontaneous pneumothorax from rupture of an adhesion is possible from too high a pressure; also rupture of the mediastinum. Pain in the chest from increased tension and cough can be controlled. Dyspnea from reduced respiratory area or cardiac embarrassment may become an urgent symptom requiring the withdrawal of nitrogen to relieve it.

A febrile reaction usually follows an injection, lasting a short time. There is usually a loss of weight during the treatment; or the weight may remain stationary. In the favorable cases, in the absence of complications, the gain in weight on the re-expansion of a collapsed lung is very marked.

Of the later complications, pleural effusions will be met with in about 50% of the advanced cases where a partial or complete collapse can be obtained. Once an effusion has made its appearance, there is always present the danger of its becoming infected at a subsequent injection. The question of removal of the fluid depends on its effects. A serous effusion which does not aggravate the patient's condition is best left alone. If the patient's general condition is affected, the effusion should be aspirated and lung collapse maintained by nitrogen insufflations. Patients with serous effusion should be carefully watched. Frequent fluoroscopic examinations should be made, as the gas may suddenly absorb, the lung re-expand, and then further treatment will be impossible on account of the gluing together of the pleural surfaces.

A serous effusion may become purulent. This has happened in two of my cases. One I will discuss in another paper. The other Case 8 of my series), has had pulmonary tuberculosis for

ten years. The disease was slowly progressing when he first came under pneumothorax treatment three years ago. He had an extensive infiltration of the left lung with a small cavity between the third and fourth ribs. Slight infiltration of right upper lobe. One year after instituting treatment a serous effusion developed with stormy onset. In two weeks the symptoms subsided; then gradually improved. Compression was maintained by the injection of nitrogen every two weeks. Collapse was only partial on account of adherent apex. The fluid aspirated and examined by Prof. Wolbach had all the character of a tuberculous serous effusion and tubercle bacilli were found. A year later this effusion became purulent. No other organisms as yet have been found in the pus except tubercle bacilli. The pus was aspirated and replaced by nitrogen, but the last time this was done the pus was forced, by coughing, along the site of puncture and formed a cold abscess (?) which is tender to touch. I do not like to tamper with this patient very much.

Whenever during treatment the condition of the non-collapsed lung becomes aggravated, the nitrogen insufflations should be suspended. It may even become advisable to extract some of the nitrogen so as to favor re-expansion. I have done so in one of my cases because of hemoptysis. The non-collapsed lung should be carefully watched. No one can tell for a certainty what the effect of the increased work thrown upon it may be.

Once the lung has re-expanded the pleural surfaces coming into contact adhere, preventing a further collapse of that lung. This is very important, for the lung must not be allowed to re-expand prematurely. The time to keep the lung collapsed varies with each individual case, depending on the extent and character of the lesions. It is better to err on the side of keeping the lung collapsed for a longer rather than a shorter time. Anatomical healing takes place slowly. As a rule at least a year is necessary. When a patient has been free from symptoms four or five months, we may allow re-expansion to take place. If while re expanding there should be a return of the symptoms from the compressed lung, treatment should be immediately resumed.

The healed, compressed lung when re-expanded takes up its normal functions again and is capable of carrying on the necessary respiratory exchange even alone. The following is an extreme case illustrating this.

Forlanini drew out the nitrogen from the left side in a case where the left lung had been maintained collapsed for seven years, and this aided re-expansion. He then instituted a pneumothorax on the right. It was a very delicate procedure and of doubtful result. The outcome was beyond his expectation. In about 38 days the right lung was collapsed—the left lung had been practically wholly re-expanded; there was no evidence of recent disease, but a pleural friction sound could be heard from the apex to the base. Respiration 24-26. The patient was in fairly good condition and improving. A lung can thus be maintained compressed for a long time and on re-expansion can alone carry on the necessary respiratory function. The healthy tissue does not appear to be destroyed by the long compression.

If the late or remote results are uncertain, the immediate results are striking. All operators are in accord as to the effects on temperature, control of hemoptysis, diminution and cessation of sputum, control of cough, and in some cases disappearance of tubercle bacilli. In other words, one can obtain symptomatic relief, but this may not always be lasting. Still, we can gain time, a few weeks, months or a few years, and an occasional clinical recovery. This is the actual value of artificial pneumothorax in the advanced cases.

The extension of the indications of this form of treatment is still difficult to give. Its field may be broadened to that large class of moderately advanced cases, perhaps even to certain incipient cases, which the experienced clinician knows would otherwise do badly.

It has been my experience that the second stage cases are less likely to develop a pleural effusion than advanced cases, and the proportion of failures in finding a free pleural cavity will be consideraby smaller. No case, so long as it is progressive in character, can be regarded as too early for treatment. Sudden hemoptysis must be regarded as evidence of progressive disease from the standpoint of artificial pneumothorax treatment. In Case 61 of my series, the only symptoms were listlessness and a sudden hemoptysis which nearly killed the patient. This last attack had been his sixth in the course of a year. Between attacks he was in excellent health, having no cough, sputum or fever. The physical signs in the chest were very slight in comparison with the severe hemoptysis. There was slightly increased dullness in the right upper lobe, increased tacticle and vocal fremitus, and broncho vesicular respiration. No râles. Left chest apparently normal. X-ray examination showed an infiltration of the right upper lobe with peribronchial thickening. Left chest apparently normal. We deemed this an opportune case for artificial pneumothorax. The pneumothorax has not disturbed him in the least, and he is up and about, driving an automobile. Meantime he sleeps out of doors and has improved in strength and weight under treatment. The pneumothorax will be maintained for not less than six months.

In the non-tuberculous cases such as early bronchiectasis and certain cases of lung abscess, it ought to be attempted.

In two cases of bronchiectasis, of my series, there was compete recovery in one and symptomatic relief in the other. In the latter, the abscess could only be partially collapsed.

In two lung abscess cases, complete recovery

was obtained in one and very little benefit in the other.

Bronchiectasis dating from childhood, as in case 59 of my series, will not be cured by artificial pneumothorax on account of the pathological changes that have taken place. But it may later enable the patient to withstand the strain of a more severe operation such as rib resection.

Success in the treatment will depend on the manner in which the pneumothorax is produced and maintained. It is best to produce the pneumothorax gradually by frequent injections of nitrogen, and bring it slowly up to the desired volume and pressure. The rapid production of a pneumothorax by large quantities of nitrogen is dangerous as it does not give the adjacent organs time to adjust themselves to the changed conditions; besides the expulsion or sudden evacuation of large quantities of purulent matter may infect the sound lung. The only exception to this is in unilateral hemoptysis where it is desired to control the hemorrhage quickly.

It is essential to have a free pleural cavity or one that can be made sufficiently free by subsequent injections to allow complete collapse of the lung.

The other organs must be in such a condition as to be able to withstand the extra work thrown upon them.

The patient ought to follow sanatorium régime treatment at the same time.

The physician must have complete control of the patient.

Frequent x-ray examinations are essential for the treatment.

Artificial pneumothorax is not an indifferent procedure and should be undertaken only after careful consideration of each individual case. The patient should be fully informed that the treatment is long, tedious, troublesome and expensive and not devoid of dangers.

PYLORECTOMY FOR ULCER.

By P. E. Truesdale, M.D., Fall River, Mass.

The treatment of gastric and duodenal ulcer is still a subject of controversy. It is obvious, nevertheless, that internist and surgeon by cooperative study and effort are approaching an attitude of harmony in dealing with this disease. Laboratory evidence has had a potent influence in molding present opinions. From the physiologist, the pathologist and the roentgenologist have come contributions of epoch-making importance, and the final analysis will depend much upon the continued zeal and product of their laboratories.

Hartmann[1] of Paris at the recent International Congress commented upon the present situation in the following manner: "The surgical treatment of gastric and duodenal ulcer must not be opposed to the medical treatment, the first is only the frequently necessary complement of the second. The real results observed at a lapse of time of the medical treatment are far from being as good as was formerly supposed, without speaking of serious complications, such as hemorrhage, perforation and stenosis, which are indisputably urgent surgical indications, we consider that all ulcers (gastric and duodenal showing resistance to medical treatment belong to the surgeon." So that, out of recent deliberations has come a fair degree of unanimity, placing the treatment of ulcer in its early manifestations within the province of the internist, and assigning to surgery the chronic ulcer which has failed to respond permanently after a reasonable period of medical treatment. Rodman[2] mentions Leube, the most optimistic of medical men, as insisting that the medical treatment in chronic ulcer should not be persisted in longer than a period of four weeks.

Inasmuch, therefore, as the treatment of chronic, intractable ulcer of the stomach or duodenum is assigned to the surgeon, the choice of operation becomes a problem of extreme importance. One may reasonably assume that the perfect operation has not yet been demonstrated. The fairly frequent and recent changes in technic offer ample evidence of this fact. To illustrate the different methods employed by eminent authorities, one may cite the work of Paterson[3] of London and Mayo[4] of America. Paterson invariably does anterior gastrojejunostomy and favors no sort of intervention at the pylorus or with the ulcer site, while Mayo has long since abandoned the anterior operation for his own more generally accepted modification of Woelfler and Von Hecker's posterior, no-loop gastrojejunostomy. He now makes the anastomotic opening directly beneath the cardiac orifice extending from the lesser curvature a little to the right of the incisura angularis, and passing vertically oblique to the left. Mayo, furthermore, as a rule infolds or excises the ulcer.

At present there are essentially two methods of dealing with ulcer of the stomach or duodenum. One may be called the indirect method, by gastroenterostomy alone. The other the direct method by excision of the ulcer and gastroenterostomy or end-to-end anastomosis. Finney's[5] operation affords the best opportunity to execute the direct method whenever the pylorus is readibly accessible and not fixed by adhesions.

Inasmuch as the development of cancer on duodenal ulcer is extremely rare, simple inversion by suture is here generally considered sufficient, while carcinomatous degeneration of ulcer in the pyloric zone is known to occur with such frequency that failure to excise the ulcer bearing area after gastroenterostomy would now appear to be inexcusable. E. Payr[6] contends that callous ulcers of the stomach should be resected every time that the general condition of the pa-

tient allows it, especially when it is a question of a small ulcer, situated at a distance from the pylorus on the lesser curvature, and on the posterior surface. Other considerations than that of malignant degeneration of the ulcer will undoubtedly, hereafter, influence a modification of the indirect operation alone. The ultimate influence of gastroenterostomy when the ulcer has healed sufficiently to allow a restoration of the function of the pylorus, must be taken into account. A small stoma will functionate satisfactorily when the pylorus is occluded, but it requires a very large artificial opening to act at all in the presence of a patent pylorus. Surgeons universally agree that their most satisfactory end results from gastroenterostomy have been achieved in the most aggravated forms of pyloric obstruction. Therefore, while it is usually desirable that obstruction of the pylorus from the disease remain permanent after gastroenterostomy, it is pertinent here to mention the amazing effect of gastroenterostomy upon large, indurated and engorged ulcers, especially at the pylorus. This result upon the inflamed area can only be fully appreciated by a direct view of the pyloric region a week or more after operation. It was our good fortune to have this opportunity in Case 1, eleven days after doing a posterior gastrojejunostomy. The inflammatory mass at the pylorus, in this short space of time, had subsided to an amazing extent, yet the degree of its fixation remained unchanged. This improvement was undoubtedly the result of reduction of the hyperacidity and removal of all mechanical irritation.

Gastric or duodenal ulcer may be cured by the indirect operation alone, but usually it is not. On the contrary, it often remains with all its potential properties unchanged. Perforation, hemorrhage, adhesions and malignant degeneration are not unknown after apparently successful gastroenterostomy. Rodman[7] reminds us of fatal cases of hemorrhage from ulcer after gastroenterostomy by Mayo, Deaver, Kocher, Robeson, Connell, Czerney and others; von Eiselsberg losing three cases and Kort two. In our clinic we have had one death from hemorrhage from the ulcer after a perfectly healed gastrojejunostomy. This condition was demonstrated at post-mortem examination.

Occasionally the uncured ulcer plus a troublesome stoma, when they do co-exist, present a surgical problem of great intricacy. Ample material is being furnished roentgenologists to study end results after gastroenterostomy in patients who have not remained well. Interference with the motility of the stomach, dilatation and distortion of the duodenum and peptic ulcer they have already demonstrated. A more precise knowledge of the causes of these late consequences will soon be forthcoming, but it is already apparent that the restoration of the function of the pylorus, in the presence of an artificial stoma may result in an interference with the motility of the stomach, duodenum and jejunal handle to a marked degree. One of our cases recently demonstrated this abnormality. Gastrojejunostomy was done in June, 1913, for duodenal ulcer in a man aged 46. He remained well for four months. Afterward he had marked symptoms of disturbed motility with loss of 10 pounds in six months. Dr. Dodd's fluoroscopic observations in this case, confirmed by a series of plates, were as follows: "Bismuth was seen to leave through the stoma and also through the duodenum. A loop of jejunum seemed to be filled with bismuth. A very small dense mass was seen to leave the stoma and stay in the jejunum for quite a few minutes. It went back and forth in the loop of the jejunum." Operation revealed the pylorus involved in a mass of adhesions and adherent to the liver, gall bladder and parietal peritoneum. The gastroenterostomy opening was ample, admitting two fingers and unobstructed. A complete division of the pylorus was made. The patient has had no further discomfort, and is apparently well.

Following resection of the pylorus, these complications have not occurred in our cases nor have they been reported by other surgeons. On the contrary, the ultimate clinical results are uniformly good, and the size and position of the stoma or the suture material used make very little difference.

The numerous methods for permanently excluding the pylorus after gastroenterostomy, including the use of the aponeurotic band, the suspensory ligament, the purse string, the silver wire, the aluminum band, etc., testify to the drift of surgical endeavor in this direction.

These various methods have in the main proved unsatisfactory, for it is known that a natural restoration of the pylorus can take place in the most extraordinary manner. With the exception of a complete resection of the pylorus, the unilateral pyloric exclusion, after the method of von Eiselsberg[8], is alone to be relied upon. In von Eiselsberg's operation, the line of division should not be made too near the pyloril ring. The lumen of the stomach narrows toward the pyloric opening, and a proper inversion of the distal edge therefore cannot so readily be done. We have used this method of excluding the pylorus in two cases and found the procedure scarcely less difficult than pylorectomy.

Rodman[9] was the first among American surgeons to advocate pylorectomy for ulcer. In a paper read before the Surgical Section of the American Medical Association in 1906 he said: "Pylorectomy alone successfully deals with multiple ulcer, gastric and duodenal, prevents perforation, hemorrhage, disabling adhesions, stricture, hour glass contraction and malignant degeneration. Moreover, it leaves the stomach in the best condition for further usefulness. . . The tendency of ulcer to perforate is so marked, and the consequences so disastrous that it seems to me, and ever has done so, the operation of choice. The Germans generally favor the practice, many of them doing so warmly. Jedlicka

calls it the normal procedure and claims for it a mortality of 5.88 per cent."

Dr. Rodman had collected 31 cases from the work of five surgeons (Mayo, Robson, Park, Finney and Rodman). In this series, so far as he could learn, there had been only one operative death. During the years 1910, 1911 and 1912, pylorectomy for benign stenosis was done by the Mayos in 25 cases, with no deaths.

Since the attitude toward excision of ulcer has become progressively more favored, pylorectomy will undoubtedly be more frequently done. While the mortality is higher than in gastro-enterostomy alone, the real gravity of the operation has probably been exaggerated. If a patient is greatly enfeebled from starvation the operation can be done in two stages. We found it necessary to do this in only one of our cases. The prompt recovery from operation and the comfortable convalescence which these patients enjoy is remarkable.

Ulcer on the lesser curvature nearer the cardia is less easily approached, and the question of the procedure in such cases is of greater moment and may be somewhat perplexing. Although neutralization of the acid stomach contents by gastroenterostomy invariably exercises a favorable influence upon ulcer, if one considers the liability to malignant degeneration and admits the occasional difficulty or impossibility of differentiation between ulcer and cancer with the lesion plainly in sight, there can be no question in regard to the wisdom of excising the lesion. Gastroenterostomy and partial gastrectomy, whenever possible, should be done in such cases. This method of operation removes the ulcer and obliterates the pylorus, thus accomplishing a double purpose of genuine importance. Division is then made with the scalpel or cautery flush with Payr's clamp. (Fig 1.)

Upon turning the pyloric segment over the pancreas is exposed and a good opportunity is allowed to divide adhesions which commonly involve the head of the pancreas. On two or three occasions I have torn into the surface of the head of the pancreas without any serious consequences. The duodenal stump has served to cover this injury (Mayo). The gastro-duodenal vessels are now ligated and divided. A small Payr's crushing clamp is placed on the duodenum. The crushed area is tied, severed and inverted with a purse string of linen. A continuous Lambert suture of linen with straight or curved needle is applied to the stomach while the large crushing clamp is in place. The first insertion of this suture is not tied. (Fig. 2.) The clamp, which has been in position for several minutes, is removed and the ends of the suture drawn firmly in opposite directions. This accomplishes an inversion of the crushed edges. A second row of continuous or interrupted sutures of linen completes the closure. (Fig. 3.) The abdominal wound is then closed. Whenever the pancreas has been injured I have employed a drain of rubber tissue.

The following eight cases I wish to record as done consecutively and with uniformly good results. The histories of these cases have been reviewed and abridged by Dr. R. W. French, and he has recently investigated the condition of each patient. Roentgenographs have also been made by Dr. Walter Dodd as a post-operative study of gastric resections.

The following technic, with only slight variations from that already defined by Kocher, Moynihan and Mayo, was employed in each case: The abdominal incision is made about 1 cm. to the right of the middle line from the ensiform cartilage to or below the umbilicus. After an examination of the abdominal and pelvic viscera, the extent of the pyloric segment to be removed is first determined. Posterior gastrojejunostomy is then done, placing the stoma beneath the cardiac orifice, thus insuring ample room for resection. This anastomosis should always be made before resection of the pylorus is undertaken. If the conditions are favorable for pylorectomy, the coronary artery and the right gastro-epiploic artery are ligated at nearly opposite points which mark the line of division of the stomach. Ulcer of the lesser curvature, especially when large, shortens the length of the lesser curvature, so that in order to make the section through healthy tissue it may be necessary to include a considerable portion of the stomach. The gastro-hepatic omentum is then ligated and divided to and including the pyloric branch of the hepatic artery. The gastro-colic omentum is then ligated and divided. Payr's large crushing clamp is next applied, marking the limit of stomach conservation. The omentum should be separated at least one-half inch from the clamp to allow for inversion. A straight heavy clamp is now placed on the pyloric side and close to the crushing clamp.

The histories of these cases, in brief, follow: —

Case I. Mr. J. S. (273) Admitted to the Highland Hospital on Jan. 13, 1908. Referred by Dr. G. G. Parlow of Fall River. Aged 43, married, musician, born in Scotland.

Family History and *Past History.* Not remarkable.

Present Illness. "Indigestion" of 15 years' duration, consisting of epigastric distress after meals with eructations of gas and acid stomach contents. For two years prior to entrance to the hospital, he had had pain coming on one to two hours after meals, localized above and to the right of the umbilicus, relieved by food or soda. During the two months before entrance the pain had become almost constant, food no longer gave relief; he vomited once or twice a day, no blood or "coffee grounds" in the vomitus. Had lost much weight during the past two years, amount not known. Bowels were sluggish and stools were tarry at times.

Physical Examination. A pale, emaciated man, temperature, 99.6, pulse 80. Chest and extremities were negative. Abodmen flat, stomach dilated, succ-

cussion present, no palpable mass, tenderness on deep pressure to the right above the umbilicus.

Jan. 17, 1908, operation for pyloric obstruction. An irregular, hard mass was found at the pylorus, adherent to the gall bladder and covered by omentum. It was thought to be carcinoma. A posterior gastrojejunostomy was done. After a satisfactory convalescence of ten days, in view of the suspected carcinoma, he was operated upon again. The tumor at the pylorus had decreased in size surprisingly. A pylorectomy was done including a large segment of the stomach. Pathological examination of the specimen removed showed multiple ulcers.

He was discharged from the hospital Feb. 17, 1908.

Seen in March, 1914, he stated that his weight had increased from 126 lbs. to 149 lbs. He had had no indigestion since and felt perfectly well.

CASE 2. Mr. G. C. (649) Admitted to the Highland Hospital Sept. 22, 1910. Referred by Dr. W. G. Turner of Fall River. Aged 57, married, weaver, born in England.

Family History and *Past History.* Good.

Present Illness. For more than 25 years has had "stomach trouble," consisting of a gnawing pain in the epigastrium, coming on two hours after meals, nauseated and vomited occasionally. Pain often awakened him at night. Food relief present. During the past three months pain had been severe, had lost weight rapidly, and often vomited food which he had taken three days before. Had retained only liquids for the past week. Bowels were sluggish, color not noted.

Physical Examination. Well developed, emaciated, nervous man. Skin and mucous membranes were pale. Abdomen level, no mass palpable, marked tenderness high in the epigastrium in middle line and to the right. Sept. 23, 1910, operation for pyloric obstruction. Ulcer found on the lesser curvature of the stomach near the pylorus. Posterior gastrojejunostomy was done, then pylorectomy with removal of the ulcer area. Convalescence uneventful. Discharged Oct. 18, 1910.

Seen in May, 1914, he stated that he had not had a sick day since leaving the hospital and that his weight had increased from 90 pounds at the time of admission to 150 pounds, his present weight.

CASE 3. Mrs. C. E. T. (973) Admitted to the Highland Hospital Nov. 17, 1911. Referred by Dr. C. A. Briggs of Assonet, Mass. Aged 65, married, housewife, born in Massachusetts.

Family History and *Past History.* Not remarkable, except for the fact that her mother died of some "stomach disease."

Present Illness. Indigestion for about seven months, consisting of loss of appetite, sour stomach, epigastric distress directly after meals, nausea rarely, no vomiting. She thought that she had lost a little in weight.

During ten days before entrance she had three attacks of severe, sudden, localized epigastric pain not associated with exercise or food, followed by vomiting from two to six ounces of dark blood with relief of pain. Fainted during an attack. Vomited six ounces of blood soon after entrance. Bowels were constipated.

Physical Examination. Not remarkable except for a marked pallor of skin and mucous membranes; hemoglobin 55%. There was marked spasm and tenderness in the epigastrium. Stools were tarry.

She was kept under observation for five days, during which period there was improvement in her pulse and general condition, although occult blood in the stools persisted.

Nov. 22, 1911, operation. An ulcer of the stomach was found on the lesser curvature and involving the pylorus. Posterior gastrojejunostomy and pylorectomy were done. Convalescence was uneventful. Discharged Dec. 22, 1911.

She reported in April, 1914, that she had had complete relief from symptoms ever since the operation and considered herself perfectly well.

CASE 4. Mrs. M. E. M. (1103). Admitted to the Highland Hospital May 3, 1912. Referred by Dr. G. H. Hicks of Fall River. Aged 60, married, housewife, born in England.

Family History. Good.

Past History. "Pneumonia" three times, last 12 years previously, typhoid fever at 20. Occasional attacks of nausea and vomiting for many years.

Present Illness. "Stomach trouble" for seven years, consisting of epigastric pain, heart-burn and occasional vomiting. During the past two years these symptoms had increased markedly in severity, the onset of pain had been one-half to two hours after eating and awakened her regularly every night. It was relieved by food or vomiting. There was no history of hematemesis. During the past three months she had had three attacks of agonizing pain after eating, which required morphia for relief. Bowels were constipated, color of stools not noted. Had lost much weight, amount not known.

Physical Examination. Well developed but emaciated, nervous woman. Lungs, few scattered râles and prolonged expiration. Heart, normal size and position, sounds regular and of fair quality, soft, blowing, systolic murmur over the precordia not transmitted, heart loudest at the base. Aortic second sound accentuated. Abdomen, scaphoid, liver edge palpable 3 cm. below costal margin, considerable spasm and tenderness in the mid-epigastric line where an irregular, hard mass was made out.

Analysis of the stomach contents showed free HCl 30, total acidity 70, otherwise not remarkable.

May 4, 1912, operation. A large indurated ulcer was found on the lesser curvature near the pylorus. Posterior gastrojejunostomy was done, and the pylorus was excised, including the ulcer and a wide margin of normal stomach. Convalescence was uneventful. Discharged May 25, 1912.

She reported in April, 1914, that she had had no recurrence of symptoms, that she soon regained her normal weight and held it.

CASE 5. Mr. H. D. Y. (1556) Admitted to the Highland Hospital Aug 30, 1913. Referred by Dr. G. G. Parlow. Aged 30, single, carpenter, born in Massachusetts.

Family History. Negative.

Past History. "Dry pleurisy" ten years previously, no history of hemoptysis, occasional attack of bronchitis, with a persistent, slight cough for a few months. Last attack two years before. Has always been thin, but had lost 25 pounds during the past year and a half.

Present Illness. Indigestion as long as he could remember. Chief complaint was epigastric distress after eating, which reached its maximum two hours later. Much gas, sour stomach and heartburn.

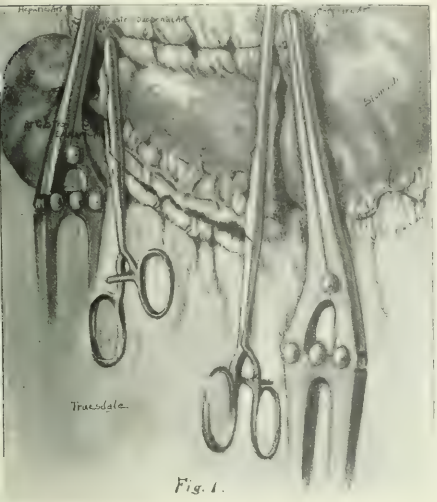


Fig. 1.

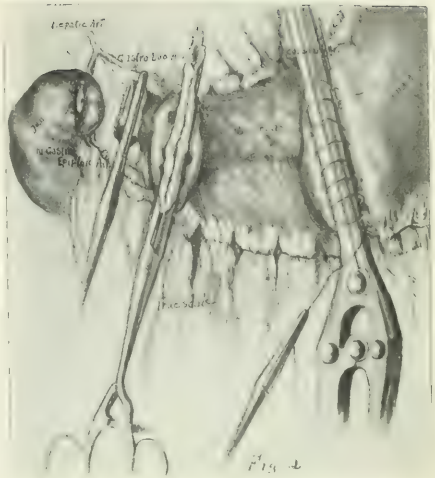


Fig. 2.

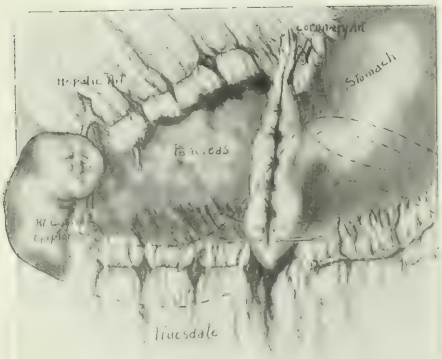


Fig. 3.

















X-Ray photographs by Dr. W. J. Dodd, taken ten minutes after bismuth meal.

Food relief. Occasionally nauseated, rarely vomited. Bowels were constipated. Stools described as normal.

Physical Examination. Well developed, poorly nourished man. Lungs, area of dullness at right apex, extending to second rib in front and spine of scapula in back, bronchial breathing, increased tactile and vocal fremitus, no râles. Abodmen, level and not remarkable save for slight tenderness on right side of epigastrium near the costal arch. Bismuth x-ray showed a residue in the stomach after six hours, otherwise nothing definite.

Sept 3, 1913, operation. Posterior gastrojejunostomy and pylorectomy were done, removing an indurated ulcer mass on the superior surface of the duodenum involving the pylorus.

His convalescence was complicated by a persistent cough which began soon after he recovered from ether. Examination of the sputum revealed tubercle bacilli. The process remained limited to the upper part of his right lung. His convalescence was protracted. However, his improvement was steadily perceptible, and when discharged on Oct. 22, 1912, he was eating full house-diet with a relish and with no distress.

Seen in April, 1914, he stated that he had gained 25 pounds, and had had no return of symptoms. His cough had persisted for nearly six months, during which time he had been under the care of his physician, but since then it had not recurred. His physician reported that the tuberculous process had become arrested.

Case 6. Mr. B. M. (1565) Admitted to the Highland Hospital Sept. 5, 1913. Aged 48, married, clerk, born in England.

Family History and *Past History.* Negative.

Present Illness. For more than ten years has had attacks of stomach-trouble almost every year, lasting four or five months, generally in the winter or spring. These have consisted of epigastric distress, increased by food, loss of appetite, no heart-burn or sour stomach, no nausea or vomiting. The last attack had begun four months before entrance and had been more severe than the previous ones. The epigastric distress had developed into pain which kept him awake at night. He had anorexia, frequent nausea, and vomited once or twice a week. Eructations of gas and acid fluid were frequent. His bowels were constipated, and the stools were described as normal. He had lost 32 lbs. during the past year.

Physical Examination. Well developed, poorly nourished man. Tongue thickly coated. Chest negative. Abdomen level, slight tenderness localized in the mid-epigastrium, more on the left side, otherwise not remarkable. Bismuth x-ray showed marked stasis after six hours.

Sept. 8, 1913, operation. Gastrojejunostomy and partial gastrectomy were done for large mass involving the lesser curvature of the stomach, lower border of which was 2 cm. from pylorus. The gastro-hepatic omentum was shortened, thickened, and contained numerous large glands scattered along the lesser curvature toward the cardiac end. There were nodules in the liver. However, the lesion was thought to be carcinoma. Posterior gastrojejunostomy and a wide resection of the pylorus were made. Subsequent microscopic examination revealed ulcer only. He made a satisfactory convalescence and was discharged Oct. 2, 1913.

Seen in April, 1914, he stated that he had gained steadily in weight, that he was eating a liberal diet and had had no recurrence of symptoms.

Case 7. Mr. J. F. P. (1990) Admitted to the Highland Hospital Dec. 31, 1913. Referred by Dr. T. J. Brennan of Little Compton, R. I. Aged 57, married, stage driver, born in Massachusetts.

Family History and *Past History.* Good.

Present Illness. Stomach-trouble for fifteen years, consisting of epigastric distress and a gnawing pain coming on four hours after eating, relieved by food, soda or vomiting, Vomitus sour, never contained blood. His only period of comfort through the year was during the warmest weather of summer. Had lost about 30 pounds during the past year. The distress had been unusually severe during the two weeks previous to entrance, so that he had been afraid to eat more than crackers and milk. Bowels were not remarkable.

Physical Examination. Well developed thin man. Tongue clean. Chest negative. Abodmen scaphoid. There was no palpable tumor, but marked tenderness and spasm of the upper part of right rectus muscle. Bismuth x-ray showed an obstruction at the pylorus.

Jan. 1, 1914, operation. Gastrojejunostomy and pylorectomy were done for ulcer partially obstructing the pylorus. The scar of the ulcer was 3 cm. in diameter and was located on the superior surface of the first portion of the duodenum and encroached upon the pylorus.

He made a very satisfactory convalescence and was discharged on Jan. 19, 1914.

Seen in April, 1914, he stated that he had no discomfort of any sort since leaving the hospital. He returned to his usual work one month from the date of the operation. His weight had increased steadily and was then within 5 pounds of his average weight.

Case 8. Mr. J. G. C. Admitted to St. Anne's Hospital Dec. 4, 1913. Aged 41, married, laborer, born in Portugal.

Family History and *Past History.* Not remarkable.

Present Illness. For five years has had epigastric distress coming on about two hours after meals, relieved by food, soda or a warm drink. Two months previously had been operated upon for "acute appendicitis" and stated that drains had been left in the wound. Since the operation his distress, localized in the epigastrium, had been practically constant and increasing in severity. He had lost much in weight during the last year, but had no idea how much. He often tried to vomit but with very little relief. Food and soda gave relief, but he had reached the point where he was afraid to eat.

Physical Examination. Not remarkable except for his emaciation and his abdomen, which showed a low right rectus scar of a recent operation, and marked tenderness and spasm of the whole epigastric region.

Dec. 5, 1913, operation. An indurated mass 4 cm. in diameter was found on the lesser curvature of the stomach near the pylorus and covered by an adherent tab of omentum. Separating the omentum from the stomach with a dry sponge uncovered an opening through which gas and stomach contents spouted with each inspiration. From the appearance of the peritoneum and the omental adhesions it was obvious that the patient had suffered a recent perforation of the ulcer and, as frequently

occurs, the opening was spontaneously sealed by a tab of omentum. Drainage employed at the time of his appendectomy further enhanced his recovery from the original focus of his disease, which was within all probability in his upper abdomen.

The usual posterior gastrojejunostomy was done and a pylorectomy removing the whole ulcer-bearing area. The operative procedure was rendered difficult in this as in the other cases where the ulcer happened to be surrounded by a wide, inflammatory zone and dense adhesions. Nevertheless, the patient made an excellent recovery and was discharged Dec. 23, 1913.

Seen in April, 1914, he stated that his digestion was "perfect," he had gained weight steadily, had returned to his work two months after the operation and had had no symptoms since leaving the hospital.

A pathological study of the specimens removed in the cases reported above was made by Dr. Annie C. Macrae.

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THE CAUSES OF INSANITY.*

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IT is not the intention of this paper to deal with those cases of mental defects congenital in origin, and represented by idiots, imbeciles, or those dependent upon mechanical factors, such as gross traumata, cerebral hemorrhage with consequent softening, and brain tumors, but to discuss the causes of those cases which develop their psychosis later in life and after an apparently normal period of development.

Insanity dates back as far as recorded time, and ample records are to be found in the oldest books of both the Eastern and Western worlds of abnormal mental phenomena. In the Old Testament we read of Saul's periods of depression caused by the "evil spirit of the Lord being upon him." Nebuchadnezzar believed himself changed into an ox and "did eat grass and his body was wet with the dew of Heaven until his hair grew like the feathers of the eagles and his nails like birds' claws." Ajax was tortured by the Furies until he fell upon his own sword. And Ulysses simulated madness to justify his absence from the Trojan war. Thus we see insanity in itself did not differ greatly in its symptoms from ancient times until the present, and it is an easy matter to follow it through the ages, through the period of religion and mysticism, when those afflicted were either supposed to be possessed of the devil or inspired of the Deity. Angels gave warnings and revelations by dreams, by mental impressions, and even fought for men against the under-world.

Mental disturbances were, therefore, considered as the manifestation of some spiritual being, god or demon, who either actively inhabited the body of his victim or who merely played upon him from without. If the symptoms were in harmony with the religious views of the time, it was concluded that the inhabiting spirit was benign in character, and the individual was revered as an exceptionally holy person. If, however, the individual's conduct conflicted with the dominating ethical code, his treatment consisted in punishment to drive out the devil. About 460 B.C. Hippocrates laid down the principle that the brain was the organ of mind, and that insanity was the result of some disturbance of that organ. This theory was not destined to be successfully applied at that period, and during the intellectual stagnation of the Dark Ages the causes of insanity reverted back to the demonological conception.

It is not surprising from the very obscurity of the mental function itself that various hypotheses were brought forth to explain the mysteries of disordered minds, and we find these attempted explanations in harmony with the general thought and knowledge of the period. For many centuries, down to the beginning of the 17th century, mystery, religion and things pertaining to these were considered the predominating causes of insanity. The science that touched the popular imagination in the 17th century was astronomy, and to quote from Wilkins' works, according to a couplet of that time:—

"God gave man an upright face
That he might view the stars and study astronomy."

From this time we enter into a period of the mystical doctrine of the dominance of the planets over plants, minerals and diseases. Hakewell at this time described insanity as an affection caused by the influence of the moon, hence the name "lunatic."

During these changes in opinion, however, regarding the causes of insanity, religion and superstitious belief in possession by spirits, still held front rank as the primary cause. In 1637 Jane Hawkins, the Boston midwife and dispenser of quackery, oil of mandrakes, was diligently examined on suspicion of familiarity with the devil. It is interesting to note that as early as that period, people were diligently examined regarding their sanity. Eight years later a man from Virginia, reported to have skill in necromancy, was blown up in Boston harbor, and strange to say, it was accounted a marvel that he could never afterwards be found. Yet more diabolical was it that men of fiery shapes, or fire in the shapes of men, walked the water near where the ship had exploded. These are exam-

* Read before the Fall River Medical Society, March 25, 1914.

ples of the extent to which people of that time went to prove their belief in the spiritual element of insanity.

Witchcraft was apparently a side issue of insanity; it was not absolutely essential for a person to show symptoms of a deranged mind, indeed some of the more active minds were suspected of being witches and treated accordingly. It is probable that witchcraft was derived from the religion of German mythology. In 1656 the wife of one of the magistrates was hanged for a witch only for "having more wit than her neighbors." In the settlements along the Connecticut devils were particularly active, and in some instances the ordeal of swimming the witch to see if she could float were resorted to. Martin Luther inherited the traditions of the humble class from which he sprang, and set the first Protestant example of extreme faith in witchcraft, berating the medical men who attempted to trace mental diseases to other causes, most of which he himself attributed to the devil. He advised that afflicted children should be cast into the river, and complained afterward that he was not obeyed. The infinitely delicate shadings by which mental sanity passes without any line of demarcation into insanity could not then be imagined, consequently a belief in demoniacal possession was inevitable. These things had the sanction of the Ages, of religion, and of science itself. More modern conjectures on the causes of insanity have followed closely the transit of civilization, and with the increasing intellect of the nations we find the superstitions and opinions of the ancients rapidly giving way to the advance of scientific investigation.

Very little progress was made in the study of insanity until the latter part of the 18th century. About this time mind was believed to be the product of the brain, and diseased minds were considered as a pathological process of the brain, as pneumonia is of the lung. This was the period of the physiological conception, and while it did not accomplish all that it sought in an endeavor to explain the causes of insanity, it did stimulate research and intelligent investigation which later gave birth to psychiatry,—and the scientific study of mental diseases. During the 19th century rapid progress was made in the anatomical and physiological study of the brain and in the humanitarian treatment of insanity. Mental diseases were placed upon a medical basis, and the patients were treated as sick people instead of transgressors of the religious laws. During this period cerebral localization was demonstrated, and for a long time this was believed to be the key to the solution of insanity. Up to well within the 19th century no attempt had been made at classification, and even now we have various classifications, none of which is entirely satisfactory, but they mark a tremendous step in progress. With the differentiation of the various forms of mental diseases, we must refer to them as "the insanities," for we can no longer consider insanity as a disease entity. At the present time the classical causes of insanity are usually divided into the extrinsic or external causes, which embrace heredity, alcohol, syphilis, stress of life, and environment. Under the intrinsic or psychogenetic causes we may mention anxiety, fright, defect, educational and constitutional inferiority as those most frequently mentioned. These causes are in keeping with the times and, just as we found in the insanity of the ancients, are in harmony with the general thought and knowledge of the period of today.

Heredity is still a most important element among the causes of insanity. It may be selective, in that the patient develops the same form of mental disturbance as the progenitor, or it may be general in that he inherits the psychopathic tendency. Mendel has pointed out some very interesting laws of heredity based upon his observations on crossing the pollen of flowers and thereby bringing out the characteristic dominant or recessive elements. In regard to mankind, the chief lesson we may learn from these investigations is the very great importance of hereditary transmission,—characteristics good or bad that disappear in one generation may simply be recessive and in the course of successive intermarriages may again come to the surface in accordance with the Mendelian law. The many attempts to verify this law in breeding have shown that it expresses probably a great truth, although the application of it to the practical purposes of breeding is beset with many complications. Thus it can be seen that one defective in a family may not be the direct cause of defectiveness in the immediate progeny, but this defect may remain recessive until its victim is mated with another recessive of the same characteristics, whether of the same strain or not. It is not probable, however, that mental disease is directly transmitted to the offspring except in those cases in which well marked mental deficiency is present in both parents. Then the children will be congenitally defective, as represented by the feeble-minded, idiots, and imbeciles. This, however, may also occur when one parent is defective. In this case it is probably due to the blending of a recessive element which is atavistic in nature. This transmissible defect is more evident in the conveyance of an inherent susceptibility to a psychosis, which marks the psychopath.

The nature of the inherent susceptibility is difficult, almost impossible at the present day, to explain. In this respect the heredity of mental disease is analogous to the heredity of tuberculosis in that the disease itself is not transmissible, but only the nidus, or a "place to put it." Furthermore, it seems reasonable to suppose that our knowledge of the large number of psychoses that make their existence manifest at the time of the greatest biochemical changes of life, during adolescence, and at the involutional period,—that this inherent susceptibility may be biochemical in nature.

Rosanoff has arrived at the following conclusions based upon a large and close study of the Mendelian theory. The neuropathic constitution is transmitted from generation to generation as a trait which is in the Mendelian sense recessive to the normal. His deductions are as follows:

1. Both parents being neuropathic all children will be neuropathic.

2. One parent being normal but with the neuropathic trait from one grandparent, and the other parent being neuropathic, half the children will be neuropathic, and half will be normal but capable of transmitting the neuropathic make-up to the progeny.

3. One parent being normal and of pure normal ancestry and the other parent being neuropathic, all the children will be normal but capable of transmitting the neuropathic make-up to their children.

4. Both parents being normal but each with a neuropathic taint from one grandparent, one-fourth of the children will be normal and not capable of transmitting the neuropathic make-up to their progeny, one-half will be normal but capable of transmitting the neuropathic make-up, and the remaining one-fourth will be neuropathic.

5. Both parents being normal, one of pure normal ancestry and the other with the neuropathic taint from one grandparent, all the children will be normal. Half of them will be capable and half of them incapable of transmitting the neuropathic make-up.

6. Both parents being normal and of pure normal ancestry all the children will be normal and not capable of transmitting the neuropathic make-up to their progeny.

In some classes of cases this psychopathic tendency may be manifest before the onset of a well-defined psychosis. Hoch has pointed out in the dementia precox cases, the so-called "shut-in personality," which he describes as "Persons who do not have a natural tendency to be open and to get in contact with the environment; who are hard to influence, often sensitive and stubborn, but the latter more in a passive than in an active way. They show little interest in what goes on, often do not participate in the pleasures, cares, and pursuits of those about them. Although often sensitive they do not let others know what their conflicts are. They do not unburden their minds, are shy, and have a tendency to live in a world of fancies."

Heredity plays its most important part in such diseases as dementia precox and the maniacal depressive group, and probably has no part in the causation of general paralysis, except it be the transmission of the inherent susceptibility, which is precipitated by a syphilitic infection. For we know now general paralysis to be a true syphilitic infection attacking the brain and thereby causing a destruction of the nerve elements with a consequent showing of mental symptoms. Of all the number of syphilitics only about five per cent. show affections of the central nervous system, so there must be some cause for this selection in such a small number, outside of the syphilitic infection itself.

This susceptibility to mental disease undoubtedly does not remain at a constant level and is probably influenced by the general condition of the patient or by any condition which lowers the general vitality, such as alcohol, environment, stress of life, etc. All the psychogenetic causes of insanity may possibly be grouped more as symptoms than causes of insanity. The normal mind should be able to handle the problems of worry, anxiety, etc., without disintegration, for it is a well-known fact that no mind works to its full capacity and always has a wide margin of safety which should be capable under normal circumstances to take care of extra load and stress. One may have all the so-called causes of insanity except the susceptibility and yet not develop a psychosis; or a psychosis may develop in those most protected from these causes, therefore it does not seem unreasonable to assume another and more potent cause for the true psychosis, namely, an inherent susceptibility, probably bio-chemical in nature.

ORGANOTHERAPY.*

BY H. GILDERSLEEVE JARVIS, M.D., HARTFORD, CONN.

MEDICAL treatment, by means of preparations derived from the various organs of animals, forms a subject of intense interest. Although its scientific application is comparatively of recent date, it was known to the ancient Egyptians and the use of orchitic substance in the treatment of obesity is described in the writings of Sushruta, who lived some time between 400 and 500 B. C. This is probably the first mention of organotherapy and from that time, frequent references have been made in literature.

Amongst the curious substances drawn from animal sources, which have been suggested from time to time for the cure of disease, one of the most famous was the "Bezoar Stone," which was ingendered in the inner part of a beast that is commonly called a goat of the mountain. "This stone has great excellency against all kinds of venom. It shall preserve him that shall carry it about him and that no venom or venomous thing shall offend him." This early belief, in the medicinal virtues of substances of zoölogical origin, was maintained throughout later periods and undoubtedly suggested the scientific study of the various glands and their functions, which has resulted in organo-

* Read at a meeting of the Hartford Medical Society, May 4, 1914.

therapy occupying an important position in present day treatment of disease.

Organotherapy, as it is now termed, means the treatment of disease by the administration of animal organs or their extracts; while another term, opotherapy or homologous organotherapy, means the treatment of the diseased organ of the patient by extracts of the corresponding organ in the animal. This last method is practically obsolete. Organotherapy depends for its efficacy upon the fact that various organs and tissues of the body produce an internal secretion, which has a more or less profound effect upon the general metabolism. Internal secretions have also a great deal to do with the maintenance of equilibrium of the body both on the physical and mental side.

These secretions arise, as a rule, from two rather different sorts of glands; glands which have a duct and those which have not. As far as investigations have gone, both types of these glands do not always produce an internal secretion. The glands and tissues which are generally considered in this light are:—thyroid, parathyroid, thymus, adrenals, ovaries, testes, pituitary, pancreas and, to a lesser extent, the spleen, liver and kidneys.

The anatomical and histological pictures of these glands have this in common;— they contain a supporting stroma and secreting cells, which produce an internal secretion upon which the principle of organotherapy is based. I will first take up the uses and actions of each gland individually and then attempt to bring forth the newer ideas how all these glands work together and correlate in maintaining the body in equilibrium. There are two ways of administering the glands: (1) In the fresh state. (2) In some artificially prepared way. The gland can be given like raw meat pulp in tepid beef tea or soup, or can be rolled in powdered sugar and swallowed. This constitutes a very active method of administration, enables the patient to take the gland with the entirety of the substance contained therein and which has not undergone any change by drying or artificial extraction by chemical processes. In practice, however, we have to reckon with the difficulty of obtaining a regular supply of perfectly fresh products. This is a very great drawback, because all glands with an internal secretion rapidly undergo autolysis and decomposition.

Allowance must also be made for the revulsion which many patients display to the ingestion of raw tissue and this has led to the production in biological laboratories of a whole series of internal tissue extracts; for the most part dried in vacuo at a low temperature and put up in the form of tablets, cachets and pills.

In regard to the administration of thyroid extract, it is a good plan to begin with a third of a grain a day for the first few days, then two-thirds of a grain for two or three days and so on until by the tenth day, the patient is taking a two-grain dose daily and this may be increased until the desired effect is obtained. After the active phase of the treatment in patients, whose condition has been improved but not cured, we have to establish what may be called a thyroid equilibrium by administering maintenance doses a couple of times a week. The thyroid treatment is indicated in all cases of manifest thyroid inadequacy and the sooner it is instituted, the better the results are likely to be. These results are excellent in spontaneous myxoedema of the adult, described by Gull, Ord, Charcot and others; an affection which has been shown to be dependent upon an insufficiency of the gland and met with mostly in women, especially at the menopause, or in those who are exhausted by repeated pregnancies. It may also be caused by infective lesions of the thyroid gland in the course of acute articular rheumatism, influenza, tuberculosis and other infections.

The results are also good in post-operative myxoedema. The results are less pronounced in infantile myxoedema, unless the treatment be instituted at a very early stage, at a period when the physical and intellectual development of the patient still admits of improvement. If undertaken at a sufficiently early period, the treatment may determine what amounts to a genuine physical and mental resurrection. It also has been recommended in eczema, ichthyosis, psoriasis and scleroderma. Its use in hyperthyroidism is only mentioned to be condemned.

Side by side with thyroid organotherapy, is the use of the extract of parathyroids. This has been given for the relief of the acute convulsive disturbances that follow the removal of the thyroid gland, because the parathyroids were probably removed with it. It is also given in tetany, and in paralysis agitans it has given some good effect.

The pituitary gland, as you all know, has two distinct parts—anterior with pars intermedia; posterior and infundibulum. So far extracts have been made only from the posterior part. Schaefer, Howell, Oliver and others brought out that this lobe produced a rise in blood pressure and diuresis. In 1906 Dale mentioned its marked effect upon the uterine muscle and since then it has been used in obstetrics to increase uterine contractions. It also has been used in Addison's disease, intestinal atony, uterine haemorrhage, shock and collapse.

Suprarenal organotherapy in some respects is quite like pituitrin. Abel first discovered its use, but Takamine gave the name adrenalin to the active principle which he isolated. Its use is quite familiar to you all. I will simply enumerate some of its more important uses and not attempt to go into details. Probably its greatest use is in shock and collapse where the pressure is very low. On account of its vasoconstrictor properties it is used as a local styp-

tic, also in solution with some local anaesthesia, in asthma of the bronchial type, in some specific infections of the adrenals and it is indicated in Addison's disease where it sometimes helps a great deal, especially in the marked asthenic forms dependent upon pure glandular insufficiency and not accompanied by perivascular symptoms.

At various times testicular organotherapy has been greatly lauded, but it appears to be the least active of any of the extracts; in spite of the fast that physiological research has demonstrated that the interstitial cells of the testes elaborate an internal secretion. It is indicated in general debility, neurasthenia and in disturbances at or about the time of puberty.

The next extract that would naturally follow for discussion is the ovarian extract. The employment of the extract of the entire gland has now been practically abandoned; corpus luteum, either in the fresh or dry form, being used in preference to the entire gland.

To L. Frankel is due the credit of establishing firmly on an experimental basis the fact that the corpus luteum probably represents the principal source of the internal secretion of the entire ovary. Burnam and Kelly were the next to publish any exhaustive work. The conclusions they reached were somewhat as follows:

Most striking results were obtained in a class of patients usually described as neurasthenics. Most of them were over 35 years of age, menstruating regularly, but complaining of being very easily fatigued, usually more so at the menstrual period, sometimes of slight dyspeptic symptoms and frequently of psychic depressions. Good results were obtained in cases of functional amenorrhoea, both in young girls and in adult women. This applies to the obese type and that in which there is lack of fat development. It also increases in many instances the amount and duration of the flow. Its use in dysmenorrhoea and sterility was disappointing, but it was found a favorable means of controlling the symptoms at the natural or artificial menopause, more especially the latter. In some cases, one tablet three times a day sufficed, in others the dose was as high as eighteen or twenty tablets a day. Benefit usually followed in a few days. In some cases the drug could be stopped in a few weeks. It is best to administer it during meals, as in this way there is less likelihood of gastric upset.

The function of the thymus and consequently the use of its extract is not very definite. Mendel used calves' thymus, both fresh and dessicated, and obtained marked benefit in cases of rachitics, showing prodromal symptoms only and in those where deformity of the osseous system was the chief feature. Splenic enlargement was also decreased. Nathan obtained good results in rheumatoid arthritis. It has been used in goitre cases, mostly non-exophthalmic.

In regard to the physiological action of extracts of the pineal gland, I will dismiss with a very few remarks. After looking over the work of Cyon, Dixon, Halliburton, Howell, Jordan and Eyster, I would come to the conclusion that its extracts have very little effect upon the heart and kidneys or the vasomotor apparatus. Of course their work leaves entirely untouched the possibilities of more gradual effects over longer periods of time, as well as the influence these bodies may exert on metabolism or functions and their relations to other organs of internal secretion.

Pancreatic organotherapy, for the time being, has a very restricted field of usefulness, because the physiology of the pancreas is still comparatively unknown. At any rate it is very difficult to detect clinically, early enough for the treatment to be of any avail. Dry or fresh pancreas may be employed. As a rule, however, it is administered in the form of cachets or keratinized pills containing powdered pancreas. It would seem to be indicated in hepatic disease, accompanied by symptoms pointing to pancreatic disease, which can only be detected clinically, by investigation of the pancreatic function. Loeper and Esmont claim to have threated tuberculosis in the first and second stages by pancreatic extracts with good results. The treatment no doubt acts more on the digestive tract than on the organism in general. It is also indicated in diabetes, but unfortunately although beneficial effects have been observed in a few instances, it is futile in cases of diabetes running at all a rapid course.

Bone marrow is employed with advantage in all forms of grave anemia. Renal organotherapy has been tried in many intoxications with beneficial effects, in chronic nephritis, in gouty subjects who have developed renal lesions and in acute nephritis in which it exerts both a diuretic and antitoxic effect. Both of these tissues need further study before any very definite conclusions can be drawn.

Hiss, Zinsser, Floyd, Alexander and others have prepared a leucocytic extract which they have used in infections of various sorts, but their results are not convincing and as yet it has not received any wide range of use.

We now come to hepatic and biliary organotherapy, also very efficacious methods of treatment, not only by the direct action of the extracts, but also, and especially, by their stimulating action on the liver functions. In respect to hepatic extracts, more possibly than any other, it behooves us to have in mind that the treatment is not only substitutive but is also stimulating in respect to the gland function, this not being entirely abolished but merely inadequate.

We can make use of the fresh liver stirred up in tepid beef tea. It can be given by mouth, or if necessary in the form of enemata, but the powdered form is much more conveniently administered. The powder is made up into pills

or boluses, gluten or keratin coated to resist the action of the gastric juice. The usual dose is from three to six grains of the extract, but this may be safely increased to two or three drams, corresponding to two or three ounces of fresh liver. Hepatic organotherapy is indicated in all infections and toxic cirrhoses, especially in the alcoholic, hypertrophic and atrophic forms. In increasing diuresis, at times its action is very striking, but is not constant. Bile is above all a cholagogue and should be used with this point clearly in mind.

In closing I will quote from Dr. Jean Dardel of Aix-les-Bains, France: "Organotherapy will enable the practitioner to score a certain number of therapeutical triumphs, provided that he has in mind to begin with, that he will rarely be called upon to fulfil a purely substitutive indication, because in most instances he must aim to stimulate the function of a gland that is working defectively. Then, too, he should grasp the idea that morbid states may be consequent upon pluriglandular insufficiency and this will encourage him to substitute multiglandular for monoglandular organotherapy on the same lines and for the same reasons that we employ polyvalent sera."

Reports of Societies.

NEW HAMPSHIRE MEDICAL SOCIETY.

123rd Annual Session Held at Concord May 13, 1914.

The following officers were elected:—

President, Herbert K. Faulkner, M.D., Keene.

Vice-President, E. O. Crossman, M.D., Lisbon.

Councilors, C. S. Walker, M.D., Keene; E. M. Fitch, M.D., Claremont.

Anniversary Chairman, Frank W. Evans, M.D., Coos.

Necrologist, Eli E. Graves, M.D., Boscawen.

Scientific Work, D. E. Sullivan, M.D., Concord; C. R. Metcalf, M.D., Concord; John G. W. Knowlton, M.D., Exeter.

PRESIDENT'S ADDRESS.

President Mitchell gave a very interesting address dealing with the humane, conservative and economic care of the abnormal. He spoke of the immense sums of money annually spent for the care of deficient, delinquent and petty criminals without much, if any, permanent good resulting. All economists agree that the greatest asset of any country is the moral and mental condition of its citizens. This subject has long been neglected by the profession. Doctors should point the way. First prevention; then treatment. He advocated not a state reformatory or farm, but a state home with all the suggestive influence of a good home. It is not considered humane to send the average drunkard to a house of correction. They should be treated as diseased subjects.

ANOCI ASSOCIATION.

Dr. George W. Crile, Cleveland, Ohio, read a paper on his theory of Anoci Association:

There is a group of organs whose function is the conversion of potential into kinetic energy. These organs form what may therefore be designated a Kinetic System. Among the organs forming this system are the brain, the thyroid, the suprarenals, the muscles, and the liver. The kinetic system converts latent energy into motion or heat in response to adequate stimuli. If the stimuli are overwhelmingly intense, then the kinetic system—especially the brain, the suprarenals and the liver are exhausted, even permanently injured. *This condition is acute shock.* If the stimuli extend over a period of time and are not so intense as to cause an immediate breakdown or acute shock, their repetition may cause the gradual exhaustion of the kinetic system,—a condition which may be called chronic shock. Either acute or chronic shock may be measurably controlled by weakening or breaking the *kinetic chain* at any point.

In other words, shock is the result of an intense stimulation of this kinetic system, by insomnia, emotion, trauma, toxins, anaphylaxis, strichnin, etc., which leads to physical changes in the kinetic system and which, if carried far enough, exhausts that system. The kinetic system is constantly activated as long as there is life, but normal activation does not produce exhaustion. If normal activation of the kinetic system be exemplified by walking shock might be exemplified by the exhaustion caused by a Marathon race. The differences between normal processes and shock is that of intensity, not of kind. From these premises it becomes obvious that the exclusion of both traumatic and emotional stimuli will wholly prevent the shock of surgical operations.

The technic by which these injurious stimuli are excluded includes the use of nitrous oxic oxygen anesthesia which is a protection against shock through its interference with the use of oxygen by the brain cells; breaking the nerve connection between the injury and the brain by local anesthesia; the exclusion of pre- and post-operative psychic stimuli by the use of narcotics and sedatives; and the control so far as possible of such environmental factors as might depress or excite the patient.

The data upon which the conclusions stated in this paper are based are the result of prolonged laboratory experimentation, and of a critical comparative study of the clinical data of operations performed under ether alone and nitrous oxid oxygen alone and under complete anoci association.

POLIOMYELITIS.

Dr. O. D. Eastman, Somersworth, discussed poliomyelitis, citing an epidemic of cases in Vermont, sixteen in one town. He emphasized the difficulty of an early diagnosis and spoke of the importance of noting all early symptoms in children. We should placard houses; strict isolation of cases and more attention to the infective nature of the disease is demanded.

THE NON-OPERATIVE TREATMENT OF ABDOMINAL PTOSIS.

DR. ROBERT J. GRAVES, Concord, read a paper on this subject. He spoke of the frequency with which it is acquired and almost universal neglect in its care. He has been treating these cases with corsets and is a believer in their use rather than in operative procedures. Demonstration on a model added much to the subject. He feels that corsets are a large factor in feminine well or ill being, and that there is no reason why we as physicians should not by a few specific directions take from corsets all of their harmfulness and make them important instruments for good.

CONCERNING COMMUNICABLE DISEASES AND THEIR MANAGEMENT.

DR. WILLIAM P. NORTHRUP, Professor of Diseases of Children, New York University and Bellevue Hospital Medical College, spoke as follows:—

"Keep your eye on the bug."

In the first class is measles,—in a class all by itself.

In the second put all the other common diseases—readily communicable—still speaking of childhood—whooping cough—it is hard to know just where it belongs—just between the two classes, perhaps. It is believed that it is communicated through the secretions of the mouth and nose by coughing and sneezing, and that it is immediate, and but very rarely through conveyance on fabrics, and that the so-called striking distance of the means of transportation, viz., coughing and sneezing, is perhaps three to five feet in a still atmosphere. It is not considered that whooping cough is nearly so communicable as measles. On the other hand, the dangers in connection with the complications are being more and more appreciated. In the aged, for they frequently have the disease, the exhaustion of the paroxysm frequently proves fatal. It is believed these two diseases are communicated through direct transmission of the infective material from warm moist mucous surfaces, from one person to another. It is commonly transmitted through kissing, coughing and sneezing, in contact or in near approach. We do not believe it is air-borne, or transported on fabrics or fingers, or if so, in such a small part of one per cent. as to make it of little moment.

It is believed that the carrier of measles is the danger also. A carrier may or may not, at any time, acquire the disease and may at any time contribute its carried germ to infect another susceptible person or make the other a carrier and so on. The same is true of scarlet fever. At the present time we have in the wards of the Presbyterian Hospital cribs surrounded by screens; these are not to keep germs out, as some have facetiously remarked, but to keep children out; not to keep germs from the children, but to keep children from the germs. We have treated typhoid thus behind a screen, convalescents scaling from scarlet fever, whooping cough, influenza, etc. We cease to think of the diphtheria bacillus escaping from the damp of the sewer opening and aviating through the thick miasms of the night air. But the germs can aviate—to use the new language of the recent inventions. Their radius of operation is, however, limited; it is limited to the carrying power of a cough and a sneeze, better in a still air, in the ideal conditions of a stuffy inside room. Avoid coughing into the atmosphere. The time is surely and rapidly coming when it will be bad form to boom out into the common atmosphere that reverberating cough and sneeze, unchecked.

THE TREATMENT OF DISEASES OF VEGETABLE PARASITIC ORIGIN BY DEEP MUSCULAR INJECTIONS OF MERCURY.

DR. BARTON LISLE WRIGHT, Surgeon, U. S. Navy: In 1905 I first began to use mercury in the treatment of tuberculosis, but it was not until 1907 that I had an opportunity to try out its value extensively. For every vegetable parasite mercury is the chemical affinity, and when properly injected into the infected host will cure the specific disease. It is believed now that mercury has a dual parasitotropic action: first, primary or direct; second, secondary or indirect.

In work mercuric succinimide has been selected because it is believed that a larger dose of this salt can be injected than of any of the others, and at the same time its parasitotropic action is many times greater than its organotropic, advantages, which from experience it is thought the other soluble salts do not possess to an equal extent. In general, from what has been previously said, it is obvious that in the early days of an acute infectious disease the maximum dosage is solely indicated, while in the late days of these diseases, or in subacute or chronic infections, smaller and more numerous injections are to be used.

Should symptoms of mercurialism appear at any time during the course of treatment, stop injections at once, and apply appropriate corrective measures, resuming injections if necessary upon the disappearance of these symptoms.

The following cases were cited: Tuberculosis. lobar and lobular pneumonia, typhoid fever and paratyphoid, cerebrospinal meningitis, erysipelas, infectious arthritis, chronic articular rheumatism, gonorrheal arthritis.

Conclusions: It is believed that results, coupled with those of the distinguished foreign observers above mentioned and of my colleagues in the Naval Medical Corps, mentioned in this paper, demonstrate the superlative value of mercury in the treatment of the infections cited, and make it strongly probable that its action in the case of all diseases of vegetable parasitic origin would be equally and as promptly curative. The secret of success is the administration of the largest dose possible, at the earliest moment possible, after the onset of the disease.

FRACTURES OF THE SPINE AND PELVIS.

DR. FREDERIC J. COTTON, Boston: They are common; they are serious; they are often misinterpreted or overlooked; there are no clean-cut specifications for diagnosis in either class; and, save for the question of death, or recovery, nothing is available as to prognosis. As to the chance of recovery of useful functions, or the influence of any treatment on this chance, you may look in vain in the standard text-books for so much as a word of real information. The laity are perfectly sure that no man's back is broken if he can move his legs,—and what the layman believes his doctor is very apt to pay attention to unless he has definite contrary views.

At least twice lately I have seen broken backs that the doctor said could not be broken because the man could walk.

The signs to be looked for are: local pain; local tenderness; local swelling (hematoma), not explained by a direct blow; deformity, not often a marked kyphos—usually only a change of curve—convexity where the spine should be flat—a convexity apparently involving several vertebrae. Remember that without bony damage the antero-posterior curves do not change. Nerve-root pain, and sometimes sensory disturbance, x-ray evidence. There is a feature of these cases that has been overlooked, though important,—the belly picture.

Displacements may be corrected by thick pads opposite the lower fragment,—gravity does the work.

Pelvic lesions fall very naturally into four broad divisions:—

1. Lesions of the spine and of the crest of the ilium.

2. Symphysis separations.

3. Fractures destroying the continuity of the pelvic ring, of various sorts.

4. Central luxations, so-called.

As to diagnosis of the fracture of the pelvic ring itself, there is one point I have only recently learned that I believe very important. If the rami are broken there will be first the known swelling and local tenderness behind Poupart's ligament, usually nearly opposite the femoral vessels, but there will also be a point of tenderness in the perineum.

As to central luxation. They have in common the smashing of the acetabulum. I personally have seen at least a dozen and a half cases. This is the fracture of the pelvis that calls for reduction,—that promises disability in proprtion. and only in proportion to our failure to reduce. Reduction is necessary and it requires real force to reduce.

There is a class in the books of fractures of the ischium alone. This thing does not happen.

THE CONDUCT OF A CASE OF LABOR.

Franklin S. Newell, M.D., Boston: When the medical profession appreciates the fact that most of the serious obstetric complications are either preventable, or can be successfully treated, if recognized early, a great step in advance will be made.

Very few women have any conception of the necessity for care during pregnancy, and it is the duty of every obstetrician to instruct each patient who consults him in regard to its importance and the bearing which it may have not only on the outcome of the pregnancy but on her future health. A great majority of the bad results could have been avoided by proper, intelligent care on the part of the physician. It is pretty definitely proven at the present time that if pregnant women are under constant observation from an early stage of pregnancy and are receiving adequate attention, although the toxemias of pregnancy will arise from time to time, the occurrence of true eclampsia can almost always be prevented, the maternal mortality of this condition being 40% in the hands of the general practitioner and 5% or less in the hands of the specialist. Of course, to a certain extent, the difference in operative skill turns the scale in favor of the specialist, but the principal reason for the wide difference in the mortality is the fact that the specialist keeps his patient under observation.

Although our knowledge and our operative possibilities have increased markedly during the last generation, none the less the maternal mortality, due to childbirth, remains practically unchanged, and in addition there are still many children lost and mothers invalided, and the great majority of these bad results can be avoided, since there are comparatively few complications which cannot be foreseen and avoided by proper care during pregnancy.

The conduct of a case of labor may be properly considered under three headings: Care of pregnancy, the care of labor, and the care of the puerperium.

Ordinarily I do not interfere with a patient's diet. At each visit I take the blood-pressure, believing that a rising pressure is often the first sign of an impending toxemia, and that trouble can be prevented by eliminative treatment and a possible eclampsia warded off by careful observation. At about the end of the eighth month of pregnancy I make a careful physical examination to determine the relation between the size of the pelvis and the size of the child. If anything abnormal is discovered at any period of pregnancy, the patient is then put under appropriate treatment to meet the abnormality and minimize its dangers, and in serious cases the pregnancy may be ended, since, in my opinion, it is improper ever to run serious risks and to sacrifice the mother for the sake of a very problematical benefit to the child. In the presence of irregular contractions I stimulate the poor contractions by the use of strychnia, but never use pituitrin extract until the cervix is fully dilated. If the pain reaches a point at which the patient asks for an anesthetic, I have no hesitation in letting her have ether during the contractions, even in the first stage of labor, only sufficient being given to take the edge off the pain and not to interfere with the action of the uterus. Rectal examinations are made from time to time to ascertain the progress of the dilatation of the cervix and the descent of the head through the pelvis, but in the average case I make only one vaginal examination to check up the results of the other examinations.

I realize that I use forceps more often than is necessary in the delivery of my primiparae, but I believe that the average highly-strung woman makes more satisfactory convalescence and fears her future labors much less if her first labor is made as easy as possible and all unnecessary exhaustion is avoided. I feel, however, that it is improper to advocate such procedure unless the attendant has had a proper hospital training in obstetric operation and is properly equipped to undertake obstetric emergency work.

It is believed that pituitrin is too dangerous to be used before dilatation of the cervix is complete; that it should never be used to induce labor or before the cervix is either dilated or dilatable; that it should never be used when there is any disproportion between the size of the fetal head and the maternal pelvis. In the third stage of labor where the uterus does not contract well, it may be used as a substitute for ergot, but has proved somewhat disappointing in dealing with severe hemorrhage. It may occasionally prove very useful in bringing a high head down into the pelvis, and

making what would be a difficult operation a simple one, and for the man to whom any operative delivery is a serious matter, it will undoubtedly aid delivery if given during the second stage of labor with the head on the perineum, and obviate the necessity for operative delivery in many cases, although its action is by no means certain.

SYPHILIS, WHEN A CURE, AND HOW CAN WE PREVENT ITS MALICIOUS TRANSMISSION.

DR. H. E. THOMPSON, Bethlehem: It is claimed by some syphilographers that we should never pronounce a case cured on evidence obtained from either the Wassermann or Weil-Cobra test, for there is unmistakable and conclusive proof that the disease still lurked in the system in a given case after a full treatment with mercurials and salvarsan, followed by negative Wassermann and Weil-Cobra reactions. His great plea, both for country and city, was for publicity, and by no other means could we hope to make any great progress in eradicating the disease.

SOME ASPECTS OF HIGH BLOOD PRESSURE.

DR. CLAUDE M. SNEDEN, Littleton: All patients past thirty-five years of age who present themselves to the physician for treatment should have their blood pressure taken. Fifteen per cent. of all persons who consider themselves physically well are really unsound. The taking of frequent blood pressure readings in all pregnant women should be a routine practice. Toxemia of the kidneys can be diagnosed by high blood pressure fully six weeks before albumin shows in the urine.

INTESTINAL SHORT CIRCUIT FOR INTRA-ABDOMINAL TUBERCLES.

DR. GEORGE S. FOSTER, Manchester: The writer had had the pleasure of seeing many cases in Sir William Arbuthnot Lane's clinic at Guy's Hospital, London, and he is a firm believer in the treatment of the condition. He reported a number of cases operated by him in Notre Dame Hospital with very satisfactory results. He minutely described the technique of the operation.

Book Reviews.

Disease and Its Causes. By W. T. COUNCILMAN, A.M., M.D., LL.D., professor of pathology, Harvard University. New York: Henry Holt and Company. London: Williams and Norgate. 1913.

This volume, No. 68 in the Home University Library of Modern Knowledge, is a presentation, in brief and popularized form, of the substance of the author's teaching in pathology. It is not written for the profession, but for the educated laity who already have some elementary knowledge of anatomy and of physiology. Like the author's medical lectures it presents and emphasizes disease as a biologic phenomenon, as a manifestation of "life under conditions which differ from the usual." Most attention is given to the infections, and among the organic diseases to affections of the heart. There are a brief terminal glossary and index, but no bibliography. The work is vitalized by the author's personality of style and felicity of illustration, and should find a useful place in popular medical literature.

Disease-Bearing Mosquitoes of North and Central America, the West Indies, and the Philippine Islands. By C. S. LUDLOW, Ph.D., anatomist, Army Medical Museum. Washington: Government Printing Office. 1914.

This monograph, published as a bulletin (No. 4) from the office of the surgeon-general of the United States War Department, is an admirable entomologic classification and description of the pathogenic mosquitoes, abundantly illustrated with 27 excellent full-page plates and 30 figures in the text. The publication is of particular value in view of the important problem constituted by the mosquito in this country and its tropic possessions, and should prove of great use to military and civic surgeons.

Bacteriology for Nurses. By ISABEL MCISAAC, R.N. Second edition, revised. New York: The Macmillan Company. 1914.

This text-book in bacteriology for pupil nurses is based on a schedule of twelve two-hour laboratory exercises. In the main it is well written; but the chapter on the venereal diseases is characterized by the morbid exaggeration usually observed in writings by women on this subject. There are 24 good illustrations in the text.

Materia Medica for Nurses. By A. S. BLUMGARTEN, M.D. New York: The Macmillan Company. 1914.

This is an excellent text-book of materia medica. It is, however, too technical and elaborate for any but the most unusual nurse to master. Despite the author's ambitious preface, in which he expresses his aim to develop "trained observers of the effects of drugs," the fact remains that the vast majority of nurses do not need more knowledge of drugs than how to administer them accurately. The method of the book is strictly pedagogic, which therefore is hardly adapted for easy reading. It should prove a useful book of reference for nurses and a valuable manual for medical students.

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101 Tremont Street, Boston, Mass.

MEDICAL LEGISLATION.

The futility and inefficiency of a majority of the laws relating to the public health passed by state legislatures has long been the subject of unfavorable comment by thoughtful students of health legislation. The average citizen has a firm belief that the enactment of laws is a remedy for all the ills of the body politic. Furthermore, he considers all medical questions as parts of a subject which is common knowledge and, consequently, perfectly easy to embody into laws. In investigating them less study seems to be called for than in the solution of the problems of finance and property. Therefore, when the representative takes his seat at the State House for the first time he resolves that he will not live supinely under the manifestly defective health laws of his state but will straighten out the situation forthwith by a proper law. Taking counsel with himself and, perhaps getting the assistance of a not too busy lawyer, he evolves a bill. This bill is subjected in due course to the criticism of a committee of the legislature, the members of which, although having the best of intentions, may know even less about matters medical than our representative. Public-spirited members of the medical profession urged thereto, for the most part, by the Committee on State and National Legislation of the Massachusetts Medical Society, attend the hearings of the committee and point out the weak spots of the measure. If the bill is favorably reported by the committee it runs the gamut of the Senate and House and may be put on the statute books before the people really interested know what is going on. Fortunately the bill is more often killed in committee.

Who is to differentiate between the essential and the non-essential matters requiring legislation; to give information, assistance, advice or expert services in framing bills? Instead of measures carefully planned by experts having a thorough knowledge of all the available facts both as to the needs of the citizens of the state, but, as well, of the experiences of sister states with the same sort of legislation, too often we have measures which are ill-considered by narrow-minded framers, scornful of others and regarding every problem as unique and suited specially for the statute books of their own state. Frequently personal and political influences are brought to bear to force bills through the legislature, and not rarely bills are so emasculated by amendments or compromises that after passage they are worse than nothing. More often than not little attention is given to the enforcement of a given health law. The legislators, perhaps, pass a bill as a party measure. The opposing side is beaten; the merits of the bill are overlooked. When finally engrossed it is soon forgotten and the legislature adjourns, to reassemble another year with a different membership.

Important questions affecting the public health, such as instruction in sex hygiene, vital statistics, abolition of the common drinking cup, vaccination, pure food and drugs, and housing laws should, without question, be studied and passed on by men and women who have had such problems within their ken. Teachers, social workers, judges, practical philanthropists, and administrative officers of correctional and reformatory institutions are fitted to give valuable advice to legislators, as well as are the members of the medical profession. Lack of time, money and the necessary machinery for getting the views of such of our citizens as may be of assistance in this way is responsible largely for our present haphazard, wasteful and unscientific methods of framing legislation in this field. We may look forward, however, to better things in the future because the Council on Health and Public Instruction of the American Medical Association established January 1, 1913, a legislative laboratory or bureau for securing and supplying information on laws, bills, model laws, court decisions, or any subject relating to public health. Here state medical societies, the

legislator or the committee of the legislature may obtain information on health matters, and they may use it or not as they please. In any event, they will not have to grope in the dark as at present. Time is necessary, of course, in which to gather statistics from the many states and to codify and standardize them. We learn from the thoughtful address of the secretary of the Council on Health and Public Instruction,[1] read before the Conference on Public Health Legislation in Chicago, last February, that a good beginning has been made under the supervision of a well-trained lawyer who has been placed in charge of the bureau.

The question of the relative importance of the various topics comprised in public health legislation is a most interesting one, and must vary more or less with the locality. The writer of the paper suggests the following as a tentative list of subjects as a basis of discussion:—

1. Board of health law.
2. Vital statistics law.
3. Law authorizing sanitary survey of the state and making appropriation for it.
4. Practice act, including regulation of midwives and all sects involved in treating the sick for compensation.
5. Law authorizing city and county health organizations with definite relations to each other and the state board.
6. Food and drugs act.
7. Water supply, sewerage and waste disposal.
8. Milk and dairy law.
9. Sanitary and health inspection of schools.
10. Housing law or industrial disease law.

Whatever our individual views may be as to the order in which these subjects should be approached, all will agree that the Council on Health and Public Instruction has made a distinct step in advance in establishing the legislative bureau, which promises to be of so much assistance to state medical societies and to state legislatures in formulating medical legislation in future in a more intelligent and more scientific manner.

The secretary of the Council on Health urges the state societies, through their legislative committees, to consider carefully the advisability of adopting a definite policy and fixed program concerning medical legislation to the end that all efforts may be concentrated upon essential measures until they have been secured.

[1] Sixty-six Years of Medical Legislation. Frederick R. Green, M.D., Chicago, 1914.

The Massachusetts Medical Society has pursued such a course during the legislative season just closed with satisfactory results, and consequently has exerted a very considerable influence both in nullifying bad bills and in favoring desirable legislation, as anyone may see by reading the report of the Committee on State and National Legislation in the JOURNAL.[2] This committee having a membership which is practically the same from year to year, is able to map out a fixed policy and to pursue it, subject always to the vicissitudes of legislation on Beacon Hill. It is to be hoped that with the aid of the Legislative Bureau it will be even more efficient.

SARATOGA SPRINGS: AN AMERICAN SPA.

Now that the state of New York has obtained possession of the property containing these famous mineral springs, there is no reason why, on account of the wealth of its natural resources, Saratoga should not take its place among the great spas of the world. Indeed, by reason of the unequalled variety of these resources, it may, under intelligent management, eventually become the greatest of them all. Already, in the short time that the springs have been under state care, much has been accomplished. Consequent upon the measures taken by the commissioners of this new state reservation, under the provisions of the statute, the various springs have been restored, and are again flowing and spouting as in the old days before the time when, under the blighting influence of private greed, the pumping of artesian wells was begun.

In the annual report of the commissioners, transmitted to the legislature at its session of 1914, it is stated that Dr. Simon Baruch, professor of hydrotherapy in the medical department of Columbia University, became so interested in the state's development of Saratoga Springs as to offer to investigate and report on the present condition, from a medical point of view, of the English and Continental spas of importance. At Bad Kissengen, Dr. Baruch noted indications of efficiency in construction, organization and management, and found that the Royal Bavarian government had placed in charge of the laboratory and direction of the spa, a distinguished scientist, Dr. Paul Haertl.

[2] BOSTON MEDICAL AND SURGICAL JOURNAL, July 9, 1914, p. 79.

He arranged with the latter to come to Saratoga Springs, if the consent of the government could be secured, and on the application of the commission, seconded by the U. S. Department of State, leave of absence for the purpose was granted Dr. Haertl. Accordingly he came, and as he had made a very thorough study, with equipment and facilities furnished by his government, of the whole question of mineral water supply and development, he was able to give the commissioners much information respecting the value and possibilities of the properties taken by the state. The view of the situation taken by Dr. Haertl,—which is confirmed by the opinion of American authorities,—was most encouraging. In the course of his report he says:—

"In view of the fact that about fifteen years of pumping has not exhausted these springs beyond restoration, I am confident that the more moderate usage of the water for therapeutic purposes can never exhaust the supply. The methods which I have suggested for conserving the gas offer an additional warrant for this view. These considerations justify the opinion, which I do not hesitate to pronounce, that future demands upon the springs which are certain to arise when Saratoga becomes the pronounced health resort which its mineral springs and environment promise, will be amply responded to by the natural supply of water and gas within its subterranean area."

The most important result of his visit was to confirm the opinion that all the Saratoga mineral waters are suitable for bathing purposes. Mineral water baths, the commissioners state, are given at many scores of places in Europe, which have large establishments, the aggregate cost of which is over $50,000,000, but practically all of which are paying good returns on the investment. There can be no doubt, therefore, they say, as to the desirability of the early construction and equipment of facilities for properly utilizing these waters, which in combined variety, quality and quantity are beyond those of other resorts. There must be modern coveniences for supplying the different waters under one roof and for properly heating them to the varying temperatures at which physicians prescribe them for drinking. It is also desirable to build bathing-houses, equipped with the requisite facilities and appliances for baths, as well as for the incidental treatments employed in connection with them, upon a scale comparable with similar establishments of Europe.

In the *Albany Medical Annals* for May there is published an interesting address delivered before the Albany County Medical Society by Dr. Albert Warren Ferris, superintending director of the state reservation at Saratoga, in which he gives the history of the springs and some account of their characteristics and of what is being done for their further development. The first white man to visit a Saratoga spring was Sir William Johnson, the victorious commander at the battle of Lake George, who, ill and disabled by an old gun-shot wound, was conveyed thither by friendly Indians in 1767. The spring to which he was brought was the High Rock, which was called the "Medicine Waters of the Great Spirit." Obeisance was made to the Manitou of the spring, and then the "White Brother of the Mohawks" partook of the water of the healing stream as it spouted through the orifice of the High Rock cone, and bathed in its waters. The old cone, formed by accretions deposited from the water, stands today where Sir William saw it, and is now protected by a pavilion and surrounded by the little High Rock park.

The state commissioners announce that arrangements are now being made for the administration of baths similar to those of Nauheim; also that several of the springs will be accessible all winter, and one bath-house remain open all the year. It is hoped to make Saratoga a winter, as well as a summer resort. The climate is exceptionally fine at that season, for while the cold is often intense, the air is so dry that only the exhilarating effect of the low temperature is experienced. In the way of winter sports every possible facility is offered.

EXPANSION, WORK, AND AIMS OF THE ROCKEFELLER INSTITUTE.

In order that further opportunities may be afforded for the more complete investigation of the nature and causes of human disease and methods of its prevention and treatment, Mr. John D. Rockefeller has just donated $2,550,000 to the Rockefeller Institute for Medical Research.

Of the sum just donated a part will be utilized to purchase additional land in New York

so that the institute will have acquired the entire tract where its buildings are now located, between 64th and 67th Streets on Avenue A, extending through to East River—about four acres. The remainder will be used to erect and equip additional laboratories, buildings and plant, and to insure the proper maintenance and conduct of the extended work.

This gift of $2,550,000 is in addition to a special fund of $1,000,000 which Mr. Rockefeller has provided in order that the institute may establish a department of animal pathology. Dr. Theobald Smith, now professor of comparative pathology in Harvard Medical School, is to become director of the new department.

It will be the purpose of this branch of the institute's work to give special attention to the study of maladies such as hog cholera, foot and mouth disease, and diseases of poultry, which are of such immediate and practical concern to farmers, and the elimination of which is so important. This will be the first enterprise of this kind upon an adequate basis to be established in this country. The results of its work should eventually be of great value in improving the health of cattle and other farm animals.

Mr. Rockefeller's previous gifts to the institute has amounted to practically $9,000,000, exclusive of real estate in New York City, so that the endowment of the institute will now approximate $12,500,000.

The Rockefeller Institute will, with the new gift, now become the most amply endowed institution for medical research in the world. In 1902, when the institute was founded, there was not a single undertaking of the kind in this country. England had the Lister Institute, Germany the Institute for Infectious Diseases, France the Pasteur Institute, and Russia the Royal Military Institute at St. Petersburg. Since 1902 a number of other research laboratories have been established in this country, including several in Chicago.

In addition to the laboratories, there is connected with the institute a hospital with every improved facility for the treatment of patients afflicted with diseases at the time under special investigation. For the treatment and study of contagious diseases,—a most important phase of the institute work,—there is a separate building with isolation rooms.

The aims of the Rockefeller Institute and the lines along which its future work,—upon an even more comprehensive basis.—will be conducted, are indicated by some of its practical achievements already accomplished, such as: the serum treatment of epidemic meningitis; the discovery of the cause and mode of infection of infantile paralysis; the surgery of blood vessels through which blood transfusion has become a daily life-saving expedient; the safer method of administering anesthetics by intratracheal insufflation; the skin or luetic reaction for syphilis; and the cultivation of the parasite of rabies.

MEDICAL NOTES.

SWISS LEGISLATIVE EUGENICS.—Report from Geneva, Switzerland, on July 11, states that the Swiss Society of Public Utility for Women is demanding the requirement of health certificates for brides as evidence that they are fit for motherhood. Hitherto attempts at legislative eugenics have been directed chiefly against venereal disease in the male. The difficulty of conscientiously affirming of any nullipara that she is fitted for child-bearing is obvious to all obstetricians of experience.

INVENTION OF THE OPTOPHONE.—Report from London on July 6 states that Dr. Fournier d'Albe has recently demonstrated before the Royal Society his invention, the optophone, an apparatus to enable the blind to read by transforming light waves into sound waves.

"The device consists of a perforated disk which rotates in front of a powerful Nerust lamp. The type to be read is placed facing the light upon a rest. A small, intensely bright line of light, passing through the holes in the disk, travels from one letter to the next, and the type reflects the light onto a selenium bridge. Each letter gives a characteristic sound, which is heard by means of a telephone. The reader must know the sound of each letter to be able to follow the print."

AMERICAN MEDICINE GOLD MEDAL AWARD.—It is announced by the trustees of the American Medicine Gold Medal Award that the medal for 1914 has been conferred on Dr. George W. Crile, of Cleveland, Ohio, as the American physician who in their judgment "has performed the most conspicuous and noteworthy service in the domain of medicine and surgery during the past year.

American College of Surgeons.—A meeting of the American College of Surgeons was held in Philadelphia on June 22, with an attendance of 800 members. Over $100,000 were subscribed towards a fund for the establishment of a permanent building for the institution in Washington, D. C., and 1100 new fellowships were conferred, making the total membership over 3000.

National Mouth Hygiene Association.—At the closing session on July 11 of the annual meeting of the National Mouth Hygiene Association at Rochester, N. Y., Dr. Harvey W. Wiley was elected president; Drs. W. A. Evans, of Chicago, Oscar Dowling, of New Orleans, William R. Malone, of New York, and Rupert Blue, of Washington, vice-presidents; and Dr. W. G. Ebersole, of Cleveland, secretary and treasurer for the ensuing year.

National Dental Association.—At the closing session on July 10 of the eighteenth annual convention of the National Dental Association, in Rochester, N. Y., Dr. G. E. Mitchell, of Haverhill, Mass., was elected president; Dr. J. V. Couzett of Dubuque, Iowa, vice-president; and Dr. H. L. Banzhof, of Milwaukee, Wis., secretary and treasurer for the ensuing year.

American Climatological and Clinical Association. — At the thirty-first annual meeting, held in Atlantic City, N. J., on June 19 and 20, the American Climatological Association changed its name to the American Climatological and Clinical Association, and voted to meet in San Francisco, Cal., in 1915. Dr. Henry Sewall, of Denver, Colo., was elected president and Dr. A. K. Stone, of Boston, and Dr. J. Alexander Miller, of New York, were elected vice-presidents. Dr. Guy Hinsdale, of Hot Springs, Va., was elected secretary.

A British Legal Centenarian.—William Augustus Gordon Hake, who died on July 13 at Brighton, England, is said to have been born in April, 1811, at St. David's Hill, Exeter, Devonshire. He became a barrister in 1835 and for many years had been the senior member of the British bar. He was educated at the University of Paris.

A Centenarian.—Martha Crise, who died on July 9 at Trente, Somersett County, Pa., is said to have been born in 1813. Though an invalid since childhood, she survived two husbands, and retained an active mind despite her physical infirmities.

Bubonic Plague in New Orleans.—Another death from bubonic plague was reported on July 10, and another case on July 19, at New Orleans, La., making a total of 7 cases and 3 deaths since the outbreak of the infection in that city on June 27. On July 16 three plague infected rats were caught and destroyed.

Sick-Rates at Vera Cruz.—Report from Washington, D. C., on July 10 states that the sick-rate among United States soldiers and marines at Vera Cruz, Mexico, for the week ended July 8 was 2.47, as against 2.39 for the preceding week.

BOSTON AND NEW ENGLAND.

Warning to Boston Milk Consumers.—Dr. Francis X. Mahoney, chairman of the Boston board of health, has recently issued a warning to all milk-purchasers in this city, on account of the discovery of a case of scarlet fever on a farm supplying milk to a part of West Roxbury. The circular urges the pasteurization of all milk from doubtful sources at this season.

Smallpox in Marlboro.—Four new cases of smallpox were discovered in Marlboro, Mass., on July 10, making a total of 11 since the outbreak of the present epidemic. Over 7000 residents of the town have been vaccinated.

New Winchester Hospital.—Plans have been accepted for the new Winchester (Mass.) Hospital, whose erection will be soon undertaken.

"The operating wing is at the north and two stories high; the administrative portion, which is three stories and a half high, is in the centre, and the wing to the south with the spacious two-story airing balcony for patients faces the south, thus giving those who most need it the sun all day.

"The ground floor has an ambulance entrance and receiving and dressing room for accident cases, boiler, coal room, laundry, large light kitchen, a serving room, dining room, nurses' class room, store room, men's room with bath and provision for laboratories, Roentgen ray and isolation rooms.

"On the first floor are located the operating department, offices and wards. In the main building on the second floor are rooms for the superintendent, maternity department and nursery. The building is to be fireproof throughout and the floors will be of marble or terrazo."

A LIVING CENTENARIAN.—Mrs. Sarah Banks Pillsbury, of Parsonsfield, Me., is said to have been born in June, 1814. Her health is excellent, and she maintains an active interest in all topics of the day.

HOSPITAL BEQUESTS.—The will of the late Henry K. Barnes of Boston, which was filed on July 14 for probate in the Suffolk county registry, contained a bequest of $1000 to the Boston Floating Hospital.

The will of the late C. James Connelly, filed for probate in Boston on July 11, contains bequests of $200 to the Carney Hospital, St. Elizabeth's Hospital, and St. Margaret's Hospital, Boston.

The will of the late Susan C. Dove, of Andover, Mass., which was recently filed for probate, contains a bequest of $5000 to the Massachusetts General Hospital.

The will of the late Henrietta T. Rand, of Brookline, Mass., which was allowed at Dedham, Mass., on July 16, contains a bequest of $1000 to the New England Peabody Home for Crippled Children.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending July 14, 1914: Diphtheria, 49, of which 1 was non-resident; scarlatina, 14, of which 3 were non-residents; typhoid fever, 6, of which 1 was non-resident; measles, 58, of which 8 were non-residents; tuberculosis, 33. The death-rate of the reported deaths for the week was 13.13.

NEW YORK.

CONVICTION OF A CHRISTIAN SCIENCE HEALER.—The appellate division of the New York Supreme Court on July 10 confirmed the conviction of Willis V. Cole, the Christian Science healer who in March, 1912, was found guilty before a jury of practicing medicine without a license and fined $100, and whose case was appealed. "In the case at the bar," Justice Clarke said, in delivering his opinion, "the whole concern of the court is whether the defendant was convicted of practicing medicine without being licensed and registered, and whether the conceded acts were the practice of the religious tenets of any church." The justice concluded that the acts complained of constituted the practice of medicine, and were not the practice of the tenets of any church. To authorize the defendant to administer the treatment which he conceded he did, he first must have been duly licensed and registered, in accordance with the provisions of the public health law. The law under which the action was brought declares that a person practices medicine who holds himself as being competent to diagnose and treat disease, and who shall offer or undertake, by any means or method, to diagnose, treat, or prescribe for such disease or ailment. The stipulation is added, however, that this article shall not be construed to affect "the practice of the religious tenets of any church."

APPOINTMENT OF DR. OSCAR TEAGUE.—Health Officer of the Port O'Connell has appointed Dr. Oscar Teague, of the Cornell University Research Laboratory, director of the new bacteriological laboratory at Quarantine. It is announced that this appointment was made especially with the view of protecting New York from the possibility of infection from bubonic plague. In 1911 Dr. Teague was sent from Manila to Mukden as the American delegate to the International Plague Conference held there when the disease was epidemic in Manchuria. Previous to this, from 1908, he served in the bacteriological department of the Bureau of Science, Manila, and collaborated with other members of the bureau in the production of "Studies in Bubonic Plague and Plague Immunization." While in this service he had extensive experience with Asiatic cholera and leprosy, and later was made bacteriologist at the asylum for lepers. He also made a tour through the Philippines for the purpose of collecting leprosy subjects, and sent nearly 200 of them to the asylum on the Island of Culion.

VACATION SCHOOLS.—In view of the fact that during the past year 388 children were killed by vehicles in the streets of New York, and that in the month of June, 28 of these fatalities occurred, the vacation schools serve one good purpose, if of no other value, that of keeping the children off the streets for at least part of the

time. This year, in addition to the official vacation schools of the Department of Education, a number of the large Episcopal churches are maintaining a group of ten such schools, with an attendance of more than 2,000 pupils and a corps of 40 teachers, some from the public schools and some from among male and female college students. In the curriculum, calisthenics and industrial work are special features.

City Health Department Moving Pictures.—The City Health Department is now carrying on its free moving pictures in the parks and on the recreation piers of the various boroughs. Each exhibition consists of four reels of films: The Story of a Consumptive, The Production and Handling of Milk, The Little Cripple, and The City Beautiful; and between the films a large number of instructive lantern slides are shown, and thousands of antituberculosis leaflets distributed. In the Manhattan and Bronx exhibitions the department is assisted by the tuberculosis committee of the Charity Organization Society, and in those in Brooklyn and Queens, by the corresponding committee of the Brooklyn Bureau of Charities.

Violent Deaths.—The records of the coroner's office show that during the first six months of the year there were 44 cases of homicidal shooting, as against 53 cases in the same period of 1913, and 40 suicides by shooting, as against 49 last year. The total number of homicides was 72, as compared with 79 in 1913. There was a considerable reduction in the number of deaths from automobiles, the figures being respectively 68 (1914) and 99 (1913).

Roof Playgrounds.—The first roof playground on a New York apartment house was opened on July 2 on top of the Hendrik Hudson, a large apartment house at Riverside Drive and 110th Street. Park Commissioner Cabot Ward was present on the occasion and made an address, in which he stated that he had drafted a law providing that all apartment and flat houses built in future shall have the roofs so constructed as to allow playgrounds to be added. At present, he said, an astonishingly small number of the roofs of such buildings were suitable for the purpose, and the same was true of the armories of the city; though most of the latter had a small space which could be utilized for playgrounds. In the time to come he believed that roofs were going to be one of the most important factors in solving the playground factor, and thus keeping the children off the dangerous streets. Borough President Marks of Manhattan has also taken up the matter of roof playgrounds and has addressed a letter to more than fifty architects in which he asks them to coöperate with him in stimulating interests in the placing of playgrounds and gardens on the roofs of suitable buildings in all parts of Manhattan, and also in the encouragement of the open-air sleeping porch. "Not only," he says, "will we be able by this development to improve health conditions, but also to relieve the congestion of the streets. As you know, there is about three times as much space on the roofs of the city as there is on the streets, and most of this space has not been utilized up to this time. I have suggested to the superintendent of buildings that only the actual necessities for safety in construction be insisted upon, and that the public in this way be encouraged to increase the use of roofs in a safe and sane way." Mr. Marks has also formally requested the American Institute of Architects and the New York Society of Architects to appoint committees to develop his plan.

Appointments, Department of Health.—Twelve sanitary supervisors, state department of health, have been appointed from the list certified by the civil service commission, and the department is much gratified to have obtained the services of men whose past work has so fully qualified them for the important duties of this office. Among them are Drs. Edward Clark, F. W. Sears and Frank Overton. Dr. Clark has been deputy commissioner of health, Buffalo, and established the milk bureau of that city. Dr. Sears was formerly professor of histology and pathology in Syracuse Medical College, and is now health officer of Syracuse. Dr. Overton, now health officer of Patchogue, is the author of "Applied Physiology" for schools, and a lecturer on public health topics.

"Safe and Sane" Driving.—A correspondent of the *New York Times* very aptly writes: "Judging from the press reports from throughout the country, the movement for a safe and sane Fourth seems to have been eminently successful this year; the list of dead and injured being very small as compared with that of previous years. By the same token, the list of dead and injured chargeable to unsafe and 'unsane'

automobile driving would compare favorably with the death list of a modern battlefield. Now that the 'little' children have been made 'safe and sane,' is there not an excellent opportunity to commence on the 'big' children?"

Current Literature

NEW YORK MEDICAL JOURNAL.

JULY 4, 1914.

1. ANDERS, J. M. *The Treatment of Obesity.*
2. *FRIEDENWALD, J., AND ROSENTHAL, L. J. *The Treatment of Amebic Dysentery with Emetine.*
3. BRYANT, W. S. *Radium in Middle Ear Deafness Caused by Chronic Suppuration.*
4. BABCOCK, R. H. *Cardiac Hypochondriacs.*
5. MAYS, T. J. *The Control of Pulmonary Consumption.*
6. FISK, E. L. *A Sensible Diet for the Average Man and Woman.*
7. CUNNINGHAM, W. P. *Cutanea Lues Insolita.*
8. KENNEDY, F. *The Effects of Narcotic Drug Addiction.*
9. STEELE, G. *A Commissioned Veterinary Corps for the Army.*
10. NATHAN, D. *Circumtonsillar Abscess.*

2. Friedenwald and Rosenthal review the history of the treatment of amebic dysentery with emetine and report nine cases of their own. They find emetine a specific in this disease, its effect being rapid and striking. It produces no nausea or vomiting or other unfavorable symptoms. Other forms of dysentery are not favorably influenced by emetine, so that its administration is of diagnostic as well as therapeutic value. Recurrence after apparent cure is not infrequent, so that it is advisable to treat all cases showing a tendency to relapse. The dose used by the writers was one-fourth to one-third grain of the hydrochloride hypodermically, repeated every twenty-four hours for a week or more. In some cases the dose was increased gradually up to one grain.

[L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JULY 4, 1914.

1. ANDERSON, J. F. *Some Unhealthy Tendencies in Therapeutics.*
2. TODD, F. C. *Research in Ophthalmology, and the Training of Ophthalmologists. Their Promotion and Encouragement Through the Establishment of Teaching Fellowships.*
3. BAILEY, P. *Painless Tumors of the Spinal Cord.*
4. *REHFUSS, M. E., BERGEIM, O., AND HAWK, P. B. *Gastro-Intestinal Studies. I. The Question of the Residuum Found in the Empty Stomach.*
5. VERHOEFF, F. H. *Chronic Ocular Tuberculosis. Necropsy Findings in a Case in Which Death Was Due to Tuberculosis of the Hypophysis Cerebri.*
6. BYERS, W. G. M. *Tumors of the Optic Nerve.*
7. HOLDEN, W. A. *Ocular Manifestations of the Toxemia of Pregnancy. Clinical Report of a Case.*
8. FRANCIS, L. M. *Two Cases of Acute Retrobulbar Neuritis, Associated with Marked Acetonuria.*
9. SIMPSON, W. L. *A Method of Closing Perforations of the Septum of the Nose.*
10. MARSH, C. D. *Supposed Poisonous Properties of Chestnuts Grown on Trees Affected with Chestnut Blight.*

4. These investigators found by the examination with a new metal weighted stomach tube that the accepted limit of the normal residuum of the empty stomach as 20 c.c. is false. The examination by means of the old stomach tube, as demonstrated by Harmer and Dodd, is entirely inadequate. The method of examination by means of the new modified stomach tube is the only satisfactory method of determining the complete residuum. On a series of healthy medical students the residuum in every instance exceeded the accepted limit, and in several instances was above 100 c.c. without there being any evidence of gastro-intestinal or general disorders.

[E. H. R.]

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

MAY, 1914.

1. *RIESMAN, D. *Medical Diagnosis in Relation to Surgery.*
2. *EISNER, H. L. *The Association of Uterine Growths with Goitre; Typical and Atypical Exophthalmic Goitre.*
3. *KENNEDY, F., ELSBERG, C. A., AND LAMBERT, C. I. *A Peculiar Undescribed Disease of the Cauda Equina.*
4. *WARTHIN, A. S. *Primary Tissue Lesions in the Heart Produced by the Spirocheta Pallida.*
5. *KEYS, E. L. *The Mechanism of Prostatic Retention.*
6. *LICHTY, M. J. *Hypertension: A Report of Cases under Prolonged Observation, and a Protest against Some Ideas.*
7. *TALLEY, J. E. *The Electrocardiograph as a Clinical Instrument.*
8. *MOSS, W. L. *A Simple Method for the Indirect Transfusion of Blood.*
9. *HUNT, R. *The Rôle of the Carotid Arteries in the Causation of Vascular Lesions of the Brain: With Remarks on Certain Features of the Symptomatology.*
10. *SMITHIES, F. *A Study of the Value of the Quantitative Estimation of Dissolved Albumin in Gastric Extracts (Wolf-Junghans' Test) in the Diagnosis of Gastric Cancer.*
11. *CRUICE, J. M. *Jaundice in Tuberculosis.*
12. *CECIL, R. L. *Hyaline Degeneration of the Islands of Langerhans in Non-diabetic Conditions.*
13. *YAWGER, N. S. *Alcoholism and Epilepsy, Also So-Called Acute Alcoholic Epilepsy.*

1. Riesman writes to emphasize the importance of examination by an internist before operation, not only in obscure but also in apparently simple surgical cases.

2. Eisner calls attention to the association of uterine growths with goitre, and reports striking illustrative cases, especially with symptoms of atypical exophthalmic goitre.

3. Kennedy, Elsberg and Lambert report five cases characterized by paralysis of the bladder and rectum, a segmental palsy of the anterior tibial muscles of the lower motor neuron type, and in a majority loss of sensibility in the affected root areas, believed to be examples of a toxic neuritis of the caudal nerve roots.

4. Warthin contributes a description of syphilitic heart lesions based upon a study of two hundred hearts, fifty of congenital syphilis and one hundred and fifty of acquired syphilis. Both parenchymatous and interstitial lesions are found, each of several types. It is concluded that syphilis, both congenital and acquired, is the most important etiological factor in the production of cardiac disease, both endocardial and myocardial.

5. Keys discusses the mechanism of prostatic retention, concluding that elevation of the inferior lip of the neck of the bladder forms a mechanical obstruction, and that in prostatectomy the chief object should be the obliteration of this obstacle.

6. Lichty reports cases of hypertension observed for a number of years. From these he shows that, while some cases of hypertension rapidly grow worse, others with tension no less high continue for long periods without inconvenience. He finds that where hypertension exists without other manifestations of disease the outlook is the most favorable, when it is associated with manifestations in one organ it is more serious, and that where there are symptoms arising from more than one organ, as from both renal and cardiac insufficiency, the prognosis is most serious. The readiness with which cases respond to treatment is of great significance in the prognosis.

7. Talley's article is a short general description of the principles of the electrocardiograph and its clinical applications which may be recommended to those who have no previous knowledge of the instrument.

8. Moss describes a method of obtaining blood from a donor, defibrinating it, and injecting it intravenously into the patient. While this method is theoretically less to be recommended than direct transfusion, its applicability to cases where a skilled surgeon is not available should provide it a certain field of usefulness.

9. Hunt calls attention to the occurrence of diminished pulsation of the carotid artery on the affected side as an occasional accompaniment of cerebral disease of vascular origin.

10. Smithies concludes that the test for dissolved albumin in gastric contents is more constant in cases of cancer of the stomach than the absence of free hydrochloric acid, the presence of lactic acid or the glycyltryptophan test, being present in 80% of his series. He finds, however, that simple gastric and duodenal ulcers, especially when accompanied by pyloric stenosis, may give confusing responses, perhaps from the presence of blood.

11. Cruice reports cases of jaundice in tuberculosis, and concludes tentatively that this is due to pressure of tuberculous lesions upon bile ducts either within or without the liver.

12. Cecil reports six cases of hyaline degeneration of the islands of Langerhans in which there was no evidence of diabetes, and suggests that such degeneration may occur up to a certain point without causing diabetes, but that when islands beyond a certain number are involved, diabetes ensues. In all of these cases there was hyaline degeneration of the glomeruli of the kidneys.

13. Yawger contends that the importance of alcohol in the etiology of epilepsy has been overestimated.

[F. W. P.]

JUNE, 1914.

1. *FRAZIER, C. H. *Sarcoma of the Stomach.*
2. *HAYHURST, E. R. *Critical Examination of One Hundred Painters for Evidence of Lead Poisoning.*
3. *ARMSTRONG, G. E., AND MULLALY, F. J. *Fatal Gastro-intestinal Hemorrhage.*
4. *BANCROFT, F. W. *The Process of Bone Repair Following Trauma.*
5. EUSTIS, A. *Diabetes Mellitus and Its Differentiation from Alimentary Glycosuria.*
6. WALLS, F. X., AND GOLDSMITH, A. A. *Chloroma, with Report of a Case of the Myeloid Variety.*
7. *REHFUSS, M. E. *A New Method of Gastric Testing, with a Description of a Method for the Fractional Testing of the Gastric Juice.*
8. HURWITZ, S. H. *Osteitis Deformans (Paget) Involving a Single Bone: Report of a Case.*
9. *BURNS, N. E. *Valvular Heart Disease Considered as a Contributory Etiological Factor in Pulmonary Tuberculosis: A Complication of the First Magnitude.*
10. *POTTENGER, F. M. *Observations on the Classification and Treatment of Hemoptysis.*
11. KILDUFFE, R. *A Case of Congenital Absence of the Lower Half of the Interauricular Septum.*

1. Frazier reports a case of sarcoma of the stomach with resection of the tumor and without recurrence of the disease at the last report ten months later. Sarcoma of the stomach, it is concluded from the literature, forms only 2% of the primary malignant disease of that organ.

2. Hayhurst has made a careful study of one hundred painters of the best type and condition for history, symptoms, signs and tests of plumbism. In seventy of these some evidence of chronic lead poisoning was found. A lead-line was present in nineteen.

3. Armstrong and Mullaly report five cases with autopsies to emphasize the occurrence of fatal gastro-intestinal hemorrhage without demonstrable lesions of the mucosa.

4. Bancroft, from experimental studies, describes repair of fractures by connective tissue from the medullary cavity and the Haversian canals, as well as from connective tissue continuous with the periosteum.

7. Rehfuss describes methods of testing the functions of the stomach by modifications of Einhorn's procedures. He has devised an improved capsule for the collection of samples of gastric contents and a new tip for the duodenal tube.

9. Burns combats the teaching that heart disease in some measure protects the subject against pulmonary tuberculosis. His observations have shown that in patients with third stage pulmonary tuberculosis signs of organic heart disease occur in approximately 15%.

10. Pottenger emphasizes the observation that hemoptyses in his sanatorium experience occur in groups, several patients being affected at the same time, presumably on account of climatic conditions. He describes hemoptysis of four types: a frank hemorrhage where a vessel of some size is opened, bleeding coincident with the expulsion of a necrotic mass, slight tinging of the sputum perhaps from small vessels in the wall of a cavity, and continued raising of mouthfuls of blood, probably from congestion of foci of disease. In treatment it is urged that morphia, if used at all, be given only in small doses. Veratrum viride, nitroglycerin and pituitrin are favored. Artificial pneumothorax is mentioned as of value in hemoptysis of the first two types. [F. W. P.]

THE ARCHIVES OF INTERNAL MEDICINE.

JUNE, 1914.

1. *HINMAN, F. *The Value of Hexamethylenamin as an Internal Antiseptic in Other Fluids of the Body Than Urine.*
2. *MCGUIGAN, H. *Hexamethylenamin.*
3. SEWALL, H. *Some Relations of the Brain and of the Olfactory Apparatus to the Processes of Immunity.*
4. *ROSS, E. L. *Metabolism in Dementia Precox.*
5. THOMPSON, L. *The Titration of Wassermann Reagents.*
6. *KRUMWIEDE, C., JR., NICOLL, M. JR., AND PRATT, J. S. *Attempts to Produce Scarlatina in Monkeys.*
7. *HESS, A. F. *German Measles (Rubella): An Experimental Study.*
8. CRAIG, C. F. *The Differential Diagnosis of the Intestinal Intamebiasis of Man.*
9. *FITZ, R. *Study XXI: The Immediate Effect of Repeated Doses of Theobromin, Sodium Salicylate and Theocin on Renal Functions in Acute Experimental Nephritis.*
10. OPPENHEIMER, A., AND OPPENHEIMER, B. S. *Three Cases of Adams-Stokes' Syndrome with Histological Findings.*
11. *BOGGS, T. R., AND SNOWDEN, R. R. *The Intramuscular Treatment of Tabes and Cerebro-spinal Syphilis.*

12. *WILLIAMS, W. R. *Twenty-Three Cases of Pneumonia Treated with Anti-pneumococcus Serum.*

1. Hinman reports on a study of the value of hexamethylenamin as an internal antiseptic in normal and pathological body fluids. This drug is dependent on the liberation of formaldehyde for its antiseptic action. The writer finds that it is not converted into formaldehyde in any of the normal alkaline fluids of the body, and therefore that it can be of no prophylactic value in any of these fluids. After some infections of these fluids there may be a change in reaction sufficient to produce slight liberation of formaldehyde, but probably not enough to give antisepsis. In localized infections of pronounced acidity hexamethylenamin is not taken into them from the circulation in amounts to furnish formaldehyde in antiseptic strength. The therapeutic use of this drug as an internal antiseptic is justified for urinary conditions alone, and then only when it is excreted into an acid urine.

2. McGuigan and Hess conclude from their investigations that, after the administration of hexamethylenamin, free formaldehyde appears only in the gastric juice and acid urine, not in other secretions or in the blood, even with dialyzing tests. The liberation results from the acid reaction only and not from cell action. The only apparent indication for the internal administration of the drug, therefore, is in infections of the urinary tract.

4. Ross studied the metabolism of nitrogen, sulphur, phosphorus calcium and magnesium in five cases of dementia precox. He found normal metabolism of all these elements except sulphur, which showed abnormal metabolism in the acute cases, indicating reduced power of oxidation. In the chronic cases there were less pronounced abnormalities in sulphur metabolism, indicating partial deficiency.

6. Krumwiede, Nicoll and Pratt were unsuccessful in attempts to produce scarlet fever in monkeys and baboons by the faucial inoculation of streptococcus cultures or unfiltered exudates and discharges from scarlet fever cases, or by the intraperitoneal injection of filtrates of such exudates and discharges and of large quantities of blood.

7. Hess studied the blood in a small number of cases of German measles and found that there was a definite increase in the lymphocytes even before the appearance of the exanthem. This lymphocytosis may serve to differentiate rubella from scarlet fever, which is associated with a polynuclear leucocytosis in its early stage.

9. Fitz found that repeated small doses of theobromin, sodium salicylate and theocin in acute experimental uranium nephritis in rabbits caused an immediate increase in the output of urine, chloride and nitrogen, and did not diminish the excretion of phenolsulphonephthalein. In acute experimental potassium bichromate nephritis, such doses increased the output of urine and of chloride, but diminished that of phenolsulphonephthalein. The later effect of these doses was the production of renal fatigue in which the kidneys were no longer able to react. The cases of nephritis were of moderate severity. In a few studies made on animals with an extreme grade of nephritis, these diuretics were not effective.

11. Boggs and Snowden report five cases of tabes dorsalis and three of cerebrospinal syphilis in which salvarsan was administered both intravenously and intraspinally. They consider the intraspinal method valuable. After its use their patients were uniformly relieved from pain and there was definite improvement in locomotion, nutrition improved and the psychic effect was marked. The cell count of the spinal fluid fell to normal and the Wassermann reaction became negative.

12. Williams reports 23 cases of pneumonia treated with antipneumococcus serum. His results are inconclusive. [L. D. C.]

JOURNAL OF MEDICAL RESEARCH.

MAY, 1914.

1. WEIL. *Studies in Anaphylaxis.*
2. *SMITH. *Does Internal Administration of Potassium Iodide Have Any Effect on Thyroid Grafts in Guinea-pigs?*
3. *HONEIJ AND PARKER. *Leprosy. Flies in Relation to Transmission of Disease.*
4. JABLOWS. *Serologic Investigations in Typhus Exanthematicus.*
5. AYER. *Experiments in Cavity Formation and Fever in Tubercular Rabbits.*
6. *SMITH. *Experimental Study of the Relation of Bile to Ulceration of the Mucous Membrane of the Stomach.*
7. MACCORDICK. *Statistical Study of Normal Growth, Atrophy and Hypertrophy of the Middle Coat of the Radial Artery.*
8. WAHL. *Neuroblastomata.*

2. Smith failed to find thyroid grafts influenced by the administration of potassium iodide. Furthermore, no influence was produced by the administration of thyroid extract. Central necrosis was found in all grafts, regeneration taking place by the growth of thyroid tissue from the peripheral acini toward the centre.

3. Honeij and Parker have conducted interesting experiments in connection with the transmission of the bacillus of leprosy by means of the fly. In this preliminary report they state that a very high percentage of contamination was found in those flies that were allowed to feed freely upon purulent material. In no instance were "carriers" found at points immediately removed from the hospital.

6. Smith shows the injurious effect upon the gastric mucous membrane of bile in the presence of an excess of 0.5% hydrochloric acid. This action is shown when such material is introduced via the esophagus or the duodenum. The toxic action of bile is far more pronounced in the presence of 0.5% hydrochloric acid than in that of 0.5% sodium carbonate, or other alkalies. The lesions of the mucosa consist of necrosis of the epithelium with hemorrhages as a result of which small ulcerations are produced. The presence of mucus in the stomach serves to protect the epithelium from this toxic action.

[L. H. S.]

JOURNAL OF INFECTIOUS DISEASES.

MAY, 1914.

1. HEKTOEN, *Production of Precipitins.*
2. *ROGERS, CLARK AND DAVIS. *The Colon Group of Bacteria.*
3. PEPPER AND KRUMBHAAR. *Diminished Coagulation of Blood in Anaphylactic Shock in the Dog.*
4. LEDERER. *New Method of Determining the Relative Stability of Sewage Effluent or Polluted River Water.*
5. *DEWITT. *Therapeutic Use of Certain Azo-Dyes in Experimentally Produced Tuberculosis in Guinea-pigs.*
6. GOODRICH. *Comparison of Plating and Microscopic Methods in Bacteriologic Examination of Milk.*

2. The authors have isolated a large number of strains of the colon group of bacteria from milk. They have studied their morphology, staining reactions, power of liquefaction of gelatin, production of indol, reduction of nitrates and fermentation of all of the common sugars. They have laid especial stress upon the carbon dioxide hydrogen ratio from dextrose fermentation. By this means they have formed two general groups of organisms,—those with approximately a ratio of 1.1 and those with higher ratios. The former show a higher percentage of cultures giving a positive indol test, reduction of nitrates and

fermentation of dulcite and glycerin. The latter showed fewer positive indol tests, but a higher percentage of fermentations with adonite and starch, and lower with dulcite and glycerin.

5. DeWitt has shown that trypan blue and red will penetrate experimental tubercles in guinea-pigs, but will neither penetrate the tubercle bacillus, nor in any way influence its growth. In therapeutic doses these dyes had no favorable nor curative results upon experimental tuberculosis in guinea-pigs.

[L. H. S.]

THE JOURNAL OF EXPERIMENTAL MEDICINE.

JULY, 1914.

1. CARREL, A. *Present Condition of a Strain of Connective Tissue Twenty-Eight Months Old.*
2. TUFFIER, T., AND CARREL, A. *Patching and Section of the Pulmonary Orifice of the Heart.*
3. CARREL, A. *Experimental Operations on the Sigmoid Valves of the Pulmonary Artery.*
4. PEARCE, R. M., AND PEPPER, O. H. *The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice. IX. The Changes in the Bone Marrow after Splenectomy.*
5. JOBLING, J. W., AND PETERSEN, W. *The Mechanism of Anaphylatoxin Formation. Studies on Ferment Action. XV.*
6. HASTINGS, T. W. *Complement Fixation Tests in Chronic Infective Deforming Arthritis and Arthritis Deformans.*
7. HASTINGS, T. W. *Concerning a Polyvalent Antigen for the Complement Fixation Test for Streptococcus Viridans Infection.*
8. CABTEB, E. P. *A Note upon the Technic and Accuracy of the Method of Douglas and Haldane for Calculating the Dead Space in Breathing.*

Miscellany.

A CIRCULAR ABOUT CANCER.

THE American Society for the Control of Cancer has recently prepared for general distribution a circular entitled, "What You Should Know About Cancer." The society was organized in 1913 as a national association "to disseminate knowledge concerning the symptoms, diagnosis, treatment and prevention of cancer, to investigate the conditions under which cancer is found, and to compile statistics in regard thereto." The purpose of the society, as thus stated in its constitution, is to direct a campaign of education for the prevention of this disease. The society does not undertake or support pathological research or charitable or hospital care of individual cases, but endeavors to coöperate with all existing institutions as a clearing house of information.

The circular deals, in popular language, with the nature, prevalence, control, and cure of cancer, and with the efficacy of radium in cancer. Some selections from it are as follows:—

"Cancer is almost invariably at first a local disease. It is easily cured if promptly recognized and at once removed by competent treatment. It is practically always incurable in its later stages.

"The disease usually begins in some unhealthy spot or some point of local irritation: In external cancer there is something to be seen or felt, such as a wart, a mole, a lump or scab, or an unhealed wound or sore. Pain is rarely present. Cancer inside the body is often recognized by symptoms before a lump can be seen or felt. Persistent indigestion, with loss of weight and change of color, is always especially suspicious.

"Persistent abnormal discharge from any part of the body should arouse the suspicion of cancer, particularly if the discharge is bloody. The early and hopeful stages of cancer are usually painless.

"The only cure for cancer is to remove every vestige of the disease. The only sure way to do this is by a surgical operation. If taken at the beginning, the majority of cases of cancer are curable. All cases will end in death if let alone. Records of our best hospitals prove that the chances of cure are very high with early operation, and that these chances decrease with every day of delay. Early diagnosis is, therefore, all-important.

"The American Society for the Control of Cancer is studying these hospital records and will spread nation-wide the message of courage and hope in early recognition and prompt operation. By publishing circulars and articles in newspapers and magazines, and by organizing lectures and public meetings, this society is conducting a general campaign of education based on the latest knowledge of the disease. Thoughtful and influential people can help this work by joining the society. Write to the office, 289 Fourth Avenue, New York City, for further information.

"According to the most authoritative opinion, the curative effects of radium are practically limited today to superficial cancers of the skin, and to superficial growths of mucous membranes and certain deeper-lying tumors of bone, etc., which are not very malignant. Radium has probably been shown to exert a definitely curative effect on certain of these cases, while the disease is still local and in the early stages. Radium definitely relieves suffering when used in the advanced stages of deeper-seated cancers; but in those cases it improves only the visible or tangible manifestations and exerts no effect upon the disseminated disease as a whole. It is believed that there is as yet no proof that radium has finally cured any case of advanced and disseminated cancer.

"The public should take warning against dishonest and fake, money-getting radium-cure establishments, conducted by individuals who possess little or no radium, and have no knowledge of its use. These people promise cures, but are, in reality, unable to obtain even those palliative effects which are possible from radium.

"The best results of radium therapy can be secured only when comparatively large amounts are available for use, and the present limited world's supply of this metal places it out of reach of the great majority of patients."

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE THREE WEEKS ENDING JULY 4, 1914.

June 24, Asst. Surgeon J. T. Boone, M.R.C., to Naval Hospital, Portsmouth, N. H.

June 24, Surgeon F. C. Cook, detached, Receiving Ship, Norfolk, Va., to *Louisiana*.

Pharmacist W. B. Shaw, placed on the retired list from June 20, 1914, physical disability, detached from Naval Hospital, Boston, Mass., to home.

June 25, P. A. Surgeon G. F. Clark, detached, Naval Medical School, to *Michigan*.

Asst. Surgeon E. E. Woodland, detached, *Michigan* to home, wait order.

Asst. Surgeon A. J. A. Hamilton, M.R.C., commissioned from June 19.

Chief Pharmacist M. D. Baker, commissioned from April 17, 1914.

June 26, Surgeon M. S. Elliott, detached, *Florida* to home, wait order.

Surgeon T. W. Richards, detached, *Washington* to *Florida*.

P. A. Surgeon H. A. May, detached, *Solace* to *Washington*.

P. A. Surgeon W. L. Mann, detached, Naval Station, Cavite, P. I., to *Cincinnati*.

June 29, Medical Director E. P. Stone, placed on the retired list, from June 24, 1914, in accordance with Section 1415, Revised Statutes (physical disability).

P. A. Surgeon R. I. Longabauch, detached, Naval Hospital, Guam, to treatment, Naval Hospital, Mare Island, Cal.

July 1, Asst. Surgeon P. F. McMurdo, M.R.C., detached, *Vicksburg* to *Colorado*.

ANNOUNCEMENTS.

ANATOMY.

Professor of anatomy in the University of the Philippines wanted at a salary of $3500 per annum.

Transportation furnished to Manila, and returned after two years' satisfactory service.

For further details, including application blank, apply to Bureau of Appointments for Medical Alumni at the Harvard Medical School.

FELLOWSHIP FOR MEDICAL RESEARCH.

Ten Fellowships are open carrying a stipend of 250 pounds annually for medical research in certain British hospitals and university medical schools under a fund known as "Beit Memorial Fellowships for Medical Research."

Information, including requirements for Fellowships and list of recognized places where research may be conducted, are to be had at the Bureau for Appointments for Medical Alumni at the Harvard Medical School.

A. B. EMMONS, 2D, M.D.,
Director for Appointments for Medical Alumni,
Harvard Medical School.

APPOINTMENTS.

MCGILL UNIVERSITY.—*Dr. Herbert Stanley Birkett* has been appointed dean of the medical school.

WESTERN UNIVERSITY, LONDON, CANADA.—*Dr. F. R. Miller* has been appointed professor of physiology.

THE BOSTON DISPENSARY.—*Dr. Henry M. Chase* and *Dr. Hilbert F. Day*, formerly assistant surgeons, have been appointed surgeons and chiefs of the department of surgery, each having six months' service. *Dr. Benjamin Tenney* and *Dr. John Homans*, former chiefs of service have been appointed consultant surgeons.

Dr. B. L. Arms announces his election as professor of preventive medicine at the medical department of the University of Texas, Galveston.

ROCKEFELLER INSTITUTE.—The Board of Scientific Directors of the Rockefeller Institute for Medical Research announces the following appointments and promotions:

Dr. Hideyo Noguchi, hitherto an associate member in the department of pathology and bacteriology, has been made a member of the institute. *Dr. Alfred E. Cohn*, hitherto an associate in medicine, has been made an associate member for the terms of three years. *Dr. Wade H. Brown*, hitherto an associate in the department of pathology and bacteriology, has been made an associate member for the term of three years.

The following assistants have been made associates: *Harold Lindsay Amoss, M.D.* (pathology and bacteriology); *Arthur William Mickle Ellis, M.D.* (medicine); *Thomas Stotesbury Githens, M.D.* (physiology and pharmacology); *Israel Simon Kleiner, M.D.* (physiology and pharmacology); *Alphonse Raymond Dochez, M.D.* (medicine); *Dr. Dochez* has also been appointed resident physician in the hospital of the Rockefeller Institute to succeed *Dr. Swift*. (See below.)

The following Fellows have been made assistants: *Frederick Lamont Gates, M.D.* (physiology and pharmacology); *Louise Pearce, M.D.* (pathology and bacteriology).

The following new appointments are announced: *Chester Harmon Allen, M.S.*, fellow in chemistry; *Alan M. Chesney, M.D.*, assistant resident physician and assistant in medicine; *Harold Kniest Faber, M.D.*, fellow in pathology; *Ross Alexander Jamieson, M.D.*, assistant resident physician and assistant in medicine: *Benjamin Schönbrun Kline, M.D.*, fellow in physiology and pharmacology; *John Jamieson Morton, Jr., M.D.*, fellow in pathology; *James Kuhn Senior, M.A.*, fellow in chemistry; *Joseph Richard Turner, M.D.*, fellow in pathology.

Dr. Paul Franklin Clark, formerly associate in pathology and bacteriology has been appointed assistant professor of bacteriology in the University of Wisconsin.

Dr. Homer F. Swift, formerly resident physician in the hospital of the Rockefeller Institute, and Associate in Medicine, has been appointed associate professor of Medicine at the College of Physicians and Surgeons, Columbia University and associate attending physician, Presbyterian Hospital.

RECENT DEATHS.

DR. ANDREW BAYLIES, of Worcester, Mass., died in that city July 7, 1914, aged 75 years. He was a retired Fellow of The Massachusetts Medical Society and a graduate of the New York University Medical College in 1879.

DR. JAMES M. WATSON, who died recently at Falmouth, Mass., was born in East Sangerville, Me., on Jan. 16, 1860. He graduated from the Foxcroft Academy in 1881, from the Maine Central Institute in 1883, from New York University in 1886, and from the New York Homeopathic Medical College in 1888. He had practised his profession at Falmouth since 1890. He is survived by his widow, by two daughters, and by one son.

BOOKS AND PAMPHLETS RECEIVED.

The Clinics of John B. Murphy, M.D. W. B. Saunders Co. June, 1914. Vol. 111. No. 3.

Practical Hormone Therapy by H. R. Harrower. Baillière, Tyndall & Cox. 1914.

Anoci-Association by George W. Crile, M.D. W. B. Saunders Co. 1914.

Prevention of Deafness by Joseph B. Greene, M.D. Reprint.

Original Articles.

CESAREAN SECTION. AN HISTORICAL REVIEW, WITH AN ANALYSIS OF SIXTY CASES.*

By Thomas F. Greene, M.D., Boston.

[From the Obstetrical Clinic of St. Elizabeth's Hospital, Boston, Mass.]

Cesarean Section, originally intended to save the child after the death of the mother, and later branded as the last resort and the most forlorn hope of obstetrics, came down through the centuries almost to our own day a much discredited operation. To modern surgery, with its asepsis and constantly improving technic, belongs a full measure of credit; and yet to those physicians of the past, who preferred the Cesarean to craniotomy and stoutly clung to their belief in its future, all mankind, mindful of the mothers of the race and their unborn babes, owes a still fuller measure of affection. Upon the indications for the operation, the last word has by no means been said. When to operate and why to operate are questions that need repeated emphasis and discussion, and it is only by the contribution of each operator's experience that a final result may be reached. In reviewing the past and presenting my own series of cases, I trust that I may at least add to the "gaiety of nations," if not to the knowledge of my brethren.

Dr. Robert P. Harris, of Philadelphia, some fifty years ago, began a statistical and critical study of this subject from the various cases that he was able to collect. His was a tedious task, undertaken for no selfish motive but solely to place the Cesarean operation where he believed it belonged, among the operations of conservative surgery, and thereby to rescue it from the low level to which it had been relegated by those, who, reckless of the child's right to life, preached the doctrine of the perforator and the crotchet. Cesarean section had never been a popular operation inasmuch as its record of fatalities had branded it as something preferable only to the certain death of both mother and child.

In England, where the gruesome record of dead women was large, it was bitterly opposed. Harris, who never doubted its superiority to craniotomy and the other destructive procedures, was big enough to see that no operation is to be measured by the mortality that follows it if the gravity of each case operated is determined by conditions that are avoidable. He felt that there was in the medical profession a disposition to undervalue to a great degree the life of the child as compared with the life of the mother, and to sacrifice it for her benefit with very little hesitation.[1] Often the child was sacrificed to no purpose, for the mother was lost by exhaustion due to the consequent delay. The operation was unsuccessful, because, not to mention the lack of modern surgical technic, it was done only after both mother and child were endangered by prolonged attempts at every other method of delivery. With a timely consideration of the child's life almost unknown, a late operation to save the mother was the inevitable result.

The British practitioners for several reasons had been unfortunate in their Cesarean mortality, and their resultant distrust of the operation spread to this country. Churchill, in his "Operative Midwifery," published in Dublin in 1841,[2] gave some statistics showing the relative merits of the several destructive operations and the Cesarean. In a series of 251 destructive cases 52 mothers died, or about one in five. Of course all the children were lost. Out of 40 Cesareans among British practitioners up to this time, only 11 mothers recovered, and but 22 children were saved. Among Continental practitioners, out of 369 cases of section, 217 mothers recovered and 138 children were saved; and in connection with the children it may be stated that the result to the child could be learned in but 187 cases. On these statistics, wrongly analyzed, because no deductions were made in favor of children saved, was based the hostile attitude of the English, until Dr. Harris, with an enthusiasm, and breadth of vision that now shows him to have been far in advance of his time, appeared as the champion of an almost lost cause.

By the year 1878, besides collecting all available cases in this country, he had with the assistance of Dr. Radford, one of the few British supporters of the Cesarean operation, totalled 118 cases in the United Kingdom.[3] Of these last, only 20 were operated early, and of those 20 only 4 recovered. Out of the whole 118 there were but 22 recoveries and only 67 children were born alive. Forty years has shown no improvement over the facts stated by Churchill. Summing up the whole record, the United Kingdom in its first 120 years of Cesarean history saved only 10 women out of 68, and in its last 20 years, only 12 out of 50. This was due to the teaching of the so-called obstetrical leaders of the time. In passing it may be of interest to remark that the first recorded case in the United Kingdom dates back to January 19, 1738, when Mary Donnally, an Irish midwife, operated, near Charlemont, Ireland, on Alice O'Neil, aged 33 years, who had been 12 days in labor. The child was dead, but the patient's life was saved.[4]

An idea of the disastrous results on the Continent may be gathered from several letters written to Harris by Continental operators. Dr. Winckel, of Germany, who up to 1880 had almost as large a series as any other German operator, saved only 6 women and 9 children out of 14 cases, and this was more than all the op-

* Since this paper was written the author has added three cases to this series without any change in the mortality either to mother or child.

erators of Paris and Vienna saved in a century up to 1876, when the Porro operation was introduced at Pavia.[5] Neither Paris nor Vienna up to this time could boast of one single mother saved.[6] Dr. Girolamo Previtali of Bergamo, Italy, wrote that he lost 17 out of 19; Dr. Morisani, that they saved but 2 out of 27 in Naples; and Dr. Belluzzi, that his was the twelfth operation in Bologna and the first to succeed.[7]

It is not surprising that on the Continent the condition of the Cesarean operation was so discouraging when we look back over the record of ordinary obstetrical cases. In the Paris Maternity Hospital, between April 1 and May 10, 1856, there were 64 fatalities in 347 confinements. The hospital had to be closed, and the survivors took refuge at the Lariboisiere Hospital, where nearly all died, pursued it was thought by the epidemic. Tarnier, then a student residing at the Maternité during that disastrous time, related afterward how the ignorance of the causes of puerperal fever was such that he was sometimes called away by one of his chiefs from a post-mortem examination to assist in the maternity wards. Men seemed to be ignorant of the fact that infection might thus be carried from the autopsy room to the bed of the patient. One day in a discussion of puerperal fever at the Academy of Medicine, one of the most distinguished members of the academy was eloquently enlarging upon the causes of epidemics in lying-in hospitals, when Pasteur, that scientific genius unsurpassed in the history of all time, interrupted him from his place. "None of these things," said he, "caused the epidemic; it is the nursing and medical staff who carry the microörganism from an infected woman to a healthy one." Then when the speaker replied that he feared that it would never be found, Pasteur went to the blackboard and drew a diagram of the chain-like organism, saying, "There, that is what it is like!"[8]

From conditions so deplorable abroad, we may turn with a feeling of pride to our own country. In January, 1881,[9] the results of Harris' researches in the United States showed 120 cases with 50 recoveries and 70 deaths; but the record is best judged by its 28 timely operations productive of 21 recoveries. A summary of his work, besides being of interest, shows also the thoroughness and the zeal with which he worked upon this problem. There were 52 children born alive and 68 dead; of all these, 64 were blacks and 56 whites. Forty of the blacks died and 24 lived, while 30 of the whites died and 26 lived. There were 24 dwarfs from 3 feet to 4 feet 8 inches in height, 17 of whom were white and 7 black. Seven of these 24 dwarf mothers recovered, of whom 2 were black and 5 white. The shortest white who recovered was 3 feet 11½ inches, and the shortest black 3 feet 9 inches. Louisiana and Ohio had the most successful records, the former saving 15 out of 20 women, and 9 children; and the latter saving 7 out of 10 women, and 6 children. Nineteen of Louisiana's cases were black and one white, and the five who died were black. Ohio's cases were all white.

These two states besides leading in the number of successful cases, were also the pioneers in the Cesarean field in this country. Harris gives the honor to Louisiana, crediting to Dr. François Prevost of Donaldsville, Ascension Parish, Louisiana,[10] 4 cases, the first of which he dates prior to 1825, in which year he places the third. The date of the fourth he fixes in 1831. Prevost was born at Pont-de-ce, France, about 1764, graduated in medicine at Paris, and settled in San Domingo, but was driven out during the insurrection. He escaped to Louisiana and spent the rest of his life in Donaldsville, where he died in 1842 at the age of 78. "As he was a bold operator," says Harris, "and was 67 years of age when he operated upon his fourth case, it is quite probable that he may have had others prior to the first on our record, for he was engaged in active practice for more than thirty years in a district in which rickets was not uncommon as a cause of dystocia."

Garrison,[11] however, in his recent history of medicine, states that the first Cesarean section in this country was done by Dr. John Lambert Richmond, of Newton, Hamilton County, Ohio, in April, 1827. The date of Richmond's case is beyond dispute, for we have from his own pen the story of that historic event. In the first volume of the *Western Medical and Physical Journal,* published in Cincinnati in 1827-28,[12] there appeared a short statement that John L. Richmond, M.D., of Hamilton County, Ohio, performed the Cesarean operation on a primipara. It goes on to say that during the fifth week after operation she walked two miles in one afternoon, and in the seventh week she walked in perfect health fourteen miles in one day. Several years later the same journal[13] published Richmond's story of the operation, which deserves more than passing mention.

On the 22d of April, 1827, Dr. Richmond was called seven miles from home to see this patient, already in labor some thirty hours. He found her very much exhausted and having convulsions which continued from three to five minutes. Examination showed an unengaged head and a malformation of the vagina, in which it was impossible to make out the os. After four hours of fruitless endeavor, during which he could get no help, as the night was stormy and the Little Miami River was rapidly rising, he determined to operate. The solemnity of the occasion he well expresses: "After doing all in my power for her preservation, and feeling myself entirely in the dark as to her situation, and finding that whatever was done must be done soon, and feeling a deep and solemn sense of my responsibility, with only a case of common pocket instruments, about one o'clock at night, I commenced a Cesarean section." And when we think that this man on the outskirts of civilization per-

formed this operation on a wild night, in a house of logs with unchinked crevices, without chimney or chamber floor, assisted only by two women whose sole duty was to hold blankets to keep the wind from blowing out the candles, we wish that we could know something of his personal side. The placenta was on the anterior wall of the uterus, and before it could be removed after being incised and detached, a sufficient length of time had elapsed to cause the death of the child. It must be remembered that these were the days before general anesthesia, when pain and the consequent muscular spasm made abdominal surgery heroic work. In fact, before Richmond could deliver the child, which presented its back and was firmly held in its position, he was obliged to make a transverse incision across the muscles of the lower dorsal region, which enabled him to double up the spine and remove the dead fetus. During the entire operation, there was very little hemorrhage, and although during convalescence the patient developed a mild peritonitis, she made a rapid recovery and began to do light work twenty-four days after the operation.

Up to the early 80's, with very few exceptions, the contractions of the uterus were depended upon to approximate the edges of the incision, with the result that many cases were lost by infection due to the escape of lochia into the peritoneal cavity. The first record that we have of uterine suture goes back to August, 1769,[14] when Lebas, a surgeon in Mouilleron, France, sutured the uterus in a successful case, only to be severely criticized for his rashness. Referring to this case the "Comprehensive Dictionaire de Medicine," Paris, 1834, stated that the uterine wound did not need any special treatment, although an unskilled surgeon once introduced sutures which it was found necessary to remove.[15] The first record of uterine suture in this country, and perhaps the first since Lebas' case in 1769, is the unsuccessful case of a Virginian charlatan in 1828,[16] in which three sutures were used in the uterine incision. No record again appears until 1867 when Dr. T. Beers Townsend of New Haven and Dr. D. Warren Bricknell of New Orleans each employed uterine sutures in their respective cities. Both patients lived. Townsend used three sutures of fine hemp, and Bricknell, six of silver wire.[17] This last operator had advocated this technic in his obstetrical lectures, but had been ridiculed for his wild opinions.

These two cases, sutured in 1867, were two of the three recoveries out of the only four cases operated that year in the United States. The third recovery was the case of William Warren Greene, M.D., of Pittsfield, Mass., who had the honor of doing the first Cesarean section in this state.[18] In his case, the edges of the uterine wound were drawn together perfectly by the contractions of the uterus, and the abdominal wound was sutured with silk soaked in boiling wax. This last he used with much reluctance as he had no silver wire—a fact which worried him very much. The next four operations in the United States were done without sewing up the uterus, and only one of the women recovered. One of the deaths was due to a loop of bowel being choked in the closing uterine wound.[19]

In 1878 Dr. Curtin of Philadelphia reported a case in which he used carbolized catgut. It was but the fourth in Philadelphia, and the fifteenth in this country in which uterine sutures were used, and it has also the distinction of being the first operation here in which sutures of animal material were employed. Altogether in the United States up to 1882, the uterus was sewed in but 22 cases, of which 10 recovered.[21] It seems incredible to us now that for three centuries the surgeons of the world should have left to nature the entire care of the uterine wound, with its unlimited possibilities of infection.

Defects in technic, however, could not be blamed for all the failures. Harris, who continually pleaded for the timely operation, pointed out by his exhaustive analysis of the old cases many lessons that are still valuable today. "Every surgeon in our land," said he, "should make himself fully acquainted with the steps of, and improvements in, the Cesarean operation, and especially with the value of operating as early in the labor as practicable, after he is called in; and every obstetrician should learn the comparative dangers between craniotomy in contracted pelves, and a timely delivery by gastro-hysterotomy, as applied to American women."[22] It is this need of operating timely that must be impressed upon us as much as ever today, for if it is to be successful in the highest degree, the Cesarean must be an operation of election and not one to fall back upon after the patient is exhausted and started on the road to infection.

In the old records this fatal delay is much in evidence, just as it is today. Writing in 1879,[23] Harris sadly commented on the fact that instead of progressing towards success, as all other varieties of abdominal surgery were, Cesarean section was retrograding under the teaching of those who condemned it as an operation of election or who passed it by entirely for the destructive operations. Looking over the record of this country prior to 1880 we are struck by the remarkable fact that the ten years from 1868 to 1878 showed an increasing mortality. From 1838 to 1848 we had eight sections with four [illegible] five women and five children. Three of these operations were timely. From 1848 to 1858 we had twenty-seven operations with a saving of 13 women and 15 children. Here 8 were timely. From 1858 to 1868 we record 23 operations with 13 women and 8 children saved. Of these 5 were timely. From 1868 to 1878 our C[illegible]sean operations numbered 27 and we can boast of but

4 women and 13 children saved. In this last group only five of the operations were timely. Of the cases that died we find two, three, four, seven, and fifteen days recorded as the time of labor, and there were three of these cases in the fifteen-day class. The manner of death as recorded is indicative of the effect of long delay, *i.e.* peritonitis 8, exhaustion 8, hemorrhage and exhaustion 2, septicemia 2, etc. The conclusion is evident. The profession was not ready to accept the fact that in early operation lies the hope of both mother and child, and that the chances of either rapidly diminish as labor advances.

Criticism of the general practitioner for his lack of faith in the Cesarean would be unjust because he was only following the opinion of the leaders. Playfair, in his book of Midwifery, published in 1878, stated emphatically that great as are the dangers attending craniotomy in extreme difficulty, there can be no doubt that we must perform it whenever practicable, and only resort to Cesarean section when no other means of delivery are possible. He even went so far as to characterize as bold the man who preferred it to craniotomy. Fortunately for us, men of the type of Richmond and Prevost were bold. It may be that boldness was the only salvation of the pioneers of the operation in this country. Many of them probably lacked the necessary destructive instruments. It was fortunate for Richmond that he was seven miles from home and unable to procure a destructive kit, even if he owned one, that eventful night near the banks of the little Miami when his little pocket case wrote a chapter worthy of the best in the history of American medicine.

Furthermore, when in 1835 Dr. Meigs,[24] of Philadelphia, told Mrs. Reybold after the second craniotomy that he would not destroy her child if again she became pregnant, he too added glory to the history of American medicine. Mrs. Reybold, who was born in Ireland in 1809, came to America in early childhood and married at the age of twenty-one. A year later, when at full term pregnancy, it was discovered by her attending physician that her pelvis was much deformed by previous rachitic disease. A number of consultants were called and the Cesarean operation was proposed, but it was decidedly objected to by the majority of "distinguished surgeons" present, under a conviction that it would be almost necessarily fatal to the mother. After a labor of sixty-four hours Dr. Meigs perforated the head of the already dead fetus, but was unable to deliver it by any of the appliances then in use. He was forced to delay until putrefaction had softened the child before he could remove it, which was not until thirty-three hours later. Mrs. Reybold was much exhausted and narrowly escaped death. Two years later, in 1833, she was again at full term and Dr. Meigs performed a second craniotomy, but told her emphatically that he would not destroy another child in the event of her again becoming pregnant and that she would have to submit to the Cesarean section. Falling pregnant again in due time she placed herself under the care of Dr. Joseph G. Nancrede, who determined that when the proper time came she would be delivered by the abdominal route under Dr. Gibson, who was consulted about the case. When in labor on March 25, 1835, it required two hours of waiting and urging before she would consent to the operation, and then it was only the emphatic stand taken by her father confessor that made her consent to it at all. After a labor of twelve hours she was successfully delivered by an operation that lasted but ten minutes. Two years later, on Nov. 5, 1837, Dr. Gibson was again the operator on a similar occasion. In both cases she made an almost uneventful recovery and was blessed by a boy and a girl, for both of whom she could thank the good judgment and skill of the attending physicians.

In 1879 Mrs. Reybold and her two children were still living, and, moreover, she was the grandmother of six. As Harris truly remarked,[25] "What better trophy could Dr. Meigs, if now living, present than Mrs. Reybold with her two children and six grandchildren, as the fruits of his declining in 1835 to destroy any more children for her. She died in 1885, at the age of seventy-six, thus outliving the nine physicians who were present at her first operation, and the four who, with the two Gibsons, made up the group at the second. Harris, ever on the alert to add to his fund of Cesarean knowledge, performed an autopsy on her body with the assistance of Dr. Hornor, also of Philadelphia. They found evidence of old rachitic disease and a badly deformed pelvis, the true conjugate of which was but one and three-quarters inches.

Such is the story of the Cesarean operation up to 1880, when it passed into a new and more successful period of its existence. Antisepsis and asepsis and various other advances in surgical technic came to the rescue. The median abdominal and the median uterine incision became the rule and the uterus was now always sewed in layers. To Sänger of Leipsic,[26] who operated in August, 1880, in a case of retro-uterine fibroid, we are indebted for the two-row multiple system of suturing. In 1881 he reported his method. In this case he inserted six deep and four superficial uterine sutures, the latter taking up some muscle fibres, and brought the peritoneum carefully edge to edge. Later he recommended more sutures, and it was for these reasons that the so-called new operation became known as the Sänger operation, although many departures were made from his original technic. Dr. H. J. Garrigues of New York was very strong in his objection to the name Sänger Cesarean, claiming that he and many others had performed every single step of the so-called Sänger before anything had been heard in this country

about that operator's method. Said Garrigues, "There is little ground for attaching a single man's name to the operation in its present shape, which is a beautiful outgrowth of general surgical and special gynecological development, an evolution due to the combined efforts of many men working independently of each other, in different countries, especially Lister in Scotland, Spencer Wells in England, Guenoit in France, P. Muller in Switzerland, Leopold in Germany, and last, but not least, Lungren in the United States."[27]

It is true that Porro of Pavia had introduced in 1876 the operation that bears his name, and it is also true that on the Continent, especially in Italy, it had become a popular procedure. In this country its adherents were few, because our operators, unless some pathological condition demanded it, did not take kindly to an expedient that sterilized the mother. Of course Porro's only purpose in the operation was to reduce the high rate of mortality that was Italy's misfortune under the old Cesarean method. Theoretically the plan of excluding from the abdominal cavity the much dreaded uterine wound and treating its amputated substitute as an external stump, was an excellent one; but practically it was in the beginning a failure, as twenty-nine out of the first fifty women operated on died. Up to the beginning of 1892,[28] its record in 21 different countries under 224 operators showed 441 cases with 274 recoveries and 176 deaths among the mothers, and a saving of 345 children. In the number of operations, Italy led all the other countries with 154 cases that scored 85 recoveries, while we had in this country only 21 Porro Cesareans with 10 recoveries and 11 deaths. Our small number was simply due to the preference of our operators for the improved Cesarean, of which there were three to one Porro.

With the Porro meeting with such fair successes abroad, the years immediately following the adoption of the so-called improved Cesarean were especially trying for our operators who were having none too happy results. The obstetric surgeon was given an opportunity only when the risk of operating had been much increased by long labor and repeated attempts at instrumental delivery. For example, beginning with Dr. Garrigues' case in 1882, the first ten new Cesareans cost the lives of six women and three children, and in the case of our Porro operations, eight of the women were delivered of children already dead, some in a commencing state of decomposition, when the operator was called to the rescue. Nevertheless, thanks to men like Lusk, Goodell, and Kelly, our operators did not lose heart, for this triumvirate of surgeons, deserving of no mean place in the annals of our medical history, showed between 1887 and 1891 the remarkable record of ten cases with every child saved and but one woman lost.[29] Thus did we come from darkness into light, from discouragement to success, and in looking back over the whole record of Cesarean achievement we have every reason to feel proud of the great part played by American physicians.

From this time up to the present, the number of sections has rapidly increased. That in the various groups of cases reported the mortality is not as low as it ought to be is not altogether the fault of the operators. In 1909,[30] the Boston Lying-in Hospital published its first one hundred cases, the first being the one done by the late Dr. George Haven in 1894 and the hundredth being done about the middle of 1907. The largest number done by one operator was 22, while the rest were distributed among 9 other members of the staff. In this series, the deaths of 8 mothers and 8 children are recorded, —a rather high mortality, as Dr. Newell says, but easily accounted for by analyzing the length of labor before operation. Of 43 primary operations only 1 mother died; of 26 secondary operations there was the same result; but in the 31 operations that are characterized as late, we find the evident cause for the death of 6 mothers. Of these 6 who died, 3 had been in labor 24 hours or more, on one high forceps had been tried and failed, and one patient was suffering from acute nephritis. The cause of death in all these late cases except one was general peritonitis, and that one exception died of intestinal obstruction.

The record of these late cases is the old, old story of Cesarean indications unrecognized outside until too late, when the hospital is called to take the responsibility and spread upon its records a mortality that belongs to someone else. The indications for operation in this series were mainly relative or absolute pelvic insufficiency. In fact, there were only four cases in the hundred in which a pelvic deformity or repeated loss of children was not the main indication. Of these four, one was a contraction of the lower segment of the uterus following a previous myomectomy, the second was a contraction of tissues following an amputation of the cervix, the third was a faulty position of the uterus due to a previous fixation, and the fourth was a vaginal atresia resulting from an extensive operation. Since the publication of these, the Boston Lying-in Hospital has had 131 additional sections, making a total of 231, with an entire loss of 17 mothers. That its percentage of maternal mortality shows such a slight decrease is undoubtedly due to the fact that the fatal cases are the ones sent in exhausted after a tedious labor. At this hospital, the policy is never to remove or impair the function of healthy organs, and it must be a matter of great satisfaction to the operators to point to five successive and successful sections on the same woman, the fifth section being productive of twins.[31]

No institution can have a better proof of the high quality of service rendered by its physicians to the community.

In 1907,[32] Dr. Reynolds of Boston, in arguing for the elective Cesarean made an analysis of 289 cases by 20 different operators. Out of 82 operated before labor began there was but one death; out of 158 operated in the early hours of labor, there were 6 deaths; and out of 49 done after labor was well advanced there were also 6 deaths, a mortality of 12%. The majority of the deaths in the secondary and the late cases was due to general peritonitis. Dr. Reynolds himself at this time had 30 cases, all operated early and without a single death,—a truly remarkable record.

In 1908,[33] McPherson reviewed the record of sections at the New York Lying-in Hospital for the previous 19 years. The analysis showed out of 186 cases, 30 dead mothers and 13 dead children. Of the total number of cases, pelvic deformity was the indication for operation in 162. The other reasons for operating were malignant growth, atresia of the vagina, impacted face presentation, eclampsia, complete placenta previa, and large head with impacted shoulder. Of placenta previas there were two, both of which recovered. By the early part of 1912[34] the number of sections in the New York Lying-in had grown to 352, with a total mortality of 38 mothers and 53 children. Of the latter, 23 were stillborn. Twelve of the women who died had been manipulated and infected outside before they were admitted to the hospital and the causes of their deaths come under the head of general sepsis, combined on one case with spinal meningitis. One mother was brought in from the ambulance in a state of shock with a ruptured uterus, and a stillborn child in her abdominal cavity. Another mother was so far gone that she died on the table before the abdomen was opened. In another case where lobar pneumonia was the reason for undertaking the operation, both mother and child died, the mother on the first day, and the child on the fifth day after operation. Eclampsia and neoplasms claimed five deaths apiece. Pott's disease was the cause of one where the mother was moribund and the operation done merely to save the child, who fortunately lived. Four died of pneumonia and one of pulmonary embolus. These are not all the causes of the deaths, but they give us some idea of the desperate cases that find their way to the lying-in hospitals of our large cities. With the elimination of the moribund cases, where the chance of the mother's recovery was hopeless, and including general sepsis from outside previous attempts at delivery, pneumonia, eclampsia, and neoplasms, McPherson modestly reduces his mortality to 33 women, or 9.6%, which is much higher than the hospital deserves. Dr. A. B. Davis,[35] of this same hospital, has a record of 134 cases up to 1912, most of which are included in McPherson's statistics. Of these, Davis lost 17 mothers, a high mortality, but necessarily so, since he was obliged to operate a number of cases that were moribund and others that were badly infected. Good, of Boston, reported 20 cases a year ago, with no deaths of mothers or children.[36]

My own series consists of sixty cases, out of which one mother died. There was no fetal mortality. Of the mothers, 4 were under twenty years of age; 13 from twenty to twenty-five, inclusive; 13 from twenty-six to thirty, inclusive; 14 from thirty-one to thirty-five, inclusive; and 16 from thirty-six to forty, inclusive. There were 34 first pregnancies, 16 second, 1 third, 5 fourth, and 4 fifth pregnancies. Of the sections, 51 were first, 8 were second, and 1 was the third section. The following list sums up briefly the various indications:—

Eclampsia with varying degrees of justo minor pelves	7
Eclampsia with large baby (9 pounds) in primipara	1
Malposition of uterus after Alexander operation	1
Old tubercular anchylosed hip with deformed pelvis	2
Placenta previa complete in primipara with justo minor pelvis	1
Chronic heart with general edema plus pelvic deformity	1
Primiparous twin pregnancy with breech presenting in flat pelvis	1
Flat pelves	17
Varying degrees of justo minor pelves	29

Seven of these cases were absolute indications with internal conjugates of from two to two and three-quarters inches. In the other cases the indications were relative, which is always true in the majority of Cesarean sections. Only 16 of my cases could, by any stretch of the imagination, be called early sections. Of these 16, only 4 were operated before labor began. The remaining cases were in labor from periods of from twelve hours to four days before coming to the hospital, and one of the babies had a facial paralysis, due to attempted high forceps outside. Of the multiparous women on whom the first section was done, 16 were second pregnancies in which the first child was lost after difficult forceps operations. There was one third pregnancy with a history of two previous dead children. Four were fourth pregnancies, of which three had a history of three previous dead children each; and one had two children dead and one living. This living child had a permanent facial paralysis. In three of the four fifth pregnancies, two of whom were thirty-four and two forty years of age respectively, all previous children had been lost in difficult forceps deliveries; and the fourth case, the only fatality in my series, had a history of extremely difficult labors, the last of which resulted in a permanent brachial paralysis to the child. On this occasion she had been in labor forty-eight hours before operation with no advancement, and for twenty-four hours she had refused to submit to a section. Although she left the table in very good condition, she died ten days later of a pulmonary embolus.

It is the fortunate result of my 44 late op-

erations that makes this series interesting, but I doubt if in another similar series I would have such a happy outcome. Although all these late cases had been repeatedly examined by outside physicians, and in some forceps had been applied, it is certainly a tribute to the aseptic obstetrical technic of these men that the women came to the hospital without infection. When the operation was explained to each mother, she gladly consented, since it offered to her a living child. Moreover, it is very doubtful if any of these children could have been delivered alive by any other operation; and I am positive that the maternal mortality would not have been as low, because with babies ranging from six and three-quarters to twelve pounds, there would have been extensive laceration of the mothers, which, combined with the shock and long anesthesia, would have boded ill to these women, already exhausted by tedious labors.

Nevertheless, notwithstanding the satisfactory outcome, I want to emphasize the fact that it rather argues in favor of the early operation. I cannot agree with Hirst that we ought to test our doubtful cases by a long labor and by a cautious application of the traction rods for at least twenty minutes. Up to 1908 he had 77 cases with 5 deaths. In the last 38 of these cases there had been only one death and this was a woman operated before the onset of labor. With this one exception, all his cases were operated after periods of labor of from twelve to twenty-four hours.[37]. In 1912,[38] his cases totalled 125 with 6 deaths,—almost a 5% mortality. This is a practice that should not be encouraged, for it carries with it a mortality that Cesarean section should not be burdened with, and besides it tends to lead the obstetrician into operations of high forceps and version, which are afterwards very much regretted.

The statement of Dr. James A. Harrar,[39] of the Lying-in Hospital of New York City, is not only convincing but instructive. "Extending the indication for Cesarean section," he says, "has placed the high forceps operation decidedly on the defensive. The limitations are constantly narrowing. Many of our best obstetricians indeed go so far as to reject it as a recognized method in the treatment of dystocia; and when we consider the many deplorable consequences in the hands of the inexpert, the torn vaginae, the ruptured vaults, the vesical fistulae, and the fetal lives sacrificed, there appear good grounds for their attitude. When the forceps is used, as it so often is, to do what amounts practically to a cranioclasty, it is utterly to be condemned. The axis traction instrument will never bring a head through such a brim to the operator's credit, the proper instrument being the basiotribe." In presenting special statistics in a long series of cases by many different operators, Harrar refutes the common opinion that a version is safer than high forceps when the largest diameters of the head are still above the pelvic brim. In 60,000 labors, the fetal mortality in high forceps, including deaths in the first ten days, was 26.16%, compared with a fetal mortality in all cases of version of 41.32%. These figures, it may be said in fairness, include indications for version other than those of disproportionment. Yet, comparing the results of the two operations as employed in the treatment of 269 cases of pelvic deformity occurring in 30,000 labors, we find the infant mortality of high forceps to be 25% and that of version and deformed pelves to be 46.16%. Operations carrying such a mortality can by no means be classed as operations of election.

It may be generally stated that an indication for Cesarean section exists when an obstetrician, after a careful study of his case, is convinced that the child can only be born after a difficult instrumental or other form of delivery that may seriously cripple it for life, if it does not cause its death, and which subjects the mother to the possibility of extensive laceration, with shock and probably impairment of her future health. Formerly there was but one indication for Cesarean section, and that was the so-called absolute indication; but today it may be truly said, without employing confusing terms, that all indicatione are absolute. Unfortunately, there is no set of rules to guide us in determining these indications, and each operator must rely upon the results of his own experience. He must consider the size and the shape of the pelvis; the relative size of the child, its position, and the extent of ossification of the head; he must also estimate the ability of the mother to force that child through the maternal canal within a reasonable period of time.

In estimating the size and shape of the pelvis many factors must be considered. As one writer aptly remarks:[40] "It is unfortunate that all these important factors have not been reduced to precise calculations such as are known to the mechanical engineer in his problems of resistance. Deprive him of his carefully prepared tables and let him attempt his problems with only his senses of sight and touch and personal experiences, and his errors would soon disqualify him. The mechanical problems of obstructed labor must be more definitely systematized before our conclusions in individual cases can be scientifically accurate. Until that has been done we can only rely on individual judgment with its inherent errors." The physician who would do modern obstetrics must endeavor to satisfy himself about many facts concerning the pelvis. The external measurements upon which so much was thought to depend are of little value as a matter of fact in determining size. The information they give is indicative rather of changes in shape, and consequently they lead to a more careful study of pelvic deformity. It is in determining intra-pelvic conditions that the judgment and skill of the operator are taxed. The thickness of the symphysis, the measure-

ment of the true conjugate, the inclination of the pelvic bone, the prominence of the sacral promontory, the straightness or exaggerated curve of the sacrum, the projection and curves of the lateral pelvic walls, the depth of the pelvis, the character of the cervix and pelvic floor,—these give some idea of all the factors to be considered when we are trying to estimate the general shape and size of the pelvis. Out of the data obtained only one factor is mathematically exact and that is the measurement of the true conjugate, which when two and three quarters inches or less is always a so-called absolute indication. When more than two and three-quarters inches, it cannot, as Norris wisely says,[40] when considered apart from associated changes in the shape, inclination, and general character of the pelvis, determine the potential obstruction in any given case. He further states that his experience has led him to pay especial attention to the height of the sacral promontory, the height of the symphysis, the angle of inclination of the pelvic inlet, the angle of inclination of the symphysis, and the degree of curvature of the sacrum. In this connection we must also remember the funnel-shaped pelvis, mentioned by Williams, as existing in women who present no external deformity of the pelvis and in whom the usual measurements are normal.

In trying to reach an estimate of the size of the child, the operator is again obliged to depend only on his experience. There are no rules or instruments to serve as infallible guides, but by constant practice the obstetrician in the course of time, after making the various allowances necessary for abdominal fat and the liquor in the uterus, may become quite proficient in arriving at a fairly accurate conclusion. When the pelvic measurements are small, it behooves the conscientious obstetrician to know before the onset of labor whether he is dealing with a six or a twelve-pound baby, and the only way that he can acquire this information is by a timely and careful examination, under ether if need be.

A consideration of the physical power of the mother with reference to her ability to endure labor, especially in the presence of a large child, with a moderate degree of pelvic obstruction, is a problem that cannot be disregarded. There is a class of women, characterized by Reynolds as "the obstetrically worst equipped, who," he says, "endure even natural labor badly and show a high percentage of morbidity after the various intra-pelvic operations." I believe, with Reynolds, that this class of patients should be subjected to the Cesarean section.

The various pathological conditions affecting the uterus and the vagina must be dealt with as they occur. Abnormal positions of the fetus in primiparae show a high mortality and in the presence of border-line pelves Cesarean alone is indicated. In breech presentations in multiparae the selection of operation must depend upon the estimated proportion between the size of the fetal head and the pelvic outlet. In any case after a few hours of good labor pains, when the presenting part refuses to enter the brim, the Cesarean operation ought to be considered. In elderly primiparae, especially in those cases where another pregnancy is improbable, Cesarean section should be advised because it offers much better results for both mother and child.

In this series I have had but one placenta previa, done primarily for the pelvic condition. From this one case I am aware that no deductions can be drawn, but it seems to me that the attitude of De Lee on this question ought to carry some weight. He states that there is a reduction of the infant mortality from 50% to 5% and a reduction of the maternal mortality to at least 4%, if not below. His position is that an indication for Cesarean section will arise in cases of central and of partial placenta previa, when the pregnancy is at or near term with a living child, the mother in good condition, and the cervix closed or promising difficulty in dilatation,—conditions most common in primiparae.

In this series eight of the cases were eclampsias, all primiparae, seven of whom had contracted pelves and one a large baby. It is safe to say that no other method of delivery would have been so successful. Admitting that an abdominal operation on a toxemic patient is serious, yet I believe that the accompanying shock is less than in those cases with a rigid os where a manual dilatation consumes a long period of time and too often ends with a dead baby and with a mother badly lacerated and very much exhausted.

In conclusion, I would emphasize the fact that the Cesarean operation should be an operation of election. This means, of course, that the obstetrician puts himself in the position of a prophet, foretelling the outcome of labor. It is true that he may be criticized, but his results will be far more satisfactory to mother and child than if he puts his trust in the god of chance. Opening the abdomen of a woman exhausted by a long labor and exposed to the risk of infection, is a task from which any operator may well shrink; but since the policy of St. Elizabeth's Hospital, for religious reasons, recognizes that the child in utero has a God-given right to life, there was left open to me no other method of delivery, and its results, I am proud to say, have justified the wisdom of our choice.

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THE FASTING METABOLISM OF INFANTS.

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The investigation of the processes which take place in the animal or human body when the supply of energy from outside ceases and the total life functions are asserted by means of metabolism of the substances already present in the body, is from different points of view of the greatest interest.

The fasting metabolism forms the fundamental basis for the explanation of the existing conditions of the normal metabolism in different kinds of nutrition, for the investigation of the absolute amount of the metabolism, and for determining the food requirements of the organism under different physiological and abnormal conditions.

The fasting metabolism has been repeatedly investigated experimentally since the work of Lavoisier, the founder of our knowledge of metabolism. Although many and thorough investigations of this subject exist with animals and men, but little is known of the relation of the growing organism during fasting. Since the pediatrician uses the fasting as a therapeutic measure in the treatment of disturbance of digestion in early childhood, the whole question is of a great practical importance. In a small monograph Czerny weighed "pro et contra" of the fasting therapy from the clinical standpoint. He came to the conclusion that nurslings stand complete fasting as well as partial for a long time without evident harm, but he points to the dangers which might arise from the increase of acidosis on top of an acidosis which might already be present in a disturbance of digestion. Langstein and Benfey also expressed the opinion that the healing effect of fasting had been demonstrated in nurslings that have been ill because of overfeeding, but that fasting can also result in disease.

We know very little about the metabolism of the healthy nursling during fasting.

The few investigations which until now are at hand, as those by Ludwig F. Meyer, as well as those by Ludwig F. Meyer and by Leo Langstein, treat this question from only one angle. The former studied the nitrogen elimination in the urine of three children of different ages during two fasting days. We do not find any report of the food previous to the fasting.

The investigations of Ludwig F. Meyer and Leo Langstein show only the elimination of acetone during a three days' fast.

Rietschel demonstrated in his experiments on six babies which had been taken away abruptly from the mothers' breast and put on a three days' diet of weak tea the one fact, that the urine of five of the children reduced Fehling's solution when they received nourishment again. His results lead him to the conclusion that fasting of several days leads to a disturbance of the normal utilization of the nourishment and diminishes the power of assimilation for sugar. All other investigations were done on sick children and are, therefore, not to be considered physiological. But for us the question is how infants in absolute or nearly healthy conditions react when subjected to fasting.

We do not enter into those experiments where there is no question of real fasting, as in the experiment of Rubner and Heubner, who determined the metabolism of an infant during twenty-four hours' abstinence from food, because in this instance the metabolism and the production of energy is in a great measure influenced by the food, which was previously given. By fasting metabolism we understand the combustion of the real body material. A strict line of division cannot be drawn here, but one can reckon that the beginning of the fasting period, from the physiological viewpoint, comes only after eighteen to twenty-four hours have elapsed after food has been given.

When Schlossmann and myself began the experiments of the respiratory exchange several years ago, the hope of answering the question of the fundamental and fasting metabolism of the nursling seemed to us very small. If, then, the gaseous metabolism which corresponds to the fundamental metabolism should be determined, the organism of the subject must be kept in a perfect state of rest. Therefore every factor which produces energy and which can be avoided must be excluded,—on one hand, the muscular activity, in so far as it is not absolutely necessary for vital functions; on the other hand, the work of digestion. The children, to express myself practically, must be kept in a state of starvation and must keep absolutely quiet during the respiratory experiment. It seemed to us most improbable that healthy and normal nurslings should submit to these de-

mands, which are so apparently contradictory to the character of the infant, but it soon became evident that it was possible to carry out such investigations. The exclusion of muscular activity in the ordinary sense can be attained pretty easily if we choose suitable subjects which are not too lively, and if we undertake the respiratory experiments at a time when the infants are asleep; it was obviously best during the night. On the other hand, we were surprised that very many nurslings are very indifferent to starvation. It is necessary to swindle the nursling so that it will not appreciate that it is being starved by the way that the experiment is arranged. There should, therefore, not be any change in the daily routine evident to the nursling. Above all things, water should be given at the regular intervals in the same quantity which the baby is in the habit of getting its milk. Breast-fed infants must be accustomed to the bottle before such experiments. Our nurslings took the bottle of water willingly without exception and showed no discomfort in the course of the whole fasting period. Our experience does not coincide with that of Rietschel, whose babies cried on the first fasting day and showed signs of lassitude in the following days. Rietschel's babies also eliminated, as I mentioned before, sugar in the urine, after they were given nourishment again. We could find no sugar in the urine when we gave nourishment again after the starvation. We suppose that Rietschel used for his experiment babies only a few weeks old, but we used babies of several months.

In our investigations with the fasting babies we determined the protein, the respiratory exchange and the elimination of acetone and B-oxybutyric acid.

The metabolism of nitrogen can be studied easiest: it is sufficient to examine only the urine, because the quantity of the hunger stool *per se* and the quantity of its nitrogen is very small, so that it can be ignored. According to recent experiments the total nitrogen of the urine, 18 hours after the last meal, consists of the decomposed body substance.

The knowledge of the quantity of nitrogen which is eliminated enables us to draw conclusions as to the decomposition of protein. Furthermore, if we determine the O_2 consumption and the CO_2 production, and we know how much protein was decomposed, we can compute the amount of fat and glycogen of combustion. In that way we are able to show clearly both the metabolism and the transformation of energy.

In order to study the question of the metabolism of the fasting nursling, it was necessary to make the experiments as comprehensive as possible. A series of interesting experiments made previously on infants, as well as on dogs fed on a one-sided diet, led us to the conviction that the combustion of material during fasting depends greatly upon the previous food. Therefore we took into consideration in our later experiments infants who were differently brought up. Here I will give from our material only some very typical examples.

The first baby which was experimented on was breast fed, and had been kept on this food for a preliminary period of three days' duration. Then a fasting period of sixty hours followed, during which at the usual meal times the infant received only water, to which was added three-tenths per cent. of chloride of sodium, and which was sweetened with some saccharine.

The fasting period was followed by a period with human milk. The milk and urine were examined. The weight of the nursling at the beginning of the investigation (No. 1 = 30th of June) was 3410 grams, and two days after fasting 3600 grams.

Table 1 gives us a condensed view of the course of the exchange of nitrogen and of the waterbalance during the whole eight days' experiment.

TABLE I. (EXPERIMENT 16.)

BREASTFED INFANT.

Bodyweight at beginning = 3410 grms.
Bodyweight at end = 3600 grms.

Periods.	Per Kilo Bodyweight per Hour.		Waterbalance.		
				Urine.	
	N. of Food. Mg.	N. of Urine. Mg.	Amount of Fluid Taken. Ccm.	Ccm.	Output in % of Intake.
Preliminary					
1. day	15.7	—			
2. day	16.6	4.76	1300	782	58 %
3. day	14.3	4.99			
Fasting					
1. day	—	5.54			
2. day	—	7.87	1680	914	54.4%
3. day	—	7.42			
(12 hours)					
Recovery					
1. day	13.2	7.95	1270	900	70.9%
2. day	12.7	4.74			

The table shows that the elimination of nitrogen, the amount of which was 4.88 mg. per kilo per hour during the feeding period, was much higher during fasting and rose to 7.87 milligrams. The nursling receiving breast milk with a small amount of nitrogen saves more of his nitrogen during feeding than while fasting. In this case the subject was a thin baby, which had only a little glycogen and fat to dispose of, when the nourishment ceased. Therefore the protein was immediately used in a large amount. On the second day of the recovery period the nitrogen exchange regulated itself completely; the infant eliminates just as much as in the preliminary period. The appearance that the breast-fed baby eliminates more nitrogen during fasting than during the period of feeding might be a general one; for in all cases examined by us we made the same observation. With regard to the waterbalance in the preliminary period the nursling eliminated 58% of the fluid taken in the urine, during fasting 54.4%, and in the recovery period 70.9%.

Hence during the fasting period there was a considerable water retention. This was observed by slight but clearly noticeable œdema. This œdema disappeared on the second day of the recovery period, in which an increased water excretion followed through the kidneys.

The following three experiments made on one and the same infant, which was bottle fed, are reproduced in Tables 2, 3 and 4. In the pre-

TABLE II. EXPERIMENT 17.)

BOTTLEFED CHILD. G.

Bodyweight at beginning = 4360 grms.
Bodyweight one day after fast = 4370 grms.

Food: Cow's milk 2
Water 1
+ Sugar 5%
Per day = 600 calories

Protein = 2.
Fat

Periods.	Duration.	Per Kilo Bodyweight per H. N. of Food. Mg.	Per Kilo Bodyweight per H. N. of Urine. Mg.	Waterbalance. Amount of Fluid Taken Ccm.	Urine. Ccm.	Urine. Per Cent.
Preliminary	36	27.05	17.3	1280	835	67.7
Fasting						
1. day	24	—	14.8	13.6 1600	1007	62.9
2. day	24	—	13.1			
Recovery						
1. day	24	25.3	14.8			
2. day	24	25.3	13.1	13.6 1920	1367	71.2
3. day (12 hours)	12	20.3	12.0			

liminary period of the first fasting experiment this infant was fed on a mixture of two-thirds milk and one-third water with 5% sugar.

From that mixture the infant received 800 c.cm. per day, corresponding to 490 calories per day or 112 calories per kilo and 24 hours. The amount of calories was too small to cause an increase in the weight of the infant.

The preliminary period lasted 36 hours, the fasting period 48 hours, the recovery period 60 hours. The infant endured the fasting splendidly. There was no œdema, but in this case there was also some retention of water during fasting, as is to be seen from Table 2. From that water retention we can explain the fact that there was no loss of weight during fasting; neither did the body weight increase some days later, after the infant had taken food again. During these days there was evidently a compensation between water and body weight. The amount of nitrogen in the urine decreases from 17 mg. of the preliminary period to 14 mg. on the first fasting day, and 13 mg. on the second day. During the whole recovery period it is low, a sign of a large retention of nitrogen.

After the end of this experiment we put the infant on food rich in calories, consisting of buttermilk, cream, flour and sugar. The infant received 800 cm. of this mixture per day, corresponding to 640 calories, or 140 calories per kilo. After having been fed on this food for ten days, the weight of the infant rose to 4270 grms. In this state a new investigation began which was introduced by a forty-eight hour preliminary period with this food. The fasting period lasted sixty hours; the recovery period, with the same food as that of the preliminary period, forty-eight hours. At the end of the fast the child weighed 4.800 grms. The nitrogen and water-balance are given in Table 3. In spite of the fact that the water elimination during this fast was much higher than during the former (80.3%), nevertheless there was a certain retention which caused the appearance of œdema. On the second day of the recovery period the water elimination shows the same value as in the preliminary period and the œdema disappeared. In this case the appearance of œdema may be explained by the insufficient elimination of water in another way. As a matter of fact, in

TABLE III. (EXPERIMENT 18.)

BOTTLEFED CHILD. G.

Bodyweight at beginning = 4720 grms.
Bodyweight at end of fasting = 4800 grms.

Food: Buttermilk + cream + flour + sugar. Protein = 3 %
Per day 800 ccm. = 640 calories Carbohydrate = 9.5%
Per kilo = 140 calories Fat = 3 %

Periods.	Duration Hours.	Per Kilo Bodyweight per Hour. N. of Food. Mg.	N. of Urine. Mg.		Waterbalance. Amount of Fluid Taken. Ccm.	Urine. Ccm.		Output in % of Intake.	
Preliminary	48	37.7	24.9		1600	463 462	925	58.1 58.0	58
Fasting									
1. day	24	—	21.6			477		59.6	
2. day	24	—	12.9	16.7	1760		1412		80.3
3. day	12	—	15.4			935		97.2	
Recovery									
1. day	24	38.0	18.0	19.4	1600	643	1141	80.4	71.3
2. day	24	31.9	21.6			498		62.2	

this case the amount of fasting stool was very small and therefore there was no elimination of water from the intestine.

The combustion of protein in this experiment was different from the previous one mentioned. With the poor nourishment, *i.e.* two-third milk in the previous experiment, the nitrogen elimination was 17.3 mgs; now, with abundant nourishment, 25 mgs. With the larger amount of nitrogen in the food there was a greater elimination of nitrogen in the urine. During fast the elimination drops and amounts on the second fasting day only to about half of the preliminary period. The small nitrogen elimination during the recovery period shows again that after fasting, the body strives towards compensating the loss of nitrogen.

Between this and the following experiment, which began after eleven days, the infant was fed on the same nourishment with the same amount of calories. At the beginning of the experiment the infant weighed 5220 gms. After a preliminary period of 48 hours, the fast began and lasted this time 72 hours. After fasting there was a loss of 140 grams in weight, and three days later after feeding this was regained. During this time the water and solids balance each other and the body weight rises again.

TABLE IV. (EXPERIMENT 19.)

BOTTLEFED CHILD. G.

Bodyweight at beginning =5520 grms.
Bodyweight at end of fasting=5380 grms.

Food: Buttermilk + cream + flour + sugar. Protein = 3 %
Per day 800 ccm. = 640 calories Carbohydrate = 9.5%
Per kilo = 140 calories Fat = 3 %

Periods.	Duration Hours.	Per Kilo Bodyweight per Hour. N. of Food. Mg.	N. of Urine. Mg.	Waterbalance. Amount of Fluid Taken. Ccm.	Urine. Ccm.	Output in % of Intake.
Preliminary	48	32.7	22.7	1600	716	44.8
Fasting						
1 to 36 hours	36	—	17.6	2400	1984	82.8
37 to 76 hours	40	—	12.9			
Recovery	140	29.0	18.3	4800	2835	59.0
1 to 70 hours			18.7			
21 to 44 hours			8.5			
45 to 140 hours			20.9			

Table 4 shows the relations of the nitrogen and waterbalance. The proportion of food volume and urine volume in the preliminary period, compared with the previous experiment, is diminished; during fast it rises to 83%, and falls in the recovery period to 59%.

The nitrogen combustion shows about the same values as in the previous experiment. The general aspect of the nitrogen balance of the investigations mentioned shows to us that during fasting the combustion of protein depends in a great measure upon the previous nourishment. The more nitrogen the nourishment contains the more protein of the body material is decomposed, both on the second and third fasting day. So we see that generally during fasting of the

valuable body protein the organism decomposes less than it does during the time in which it receives protein from outside. An essential difference exists between the naturally or breast-fed infant and the bottle fed or unnaturally fed. The breast fed has an increase of nitrogen elimination during fasting, consequently there is a larger combustion of protein. This fact was already observed by Amberg and Morrill and led them to the conclusion that at a suitable composition of food the amount of the necessary protein minimum is lower for the nursling than the quantity of protein decomposed by the organism during fasting.

Fig. I.
Elimination of Nitrogen in Urine.

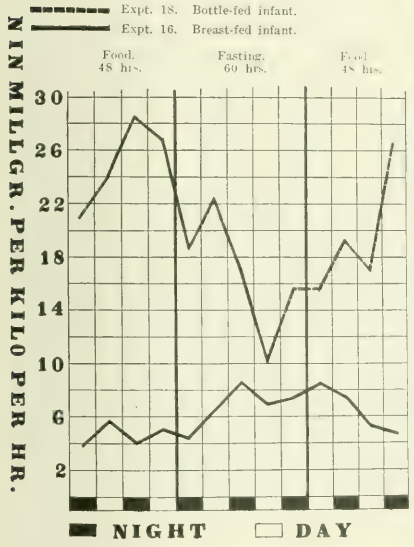
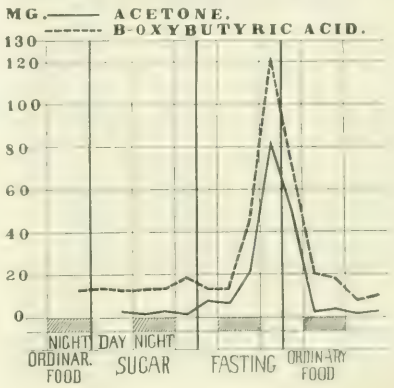


Figure I shows the difference of the nitrogen elimination between the breast-fed and the bottle fed infant during the feeding and fasting periods. The lower curve represents that of the breast fed, the upper that of the unnatural fed one. Therefore when breast fed there is less protein decomposition than when fasting. The quantity of protein which a fasting breast baby takes from his body material in order to cover its expenditures is still considerably less than the quantity of protein which an unnatural fed infant uses. Therefore, the breast-fed baby will decompose during fasting less of its body protein than the baby which has been brought up in an unnatural way. If for any reasons a breast-fed baby has to fast, it will stand this fasting with much less loss than the one which has been brought up unnaturally.

Now we enter into the second part of our investigations. into the question of acetone and B-oxybutyric acid excretion. The quantity of acetone which is excreted in the urine in an ordinary diet of an adult amounts to about 0.01 mgr. per kilo of body weight per hour. The elimination through the lungs is said to amount from two to three fold. During fast of an adult the acetone excretion rises considerably in the urine as well as from the lungs. For the nursling Ludwig F. Meyer and Leo Langstein brought figures which showed a great increase of acetone during fasting. Our experiments show that on the usual diet the nursling excretes in the urine only traces of acetone, but about 12 hours after the last meal the quantity of acetone rises first slowly and then rapidly. Quantities of acetone were excreted by our infants, which essentially exceed those in adults, on the fourth and fifth day of fast. So we found in the last mentioned experiment (No. 19) between the nineteenth and thirty-sixth hours, almost two milligrams per kilo per hour, from the sixteenth to the seventy-sixth hour 1.2 mg. In general the maximum quantities move about in the same height, as was found in Cetti and Breithaupt during fast. We also can show a considerable difference between breast-fed and unnatural fed infants. In general the breast-fed child excretes during fasting less acetone than the bottle fed child. In the breast-fed child shown above, the quantity of acetone amounted per kilo body weight per hour on the first fasting day to 0.12 mg., on the second fasting day to 0.421 mg., and on the third fasting day to 0.292 mg. With the unnatural fed child, from the 19th to the 36th hour of fast, 1.98 mg.; from the 37th to the 60th hour of fast, 0.93 mg.; from the 61st to the 76th hour of fast, 1.20 mg. Furthermore, we could state, that if one puts an infant on protein and fat fast, but gives to him carbohydrate, the acetonuria ceases. This is to be seen from Figure II.

Fig. II.
Total Elimination of Actone. B-oxybutyric Acid in Urine during Feeding Milk, Milksugar and Absolute Fasting.



In this experiment, after a preliminary period with the usual food, the infant received 1000 cm. of a 7% milk sugar solution. In this period the acetone secretion was scarcely higher than in the preliminary period. But when the sugar was left out, with one below the acetone contents rose. Hence there is no doubt that the deficiency of carbohydrate represents the causal factor in the origin of acetone, both for the nursling and for the adult. The excretion of B-oxybutyric acid runs pretty parallel to the excretion, as seen from Figure II. Its quantity is a little higher than that of acetone.

In order to complete the picture of fasting metabolism we also determined the respiratory exchange of the nursling. Therefore we have inserted in the last two experiments mentioned above, investigations of the gaseous metabolism of three hours' duration. In experiment No. 18 the respiratory exchange of the infant was determined 48 hours after the last feeding; in experiment No. 19, 48 and 72 hours after the last meal. The infant had behaved very well during the respiratory experiments, so that the figures recorded by us must be considered as resting figures during fast. We can compute the material combustion of the body by means of the figures recorded in the respiratory experiments, and knowing the nitrogen elimination.

TABLE V.

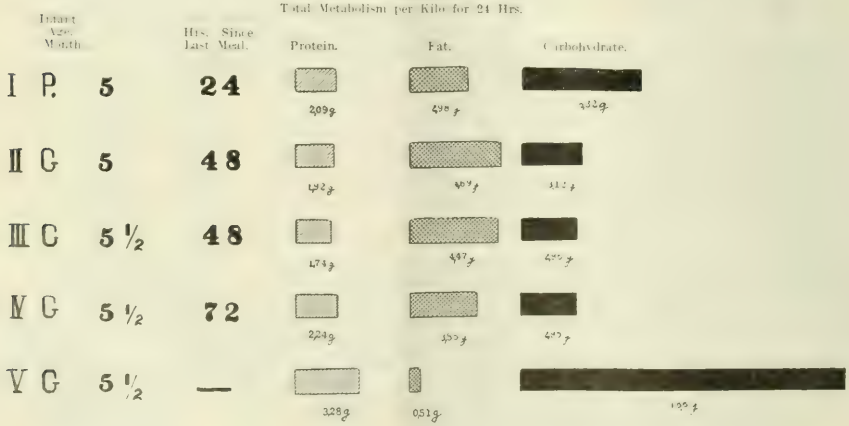
THE RESPIRATORY EXCHANGE, THE COMBUSTION OF PROTEIN, FAT AND CARBOHYDRATE DURING FASTING.

Experiment.	Duration of Fasting Hours.	Per Square Meter per Hour.		R. Q.	Per Kilo Bodyweight for 24 Hours.			
		CO_2 gr.	O_2 gr.		Protein.	Fat.	Carbohydrate.	Calories.
18	48	12.278	11.49	0.779	1.92	4.69	3.12	62.2
19	48	12.04	11.28	0.778	1.74	4.47	2.95	61
19	72	10.94	10.09	0.790	2.24	3.55	2.95	54

Table 5 shows the production of CO_2 and the consumption of O_2 per square meter of body surface. We see that there is a very good agreement between the two experiments 48 hours after the last meal. Then we see that after 72 hours of fast the production of CO_2 and the consumption of O_2 are decreased. The respiratory quotient is pretty constant. Furthermore, the table gives us the quantities of protein, fat and carbohydrate which 1 kg. of infant decomposes, 24 and 72 hours after the last meal, computed for 24 hours. It is a striking fact that the amount of glycogen was so abundant on the third day of fast that as much could be utilized as on the second fasting day. An explanation of this fact is to be found that our baby took very abundant nourishment for a long time previous to the experiments, and so had a considerable storage of glycogen. Therefore the diminution of metabolism and energy transformation in this case is to be attributed to the lower fat combustion. In an earlier experiment we have determined the fundamental metabolism of another baby (P.) 24 hours after the last feeding. Contrary to the infant G., in this case the subject was a very fat baby. With this baby (P.) per kilo of body weight per 24 hours were decomposed: protein 2.09 gr., fat

FIG. III.

Total Metabolism per Kilo for 24 Hrs.



2.89 gr., glycogen 6.32 gr., corresponding to 63 calories. The comparison demonstrates that 24 hours after taking the last meal the glycogen combustion is essentially higher, and the fat combustion lower than 48 hours after feeding. Finally, in order to show the difference of metabolism between the fasting-sleeping state and the state immediately after feeding and while awake, I add the results of another respiratory experiment, which was carried on at the end of our last experiment, No. 19, after the infant had received its known abundant food for six days. In this case the infant was put in the respiratory apparatus directly after taking the bottle, and was kept there for four hours until the following meal. During this experiment the infant slept only about 1½ hours, the rest of the time it was awake but mostly quiet or played with its fingers.

In this experiment the infant decomposed per kilo body weight for 24 hours computed protein 3.28, fat 0.51, carbohydrate 16.6, corresponding to 86.1 calories. The difference of the combustion of the single foodstuffs in the five mentioned experiments can be shown clearer by a graphical presentation which is shown in Figure III.

This figure shows the grams of protein, fat and carbohydrate which were decomposed by an infant computed per kilo for 24 hours.

Table 1 gives the amount of nitrogen in grams 24 hours after the last food. Tables 2 and 3, 48 hours after the last feeding. Table 4, 72 hours after the last feeding. Table 5 shows the relations of combustion in the first four hours after feeding. From this table we can see that in the first hours after feeding the metabolism is increased and is supplied principally by carbohydrate; during this time the fat combustion is very small. Twenty-eight hours after the last food the combustion of carbohydrate is greatly diminished; now the fat is drawn upon in large measure. This diminution of carbohydrate combustion and the increase of fat combustion becomes still more evident in prolonged fasting. Of course these figures are only suggestive of what may develop in the future. As valuable as they are, they represent only some stones of the foundation on which the building of the metabolism of babies shall be erected.

MYATONIA CONGENITA, WITH REPORT OF CASES.

By Charles Hunter Dunn, M.D., Boston,

Instructor in Pediatrics, Harvard Medical School; Physician to the Infants' Hospital.

Case 1. *History.* M. G., aged 6 months. The father was addicted to alcohol and was intoxicated at the time of conception and at intervals during the mother's pregnancy. During pregnancy the mother was well, but much worried and distracted over her husband's condition. There have been no miscarriages. The child of a previous pregnancy is healthy. The previous history of the mother is negative. The child, male, was born normally April 3, 1910. Fetal movements were felt during pregnancy and were quite as lively as those of the normal baby of the previous pregnancy. When the baby was three weeks old, the mother noticed that he seemed unusually limp, but was re-assured by the obstetric nurse in charge. When six weeks old, the mother noticed a dropping of one hand and that the hands seemed weak and limp and were not moved as freely as they ought to be. At this time she consulted a physician, who said the condition was due to weakness, that the breast milk was probably not agreeing with the baby, and advised that it be taken off the breast. When the baby was two months old he was seen by Dr. Howland of New York, who noted a marked atrophy of the muscles of the trunk and extremities, and deformity of the chest. The baby seemed to improve somewhat, at one time being able to move his arms, but later this power disappeared. He has never been able to move his legs at the hips, knees or ankles, but could make slight movements of the toes and fingers. He has never been able to sit up or to hold up his head. The mental development is normal. The breathing has been labored since the baby was three weeks old and this has grown progressively worse. On Sept. 3 the baby caught cold and since then the trouble in breathing became worse, with choking spells from mucous accumulation. To give relief the adenoids were removed on Sept. 24. The breathing was somewhat improved by the operation, but has lately become as bad as before. The weakness increased until he could no longer nurse from the breast or bottle and had to be fed with a spoon. The baby gained weight up to the time of the adenoid operation, but since then has lost.

Physical Examination. Oct. 3. Poorly developed and poorly nourished baby. The cranium was square, the forehead prominent; the fontanels depressed but of normal size; the mouth, tongue and throat were normal. There were no teeth. The pupils were equal and reacted normally. The respiration was irregular, labored and wholly diaphragmatic, but not notably accelerated. The chest showed marked increase in anteroposterior diameter, with marked lateral flattening and prominent sternum. The heart, lungs and abdomen were normal. The baby was entirely unable to hold up his head and there seemed to be a complete flaccid paralysis of the trapezius muscle. The upper extremities were not moved at all from the shoulder and very feebly at the elbow and wrist. The hands hung over in flexion when the arm was held upright. There appeared to be a flaccid paralysis of the shoulder girdle muscles with marked atrophy, particularly of the pectoralis. There was slight atrophy of the muscles of the extremities. The knee-jerk was absent.

From this time until death, Oct. 23, the condition gradually became worse, although there were temporary ameliorations. There was increase in the mucus accumulations and in the fits of choking, and the child died in one of these attacks.

Case 2. *History.* E. S., aged 5 months. Seen July 28, 1912. The father and mother are both well. One other child five years old is well. No other pregnancies. The mother had a very trouble-

some pregnancy, vomiting continuing throughout, and during the whole time she was much worried as to her condition.

Fetal movements were noted during pregnancy but were less marked than in the previous pregnancy. The mother further volunteered the statement that they seemed less lively toward the end. The baby, a male, was born two weeks before full term, after a normal but slow labor. He was delivered easily by low forceps. He weighed 7 pounds 1 ounce at birth and gained weight very rapidly during the early months of his life. He was born on Feb. 29, and on May 26 weighed 13 pounds. He was breast-fed until the middle of June and did well. Since the middle of June he has been fed on a home modification, which has agreed with him perfectly until the last two weeks, when his movements have been somewhat greenish in color. He has two movements daily and there has been no vomiting.

At birth he attracted attention by not kicking with his legs as freely and as actively as most babies, but otherwise he did not seem abnormal. He next attracted attention by not moving his left arm at all for two months except slight movements of the fingers. At the end of two months he appeared to have gained the power of moving the left arm feebly. At this time it was noticed that he had never moved his legs at all since birth except the toes and ankles, never having been able to draw up the thighs on the body, or to flex or extend the knees. He has been a quiet, phlegmatic baby, but has appeared to notice his surroundings and to develop normally mentally. He follows objects with his head and eyes and smiles. He has never been able to hold up his head, although he is able to roll the head a little from side to side. He prefers to lie on his right side; when turned on his left side he cries but is unable to turn himself back.

Ever since birth he has attracted attention by a queer panting respiration, which has been growing worse lately. He has always had some difficulty with his nursing, owing to the accumulation of mucus in the throat which causes him to choke easily. For the last three weeks the baby has been growing decidedly worse and his father has noticed a wasting about the chest and that the muscles of his limbs are not as firm as they were formerly.

In a summary of the history as to his inability to move, the following facts stand out: A notable diminution but not absence of the fetal movements. A diminution of the power of movement was present at birth, but inability to move the legs except at the toes and ankles has remained unchanged since birth. The inability to move the left arm, present at birth, has become somewhat less. It is probable that the right arm has always been more feeble than normal. Panting respiration was noticed from birth on, but no atrophy was noticed until within the last three weeks.

Physical Examination. Well developed, fairly well nourished baby. The cranium was normal; the posterior fontanel closed; the anterior fontanel of normal size, but slightly depressed. The skin and mucous membranes were pale. The pupils were equal and reacted normally, and there was no evidence of facial paralysis. There was no notable glandular enlargement. The mouth, tongue and throat were normal. The respiration was irregular, accelerated and labored, and this labored, panting character of the breathing was particularly notable during and after crying. The breathing was wholly diaphragmatic in type, there being no visible action of any of the accessory muscles. The chest was normal in size and shape, and the heart and lungs were normal. The pulse was normal in rate, rhythm and quality. The baby was entirely unable to hold up its head and there appeared to be a marked flaccid paralysis of the muscles of the neck, both the trapezius and sterno mastoids being involved. The pectoral muscles appeared to be somewhat atrophied. The upper extremities were not moved at all from the shoulder, and feeble at the elbows and wrists. The entire upper extremities appeared markedly flaccid and dropped limply when held up. There was no visible atrophy of the upper extremities, although the limbs felt less firm than normal. No tendon reflexes could be obtained in the upper extremities. The abdomen was normal. The lower extremities showed an almost complete flaccid paralysis, there being no movement anywhere except a feeble movement at the toes and ankles, while the legs felt absolutely limp, and when raised dropped limply on the bed. There was no visible atrophy, but the muscles felt much less firm than normal. The knee-jerks were absent, and Kernig's sign was absent.

In the further progress of this case, there was no change in the power of movement of the head or extremities. The choking spells became more frequent, and finally the child lost the power of swallowing entirely and had to be fed through a tube. Atrophy of the pectorals was extreme by Sept. 1, and the patient developed broncho-pneumonia and died on Sept. 9. No autopsy was obtained.

CASE 3. History. M. F., aged 5 months, was born on Nov. 22, 1913, and admitted to the Infants' Hospital April 9, 1914. The father and mother are both well. Another child 19 months old is well. There have been no other pregnancies. Nothing abnormal was noted during pregnancy except that the mother stated that the fetal movements were fainter than they were with her first child. They were, however, always present.

The baby was born at full term with normal delivery. She was somewhat blue at first and did not cry well. She was regarded as being an unusually weak and feeble baby. She was never breast-fed but did very well on modified milk. Six weeks ago she had an attack of bronchitis, from which she had fully recovered in three weeks. During this time the mother became alarmed because the baby was unable to hold up its head, but was told by her physician that this was simply due to weakness. She gained weight slowly until four weeks ago, when she weighed 10 pounds 3 ounces, but during the past four weeks she has failed rapidly. It gradually became increasingly difficult to feed her. About a week ago she entirely lost the power of sucking and had to be fed with a medicine dropper. Since then swallowing has become increasingly difficult. Much mucous and saliva accumulate in her mouth, causing choking attacks. She was finally brought to the hospital on account of her inability to swallow. On questioning the mother about the baby's power of movement, she stated that she had always noticed the extreme feebleness of the baby, but had never regarded it as very abnormal. The baby has never been able to move its legs at all except the toes, until recently she could move her head from side to side, but for the last few weeks has been unable

to move her head. She could move her arms feebly until the last few weeks; since this time she has only been able to move her fingers and hands feebly.

Physical Examination. Poorly developed and very poorly nourished. Cranium was normal in shape. The anterior fontanel measured 2 cm. and was depressed. The ears, mouth and tongue were normal. The throat was filled with mucus, but otherwise normal. The pupils were equal and reacted normally. The movements of the eyeball were normal and there appeared to be no facial paralysis. The respiration was irregular, slightly accelerated, labored and wholly diaphragmatic in character. No contraction was observed in any of the accessory muscles of respiration. The chest was extremely deformed, showing a marked increase in the antero-posterior diameter with very extreme lateral flattening. The sternum was very prominent and the costal margin flaring. There was no rosary and no enlargement of the epiphysis of the long bones. The lungs showed very harsh respiration everywhere, with numerous coarse, moist râles throughout. The heart sounds were normal. The abdomen was normal. The spleen was not felt, and the liver was of normal size. The baby was entirely unable to hold up her head and there appeared to be a flaccid paralysis of the trapezius and deeper neck muscles. The sterno mastoids, however, appeared less flaccid and were noticed to contract when passive movements of the head were made. There was marked atrophy of the muscles of the shoulder girdle, particularly of the pectoralis.

The upper extremities were not moved at all at either the shoulder or the elbow, but there were feeble movements of the hands and fingers. The arms were entirely flaccid, hanging over limply in any position in which they were held. No tendon reflexes could be obtained. The lower extremities showed a similar condition. There was no power of movement except feeble movements of the feet and toes, and an extreme flaccid condition throughout. The muscles of the limbs appeared somewhat atrophied, although less so than the muscles of the shoulder girdle. The knee-jerks were not obtained.

The patient remained in the hospital until her death on April 23. During this time she was entirely unable to swallow and was tube fed. She smiled and appeared to notice her surroundings. She had frequent choking attacks from accumulation and secretion in the throat. She developed broncho-pneumonia on April 19, and died on April 23. No autopsy was permitted.

Autopsy. A complete autopsy was made of Case 1, by Dr. Councilman, the full report of which has already been published. The anatomical diagnosis was atrophy and degeneration of the muscles, deformity of the thorax, atelectasis of the lungs, hypertrophy of the thymus, fresh thrombus of femoral artery.

The striking lesion was that of the voluntary muscles. The muscles of the neck were thin but of normal color and consistency. The pectoral muscles and all the muscles of the back and extremities were greatly atrophied. The atrophy did not affect the abdominal muscles to so great a degree. The pectoralis major was reduced to a small fascia-like band. The color of the atrophied muscles was grayish and translucent. They were more succulent and the single muscles were not easily dissected out. They seemed infiltrated with fat and fused with the surrounding connective tissue. The intercostal muscles were reduced to thin gray sheets. The abdominal muscles, though thin, had a better color than the others. The large muscle masses alongside the vertebrae were reduced to thin bands less than 1 cm. in diameter. There seemed no change in the nerves. They were of normal size and appearance and more prominent than usual. The thorax was misshapen. The antero-posterior diameter was greatly diminished; the cartilages and ribs passed almost backwards from the sternum, then took an accentuation of the normal curvature, giving a flat depression in the antero-lateral situation. The lower border of the thorax flared outward like the mouth of a bell. The diaphragm was of normal color, thickness and consistency. It seemed rather better developed than normal.

A very detailed report of the histo-pathology of this case has been published by Dr. Councilman, from which report the following points are quoted: All the muscles affected showed the same changes, though in varying degree. Section through some of the most altered muscles of the leg, with low power, shows the fibers arranged in well ordered fasciculi. The amount of connective tissue is increased. With low power, two well-defined masses of tissue can be seen. There are fibers which present the usual appearance of normal adult muscle. There are also masses of what seem to be accumulations of cells which are also arranged in fasciculi, but the masses are very much smaller than are the masses of normal muscles. Similar aggregations of cells are seen often at the periphery of a single muscle fasciculus. Occasionally, in the middle of the masses of small cells, single muscle fibers of the average size can be made out.

Under the immersion, the larger fibers for the most part appear to be normal. Occasionally, the nuclei are found in the center of the fiber. What appeared under the low power as masses of small cells are seen to be composed of very small muscle fibers. Although most of these fine fibers are arranged in fasciculi, they are also found in the midst of the larger fibers and surrounding the groups of these. In the large fibers there is considerable variation in size, and they are usually round or oval. Many of the large fibers are vacuolated, containing either a single large vacuole, or several small ones. Some of these vacuoles contain a small amount of finely granular material. The largest fibers in this muscle are almost invariably definitely round. Occasionally, especially at the periphery of the muscular mass, fasciculi are found which seem to be midway between the larger muscle masses and the small fibers, but in general there is a sharp distinction between the two. With the phosphotungstic hematoxylin there is a great variation in the muscle stain, some of the fibers being very much darker than others. The muscle fibrillae are not well stained. In the fine fibers the fibrillae are rather more prominent at the periphery of the fibers. On the longitudinal section of the muscle tissue, taken from about the same region, the same arrangement of the fibers can be distinguished. The cross and longitudinal striation is apparent in both sets of fibers, but more strongly marked in the larger fibers. The nuclei in the small muscle masses seem to be extremely numerous. They are of about the same size as in the larger fibers. Many of the fibers are so small that when the section passes through a

nucleus this occupies the whole extent of the fiber. The apparently great number of nuclei is due to the number of fibers. When a single fiber is followed along, the nuclei are not more closely set than they are in the large fibers. The cross striations in a number of measurements are nearly the same distance apart in both the large and fine fibers. The length of the fine fibers could not be easily determined either by section or by teasing. They are never so definitely parallel to one another as in the large fibers. The masses of the large fibrils in longitudinal section are perfectly straight; the masses of the smaller fibrils present a wavy appearance as though they had not contracted at the same rate as the larger fibers. Most of the small fibers are solid and they do not present the appearance of embryonic fibers. Occasionally, however, fibers are seen which are hollow with fibrillæ at the periphery, presenting much the appearance of embryonic fibers, and a fiber solid throughout most of its course may present an area where it has hollowed out. They also occasionally present swellings along their course, but as a general thing they preserve the same diameter.

The cortex, cerebellum, pons, and medulla showed in all respects a normal tissue. The cord showed only changes so slight that they would probably pass unnoticed in a routine examination. The Marchi stain showed a very slight degeneration of the myelin in the posterior columns. The same slight changes only were observed in the anterior and posterior nerve roots, and in the spinal ganglia. In the Nissl stains of the cord, no certain evidences of cell degeneration could be made out. Sections of the sciatic nerve showed very slight irregularity in the myelin, and no cellular changes. In the muscle was observed a relative diminution in the number of nerves in proportion to the number of fibers.

The plates illustrate the changes in the muscles.

Plate I. Shows a cross section of the affected muscle, with fasciculi containing a few large, approximately normal fibers, and numerous bodies appearing like cells, but which represent the cut ends of the small fibers.

Plate II. Shows the same condition in longitudinal section. There are a few normal fibers, and alongside run numerous small fibers.

Plate III. Shows a cross section in which the muscle fasciculi contain only the cell like bodies representing the degenerate fibers, no normal fibers remaining.

Plate IV. Shows a longitudinal section in which partly degenerated fibers, midway between the normal, and the small fibers are seen.

Plate V. Shows a cross section under the high power in which two large and many small fibers are present in the same fasciculus.

Plate VI. Shows a cross section under the high power, in which a normal large fiber, with its striations, appears. Beside it run numerous small fibers, in which under the microscope, the striations are plainly visible, though they do not show so well in the photographic reproduction.

SYMPTOMATOLOGY.

In 1900, Oppenheim described a remarkable disease of early life, in which the chief symptom is a hypotonia or even atonia of the muscles. This is accompanied by a limitation of active movement, varying in degree, which, in the most marked cases apparently reaches a complete paralysis, the extremities lying motionless. Although on close observation contractions may be brought out in some of the muscles, they are weak and without locomotor effect. In Oppenheim's cases the lower extremities were always more markedly affected than the upper, and the muscles supplied by the cranial nerves were not affected at all. The muscles of the neck and trunk were affected in one case. In none of his cases were the muscles atrophied, although they were soft. Electrical stimulation showed a varying diminution of contractility up to complete disappearance. There is no disturbance of sensation, and no reaction of degeneration. There is a very marked relaxation of the joints, owing to the flaccidity of the muscles. The affection is congenital, though it may not attract attention for some time after birth. Oppenheim considers the condition to be essentially one of retarded development of the muscles, and that it tends to betterment, although he did not exclude the possibility of involvement of the nerves or spinal cord.

Since 1900, about 40 cases of this condition have been reported in medical literature, and all the main points in their symptomatology are covered by Oppenheim's original description. In the reported cases, the extremities are most frequently and most markedly affected, weakness being usually most marked in the lower extremities. The muscles supporting the head were involved in quite a number of the severer cases. Most of the reports agree as to the non-involvement of the muscles supplied by the cranial nerves, the only exceptions being two cases in which there was difficulty in deglutition, and one in which there was an inability to close the eyes. The degree of paralysis described in these reports varies greatly. In the most marked cases, no movements could be performed with the muscles affected, except at times feeble movements of the fingers and toes. In some cases contractions were observed in the affected muscles, without locomotor effect. In the milder cases there was no actual paralysis, but movement was feebler than normal, the patients being unable to walk, to stand, to sit up, or to hold up the head.

All the descriptions agree on the great atony of the muscles, and consequent flaccidity of the joints. No description of this can be better than that given by the mother of one of Collier's patients: "By whatever part of the body I held him up, all the rest of him hung down like so many pieces of yarn." Atrophy of the muscles is reported as absent in most of the cases, although in many of them it was stated that the muscles were softer to palpation than normal, with a peculiar doughy feel. There are, however, among the reported cases, a few in which atrophy was noted.

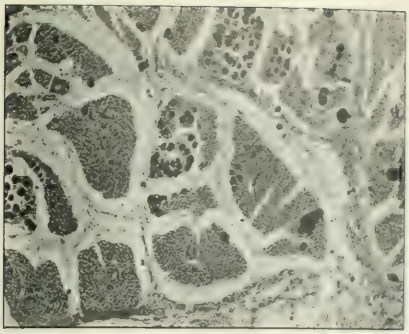


PLATE I

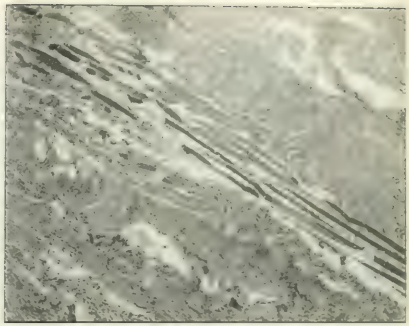


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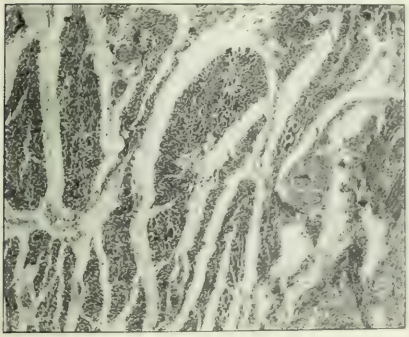


PLATE III

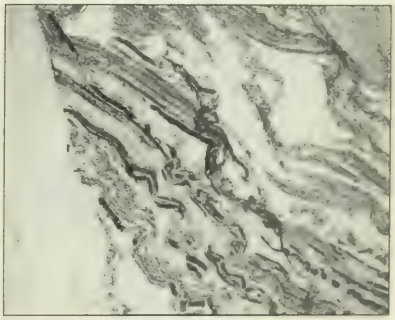


PLATE IV

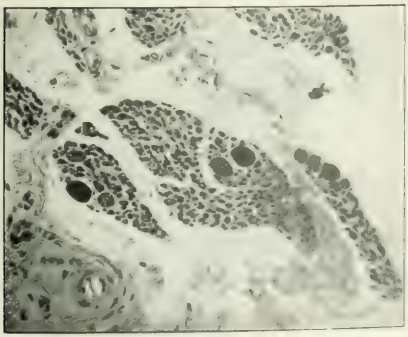


PLATE V

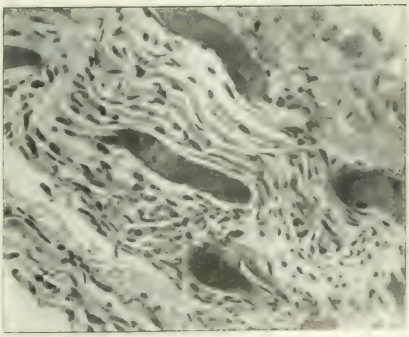


PLATE VI

In the majority of cases the lack of movement was noted at birth or very soon afterward. In many of these cases, however, this information as to lack of movement could only be obtained by questioning, the disability not having attracted sufficient attention to be considered important by the mother, or to be a chief cause of complaint. In quite a number of the cases, the condition was noted in the earliest days of life, but only attracted attention much later when it came time for the baby to hold up its head, to sit, to stand, or to walk.

There is considerable variation in the remaining symptomatology, as described in the reported cases. Sensation appears to be unimpaired, although an abnormal tolerance of strong Faradic current has been mentioned. The deep reflexes were absent in most of the cases, although in a few of the milder ones, the knee-jerks were reported simply as present, and in a few others, as present but diminished. The reports on the reaction to the Faradic current vary greatly, being sometimes present, sometimes absent, most frequently diminished. These variations correspond in general to the severity of the case, as shown by the amount of muscular disability.

The three cases which have come under my observation agree in their symptomatology with the other reported cases. One or two points were notable, however. In all three cases a very striking symptom was the labored breathing of a wholly diaphragmatic type, which could not fail to attract immediate attention. This was due to the paralysis of the intercostal and other accessory muscles of respiration. Labored breathing, without detailed description, is mentioned in only one or two of the cases from the literature.

Another striking feature was the extreme deformity of the chest, which was present in two of my cases. It resembled an exaggeration of the most extreme deformity which is seen in rickets, and is undoubtedly caused by the early paralysis of the accessory muscles of the respiration, together with the pull of the uninvolved diaphragm. The chest deformity and the character of the breathing were so exactly alike in Cases of 1 and 3, that upon seeing Case 3 I immediately thought of myatonia congenita before hearing any of the history.

A prominent symptom in all three of my cases was the accumulation of secretion in the mouth and throat. This was undoubtedly due to involvement of the muscles of deglutition. In all three cases there was difficulty in swallowing milk, and Case 3 became utterly unable to swallow, having to be tube-fed from the time it entered the hospital until its death. In all three cases choking attacks were frequent, and Case 1 died in such an attack, while the other two cases died of broncho-pneumonia, probably due to inhalation of secretion. Difficulty in swallowing is mentioned in but two of the other reports which I have read. In my cases the involvement of the muscles of deglutition appears to be a later symptom, and to be progressive.

PATHOLOGY.

In seven autopsy records, and two additional examinations of the muscle which I have collected, there is some disagreement as to the character of the lesions. Most of them agree as to the general character of the muscle lesions. The great diminution in the size of certain muscle fibers appears to be the significant lesion. Bing, however, found the muscle normal, except for some question of nuclear increase. Holmes and Badouin found, among the small fibers, some fibers much larger than normal. Councilman considered the large fibers in our case to be of normal size, and that the photograph which Holmes gives of a cross section of muscle shows no such large fibers and might have been made from a section of the muscle in our case. Such variation in the anatomic lesions might well be expected, to correspond with the variations in the symptomatology of the disease.

There is much more disagreement as to the nervous system. In one of Badouin's autopsies, and in Rothmann's, there were lesions of the anterior horn and nerves. In the others, the cord and nerves were normal, as in our case.

The only other anatomical feature of interest is the condition of the thymus gland, which was found to be enlarged in our case, and in three of the other autopsies. The microscopic lesions found in these three cases did not differ from those found in many other thymus examinations, and there is no organ in the body which varies so enormously in size as does the thymus in children under one year.

COURSE AND PROGNOSIS.

In two of my cases a gain in the power of movement was noted. In Case 1 this improvement was temporary only, disappearing later. In Case 2 the slight gain in the power of moving the left arm continued. No tendency toward improvement was ever noted in Case 3. On the other hand, the difficulty in swallowing became worse in all three cases, and in Case 3 the baby lost the power of moving the head from side to side.

In most of the other reported cases, the course of the disease and final outcome were not reported. The cases are by no means confined to infancy, there being 22 cases which were observed in the first two years of life and 18 in later childhood, the oldest being 10 years. In these older children there was a great variation in the amount of muscular weakness, some children being able to sit, stand, or walk. Walking was generally acquired much later than normal. It is not possible in most cases to gather from the reports whether these cases represent the result of improvement in the original condition, or a

milder involvement from the start. They only show that there is great variation in the severity of the disease.

In but 24 of the cases is there any report on the progress or outcome of the condition. In 11 cases some improvement, apparently at least, was noted. In 2 cases the condition was apparently stationary over a fairly prolonged period of observation. In 2 cases the condition appeared to become progressively worse; 9 cases died. It is difficult, however, in early life, to judge whether improvement is real or only apparent. The developing child presents no normal standard, and there is a constant normal gain in the function of movement, which might easily give a false impression of improvement. In other words, because a child with a widespread muscular lesion eventually learns to walk, it is no proof of even functional improvement in muscular power. Then, errors of observation, so important in early life, must be considered.

Nevertheless, there seems to be at least some evidence of a tendency towards improvement. Whether this improvement is only functional, or whether there is any tendency toward improvement in the actual lesion, cannot be decided. Without actual destruction of nerve cells, there should be considerable capacity for regeneration. We do not know, however, whether muscles so altered are capable of complete regeneration, nor of how much regeneration they are capable, if at all. An autopsy on a case which died from some inter-current affection after showing an apparent improvement in the muscular condition, might give us a valuable addition to our knowledge on this point.

The cases reported up to 10 years of age do not give a very favorable prognosis. In no case has complete recovery been reported. On the other hand, the severer cases appear to tend toward a fatal ending, especially during infancy. Broncho-pneumonia is the commonest immediate cause of death. Whether in these cases the process may be progressive, or whether the fatal ending is due to the combination of a stationary anatomical condition, combined with the increased demands of the growing child, we do not know.

ETIOLOGY.

We know practically nothing of the etiology of this condition. The onset appears to be gradual, as the descriptions usually do not give a very exact time of onset. While it appears to be congenital, we cannot even be sure of this, as in those cases in which the condition is reported as having been observed at birth, we cannot be absolutely sure of the accuracy of the observation. Usually the information is obtained at a later period, when parents, in their inability to fix an exact time of onset, are extremely apt to say "ever since birth." Still, it seems to me that the weight of evidence points toward the congenital nature of the disease.

The presence or absence of fetal movements might have an important bearing on the question of the congenital nature of the disease, although the degree to which these are felt presents normal variations, and their absence does not necessarily denote fetal paralysis. In the collected cases, there was mention of fetal movements in 12. The movements were felt in 8 and not felt in 4 of the cases. In two of the cases in which they were felt, they were reported as less lively than normal, as in two of my cases.

There is no reason to believe that the disease is infectious. The onset, the distribution of the lesions, the absence of focal lesions, or of any lesions pointing toward a past infection, are all against such a supposition. The disease has never been seen in either an epidemic or an endemic form. In none of the cases has the disease even appeared in connection with any acute infection.

It seems much more probable that the disease is toxic, rather than infectious. The action of the toxin appears to be directly on the muscle fibers, or possibly upon the terminal nerves or nerve endings. Councilman believes it probable that such a toxin is produced, not in the infant, but in the mother. There does not seem to be any relation between the disease and any other disturbance in the child. Councilman in our report of Case 1, advanced the hypothesis that there might be a toxin in the blood of the mother, from which she would be protected by the presence af antibodies. Both toxin and antibodies would, during the intrauterine life of the child, be transmitted through the placental circulation. After the birth of the child, the action of the toxin would no longer be counteracted by antibodies received from the mother. Councilman says, however, that under such an hypothesis, it is difficult to explain why, as in our case, single muscle fasciculi and single fibers should remain normal.

CONCLUSION.

I believe myatonia congenita is possibly much commoner than is generally supposed. Two of my cases had been long under the observation of physicians, without any suspicion that there was anything more wrong than weakness and malnutrition. The milder types of the disease, which lived long enough to show obvious improvement of the normal motor functions, would not be so likely to be overlooked. But I believe it possible that babies have been certified as dying of marasmus and broncho-pneumonia, who really had myatonia congenita.

BUBONIC PLAGUE IN NEW ORLEANS.—On July 23, the fourth death from bubonic plague occurred in New Orleans, La., since the outbreak of the infection in that city on June 27. On July 26 the thirteenth human case was reported and the twelfth infected rat killed.

Clinical Department.

THREE UNUSUAL CASES.

(Second Series.)

I. Ovarian Cyst. Division and Anastomosis of Ureter.
II. Pelvic Kidney.
III. Acute Appendicitis Complicating Dermoid Cyst of Ovary.

By Robert M. Green, M.D., Boston.

[From the Gynecological House Clinic of the Boston City Hospital.]

The three following cases seem to deserve reporting, partly on account of their rarity, partly because they illustrate errors in technic or diagnosis which should or might have been avoided.

Case 1.

Patient. Mrs. M. W., thirty-two, white, housewife. Entered Boston City Hospital (Gyn. Rec. 203-261), on Feb. 28, 1914.

Family history. Unimportant.

Previous history. Born in Boston. Always well as a child. Catamenia normal. One normal labor at term in 1902. No miscarriages. Following labor, patient had recurrent attacks of pain in both lower abdominal quadrants, accompanied by fever. In February, 1913, she was operated at another hospital, with removal of appendix, uterus, both tubes, and the left ovary. Uneventful convalescence.

Present illness. Ever since operation patient has been troubled with tenderness in the right lower abdominal quadrant. In Nov., 1913, she had a severe attack of pain in this region lasting for a week, and since that time has had recurrent similar attacks, not associated with fever or vaginal discharge, and requiring morphia for their control.

Physical examination. A slender, wiry woman. Mucous membranes of good color. Tongue moist and slightly coated. Teeth poor. Throat negative. Temperature 99.8°. Pulse 80. Blood-pressure 120. Hemoglobin 80%. White count 9,600.

Heart and lungs, normal.

Abdomen, soft, slightly tender and resistant in the right lower quadrant. Healed median hypogastric linear scar.

Urine, cloudy, acid, 1.034. Albumin, s. p. t. No sugar. Sediment, squamous epithelial cells and leucocytes. No casts.

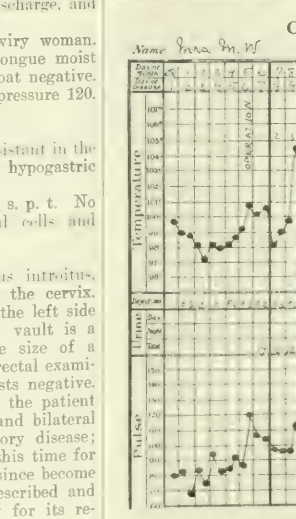
Extremities, negative.

Vaginal examination shows a parous introitus, good perineum, and bilateral nick of the cervix. The body of the uterus is absent, and the left side of the pelvis empty. In the right vault is a rounded adherent, sensitive mass, the size of a tennis ball. The same mass is felt by rectal examination. Wassermann and Schwartz tests negative.

Diagnosis. It seemed probable that the patient had had a supravaginal hysterectomy and bilateral salpingectomy done for old inflammatory disease; and that the right ovary, preserved at this time for the sake of its internal secretion, had since become cystic, giving rise to the symptoms described and producing the mass felt. Laparotomy for its removal was therefore advised and accepted.

Operation. The abdomen was opened, on March 5, 1914, by an incision just to the right of the old scar, and was found free from adhesions. The stump of the cervix was felt buried below the peritoneum, and on its right was the cystic mass, as felt from below, evidently representing the right ovary, which apparently had been similarly buried at the previous operation. A transverse incision was made through the peritoneum over this mass and its removal begun. The cyst proved to be closely adherent to the side of the pelvis and buried in a mass of cicatricial tissue which effectually obliterated all anatomic landmarks. The internal iliac vessels could be recognized by their pulsation, and were successfully avoided, but in the course of the dissection the right ureter was completely divided about an inch and a half from the bladder. The removal of the cyst was completed and the severed ends of the ureter were united with five interrupted sutures of very fine silk by the method of direct end-to-end anastomosis. The ureter was then dropped back into the bed left by the cyst, and the peritoneum closed over it except at the point where a small cigarette drain was placed into the cyst-bed alongside, but not actually touching, the line of anastomosis. The abdominal incision was closed in layers to this drain, a self-retaining catheter placed in the bladder, and the patient put to bed in Fowler's position.

Convalescence. The patient made a good recovery from ether and at no time showed any marked degree of shock. On the day following operation there was slight tenderness in the right costo-vertebral angle. Nineteen ounces of urine were obtained through the catheter, and there was no leakage about the wick. On the second day, however, urinary leakage about the wick began, and the amount obtained by catheter dropped to twelve ounces. With the establishment of this leak, the tenderness over the right kidney abated and the temperature fell to normal. On the third day, patient complained of pain in right chest. The tem-



Case 1.

perature rose to 104.2° at night, there was a distinct friction rub in the lower right mid-axillary region, and patient could not take a deep breath without great pain. The condition was relieved by tight strapping of the lower right chest with adhesive plaster. On the fourth day the inlying catheter was removed, and the patient voided that day twenty-four ounces of urine. The pleurisy continued till the eighth day, after which it gave no further trouble. The urinary leakage about the wick became most profuse on the fifth day, then diminished, while the amount of urine voided increased, reaching sixty-four ounces on the ninth day. On the tenth day the wick and stitches were removed, and the temperature thereafter fell promptly to normal. The urinary leakage from the sinus at first increased, then rapidly subsided and ceased on the fifteenth day. At no time after the first day was there any sign of trouble with the right kidney. Urotropin was exhibited throughout the convalescence. During the latter part of her convalescence the patient was considerably afflicted with furunculosis of the back; but this disappeared as soon as she was able to sit up out of bed. The abdominal sinus closed and the patient was discharged apparently well one month after operation. The urine was normal and the right kidney was not tender or enlarged.

The chief interest of this case lies in the convalescence. There must have been a localized peritonitis from the leakage of urine along the drain, and the right-sided pleurisy was presumably caused by lymphatic extension of this infection upward through the diaphragm. At no time was there evidence of obstructive hydronephrosis. Of course only time will show whether the patient is going to have a ureteral stricture or calculus at the site of anastomosis. She has been directed to report in three months for cystoscopy and ureteral catheterization. To cut a ureter is under all circumstances an unpardonable blunder in surgical technic. As a result of this experience, and in view of the liability of conserved ovaries to become cystic, I feel that I should never bury such an ovary under the peritoneum, but leave it free, so that it might subsequently be removable with less risk of this accident and consequent disaster.

CASE 2.

Patient. Miss L. J., seventeen, white, cigarmaker. Entered Boston City Hospital (Gyn. Rec. 203-357), on March 10, 1914.

Family history. Unimportant.

Previous history. Born in Russia. Migrated to the United States as a child. Catamenia regular, with a good deal of dysmenorrhea. No previous illnesses of importance.

Present illness. Since November, 1913, patient has had a good deal of pain in both lower abdominal quadrants, with backache, chills, and frequency of micturition.

Physical examination. A fairly well developed and nourished young girl. Skin and mucous membranes of good color. Tongue moist and slightly coated. Teeth good. Throat negative. Sternum slightly scaphoid. Heart and lungs normal. Temperature 98.2°. Pulse 80. Hemoglobin 70%. White count 9,200. Blood-pressure 108.

Abdomen, full, soft, tympanitic throughout. Slight tenderness without spasm on deep pressure in left lower quadrant.

Urine, clear, acid, 1.03. Albumin, s. p. t. No sugar. Sediment of squamous epithelial and a few red blood cells.

Extremities, negative.

Vaginal examination shows a stretched introitus, an intact perineum, and a small intact conical cervix. The uterus is small and pushed forward and to the right by an indefinite, rounded, slightly sensitive mass, the size of a duck's egg, which occupies the left and posterior vaults. The right vault is empty. There is a slight whitish vaginal discharge, a smear from which shows no gonococci. Rectal examination shows nothing additional.

Diagnosis. In the absence of more definite signs of inflammatory disease, the mass in the pelvis was considered to be probably a cystic ovary. In view of the dysmenorrheic symptoms produced, laparotomy for its removal was advised and accepted.

Operation. On March 16, after the usual aseptic preparation, the cervix was dilated under ether anesthesia, the uterus curetted of a small amount of apparently normal endometrium, wiped out with gauze strips, and a glass plug inserted. This was done to correct the anteflexion which it was thought might be a contributing factor in the dysmenorrhea. The abdomen was then opened, without incident, by a four-inch median linear hypogastric incision, and walling off gauzes were placed. The normal appendix was removed and the stump buried. The uterus and the appendages on both sides were quite normal. On the posterior surface of the left broad ligament was the mass as felt, which was now supposed to be a parovarian cyst. On splitting the peritoneum to begin its removal, however, it was found to be solid, and was therefore assumed to be a fibroid of the broad ligament. Several large irregular vessels, derived from the left internal iliac vein and artery, entered the mass at irregular points, but were all ligated, and the mass gradually shelled out from between the layers of the broad ligament and removed. Only upon opening it after its removal was it discovered to be a small, somewhat lobulated kidney. The stump of the ureter was then found in the pelvis, where it had been unwittingly tied off about an inch and a half from the bladder. Palpation showed no kidney in the left flank, but the right kidney present and of normal size and position. As there was considerable oozing from the bed of the ectopic kidney, a firm gauze drain was placed into the pelvis, the wound closed in layers about it, and the patient sent to the ward in considerable shock and put to bed with the foot of the bed elevated.

Convalescence. The patient made a good recovery from ether but for the first 48 hours was distressed with persistent vomiting. She was catheterized every six hours to prevent possible backward leakage from an over-distended bladder through the stump of the amputated ureter. The urine during this period was scanty, dark, and contained a trace of albumin and considerable microscopic blood. On the third day, however, the urine began to clear and increase in quantity, and the patient, who previously had been sustained by rectal seepage and glucose enemata, became able to retain food by stomach. She was kept on a strict nephritic diet till the tenth day, when the wick and stitches were



Case 2.—Pelvic Kidney. Actual Size.

removed The convalescence was afebrile, the patient was soon up and about, and three weeks after operation was discharged on a modified diet with the abdominal wound healed and the urine entirely normal.

The correct diagnosis in this case was never thought of, even after the abdomen was opened, and was made only after the ectopic kidney had been actually removed. Probably its removal was best, on account of the liability of such kidneys to cause dystocia or to become the seat of malignant disease, but of course it should not have been done without first ascertaining the presence of the right kidney. Preliminary cystoscopy and ureteral catheterization would probably have led to the correct diagnosis, but for this there had seemed to be no indication.

Congenital pelvic kidney is exceedingly rare. It generally occurs on the left. The first case in the literature was reported by Hohl[1] in 1828, the second by Hüter[2] in 1880, the third by Fischel[3] in 1885, the fourth by Runge[4] in 1891, the fifth by Albers-Schönberg[5] in 1894, the sixth by Cragin[6] in 1898. Dewis[7] in 1901 and Munro[8] in 1910 reported cases in this Journal. The latest and most complete work on the subject is by Stephan[9], who summarizes the literature in a bibliography of 211 titles.

Case 3.

Patient. Miss M. H., twenty-nine, white, saleswoman. Entered Boston City Hospital (Gyn. Rec. 204-241), on March 27, 1914.

Family history. Unimportant.

Previous history. Born in Boston. Always well as a child. Catamenia normal. No previous attack similar to the present.

Present illness. On March 24 patient was taken with pain in both lower abdominal quadrants, becoming more severe on the right. She vomited several times on that and the succeeding day. Since then she has eaten practically nothing, and the vomiting has ceased, but the pain has continued.

Physical examination. A well developed and nourished young woman. Mucous membranes of good color. Face flushed. Tongue dry and coated. Teeth fair. Throat negative. Heart and lungs normal. Temperature 102°. Pulse 110. Hemoglobin 80%. White count 15,000.

Abdomen, full, tympanitic throughout, with general spasm and tenderness most marked over McBurney's point. Slight tenderness in right flank; none at costo-vertebral angles.

Urine, clear, acid, 1.024, no albumin or sugar. Slight sediment of squamous epithelial cells and leucocytes.

Extremities, negative.

Vaginal examination: intact hymen, barely admitting one finger. Intact cervix. Uterus of normal size, and in second degree of retroversion. Left

vault negative. In right vault considerable resistance and tenderness, but no definite mass. Rectal examination shows tenderness and boggy resistance high on the right.

Diagnosis. The condition was considered to be probably appendicitis, but in view of the duration, and the apparent subsidence of symptoms, it was thought best not to operate immediately but to try for further improvement under palliation.

Treatment. The patient was put to bed in Fowler's position, with nothing but water by mouth and an ice-bag to the right lower abdominal quadrant. The bowels were freely moved by enema. Under this treatment the temperature dropped, but the abdominal tenderness and spasm continued unabated. On March 29, the temperature was 100.5°, but the white count had risen to 19,600, and there was acute tenderness and spasm over McBurney's point. In view of these conditions laparotomy was advised and accepted.

Operation. After the usual careful aseptic preparation, a 4-inch right rectus incision was made and the peritoneum opened, with escape of a moderate amount of cloudy yellowish fluid, from a culture of which no growth was subsequently obtained. The intestinal coils were lightly matted together and covered with flakes of fibrin. The appendix was found at the bottom of an abscess cavity, from which it was raised and removed. It was acutely inflamed, but not gangrenous. During the removal of the appendix, a wad of hair was observed floating up in the pus from the bottom of the cavity; and on further exploration a ruptured dermoid cyst of the right ovary, about the size of a tennis-ball, was found occupying the posterior cul-de-sac and communicating with the appendix abscess, the uterus being in normal position. This cyst was now removed, and was found to contain more hair and the usual sebaceous material. A cigarette wick was placed to the bottom of the pelvis in the posterior cul-de-sac, and another to the appendix stump, and the abdomen closed in layers to the drains. The patient was sent to the ward in good condition, and placed in Fowler's position on constant rectal seepage.

Convalescence. The temperature fell to normal on the third day and the patient made an uncomplicated recovery. The appendix wick was removed on the third and the pelvic wick on the seventh day. The patient left the hospital on April 16 in excellent general condition, with a small, superficial granulating sinus at the site of drainage.

The diagnosis of appendicitis in this case was correct, but the presence of the dermoid cyst, mistaken for a retroverted uterus, was never suspected. Doubtless the cyst had existed for some time without producing symptoms; and its wall had become gangrenous and sloughed into the appendix abscess upon the development of the latter by its side.

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PNEUMOTHORAX FOR HEMOPTYSIS.

BY EDWARD VON ADELUNG, M.S., M.D., OAKLAND, CAL.

THE value of induced pneumothorax to control bleeding from the lungs is hardly sufficiently appreciated. The older means of treating hemoptysis consists of physical and mental rest, starvation, thirst, and the use of certain medicaments. The drugs commonly employed act by slowing the blood stream (as does rest), or by reducing blood-pressure (as do rest, starvation, and thirst), or by increasing the coagulability of the blood (as do hunger and thirst). There can be no doubt that these measures employed intelligently and persistently yield results. But usually an appreciable amount of blood is lost before these measures can act, and again the bleeding is extremely likely to recur after a time. For the latter reason the patient is advised to keep his bed for a week or more after the bleeding has stopped. Thus it is seen that the medical treatment involves considerable loss of time, and subjects the patient to the unpleasant and often harmful by-effects of the drugs used. This is especially true of opium, the most valuable of the drugs used for hemoptysis.

Pneumothorax, on the other hand, acts promptly and obviates the disadvantages of the drugs mentioned. The hemorrhage having been controlled, the patient may be allowed to continue about as was his habit, perhaps even to continue at his occupation. Instead of harmful by-effects pneumothorax has a beneficent after-effect: it places the diseased lung in a condition favorable to healing.

To produce pneumothorax, air or other gas is allowed to flow through a hollow needle which has been pushed through the thoracic wall just far enough to let its lumen open into the pleural sac. As the gas enters, the negative intrapleural pressure is abolished, and perhaps a positive gas pressure substituted. This results in collapse of the lung, with perhaps some compression. Naturally the tension of the wall of the bleeding cavity is thus relieved, and the cavity is collapsed to a degree depending on the amount of fibrosis of its wall. In any case the change of pressure from negative to positive leads to the cessation of hemorrhage. By introducing a little more gas every few days the positive pressure may be maintained so that hemorrhage cannot recur, and furthermore, the sick organ, the lung, is placed at physiological rest, a condition eminently indicated in tuberculosis. And meanwhile, unless otherwise contraindicated, the patient may be allowed to go about instead of being confined to the bed.

Of course, if extensive pleuritic adhesions are present, pneumothorax is obviously impossible. This treatment is then inapplicable. Pneumothorax is possible only when the physical conditions permit the introduction of gas between the

parietal and visceral layers of the pleura. Unfortunately there is no method known by which the presence of pleural adhesion can be positively determined in advance. The only way to settle the doubt is to introduce the needle. And this may have to be done in many sites. But local anesthesia renders the procedure painless.

Cases.

Mr. L. began bleeding Jan. 27 and continued through Jan. 29, 1914. Bleeding was then resumed on Feb. 1, and continued in spite of usual medical treatment till Feb. 3, when nitrogen was injected into pleura. While the spit continued stained for 24 hours, no fresh blood was again obtained. No further hemorrhage occurred while under observation, a period of one month.

Mr. X., patient, was carrying a high fever, raising copiously, and bed-ridden. A nurse notified me that he was bleeding while I was inducing pneumothorax on another patient. Nitrogen was introduced into the pleura on the side that offered moist râles, and bronchi. The bleeding was immediately stopped and did not recur during an observation of four weeks.

E. W. Came with history of frequent hemorrhages, at intervals during a year. Pneumothorax was induced for treatment of the lung. No further hemorrhages occurred while under observation, a period of three months.

H. W. Was having frequent hemorrhages when first seen. Pneumothorax was induced to heal the lung. Incidentally the records showed no recurrence of hemorrhage during the period of observation,—about three months. Ten months of tuberculin treatment had yielded no result.

B. B. A. Bilateral infection with rather profuse bleeding that had continued in varying amounts during three days. Was inflated on side that presented moist râles. Bleeding stopped immediately and did not recur. Observed several months.

For the above inflations I used my portable apparatus modeled after Murphy's original apparatus. More recently Murphy has suggested an ingeniously simple procedure for meeting the emergency presented by hemoptysis. It consists of introducing a hypodermic needle into the pleural space and allowing atmospheric air to be sucked in until the patient feels distress. The needle is dulled by rubbing on a stone, the skin is cleansed, a puncture of the skin is done with any sharp instrument, and the boiled hypodermic needle is then inserted into the pleural sac with its outer end covered by sterile absorbent cotton which filters the air that passes in. I have had no experience with this method but feel that it is entirely permissible and efficient in an emergency. But however induced, pneumothorax, when practicable, is the best way to control bleeding from the lungs.

Reports of Societies.

NEW ENGLAND PEDIATRIC SOCIETY.

Fritz B. Talbot, M.D., *Secretary.*

The thirty-second meeting of the New England Pediatric Society was held in the Boston Medical Library, Friday, May 1, 1914, at 8.15 p.m.

The following papers were read:—

1. "The Fasting Metabolism of Infants,"* by Hans Murschhauser, Ph.D., Düsseldorf, Germany.

2. "Some Developmental Causes of Poor Health in the Child: Their Importance to the Adult,"† by Dr. John Bryant.

3. "Myatonia Congenita,"‡ with Report of Cases, by Dr. Charles Hunter Dunn.

discussion.

Dr. Talbot, Dr. Murschhauser's paper: This type of work lays the foundation for what we clinicians use in reasoning out what we will do with a sick infant, and to me it has been an extremely interesting paper. I am surprised, as Dr. Murschhauser was surprised, that this particular infant should use up so much carbohydrate after 48 hours of fast. The adults who have been experimented on at the Carnegie Laboratory showed that the percentage of carbohydrate utilized after 24 hours has dropped down to less than ten per cent. I have the greatest confidence in this work, and congratulate Dr. Murschhauser on the excellence of it, as it shows that the pediatricians, particularly here in Boston, have been right in recommending sugar solutions in the treatment of acute summer diarrheas with starvation. This evidence makes it very probable that many of our acute summer diarrheas that we starve where the symptoms are hard to combat, may be complicated by a definite acidosis, and if that acidosis can be prevented clinically, those babies ought to do very much better.

Dr. Lucas: Dr. Dunn's paper. I would like to ask if any investigation was made in these cases regarding the skeletal changes, especially of atrophic character.

Dr. Dunn: I do not know whether Dr. Howell has anything to say about Case 3. He saw it in the hospital, and perhaps may have something to add which will be of interest.

Dr. W. W. Howell: The chest deformity was so striking that once seen it could never be forgotten. The chest was absolutely pulled out of shape by the diaphragmatic breathing and the loss of muscular tone of the other respiratory muscles. The child lay like a mass of jelly, without tone to any voluntary muscles. Dr. Dunn has so fully covered the case clinically and pathologically that I have nothing further to add.

Dr. A. C. Eastman: The history of that family is rather bad, to say the least. The first child, I think, without any question, had congenital syphilis. It had a flabby muscular tone and a great deal of difficulty in taking food, besides eruptions, coryza and rhagades. At present it is in very good condition, although it still has to have medical

* See page 185.
† See Journal, Vol. CLXX, No. 21, May 21, 1914.
‡ See page 191.

treatment. The second child I saw about two months ago. At that time it presented nothing unusual, except the marked deformity,—although the legs were limp and there was practically no muscular action of the legs. Apart from that, the general muscular tone was not diminished anywhere near to the condition of that when sent to the hospital. There was very marked spasm and twitching of the arms. About a week before he was sent to the hospital I saw him again and the difficulty in swallowing had commenced, and especially the accumulation of mucus in the throat. There is a marked history of syphilis in the family which goes back two generations, and with the history of syphilis in the first child, I was inclined to think of syphilis in this child also, although there were no definite symptoms of congenital syphilis. I will agree with Dr. Howell that the appearance of the child was very striking.

DR. DUNN, in closing: With regard to changes in the skeleton in this disease, I do not think that among those autopsies is there any particular mention of examination of the skeletons. I did not get a full report of the autopsy, which has already been published, but my impression is that Dr. Councilman made a number of examinations of the bones and different parts of the body and found them normal. I know that he worked on them and that they are entered in the report as normal. In practically none of the cases reported in the literature has there been any syphilitic origin, and I did not know, until Dr. Eastman mentioned it, that there had been a syphilitic history in Case 3. The baby showed none of the known lesions as far as physical examination was concerned. It is very much to be regretted that we did not get an autopsy.

Book Reviews.

Psychopathology of Hysteria. By CHARLES D. FOX, M.D. Boston: Richard G. Badger.

The development of new theories in regard to the psychology of hysteria has been rapid during the past few years, and though there is a considerable divergence between the views of the nature of the psychological changes and their mode of origin, there is a remarkable unanimity of opinion among recent investigators in regard to many of the phenomena, and especially as to the explanation of them from the psychical side, the differences often being rather in the mode of expression than in mere fundamental distinctions. This little book contains a very good account of the mode of origin and explanation of most of the symptoms which appear in hysterical cases from this general point of view, and is to be highly commended for the clearness of the explanations. This makes it a very convenient book for the general practitioner or those engaged in other special lines of work who have been unable to follow the recent work of the many writers who have been interested in these phenomena.

If one were to find fault in any way with the writer it would be rather in the line of his catholicity in accepting as compatible with each other statements and views which to the close student of the subject seem quite contradictory, such as those of Janet, Freud, Prince and Sidis. Particularly we should hope that in another edition the author would devote more space to the exposition of the views of Freud, which, whether one accepts them or not, are rather fundamentally different from those of any other modern writer aside from those of his followers. Again, there is perhaps too much acquiescence in some of the extreme views of Babinski, as, for example, that symptoms which cannot be suggested are not hysterical, a point of view not accepted by most authorities, who consider certain perhaps rare physiological phenomena, such as anuria, among those which may be produced by hysteria.

Radium and Radiotherapy. By WILLIAM S. NEWCOMET, M.D. Illustrated with 71 engravings. Philadelphia and New York: Lea and Febiger. 1914.

Hitherto the only important English works on radium have been the small manual by Dawson Turner, which was reviewed in the issue of the JOURNAL for May 18, 1911 (Vol. clxiv, p. 723), and Finzi's more elaborate book, reviewed in the issue of June 4 (Vol. clxx, p. 884). This new American volume by Newcomet devotes considerable space to the chemistry and physics of radium, thorium, and other radio-active elements in medicine and surgery. The details and mathematical calculations are largely omitted. The second part is devoted to physiology and therapeutics. The work is a valuable addition to the now growing English literature on the subject.

Black's Medical Dictionary. By JOHN D. COURIE, M.A., B.Sc., M.D., F.R.C.P., Edin. Fifth edition, completing thirty thousand. Containing 431 illustrations in the text, and 12 plates in color. New York: The Macmillan Company. London: Adam and Charles Black.

This fifth edition of a well-known Scottish work of reference maintains the merits of the original. It is rather an encyclopedia than a dictionary, and in its simple, popular method of giving information fulfils its intention for "district nurses, teachers, clergymen, ship-captains, colonists, and others." In the main, the book seems reliable; but when it says that "transfusion has almost completely fallen into disuse," it must be regarded as, in this respect at least, somewhat behind the times.

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MEDICAL EXPERT TESTIMONY.

For a long time past medical expert testimony has been notoriously a subject of contention and has been attended with so many abuses that it has in a very considerable measure been brought into disrepute. Many efforts have been made both by the medical and legal professions, acting through their representative bodies, to have the matter placed on a more satisfactory basis; but thus far without success. There is perhaps no one in this country better qualified to speak illuminatingly and with conviction on this subject than Dr. Reynold Webb Wilcox, for many years professor of medicine in the New York Post-Graduate Medical School and Hospital, not only on account of a knowledge of law possessed by few physicians, but also of his very extended personal experience as a medical expert. In his presidential address before the American Society of Medical Jurisprudence delivered in May, and published in the *Medical Times* for June, he gives expression to the fruits of his elaborate study and of his matured thought upon it. He first reviews the various abuses which have crept in to such an extent that today, as he says, not only is the value of expert testimony in furthering the ends of justice doubted, but its credibility assailed, and then indicates the remedies and possible methods by which their application may be secured.

He classifies the abuses as follows: 1. Built-up cases,—generally resulting from unexpected litigation where the patient has been under the care of an ordinary practitioner. 2. The hypothetical question, which may be improper in at least three ways: unscientific in language, misleading from lack of perspective, and dangerous in formulating conclusions. The unconscionable lengths to which some of these go obscure, by the insertion of so much that is irrelevant and immaterial, the real facts upon which a proper conclusion may be based. 3. The dual capacity of the medical expert. The combining of the two entirely distinct functions, that of medical counselor and that of medical expert, weakens the force and value of medical expert testimony. 4. Conclusions based upon the examination of others. If the alleged facts are untrustworthy and are inaccurately presented, the conclusion is more than likely to be misleading. 5. Contingent fees. 6. Cross-examination. This should be limited to the facts in evidence, and while a certain amount of latitude is permissible, and even desirable, the pettifogging methods sometimes adopted lead to the obscuration of important conclusions. The real medical expert, possessing absolute knowledge and having the courage of his convictions, generally, however, has little difficulty in bringing about the discomfiture of an ignorant or ill-bred attorney. For these abuses the legal profession has some responsibility; perhaps an equal share with the medical. So long as corrupt lawyers are ready to purchase corrupt medical testimony, this will be in the market; and so long as there is a debased moral sentiment in the community, just so long can this traffic go on without exciting severe criticism. Still, these flagrant lapses from correct and scientific conclusions, presented for the instruction of the court, are by no means all, or even in the majority of instances, the result of corrupt barter. Ignorance, much more frequently than venality, misleads the court and tends to the miscarriage of justice. This ignorance may show itself in many places: for instance, at the fountain-head, imperfect observations of witnesses of fact. Another and frequent cause of the failure of medical expert-testimony is the reaching of improper conclusions by experts. This may be due to their lack of general or special training in the field of the problem at issue, to their lack of experience in the particular subject matter under discussion, to their lack of the reasoning power required to deduce a proper conclusion from the premises established, or to their failure to observe a just perspective. The last cause of the discredit of medical expert testimony presented is the char-

acter of the juries frequently found in the courts. The crass ignorance of some juries is the despair alike of the bench and bar, and even more so of the conscientious, scientifically trained, and experienced expert; for the placing before such men of the results of years devoted to the investigation and practice of a subject upon which he speaks with absolute authority, while presenting his conclusions in a way which should be readily comprehended by a person of average intelligence, is simply casting pearls before swine. The reason for the incompetence of juries is to be found in the fact that such a large number of citizens who would make capable jurors are excluded from such service either by law or by act of the judiciary.

Such being the conditions, Dr. Wilcox proposes the following remedies: 1. In order that the conclusions reached by medical experts shall be just and fair, they should be based upon the facts as determined by competent examination. 2. The hypothetical question should be based upon proven facts, contain nothing but these facts, and be presented in the form of a brief. 3. Medical experts should be experts only, and not enter into the controversy in any other guise. 4. The medical expert should make a personal investigation of the symptoms and conduct a physical examination of the persons involved in litigation. If this is impossible there should be a preliminary consultation by the medical experts of both parties to the question at issue (Leeds' method). If either of these plans is impossible the medical expert should hear in court all the evidence presented, and formulate his opinion upon the official record, and upon that alone. 5. Champerty should be forbidden to the medical expert, as well as to the medical counsel, precisely as it is to the legal counsel. The method by which such remedies can be obtained has been discussed for many years, he says, with but indifferent success. Legislation, as might have been expected, has failed, as have the single and conjoined efforts of both bar associations and medical societies. He believes that the bench, without additional legislation, can do much to improve the quality of medical expert testimony. An experienced judge can accurately estimate the value of testimony and the credibility of a witness. If alert and decided, he can largely obviate such scandals as have marked the trial of many important cases, excluding incompetent and irrelevant testimony, keeping counsel within bounds in cross-examination, and shortening the duration of the cases. As he finally decides upon the eligibility of a juror, so also should he pass upon the qualifications of medical experts; it is well within the province of the bench to insist that they shall not be mere specialists, but shall have acquired a position of eminence in their profession and be competent to speak with authority.

Believing the definitions of eminence and authority set forth by the regents of the University of the State of New York to express the qualifications which the medical expert should possess, if he is to further the ends of justice, Dr. Wilcox formulates these concretely, in order that there may be a standard: 1. He must have been graduated from a college of good standing, maintaining rigorous methods in the granting of degrees. 2. He must have been graduated from a medical school of good equipment, with control of adequate clinical facilities, and which maintains a thorough course of instruction, to which are added severe tests for the granting of degrees. 3. He should have been engaged in the practice of medicine and surgery, as a general practitioner, for at least ten years. 4. He should have been engaged in special study and practice for at least five years, either in laboratory investigation or hospital practice. Finally, these qualifications must have been recognized by the holding of a teaching position in a medical school of recognized standing, by the authorship of a work of acknowledged value, and by membership in exclusive societies devoted to the investigation of a special branch of medical science. If, he says, the bench will insist upon these qualifications as a minimum, we shall have as medical experts mature men of trained mind, of broad general medical experience, and of excellent special knowledge, whose eminence and authority could not be questioned; and the unfortunate results of medical expert testimony, due to ignorance and incompetence, which comprise the greater portion, would be entirely prevented. It is to the bench that we look for the remedy of a notorious abuse.

YALE MEDICAL WORK IN CHINA.

IT has been a source of pleasure heretofore to call attention[1] to the work of American universities in medical lines in China. The establishment in China of academic and medical schools,

[1] Edit. March 26, 1914, p. 468.

hospitals and medical research institutions by university men of America is a distinctly modern and typically American line of social service which is receiving increasing attention. It represents the finest sentiment and is a step toward realizing the soundest aspirations of university medical men in this country. Such institutions, unfettered by restrictions of creed or dogma, but broadly Christian and in the broadest sense missionary, serve a three-fold purpose. They furnish to China when the opening is peculiarly favorable, the best of western medicine and medical education. They afford a unique opportunity to American university men and women to exercise a truly statesmanlike philanthropy, along lines in which all can join, irrespective of creed or lack of creed. Finally they maintain institutions capable of the greatest scientific productivity along most practical lines.

Such is the nature of the Changsha Yale Hospital, which is allied with the Yale College in China, at Changsha, the capital city of Hunan Province in Central China. This institution, founded ten years ago, was the pioneer of its kind, and the idea has proved so worthy and productive that it has spread to other universities besides Yale. In its location the Yale Hospital is peculiarly fortunate. It is on one of the southern tributaries of the Yangtze River, in latitude 28 degrees, about even with Tampa, in a city of near a half million people, the capital of a province with twenty-two millions. No other medical center is nearer than Hankow, two hundred miles away. The location and climate furnish in Changsha a rich and virgin field for research in tropical and general medicine, together with the wealth of clinical material always available in a Chinese city of this size and importance.

The Yale Hospital is supported by an incorporated society of Yale alumni and faculty at New Haven, with a strong medical advisory committee, including many of the most prominent physicians and surgeons in the United States. The hospital staff numbers three house physicians, and an attending staff of two American and two Chinese with American and English training. Two hospitals are maintained for men and women respectively, and in each is a nurses' training school under the supervision of two American registered nurses. Fully equipped clinical and research laboratories are in operation.

Figures stating total numbers treated in clinic and hospital are not of special value in themselves. It is of interest, however, to note that in the year ending March 31, 1914, the women's hospital alone with less than fifty beds, received 320 in-patients whose average stay in the hospital was 20.6 days, and that 15,550 out-patients were treated in the clinic. Tuberculosis in all forms is the commonest disease, closely followed by syphilis, typhoid, dysentery, and the usual variety also seen in America. In addition, the sub-tropical location is responsible for an excellent service in tropical diseases. Special studies are now being conducted on the incidence and control of kala azar, schistosomiasis, malaria and other parasitic affections. The ophthalmologic, surgical and gynecological services are particularly varied.

Hunan is a great mining province, and ninety miles from Changsha is the Ping Hsiang colliery, the largest in China, producing 2500 tons of coal per day. A recent investigation[2] by a member of the Yale Hospital staff showed an almost universal incidence of hookworm in the miners, and brought out certain sanitary features of the colliery as well as of the numerous native mines, which are decidedly favorable to the development of parasitic and epidemic diseases. A study of hookworm incidence in Changsha itself showed an infection rate of 11.6% in 120 unselected cases from various occupations. The field for productive research is limitless. At present the chief emphasis is on outlining the general incidence and significance of the more common and serious diseases.

The Yale Hospital at present is housed in native buildings in the center of the city. In another year, however, a new hospital of 120 beds will be completed on a campus outside the city wall. This new structure, to cost $200,000, will be among the best equipped for medical practice, research and teaching, in all Asia.

At the initiative of the Chinese, arrangements are being consummated for a modern school of medicine in Changsha, to be operated in cooperation by the Chinese and by Yale. The Hunan provincial government will furnish land, buildings, equipment and operating expenses. Yale will furnish the staff and conduct the institution. This plan has full approval and support from the Peking government. Never before has such a merger been effected and that the initiative should come from the Chinese is signifi-

[2] Reed, A. C.: Investigation of Hookworm Infection at the Ping Hsiang Colliery. To appear in [illegible] Journal of Tropical Medicine, Far Eastern Review, and elsewhere.

cant of their attitude toward Western medicine.

The medical work of American universities in China forms an interesting and pleasing chapter, not alone in the modern development of China, but equally in the social and scientific life of the medical profession of this country, and one which every physician can peruse with pride and advantage.

MEDICAL NOTES.

LEGISLATION ON TUBERCULOSIS.—Legislation dealing with tuberculosis has been enacted in forty-eight states and territories of the United States, according to a comprehensive bulletin on this subject published by The National Association for the Study and Prevention of Tuberculosis. Only in the states of Arizona, Idaho, Nevada, Wyoming, and Alaska, has the subject been given no legislative consideration. State tuberculosis sanatoria to the number of forty-two have been established in thirty-three different states. Special laws providing for the establishment of local hospitals by municipalities or counties have been passed in fourteen states. In thirty-four states, laws are in force providing for the reporting and registration of living cases of tuberculosis. In four states, New York, New Jersey, Wisconsin, and Minnesota, special laws have been enacted giving state and local health authorities power to remove and detain tuberculous persons who menace the health of their families or associates. Six states, Illinois, Iowa, Missouri, Minnesota, New York, and Texas, have laws which give the people the privilege of voting at general or special elections on the establishment of county or municipal tuberculosis hospitals. Massachusetts, Minnesota, New Jersey, Wisconsin, and Washington grant subsidies ranging from $3.00 to $5.00 per week to such local hospitals. Laws prohibiting spitting in public places have been enacted in more than twenty states.

THE STERILIZATION OF DEFECTIVES.—It has recently been held by the New Jersey Supreme Court that the statute in that state authorizing and providing for the sterilization of criminals, feeble-minded and other defectives is invalid on the ground that it was "based upon a classification that bore no reasonable relation to the object of such police regulation, and hence denied to the individuals of the class so selected the equal protection of the laws guaranteed by the Fourteenth Amendment to the Constitution of the United States. The artificial regulation of the welfare of society by means of surgical operations for the prevention of procreation, being based upon the suppression of the personal liberty of individuals, must be accomplished, if at all, by a statute extending to the persons thus injuriously affected such equal protection of the laws." (See page 19 *New York Medical Record*, July 4, 1914.) The United States District Judge of the Southern District of Iowa declared unconstitutional, and therefore null and void, the law passed by the last General Assembly of Iowa providing for the sterilization of criminals. This decision was based on the belief that the penalty was in violation of the Constitution that cruel and unusual punishment shall not be inflicted. (See *New York Medical Record*, page 23, July 4, 1914).

THE AMERICAN ROENTGEN RAY SOCIETY.—The American Roentgen Ray Society will meet in Cleveland at the Hotel Hollenden, on Sept. 9 to 12, inclusive, 1914. The program promises to be of unusual interest and value, and includes a paper by Dessauer, of Frankfort, on the subject of artificial production of gamma rays. Coolidge, the inventor of the Coolidge tube, Shearer and Duanne will also read papers. The subject of deep therapy and the production of the hard rays will be fully presented and discussed. The rest of the program will be taken up by a large number of papers on general subjects. The medical profession is cordially invited to attend these meetings.

A SERENE BRITISH CENTENARIAN.—Mrs. Rebecca Clark, who died on July 5 at Wood Green, London, is said to have been born in 1804. She is survived by three aged children and four grandchildren. Her recipe for longevity was "Never Worry."

A PARISIAN PYGOPAGOTOMY.—On May 22 a living pygopagus was born in Paris, and on July 16 the twins were successfully separated at the American Hospital. The sacra were found fused and the recta united for their distal inch. Both children are females and are reported to be doing well.

Antityphoid Inoculation in the Mexican Army.—Report from El Paso, Texas, on July 17 states that all officers of the northern division of the Mexican constitutionalist army, under General Villa, have received antityphoid inoculation. General Ortega has recently died of typhoid fever, and General Benevida is reported seriously ill with the disease.

Honorary Degrees for Physicians.—The Birmingham Medical College of the University of Alabama has recently conferred the honorary degree of M.D. on Dr. A. Richard Bliss, Jr., professor of chemistry and pharmacology at the university.

The University of Groningen, Germany, at the recent celebration of its tricentennial, conferred the honorary degree of M.D. on Sir Edward Schaefer, of Edinburgh, and Prof. J. N. Langley, of Cambridge, England.

Hamburg Laboratory for Tropical Diseases.—A laboratory for maritime and tropical diseases has recently been established in Hamburg, Germany, at a cost of 2,500,000 marks, and opened under the direction of Professor Nocht.

Viennese Institute of Medical History.—An institute for the history of medicine, recently established at the University of Vienna, has acquired within a year a library of 3000 volumes, and a large collection of letters, manuscripts and instruments.

Royal Society Research Endowment.—The Misses L. E. and M. W. Lawrence have recently given to the British Royal Society the sum of £4000, the interest of which is to be devoted to research into the causes and cure of disease in man and animals, in memory of Sir W. Lawrence, F.R.S., and Sir Trevor Lawrence.

Three Important European Medical Meetings.—During the current week, three important medical meetings are being held in Europe. The fifth annual session of the Clinical Congress of Surgeons of North America is in progress at London, under the presidency of Dr. George Emerson Brewer, Dr. John B. Murphy being the president-elect, and Sir Rickman J. Godlee the honorary chairman. The seventh International Congress of Electrology and Medical Radiology is in session at Lyons, France, under the presidency of Professor Renaut. The eighty-second annual meeting of the British Medical Association is being held, under the presidency of Sir Alexander Ogston, K.C.V.O., LL.D., at Aberdeen, Scotland. Further account of these meetings will appear in later issues of the Journal.

BOSTON AND NEW ENGLAND.

Middlesex East District Medical Society.—The Middlesex East District Medical Society was organized in 1850, and since that time has held monthly meetings regularly, save during the usual vacation periods. It now has 78 members.

Work of Milk and Baby Hygiene Association.—During the five weeks from June 13 to July 17, 1684 babies were receiving medical and nursing care at the twelve milk stations of the Boston Milk and Baby Hygiene Association. This is an increase of 393 babies, or thirty per cent., over the corresponding period in 1913. Attendance during this period at the well baby clinics, held weekly in the milk stations, was 2052 babies, an average of 32 for each clinic. A year ago, from June 12 to July 16, the attendance was 1408 babies, an average of twenty-six for each "baby conference."

A Centenarian.—Mrs. Barbara Maykel, who died on June 22 at Worcester, Mass., is said to have been born in 1810 in Syria.

Hospital Bequests.—The will of the late Matilda H. Crocker, of Brookline, Mass., which was allowed on July 22 in the Norfolk Probate Court at Dedham, Mass., contains bequests of $20,000 to the New England Hospital for Women and Children, and $250 to the Hospital Cottages for Children at Baldwinsville, Mass.

Chelsea Board of Health.—The recently published annual report of the board of health of Chelsea, Mass., records the activities of that body for the calendar year 1913. During this period the total death-rate, exclusive of non-resident deaths, was only 12 per 1000. A small epidemic of typhoid fever was traced to a carrier on a local milk farm. The reports of the health officer and of the inspector of milk and plumbing are appended.

Massachusetts Hospitals for Consumptives.—The recently published seventh annual report of the trustees of Massachusetts Hospitals for

Consumptives records the activities of that body and the work of the four state institutions under its charge for the year ended Nov. 30, 1913. During this period 323 new patients were admitted to the North Reading Sanatorium, 370 to the Lakeville Sanatorium, 273 to the Westfield Sanatorium, and 449 to the Rutland Sanatorium. There is a waiting list of over 200 applicants for admission, enough to fill another institution of similar size. New local tuberculosis hospitals have been built in Chicopee, Fitchburg, Haverhill, Pittsfield, and Salem.

BROCKTON HOSPITAL AND BOARD OF HEALTH.—The recently published 18th annual report of the Brockton (Mass.) Hospital records the work and progress of that institution for the calendar year 1913. During this period 1,024 patients were treated in the wards and 297 in the out-patient department, with a mortality of 6.6%. There were 48 obstetric cases, and 7 nurses were graduated from the training school. There is urgent need of increased house accommodation for patients and nurses, and for enlargement of the quarters of the maternity and out-patient departments.

The Brockton Health Department, in its effort to reduce the amount of endemic venereal disease, has recently sent the following circular to all physicians in that city:—

"This department, being of the opinion that venereal diseases are infectious, communicable and preventable, and constitute a serious menace to the public health, has decided to furnish facilities for aid in the diagnosis and treatment of such diseases.

"As venereal diseases have not as yet been placed in the list of diseases required by the State Board of Health to be reported, this board will not require local physicians to furnish the names and addresses of patients; and, on the other hand, owing to the expense of installing the facilities for such tests, it will be necessary to make a merely nominal charge for the service required.

"The facilities furnished will comprise: first, the Wassermann test for diagnosis of syphilis, in which a positive reaction is now generally accepted as evidence of luetic infection and an indication of necessity of specific treatment; and, second, the complement fixation test for chronic gonorrhœal affections, which is highly useful as a control or differential diagnosis between the various pathological conditions following an acute attack of gonorrhea and similar conditions due to other causes.

"A special private room has been equipped at the laboratory of the department for collecting the blood of patients sent for that purpose by the physicians of this city. This will be done on Mondays and Tuesdays only, between the hours of 10 a. m. and 5 p. m., beginning the third Monday in June (June 15), 1914.

"For those physicians who may desire to obtain the blood from the patients themselves an outfit will be supplied upon request at the office of the board of health. As this outfit is more expensive than the ordinary bacteriological specimen outfit, a charge of twenty-five cents will be made for each outfit supplied. For the making of the tests an additional charge of two dollars will be made. If the patient is sent to the laboratory, as noted above, no charges for the outfit will be made. When the diseases are placed upon the reportable list our charge for the test will at once be discontinued."

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending July 21, 1914, are as follows: Diphtheria, 47, of which 1 was non-resident; scarlatina, 23, of which 3 were non-residents; typhoid fever, 3; measles, 50, of which 1 was non-resident; tuberculosis, 41, of which 1 was non-resident.

The death-rate of the reported deaths for the week was 12.71.

NEW YORK.

MORTALITY STATISTICS.—The weekly reports of the health department show that during the month of June the mortality represented an annual death-rate of 11.97, as against 12.75; 14.67 in May and 12.45 in June, 1913. In practically all diseases,—an unprecedented circumstance,—there was a decrease in fatality. The weekly average of deaths from typhoid fever declined from 6.75 in May to 4.75 in June; the weekly average from measles, from 24.75 to 19; from scarlet fever, from 16 to 10.5; from whooping-cough, from 6.75 to 5.25; from diphtheria and croup, from 38.25 to 27.25; from influenza, from 3 to 1.25; from epidemic cerbrospinal meningitis, from 8 to 7; from pulmonary tuberculosis, from 180.5 to 169; from pneumonia, from 113 to 72.75; from broncho-pneumonia, from 110.25 to 81.5; from tuberculous meningitis, from 20.25 to 17.25; from cancer, from 91 to 80; from apoplexy and softening of the brain, from 22.5 to 15.25; from organic heart diseases, from 213.25 to 142.75; from diarrheal diseases under five years, from 42.75 to 37; from appendicitis and typhilitis, from 15.25 to 13.25; from hernia and intestinal obstruction, from 11 to 10.25; from cirrhosis of the liver, from 15.75 to 12.75;

from Bright's disease and acute nephritis, from 117.25 to 114.75; and from puerperal diseases, from 14.25 to 12.25.

Micro-copical Diagnosis of Cancer.—A few weeks ago the City Health Department was asked by the American Society for the Control of Cancer to take into consideration the provision of laboratory facilities for the microscopical diagnosis of cancer. The department did this, but in view of the fact that the State Institute for the Study of Malignant Disease, at Buffalo, is already equipped for this work, decided to take no action in the matter. In a communication addressed to Commissioner Goldwater, Dr. Harvey R. Gaylord, director of the institute, has writtten: "There is no special obligation laid upon this institute by any enactment to undertake the diagnosis of all cancer cases in the state, but we are perfectly willing and desirous of so doing, and would be glad to diagnose all cases from the city of New York sent here. It is probably true that the practitioners of the state do not generally understand that the institute is prepared to diagnose material, and doubtless none of the physicians of New York City are aware of the opportunity."

Smoke Ordinance.—The Court of Special Sessions, County and Borough of the Bronx, has recently rendered a very important decision involving a violation of Section 181 of the Sanitary Code, commonly known as the "smoke ordinance." The Department of Health instituted a criminal action against the New York, New Haven and Hartford Railroad Company, charging a violation of this ordinance, in that the company allowed dense smoke to be discharged from its locomotives in the borough of the Bronx; and the court found the defendant guilty and affixed the maximum penalty,—a fine of $500. This is the first conviction of the kind obtained against a railroad company since the Appellate Division of the Supreme Court reversed the decision in the New York Central case, and in the action which it took the court has determined that the evidence submitted by the Health Department met all the conditions imposed by the Appellate Division. In deciding as it did, the court holds that the defendant was making an unreasonable use of its premises, a view which sustains the contention of the department in every respect; and the department is now in a position to take drastic action in like cases throughout the city.

Social Betterment.—Seventy years of social betterment under the most difficult conditions of modern city life are summarized in the last annual report of the New York Association for Improving the Condition of the Poor. In the beginning of its existence, the lame, the halt, the blind, the sick and infirm, the defectives, idiots and insane, and often the criminals, were herded together, amid the most debased and debasing surroundings, in the county almshouses. Little better off were the tenement-house poor in their wretched, unsanitary, dark and dirty quarters, —no running water, no sewage, no drainage,— streets filled with filth, and pigs the only scavengers; epidemics of smallpox, yellow fever and cholera; no organized system for supplying the indigent sick with medical aid, nothing done to prevent or stamp out disease; children growing up in ignorance, profligacy and crime, and no systematic measures for their rescue or protection; no thought taken for infants, the milk supply coming from herds of cows huddled together in filthy pens and subsisting on swill from the breweries. In the midst of such surroundings the association came into being, and immediately after its inception began to devise far-reaching plans for improving social conditions. It conducted extensive and thoroughgoing investigations, marshalling facts in a striking and convincing manner; it called the attention of the public to the wretched sanitary conditions of the tenements, pointing out how they affected the occupants injuriously; it began the first organized effort in the city to improve public health; it organized a system for supplying the indigent sick with medical aid and a propaganda for sanitation and hygiene; it devised a plan to protect the community against cholera; it projected improvements in the city's markets; it established a hospital for crippled children; it brought to public notice the great number of children growing up in ignorance and crime; it promoted legislation to provide for the care of truant children; it stimulated the organization of societies like the Children's Aid Society; it secured the passage of an act to prevent milk adulteration and the traffic in impure and unwholesome milk; it carried on a warfare against slaughter houses and bone-boiling establishments as dangerous to public health; it projected the Juvenile Orphan Asylum and founded the De Milt and Northwestern Dispensaries; and it started the first model dwellings,

including the first tuberculosis home hospital, the "East River Homes."

REQUEST TO FOUND HOME FOR AGED.—By the will of the late Miss D. Louise Shipley of Peekskill, N. Y., the principal of her estate, amounting to about $100,000, is left to the Associated Charities of Peekskill to found a home for the aged, to be known as the Shipley Memorial.

Current Literature

MEDICAL RECORD.

JUNE 27, 1914.

1 VAUGHN, V. C. *The Service of Medicine to Civilization.*
2. COLEMAN, W., AND HARTWELL, J. A. *Splenectomy for Pernicious Anemia. Report of a Case.*
3 MAYER, E. *Primary Lupus of the Larynx.*
4 BALLARD, I. W. *Arterial Hypertension: Its Clinical Significance and Latter Day Treatment.*
5 COOPERNAIL, G. P. *Varix of the Internal Saphenous Vein Resembling a Strangulated Femoral Hernia.*

JULY 4, 1914.

1. BACON, G. *Laboratory Aids in the Diagnosis of Acute Mastoid Diseases Due to Acute Purulent Otitis Media.*
2 FISHBERG, M. *Sources of Error in the Diagnosis of Pulmonary Tuberculosis.*
3. KOLIPINSKI, L. *William Withering and His Book on the Foxglove.*
4 BLOCK, S. *Psychological Aspects of the Relation of Divorce, Accidents, Crime, etc., to Mental Defects.*
5 TWEEDELL, F. *Cause and Prevention of Pyorrhea Alveolaris and Furunculosis.*
6 *BERLIN, W. C. K. *Arterial Hypertension: Its Relation to Arteriosclerosis and Bright's Disease.*
7 GARDINER, J. *Wound Healing with the Aid of Vaccines.*

6. Berlin believes that arterial hypertension, arteriosclerosis and Bright's disease are entirely independent of each other. Hypertension is always due to toxemia, arteriosclerosis may be caused by altered metabolism or by toxemias, while Bright's disease is always due to infection. The writer reports six cases in support of his contention. [L. D. C.]

JULY 11, 1914.

1 *WRIGHT, B. L. *The Treatment of Diseases of Vegetable Parasitic Origin by Deep Muscular Injections of Mercury.*
2 FISSELL, J. B. *Some Radium Therapeutics.*
3 TAYLOR, E. W. *Cow's Milk, Raw and Heated.*
4 BALDWIN, L. G. *The Pharyngeal Tonsil in the Adult.*
7 BARNEY, W. S. *Modified and Conservative Radical Mastoid Operations for Tolerance of Prosthetic Aid in Cases of Diminished Hearing after Middle Ear Suppuration.*
6. NEUHOF, S. *A Case of Auricular Flutter Occurring During Rheumatic Endocarditis.*
7. FRAZER, T. *Mental and Nervous Manifestations of Pellagra.*
8 GOLDSTONE, K. H. *The Physiology of Abderhalden's Test, Its Value in the Determination of Pregnancy, with a Table of Ninety Cases.*

1. Wright reports further clinical experiments with intramuscular injections of mercury in tuberculosis and in several other diseases of vegetable parasitic origin,—pneumonia, typhoid fever, meningitis, erysipelas, articular rheumatism and gonococcus arthritis. His results confirm his theory that mercury is the chemical affinity of the tubercle bacillus and probably of all the vegetable parasites. Injection of this affinity into the host will promptly cure the disease caused by the specific parasite, the action being represented by this formula: (Vegetable antigen + Hg) + antibody + complement = complement fixation (cure). Mercury should be given in the largest dose possible at the earliest possible moment after onset of the disease. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

JULY 11, 1914.

1. CRANDALL, F. M. *The Treatment of the Summer Diarrheas of Children.*
2. THOMAS, T. T. *Obstetrical Paralysis.*
3. *LYDSTON, G. F. *Transplantation of a Testicle from the Dead to the Living Body.*
4. MAYS, T. J. *A Plea for Saner Methods in the Treatment of Pulmonary Consumption.*
5. GOODHART, S. P. *Myasthenia Gravis.*
6. SANFORD, C. H., AND FITZSIMMONS, H. *A Combined Fracture and Orthopedic Operating Table.*
7. DEFOREST, H. P. *Hygiene of Nutrition.*
8. GEYSER, A. C. *The Physiological Treatment of Catarrhal Deafness.*
9. BLAUNER, S. A. *Hereditary Cerebellar Ataxia.*
10. CHERRY, T. H. *Hourglass Contraction of the Uterus Following the Use of Pituitary Extract.*

3. Lydston presents a preliminary paper on sex gland hormone therapy, reporting a case in which extensive psoriasis disappeared in eight days after implantation in the scrotal sac of a testicle removed from a healthy subject killed forty hours previously by an electric shock. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JULY 11, 1914.

1. SUTTON, R. L. *The Future of Dermatology in America.*
2. *OPIE, E. L., AND ALFFORD, L. B. *The Influence of Diet on the Toxicity of Substances which Produce Lesions of the Liver or the Kidney.*
3. WILE, U. J. *The Technic of the Intradural Injections of Neosalvarsan in Syphilis of the Nervous System. Report of Cases.*
4. *LOWDERMILK, R. C. *Hay-Fever.*
5. *HARTWELL, H. F. *The Isolation of Spirocheta Pallida from the Blood in Syphilis.*
6. SAPPINGTON, S. W., AND PEARSON, W. A. *The Leukemias under Benzol. A Report of Three Cases with a Metabolism Study of an Acute Leukemia.*
7. *HENES, E., JR. *The Value of the Determination of the Cholesterin Content of the Blood in the Diagnosis of Cholelithiasis. Preliminary Report.*
8. BOORSTEIN, S. W. *Dystrophia Adiposo Genitalis (of Froehlich) with Clinical Reports of Two Cases.*
9. JERVEY, J. W. *The Influence of Hookworm Disease on the Eyes. A Study of Fifty-Three Cases.*
10. ILL, E. J. *The Treatment of Albuminuria in Pregnancy.*
11. RONGY, A. J. *Treatment of the Toxemias of Pregnancy.*
12. STANLEY, C. *Mold Fungi, Streptothrix Foersteri, Recovered from the Gastric Contents.*

2. The authors conclude as follows: The toxicity of phosphorus, which causes fatty degeneration of the liver, is greater in animals which have received a diet of meat than in those which have had diets consisting in large part of carbohydrates or of fat. Animals on a diet rich in carbohydrates are much less susceptible to nephritis produced by potassium chromate and uranium nitrate than animals on a diet consisting of meat or of fat. A diet of meat increases the toxicity of potassium chromate, which produces necrosis of the convoluted tubules of the kidney, and a diet of fat increases the toxicity of uranium nitrate, which alters the loops of Henle and produces nephritis.

4. Lowdermilk describes the preparation of his hay fever toxin, its dosage and administration. He had 16 cures out of 19 cases.

5. Hartwell, using the blood of early cases of syphilis, injected into rabbits' testicles, shows that the spirocheta pallida invades the peripheral blood at an early stage and shows syphilis as a chronic septicemia and that the blood stream is invaded at an early stage, even before the skin manifestations are evident.

7. Henes finds that almost all gall-stones are formed largely, if not entirely, of cholesterin. A hypercholesterinemia seems to be the fundamental and primary etiologic factor in the formation of gall-stones, and this condition of the blood is easily determined. In cases of cholelithiasis without fever, a hypercholesterinemia is invariably found. Conditions simulating cholelithiasis can be differentiated therefrom by a cholesterin-serum determination. This applies particularly in differentiating duodenal ulcer. This hypercholesterinemia or cholelithiasis persists for a considerable length of time after the operative removal of the stones. The author states, with reservation, that operation without removal of the gall-bladder does not free the patient from the possibility of subsequent stone formation. [E. H. R.]

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.

JULY, 1914.

1. *Slemons, J. M. *The Involution of the Uterus and Its Effect upon the Nitrogen Output of the Urine.*
2. Brown, T. R. *The Normal Amount of Diastatic Ferment in the Feces and Its Variation in Certain Diseases of the Pancreas and in Achylia Gastrica.*
3. *Mann, F. C. *The Peripheral Origin of Surgical Shock.*
4. Brown, T. R., and Smith, C. W., Jr. *The Normal Diastase Content of the Urine.*

1. Slemons finds that the process of uterine involution causes a rise in the urinary nitrogen and that the amount of excessive elimination corresponds to the nitrogenous content of the non-involuted uterus.

3. Mann finds it impossible to produce shock in anesthetized animals by any external sensory stimulation; shock is not due to acapnia, nor to any respiratory disturbance, nor to primary failure of the heart, or cardiac mechanism. It is possible to produce shock by use of excessive heat or cold. The easiest and most certain way to produce shock is by handling the viscera. The cause of shock is the loss of red cells and fluid from the blood. The paper represents an immense amount of work and is worthy of careful study. [J. B. H.]

SURGERY, GYNECOLOGY AND OBSTETRICS.

JULY, 1914.

1. *Torek, F. *Interpleural Pneumolysis. An Operative Procedure in Pulmonary Tuberculosis.*
2. Moore, J. E., and Corbett, J. F. *Studies on the Function of the Periosteum.*
3. *Henze, C. W., and Mayer, L. *An Experimental Study of Silk-Tendon Plastics, with Particular Reference to the Prevention of Post-Operative Adhesions.*
4. *Curtis, A. H. *On the Pathology and Treatment of Chronic Leucorrhea.*
5. Bratrud, T. *Intestinal Polyposis with Report of Case with Three Intussusceptions.*
6. Chetwood, C. H. *Pyonephrosis.*
7. Barbe, G. *Hemorrhagic Osteomyelitis.* Hillman, O. S. *With Observations on Its Pathology.*
8. Strassmann, P. *The Prevention and Treatment of Pelvic Adhesions.*
9. Seifert, M. J. *Arteriovenous (Varicose) Aneurysm of the Deep Epigastric Artery and Vein.*
10. Merrill, W. J. *Tarsalgia.*
11. Speed, K. *A Discussion of Pott's Fracture with Complications; Based on a Series of Two Hundred and Eight Cases.*
12. Nagel, W. *Placenta Previa and Its Treatment.*
13. Squier, J. B., and Heyd, G. G. *An Operative Technic for Radical Extirpation of Vesical Neoplasms.*
14. Reder, F. *Remarks on the Surgery of the Ileocecal Coil.*
15. Beck, J. C. *The Evolution of the Tonsil and Adenoid Operation, and a Description of the Writer's Method of Procedure.*
16. Freeman, L. *The Use of the Wire Tourniquet in Operations for Goiter.*
17. Bryan, W. A. *Two-Time Treatment of Encysted Peritoneal Abscesses.*
18. Marshall, V. F. *Autogenous Fascial Transplantation.*
19. Swenson, C. G. *Demonstration of a Universal Extension Apparatus Applied to a Surgical Bed.*
20. Freiberg, A. H. *A Modification of Abbott's Frame for Applying Scoliosis Jackets.*
21. Hanan, J. T. *Sliding Splint of Plaster of Paris for Fractured Femur.*
22. Underhill, A. J. *Dilatation of an Otherwise Impassable Stricture by the Retrograde Passage of a Filiform Guide.*

1. Torek describes his operation of pneumolysis for producing collapse of the diseased lung by freeing of intrapleural adhesions in such cases as are not suitable for nitrogen introduction. He illustrates by one personal case.

3. This excellent and very thorough article is a very exhaustive study of the use of silk tendons. The authors claim that the only reasonable way to prevent adhesions is to run the transplanted tendon through the sheath of the paralyzed. All efforts by interposing living tissues or foreign bodies defeat their own end by exciting adhesions. The one possible exception is Cargile's membrane.

4. Curtis feels that direct treatment of the endometrium in chronic leucorrhea can be dispensed with. In unusual cases dilatation for drainage, possibly aided by topical applications, is logical treatment. Curettement of the uterine cavity, douches, and tampons are probably harmful. Purulent discharges originate, as a rule, in the lower genital tract. Autogenous vaccines may be of distinct value in certain cases. [E. H. R.]

THE LANCET.

JUNE 20, 1914.

1. Shufflebotham, F. *The Milroy Lectures on the Hygienic Aspect of the Coal Mining Industry in the United Kingdom. Lecture II.*
2. Robinson, H. B. *Calculi in the Common Bile Duct; Transduodenal Choledochotomy.*

3. FRASER, M. H. *Notes on Two Cases of Veronal Poisoning.*
4. LITTLE, E. M. *Boots and Shoes from Historical and Surgical Point of View.*
5. TREFFELL, C. E., AND THOMPSON, R. *Three Cases of Malignant Growth at the Base of the Bladder Treated by Diathermy.*
6. UBSDMAN, C. W. *Aneurism in Cerebellar Peduncle; Fatal Intracranial Hemorrhage.*
7. BROOKBIE, A. W. *A Case of Septicemic Purpura.*
8. SEDDELL, R. *Report of Three Cases of Advanced Extra-uterine Pregnancy.*
9. EVERIDGE, J. *A Case of Non-Parasitic Cyst of the Liver.*
10. HULL, A. J. *The Transport of Wounded in War.*

JUNE 27, 1914.

1. SHUFFLEBOTHAM, F. *The Milroy Lectures on the Hygienic Aspects of the Coal Mining Industry in the United Kingdom. Lecture III.*
2. *COURTNEY, J. B. *The Treatment of Leprosy by Intravenous Injections of Iodoform.*
3. GRANT, J. W. G. *Some Cases of Traumatic Hysteria.*
4. LEGGETT, W. *Mental Symptoms Associated with Exophthalmic Goitre.*
5. SANDESON, A. *A Case of Fibrosis of Lung Treated with Bacillus Friedlander Vaccine.*
6. PARUS, F. C. *A Case of Acute Non-Calculous Cholecystitis in a Child.*
7. WICKENDEN, S. *A Case of Gall-stone Causing Intestinal Obstruction.*

2. Courtney reports good results in treating leprosy by intravenous and local injections of iodoform. He urges further trial of this method. [J. B. H.]

BRITISH MEDICAL JOURNAL.

JUNE 20, 1914.

1. *WEST, S. *On the Murmurs in Dilated Hearts and Their Examinations.*
2. *PRICE, F. W. *Common Errors in Diagnosis and Treatment of Cardiac Diseases.*
3. *SYMES, W. L. *On Tincture of Digitalis (B. P.): Its Activity and Stability.*
4. GOSSE, A. H. *A Case of Acute Rheumatic Heart Block.*
5. BRADDON, W. L., AND COOPER, E. A. *The Influence of the Total Fuel Value of a Dietary upon the Quantity of Vitamine Required to Prevent Beriberi.*
6. COBB, I. G. *A Case of Hypothyroidism in a Male.*
7. TURNBULL, A. *Cerebral Cyst Without Localizing Symptoms.*
8. RENTON, J. C. *Notes of a Case of Contraction of the Upper and Lower Limbs after Still's Disease.*

1. West first considers the conditions under which murmurs occur in dilated vessels, arteries and veins, taking up fusiform dilatation, which he calls "mimic aneurysms," true fusiform aneurysms, and saccular aneurysms. The second group of conditions which may cause the eddies necessary for the murmur is that in which the vessel is constricted, leaving a dilatation relative or absolute, above and below. This may be due to external pressure or disease of its walls. In the heart conditions similar to the above may exist. Such murmurs are called basic or ventricular. The basic murmurs are generally called "hemic" or "functional," both of which terms West considers to be bad ones. He discusses these murmurs in detail. He then takes up the more important group of ventricular murmurs. These are either left sided or mitral or right sided or tricuspid. He is of the opinion that such murmurs are not valvular or regurgitant, but are really due to eddies within the dilated ventricles.

2. Price discusses in an interesting and instructive article, rheumatic infection of childhood and the various forms it takes, cardiac irregularity and its significance, the need of more careful study of the symptoms of cardiac disease, and particularly that the natural standard of cardiac strength varies in each individual and that symptoms of cardiac disease may arise from extrinsic or temporary causes such as anemia, lack of exercise, etc. He then discusses various fallacies in treatment, particularly as to the use and abuse of digitalis.

3. Symes finds that few tinctures of digitalis are initially below standard but that initially they may vary 200-300%. All such tinctures undergo constant deterioration. Commercial non-alcoholic tinctures are not trustworthy. [J. B. H.]

JUNE 27, 1914.

1. ELLIOTT, T. R. *The Sidney Ringer Memorial Lecture on the Adrenal Glands.*
2. *WHIPHAM, T. R. C. *An Address on Some Clinical Aspects of the Body Temperature in Childhood.*
3. *HURRY, J. B. *The Vicious Circles of Neurasthenia.*
4. *PICKERELL, H. P. *Internal Secretions and Dental Caries: with Special Reference to Thyroid Insufficiency.*

2. Discussing body temperature in childhood under various conditions, Whipham takes up sick normal temperature and its cause, and fevers due to (1) intestinal toxemia of bacterial origin or due to improper food, (2) general toxemias (bacterial), (3) auto-intoxication, and (4) obscure causation, such as muscular activity, reflex irritation, etc. He gives some practical points on treatment.

3. Hurry takes up in terse and diagrammatic style, the various vicious circles in neurasthenia and how they may be broken by psychotherapy and constitutional and local treatment.

4. Pickerell believes that there is some evidence to show that deficiencies of secretions of the thyroid and perhaps of the pituitary and thymus glands are concerned in the lowering of the tissue resistance to dental caries. [J. B. H.]

THE INDIAN MEDICAL GAZETTE.

JUNE, 1914.

1. HOLLAND, H. T. *Observations on a Thousand Cataracts Performed in Six Weeks at Shikarpur, North Sindh.*
2. BAIRD, R. *Two Years' Experience of Extraction of Cataracts in the Capsule, with Notes on Eleven Hundred and Thirty-Seven Consecutive Operations.*
3. NEWMAN, E. A. R. *Irrigation after Extracapsular Extraction of Cataract.*
4. MILNE, C. *The Thyroid Gland and Some Cases of Hypothyroidism.*
5. CADDY, A. *A Few Notes on the Presence of Catarrhal Jaundice in Calcutta.*
6. HAÑMOND, F. A. L. *A Case of Ruptured Spleen; Splenectomy; Recovery.*
7. GOSAIN, C. L. *A Case of Rupture of the Spleen.*
8. MADDOCK, C. *Notes of Cases Treated in the Ripon Hospital, Ahmednagar.*
9. WILSON, F. E., AND BARBER, C. H. *Peritoneal Cyst of Traumatic Origin, and Other Cases.*
10. FRANKLIN, G. D. *A Case of Simple, Non-Infective Thrombosis.*
11. WALKER, W. O. *An Interesting Case of Psoas Abscess Treated by Injections of Pneumococcal Vaccine.*

Edinburgh Medical Journal.

July, 1914.

1. *Dunlop, H. G. M. *Empyema in Children.*
2. Hart, D. B. *A New Route of Inquiry as to the Nature and Establishment of the Typical Sex-Ensemble in the Mammalia. I.*
3. *McNeil, C. *Anaphylaxis and Status Lymphaticus. Their Relation to Intensified Types of Disease in Infancy and Childhood. I.*
4. Grieg, D. M. *Recurrent Luxation of the Patella.*
5. Lea, C. E. *Dr. Thomas Spens: the First Describer of the Stokes-Adams' Syndrome.*
6. Kerr, C. *Case of Chronic Primary Pneumococcal Cerebrospinal Meningitis.*

1. This is based on 98 cases of empyema occurring in 861 cases of pneumonia in children. The younger the child the more purulent the fluid. Pneumococcus was the infecting agent in 53% and lobar pneumonia the cause in 69%. The signs and symptoms are discussed in detail. Purulent pericarditis was the commonest complication, being present in 40%. Diagnosis is often very difficult, displacement of the heart being the most important sign. There was a mortality of 19% in this series. Treatment is to remove the pus at once.

3. McNeil, in this first paper, discusses the proposition that those abnormal types of illness which we term "fulminant" are clinical illustrations of anaphylaxis; that status lymphaticus is a form of anaphylaxis, and that other fulminant types of illness in young people may be anaphylactic, and also explained by abnormal constitution. These difficult subjects he takes up in detail. [J. B. H.]

Miscellany.

MEDICAL EDUCATION IN CHINA.

The Rockefeller Commission, which has been recently investigating medical education in China, finds that it is of extreme importance to teach the Chinese to treat themselves and not to rely altogether upon foreign physicians.

"The commission, which is represented at Pekin by Dr. Harry Pratt Judson, president of the Chicago University, and Dr. Francis W. Peabody of Boston, has not gone far enough to commit itself to any definite project, but its report undoubtedly will be largely concerned with the problem of making the foreign trained native physician respected in China.

"The American state department has temporarily detached Roger S. Greene from his consular post at Hankow to aid the commission as an interpreter and guide on its tour of investigation, and the Chinese government, both central and local, has furthered, rather than impeded, the work of the commission.

"The country is so vast and the need of medical men so extensive that all the physicians and surgeons in America could be utilized in China. Such a great invasion, or even enough to make any wide impression, is impracticable. The solution must be the training of the Chinese physicians. At present there are only a few score of them trained along modern lines, and these have difficulty in making a living. The Chinaman is suspicious of the second-hand training of the modernized Chinese physician, and if he is moved to resort to foreign treatment he prefers to go direct to the foreign physician.

"It was only three years ago that the first class of Chinese educated in China took their medical degrees from the Union College (where American and British missionaries work together), in Pekin. Last year in the first class a small number of women physicians graduated. Because of prejudices against the treatment of women by men, women physicians will have a valuable place in medical work in China. While the class of Chinese who prefer the old-style physician is still in the majority, the foreign physicians have more than they can do."

In another column of this issue of the Journal is published an editorial description of the work of the Yale Medical School at Changsha; and the work of the Harvard Medical School at Hongkong was editorially described in our issue of March 26, 1914. These two institutions have already well begun in China the medical education whose extensive need among the people is emphasized by the findings of the Rockefeller Commission.

Correspondence.

PARIS LETTER.

The Medical Atmosphere of the Renaissance, as Portrayed in Some Early French Writers.

3. Michel de Montaigne. (1570–90, Circa.)

(From Our Special Correspondent.)

Paris, France.

"Mon livre ne contient autre chose qu'un discours de ma vie et de mes actions."

Mr. Editor: This reply, made by Montaigne to Henry the Third, on the latter's expressing a favorable opinion of his writings, is unfortunately only too true. The edition of his essays that I possess is in three volumes, about 1600 pages, and most of it concerns the author! Try as he will, and wander as far afield as he may (mes fantasies se suyvent, mais parfois c'est de loing!), it proved impossible for him to keep long away from himself. There is only one other writer that I know to equal him, Pierre Loti; both of these authors maintain their own person constantly and conspicuously in the foreground, and both are only really interesting when writing about themselves.

It is customary to think of Montaigne as a patrician, living on an estate in the country, and passing his leisure time in writing philosophic essays with a skeptical tendency. The facts, however, are that his great-grandfather was an ordinary dealer in salt fish in Bordeaux, while his mother was a Jewess of Spanish origin. The latter detail may account for a great deal in Montaigne. It is a known fact that the offspring of such mixed marriages, from the crossing of breeds as it were, are not unlikely to be superior in intellect to the people about them, and in this par-

that the Israelitic strain would be a distinct asset; but it is also well-known, and I was quite surprised to learn, that attention had been called to this fact as long ago as Plato's time, that minds abnormally developed in certain faculties are apt to be deficient in others, and Montaigne was no exception to this rule. A number of his remarks show clearly that he came very near being a degenerate, while his exalted conception of the importance of his particular self indicates a contrasthenic state that he may have inherited from his Hebrew stock, among which it is so current.

If you can picture to yourself a man devoting his leisure hours for years to dissecting beneath the ultra-microscope his conscious and subconscious Ego, pursuing his subject to its furthest possible limits, and then writing it all down for the delectation of the public without sparing them one single particular, you will get some idea of Montaigne's essays: onto this main and general framework he strung a multitude of dissertations, anecdotes and opinions, and—last but by no means least, he interspersed the whole with such a quantity of quotations from Latin literature as to be tedious beyond expression. He appears to have had his Latin classics literally at his fingers' ends, owing to the fact that Latin was in a way his first, mother tongue, his father having insisted on his being taught and speaking Latin from his babyhood, this having been his only language up to the age of six when he began to learn French.

It is quite safe to say that there is no detail in Montaigne's life that has not been handed down to us at full, at least so far as concerns the working of his mind and of his bodily functions, his tastes, occupations and views of life. His essays were written piecemeal, during many years, in health and in sickness; and with such a method of procedure it is evident that a man on the perpetual outlook for something additional to say about himself would in the course of time make his study pretty complete. The degree to which this completeness was pushed it is unfortunately impossible for me to relate. It is a curious thing to hear that French is such a wonderful language,—you can say anything you like in it without shocking the audience; but Montaigne enters into details as to his bodily functions, and gives them in the most matter-of-fact manner, that simply make you jump when you meet them, even though expressed in his elegant French. It is, consequently, equally safe to say that very likely since the world began no one has framed for posterity so minute a description of himself: the only pity is that the object of this intense and protracted scrutiny should not have been somewhat more worthy of posterity's interest. Great men are great because they are in advance of their age, and this constituted the main difference between Montaigne and Rabelais. Rabelais looked at things from a height, so as to obtain a general view, he also gazed forward into times to come; Montaigne busied himself so much with psychologic introspection that he could not get beyond the present, while his real subject of predilection was the Roman past. Rabelais says next to nothing about himself: Montaigne writes of little else.

I must candidly admit that personally I found this author jointly tedious. It would be foolish to deny his talent, but to what useful purpose was this talent put? In speaking of Cicero Montaigne remarks that he cannot be detained a passing hour to that author, and afterwards endeavored to sum up what he had learned from that reading, he "usually found nothing but a name." would it be superfluous to say the same about Montaigne? The construction of these essays is altogether extraordinary. He had but one topic, himself: consequently it does not seem necessary that he should have divided this topic into sections, chapters or essays. He turns the tap on, and apparently the stream flows as regularly and indefinitely as any other well-conducted spring. But that does not appear to have suited his ideas of what a book should be: so every now and then he shuts off the flow abruptly, puts a full stop, and calls that piece an essay. Then he felt obliged to give the essay a name; so apparently he glanced hastily over the loose and scattered sheets, took any idea that caught his eye, set it on the first page, and the "Essay" was finished. Whereupon he set the tap running about himself again, and after a sufficient interval shut it off once more. If anyone thinks that I am exaggerating in the least, let him read, for instance, any of the following chapters: on the resemblance of children to their fathers; on the different kinds of vehicles; or concerning the lame,—and he will see how much these essays contain that has any bearing on their titles.

In fact, I should never have thought of including Montaigne in these sketches had it not been for the reason that he, more so even than the other two writers, is the one that had most to say about the medical profession. Not that he neglected the law,—oh, by no manner of means: every now and then you come across such amiable remarks as these in its connection: "consider the form of justice to which we have to submit,—a true evidence of human imbecility, so much contradiction and error does it contain"; or, "the ugly traffic that cloaks itself with the honorable title of justice"; or again, "we call justice the often very inept and very iniquitous dispensation and appliance of the first laws that come under our hand." But with Montaigne the law was an altogether secondary affair: after the manner in which his close predecessor Rabelais had handled the legal profession, the field could be fairly considered cleared once and for all. Montaigne's target was medicine, and it must be freely admitted that against it he makes out a pretty strong case. Over and over in the course of his essays does he give vent to his contempt for medicine; but if anyone desires to get a succinct view of what he has to say on this subject without wading through the whole of the author,—a longish procedure,—crede experto!—let him merely read Chap. 37, Book II. If that is a reliable exposition of the state of medical knowledge and practice of the times, no one will deny that the current opinion concerning physicians, expressed more or less fully by all the prominent writers of the period, seems to have been amply justified.

Montaigne, however, can scarcely be looked on as an unbiased witness: in fact he announces this fact plainly himself in the opening paragraph of his main Philippic against medicine, the one that begins with the courteous exordium: "Que les medecins excusent un peu ma liberté." He there says that it was from his father that he derived his "hatred and contempt" for medicine, which indeed was an hereditary trait among his ancestors,—his father having lived to 74, his grandfather to 69, and his great-grandfather to nearly 80, "without having taken any species of drugs." He considers this family experiment, which had extended over almost two centuries, as a strong argument against the necessity of medicine. But his views on this subject apparently underwent a certain degree of modification. He expressly states that all the first part of his life, up to 47 or thereabouts (Montaigne died of quinsy at 59), he passed "in perfect and entire health," and repeatedly in his essays he proclaims his profound appreciation of the value of good health, thus: "health is a precious thing, the only one, in reality, that deserves our using not only time, sweat, trouble and means, but even life, in its pursuit;" or, "health, the finest, most invaluable present Nature can possibly give us"; or again: "Health is a solid pleasure, with flesh and marrow . . . Health, for God's sake!" So that his feelings on that point are unimstakable,—the difficulty was his radical conviction that nothing the medical doctrines of his day could do would in any way help toward the maintenance or recovery of the said condition of health. For at the age mentioned the unfortunate man fell from this unbroken record of health into the lamentable state of chronic recurring renal lithiasis;

and whereas during the first half of his essays his attitude toward the profession is one of indifferent, hereditary contempt, this frame of mind changes toward the end of the second book, where he has suffered the tortures of migrating calculi without the beneficent effect of morphine, and he proceeds to analyse his views on medicine in the light of the rays of the afore-mentioned ultra-microscope! However, later on, and more particularly in his final essay "On experience," time has brought to his aid the philosophy of age and indulgence, and he is somewhat less severe in his strictures.

Montaigne's arraignment of medicine before the bar is conducted with unfailing courtesy,—he counted among his personal friends many eminent practitioners,—and, it must be admitted, with a general spirit of fairness; and possibly the fact that a man in the clutches of recurring renal calculi could so control his natural inclination to hit out at somebody as to view the case in a just manner and hide all bitterness and scorn, makes his accusation only the more telling. His father had succumbed from vesical calculus at the age of 74; the disorder was, in consequence, hereditary, and Montaigne speculates at some length on that knottiest of problems, how it can be that in one tiny cell can be conveyed from parent to child not only the most evident physical and mental traits but the predisposition to a given disease,—a fact peculiarly striking in his case, since he was born twenty-five years before his father had any symptoms of calculus, while his own calculi did no put in an appearance until he was 47! This problem he got no farther in solving than many another good man, since, just as it appears to be one of the most curious phenomena in the whole of Nature, so it seems likely to remain one of the most inscrutable.

Among the sarcastic generalities that he levies at the devoted medical men's heads can be cited the following: "If your physician wishes that you should sleep; take wine, or this or that viand, do not be troubled; I will find you another to say just the contrary." "Who ever saw a physician use a colleague's prescription without first adding something to, or eliminating something else from it." "The arts that promise to keep body and soul in health promise much; on the other hand there are none that keep their promises so badly." "Of medicine I am ready to believe anything good or bad; for, thank goodness, I have no dealings with it. I am not like other people, for I despise it always; but when I am not well I begin to hate and fear it besides, and reply to those who urge me to take some remedy, that they should at least wait until I am restored to health and strength, so that I may be better able to resist the strain and risk of the drug." "They would not be able to advance any argument, but I should be prepared to supply an adverse one of equal validity." These few examples could be multiplied to almost any extent, so often does the author return to the subject.

To come now to more specific and detailed griefs, anyone with only a superficial idea of the medicine of those times will at once see that Montaigne's task was an easy one; the art of medicine today is bad enough, in all conscience, but that of the Middle Ages, was simply hopeless, although, curiously enough, even in that chaos Montaigne had sufficient acumen to distinguish the greater surety of surgery when compared with its sister-branch: "surgery seems to me much more certain of itself, because it sees and handles what it does,—there is far less room for conjecture and guess-work." Referring to medical doctrines in general he lays stress on the many and fundamental changes to which they had been subjected, and speaks of "the perpetual disagreement in the opinions of the chief lights of that science in ancient times, not to mention the controversies and fluctuating views that they uphold among themselves at present." He shows how the different writers among the Greeks varied in the most hopeless manner in the causes to which they ascribed the origin of disease, and cites one authority as saying that "the most important science in use, that charged with the maintenance of our health, is, unfortunately, the most uncertain, vexed and disturbed by the greatest number of changes." Doctrine succeeded doctrine, each one, as we see them now, more extraordinary than the last, and—fact which alone should have sufficed to shake all faith in their value,—one doctrine differing so totally from the next as practically to have no common point of contact.

Passing from doctrines to the physicians themselves, Montaigne of course could not fail to hold up to derision "the prudent and forbidding grimace of their appearance and behavior," as also the fact that all medical meetings and consultations were as sacred and secret as in the times of Aesculapius. But in the latter particular he thinks they are well-advised, "for, if their irresolution, the weakness of their arguments, theories and opinions, the bitterness of their wranglings, filled with hatred, jealousy and self-esteem, were to come to the knowledge of the public, a man would have to be strangely blind if he did not think himself in jeopardy when in their hands." Proceeding, we pass on from physician to patient. "If I had been one of them I would have made my discipline more hidden and mysterious still; they began well, but did not continue in the same vein. It was a good commencement, to have made their science originate in the gods and spirits, and to have adopted a language and writing peculiar to themselves; this is a good rule, one that accompanies all fantastic, futile and supernatural arts(!) The patient's faith must help, through hope and belief, their intervention and assistance; so much so that they hold that the most ignorant and ordinary physician is of more use to a patient that believes in him, than the most capable one if he be unknown!" And shall we refer to their materia medica: The left foot of a tortoise, the urine of a lizard, the droppings of an elephant, blood taken under a pigeon's left wing, or pulverized rat excrements; pills given in uneven numbers, the importance of certain days and seasons of the year, the stress laid on the hour at which the herbs they used were to be picked,—"and other monkey-tricks that have a greater appearance of magical enchantment than of solid knowledge." Montaigne admits that certain drugs do have an action, "as any ordinary person can see for himself; horseradish produces flatulence, and senna loosens the bowels . . . in fact, what other results is there from all this diversity and confusion of prescription than that of clearing the digestive tract, something that a thousand common domestic remedies can accomplish." And he thereupon proceeds to go into that venerable, that time-honored question as to whether the use of laxatives is rational or detrimental: "who knows whether the human system does not require the retention of this refuse up to a certain point, just as wine needs its sediment in order to keep well." He also brings forward the authority of the august Plato, in this connection; "of the three kinds of movements special to us, the last and worst is that of purgation, which no man, unless he be out of his senses, should undertake except at the direst extremity; he thereby disturbs and awakens the disorder by injudicious interference"—the latter remark having possibly more sound common sense in it than may appear at first sight, although just how much competence Plato possessed in such matters may be an open question. Montaigne refers to the well-known efficacy of remedies that come from distant and unfamiliar regions: "We do not believe much in medicine that we understand, nor in herbs that we ourselves can pick. If the nations from whom we procure guaiacum and sarsaparilla have any physicians, imagine, by the inverse working of this same law, the rarity and high cost among them of our cabbages and parsley? For who would dare to look down on substances brought from such a distance at the

price of so much travel and risk." Finally, one of his crowning paragraphs of ridicule is that in which he deals with the compound prescription. "The promises of medicine are increditable: for having to treat different and contrary symptoms, which often occur together and must be interdependent, they would have us believe that of their ingredients the one will warm the stomach, the next refresh the liver, the third go directly to the kidneys or even bladder without affecting any other organ, and retain its full effect during this long and devious journey, etc., etc.; and that when a draught of this nature has been prepared, is it not somewhat visionary to expect that these various essences will divide and sort themselves out of their own accord, and proceed on such different errands? I should fear that they would lose or exchange their virtues; and who could hope that in this liquid confusion the properties of these simples will not corrupt, confound and alter each other?" And he ends up this admirable *critique* by a kick at the humble compounder of this fearsome draught: "And in the end the connection of this medicine depends on another man of the art, to whose faith and mercy we again have to entrust our lives!"

Montaigne's *positive* views on medicine are really not so bad as might have been expected; in fact for the times they may even be called creditable. "Experience has furthermore taught me this, *"that we are ruined by our impatience.* . . . The constitution of disease resembles the constitution of animals: their fortune, as well as their duration, is determined at their birth. Whoever tries to check them abruptly, by force, only lengthens and multiplies them. . . . We ought to let them run their course; and I find that they stay a shorter time with me, who do not interfere with them. . . . Let Nature follow her laws; she knows her business better than we do. "But,—someone will argue,—such a person died in that way!" So will you, of one disease or another; how many have died in spite of the many physicians hanging on to the seat of their trousers? We must endure patiently the laws of our condition; we are destined to grow old, and weak, and to fall ill, in spite of all the medicine in the world."

Some of Montaigne's stray remarks are worthy of all attention. How, for instance, is this, for an American high-pressure audience: "Have you, during your lifetime, *known how to rest?* If so, you have done more than he who has conquered cities and empires." Or this, cited from Socrates: Someone related to him that a certain person had derived no benefit from a voyage he had taken: "perfectly naturally replied he, he took his own personality with him on his travels!" The quaintness, also, of the following detail is not without its savour: "My teeth have always been so good as to approach excellency, as I learned when a child to rub them with my serviette both in the morning and before and after eating."

Medically speaking those were, alas! the dark ages indeed, and we had better draw the veil. We have been referring to occurrences now three centuries old, only to condemn them beyond appeal: let us hope that our descendants of three centuries hence will not have grounds to mention us in similar terms? Whether we turn to Rabelais, to Montaigne, or to Molière, the picture is the same, a state of affairs in medical matters that it is simply impossible for us to understand; so that, all things considered, what these writers had to say was more than justified by the times. Even such a serene intellect as Plato was moved to remark that lawyers and physicians are a "bad stock-in-trade for a country! But the most withering piece of sarcasm on the medical profession that I have ever come across is from Bolleau's pen; it is to the effect that the point that in his opinion constitutes an unanswerable argument to prove the superiority of animals over man is, that they have no physicians, and attach no superstitious belief to the number thirteen!

"S."

EUGENICS AND SEX HYGIENE.

BOSTON STATE HOSPITAL—PSYCHOPATHIC DEPARTMENT.

BOSTON, July 24, 1914.

Mr. Editor: I note on page 168 of the July 23d issue of the MEDICAL AND SURGICAL JOURNAL, a medical note entitled "Swiss Legislative Eugenics." I am sorry to see that the MEDICAL AND SURGICAL JOURNAL has joined the ranks of those inexact medical and lay journals which identify the term "Eugenics" with the term "Sex Hygiene." It seems to me that our interest in the true eugenic movement should lead us to confine the term "Eugenics" so far as possible to factors having some little bearing on the problem of heredity. I recognize that sex hygiene is an important interest to hereditarians, but I should not agree that the Swiss law requiring health certificates for brides, or the Wisconsin law, about which so much has been written, could be properly regarded as eugenic laws. They are sex hygiene laws.

I believe somebody should find time to write an editorial on the distinction between eugenics and sex hygiene.

Yours sincerely,

E. E. SOUTHARD, M.D.,
Director.

RECENT DEATHS.

DR. WILLIAM HENRY CARPENTER died at his residence in Brookline, June 23, 1914, aged 77 years. He was a native of Uxbridge, Mass., and taught school in Connecticut and Rhode Island until he had accumulated money enough to study medicine. He received the degree of M.D. from the Dartmouth Medical School in 1876 and soon after settled in Brookline, making a specialty of the diseases of the eye, ear, throat and nose. His widow survives him.

DR. THEODORE ERSKINE HAMILTON, aged 80 years, died at Springfield, July 21, 1914, of cerebral hemorrhage. He was a graduate of the Wilbraham Academy and of the College of Physicians and Surgeons (Columbia University) in 1861. After practising medicine in Chicago, Ill., for a year or two he settled in his native town, Somers, Connecticut. During the Civil War he was surgeon in the Eighth Connecticut Volunteer Infantry, Army of the James, and at its close practised in Somers until 1871, when he moved to Springfield. Here he was engaged in practice until the time of his death. He is survived by his widow, a daughter and a son. Another son, Dr. Erskine Erasmus Hamilton, died in 1901.

DR. HENRY CLAY ENO, a retired physician of New York, formerly well known as an eye and ear specialist, died on July 16, in his 75th year. He was graduated from Yale University in 1860, and from the College of Physicians and Surgeons, New York, in 1864. During the latter part of the Civil War he served as a medical cadet.

DR. WILLIAM JOSEPH O'BYRNE, of the borough of the Bronx, New York City, died from cardiac disease on July 19, at the age of 69 years. He was a native of Georgia, and was graduated from Bellevue Hospital Medical College, New York, in 1870

BOOKS AND PAMPHLETS RECEIVED.

Clinical Examination of the Blood and Its Technic. By Professor A. Pappenheim. William Wood & Co. 1914.

Appendicitis, a Plea for Immediate Operation. By Edmund Owen, F.R.C.S. William Wood & Co. 1914.

The Biology of the Blood-Cells. By O. C. Gruner, M.D. William Wood & Co. 1914.

Scrofulosis. By Prof. Dr. G. Cornet. William Wood & Co. 1914.

Original Articles.

THE PROBLEM OF INFECTION IN TUBERCULOUS FAMILIES.*

By John B. Hawes, 2d, M.D., Boston.

It is now a generally accepted fact that a very large amount of tuberculous infection occurs in childhood in the intimate contact of family life. MacCorison and Burns of the North Reading State Sanatorium in Massachusetts, in an article entitled "The Rôle of Family Clusters in the Prevalence of Pulmonary Tuberculosis"† have shown in a striking manner how such family infection occurs and where there is one case of consumption in a family that others will be found on careful examination. Out of 1300 admissions they found 134 instances of family clusters of three or more. They believe that "the swiftest channel for the spread of this disease and for the furtherance of its activity is through family lines." As far as such infection is concerned, we need accept only the fact that it does to a large extent take place in the home, and not enter into any intricate and detailed study of its exact time and method of invasion.

There are three large groups of consumptives that are the chief factors in family infection. The first is a class of cases large or small, depending on the nature of the community and the standard of anti-tuberculosis work therein. This class consists of the undiscovered consumptive. Richard Cabot has said that every case of typhoid fever should be looked upon as a disgrace to the community in which it exists. I feel still more strongly that the discovery of a patient with advanced consumption who must have been distributing death and disease for months if not for years prior to his discovery, is a terrible disgrace not only to the medical profession but to the community at large. One of the most encouraging signs of progress is that such cases are not so common as they were and that the public is more alive to their danger. As a factor in family infection, they are bound to prove a constantly diminishing one.

The second class comprises those known cases of consumption living in their homes, under more or less adequate supervision. Many of these receive little or no real treatment of any kind, but are merely entered on the books or indicated on a map as a black or red-headed pin. Ten years ago when I first became interested in tuberculosis work, I was an ardent and enthusiastic believer in home treatment. It was my privilege to help Dr. Joseph H. Pratt of Boston in his original class and to form the second tuberculosis class in this country. In almost every city in Massachusetts I have described how tuberculosis can be treated with absolute safety at home, and have stated that the intelligent consumptive is no more a danger to those about him than is a man with a wooden leg. I have changed my mind absolutely about all this. It is only in rare instances that I can now justify myself in advising a patient with bacilli in his sputum to remain at home without having had previous training in a sanatorium or elsewhere. In localities where there are inadequate facilities for hospital or sanatorium care, treatment in the home is better than nothing. As a substitute for sanatorium treatment, however, I believe that it has no place. A few years ago, when the newer sanatoria in Massachusetts were opened, and as is often the case, many advanced consumptives remained in the institutions but a few days or weeks and then insisted on going home, the late Dr. Arthur T. Cabot, then chairman of our board, said to me: "Hawes, even if we take these advanced cases out of their homes for only a week, or for twenty-four hours we are accomplishing something." I believe firmly in the truth of this statement and that this second group of known consumptives who are now allowed to remain in their homes, without having had any sanatorium training, should and will be like the first class,—a small and diminishing one.

This brings us to the third group, discharged sanatorium patients. I believe this to be the one to which we should devote our energies and the one which will show the best results as a reward for our efforts. I cannot but feel there has been much taken for granted as regards this class of patients. Doctors, nurses and social workers have felt that because a patient has been to a sanatorium and has been discharged improved or otherwise as the case may be after a short or long stay, he must have learned his lesson and must know how to care for himself and how to protect others. Unfortunately this is not always the case. On account of this feeling nurses and social workers devote their energies to other patients, leaving the discharged sanatorium patient in a position of false security at a most vital time when a few words of caution and advice would help him to keep well and at all events warn him against infecting others.

We have a tremendous weapon for good or for evil in these patients. Even under our present inadequate system in Massachusetts, it is a noteworthy fact that many of the most promising applicants for admission to the Rutland State Sanatorium are referred not by physicians but by ex-Rutland patients. In addition to this, the influence of the trained sanatorium patient in his home and among relatives, friends and neighbors ought to be a potent one. If, however, he is left to his own resources, receives neither encouragement, warning nor advice a speedy return of his old trouble will result. This will not only be a blow to him and to his family, but

* Read at the meeting of the National Association for the Study and Prevention of Tuberculosis, Sociological Section, Washington, D. C., May 7, and 8, 1914.

† Boston Medical and Surgical Journal, Vol. clxix, No. 7 pp. 224-228.

will hurt the sanatorium in the minds of the public and will cause the State to lose the interest and capital of the investment already sunk in that individual patient.

In Massachusetts our efforts in regard to our discharged patients aim to accomplish three things: First, the continued health of the patient; second, the protection of his family and third, the stimulation of local boards of health and voluntary organizations to act for themselves and to accept their own just responsibilities in this regard. Our system as thus far developed is as follows:

When a patient is about to be discharged from one of our sanatoria he is given a friendly talk by the superintendent who explains to him in detail his exact condition, what he must do after he leaves the sanatorium, along with advice as to proper occupation, etc. In addition to this, the superintendent writes a personal letter to the patient's physician if he has one, or else to the dispensary from which he was admitted in which information as to the patient's physical condition and advice for the future is set forth. Types of such letters are here presented.

March 20, 1913.

My dear Doctor:

E. C. was admitted to the Rutland State Sanatorium December 9, 1912, on an application made out at Burroughs Place. He was discharged March 19, 1913.

He was admitted as an incipient case of pulmonary tuberculosis and was discharged with the disease "arrested." At the time of admission there was slight dullness to the third interspace at the top of the right lung and a few fine râles were heard both front and back. At the time of discharge there was suspicious dullness at the apex but no râles were heard. The patient seemed to be in excellent physical condition and I believe he would be able to take up some clerical work such as he has been doing, and if he used reasonable precautions he would probably be able to live very well in Boston.

I advised him to return to your clinic to be examined occasionally.

July 3, 1913.

Dear Doctor:

This is to inform you that Mr. J. B., admitted to this sanatorium July 1st, two days ago, absconded at 7.00 a. m. today. He is a "moderately advanced" case of pulmonary tuberculosis, expectorating about two ounces of sputum per twenty-four hours in which tubercle bacilli were exceedingly abundant. He has vesperal fever and other signs of marked disease activity.

As far as can be learned, this patient said that he left the institution because he did not like it here. He told the patients that he wanted to get out to celebrate over the Fourth.

This patient has not been in the institution long enough to show any improvement, but he has shown that he needs treatment immediately, and isolation from healthy people, as he is, no doubt, a very infectious case.

A copy of this letter is sent to the local board of health, the local tuberculosis association if such there be, the state board of health, and to me at the office of our board of trustees. Thus everything that can be accomplished by letter seems to have been done. The more important part of the work is to follow. In July, 1912, the Board engaged the services of Miss Bernice W. Billings, a trained nurse and social worker, to investigate and report the condition of our discharged patients. Her duty was not only to help these patients in solving the problem of their own health and that of their families, but most important of all, to obtain the coöperation of local forces; to make them realize that it is their responsibility and not that of the state. The term "local forces" is a broad one and includes local boards of health, anti-tuberculosis societies, district nursing organizations, churches, employers, women's clubs, and that group known as "benevolent individuals." The work of Miss Billings, the experiences she has met with and the wide scope of her task have been interesting and valuable. The great obstacles she has encountered have been apathy and indifference; next to these, ignorance as to methods of procedure, and last, and only at rare intervals, unwillingness to coöperate or to do anything. In the majority of instances, lack of funds is a constant obstacle to effective work.

This paper is based on a study of 600 patients, discharged from the North Reading, Lakeville, Westfield, and Rutland State Sanatoria from July 23, 1912, to October 16, 1913. Miss Billings visited these patients once shortly after their discharge, and again later on if necessary. The great majority of them, approximately 83%, were in the advanced or moderately advanced stages of the disease at entrance to the sanatoria, where nearly 50%, much against the superintendent's judgment, were discharged with positive sputum and with the disease still active. These 600 patients, including in these figures only the immediate members of the family, exposed 2601 others to this disease. Of these 2601 individuals, Miss Billings found that only 597 or 23% had ever been examined for tuberculosis, despite the fact that at the patient's admission to the sanatorium, his physician as well as the local board of health were at once notified so that the other members of the family might be examined. Of these 597 exposed patients who were examined, 75 or 12½% were found to be positive cases of consumption. There were 966 children, 15 years and under among these exposed individuals. Of these 362 or 38%, had been examined and 38 or 10½% found to be positive cases. These figures are shown in the following table:

TABLE I.

Six Hundred Patients Visited Between July 23, 1912, and October 16, 1913.

Total number of persons exposed	2601
Total number of persons examined ..	597 or 23%

Total number of persons found to have consumption	75 or 12½%
Total number of children exposed	966
Total number of children examined	362 or 38%
Total number of children found to have consumption	38 or 10½%

A study of the first 200 patients of this group as compared with the last 200 is of interest. The two following tables show enough improvement as the result of Miss Billings' work to encourage us to further effort.

TABLE II.

First Two Hundred Patients Visited Between July 23, 1912, and November 20, 1912

Total number of persons exposed	871
Total number of persons examined	170 or 20%
Total number of persons found to have consumption	25 or 14½%
Total number of children exposed	295
Total number of children examined	161 or 54%
Total number of children found to have consumption	11 or 7%

TABLE III.

Last Two Hundred Patients Visited Between April 22, 1913, and October 16, 1913.

Total number of persons exposed	824
Total number of persons examined	243 or 30%
Total number of persons found to have consumption	13 or 5½%
Total number of children exposed	319
Total number of children examined	153 or 48%
Total number of children found to have consumption	8 or 5%

Although the totals are not very large these results are too striking and show too uniform a tendency in the right direction to be altogether a coincidence. In each group of 200 patients, the total number of persons exposed is nearly the same. The proportion of those examined for tuberculosis rose from 20% in the first group to 30% in the second; while of those examined the percentage of positive cases dropped from 14½% in the first group to 5½% in the second. Likewise with the children exposed, in the first group of those examined 7% were found positive, while in the last group only 5% were positive cases. The class of patients during this time has not changed. There are just as many advanced cases with positive sputum among the last group as among the first. The work we have done among these patients is not of course the only factor in this improvement but it is one factor and I believe, an important one. The individual work with patients which Miss Billings has done, although in itself admirable is not so important as what she has accomplished in getting after local authorities in a tactful way and trying to persuade them to accept their own responsibilities. The following case is a discouraging example of conditions that Miss Billings often finds.

Mrs. A. was discharged from a state sanatorium August 2, 1913, as "advanced-improved" case with positive sputum, and throat involvement. She had improved somewhat during her stay in the sanatorium. In a letter to her physician and to the local board of health it was recommended that the patient continue treatment and isolation necessary on account of her careless habits. Shortly after this Miss Billings called and found that the patient and the family had moved to an old three-room tenement in a narrow dirty street. The patient was sleeping in the kitchen. The family consisted of a husband, who worked in a cotton mill, and two children, ages eight and six. The members of the family had never been examined, nor had the family been visited by any local agency. The patient refused to consider hospital treatment. This case was reported to the local board of health and to the Visiting Nurse Association. Three months later the visiting nurse reported that the house was clean and that the patient was sleeping in a bed-room alone. Recently, however, Miss Billings again visited and found the patient ill in bed and cared for by her son, age eight years, during the day and by her husband during the night—the husband sleeping in the kitchen. The nurse who visits each day stated that the windows were never open. The patient refused to enter a hospital and said she would die at home. The husband and children had not been examined. I reported this condition to the State Board of Health on February 18, 1914. Later on the visiting nurse reported that the patient died March 9, 1914, that the children had been examined and both found to be tuberculous.

Unfortunately there are many cases like this. There are many cities and towns where Miss Billings' visits are merely perfunctory and often quite unnecessary, so active and efficient is the local work; there are many, however, like the above, the majority, unfortunately, where lack of interest, ignorance as to methods and lack of funds offer almost insuperable obstacles.

Sometime in the future, our aims in Massachusetts are to have a trained social worker in each of our institutions. It will be the duty of such a person to become acquainted with the patients, devoting her attention especially to those about to leave, finding out their plans for the future and preparing the way for them. In addition to this, instead of the one field worker which we now have, we hope to have one or more for each institution. It will never be our plan by any such arrangement as this, to supplant or discourage local efforts. This problem is purely a local one. The fact that a patient has gone to a state sanatorium must in no way remove the responsibility of his city or town concerning the care of his family, examination of its members, cleaning and fumigating of his house or tenement, and supervision of the patient on his return. Our work on behalf of the State will be to direct and encourage such local work. That it is possible to do this to some degree at least, and that our present efforts in Massachusetts are accomplishing something in preventing family infection, I hope has been demonstrated by the figures I have presented.

In conclusion I would summarize this subject as follows:

1. Tuberculous infection takes place chiefly in childhood years in the intimate contact of family life.

2. There are three classes of consumptives which are the chief sources of family infection, the unknown case, the known case treated in his own home, and the returned sanatorium or hospital patient.

3. For reasons given above, the last class of returned sanatorium patients is the most important one and best repays our efforts.

4. The responsibility of the state toward its patients does not end when the patient is discharged, nor does the responsibility of the municipality end when the patient leaves for a state sanatorium.

5. Coöperation between state and local forces must be constantly striven for. Tuberculosis is primarily a local problem. The state may well direct and advise but not replace local work.

6. Our results in Massachusetts with what little machinery we yet have, as based on these 600 discharged patients shows that much can be accomplished in preventing family infection in the manner above described.

SOMETHING ABOUT SUMMER DIARRHEAS.

BY IRVING DAVID STEINHARDT, M.D., NEW YORK.

First Lieutenant, Medical Reserve Corps, U. S. A.; Assistant Pediatrist, Mount Sinai Hospital, O. P. D.; Instructor in Clinical Surgery, Cornell University; Assistant Surgeon, Cornell University Dispensary; Orthopedic Surgeon, New York Hospital, O. P. D.; Orthopedic Surgeon, Bronx Hospital and Dispensary, etc.

AT this time of the year a few words more or less, to the busy "family doctor" regarding the welfare and care of the children and babies under his care are quite in order. This is not presupposing that he does not know how to look after them, for he knows just about as much, and perhaps a little more than most of us, but a gentle reminder in his rush from "here to there" and back again that this is the especial time of the year when his knowledge to a certain limited extent wants to be imparted to the mothers or guardians of his little patients to prevent the amount of his summer work from keeping him so rushed that he loses his well-earned and more than deserved vacation. Oh! yes it does a doctor good sometimes if he takes a rest from his strenuous duties, even if it is only a series of week ends (Friday to Monday). The purpose of this paper will also be to recall to mind some very simple methods of treatment in a few of the most common seasonal conditions that he will be called upon to treat.

Of course the one that immediately is thought of as the most common is that great summer plague of infancy and young childhood—the gastro-intestinal disturbances. Of course most of these cases are preventable with a little care and supervision of what the little ones eat and drink away from home and also at home. The most common causes of these gastro-intestinal disturbances are improper food, spoilt food, too much food, too much violent exertion too soon after eating, too much exposure to the sun or heat, chilling, the partaking of too much iced or ice water or other cold drinks, or drinking strange water. There are other causes but I believe under the above headings the most important ones are covered.

The breast-fed babies are of course lucky for more reasons than one and if the mother is careful of her diet gastro-intestinal disturbances are rare in these infants. Your duty to this class of babies is to carefully instruct the mother first in preventive measures. Her own diet will concern you first. You have probably already given her general instructions as to her general diet from the very beginning of the nursing period. You will emphasize them again to her explaining that many of the summer "goodies" are not for her while she has a baby to nurse, that sour things of any kind are liable to affect her baby through the breast milk, that anything that gives her diarrhea is liable to affect her baby the same way and besides reduce the quantity of her breast milk so much as to perhaps cause a weaning of the baby during the summer months, an occurrence not to be desired. You also remind her to be particularly careful of the cleanliness of her breasts and to be sure to wash the nipples off before each feeding. You don't want any infection introduced into the gastro-intestinal tract of a breast-fed baby in this way. The summer gastro-intestinal troubles of a breast-fed baby are usually not serious unless outside infection has been introduced. When you are called upon to treat the breast-fed baby suffering from a diarrhea you use simple common sense rather than a raft of drugs. The very first thing you do is to order the stopping of all breast feeding for twenty-four hours, substituting for it simple barley water or even cool boiled water. Some use weak tea but I must confess I can see no advantages in it over simple barley water or the plain cool boiled water. It has the disadvantage in many cases of giving the mother the idea that tea is permissible and even good for children and they are liable to continue its use both without your knowledge or consent. Again when you order weak tea you are unaware of just what the baby will be given, for various people's idea of weak tea is different. With the stoppage of the food comes the order for a complete clearing out with either a liberal dose of castor oil, not an insignificant ineffectual dose, or with a good-sized dose of calomel given in divided doses over a fairly long interval of time. As you will recall from your student days babies and young

children stand very well these particular two cathartics in good-sized doses. With the breast-fed baby I don't believe there is much choice between the two drugs. In other cases I believe there is; why, I will explain later. To this point you have treated the diarrhea of the breast-fed baby just as you would the diarrhea of the artificially-fed baby. You have done this because you did not know whether it was a simple diarrhea or one where an infection had taken place. In the simple diarrhea of the breast-fed baby these measures should be ample and at the end of the twenty-four hours you should have a very well baby howling lustily for something to eat. This would mean that the baby had gotten breast milk other than the normal one it had been getting which had upset its digestion and it would be your duty to investigate and after finding what was wrong to see to its correction. No, you would not even in this kind of a case immediately put the baby back on the full breast milk but would gradually work back to it in one of the two following ways: (1) Have the baby put to the breasts at the usual time for each feeding but cut down the usual time of nursing about one-third; this would give the stomach only about a third, or perhaps a little more, of the usual amount of food to handle. Later by slow steps and guided by the baby's ability to digest what it is getting, you gradually get the baby back to its normal diet. This plan, to my mind is not the best, however, for two reasons, the first of which is that it leaves an unsatisfied stomach and even for a short while baby is not satisfied; and secondly even a smaller quantity of the full strength food may be too strong for the recently disturbed stomach of the child. (2) The baby is put to the breast at the usual feeding time the same number of times per day but immediately before being put to the breast it is fed from a dropper or bottle an amount of warm barley water equal approximately to about one-third or one-quarter of the estimated amount that the baby usually gets from the breast. This amount is gradually decreased as in the judgment of the physician the baby can take stronger food in greater amount. The plain cool boiled water can be used, if you prefer it, in this way. The idea of using either the plain cool boiled water or the barley water is to dilute the breast milk as it is received into the baby's stomach, thereby making it easier to digest by reducing its strength. I believe that this is the better way of handling the baby. It has the advantage of giving the baby a weaker food to handle with its temporarily impaired digestive powers yet at the same time it sort of fills that little stomach and makes it feel satisfied for a time at least. You must understand that even while the diarrhea is going on that in many of these cases the babies retain their appetite and protest most strongly against the temporary starvation treatment, for the barley water or plain cool boiled water is not very satisfactory food. They do help replace, however, the fluids of the body which have been depleted by the frequent watery stools—and it is very important that this depletion be made up. You will note, therefore, that in the simple non-infectious diarrhea of the breast-fed baby that simple common sense in regard to the management of the case permits you usually to bring your baby back to normal without the use of any drugs except the initial dose of either castor oil or calomel. I make this statement regarding the use of drugs thus early in the paper, for in most summer diarrhea cases there are altogether too many drugs used; and in a recent paper published by Epstein of New York in *Pediatrics* there are copies given of some prescriptions taken from a druggist's file which were given by several doctors in these cases. They are wonders in the art of prescription writing for many reasons but especially were they calculated to do more harm than good to the particular babies for whom they were intended. It must always be remembered that babies' stomachs in particular, and everybody's stomach in general, are not good receptacles for drugs unless you have the indications therefor. When there are indications for their use then use them in a sufficient amount and variety to accomplish what you expect of them. I think that this is about all that one need say about the breast-fed baby with a simple uncomplicated diarrhea, except to say again be explicit in your directions to the mother so that she will understand your desires for what is to be for the benefit of her baby.

The next class of babies to consider are those whose daily diet is a mixture of breast milk and cow's milk of various modifications. In this class of case the suspicion immediately arises that there has been something wrong with the cow's milk. While you are perfectly right in harboring this suspicion you must not take it as an absolute fact until you have proved it by investigation, or through everything else, guiltless. This is necessary, for it would be of no practical value to proceed with the treatment, carefully regulate the milk and let the baby continue whatever it was that is to blame for the upset. It would only cause a repetition of what you had just overcome. In a very large number of cases the artificial food of the child would be found at fault. The treatment to be instituted would be as follows: Stop all food immediately, give a large-sized dose of castor oil without any unnecessary delay and order the administration of barley water at stated intervals in definite amount with all the plain cool boiled water the child desires in the intervals. To my barley-water feedings I usually order the addition of one teaspoonful, and upwards according to age, of liquid peptonoids or a like preparation. I then wait twenty-four hours to see what the result of this line of treatment is going to be. I am now considering a case to which I have been called at the onset of the trouble. If at the end of twenty-four hours there has been no improvement or the case is maybe a little worse so far

as the number or type of the stools are concerned, I take my next step, which is the ordering of normal saline solution irrigations as often as two or three times a day. Many do not believe in these irrigations, claiming that you cannot get your solution high enough up into the colon to do any good. I will not argue with them on the matter. I will only state that in my experience both in the various clinics and in my private practice they have seemed to do wonderful good and have been of immeasurable benefit to the sick children. This is my observation, take it for what you think it worth—best judged by trying it out yourselves in your own cases. Again I wait twenty-four hours without in any way increasing or decreasing the diet from my first order. If again I find my patient unimproved or worse I begin the use of a drug. You notice I say *a* drug and not a "shot gun" prescription, meantime continuing my other instructions. The drug I use is bismuth subcarbonate in large-sized doses, the exact size of each dose judged by the age of the particular child, each dose administered immediately after a feeding or following a bowel evacuation. I use bismuth subcarbonate because of a slight but very real danger of poisoning from the use of bismuth subnitrate that was formerly in use for this purpose. A few hours before starting my initial dose of the bismuth subcarbonate I order the administration of a proper sized amount of calomel using divided doses of course. You noticed that at first I used castor oil. I had a reason. The action of castor oil is so thoroughly cleansing to the gastro-intestinal tract from start to end that it is a good cathartic for this purpose. You want to sweep the gastro-intestinal tract just as thoroughly as you can in this trouble. The second part of my reason was that after it has had its primary action as a cathartic castor oil has a constipating action. You hardly need be told that this is very desirable in this class of cases. After your gastro-intestinal tract has been cleaned of the offending material you desire to have the tendency to diarrhea checked. Now the second time in the case I give a cathartic I use calomel. Again I have my reasons. First, too much castor oil is both irritating and constipating, whereas the calomel will give several movements to help clean out the tract; second, it has probably an antiseptic action of varying amount; and third, it probably stimulates the flow of the bile, which has some antiseptic action. During all this time the baby is kept on the weakest possible diet, for it is no use putting in food that the condition of the child's digestive tract will not permit it to digest and which, owing to the irritated condition of the tract is not even permitted to remain long enough for an attempt at digestion to be made. It is like endeavoring to fill a sieve with water. I do try, however, to get in all the fluid I possibly can, for the body fluids must be kept as near the normal amount as possible and the continual watery stools deplete them very much. Supposing again my efforts to stay the disease or condition are still unsuccessful, I can now try the lactic acid tablet or buttermilk treatment or ignore this and try still stronger drug treatment. There are many drugs used such as paregoric, various intestinal antiseptics and certain combinations. Personally I think the lactic acid tablets would by my next card to play in this effort to check the progress of the infection, and only when they had failed would I resort to drugs. But again I say to you write prescriptions mixed with common sense and not one of a conglomeration of drugs "without rhyme or reason." I remember that a few years ago I heard a pediatrist of supposedly some standing lecture on the drug treatment of these summer diarrheas, and when he was through I imagined he had mentioned about every drug in the pharmacopeia and elsewhere. I felt sorry for the baby that was to receive the various combinations that had been suggested for its relief, for even if he survived the disease, treatment for the drug-saturated stomach would have been next in order. Now if your cases go from bad to worse, so that drugs are in order, use as few as possible and know why you are using them. Know just what you expect each drug to do and when it has accomplished this stop it at once as you will with each in turn when it has done what you expected it to do in the case. In using opiates, remember that young children, and especially infants, do not tolerate this class of drug well, and act accordingly in your use of them. When your cases are seen early seldom, with prompt treatment instituted, are they going to run to these extreme stages of a gastro-intestinal intoxication. So here is a very important point to educate your patient up to in matters pertaining to the baby's welfare: In case of a beginning diarrhea send for you at once, meantime stopping all food and promptly administering a sufficient dose of a cathartic, preferably castor oil. Impress upon the mothers that this one visit early may not only mean the saving of many visits later but possibly the life of the child. The next step after the diarrhea is checked is to safely bring the baby back to a normal diet. This must be done slowly and surely if your do not want a relapse—very undesirable happenings in this class of cases where you already have an impaired gastro-intestinal tract to deal with and where every added irritation makes the tract more impossible to medication. You have in this part breast, part bottle baby an advantage that you do not have in the all bottle baby whom we will discuss next. That advantage is there is some breast milk to start the baby on and breast milk is easier for the baby to digest than any modified cow's milk could be. You have taken good care to retain this breast milk during the baby's illness by instructing the mother properly in the care of her breasts while the baby was unable to nurse. Even in giving the breast milk, however, you are going to be very careful and proceed along the same lines as laid down above for the

all breast-fed baby after an attack of summer diarrhea. Only after you have gotten the baby to the point where he can take almost the full strength breast milk are you going to start again on the cow's milk. You will start with it very well diluted, carefully feeling your way along, going very slowly to avoid unpleasant setbacks. Time and patience and sufficient strength of mind to disregard the neighbors' comments on the number of visits you are making to the case works wonders in these cases. Never be conceited enough to think that you know as much as the neighbor next door or as the other doctor who would like to succeed you on the case. These people always are wiser than the wisest and unfortunately there are plenty of jealous "knockers" among physicians. We have all met with them in our cases and, more's the pity we will continue to meet with them.

The next class of baby to consider is the baby whose mother has been so unfortunate as to have been denied the great blessing of being able to nurse her child, and, therefore, the child has been bottle-fed from the beginning or shortly after birth. This child presents the greatest problem of all to the doctor, for when this child is convalescent you have not breast milk to start your beginning feeding again.

The diarrhea in this child may be simple or the more serious kind. Your proceeding in the case will be, as just mentioned above, for the part breast-fed and bottle-fed baby. You will take each of the above-mentioned steps as they become necessary in the progress of the case. When you have checked the progress of the diarrhea, you are confronted with the next serious part of the case—the getting of the baby back to a normal diet. This must be done very slowly if the case has been a very severe one; in the lighter cases one may travel somewhat faster. Your best guide in these cases is the baby's stools, which should be examined in all cases of summer diarrhea at least daily. "Make haste slowly" is a very appropriate epigram to follow, or, perhaps, one might quote the old saying, "the more haste the less speed." All of these babies must lose some weight with these constant watery stools and be much weakened and if they continue to lose a little more weight for a few days after you have checked the diarrhea, do not lose your nerve and attempt to rush things. You will not be successful except to bring about a return of the conditions you have just worked so hard to check. As your gastro-intestinal tract approaches more the normal and the food that you are giving the baby is entirely digested as shown by good stools, you can slowly increase and get your desired increase in weight and strength.

In all cases of diarrhea, no matter which class of baby, you will order plenty of fresh air and a minimum of exercise of any kind. Fever will be controlled by cool sponging and not by drugs. You may permit the usual baths except where contraindicated by the condition of the baby. You will order the baby kept cool but warn the mother against underdressing the child, because a pneumonia engrafted upon one of these cases is a dangerous combination to have to combat. In many cases you will have to start with even so low a food value as diluted skimmed milk. When I have to do this, however, I usually try to add the liquid peptonoids or like preparation as mentioned above. Sometimes you will have to use a predigested milk, partially or fully digested, but if you do, discontinue it as soon as possible. This statement is especially pertinent when you are using a fully digested milk. Insist on your patients having the cleanest milk obtainable, which does not necessarily mean the richest or most expensive. In some cases even your weakest milk will seem to cause a continuance of the trouble. In these cases you may find a non-irritating food in weak beef or mutton broths and even chicken broth may be used, although personally I do not think that the latter is either very tasty or nourishing. These broths may be thickened with barley gruel or like gruels, or even to these I sometimes add the aforementioned predigested foods in suitable amount.

I mentioned before that we were discussing cases to which we were called in the beginning of the disease. To those in which we are called later we must judge at about what stage they are and institute treatment suited to the particular stage we believe confronts us, bearing in mind these two very important basic rules of treatment: Cut off the food and clean out the gastro-intestinal tract.

In older children also,we may have many cases of summer diarrhea because so many fond mothers and fathers, the latter particularly, believe that the graduation of the child from the breast or bottle is a sign that it is ready for all and any kind of food at any and all hours. The child is taken upon outings and its poor little stomach is asked to stand all sorts of queer combinations and mixtures to the limit of, and past, its endurance. The result of course is a call for the doctor. Here again the earlier stages of the treatment are the same as in the cases heretofore mentioned. Once the offending material is removed in many of these cases you have no further difficulty and the child can immediately be put on a regular normal diet from which you have carefully eliminated all previous faulty articles. Other cases, however, will give you more difficulty and you have just such conditions as have already been described above in the diarrheal cases already mentioned. Your procedure is just about the same as it was in these cases. You first check your condition, next get your child back to a normal liquid diet and then proceed to slowly bring it back to its semi-solid and solid food régime.

Instruct mothers and others in charge of young infants and children that in summertime particularly they must ever be on their guard as to the freshness and good quality of the food

that is to be used for the little ones. Where there is any doubt as to quality or freshness it must not be used for them at least. With young children quality counts for more than quantity and nothing is cheap which is not absolutely fresh. If you follow any other rule, they should be informed, you are liable to see the actual result of being "penny wise and pound foolish" for doctor's visits are expensive, to say nothing of the wear and tear on the nervous systems of both child and family when the little one is ill. A little care will avert so much that it seems criminal not to take these simple precautions for the welfare of the child. So important have they seemed to me that in my two books: "Ten Sex Talks to Girls"; "Ten Sex Talks to Boys" (published by the J. B. Lippincott Co., of Philadelphia), I have devoted considerable space to just such instructions for my readers. In the battle to reduce infant and child mortality we must do our part in preventing illness as well as treating it.

As summer approaches it is good treatment to prepare the little ones under your care for the trials of the summer heat by seeing to it that they are in the best possible condition to stand the seasonal discomforts. Little stomachs that are not just right should be seen to and made normal. Faulty diets should be corrected. Constipation, always dangerous, winter or summer, should not be allowed to continue. Babies who are to be weaned should be weaned before the actual hot weather sets in but I do not believe that a baby should be permitted to nurse an abnormally long time rather than wean it in the warm weather. A baby can be weaned just as successfully in the warm weather as any other time and with the same safety if good care and common sense are combined. My advice, repeated in many articles and at many places, has always been that every breast-fed baby receive at least one bottle feeding a day. This is a good thing for many reasons, a few of which are: 1) In case of sudden failure of the breast milk, or any other reason, for the immediate cessation of nursing, you can continue your baby right along on cow's milk without any trouble for you or to the baby's digestive system. (2) At the time of weaning you escape many of the disturbances and troubles that may happen at weaning time. You must repeat to the mothers the necessity of absolute cleanliness of the baby's bottles and rubber nipples. You can tell them that while, in general, fruits are good for the little ones, that "enough is as good as a feast," and that certain fruits are best given cooked. There are some fruits and vegetables that are best not given at all. Every day, however, all children over six months of age should have some fruit juice. After a certain age they may have the pulp of the fruit also, but again I remind you that various mixtures do not set well on little stomachs.

In very hot weather warn your mothers not to urge food on the little ones but to see to it that plenty of cool, not iced, boiled water is given. You note I especially state not ice water. Ice water is not the very best drink for these little stomachs. In fact, I believe it is a very well-established fact that it is not the very best thing for even adult stomachs. Chilling of the mucous membrane lining the stomach does not make for the proper secretions in either quantity or quality, and to be well and fit one must have a good digestion.

It will be noticed that no attempt has been made to classify these cases either from a pathological or a systematic standpoint. The reason is a simple one, namely, that I know of no good classification generally satisfactory.

THE MODERN TREATMENT OF INEBRIETY.*

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THE modern conception of habitual drunkenness demands that there be developed a practical method of handling such cases. Any system proposed which is put into practice must be sufficiently elastic so as to permit of its universal adoption.

State care is preferable and a centralization of authority is essential. The carrying out of the purposes of any plan should be authorized and controlled by the medical profession. All the details of such a plan, both preventive and curative, should be censored by medical experts before submission to the public for approval and adoption.

Any institution built for the care and treatment of drunkenness should be constructed so as to meet the selective requirements of these people; it should also allow for regional departments directed by the parent institution, which should be considered the administrative head.

In order to be effective, any legislation which is enacted for the amelioration of an evil must be supported and upheld by public opinion. Heretofore, owing to the absence of reliable data and lack of coöperation, the many isolated attempts which have been put forward to solve the problem of drunkenness, have met with little or no success. It has been said with considerable truth that there is much to fear from excess in drinking, but there is also much to fear from excessive statements which experience soon discovers to be unsupported by facts. Recently the correlation of scientific facts and the coöperation of allied interests has produced satisfactory working capital which can readily serve as a basis for the inauguration of a uniform method of combatting this condition. The reasons for the universal demand for a plan which will modify or control habitual drunkenness may be

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said to be two; first, the sentimental reason, namely, a realization of the fact that the public owes to humanity a debt which is considerably overdue; secondly, the economic reason, namely, a realization that chronic drunkenness is a destroyer of efficiency and is so related to poverty, crime, insanity, social decadence and physical disease, that any method advanced for the improvement of conditions will not only check human waste and disease, but will necessarily lessen the expenditures fostered upon a community entailed in the care of the victims of drunkenness and their dependants.

That there is a need for a uniform and practical method for caring for cases of habitual drunkenness is clearly shown by a review of the laws on the statute books relative to the regulation of the liquor interests. The numerous requests for more stringent legislation is additional proof that we realize that we are in need of state laws which will more completely protect humanity from the evils resulting from the abuse of alcohol. A careful review of the many laws enacted in different states for the regulation of the sale of alcoholic beverages convinces us that the great mass of legislation was not proposed for the abolition of a personal privilege, namely, prohibition of what many consider a constitutional right, but for the purpose of controlling drunkenness, a condition coming from the abuse of an agent which is capable of producing intoxication, disease and economic waste. The question before us when we deal with the inebriate is not one of state or world-wide prohibition, but one more clearly of the education of the individual to his relation to a substance deleterious to him; in other words, the relation of the physician to the patient. It must be remembered that the following remarks refer to the inebriate and do not refer to the chronic alcoholic or to the persistent social drinker. When we consider the inebriate we must remember that we are dealing with an individual who has a distinctive constitutional peculiarity, in that the habit of drinking is engrafted on a weakness. R. W. Branthwaite of England clearly expressed this condition when he said that "this constitutional peculiarity may be acquired by long continued indulgence, but it is more properly inherited as a diathesis in most cases, remaining latent or becoming evident according to circumstances or environment." When this constitutional predisposition or fault or diathesis, or whatever we may call it, is present, it is permanent. Doubtless some people who abstain from the use of alcohol possess it unknowingly, other persons who take alcohol realize its existence and spend their lives battling against the weakness; some succeed while others fail. If an inebriate becomes a sober individual the peculiarity back of the habit which we call drunkenness still remains a factor to be reckoned with during the whole life of the individual.

Disregarding for our present purposes our personal opinions on "the alcohol question," we must acknowledge the need for a more complete and consistent plan for the bettering of a condition which is one of the nation's greatest handicaps. The medical profession has been singularly lacking in an appreciation of the fact that the problem of the amelioration of this condition is within its province; indeed, it is only within the past few years that sufficient detailed and scientific study has aroused the public to the necessity of coöperating with physicians in an effort to overcome a social evil which is progressively increasing. Sociologists, philanthropists and jurists have for years struggled with the question and have failed to arrive at any satisfactory solution. The physician has made feeble and half-hearted efforts to substantiate his ideas, and the resulting conflict of opinion has only served to demonstrate the inefficiency of the many methods of caring for the habitual drinker. It must be said to our discredit that the neglect of the medical man to properly appreciate this question is in great part responsible for the futile and many-sided efforts which have been made by different interests to cure or control drunkenness. One of the greatest difficulties which the medical man has to overcome is the need of convincing the public that the many alleged "cures" for drunkenness now existing are not countenanced by the medical profession, but are the product of a successful system of quackery which has flourished profitably for years.

Assured of the coöperation of the public and tax-payer, any state can now proceed, under medical supervision, to develop an organization which will squarely meet this problem, for the study of drunkenness is clearly a medical-social study which should be supervised and controlled by the medical profession.

For the past six years Massachusetts has given considerable study to the problem of drunkenness. During this time two special commissions have prepared and submitted legislative reports, which have resulted in legislation enabling the Commonwealth to make a substantial start in putting into practice the recommendations made by these commissions. An analysis of the several reports shows many things in common and demonstrates particularly that any plan inaugurated by the state for the solution of the problem should be approached from two vantage points. Any system proposed must be met from a preventive and curative side by the adoption of a uniform plan with centralized control. Both reports referred to are emphatic in declaring that the method which has existed from early times of committing persons to penal institutions for drunkenness is wrong in principle and should be abandoned. Moreover the commissioners agree as to the need of state non-punitive control for the care and treatment of habitual drunkenness.

The treatment and care of the inebriate does not call for institutional treatment alone, but

demands a more widespread policy which includes a consideration of the personal equation and opportunity for developing a system which will allow for differentiation, segregation and individualization. We can, therefore, consider the proper handling of this class of individuals from two points of view: first, the institutional department; second, the non-institutional or out-patient department.

Recognizing that the inebriate requires specialized care and treatment an institution built for inebriates must be built around the individual, and must be so constructed as to administer to the varied types of inebriety and also allow for the development of the different departments. Briefly expressed the requirements for the proper constructive treatment of the inebriate are as follows:

(a) Sufficient land for agricultural development.

(b) Sufficient land for industrial training and work shops.

(c) An opportunity for segregation of the types.

To meet these requirements a large tract of land, certainly not less than one thousand acres, should be available. This land should be adaptable, lending itself readily to out-door employment and diversion for the patients. Massachusetts has committed herself to the colony system of caring for these people, the cottages being grouped in colonies. A number of these cottages have already been built and are occupied by patients. In order to permit of segregation and individualization these groups of cottages or colonies are suitably situated and distributed over the large tract of land. The size of the cottage, the unit of the system, is governed by the type of case to be cared for in each colony. The maximum number accommodated in any cottage is twenty-five. In addition to these colonies with their respective homes and farms, a group of buildings has been erected which serves as an administrative and receiving group. These service buildings are conveniently located, so as to permit of an economic management. Further extension of the hospital will consist of additional cottages which will be built at the different colonies. The colonies, briefly expressed, are as follows:

1. A colony for incipient, or hopeful inebriate cases.

2. A colony for more advanced male cases, supposedly men who are in need of custodial care.

3. A colony for refractory male cases, men who do not lend themselves to ordinary methods of treatment, and who require more or less restraint.

4. A colony for inebriate women.

It is at once apparent that the essential part of such a grouping is the cottage or unit, which must be so situated and constructed that it will readily lend itself to the needs of the patient groups.

NON-INSTITUTIONAL OR OUT-PATIENT DEPARTMENT.

The need of this department is evident and can be met by the establishment of an out-patient office which should be situated in a metropolitan area and not too remote from the parent institution. This department is an itegral part of the hospital. Its purpose may be defined as follows:

(a) Preliminary examination of the prospective patient for the purpose of differentiation.

(b) Visits to patients while at the hospital.

(c) Visits to the homes of patients before their discharge from the hospital.

(d) Visits to patients after their discharge from the hospital.

This department is in charge of a physician; home visitations and the vocational bureau are supervised by agents who are responsible to the departmental physician. The department is conducted by the state as a permanent central office and serves as a centre for all out-patient work.

The scheme as developed by the Massachusetts system and which is now in part in active operation, can be graphically presented as follows:

1. A state hospital for inebriates developed on the colony plan with a sufficiently ample and flexible equipment for the different types and grades of cases of habitual drunkenness.

2. An out-patient department with broad and well-defined duties.

3. Detention hospitals serving as adjunct institutions to the central hospital. These hospitals are to be situated in the cities and towns of the commonwealth. The hospital need not be especially built for the purpose but should have special features for the care and treatment of cases of acute alcoholism. Briefly defined the purposes of these hospitals would be as follows:

(a) For the treatment of delirium tremens.

(b) To serve as an observation and receiving ward for the parent hospital.

(c) To provide a clinic for incipient cases of inebriety.

(d) To serve as sub-offices for the out-patient department of the main hospital.

(e) To provide medical officers to visit prisons to examine cases arrested for drunkenness and to determine their fitness for treatment at the hospital.

It must be acknowledged that Massachusetts with its excellent probation system coöperating with the hospital and its State Farm allowing for the detention of the criminal inebriate, is well equipped for the state care of drunkenness as above out-lined.

The proposition as described is elastic and can be modified so that its purposes can be carried out by any state or municipality. All the departments above enumerated should be under uniform management with trained medical specialists and centralized control. The essential

feature of this method is that the patients realize that they are receiving consistent treatment afforded by the hospital, and that they respond to it in ways that they do not respond to the diversified management of the asylums, jails, reformatories and almshouses under which in succession they now pass.

It is believed that the system as above outlined affords distinct advantages for the solving of the complex problems associated with drunkenness. There can be no doubt that the adoption of such a method under state control, would not only result in economies to the state but would contribute to the sciences of medicine, psychology and sociology new and important data on the problem of drunkenness.

I feel that this brief description of the plan to which Massachusetts has committed herself would be incomplete if I omitted a description of our method of medical treatment of inebriates.

Hospital treatment for male inebriates has been provided by Massachusetts at the Foxborough State Hospital for twenty-two years. Until recently all cases were committed from municipal, district or police courts (except in Suffolk and Nantucket counties, where they are committed from probate courts) upon certification of two physicians that the man is "subject to dipsomania or inebriety either in public or in private or . . . is so addicted to the intemperate use of narcotics or stimulants as to have lost the power of self-control," and "is not of bad repute or of bad character apart from (his) habits of intemperance." Since the reorganization of the hospital in 1907 provision has also been made for the admission of voluntary cases (Acts of 1909, Chapter 504), either directly or from the criminal courts, as one of the terms of probation. During the year ending Nov. 30, 1913, the number of cases received by commitment was 171; the number of voluntary cases received was 577.

The curative methods of dealing with inebriety now employed at the Foxborough State Hospital consist in special individual treatment to build up the body, mind and character of each patient. A detailed physical examination is made of each person received, and all diseases or defects which are noted receive appropriate medical treatment. The bodily health is built up by means of nourishing food, out-of-door work and by supervised exercises. Good physical health is the foundation upon which cure of habitual drunkenness must be built. It is, however, only one of the conditions of cure. Work and rest are so arranged as to habituate the patient to regularity, for inebriates are characteristically persons of irregular habits, and the creation of order in their lives serves to reduce temptation and to provide the basis of moral living.

Study of the mental condition of the patient supplements the physical examination, and the causes of his inebriety, both individual and social, are sought. Successful curative treatment of inebriety is not medical in any narrow sense, but is mental. There is no known specific. "Cures" are accomplished through suggestion, not by drugs. A type of work is chosen for each patient which will be congenial to him and will prepare him to enter some steady employment upon discharge. Latent abilities and interests of the patient are sought out and developed in so far as possible, not only in his work, but in his leisure hours.

The essential element of hospital treatment of inebriety is, however, not the building of healthy bodies and regular habits, not the industrial or other training, for the well-conducted prison can furnish these. The hospital alone, of all state institutions, can provide those elements of suggestion and moral suasion which constitute a large part of psychotherapy. The coöperation of the patient is an essential condition of success in treatment by mental suggestion; this coöperation cannot readily be elicited in the prison where discipline and restraint tend to arouse an attitude of antagonism or resentment on the part of the inmates towards officials. Clearly those patients who come to the hospital voluntarily for cure (whether they come directly or are sent by a judge or probation officer as one of the terms of probation, or procure their own commitment under Chapter 504, Act of 1909) are more likely to coöperate and to be benefited than are persons who are committed to the hospital against their will. The physician, by means of repeated suggestion made under favorable conditions, persuades the patient of the danger to himself and to others of his habit of intoxication, of the necessity of complete abstinence from the use of all liquors, of the success that can be achieved through careful work and regular habits. Special suggestion is made to each patient on the basis of his peculiarities, to quell his special weaknessess, to develop his ambition, redevelop his self-respect and supply new interests. No two cases are precisely alike nor can they be successfully treated by any stereotyped plan. Diagnosis by a physician of specialized training in nervous and mental diseases, and continuous suggestive treatment under his direction, adapted at every point to the physical and mental needs of the patient, are essential to cure.

The curative treatment of the patient is continued after his discharge from the hospital through the out-patient department. Prior to the establishment of this department in 1909 the discharged patient often had to return to an environment that was unfavorable to his new resolve of abstinence, to unemployment, to drinking friends, or to a comfortless home. Discouragement from these sources, if unrelieved, will in some cases reduce health and, through counter suggestion, overturn the treatment of the hospital. To tide the patient over this crucial transition period the Foxborough State Hospital has appointed a special out-patient physician who becomes acquainted with each

case while it is at the hospital, and with the patient's family. Before the discharge the family is shown how they can cooperate in perfecting the cure. Work is found for the patient before his release. He is associated with local persons or social clubs or religious organizations that will look after him and provide temperate friends and wholesome amusement. By frequent visits to the hospital and visits from the out-patient physician the suggestion made at the hospital is reiterated until years of continuous abstinence prove that further oversight is no longer needed.

OCCUPATION THERAPY IN ORGANIC DISEASES.

By Herbert J. Hall, M.D., Marblehead, Mass.

It has come to be a well recognized fact that occupation of the body and mind are indispensable in the treatment of the functional nervous diseases. Psychoanalysis and the various forms of suggestive treatment have their important place. So also has the rest treatment and the mechano-therapy of the sanitariums, but unless the patient is taught self-sufficiency by the close following of thought with action, the mental treatment will very often fail. There is no sure way to teach efficiency except through the actual doing of work. So far it has not been made clear enough, however, that the organic diseases, the chronic, partly disabling conditions may be made more bearable by the use of work especially adapted to the limitations of the individual. Not only may otherwise hopeless cases be made more comfortable, but in some instances the course of the disease may be distinctly modified if not held in check. The economic advantage of productive work is, moreover, a matter of the very first importance.

The symptoms of chronic spinal disease, for instance, are depressing in the extreme. It is true that a few hardy men and women face the situation with good philosophy. They go about and live their lives well in spite of the limitations. But when the diagnosis is finally made and the patient is declared to have a general paresis or a locomotor ataxia, there comes a time of realization and despair that is one of the worst experiences imaginable. Of course everything is said to soften the hard facts,—the extreme curability is dwelt upon and the possibility of remissions. But the facts remain, even in these days of salvarsan and intra dural medication.

A most evident and trying thing in the spinal cases may be incoördination in walking. For a good many years the Frankel exercises have been used to improve the gait of the ataxic. There is no well regulated nerve clinic or sanitarium without the familiar footsteps on the floor. But people get very tired of following in those footsteps, which seem to lead no whither. Many a man idle throughout a prolonged illness of this kind might be wonderfully developed and improved if he could get in touch with the world through work.

I have in mind the case of a woman, apparently doomed to progressive disease of the spinal cord. This patient had for several years remained a recluse,—unable to bestir herself, and too proud to exhibit her uncertain gait to friends or strangers. She had resigned herself to a life of idleness and seclusion. With great difficulty she was persuaded to undertake hand weaving, a process which properly done requires very careful coördination of foot, hand and eye. Before she knew it she was interested, and in a few weeks' time she had acquired the necessary skill which involves finding and correctly using from two to six foot pedals besides the dextrous throwing of a shuttle at the right time. The training thus received, together with the elation of accomplishment, raised this woman from the ranks of the hopeless and despondent to another kind of life altogether. Her gait was greatly improved. It is needless to state that a great change took place in the attitude of her family. Those who know the difficulty of dealing with these unfortunate patients and their families know what I mean when I say that the physician was relieved also.

My own experience has been for the most part with well-to-do patients under sanitarium conditions. Here the conditions are most favorable. With a high degree of intelligence and good cooperation it is wonderful what happy results can be brought about. Hope and courage are engendered by successful work when the patients have given up all ambition. The best part of such relief is that it is honest, it is not a promise unfulfilled. The fulfilment accompanies the promise. There is too much unwarranted optimism in the sanitariums; the result is distrust and disappointment.

It is easy to understand what a boon to the poorer classes would be the teaching of adequate trades which could be carried out in the homes or in hospital workshops. Many a poor soul, a burden to his family and to himself, might be completely transformed by some job that would earn a little money. The old man out of a job and never likely to have one, is often treated pretty shabbily by the working members of his family. They do not mean this perhaps, but if this same man could earn only a few cents a day he would gain a new respect and a new happiness.

There are many cases of progressive blindness in people along in years or even in middle life. If, while the blindness is coming on a trade could be acquired which would mean pleasure and profit, what an amount of despair would be saved. True, the blind are taught trades, but usually after they are blind and under great difficulties. A little sight would help very much

in acquiring the necessary dexterity and save a lot of very difficult readjustment.

Some of the chronic arthritis cases given up as hopeless will yield to cleverly adapted work. There is an unconscious resistance to all movement in these terribly crippling affections. Other things being equal, the muscular spasm and the joint thickenings themselves yield more quickly to purposeful industrial movements than to massage or other remedial exercises. The interest in the thing to be accomplished relieves this muscular tension,—even the unconscious mind forgets to resist.

Of course there are periods in many chronic cases when work of any sort might cause positive harm. These periods are certainly much less formidable than they seem and they do not in any degree detract from the value of the principle. We have been very much too apt to say, "Make him comfortable, do not bother him with work." Such a conclusion may mean a long life of unhappiness. It is far better to examine the patient critically from the point of view of efficiency; far better to run the risk of a little harm from overdoing.

In time we shall come to look upon work as a most important therapeutic measure. The sanitariums may still have and use their Frankel exercises, their electricity, baths, et cetera, but they will also have full equipment for a variety of well conducted occupations,—not play occupations, but the real thing,—presided over and conducted by trained and experienced workers in every department. Already much has been done along these lines. A few private sanitariums have taken the lead with original progressive work, especially in crafts work of a high order.

Perhaps the most striking and inspiring work is being done in some of the hospitals for the insane. At Gardner, Mass., for instance, the state colony with its 1200 patients, keeps practically everybody at work. Under the direction of skilled people, the patients for several years have made all their own clothing, the woolen part of which is manufactured from beginning to end, from the raising of the sheep through the processes of carding and spinning and weaving to the cutting and sewing of garments ready for wear. This colony also raises all its food supplies, reclaims land, makes roads and builds new dormitories. This is a most refreshing change from the days when the insane were almost universally kept in idleness and restraint.

The Massachusetts General Hospital is the first general hospital in this country, if not in the world to establish under its own roof, well equipped workshops for certain chronic outpatients who could not otherwise find employment. In New York City the Burke Foundation is financing a series of workshops for the benefit of chronic cardiac cases who would inevitably break down if their work were unregulated. These men and women cannot be cured, but they do become happier and better in every way, as well as partially self-supporting. More and more it is understood that work relieves the mind, strengthens nerves and muscles, and even helps in the bearing of pain.

The result of proper occupation for invalids will be not only a better therapy for the well-to-do, but very great economies to the state and the individual.

While we are waiting for the greater discoveries and developments which will relieve or cure the conditions now called incurable, we may at least make life brighter and more bearable by making intelligent use of the remaining faculties. The adaptation of real occupations to the requirements of handicapped workers is almost a profession in itself, but anyone may try a hand at it and the results will often justify the effort. It is only fair to warn against being discouraged by failure. Overwork is as bad as idleness. The application of the principles of common sense will always be necessary.

I cannot end even such a superficially suggestive paper as this without warning against the use of work that has no meaning in itself. Unless the products of labor are beautiful and useful there will inevitably be a bad reaction upon the worker. Arrange the work so that the results are not foolish and inadequate; employ experts to provide and direct the work and there will be few disappointments. Almost any trade may be adapted. Patients who have been employed in the making of clothes, for instance, may still go on at this work if it is carefully modifield. Whenever it is possible, the new work should follow the old lines, so that there may not be the well known difficulty of teaching "old dogs new tricks." But adventurers in the new field of occupation therapy will be surprised to find that the old dogs can take up new tricks, that a blacksmith or a teamster with a badly compensated heart may become a good hand weaver or clothing maker if the necessity for changed occupation arises. It will be a surprise to those who have not followed recent sanitarium developments to know that among the well-to-do, among people who are not supposed to be working with their hands, good honest trades are being used successfully to combat the harm of idleness and to retard and limit the disability and suffering of chronic organic disease.

The important thing to remember is that work should be supplied in some form, even in organic illness, whenever the conditions can be made possible.

Frequent Incidence of Twins.—Report from South Norwalk, Conn., states that Mrs. Michael Ross of that town has given birth to twins twice during the past 11 months. She is said to be 51 years of age.

Clinical Department.

A NEW METHOD OF TREATMENT OF CHRONIC DACRYOCYSTITIS.

BY CAROLUS M. COBB, M.D., LYNN, MASS.

THE results of chronic dacryocystitis are so annoying if the case is left untreated, and treatment is often so disappointing that I have thought it well to report a case in which a new method of treatment was followed with very satisfactory results.

Mr. F. B., aged 60, I first saw in Feb., 1911, when he was suffering from an acute phlegmonous inflammation of the lacrimal sac and the surrounding cellular tissue. There was nothing to do at that time but to open the abscess, which was done. I told him at the time that he would have to undergo a prolonged course of treatment. I did not see him again until June, 1913, when he came to me with a discharging fistula leading into the sac and the usual amount of infiltration of the surrounding tissues. I washed out the sac and probed the duct for some time with indifferent success. I felt that the sac would have to be removed, but as he was not in good physical condition I continued the treatment with the hope that some good might result. As the condition did not improve I decided to try the injection of tincture of iodine into the sac. This was done through the fistula. The reaction was not very severe and in three days it was done again. After the first two injections the character of the secretion underwent a decided change, instead of being purulent it was now watery. I continued the injections once or twice a week for more than two months with a slow but constant improvement. At the end of that time he met with an accident and I did not see him for six months. He telephoned me from time to time that he was not having any trouble and that he thought the tears were passing through the duct. When I did see him I found the dacryocystitis cured, and I believe that the sac was obliterated. He presented the same appearance as a patient from whom the sac had been removed. The surrounding tissue was not infiltrated, there was no purulent discharge, the tears collected in the inner canthus, and there was a depression over the sac. The only untoward result was a slight bluish discoloration over the region of the sac. I think he is mistaken about the tears going through the tear duct.

I am inclined to think the treatment was kept up too long in this case, and the discoloration might have come from that. The final result was the same as that following removal of the sac. If these cases can be cured by the injection of iodine it would seem that there are many in which it would be worth trying.

I submit this report with the hope that some one with a larger experience will give it a trial and determine its usefulness.

Medical Progress.

SIXTH REPORT OF PROGRESS IN ORTHOPAEDIC SURGERY.

BY ROBERT B. OSGOOD, M.D., ROBERT SOUTTER, M.D., HERMANN BUCHOLZ, M.D., HARRY C. LOW, M.D., MURRAY S. DANFORTH, M.D., BOSTON.

TUBERCULOSIS.

THE diagnosis of tuberculosis of the bones and joints is held by König[1] to be frequently very difficult in the early stages. It seems to us that emphasis may well be placed on this fact. The Roentgen ray may confirm, but in the early stages may not disprove. The clinical symptoms are often insufficient and various forms of arthritis may present identical early stage signs, which are only to be differentiated by the tuberculin reactions or the actual finding of a conclusive pathologic picture at operation. Many joints presenting all the clinical signs of tuberculosis rapidly improve and finally completely recover after the removal of a source of infection or toxemia, whether fixation and traction have or have not been applied. Whenever the diagnosis of tuberculosis is confirmed by the reactions or the pathologic findings the joint affected does not thus rapidly improve and completely recover under any form of treatment. Tuberculous disease may become arrested, but traces of permanent joint changes remain. The matter is of importance, for although prolonged fixation and efficient traction may be the best methods at our disposal for the local treatment of a tuberculous joint, they may also unnecessarily weaken the limb and perhaps bring about permanent limitation of motion in an infectious or toxemic arthritis.

Dollinger[2] presented at the last International Congress in London a valuable paper on the treatment of tuberculosis of the bones and joints. The illustrations are many and instructive. Dollinger is a strong advocate of conservative treatment and especially of helio and radio therapy. He believes that traction is not important and that with efficient removable apparatus ambulation has distinct advantages over rest. If after months of treatment the joint has become painless and some deformity exists he considers that a careful attempt at mobilization by a single manipulation in the direction of the intended final position is entirely justified.

Wrzesniowski[3] has reviewed his experience in the treatment of forty-six cases of tuberculosis of the joints with discharging fistulae. 55% of the cases he considers permanent cures. He opens the joint wide by both transverse and longitudinal incisions and after removing the tuberculous tissue as thoroughly as possible he

fills the cavity with Moestig-Moorhof filling or Beck's paste. The cleft is packed with gauze. He expects ankylosis.

Garré[4] and his associates, Nussbaum, Els, and Leonhard, have made an attempt to study results in various forms of surgical tuberculosis. Garré has had clinics in Rostock, Königsberg, Breslau, and Bonn. In Garré's opinion the importance of general treatment overshadows everything else, whether the local treatment be conservative or operative. His conviction should bear weight, since he himself has used various local methods of treatment at different times. In cases of hip joint diseases Garré believes that the results show that treatment should be conservative, abscesses should be emptied, but excision is indicated only in very severe cases, and as a life-saving measure in three types,

1. Those with severe profuse secretion with destruction of the joint and rapid progress.

2. Severe fungous forms with permanently poor condition in spite of the best general treatment and in which pain is severe and persistent.

3. Cases with large sequestra, especially of the acetabulum.

In children under five years he considers resection contraindicated because of the high mortality. In the early stages of hip disease Garré uses the long spica of Lorenz with a steel stirrup and traction; later a short spica. He considers a painless anchylosis a better result than a moderate amount of motion in a joint deformed by disease. The average time during which local treatment has been necessary was three and one-half years. In the knee joint cases in children conservative treatment should be begun, but resection, with care not to include the epiphyseal line should be undertaken when the general health is poor and severe destruction of bone with abscess and sinus formation is occurring. He points out the necessity of applying a brace for at least a year in children under thirteen years even after excision, on account of the danger of contraction and subluxation of the yielding bones. In adults Garré advises excision in all the severe cases and although he would apply conservative treatment to light, early cases, he evidently expects them to come to excision eventually. He thinks that synovectomy is indicated is synovial cases only, and in his hands has given poor results in all but one of thirteen operations. In *ankle-joint* disease Garré originally reserved operation for very severe cases, but after 97 cases he has been encouraged by his good results and has come more and more to favor resection or total astragalectomy, which he has done 52 times. In children the results have ben almost uniformly good, the os calcis becoming well adapted to the malleoli. In adults a more or less valgus position has occurred and the functional result is not as good as in children. The results of Garré's cases of *shoulder* resection, done only in very severe cases and studied some of them over ten years later, have shown such surprisingly good results that in this region as well as at the ankle he is inclined to advise more frequent radical operation. In *elbow* cases fixation and injection of iodoform preparations have given the best result in children, but in adults excision is to be advised. In the *wrist* typical resection has given poor results owing to subsequent adhesions of the tendons, but conservative treatment aided frequently by partial excision is indicated. Treatment of surgical tuberculosis by means of the Roentgen ray has not shown encouraging results in the author's experience.

In a separate article Seeman[5] has considered the course and prognosis of *tuberculous disease of the spine*, based on a study of 233 cases from Garré's clinics. One-half of the cases began in the low dorsal or dorso-lumbar region. The lumbar spine was the next most common seat and then the mid-cervical. The lower the seat the more frequent the abscess, while the higher the seat the more frequent were the cases of paraplegia. If the disease begins late in life the prognosis is very much more grave. Very few of the cases which began after the patients were twenty years old were alive at the end of twelve years. Abscesses and paralysis were more common in the adult cases and occurred in males more often than in females. Foci elsewhere, *e.g.* pulmonary, made the prognosis much worse.

Turner[6] in an article on the treatment of Pott's disease discusses the pathology in its relation to the treatment of the individual case. Up to eight years he believes in the plaster bed or plaster jacket in recumbency, and after the acute symptoms have been absent for some time he considers the Taylor back brace to be the best form of apparatus. He expresses his conviction of the value of the bone graft operation by the method of Albee, maintaining that the kyphos may be diminished immediately before the operation or at the time of it, and that with the graft straighter than the spine, the spine may be pulled back to it by ligatures. In three of his cases tuberculous tissue with abscesses was entered but the graft was placed as usual. He does not state the number of cases he has observed nor give any of the end results.

Vecchi[7] has made a study of the literature concerning the lateral deviations of the spine occurring in certain cases of tuberculous spondylitis. He dissents from the theory of Lovett and others that the deviation is a symptom of muscular irritation, holding rather that it has a purely mechanical cause in the unilateral destruction of the vertebral body at the seat of the disease, usually in the lumbar or dorso-lumbar region. He points out the significant fact that the convexity of the curvature is always on the side away from the lesion. If the muscles were contracting to ease pressure at the site of the lesion we should have the opposite phenomenon, since contraction on the side opposite the lesion would separate the diseased and tender surfaces.

(ED. NOTE. In our limited experience with these cases of tuberculous scoliosis the contention of Vecchi seems to be upheld. We have been able to demonstrate the lesion by means of the x-ray and the unilateral loss of substance which the x-ray revealed has offered an entirely sufficient mechanical explanation for the lateral deviation, the starting point of which has been at the seat of the lesion.)

Tillmanns[8] reports a series of eighteen laminectomies for paraplegia due to Pott's disease without a single lethal case. He advises the operation only after prolonged conservative treatment has been unavailing and expects success only when the tuberculous process is healed and an abnormal narrowness of the canal has resulted from regenerative proliferations of bony and connective tissue.

Becker and Papendieck[9] have come to the conclusion that the short spica, fitted with great care is efficient in the majority of cases in preventing the common flexion and adduction contracture in tuberculous disease of the hip. Only in those cases in which weight-bearing is painful do they employ rest in bed, a long spica, and traction.

Becker[10] taking as his text two cases of tuberculosis of the bursa trochanterica profunda discusses the anatomy, pathology, and symptomatology of tuberculous disease of the chief bursae about the hip joint. The attitude which the patient's leg assumes is an important aid in diagnosis, for example, flexion, abduction, and outward rotation, when the bursa subtrochanterica, or the bursa subiliaca are involved. He emphasizes the fact that the clinical picture frequently resembles that of tuberculous disease of the hip and that true hip disease may develop from bursal disease, especially in tuberculosis of the bursa ilio pectinea and bursa iliac subtendinea. In one of his cases he believes the bursal involvement was secondary to an earlier hip disease.

Wilms[11] writing on the physiotherapy of diseases of the joints, especially tuberculosis, concludes that as yet we have no certain indication in regard to the Roentgen ray and radium treatment of chronic diseases of the bones and joints. He believes that conditions of poor metabolism and poor absorption of exudates are suitable for such treatment, while marked cachexia and old age present contra-indications. His experience leads him to believe that tuberculous joints may be distinctly benefited by x-ray treatment. Fungus granulations are reduced, secretion is less, and the general condition is improved. He feels that especially in tuberculous diseases of the spine and hip, treatment in the better attitudes by means of heliotherapy is more efficient than the Roentgen ray.

Fründ[12] working in Garré's clinic reports 21 cases of bone tuberculosis treated by x-ray by the method of Iselin. Fründ's results have been far less encouraging than those of Iselin. Of these 21 cases only four are believed to be cured, three improved, 14 either seemed not to be affected or to grow worse. More favorable results were obtained in cases where the x-rays were employed after operative treatment. He feels that the action of the x-rays is merely local because remote parts remain unaffected, and while the exposed joint may heal another may become affected. Fründ is unable to explain the great difference in his results as compared with Iselin's except by supposing that the favorable formation of antibodies takes place differently in different regions.

ARTHRITIS.

Wallace and Child[13] have employed a freshly prepared extract of the pituitary gland of the ox in the treatment of "rheumatic arthritis." Of the eleven cases reported, six were children with multiple arthritis of the type of Still. The five adults comprised cases of osteo arthritis, muscular rheumatism, and monarticular rheumatism. They report that all showed betterment in general condition, pain, swelling, and joint movement. Blood pressure was slightly elevated, while the blood remained unchanged.

(ED. NOTE. The treatment had been under trial for a few months only, and the authors make no statement as to the theory of action of the extract. The effect of rest, fresh air, diet, and general hygiene, which these patients enjoyed must be reckoned with, in explaining the improvement which took place in all of the very different types of arthritis in this series.)

More and more is the consensus of opinion holding some infection responsible for at least those forms of chronic arthritis which occur in children and early and middle adult life. Thus Cokenower[14] is sure that our failures in treating these conditions are due to wrong diagnoses, not to improper local methods. He believes that except for traumatic conditions arthritis is only a manifestation of a disease whose real nidus is in some other portion of the body, and he believes that no treatment can be effective if the primary and contributing foci are not attacked.

Fuller[15] in his last series reports 69 cases of arthritis in which he has operated and found the seminal vesicles diseasesd, usually on account of a Neisser infection, but sometimes from an infection proceeding from the colon or rectum. Forty of his cases were of acute arthritis and the symptoms rapidly disappeared; 20 to 25 were chronic, and the improvement is not yet evident.

Schloss and Foster[16] have produced a polyarthritis in four monkeys by inoculating the streptococcus pyogenes into the blood stream. Their interesting inference from a study of the cases is as follows: A virulent pyogenic organism may live for a time in the blood stream without causing death by a general septicemia; that the life in the blood is short and that it may produce a toxine which may cause an arthritis. In their cases they noted the limitation of motion, the swelling, and the thickened synovial membrane, but they were unable to recover the

organisms from the blood except in the earliest stages of the symptoms. Immunity seemed to result from repeated injections. The suggestion is evident that streptococci, even virulent pyogenic varieteies, may gain entrance to the circulating blood, live there a short time, and produce toxines that may affect the joints. Perhaps repeated infections may cause a chronic arthritis. The short life of the organisms in the blood may explain the reason why they are so rarely recovered in cultures from the joints.

PARALYSIS.

Kling and Levaditi[17] believe that the transmission of poliomyelitis must be by direct human contact or by contact with human secretions of the nasopharynx, trachea, or intestines. This contact may be with typical poliomyelitis cases, with abortive cases, or with carriers of poliomyelitis, the latter two agents being frequently overlooked. They consider none the less that Wickman's theory of transmission by human contact in some form is probably correct and this conclusion is based upon much experimental work on monkeys and on the study of epidemics. They have noticed the fact that when an epidemic region is isolated the disease strikes hard, spreads rapidly, and in a short time entirely disappears. The incubation period may be as short as two or three days, and during this period before the onset of the graver symptoms the disease is transmissible. Sometimes two phases appear with a few days or even a few weeks intervening, the paralysis occurring in the second phase, but the subject being capable of infecting his surroundings during the whole period. These experimenters have not been able to demonstrate the virus in water, milk, dust, flies, or biting insects, either experimentally or in the epidemics, and they do not consider that the theory of its transmission by the stable fly (stomoxys calcitrans) is proved. As explaining the limitation of the disease they have found that the serum of persons living closely or intimately with poliomyelitis cases who do not contract the disease seems to contain anti-germicidal properties which neutralize wholly or partly the virus of poliomyelitis. This germicidal property in the individual, accounts for the selective action of the disease and the immunity of persons living in the same household.

Clark, Fraser, and Amoss[18] at the Rockefeller Institute, in connection with experiments to determine the persistence of the virus in the blood, have been unable to definitely transmit the disease by the bites of stable flies.

Anderson and Frost,[19] although their first series of experiments seemed to confirm Rosenau's findings as to transmission of the disease by means of the stomoxys calcitrans, were unable in a second series so to do.

The careful experiments of Sawyer and Herms[20] were also wholly negative as regards this method of transmission.

Ryerson[21] maintains that the deformities and weaknesses of poliomyelitis offer a far richer surgical field than is generally appreciated and that nearly all cases can be benefited by a carefully planned and carefully executed operation. Where deformity has become established he believes that operative measures rather than massage and apparatus are to be advised. In transplanting tendons he urges their insertion into a hole drilled in the bone as being less likely to allow stretching than the suture to the paralyzed tendon (Vulpius) or the periosteum (Lange). He reports four cases in which some improvement has occurred in the calcaneus by a long heavy silk insert from the senitendinosus into the os calcis. In six cases of nerve transplantation he has failed to find any nerve regeneration after about nine years.

Rich[22] reports the result of his experiences with the use of silk ligaments after the method of Lange in 48 cases. There was a primary infection in two, but the silk had to be removed finally in 18 out of the 40 ankle cases. He emphasizes the necessity of thoroughly burying the knot because of irritation which shoes, etc., cause. In the shoulder and the elbow his results have been good, but he believes the joints of the lower extremity are subject to too much strain for constant success. He prefers a method of capsule tucking and tendon shortening with the subsequent helpful formation of scar tissue.

OSTEOMALACIA AND RICKETS.

Bonnamour and Bodolle[23] believe that the causes of osteomalacia are very complex and extremely variable and that there is no single cause. Preceding the disease and having an etiological relation to it are three classes of disorders:

1. Those of an infectious origin. 2 Those of a glandular origin. 3. Those arising from a vice of nutrition.

They feel that the nervous system plays an important part in each class and adds a distinct element in producing the condition by reflex or vasomotor action, but they do not consider osteomalacia to be caused alone by an upset of the nervous system. Whatever the environment, youth, pregnancy, masculinity, senility, it is no more a distinct disease than glycosuria, which is caused by many conditions varying in significance, but having chemical likenesses. They look upon osteomalacia as a symptom consisting of decalcification of bone.

Stocker[24] has studied the influence upon the bones of generative glands implanted into the subcutaneous tissue. He has found that the glands continue to secrete in their new location. The hormones of these generative glands seem to influence metabolism in such a way that the bones remain soft and the change corresponds to that in rickets and osteomalacia. He concludes that both these diseases are caused by

hypersecretion of the generative glands and that a rational therapy would consist of the stimulation of the antagonists of these hormones by adrenalin, pituitrin, or thyreoidin.

In this connection Salis[25] reports the case of a woman of 42 who had had an osteomalacia develop during her pregnancies and recur during the intervals for sixteen years. None of the usual methods of treatment, including castration, eleven years before he had seen her, had given more than transient relief. Under epinephrin her pains and inability to walk disappeared and there was no further local tenderness, so that clinically she was cured.

CONGENITAL DEFORMITIES.

Club Foot. Fraenkel[26] has treated during the last three years 138 cases of congenital club foot, comprising 213 feet. He reports excellent results in all but two, and the illustrations, including one of a man 39 years with extreme talipes equinus, would seem to warrant his statement. He is strongly opposed to tenotomy of the tendo Achilles as a primary measure. The os calcis remains fixed in supination and a pes cavus frequently results. The open method is preferable to the subcutaneous, but he considers this should be done only as a final step intended to restore muscle balance, but not to facilitate redressment. Fraenkel doubts if it is ever necessary; it does not prevent recurrence, and Fraenkel has never done it, and has never seen a recurrence in his cases. His method is that of slow redressment in a suction apparatus with the use of baking in addition. After redressement, bandages and a spiral spring are applied in such a manner as to secure permanent correction. Fraenkel avoids injury to the bones and soft tissues, tenotomies, and frequent anesthesia. In infants two to six sessions are necessary. In the reported adult case the treatment lasted two years.

Congenital Dislocation of the Hip. In 344 cases of congenital dislocation of the hip treated by Blencke[27] during the last seven years by methods of simple reduction, he has obtained in 96% anatomic cures, and in 87% good results in both an anatomic and functional sense. In several cases a second and in one case a third reduction was necessary. Blencke has never employed the open method.

Cervical Rib. Seymour[28] has observed seven cases of cervical rib. In only one was there any scoliosis present and only two cases presented any symptoms referrable to the condition. The diagnosis was incidentally made in the course of roentgenological examination for pulmonary tuberculosis. In three of the cases a unilateral cervical rib was diagnosed before the x-ray and a bilateral condition found in the picture. He believes the bilateral condition much the more common, and that very rarely are there any symptoms of sufficient severity to warrant operation. Even a large-sized rib such as was present in several of his cases caused no inconvenience. He thinks the importance of cervical ribs as the cause of symptoms may be exaggerated.

Henderson[29] agrees with this, estimating that perhaps about 10% cause disturbances and these rarely before adolescence.

SCOLIOSIS.

Lance[30] has been using Abbott's method of correcting scoliosis almost since the detailed description of the method appeared. Lately he has published a small volume, carefully prepared and copiously illustrated. He considered the method a great advance and in cases of rather moderate severity he has been apparently able to obtain an over-correction. The x-rays, however, of "hypercorrected" cases in course of treatment show that the apparent hypercorrection does not always represent a complete correction of the original curve.

Peltesohn[31] considers Abbott's method represents progress in the treatment of scoliosis, although his own results he does not consider to have been ideal.

Whitman[32] also gives Abbot much credit for his effective method, but admits that the results which he (Whitman) has been able to obtain are not as favorable as those of Abbott.

Abbott[33] in an article appearing in August, 1913, shows a series of excellent photographs of three girls of 14, 16, and 18 years respectively, who had had apparently definite structural curvatures. He presents, however, no x-rays of these cases. Two of the cases seem to be entirely corrected and one over-corrected. He employs celluloid jackets and persistent exercise to hold what has been gained. He states that "almost any amount of over-correction may be obtained, limited only by the shape of the plaster jackets," and that "it is possible to remove the deformity in most cases of fixed lateral curvature, excepting the extreme type." He looks forward to the improvements of many details in order that less time may be required to secure the results.

(Ed. Note. No subject is attracting such widespread orthopædic interest at present as this subject of the correction of the fixed structural curves of scoliosis. It is just that it should be so, since no class of cases has been treated in the past with less satisfaction. Abbott and Forbes deserve great credit for stimulating interest by their original methods and for obtaining results not possible in the same length of time heretofore. To our minds, however, as yet neither of these men has furnished as conclusive proof as we might wish of their ability to constantly correct fixed curvatures of more than moderate severity. Forbes makes no claim to have done so, believing that his theory as to the correction of the rotation is a correct one and that practical details are sure to be worked out. Abbott is evidently becoming more deeply impressed than his early articles suggest with the difficulties of the problem. It is unfortunate that more accurate

and comprehensive data with careful chronology have not been presented by him in his articles or at his clinic. It is also a noteworthy fact that no one besides Dr. Abbott has presented any convincing series of results approaching Abbott's own in completeness of cure or constancy of results, and many able and trained orthopædic surgeons have faithfully tried the method. If the theory of etiology which holds that vertebral abnormalities of the low spine or sacrum are responsible for the development of the curves in a very large number of cases of scoliosis is correct, we must look to other methods than the forcible correction of the resulting deformity to remove the cause. These considerations are here presented not in disparagement, but in order that those who have not had experience with the method, should not propose too favorable prognoses or underestimate the difficulties of its application. It requires the expenditure of much time on the part of the orthopædic surgeon and much trained assistance. It is a severe tax on the strength and fortitude of the patient and is not unattended by actual danger. We believe it should not be attempted in the form which its author advises unless prolonged hospital care can be afforded and the patient clearly understands its irksomeness, its danger, and the prolonged after-treatment which is necessary in order to attain a result which has any assurance of representing a permanent cure or even a compensating betterment.

Mayet and Delapchier[34] have discovered in six months among 112 cases of scoliosis 42 cases of children who had as well symptoms of chronic appendicitis. The old fixed types have not been included in this study. Mayet and Delapchier conclude that chronic appendicitis is a frequent cause of scoliosis and that the abdominal and orthopædic surgeon must coöperate in this respect. The operation of appendicectomy must precede the treatment of the scoliosis, but careful exercises must also be prescribed after the operation has been performed.

FOOT CONDITIONS.

Cramer[35] after an analysis of over a 100 cases of "flat foot" concludes that the most important cause is weakness of the muscles and that the stretching of the ligaments and the alteration in the shape of the bones are purely secondary. He reports nine cases of severe valgus in which after redressement he has performed an arthrodesis between the astragalus and the scaphoid after the method of Ogston. The results have been good and he considers it indicated in cases where the scaphoid is considerably lowered and inwardly rotated but where the relationship between the os calcis and the astragalus is unchanged. The Achilles tendon should be lengthened at the same time, and in two of his cases the tendon of the extensor longus hallucis was lengthened and that the flexor longus hallucis was shortened.

Hahn[36] has examined 35 feet of 28 patients treated by open operation in Ernst Mueller's clinic in Stuttgart and has found that the wedge shaped osteotomy of the tarsus has no bad influence upon the growth of the foot. A moderate shortening of the foot such as takes place after this procedure of Mueller's cannot be considered a disadvantage in paralytic feet, which gain in firmness when shortened.

Pfahler[37] reports ten cases of "isolated disease of the scaphoid bone of the foot in children," the so-called Köhler's disease. It occurs from the third to the ninth year; all his cases were in boys and in about half there was a history of traumatism. The onset was fairly sudden and there was local tenderness and apparent bony thickening. The symptoms were relieved in a few days under rest and massage. The condition is evidently not tuberculosis, though Fassett[38] in reporting two cases is not quite ready to wholly abandon the theory. It is very possibly of the same nature as that present in the cases (7) of uncomplicated fractures of the tarsal scaphoid described by Horwitz.[39] In none of Horwitz's cases was there more than a slight injury and in some no appreciable traumatism, and yet in the x-ray the scaphoid tubercle was apparently fractured and physical examination showed tenderness and thickening as in Pfahler's cases, together with tenderness over the attachment of the posterior tibial tendon and some limitation of abduction. In Horwitz's cases also massage and strapping with soft felt pads gave speedy relief.

(Ed. Note. It seems to the editors that we are here probably dealing with a condition analogous to those partial separations of the tibial tubercle, the apophysis of the os calcis, the base of the fifth metatarsal, etc., which occur at a period when the growth of an epiphyseal bone center is likely to be disturbed by slight traumaata or repeated pulls of the strong muscles inserted into these centers. We do not believe they represent actual "isolated disease of the scaphoid," nor "uncomplicated fractures" in the sense in which the word fractures is generally used.)

Froelich[40] calls attention to the frequency with which the small supernumerary tarsal bones occur, and to their practical importance. The four most important ones are (1) the small bone external to the tibia, or supernumerary scaphoid; (2) the os trigonum, or supernumerary astragalus; (3) the os peroneum, or supernumerary cuboid, and (4) the isolated epiphysis of the fifth metatarsal. These little bones are frequently bilateral and in questions of fracture x-rays should be taken of both feet. Froehlich speaks of swelling, heat, and pain, frequently referred to the "supernumerary" scaphoid and epiphysis of the fifth metatarsal at the growing period, and here again we are apparently dealing with the same condition described above, which if no direct trauma is responsible, we believe to be associated with the repeated slight traumata of the strong muscles attached to these

growing centres or these supernumerary bones.

Nutt's[36] very readable book on diseases and deformities of the foot is written more for the general practitioner than for the orthopædic surgeon, and is valuable because it emphasizes the importance of proper treatment of these members of the body. There are not sufficient details of treatment given to make it a suitable text-book even for practitioners, but it will be of great assistance in diagnosis, and this is evidently its purpose.

MUSCLES AND TENDONS.

Cramer[42] has modified Rotschild's[43] operation in a case with complete defect of the trapezius on both sides. He lengthened the tendons of the pectoralis major on both sides and divided those of the minor. The deformity was then corrected to a great extent and a plaster cast applied for four weeks, followed by exercise for another month. At the end of this time a piece of fascia lata was fastened between the upper angles of the scapulae and attached to the spinous processes as well. There was an excellent functional result and the patient can elevate both arms almost completely.

Pascalis[44] reports two cases of Dupuytren's contracture upon which he operated and found the palmar fascia intact, the microscopic examination showing a fibromatosis of the subcutaneous tissue. He believes that the "retraction of the palmar fascia" is not the cause at least in many cases.

A. and E. Stoffel[45], evidently convinced that the results by and large of tendon transplantation are not all that can be desired, emphasize certain points which in their opinion are of much importance if constantly successful results are to be obtained. They believe that the morphology and physiology of the muscle must be considered. The muscle to be transplanted should correspond as nearly as possible in architecture, origin, and direction to the paralyzed muscle whose place it is to take. Moreover, an appropriate but not too great tension of the transplanted muscle is necessary to attain good function. It is not wise to use the transplanted muscle to keep the foot in corrected position, as is frequently attempted. They advise against the shortening of over-stretched muscles, pointing out that after correction of the deformity the muscle will take care of itself and that if the deformity is not corrected over stretching will again recur. In order to stimulate the transplanted muscle while the cast is in place the authors apply a fine wire to the nerve itself and allow it to emerge through the cast. The cathode of an electric battery is brought in contact with the wire and electrical stimulation is used several times a day.

ED. NOTE. We feel that more consideration should be given to the questions of tendon transplantation. We must admit that the results by and large are not all that can be desired. Too much is frequently attempted and still more frequenty questions of balance are not carefully studied and after treatment is sadly neglected. The suggestions which these authors offer seem to us helpful and sane.)

Warschauer,[46] after unsuccessful attempts to substitute fascial strips for the tendons of the fingers after injury or sepsis, has found that he can prevent the formation of adhesions by pulling the fascial strip through a portion of the saphenous vein removed at the time of operation. In two cases (one in three weeks, the other in four months) full or nearly full function was obtained.

Goto[47] has studied a boy of four years suffering from the so-called myositis ossificans progressiva. There were abnormal calcium deposits in various portions of the body, especially the back and the neck. He has come to the conclusion that the disease consists of a hyperplasia of the connective tissue, which shrinks or becomes ossified, and that the process starts from fascia, tendons, periosteum, or ligaments, and not primarily from the interstitial tissue of the muscle as it has been supposed to do.

JOINT SURGERY.

Giani[48] from the Surgical Clinic of the University of Rome reports a series of experiments on the transplantation of the epiphyseal cartilage of rabbits, from which he draws the following conclusions:

1. The epiphyseal cartilage loses very quickly every evidence of growth and is no longer capable of providing for the normal enlargement of bone.

2. The transplanted epiphyseal cartilage is capable of attaching itself and remaining alive for a very long time.

3. The possibilities of attachment and continued vitality are much greater in transplantations done according to the method of Helferich. This consists of taking an oseto cartilaginous disc including the epiphyseal cartilage and two thin laminae of bone, preserving carefully the perichondrium and periosteum. The chances of attachment are less in those where the epiphysis alone is transplanted and in those where only the cartilage is taken.

4. The involution of the transplanted epiphyseal disc occurs early, chiefly by the absorption of the cartilaginous tissue and later by ossification.

Deutschlaender[49] states that an injection of novocain into a joint cavity causes an anesthesia complete enough to allow manipulation or open operation if an Esmarch bandage has been applied. The anesthesia lasts twenty or thirty minutes, and the solution consists of a one-half percent. of novocain with adrenalin. This must be injected into the joint cavity and with large joints two injections may be necessary. If an open operation is to be performed the skin and

subcutaneous tissues must, of course, be infiltrated also.

Gibney,[50] whose long and varied experience makes his opinion valuable, has discussed the diagnosis and treatment of knee lesions in the adult. He has reached the conclusion that loose foreign bodies, torn semilunar cartilages, lipomata of the arborescent type, and fatty fringes do not respond well to any form of treatment other than operation. Certain relaxed knee joints liable to strain and causing to their possessors apprehension as to the knee giving way, may be strengthened by massage and exercise. In eleven cases, chiefly old healed tuberculous knees, he has attempted an arthroplasty after the method of Murphy, and in no single case has he obtained sufficient motion to be of value to the patient. He gives others credit for so doing, however, and believes in the future of the operation.

Goetjer[51] has written a monograph on injuries to the ligamenta cruciata of the knee joint. He reports thirty cases collected from literature and Tillmanns' clinic in Cologne. He believes the injury is usually caused by sudden forced extension with the lower leg restricted in motion, or by forced motion in flexion, inward rotation, and adduction. The chief symptoms are swelling due to hemorhage in the joint, and pain. A subluxation may occur. Tenderness at the joint line suggests the more common injury of the semilunar cartilages. If a piece of bone has been torn away (revealed by the Roentgen ray), an operation is advised for its removal. For this operation the method of Robert Jones, which consists of opening the joint by a vertical incision through the quadriceps tendon and splitting the patella longitudinally, seems ideal.

Goebell[52] has substituted an unopened toe joint for a resected middle joint of the little finger of the left hand in a violin player who had had a severe arthritis deformans. Good functional use is said to have been established.

Overbeck[53] reports a case of bilateral dislocation of the shoulder operated upon by Friedrich by dividing the long head of the biceps at its origin, drawing it around the head of the humerus and attaching it to the acromion, thus forming a posterior support for the humerus. The arm was fixed in flexion and adduction.

Schewandin[54] believes that the end results of arthrodesis of the ankle where the method of Lexer has been employed are in the majority of cases unfavorable. The operation consists in taking an auto transplant of bone in the shape of a peg and driving it into a hole extending through the os calcis, the astralgus, and into the tibia. He finds this inserted graft is usually eventually absorbed, the resorption being most noticeable at the cartilage of the tibia. The younger the patient the quicker was the absorption. In only two cases was there a partial bony anchylosis of the calcaneo astragaloid joint. In one case there was a bony bridge between the astragalus and the tibia.

BONE SURGERY.

Haas[55] has studied material obtained from rabbits, dogs, and cats, and concludes that periosteum in the presence of blood clot and perhaps entirely separated from pre-existing bone has the power to regenerate new bone. In his experiments regeneration never occurred without periosteum.

Schepelmann[56] found that "the entire" periosteum transplanted into omentum, spleen, liver, etc., regenerated persistent new bone.

Albee,[57] on the other hand, found that periosteum transplanted into muscle did not regenerate new bone. He thinks that the outer layer of the cortex is necessary, as do Macewen and as do Gallie and Robertson.[58]

E. W. Ryerson,[59] from a study of a large number of x-ray pictures, believes that the periosteum is not osteogenetic. He points out that the first parts to show any evidence of new bone formation are the medullary cavity and the surface of the bone in the line of fracture. The space where the periosteum is stripped up by the clot, the so-called osteo periosteal angle, is the last in which new bone is formed.

(Ed. Note. The experiments of Haas and others are convincing and there seems to be no reason to doubt the accuracy of the findings, but we are still left in doubt by the experiments of Macewen, Gallie and others. Is it not probable that the difference in the findings is explained by different conceptions as to what constitutes the periosteum? If what has been considered as the fibrous layer of the periosteum is carefully dissected away, regeneration of bone may not occur, but if the fibrous layer, together with the osteoblastic layer, is considered as representing the periosteum, there seem to be undoubtedly osteogenetic cells present capable of producing new bone at a distance from their origin and in tissue in which bone does not naturally occur.)

Kuettner,[60] writing on free transplantation of bone, concludes that auto transplantation is the only method in which it is at all certain that that transplanted tissue will remain alive. The trial of homo transplantation is justified only when the needed part cannot be taken from the patient, and where this is removed from a cadaver he emphasizes the importance of a careful autopsy and bacteriological examination. Heterotransplantation, although usually rejected, occasionally remains, as in a case of his own in which he transplanted the fibula from a Macaccus cynomolgus one and one-half years previous to his report, and the x-ray seems to show it still viable without signs of resorption. He quotes Bruck as giving the biological relationship of man to the simians as follows: 1. Man. 2. Orang outang. 3. Gibbon. 4. Macaccus rhesus and nemestrinus. 5. Macaccus cynomolgus. Man and Macaccus are much closer relatives than for example the rabbit and guinea-pig.

Koenig[61] has used ivory pegs to stimulate bone growth in pseudarthrosis. Bone tissue grows into ivory in time and the solidity of growth is helped by small depressions in the surface of the ivory and by cutting a screw thread. In an infected focus it does not heal as well and may act as a foreign body. He has successfully replaced the upper half of the humerus and the left lower jaw by ivory.

Greiffenhagen[62] speaks highly of the use of pegs made of horn in the treatment of fractures. Its cheapness and the fact that it can be kept in stock, can be sterilized, moulded by heat, and is said to heal easily in place commend it. If the horn peg cannot be inserted in the medullary cavity he recommends making an osteoplastic flap which is replaced after inserting the horn peg.

FRACTURES AND DISLOCATIONS.

Elsberg[63] believes that many of the so-called sprains of the back represent fractures of a portion of a vertebra or the rupture of a vertebral ligament, and that the apparent recovery which seems almost complete in a week or two is followed in a few months by annoying symptoms of nerve root or even cord pressure. In fractures of the cervical spine if complete paralysis does not immediately occur, he thinks laminectomy may relieve pressure and save the cord from further destruction. These cases with incomplete cord symptoms offer in his opinion a fine opportunity for the prevention of the edema that follows contusion of the cord. If the x-ray does not show displacement and lumbar puncture reveals blood within the dura it is likely that the symptoms are due to contusion of the cord and that the pressure may be relieved by operation. In old fractures of the spine the x-ray will often show new bone deposit narrowing the canal. Laminectomy in strongly advised in these cases as the only sure means of relief of symptoms.

Tilford[64] has reported two rather peculiar instances of latency of symptoms in fracture of the neck of the femur. They occurred in farm laborers of 17 and 15 years of age, the symptoms dating approximately from remembered falls. There was limping, eversion, wasting, and limitation of motions, suggesting tuberculosis. The x-rays of both, one three months after the injury and one twelve months, showed a fracture of the neck near the trohanter.

ED. NOTE. Except for the location of the fractures these cases suggest cases of adolescent rickets referred to in earlier reports.)

H. S. Souttar[65] has devised a steel plate 5-10 cm. long and 1 cm. wide, which has a thin ridge or flange running its whole length. This flange fits into a saw cut made longitudinally in the fragments, the plate being fastened to the bones by means of screws or encircling wires. The construction of the plate and its position in the bone give most complete fixation and exercise of the limb is begun early.

Colt[66] has designed an ingenious pair of grippers to approximate and hold the bone ends while some form of plate or internal splint is being applied.

MISCELLANEOUS.

Typhoid Spondylitis. Weissenbach and Bonhours[67] have analyzed over 100 cases of typhoid spondylitis. Only one per cent. occurred under ten years of age.

8 were between 10 and 15 years of age
22 were between 15 and 20 years of age
8 were between 20 and 25 years of age
10 were between 25 and 30 years of age
30 were between 30 and 35 years of age
10 were between 35 and 40 years of age
28 were over 40 years of age.

About half of the cases were of little severity. They consider immobilization begun early and continued until the case is well as the only treatment.

Orthopedics and the Sanatorium. Hall[68] has been applying in his sanatorium the principles of proper posture as developed by Goldthwait, realizing that most of the psychoneurotic patients have physical defects (perhaps unrecognizable), which may be responsible for their condition of disordered nerves and unbalanced mental condition He realizes the importance of posture, subtle as it is, in the treatment of those conditions needing the ordered routine of a sanatorium and his example must set a better standard for other institutions.

Influence of Skeletal Defects upon the Body in Health and Disease. Painter[69] has well expressed a truth we are all beginning to realize, that abnormal postures perhaps assumed as the results of skeletal defects may profoundly affect the individual and be the basic cause of many of the so-called chronic diseases whose etiology we by no means clearly understand. In his paper we see how far-reaching the effects of these skeletal defects may be. We are inclined to hestitate, fearing that in our enthusiasm we may forget much that we have learned. The cervical rib or dislocated lumbar vertebra does not usually cause acute disease and may give rise to no definite symptoms, and yet the posture which it induces may be a strong factor in determining the resistance of the individual.

It is a realization of the far-reaching evil effects of faulty posture, whatever its cause, and a vision of the inestimable, because not understood, good effects which proper posture may produce that has led to the formation of the American Posture League, of which Dr. Henry Ling Taylor of New York is secretary. The extent of its activities is yet to be seen, but if as the indications now point it can influence such things as the manufacture of various kinds of

wearing apparel, of seats in schools and in public halls and conveyances, its usefulness will be very far-reaching.

(Ed. Note. This report is based on a series of three hundred and five articles, etc., selected from about nine hundred titles having to do with Orthopædic Surgery, appearing in medical literature between March and Novmber, 1913. References are given to only such articles as have been selected for report and comment.)

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Reports of Societies.

FRANKLIN DISTRICT MEDICAL SOCIETY.

A regular meeting of the Franklin District Medical Society was held in Library Hall, Greenfield, July 14, 1914, the president, Dr. J. E. Urquhart of Ashfield, being in the chair and twenty-four members present. Dr. C. F. Canedy of Greenfield, read a comprehensive paper entitled, "Treatment of Placenta Previa." The discussion was opened by Dr. G. P. Twitchell of Greenfield. Dr. W. H. Pierce of Greenfield reported a complicated case of hydrocephalus in which he performed decapitation of the head and removed the trunk of the fetus *per vias naturales*. He then removed the head by abdominal Cesarean section, using only a pocket surgical case of instruments for the operation. The woman made an uncomplicated recovery. Dr. H. A. Suter of South Deerfield read a paper on "Renal Calculus." The discussion was opened by Dr. C. L. Upton of Shelburne Falls and many members took part. Dr. F. W. Murray of New York City, a summer resident, was elected an honorary member of the society. The consideration of the paper on vaccines and bacterines by Dr. A. H. Ellis of Greenfield was deferred until the next meeting.

Book Reviews.

A Synopsis of Surgery. By Ernest W. Hey Groves, M.S., M.D., B.Sc. (Lond.), F.R.C.S. (Eng.), surgeon to the Bristol General Hospital, consulting surgeon to the Cossham Hospital, lecturer on surgery at Bristol University. Fourth edition revised and illustrated. New York: William Wood and Company. 1914.

In this fourth edition, the author alludes to the "most unexpected extent of the circulation of this book," which, he says, "has made him keenly alive to his responsibility for its accuracy," and an examination of the volume seems to show that he has adequately met the responsibility. The book is, as a matter of fact, a glorified quiz compend. It is one of the few books of the sort which has come under the reviewer's notice, that can be recommended. It is definitely stated that it should be used only after the study of a complete text-book. Its arrangement follows that of Rose and Carless. The volume of six hundred pages is printed with small and clear type. The paper and binding are good; the size is convenient for use. Within the limitations mentioned, it may fairly be said that the book has accomplished the object of the writer.

THE BOSTON

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TRUTH-TELLING BY PHYSICIANS.

IT has been claimed with apparent show of reason that the practice of medicine fosters deceit in those who treat the sick. How painful to tell an invalid that he cannot recover. How much easier to evade and let the sufferer keep on hoping. To play up to "omniscience" with which the doctor has been endowed by countless patients is an undertaking which, of necessity, leaves faults of character in its wake. If the physician does not know all about every medical problem propounded by the layman he is promptly classed as being deficient and "not much good." If, on the other hand, he throws out his chest and speaks oracularly we hear, "What a well-informed man; how intelligent!" What wonder that the physician, especially the young practitioner, tries to meet the requirements of the public when a smattering of knowledge of medicine and a little assurance will satisfy the average person untrained in the science. Once embarked on a know-it-all career and a habit is soon formed.

To counteract this stigma on the profession, a school of truth-telling physicians has sprung up, some of them fresh from the laboratories where elusive truth is sought. They boast that they not only write their prescriptions in English rather than in undecipherable Latin, but they tell their patients the exact nature of their complaints with the correct prognosis; they make no concealment whatever.

Let us scrutinize one or two of the doings of a truth-teller. Not long ago a physician in one of the smaller cities had as a patient a man of advanced years afflicted with chronic heart and kidney disease. The cardiac compensation was fairly well established and the man had been enjoying reasonable health under careful medical guidance. Wishing his patient to have the benefit of hydrotherapy the physician sent the man to a hydrotherapeutic establishment in a nearby city, only to have his patient return to him in a distressed frame of mind, and gradually to lose ground, with a fatal termination in the course of a few months. What had happened? The man on presenting himself at the baths had undergone, in the usual routine, a physical examination at the hands of the brilliant young physician in charge. This physician, being a truth-teller and finding the heart and kidney disease, told the patient and he, believing himself to be only slightly ill, attaching undue weight to the medical terms applied to the diseases of his organs, formed the conclusion that he was in a very bad way, that his physician had been deceiving him and went home hopeless, with the result already stated.

Some day the public may come to regard their bodies as intricate machines, like their automobiles, and not necessarily perfect. If it will get you about with only one cylinder working, send up a prayer of thankfulness, for it might not go at all. At the present time most laymen regard their bodies as faultless in all essentials unless there is some visible defect, such as a crooked nose, a lame leg or a birthmark. To be informed that the pathologist finds two out of three individuals to have caseated foci of healed tuberculosis in the lungs, does not mean that you have a focus in your lungs; it is the other fellow who has one, and you feel aggrieved at any suspicion that your body may have concealed in it the slightest blemish. The question looms large whether there are many of the sick who are fitted by temperament to look the facts of ill health squarely in the face without flinching, provided always it is possible to convey to persons who lack an understanding of the A B C facts of medical science, the exact status of bodily conditions. No one tries to explain the abstruse truths of science to the child because it is plain that he cannot understand them. The unstudied layman is a child. What boots it to the invalid to try to know all about his case, and how often does he succeed in doing so, even if he has had a medical training and thus has been behind the scenes? He needs

confidence in his physician and hope—hope at least that by bearing his burdens bravely he may help others, and thus indirectly, himself.

What is the truth? Democritus said, "But we know nothing really, for truth lies deep down." The task of fetching truth from the bottom of the well is seldom as easy as it seems to the neophyte, therefore should the truth-teller hasten slowly in imparting his findings. Here is another happening of several years ago. A noted clinician was called to see a brother practitioner who was suffering with abscess of the lung. The consultant, a truth-teller, made his physical examination and pronounced the case one of tuberculosis and gave the patient a most grave prognosis. Not long after, the abscess discharged spontaneously into a bronchus, and the patient recovered completely and now, in good health, is practising medicine. Perhaps a larger experience and a shade more of self-analysis might have prompted this truth-teller to confess that his diagnosis and prognosis were not the truth, the whole truth and nothing but the truth.

Everyone makes mistakes, and on this account if on no other, in the practice of such an inexact science as medicine, a proper humility as to our ability to forecast the future is becoming in members of the profession.

The effect of truth—given that it is the truth—upon suffering humanity is to be reckoned with in a discussion of the advisability of communicating medical facts to patients. The wise physician realizes that human nature is most diverse in its aspects; he takes into account the greatest number of the traits of character of his patients; he is more often taciturn than talkative; he thinks twice before speaking the truth.

"For truth itself has not the privilege to be spoken at all times and in all sorts" (Montaigne).

WHAT DOES NOT BELONG TO NEURASTHENIA.

In a chapter with the above title Dejerine and Gauckler[1] discuss, in a sane and interesting manner, some of the numerous conditions which do not belong to neurasthenia.

The diagnosis of neurasthenia is so frequently made by most physicians, and the occurrence of neurasthenia is so widespread, that it is well worth while reviewing briefly some of the clinical pictures which closely resemble neurasthenia but which really do not belong to it. These other conditions are not true neurasthenia, and consequently should be classified as false neurasthenias, pseudo-neurasthenias, or neurasthenoid conditions. We may mention here that these false neurasthenias or neurasthenoid states are by no means of infrequent occurrence, and their differentiation from true neurasthenia is most important from various standpoints, particularly from the therapeutic viewpoint.

What, then, are some of the conditions which are frequently mistakenly diagnosed as neurasthenia? It may be said that many conditions whose relation to neurasthenia is more apparent than real and in which the pathogenic causation is different are often so classified. As a matter of fact, many practitioners are in the habit of pigeon-holing under the nosological label of neurasthenia all those functional nervous disorders which are not frankly of the hysterical variety. Such a standpoint is not only not scientific but is full of possibilities of serious consequence to the patient whose condition has been wrongly diagnosed.

Perhaps the most frequent error in the diagnosis of neurasthenia is the tendency to confuse fatigue and exhaustion on the one hand with neurasthenia on the other. Conditions of simple fatigue or exhaustion from physical or intellectual overwork or overstrain, with resulting signs of intense physical and mental fatigue, do not belong to neurasthenia. It is true, however, that such an individual may become a neurasthenic if, in addition to his feelings of fatigue, there is added any emotional state on which are grafted obsessive preoccupations. Although the fatigue may, to a certain extent, reënforce the emotionalism and in this way constitute an etiological factor of neurasthenia, as of many other affections, yet it is not the direct pathogenic factor and does not of itself constitute a neurasthenic phenomenon.

Of course, the subjective and objective phenomena are the same in fatigue occurring in neurasthenia as a result of some continued emotional cause, as in fatigue due to any other physical or mental cause.

Overwork itself, unless accompanied by associated emotional conditions, is not a pathogenic factor of true neurasthenia. The phenom-

[1] In their book entitled "The Psychoneuroses and Their Treatment by Psychotherapy," translated by Jelliffe. Philadelphia, 1913.

ena of fatigue and exhaustion are not a necessary part of the picture of neurasthenia. And fatigue, exhaustion and neurasthenia are by no means synonymous. Nor are overwork and overstrain a necessary preliminary to the development of neurasthenia.

It may also be noted that pure fatigue or exhaustion, not related to overwork, emotion, simulation or auto-suggestion, and coming on at puberty and adolescence, is frequently accompanied by vasomotor and general metabolic disorders, is truly organic in nature, and does not come within the purview of true neurasthenia. These latter conditions are organic disturbances of bodily growth and evolution.

In this connection we may refer to the so-called neurasthenias of the menopause and of the critical age in men. These are really organic disturbances of the involutional period of life, and we find that the condition usually disappears spontaneously when organic equilibrium has been reëstablished. Of course, if there are added to the general picture certain hypochondriacal preoccupations resulting from an exaggerated state of emotionalism, true neurasthenia may result.

The general fatigue picture, physically and mentally, may be seen in the early stages of general paresis and in arteriosclerosis, in which conditions neurasthenoid states are rather common. The picture is also frequently found in cases of exophthalmic goitre and in Addison's disease.

Post-influenzal and post-typhoidal conditions often present pseudo-neurasthenic syndromes, and it is likewise a fairly common occurrence in early tuberculosis and in diabetes. In fact, in chronic infections and intoxications we frequently come upon false neurasthenias.

Viewing the subject from the mental side, we find that many disturbed mental states are wrongly called neurasthenia in a large proportion of cases, thus leading to considerable confusion and at times to disastrous consequences. We have already referred to general paresis in its early stages. The same applies to cerebral and cerebrospinal syphilis. Mild cases of the depressive phase of manic-depressive insanity, now quite generally referred to as cases of cyclothymia, are not infrequently labelled neurasthenia. Early or mild cases of dementia precox should in like manner be carefully distinguished from neurasthenia proper. Hypochondriasis is not uncommonly diagnosed as neurasthenia by many physicians. And we must not forget that psychasthenia, with its obsessions, doubts and phobias, does not belong to neurasthenia. It is needless to mention that hysteria should be sharply demarcated from neurasthenia, and yet, strange to relate, these two conditions are often confused one with the other.

A survey of the literature on the subject of neurasthenia, and a review of the various protean and widely different conditions which have been labelled neurasthenia by a great proportion of practitioners of medicine will soon convince one that there is considerable confusion and uncertainty with respect to the use of this term. A taking of stock, with a clearer conception of just what neurasthenia is not, will often aid one immensely in remembering more definitely exactly what we mean by neurasthenia, with its delimitations.

We believe that the definition of neurasthenia laid down by Dejerine and Gauckler should be of considerable value in this respect. According to these authors neurasthenia may be defined as a "condition constituted by a general ensemble of phenomena which result in the non-adaptation of an individual to any continued emotional cause, and the struggle of that individual to bring about such an adaptation."[2] In other words, preoccupation is a *sine qua non* of neurasthenia, and the cause of neurasthenia is always to be found in some emotional factor.

[2] *Loco citato*, p. 235.

THE WILLIAM H. WELCH ENDOWMENT.

ON Monday, July 6, delivery was made at Baltimore of securities valued at $1,500,000, presented by the General Education Board to the Medical School of Johns Hopkins University. This gift is to be known as the William H. Welch Endowment for Clinical Education and Research. The securities were accepted on behalf of Johns Hopkins Medical School by Mr. R. Brent Keyser, chairman of the board of trustees. The actual transfer of the principal of this fund to Johns Hopkins University signifies that an important and novel feature relating to the gift has become an accomplished fact, namely, that the organization of the Medical School shall be so arranged that the entire income from this fund can be utilized for the support of full-time teaching and research de-

partments of medicine, surgery, and pediatrics.

The express proposal made by the trustees of the Johns Hopkins University was that in reorganizing these three departments, professors and their assistants should hold their posts on the condition that they become salaried university officials, and that they accept personally no fees whatever for any medical or surgical services which they might render. The hospital wards and out-patient departments are to be under the control of the university medical or surgical teachers, but over and above their work in the public wards, the teachers are to be free to render any service required in the interest of humanity and science. They are to be free to see any patient that they desire to see. Patients, however, of the usual private type will pay a reasonable fee to the University, rather than to the professors personally. The time and the energy of the professors are to be fully protected, not only because their salary eliminates financial interest on their part, but because they are themselves to become sole judges as to whether or not particular cases shall or shall not command their personal attention. In order that the time and energy of the professors thus safeguarded might be properly utilized under favorable conditions, the endowment was made large enough to provide adequate salaries to attract the ablest professors and also to provide them with assistants, well-equipped laboratories, books, and other necessary facilities.

Simultaneously with the completion of the reorganization of the Johns Hopkins Medical School in accordance with this new plan, the University trustees have chosen Dr. Theodore C. Janeway, hitherto professor of medicine at Columbia University, to become professor of medicine of the Johns Hopkins Medical School, the position once held by Sir William Osler. The chair of surgery at Johns Hopkins, under the full-time arrangement, is to be occupied by Dr. William S. Halsted, most of whose surgical career has been passed in the Johns Hopkins Medical School, where, since the establishment of the Johns Hopkins Hospital, Dr. Halsted has been its surgeon-in-chief and professor of surgery. The chair of pediatrics will be occupied by Dr. John Howland, who was called a year ago from the professorship of pediatrics at Washington University, St. Louis, and appointed physician in charge of the Harriet Lane Home for Invalid Children, this institution being the pediatric clinic of Johns Hopkins Medical School.

Johns Hopkins will thus become the first medical school to be placed upon the full-time basis in all departments. A grant of $750,000 has been made to Washington University, St. Louis, and of $500,000 to the Medical School of Yale University, upon an understanding that they also reorganize their work so as to put their clinical teaching upon a full-time basis. The full-time scheme is a plan to ensure to hospital work and medical teaching the undivided energy of eminent scientists, whose efforts might otherwise be distracted by the conflicting demands of private practice and clinical teaching. The full-time scheme is an appeal to the scientific interest and devotion of the clinician, and it is significant that the first three full-time posts created have been filled by men of conspicuous professional standing, all of whom have made great sacrifices in order that they might enjoy ideal conditions for clinical teaching and investigation.

THE NEW BOARD OF INSANITY.

The Governor has sent these names to the Executive Council as members of the Massachusetts State Board of Insanity under the law recently passed by the Legislature reorganizing the board: Michael J. O'Meara, M.D., Worcester, *Chairman*; L. Vernon Briggs, M.D., Boston; Charles E. Ward, Buckland.

The two physicians on the board were members of last year's board, which was so notoriously inharmonious that reorganization became necessary. Senator Ward drew the bill but has had no experience in directing the care of the insane. Already the provisions of the law removing from the trustees of the different institutions which are under the care of the board the control of these hospitals have resulted in several resignations of trustees who have given many years of trained service to the state, and more resignations will follow when there is a general appreciation that the trustees will, in future, have only an advisory function. The new board is burdened with almost superhuman duties of detail. We trust that it may find itself equal to them. In the past Massachusetts has been fortunate in its unpaid boards of insanity, containing often the foremost alienists of the state, and the reputation which has

been built up through the years for sound and progressive administration of the institutions in their charge has placed the Commonwealth in an enviable position before the world. The new law makes a radical departure in methods.

We hope that the appointees of the Governor, who are to devote their entire time to the work and receive a salary, may develop a high order of team work, may keep politics out of the management of our insane hospitals, and may not stray too far from the path blazed by their public spirited unpaid predecessors. The JOURNAL will be ready to applaud their successes and to condone such failures as may be due to an excess of zeal.

MEDICAL NOTES.

TUBERCULOSIS CENSUS OF CHURCHES.—A tuberculosis census of thousands of churches in various parts of the country will be taken in September, under the direction of The National Association for the Study and Prevention of Tuberculosis. The census will be part of the preparation for the Fifth Annual Tuberculosis Day to be observed during the week of Nov. 29.

The ministers of several thousand churches will be asked to report on the number of deaths from tuberculosis in the last year, the number of living cases in their parishes on Sept. 1, the number of deaths from all causes, and the number of members or communicants. These figures will be made the basis of an educational campaign, which will culminate in the Tuberculosis Day movement, for which occasion sermon and lecture outlines and other forms of tuberculosis literature will be distributed free to ministers.

Last year nearly 75,000 churches, schools, and other bodies took part in the Tuberculosis Day observance. The movement had the endorsement of leading church officials of every denomination. More than 1200 anti-tuberculosis societies scattered all over the country will work this year to make Tuberculosis Day a success.

AWARD OF THE HANSEN PRIZE.—It is announced that the Hansen prize for 1914 has been awarded to Professor Jules Bordet, director of the Pasteur Institute at Brabaut.

ADMISSION OF WOMEN TO PENNSYLVANIA MEDICAL SCHOOL.—It has been voted by the trustees that, beginning in the fall of 1914, women may be admitted as students to the University of Pennsylvania Medical School.

NEW CHINESE HOSPITAL.—It is announced that a new hospital is to be built in Canton, China, at a cost of $750,000. Dr. Lew Chee, of Pekin, is now visiting the United States to obtain information relative to its construction and maintenance

PLAGUE IN NEW ORLEANS.—Report from New Orleans, La., states that on July 28 the sixteenth plague-infected rat was discovered since the outbreak of the present epidemic in that city on June 27.

BOSTON AND NEW ENGLAND.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending Juy 28, 1914, are as follows: Diphtheria, 26; scarlatina, 14; typhoid fever, 7; measles, 47, of which 2 were non-residents; tuberculosis, 40, of which 3 were non-residents.

The death-rate of the reported deaths for the week was 12.08.

LOW BOSTON DEATH-RATES.—The total death-rate in Boston for the week ended July 18, 1914, was only 11.88, and the rate exclusive of non-residents only 9.79. This was the third lowest weekly rate hitherto recorded in this city during the past 18 years, the only previous better figures being 11.83 for the week ended June 18, 1904, and 11.78 for one week in 1903.

The total death-rate for the week ended July 25, 1914, however, was only 11.25, as against 12.2% for the corresponding week in 1913, and breaks all previous records for low mortality in Boston.

TYPHOID FEVER IN WATERTOWN.—During the week ended July 25, 26 cases of typhoid fever were reported in Watertown, Mass. It is believed that the source of infection has been traced to a local milk supply. As yet there have been no deaths in this epidemic.

NEW YORK.

AWARD OF THE ALVARENGA PRIZE.—It is announced that the Alvarenga Prize for 1914 has been awarded to Dr. Herman B. Sheffield, of New York, for his essay on "Idiocy and the Allied Mental Deficiencies in Infancy and Early Childhood."

A NEW PERIODICAL OF NURSING.—The first issue has just been published at Jamestown, N. Y., of *The Nurse*, a new "monthly journal of

practical knowledge" for nurses, wives and mothers. The leading article of this number is by Dr. S. Adolphus Knopf on "The Tuberculosis Nurse and the Tuberculosis Problem"; most of the others are by nurses. The periodical is attractive and well illustrated, and should prove a valuable new publication in the field of nursing.

Estate of Dr. Loeb.—The estate of the late Dr. Morris Loeb, of New York, was appraised in this city on July 28 at over $2,000,000. Upon the death of Mrs. Loeb, a fund of $500,000 will revert to Harvard College, and a trust fund of $250,000 to the Solomon and Betty Loeb Memorial Home for Convalescents.

Rabies.—In the first five months of the present year there was a notable increase in rabies among dogs in the city, as compared with the corresponding period of 1913. This occurred in all the boroughs except Brooklyn, in which a considerable decrease was reported. There was not, however, a corresponding increase in the number of cases in human beings, the number of infections being slightly less than last year, while only one death was recorded in the five months, as against eight in 1913. The existing city dog ordinance, which has never been at all rigidly enforced, requires that dogs on the streets must either be muzzled or kept in leash during June, July, August and September, but on July 20 the board of health passed an amendment to the Sanitary Code making the ordinance include the whole year, and an appropriation will be asked for to cover the expenses involved in carrying it out. Commissioner Goldwater entertains the hope that the campaign thus inaugurated may eventually end in the complete elimination of dogs from New York, holding that these animals are out of place in a large city,—serving no useful purpose, constituting a nuisance from the sanitary standpoint, and always presenting the menace of rabies. Another amendment to the code adopted was one restricting the use of wood alcohol entirely to commercial purposes. Every bottle containing this must now bear a poison label reading "Wood Naphtha or Wood Alcohol. Warning.—It is unlawful to use this fluid in any article of food, beverage, or medicinal or toilet preparation for human use, internally or externally." This amendment is said to be aimed specifically at barbers using cheap face and hair lotions and at persons who drink cologne water for the effect of the alcohol.

Sale of Habit-Forming Drugs.—Health Commissioner Goldwater has expressed the opinion that the Boylan law, restricting the sale of habit-forming drugs, which went into effect on July 1, ought to be amended, as it was interfering with the legitimate practice of medicine. While the new law might be ideal from a police standpoint, he said, it certainly was not from that of the physician. In enunciating this opinion he believed he was voicing the views of many of the profession, as he had already received a number of complaints and protests regarding the statute.

Glanders.—A man who had contracted glanders while working in a livery stable in Jersey City died from the disease on July 26 in Bellevue Hospital, where he had been taken three days previously. It is stated that, owing to the prevalence of glanders in the neighboring parts of New Jersey, the health department has been maintaining a strict inspection of all horses and mules crossing to New York by the ferries.

Dr. Jablons Honored.—On July 25 Dr. Benjamin Jablons of New York was presented by Prof. M. I. Pupin of Columbia University, honorary consul-general of Servia to the United States, awarded by King Peter with a gold medal conferring membership in the Order of St. Sava, which had been awarded by King Peter in recognition of Dr. Jablons' services in hospital work in Servia during the hostilities in that country in 1912. Similar honors have been conferred upon two other American physicians, Dr. McKinley of Chicago and Dr. Rosencrans of Los Angeles.

Gift to Bowdoin College.—Bowdoin College has received a gift of $15,000 from the estate of the late Dr. Frank Hartley, the New York surgeon, to establish a scholarship fund as a memorial to his father, John Fairfield Hartley, of the class of 1829, who was for many years assistant treasurer of the United States.

Mortality for Week Ending July 25, 1914.—There were 1,331 deaths and a death-rate of 12.44 per 1000 of the population reported during the past week as against 1,249 deaths and a death-rate of 12.13 for the corresponding week

of 1913, an absolute increase of 82 deaths, with an increase in the rate of .31 of a point, equivalent to a relative increase of 35 deaths.

The mortality from measles, diphtheria and typhoid fever showed a considerable increase over that of last year, as did that of organic heart disease and Bright's disease and nephritis. On the other hand, the mortality from whooping cough was considerably below that of last year, as was that of tuberculosis. The mortality from scarlet fever, diarrheal diseases under five years, other digestive diseases and lobar pneumonia was approximately the same. There were eight deaths from sunstroke, as against four.

Viewed from the point of age grouping, the mortality of infants and children between one and five years of age was somewhat below that of last year, while that at the age groups five to sixty-five years and sixty-five years and over, was considerably above.

The death-rate for the first thirty weeks of 1914 was 14.37 per 1000 of the population, as against a rate of 14.67 for the corresponding period of 1913, a decrease of .30 of a point.

Current Literature

MEDICAL RECORD.

JULY 18, 1914.

1. EINHORN, M. *The Diagnosis and Treatment of Gastric and Duodenal Ulcers.*
2. GRUBBÉ, E. H. *X-Ray and Radioactive Chemicals in the Treatment of Gynecological Conditions.*
3. *MCDONALD, E. *Treatment of the Toxemia of Pregnancy by the Duodenal Enema.*
4. MCKINNISS, C. R. *The Value of Eugenics in Huntington's Chorea.*
5. FERRIS, A. W. *A Brief Outline of the Carbon Dioxide Bath and Its Uses.*
6. HELD, I. W. *General Diagnosis and Treatment of Diseases of the Pancreas.*

3. McDonald has had remarkable results with the "duodenal enema" in the toxemia of pregnancy. He inserts a tube (caliber 12 F.) into the stomach and syringes in eight ounces of physiological salt solution to check vomiting, then pushes the tube on into the duodenum and pours in 4 to 6 grams sodium sulphate dissolved in one liter of water. Within one hour after this procedure the entire intestine is flushed out and the cause of the toxemia is removed. The writer has used this method with success in other toxic conditions. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

JULY 18, 1914.

1. GOFFE, J. R. *The Biochemical Function of the Endometrium in the Etiology of Metrorrhagia and Menorrhagia.*
2. PEDERSEN, V. C., AND DARLING, B. C. *Mensuration and Projection of the Posterior Urethra and Vesical Floor by Means of Posterior Urethral Calipers and Radiography.*
3. *WOOD, A. C. *On the Prevention of Cancer.*
4. AYRES, W. *An Instrument for Direct Application of Radium to Neoplasms of the Bladder.*
5. ABRAHAMS, R. *Valvular Disease in Infancy and Childhood.*
6. HANSELL, H. F. *Acute Double Optic Nerve Atrophy.*
7. NEUHOF, H. *Unusual Complications in Renal Tuberculosis.*
8. REED, A. C. *Alkaloids.*
9. PARKER, G. *Purpura Hemorrhagica.*

3. Wood says that in the future the attention of the profession must be concentrated on the lesions that lead to cancer and their prevention, rather than on the early diagnosis of the disease. The most certain way to control cancer is to prevent its occurrence. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JULY 18, 1914.

1. HALSTED, W. S. *A Case of Iliofemoral Aneurysm Exemplifying the Value of the Preliminary Partial Occlusion of an Artery in the Treatment of Aneurysm.*
2. *PILCHER, J. D. *The Absorption of Epinephrin from the Nasal Submucosa.*
3. CALHOUN, F. P. *Hereditary Glaucoma (Simplex). The Report, with Operative Notes, of Three Generations of One Family.*
4. PARKER, W. R. *Sclerocorneal Trephining for Glaucoma.*
5. POSEY, W. C. *The Value of Miotics in Chronic Glaucoma.*
6. BROWN, E. V. L. *Late Infection Following a Trephining for Glaucoma.*
7. HABTZELL, M. B. *Granuloma Annulare.*
8. MCCORD, C. P. *The Pineal Gland in Relation to Somatic, Sexual and Mental Development.*
9. PARK, W. H., AND NICOLL, M., JR. *Experiments on the Curative Value of the Intraspinal Administration of Tetanus Antitoxin.*
10. MARCY, H. O. *Vesicovaginal Fistula and Rectovaginal Fistula.*
11. *GRADWOHL, R. B. H. *The Hecht-Weinberg Reaction as a Control over the Wassermann Reaction. A Study Based on One Thousand Parallel Tests with Both Methods.*
12. HALL, M. C. *An Unusual Case of Fatal Poisoning from the Administration of Male-Fern as a Vermifuge.*
13. *DAVIS, L. *Shotgun Wound of Abdomen, with Rupture of Pregnant Uterus.*

2. Pilcher points out the danger of the submucous injection of epinephrin in cases in which there is high blood pressure.

11. Gradwohl believes that many cases of occult syphilis may be brought to light by the Hecht-Weinberg test as a control on the Wassermann reaction.

13. Davis reports an extremely interesting case of gunshot wound of the abdomen and pregnant uterus with numerous perforations of small intestine and recovery. [E. H. R.]

THE LANCET.

JULY 4, 1914.

1. SHUFFLEBOTHAM, F. *The Milroy Lectures on the Hygienic Aspects of the Coal-mining Industry in the United Kingdom. Lectures IV and V.*
2. GILES, A. G. *Meditations on One Thousand Consecutive Abdominal Operations at the Prince of Wales' General Hospital.*

3. *Fearnsides. E. G. *Diseases of the Pituitary Gland and Their Effect on the Shape of the Sella Turcica.*
4. Morrison, J. *A Case of Triplets Successfully Breast-fed.*
5. Johnson, W. *A Pathological Investigation of Four Cases of Pituitary Tumor.*
6. McKenzie, D. *Removal of a Foreign Body from the Larynx by Suspension Laryngoscopy.*
7. Hewlett, R. T. *The Milk and Dairies Bill and the Bacteriological Examination of Milk.*

3. This is a clinical discussion of diseases of the pituitary, with a description of 12 cases, examples of various types of acromegaly. [J. B. H.]

British Medical Journal.

July 4, 1914.

1. MacDonald, J. A. *The British Medical Association in Australia.*
2. Colt, G. H. *Three Cases of Fracture in the Neighborhood of Joints Treated by Plating.*
3. Horsley, V. *Note on Hemostasis by Application of Living Tissue.*
4. Stevenson, W. C. *Preliminary Clinical Report on a New and Economical Method of Radium Therapy by Means of Emanation Needles.*
5. Mowzt, H. *The X-Ray Treatment of Tuberculous Glands.*
6. Whitbry, V. *A Suspected Case of Foot and Mouth Disease in Man.*
7. Parnell, G. C. *A Clinical Test for the Estimation of the Percentage of Glucose.*
8. Dougal, D., and Bride, T. M. *A Case of Cyclopia.*
9. Pybus, F. C. *A Case of Left Duodenal Hernia in a Child.*
10. Bird, F. D. *Operative Reduction of Old Elbow Dislocation.*
11. Bacot, A. W. *Naphthalone for the Destruction of Mosquitoes.*

The Practitioner.

July, 1914.

1. *Duckworth, D. *The Diagnosis and Treatment of Tropical Hepatic Abscess.*
2. *Collie, J. *The Necessity for a Systematic and Complete Examination of the Nervous System in Medico-Legal Cases.*
3. Grant, J. W. G. *The Traumatic Neuroses: Some Points in Their Etiology, Diagnosis and Medico-Legal Aspects.*
4. *Pitt, G. N. *Pyrexia—of Obscure Origin.*
5. Telling, M. *A Plea for the More Systematic Employment of Treatment by Suggestion.*
6. Ladell, R. G. M. *Some Practical Points in Connection with the Use of Therapeutic Suggestion.*
7. Long, C. E. *Psycho-Analysis.*
8. Sheill, S. *Recent Cases Presenting Points of Obstetrical Interest.*
9. Willcocks, R. W. *The Occurrence of Pellagra in England.*
10. *Nicholson, F. D. *Some Experiments in Connection with Orthostatic Albuminuria.*
11. Thursfield, H. *Recent Work on Children's Diseases.*
12. Burton, A. H. G. *Difficulties in Tuberculin Administration.*
13. Connell, R. *Two Cases of Schlatter's Sprain.*

1. Duckworth gives the following points as characteristic of amebic hepatic abscess: The course is often latent and insidious, connection with dysentery is not always traceable, infrequent in women, unknown in children, rare before 20 years of age. They may occur in temperate and careful living persons. There is usually slight jaundice while the spleen is not enlarged.

2. Collie gives in great detail the necessary steps which should be taken in the examination of the nervous system in medico-legal cases. This should be of much value to those engaged in such work.

4. Pitt, out of 3500 cases found 36 (1%) with a diagnosis of merely "pyrexia." These cases of unknown fever he proceeds to analyze. The most common causes of such fever were typhoid, cryptic suppuration, tuberculosis, and ulcerative endocarditis. He presents cases in detail as examples of fevers of uncertain origin. In childhood and infancy the important causes of unknown fever are: (1) central pneumonia, empyema, pericarditis and meningitis; (2) influenza, otitis and acute tuberculosis; (3) pyelitis; (4) indigestion; (5) exhaustion and excitement; (6) traumatism.

10. Nicholson examined the urine of 189 boys in school at different periods, such as after dressing, after breakfast and after football. Seven per cent. showed albumin after breakfast and 10.7% after football. Of 53 albuminurics he rejected all but 10 on account of some organic disease. He describes an elaborate series of tests carried out on those ten boys, such as the influence of blood coagulability, the effects of diet, especially of albumin and its relation to posture; blood pressure, cold bathing, mobility of the kidney are all points considered in detail. The article represents much careful work and presents many new ideas on the subject of orthostatic albuminuria. [J. B. H.]

The Quarterly Journal of Medicine.

Vol. 7. No. 28. July, 1914.

1. Gardner, A. D. *Aggressives in Appendicitis and Some Other Varieties of Peritonitis.*
2. *Parton, Tidy, and Pearson. *The Leukemias. An Analysis of Fifty-nine Consecutive Cases.*
3. *Biglard, A. D. *The Fragility of the Red Blood Corpuscles in Physiological and Pathological States.*
4. White, W. H., et al. *Study of a Case of Very Pronounced Cheyne-Stokes' Breathing.*
5. *Johnson, W. *The Importance of Functional Activity in the Etiology of Nervous Diseases.*
6. Melvin, G. S., and Murray, J. R. *Blood-pressure Estimations in Disease by the Oscillatory and Auditory Methods.*
7. *Mutch, N. *The Formation of B-Aminazolylethylamine in the Ileum of Certain Constipated Subjects. With a Note on the Urine in Constipation.*
8. *Batten, F. E. *Family Cerebral Degenerations with Macular Change (So-called Juvenile Form of Family Amaurotic Idiocy).*
9. Sladden, A. F. S. *Critical Review. The Diagnosis of Pancreatic Disease.*

2. This paper contains a wealth of material, but little new. Of the 59 cases, 16 were classified as acute myeloid, 29 as chronic myeloid, 8 as acute lymphoid and 6 as chronic lymphoid. Under diagnosis the authors omit reference to Cabot's "infectious lymphocytosis," which may for a time very closely simulate lymphatic leukemia.

3. A new technic is described for testing the fragility of the red corpuscles by means of saponin, and the results obtained in a number of diseases are given.

5. Johnson discusses the application of Edinger's exhaustion theory to concrete instances of various organic nervous diseases due to toxins. Edinger found structural changes in the spinal cords of normal rats after excessive exercise, and these changes were much more marked if the animals had been previously poisoned or rendered anemic. Edinger's exhaustion theory of tabes and other nervous dis-

cases is that the toxins alone are not enough to cause the disease, a second factor, that of fatigue, is necessary, and determines which muscles or sets of muscles are affected. In the case of general paralysis of the insane it is the brain which has been subjected to undue fatigue and therefore becomes diseased. Johnson analyzes a large number of personal cases with this point in view, and finds that the cases of "leg tabes" all were subjected to over-exercise of the legs, while the cases of "arm tabes" did more work with their arms, and out of 6 cases of primary optic atrophy in tabes, 5 were found to have been working by artificial light, which subjects the eyes to increased strain. The effect of occupation in determining what muscles are to become paralyzed was well shown in lead poisoning. In painters, for instance, wrist-drop was almost invariably the form of paralysis. It is not the "selective" action of the lead which picks out the extensors and spares the supinator longus, but paralysis occurs in the muscles most exposed to fatigue in the individual case. This theory accounts for the clinical resemblance of nervous diseases due to different toxins. It is well known, for instance, that syphilis, alcohol, lead, ergot and pellagra, all may produce ataxia of a similar type (tabes and pseudo-tabes). Furthermore, syphilis, alcohol and lead all affect that part of the nervous system whose functional activities in a given case are greatest, so that we have tabes, paresis, or tabo-paresis in the case of syphilis, peripheral neuritis or alcoholic dementia in the case of alcohol, etc.

7. B-aminazolylethylamine is formed from histidin by the action of certain strains of bacillus coli. It is an intensely poisonous substance. Mutch found a distinct lowering of the blood pressure after the administration of 6 milligrams to human beings. He examined the contents of the lowest part of the ileum in eleven patients in whom colectomy was performed as a cure for constipation, and found in four of them bacteria capable of making appreciable amounts of B-aminazo. from histidin. All four of these patients had blood pressure below 110 mm., while all the others were above this figure.

8. Batten reports three children in one family showing progressive cerebral degeneration similar to that of family amaurotic idiocy, but differing from that disease in that the onset is later, in early childhood instead of infancy. Jews are not especially affected, and the changes in the macular region of the eye are not so constant nor so characteristic. The changes in the cells of the cerebral cortex and in the pyramidal tracts and cerebellum were identical with those of amaurotic idiocy. Other families are cited from the literature. [W. T.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 23. JUNE 9, 1914.

1. STUBER, B. *The Etiology of Gastric Ulcer.*
2. *MACHWITZ, H., ROSENBERG, M., AND TSCHERTKOFF, J. *The Pathology of the Nephritides and Their Functional Diagnosis.*
3. MÜLLER, E. *Radiological Studies on the Sources of Error in the Clinical Estimation of the Size of the Heart.*
4. NANU-MUSCEL, J., AND ALEXANDRESCU-DERSCA, C. *Noguchi's Luetin Reaction.*
5. LAUDA, W. *Abderhalden's Reaction.*
6. BERG, R. *The Development of Arthritis.*
7. SCHMIDT, A., AND OHLY, A. *Congenital Enlargement of the Duodenum with Diverticulum Formation.*
8. *FLÖRCKEN, H. *The Treatment of Pernicious Anemia.*
9. SCHERER, E. *Scorbutus in German Southwest Africa.*
10. LEVINGER. *The Treatment and Prophylaxis of Peritonsillar Abscess.*
11. MÜLLER, H. *The Treatment of Soft Chancre.*
12. MELIKJANZ, O. *A Modification in the Technic of Abderhalden's Dialysis Method.*
13. FERRAI, C. *The Occurrence of Proteolytic Ferments in the Serum of Burned Rabbits.*
14. FISCHER, A. *The Hygienic Importance of Mothers' Insurance.*
15. MÜLLER, L. R. *Inaugural Address at the Opening of the Medical Polyclinic in Wurzburg.*

2. Machwitz, Rosenberg and Tschertkoff have studied functionally 48 cases of nephritis, thirteen of which were autopsied. The tests for renal function employed consisted in the water, lactose, sodium chloride, potassium iodide and nitrogen excretion tests, the concentrative ability of the kidney and the determination of the accumulation of urea and incoagulable nitrogen in the blood. These authors conclude that the potassium iodide and lactose tests give no significant information. The chloride test is of therapeutic value, but is of little significance for diagnosis. The water and concentrative tests are important in differentiating nephritides with and without cardiac decompensation. The retention in the blood of nitrogen or urea is the best indicator for the degree of renal insufficiency and affords important prognostic and therapeutic information.

8. Flörcken reports four cases of pernicious anemia to illustrate the different forms of treatment for this condition which are now in general use. Direct blood transfusion was done in two cases with transitory effect and without lasting improvement. Thorium-x treatment was applied in three cases. In two cases improvement followed for two months, but was followed by severe relapses. In the third case, the rays had no demonstrable effect. Splenectomy was done in two cases. One patient died immediately. The other was so much improved that four months later he felt perfectly well and was able to work.

Flörcken reviews the more recent literature on these various forms of treatment for pernicious anemia. He concludes that thorium-x should be tried, without hope for cure, but on account of the long remissions which have been observed in many cases from its use. If this method of treatment is ineffective, splenectomy should be performed, although more definite indications for operation are desired than can be obtained at present; for certain cases do not improve, and even in the most favorable cases, the cause of the disease is not removed, as shown by a persistently abnormal blood picture. [R. F.]

No. 24. JUNE 16, 1914.

1. MORITZ, F. *A Method for Producing Artificial Pneumothorax.*
2. TAEGE, K. *A Method for the Rapid Production of Sterile Saline Solutions for Intravenous Injections.*
3. KÜMMELL, R. *The Treatment of Corneal Ulcer.*
4. PFEIFFER, H. *The Excretion in Urine of a Proteolytic Ferment in Toxic Conditions Due to the Destruction of Albumin. (Second Communication.)*
5. *SAGEL, W. *Specific Proteolytic Ferments in Urine. (Preliminary Report.)*
6. HELLIN, D. *A Hitherto Unrecognized Peculiarity of the Blood Serum of New-Born Infants and of Pregnant Women.*
7. NIKLAS, F. *The Presence of an Oxidase in Melanosis of the Large Intestine.*
8. SCHMITT, A. *Disturbance of the Glands of Internal Secretion in Chlorosis.*
9. *BRASCH, M. *The Blood Picture after Intravenous Injections of Arthigon.*
10. ROHMER, P. *Adrenalin and Pituitrin Treatment.*
11. SCHMITT, A. *The Cause of Death in Salvarsan Fatalities.*

12. Bubeel, L. *Anthrax Carbuncle Treated by Salvarsan.*
13. Kowitz, H. L. *Infectious Diseases of the Urinary Passages in Children.*
14. Neumayer, V. L. *Illumination of Operating Rooms in Small Hospitals.*
15. Conradi, E. *Cutaneous and Intracutaneous Tuberculin Tests in Animal Experiments.*
16. Bluhdorn, K. *Paratyphus Fever in Infancy.*
17. Schneider, K. *The Treatment of Delirium Tremens.*
18. Fischer, A. *The Public Health Exhibition in Stuttgart.*

5. Sagel, in a preliminary communication, reports that he has found in the urines from a limited number of patients with dementia paralytica, ferments which acted upon a peptone prepared from human brain. Sagel concentrated the urine in vacuo at a temperature of 40-45° C. and used Abderhalden's optical method for studying the ferment action. Sagel controlled his observations by testing normal urine against brain peptone, and the urine from paralytic patients against liver peptone. In each case, the control urines were negative, while the pathological urines caused optical changes in the brain peptone solutions. Sagel suggests that these preliminary experiments need further control before positive conclusions as to their significance can be drawn.

9. Brasch has used the polyvalent gonococcal vaccine "arthigon" intravenously for the treatment of gonorrheal rheumatism. Following the injection a short period of malaise with chills and fever occurs. Brasch has studied the white blood corpuscles in the cases following the injection of the vaccine. At the time of the chill there is a leucopenia followed by a relative and absolute polymorphonuclear leucocytosis. Thirty-two hours after injection the blood picture becomes normal. [R. F.]

Berliner Klinische Wochenschrift.

No. 20. May 18, 1914.

1. v. Behring, E., and Hagemann. *A New Prophylactic in Diphtheria—"TA."*
2. Ritz, H. *Concerning Some of the Basic Principles of Chemotherapy.*
3. Bornstein, A. *Physiology and Pathology of Life in Compressed Air (Caissons, etc.).*
4. Róth, N. *Investigations in Hyperglycemic Obesity.*
5. *Kohn, H. *Multiple Diverticula of the Large Intestine.*
6. Lampé. *The Treatment of Chronic Gout with "Acitrinum-compositum."*
7. Falk, E. *"Phenoval" in Gynecologic Affections.*
8. Salomon. *Concerning "Phenoval," a New Sedative and Hypnotic.*
9. *Kumaris, J. *The Abortive Treatment of Erysipelas.*
10. Schirokauer, H. *A New Technic in Counting Blood Cells.*

5. Among the causes for this condition have been mentioned obstipation, increased peristalsis, and gaseous distention affecting the weaker portions of the intestinal wall where the blood vessels enter. The condition affects mostly the descending colon and sigmoid, but diverticula may be found in large numbers throughout the colon. They usually cause no symptoms; when they do, the commonest picture is that of a perforation with localized peritonitis —not generally going on to general peritonitis. There is frequently a subacute perforation leading to the formation of an inflammatory mass greatly resembling a malignant process,—with or without a definite obstruction. The author reports three cases coming to autopsy, two of which had been operated on for appendicitis, and one of these revealed the unnusual condition of perforation of a diverticulum of the transverse colon. As to diagnosis, the most important thing is to remember that there can be such a condition.

9. The author suggests, at the beginning of an erysipelas, punctate cauterization (with actual heat) of the whole involved area. The skin is lightly touched in many spots, one-half to one cm. apart, and he thinks that the resultant hyperemia and increased phagocytosis is of benefit, making the procedure at least worth trying. [R. H. M.]

Wiener Klinische Wochenschrift.

No. 9. February 26, 1914.

1. Wernsted, W. *Infantile Scorbutus.*
2. Pezygode, P. *The Production of Specific Precipitins in Artificial Tissue Cultures.*
3. Gobiet, J. *A Case of Extensive Replacement of Tendons with Free Fascia Transplantations.*
4. *Theilhaber, A. *The Theory of the Humoral Origin of Carcinoma and Its Influence on Therapeutics.*
5. Natoneh, D. *The Pathogenicity of the Bacillus Capsulatus.*

4. The author recognizes changes in the body fluids, primarily the blood, causal, coincident, or part of the general picture of carcinoma. The relationship must be taken into consideration in the treatment of carcinoma, especially in prophylaxis, in post-operative and inoperable cases. The immunity to the invasion of cancer depends on the resistance, local or general, of the tissues of the host, and is probably in direct proportion to the richness of the cells, *e.g.* leucocytes or connective tissue cells in the immediate proximity; a reduction, destruction, or impaired vitality of these cells favors recurrence or progress, and should be considered in the use of x-rays which injure normal as well as neoplastic tissues, and in the treatment of the general cachexia accompanying carcinoma. [F. S. K.]

No. 10. March 5, 1914.

1. Forssell, G. *The Importance of Roentgenotherapy in Internal Medicine.*
2. Arzt, L., and St. Zarzycki. *The Meiostagmine Reaction and Its Application in Dermatology.*
3. Grosz, S. *Ulcus Vulvae Acutum.*
4. *Volk, R. *The General Conception of So-called Ulcus Vulvae Acutum.*
5. Tornai, F. *The Treatment of Circulatory Disturbances by Constricting the Limbs: So-called Phlebostasis.*
6. Feldner. *The Symptomatology of Uremia in Kidney Disease.*
7. Gioseffi, M. *Prophylaxis Against Plague in the Harbor of Triest.*
8. Fraunovico, G. *Paul Ehrlich: On the Celebration of His Sixtieth Birthday.*

4. The author describes ulcus vulvae acutum and finds it not restricted to virgins only, or even to females. He describes two cases in married women and one in a man, with the characteristic pustules and later membranous exudate, acutely tender and showing in smear the characteristic bacilli in the form of rods with sharply right angular ends. The lesion is purely local about the genitals and perineum, and in one of the cited cases the bacillus was obtained from the cervical secretion which was increased. [F. S. K.]

Miscellany.

WARNING AGAINST WORTHLESS ANTI-FAT "CURES."

NUMEROUS inquiries received recently by the United States Department of Agriculture indicate that promoters of so-called obesity remedies and fat-reducing cures are using an old trick dressed in new clothes to deceive fat people into spending money for worthless or dangerous preparations. The advertisements appeal to the vanity of people who wish to regain graceful figures and also to the business necessities of those who become so fat that they can no longer do their work efficiently.

In order to be able to give a definite reply to many people inquiring about specific remedies, the drug specialists of the Bureau of Chemistry recently conducted a series of tests with a number of nostrums of this character on employees in the department who wished to lose surplus flesh without injuring their health. One of the most widely advertised so-called prescriptions for reducing flesh was tried for a period of six months. The result was that two of the subjects under experimentation were obliged to stop after taking the medicine for two or three weeks because of its injurious effect. The third subject gained two and one-half pounds instead of losing flesh. Another of the so-called remedies of a "Great Obesity Specialist" was tried. The subject scrupulously followed the diet list which accompanied this remedy and faithfully carried out the system of exercises recommended. After six months' treatment there was a reduction of 18 pounds of flesh, but this the experimenters attribute to the fact that the subject ate no bread, butter, starchy food, pastry, sugar or candy while under observation. The first month after discontinuing the treatment the subject gained 10 pounds, and in three months was back to the original weight recorded at the beginning of the treatment.

The circulars, letters and other announcements of these so-called obesity remedies, which are published broadcast, in many cases asserted that a two-cent stamp is the only charge. Those sending the two cents to the supposed philanthropist, who wishes to help other sufferers to get rid of surplus flesh, commonly received a statement that the physician or "professor" discovered this remedy in the wilds of some foreign country or received it from some famous Indian medicine man on his deathbed. Then, after due praise of the effectiveness of the remedy, the "professor" states that he is willing to supply this wonderful treatment for a fee of from $15 to $25 a month. If the prospective patient does not answer immediately he is besieged with a line of follow-up letters, and finally as a great individual favor he is told that he can obtain this marvelous guaranteed flesh reducer for the sum of $2.50. In return for the reduced price, however, the patient must agree to tell all his fat friends about this wonderful means of shedding avoirdupois.

Judging from the letters received by the Department of Agriculture appealing to it to stop this practice under the Food and Drugs Act, women are usually the victims of these "professors." Much of the literature contains alleged statements of some individual woman's thrilling experience in fat-forming and fat-reducing, and this makes the situation seem real and personal to the other women. Cases are on record where women have parted with almost their last dollar in the hope of improving their figures, and have awaited results with anticipation that makes their later disappointment almost pathetic. The strong feature of most of the literature is that no dieting is necessary; the medicine is to do it all and the patient is told that he can eat all he wants and as often as he wishes, which is a strong inducement to most stout people.

These preparations usually contain thyroids and a laxative. The thyroids may prove very hurtful unless given under the advice of a physician personally familiar with the subject's physical condition. The department has on record an instance where death has followed overdoses of preparations containing thyroids. Other preparations contain poke root (phytolacca), a poisonous drug, and others, analysis shows, contain nothing that could possibly have the slightest effect in reducing flesh.

The promoters of one preparation assert that it secures most marvelous results by a process of elimination of foods without digestion. These people guarantee the reduction of a pound a day. A preparation of this character, if it did what its makers claim for it, would probably eliminate any need of digestion in the future. Another product, examination shows, consists principally of ordinary soap. The idea is to apply this locally with friction and thus remove the fat wherever it may be in excess. A still more clever scheme provides chemicals to be added to the water in which the patient is to bathe. These chemicals are of such a nature that they form a sort of curd in the water after the patient has bathed. This curd, the advertisement states, is fat and surplus tissue removed from the body. Other schemes supply a tablet at 75 cents a dozen for which a claim is made that it will reduce fat at the rate of a pound a day.

No other class of preparations exploited to humbug the people has a wider sale, and in nearly every instance they are absolutely worthless. In many cases where patients seem to lose weight this result is attributed to the hot baths and the diet and exercises recommended as an accompaniment in taking the medicine.

The only ways that the department's specialists know of safely reducing flesh are rigid dieting, and strenuous exercise, and those to be ef-

fective must be continued over a long period of time. The fat-reducing patient must eliminate from his diet fats, starchy foods and sugar. In many cases it is not wise because of other physical condition for fat people to attempt any rapid reduction in weight. As a general rule, diet and exercise are best directed by a skilled physician. Loss of flesh is by no means a blessing if accompanied by loss of health, energy or strength.

It is practically impossible to prevent the sale of these preparations in interstate commerce under the Food and Drugs Act, for the reason that the claims upon the packages are purposely so guarded as to evade action. As a rule the claims, guaranties, etc., appear in advertisements, circular letters, etc., and these the makers are very careful to keep separate from the package.

The Post Office Department, however, has been instrumental in silencing some of these promoters by issuing fraud orders against them and denying them the use of the mails. The Department of Agriculture can only warn the people to beware of all such preparations containing such claims, for in the knowledge of all drug specialists at the present time there is no preparation that can be depended upon to reduce flesh in any marked degree without doing injuries.

VERA CRUZ IN PRE-ELIZABETHAN DAYS.

In connection with the American occupation of Vera Cruz, and the hygienic measures instituted there by the United States army medical corps and public health service, Mr. Philip Hale has recently called attention to some accounts of the unwholesomeness of the town given by pre-Elizabethan merchants and voyagers:

"Mr. Robert Tomson, merchant, visited Vera Cruz in 1555. It had then not over 300 households. 'This towne is subject to great sicknes, and in my time many of the Mariners and officers of the ships did die with those diseases, there accustomed, and especially those that were not used to the countrey, nor knew the danger thereof, but would commonly go in the Sunne in the heat of the day, and did eat fruit of the countrey with much disorder, * * * Whereupon they were cast into a burning ague, of the which few escaped.'

"Mr. John Chilton of London sailed from Cadiz in 1568 for Nova Hispania. He journeyed 'by land' from the port of S. John de Ullua to a town called Vera Cruz. The Spanish merchants then lived there only from the end of August to the beginning of April. On account of the unwholesomeness of the place they went sixteen leagues further up within the country to Xalapa. 'There is never any woman delivered of child in this port of Vera Cruz; for so soon as they perceive themselves conceived with child, they get them into the country, to avoid the perile of the infected aire, although they use every morning to drive thorow the towne above two thousand head of cattell, to take away the ill vapors of the earth.'

"Mr. Henry Hawks, who lived in Nova Hispania for five years drew up in 1572 his account of commodities and manners of the inhabitants. 'In this towne of Vera Cruz within these twenty yeres, when women were brought to bed, the children new borne incontinently died; which is not so now in these days, God be thanked. This towne is inclined to many kinde of diseases, by reason of the great heat and a certeine gnat or flie which they call musquito, which biteth both men and women in their sleepe; and as soone as they are bitten, incontinently the flesh swelleth as though they had bene bitten with some venimous worme. And this musquito or gnat doth most follow such as are newly come into the countrey. Many there are that die of this annoyance.'"

The naive narrative of these early ventures not only gives a vivid picture of their time, but suggests what we now know to be the etiologic correlation between climatic and faunal phenomena and the high disease and death rates.

Correspondence.

CLINICAL CONGRESS OF SURGEONS.

Boston, July 27, 1914.

Mr. Editor: The recent decision of the surgeons of Boston not to entertain the Clinical Congress in 1915, is a sad commentary on us. Looking at it in a broad way, there can be no doubt that it was an opportunity offered to hold a congress which should be an example and inspiration to other cities. The failure to avail ourselves of this opportunity is a shirking of our duty to the cause of medical education and higher standards of practice. No community of surgeons of this size is sufficient unto itself. It is not what we might get out of it personally that should influence us, or what the character of the congress has been in the past, but what we as a vital force in the medical world could accomplish for the raising of standards. The way to do this is not to forge ahead, reach the top of the hill and beckon the rest to follow, but to start at the bottom with the others and work shoulder to shoulder helping those with less advantages toward a better outlook.

The attitude which we did take was that we didn't approve of the method of teaching by such a congress (as it had been done before), and that enthusiasm was lacking for such a large undertaking (as if enthusiasm were ordinarily born of anything but hard work; the majority of people get enthusiastic after they begin on a thing, not before).

It is sad but true that already Boston, whose facilities and equipment should make her the foremost medical center in the United States, is regarded as self-sufficient and snobbish in many quarters where she should command the greatest respect. Let us look to our laurels and instead of following blindly in the traditions of the past and fretting about our professional dignity, roll up our sleeves when the chance

comes again and work shoulder to shoulder with our fellow physicians in an endeavor to raise the general level of practise and education.

Truly yours,

H. P. GREELEY, M.D.

STATE BOARD OF INSANITY.

Governor Walsh has appointed the following men on the reorganized State Board of Insanity: Dr. Michael J. O'Meara of Worcester, chairman for three years; Dr. L. Vernon Briggs of Boston, for two years; and Charles E. Ward of Buckland, for one year. Dr. O'Meara has been a member of the State Board under its previous organization and was its chairman, following Dr. Herbert B. Howard in that position. He, therefore, brings to the same position under the reorganization a wide experience and knowledge of the far-reaching problems of insanity in this state. Dr. Briggs also served as a member of the former board.

APPOINTMENTS.

HARVARD MEDICAL SCHOOL.—*Dr. Walter Ray Bloor* of Washington University, St. Louis, has been appointed assistant professor of biological chemistry.

HOOPER INSTITUTE, SAN FRANCISCO. *Dr. George H. Whipple*, of Johns Hopkins Medical School, has been appointed director.

NEW YORK CITY.—*Dr. Oscar Teague*, of the Cornell University Medical School, has been appointed director of the new bacteriologic laboratory at quarantine.

UNIVERSITY OF ALABAMA MEDICAL SCHOOL.—*Dr. William H. Clarke* has been appointed professor of anatomy, and *Dr. J. Howard Agnew* full-time professor of medicine.

UNIVERSITY OF LOUISVILLE MEDICAL SCHOOL.—*The* following appointments are announced: *Dr. Leon L. Solomon*, professor of medicine and clinical medicine; *Dr. David C. Morton*, professor of clinical medicine; *Dr. Sidney J. Meyers*, professor of medicine and medical economics; *Dr. Frank W. Fleischhaker*, professor of physical diagnosis; and *Dr. F. Stuart Gorman*, Boston, professor of pathology and bacteriology.

YALE UNIVERSITY.—*Dr. Simon F. Cox*, superintendent of the Boston consumptives' hospital department, has been appointed general superintendent of all the New Haven hospitals under control of the University.

TUFTS COLLEGE MEDICAL SCHOOL.—*Dr. Frank G. Wheatley* has been appointed vice-dean of the medical school.

RECENT DEATHS.

DR. CHARLES GARTNER of Brooklyn, N. Y., died in the Lutheran Hospital on July 25, from cardiac disease at the age of 44 years. He was born at Hoosick Falls, N. Y., and was graduated from the Albany Medical College in 1895. At the time of his death he was assistant orthopedic surgeon to the Brooklyn Hospital.

DR. HENRY MACDONALD of Morris Park, Borough of Queens, New York City, died in the Long Island College Hospital, Brooklyn, on July 22, at the age of 62 years. He was graduated in Oregon in 1886, and at the time of his death was physician to St. Mary's Hospital, Brooklyn.

DR. JAMES FORSTER ALLEYNE ADAMS died at his home in Pittsfield, Mass., July 27, 1914, aged 70 years. He was born in Boston and was educated at Harvard College and at the Harvard Medical School, from which he received the degree of M.D. in 1866. During the Civil War he served as a medical cadet and was attached to Farragut's fleet. He was a councilor of The Massachusetts Medical Society and supervising censor of the Berkshire District Society at the time of his death, having served the Society continuously as councilor since 1892. In 1903-1904 he was vice-president of the Society. He was at one time president of the board of trustees of the Rutland State Sanatorium and he had manifested an interest in tuberculosis problems also, as chairman of the section of tuberculosis of The Massachusetts Medical Society at its annual meetings in recent years. He was a member of the Loyal Legion, Sons of the American Revolution and of the American Medical Association.

DR. SYLVESTER STRANT BOGERT, a retired physician of New York City, died at his home in Pearl River, N. Y., July 26, 1914, aged 70 years. He was a graduate of the College of Physicians and Surgeons, Columbia University, in 1865, and practised in New York for forty-five years in the old Stuyvesent Park District. He was one of the founders and a director of the East Side Dispensary. He leaves a widow, a son and a daughter.

DR. ALBERT FERDINAND BORETTI, who died recently in Milwaukee, Wis., was born at Novara, Italy, in 1884. He was a graduate of Boston University, and in 1911 received the degree of M.D. from the Harvard Medical School. He was an instructor in the Marquette Medical School at the time of his death. He is survived by his widow.

PROFESSOR DR. PAUL RECLUS, a noted French surgeon and member of the Academy of Medicine, died in Paris on July 29 at the age of 67 years.

DR. DENNIS FRANCIS O'CALLAGHAN died at his residence, 4 Belfort Street, Dorchester, July 29, 1914, aged 50 years. He was born and educated in Salem, Mass., and was graduated from the Harvard Medical School in 1887, later serving as interne at the Carney Hospital. He is survived by his widow and one son.

DR. FRANCIS MARION BENNITT died at his home in Springfield, Mass., July 29, 1914, aged 56 years. He was a graduate of the New York Homeopathic Medical College and Hospital in 1883. He had been a member of the Springfield School board for eleven years and was a member of the staffs of the Wesson Memorial and Wesson Maternity Hospitals.

DR. CHARLES THOMAS BUFFUM, who died on July 29 in New York City, was born at Brooklyn in 1852. He received the degree of A.B. from Harvard in 1874 and that of M.D. in 1877 from the New York College of Physicians and Surgeons. He was for many years a member of the New York board of health. He is survived by three children.

BOOKS AND PAMPHLETS RECEIVED.

The Philosophy of Radio-Activity, by Eugene Coleman Savidge. Wm. R. Jenkins Co.

A Thousand Books for the Hospital Library. Selected by Edith Kathleen Jones.

Modern Medicine. By Sir William Osler, M.D., and Thomas McCrae, M.D. Vol. 11. Lea & Febiger. 1914.

Cremation Versus Earth-Burial. By Hugo Erichsen, M.D. Address.

Outlines of Greek and Roman Medicine. By James Sands Elliott, M.D. Wm. Wood & Co. 1914.

The Unconscious. The Fundamentals of Human Personality, Normal and Abnormal. By Morton Prince, M.D. 1914.

Portraits of Dr. William Harvey. Oxford University Press, 1913.

Verhandlungen des Vereins für innere Medizin und Kinderheilkunde in Berlin. Jahrgang xxxii.

Original Articles.

REMARKS UPON THE EFFECTS OBSERVED IN THE USE OF MIXED TOXINS (COLEY) IN CERTAIN CASES OF SARCOMA.*

By Torr Wagner Harmer, M.D., Boston,

Assistant in Anatomy, Harvard Medical School; Assistant in Surgery, Massachusetts General Hospital.

This paper is based upon observations made since June, 1909, in the use of mixed toxins of streptococcus and bacillus prodigiosus (Coley) in 91 cases. Numbers enhance the value of statistics, other things being equal. I have, therefore, taken the liberty to include not only hospital cases but cases treated in private practice. Such cases appear in the statistics only. Case reports of the private cases have been excluded. I wish here to express my thanks to the members of this staff, through whose courtesy this study has been made possible.

Such a vast amount of data has accumulated and the time is so limited that I wish to confine the province of this paper to a consideration of the most practical phase of this subject, the end results. These 91 cases included every case in which the toxins were given. Some were under treatment too short a period to be of value in determining the efficiency of the toxins. Some were early cases in the series in which the doses were too small. Some cannot be traced by letters, visits to former homes, or state or city records. Some were cases in which no pathological report was obtained. Some were cases of microscopically proven carcinoma. Some were cases of proven sarcoma in which the toxins were administered as a prophylactic against recurrence after operations which might of themselves have cured (amputations without demonstrable metastases, orchidectomies with growths confined within tunica albuginea, etc.). Such cases are of value in a study of certain phases of this subject (character of reactions, site of injections, guides to the increase in the dose and the interval between injections, the concurrent or subsequent use of the x-ray or arsenical preparations, relief of pain, etc.), but obviously in a critical analysis to determine the efficiency of the toxins in the treatment of sarcoma such cases should not be considered and have, therefore, been excluded. There remain 32 cases; all of these were primary or recurrent inoperable sarcomata, or cases in which the disease could not be eradicated at operation. All were proven by microscopical examination. All were under treatment at least three weeks. In all cases the results were free from vitiation by concurrent treatment, with x-ray, or arsenical preparations. All living cases have been seen or heard from within three months, most within a month.

The series includes 24 males and 8 females. The age of the males varies from 14 to 65 years, average 35.3 years. The age of the females varies from 2 to 55 years, average 29.2 years. The average age of all cases is 33.8 years. The average duration of treatment was three months+. The average maximum dose was 11.9 minims. The maximum dose was 53 minims.

A hasty survey of this series shows many failures and a very small number of apparent cures. The treatment is most distressing. The results do not justify subjecting all cases of inoperable sarcoma to such suffering. The practical question, the humane question, is in what cases does this treatment offer the greatest expectation of benefit. Obviously, the answer to this question obtained by an analysis of so small a series of cases is not final but may be suggestive. Two avenues of analysis are open: first, according to the type of sarcoma; second, according to the tissue of origin or anatomical situation.

In this analysis the cases will be arranged in six groups determined by the effect of the toxins.

Group A includes those cases in which there was no appreciable effect (10 cases).

Group B includes those cases in which the growths softened but did not diminish in size. This softening may be fairly attributed to the toxins rather than to increased vascularity and cellularity associated with rapid growth, for it occurred at the site of injections. There were 5 such cases.

Group C includes those cases in which the growths disappeared, or practically disappeared, but returned. There were 5 such cases.

Example: J. H. K. House No. 177,039, a fireman of 25. Referred by Dr. Porter and Dr. Mumford. A large round-cell sarcoma of the right tonsil, size of ping-pong ball, pushing uvula to left, and of the right neck, 6 x 5 inches.

Pathological Report. (117-52.) Dr. H. F. Hartwell. "A small bit of tissue removed from a tumor shows microscopically tumor cells infiltrating muscular tissue. The cells composing the tumor are large round with very faintly staining cytoplasm and having deep staining nuclei. There are numerous bloodvessels which lie in close relation to the cells. Here and there are larger-sized cells with multiple nuclei which are frequently superimposed. There are a number of mitotic figures."

Treatment with toxins from July 18 to August 15, 1911. Sixteen injections. Maximum dose 18 minims. During first three weeks marked diminution in the size of the tonsil tumor which became very fluctuant. Tumor in the neck practically disappeared. After this, despite increasing doses with severe reactions, the tumors increased rapidly in size and the patient died September 14, 1911.

Example: G. P. O. P. D. No. 124,742. Italian of 47. Referred by Dr. Vincent. There was a firm ulcerating mass occupying the right tonsil, floor of

* Presented at meeting at Massachusetts General Hospital, March 27, 1914.

mouth, base of tongue, epiglottis, soft palate, and pharynx. Laryngoscopic examination impossible. He spoke only in a thick whisper, and could eat only liquids and very soft solids, much of which came out through nose.

Pathological Report. (128-121.) Dr. Hartwell. "Specimen consists of several pieces showing, on microscopical examination a richly cellular tumor composed of spindle cells which are arranged in narrow bands interlacing with one another and running in all directions. Spindle-cell sarcoma."

Mixed toxin treatment instituted and continued regularly for four and one-half months. Maximum dose, 10 minims. The mass softened and sloughed out cleanly. He gained in weight and color, was able to eat more food without losing any through nose, and could speak distinctly. Against advice he then insisted on returning to work. In five months he was a pale, emaciated man with metastases in the lung, neck, and belly, practically unable to eat or make self understood by speech. Died August 22, 1913.

Group D includes those cases in which growths disappeared but metastases simultaneously occurred. There were 5 such cases. I shall later give one in some detail.

Group E consists of one case in which the growth diminished in size but the tumor still persists.

A man of 39 with sloughing sarcoma of the kidney. He has gained 25 pounds and is free from symptoms but still has a firm discharging mass after two and one-half months of treatment.*

Group F consists of those cases which are apparent cures in which growths have disappeared and no metastases have occurred. There are 6 such cases. Records of all 6 I wish to present at the close of this paper for your judgment. They have remained apparently well since conclusion of treatment, respectively, 1 year, 2 months; 2 years; 2 years, 7 months; 2 years, 9 months; 2 years, 11 months; and 2 years, 11 months.

In Table I is shown an analysis according to the type of sarcoma. The spindle cell and round cell cases, with totals of 10 and 11 cases, respectively, and 2 apparent cures each, show nothing striking except perhaps that there were no apparent cures in the small spindle and large round cell cases. The melanotic cases, 3 in number, are curiously all in Group D. Two were cases of multiple subcutaneous nodules. Some of these were sloughed out but other growths simultaneously occurred. A similar case, which could not be included in this series, behaved similarly. The third was a single large recurrent mass.

* Received [illegible] Dr. C. C. Minter. Pathological report by Dr. W. F. Wh[illegible]. Patient [illegible] seen June 19, 1913, two and one-half months since [illegible] operation. Has gained 25 pounds since operation. Still continues discharging sinus in flank leading to mass [illegible] reduced to size which is not tender and causes no discomfort. This may be a purely inflammatory residue or temporarily quiescent sarcoma. He refuses further operation.



FIG. 1.

FIG. 1 illustrates Case F. H. F., melanotic sarcoma, recorded in the text of the paper. The photograph was taken Feb. 13, 1912, three months after toxin treatment was instituted. Below is shown a scar one month after the sloughing out of two masses which became confluent, one 2½ x 1½ inches, the other the size of an English walnut. The entire mass was sloughed out in one month (Jan., 1912). There is no evidence of recurrence. Above is shown a recurrence under treatment. This mass appeared Nov. 25, 1911, and increased in size till 3½ x 2 x 1 inches in Sept., 1912. At this time sloughing through several craters began with diminution in size. On Jan. 13, 1913, there was no evidence of growth, as is shown in next figure.

TABLE I.

ANALYSIS OF CASES ACCORDING TO TYPE OF SARCOMA.

	GROUP	A	B	C	D	E	F
Spindle cell	Small cell		1	1	1		
	Large cell	1		1			1
	Fibro sarcoma	2	1				1
	Total, 10	3	2	2	1		2
Round cell	Small cell	1	1		1	1	2
	Large cell	3		2			
	Total, 11	4	1	2	1	1	2
Melanotic					3		
	Total, 3				3		
Giant cell		1	1				2
	Total, 4	1	1				2
Mixed cell		2	1	1			
	Total, 4	2	1	1			
	Totals 32	10	5	5	5	1	6



FIG. 2.

FIG. 2 illustrates the same case. Photograph taken May 1, 1913. Above is faintly shown a broad soft scar representing the site of tumor last mentioned. There is no evidence of disease and none ever appeared in this region up to time of death, Feb. 26, 1914. Below is shown a broad scar resulting after granulation of wound of excision of two masses (Mar. 12, 1913). Sections of these are shown in Figs. 3, 4, 5, and 6. The edges of this wound (6 x 2¾ inches) were brought together under considerable tension. In two places the sutures did not hold. The resulting scar was thick and fibrous and in the photograph suggests malignant recurrence. This was not the case. Up to time treatment was discontinued (Jan. 28, 1914), eight months after this photograph was taken, no recurrence took place in this scar.

F. H. F. An iron worker of 35. Referred by Dr. Risley. Under treatment two years, two months; seen 224 times; injected 195 times; maximum dose 53 minims. July 14, 1911, Dr. Homans excised, in the O. P. D., a growth of five-weeks' duration arising from a pigmented mole over the right scapular region.

Pathological Report. (117-73.) "Specimen for examination consists of a rounded tumor 3 cm. in diameter which is sessile and dark purplish red with a surrounding oval-shaped piece of skin and subcutaneous tissue, varying in width from 1 to 2 cm. Section shows the center of the tumor infiltrating the subcutaneous structures. Microscopical examination shows a richly cellular tumor containing much brownish yellow pigment. The cells appear to have an alveolar arrangement. They are fairly large and spindle-shaped with rather deeply-staining nuclei. The tumor seems to be surrounded by a tough layer of fibrous tissue but in places this fibrous tissue is very faint and the tumor appears to have gone beyond it. Melanotic sarcoma."

Oct. 26, 1911, Dr. Cobb excised, in the House, a recurrence to the outer side of old scar.

Pathological Report. (1110-129.) Dr. W. F. Whitney. "A piece of tissue from the shoulder measuring 6 x 4½ cm. in the midst of which was a coal black nodule 1½ cm. in diameter. Microscopical examination of the nodule showed large cells, many of them containing a black pigment with a little intercellular substance between and irregularly infiltrating into the periphery. Melanotic sarcoma."

I saw patient fifteen days later with recurrence in second scar 2½ x 1½ inches, and a palpable mass in the axilla the size of a pigeon's egg. Toxin treatment instituted. Within twelve days a mass the size sloughed out in one month, leaving a soft thin scar. The two masses became confluent but were entirely sloughed out in one month leaving a soft thin scar. During this time, however, a recurrence appeared in the upper scar which became in size 3½ x 2 x 1 inches. This whole mass was entirely sloughed out by Jan. 13, 1913. A pigmented mass appeared in the right pectoral region early in Jan., 1912. It ruptured in three weeks with local injections but increased in size until 3 x 2 inches. There were several erysipelatous attacks when whole pectoral region would be red, hot, tense, and tender with

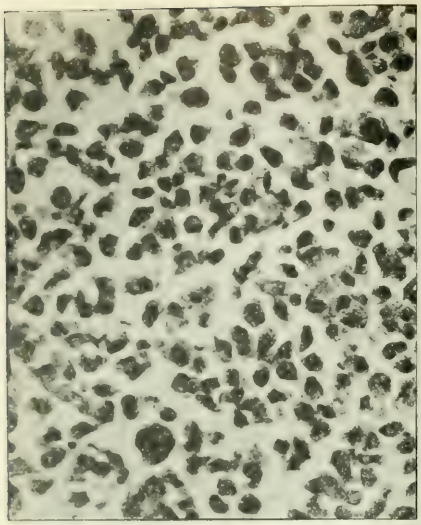


FIG. 3.

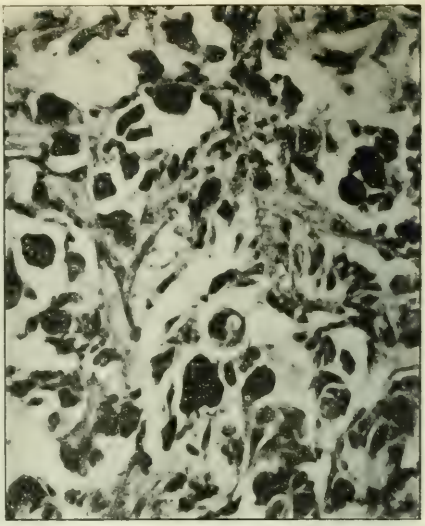


FIG. 4.

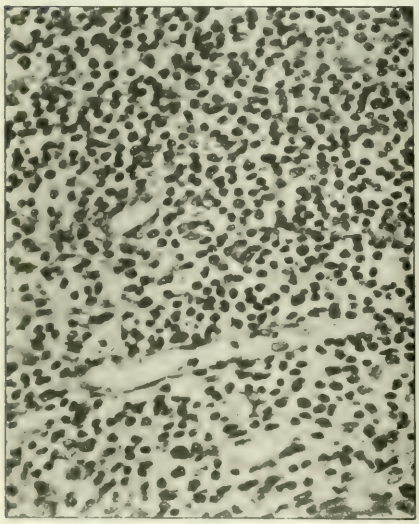


FIG. 5.

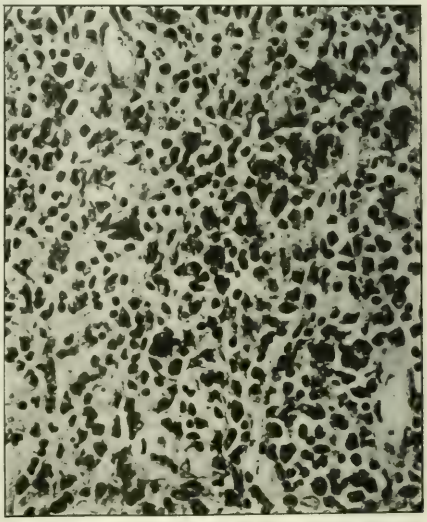


FIG. 6.

FIGS. 3, 4, 5, and 6. For explanation see text

appearance of a second gland in the axilla and another in the neck. The latter became the size of a cherry but entirely disappeared in one month. The axillary masses became the size of hen's and pigeon's eggs during these erysipelatous attacks but within a month became decreased to size of pigeon's and sparrow's eggs and never became any larger until treatment was discontinued eleven months later, *i.e* the upper axillary mass which was present when first seen (Nov. 10, 1911) was no larger and just as movable twenty-six months later when treatment was stopped (Jan. 28, 1914). The entire breast tumor (3 x 2 inches) sloughed out with continuous appearance of dark pigment by August, 1913, and never recurred. At this time patient was in excellent flesh with good appetite and no evidence of in-

ternal metastases. I was arranging with social service department for light employment. He then disappeared on a spree returning in nineteen days haggard and weak. Treatment was resumed but he never regained his former tolerance for toxins. The average dose for the last months was only 4.8 minims but the reactions were just as severe as he had experienced when taking 40 to 50 minims. New masses began to appear on abdomen, arms, breast, and back. He died February 26, 1914, with metastases in the spinal cord and abdomen.

The giant cell cases require some explanation. First, this designation is properly applied only to those growths in which there is an abundance of large multinuclear cells. Other types of connective tissue tumors may contain a few such cells, but this does not justify the above appellation. Again, there are pathologists and surgeons who maintain that these connective tissue growths with abundance of giant cells are true malignant tumors, *i.e.* capable of forming metastases. There are others who admit that such growths are prone to recurrence, but deny them malignancy in the sense of forming metastases. The name giant cell tumor, instead of giant cell sarcoma, has, therefore, been suggested. Again, Barrie, of New York, believes that the process is only inflammatory, an osteomyelitis. Without discussing these opinions it is true that many cases of this condition can be cured by one or several curettings or resection. Other cases, on account of size or situation may require amputation. Still others, probably the smallest group, cannot be cured by surgery alone. I refer in particular to more or less extensive involvement of the vertebrae. Complete removal may be impossible, and the recurrence may be still more inaccessible to the knife. My feeling at present is that in the majority of cases curetting or resection give such good results that toxins are not indicated. I believe, also, that toxins are not indicated in those cases in which amputation has been necessary. I do believe that their use is justifiable in those cases which defy complete surgical eradication. The two failures in this series were growths the size of a football and of a canteloupe, one of the ilium and sacrum, and one of the upper thigh. The two apparent successes will be considered later.

Of the 4 mixed cell sarcoma cases all were failures.

This analysis according to the type of sarcoma suggests, therefore, that toxins offer practically no expectation of benefit in multiple melanotic cases and mixed cell cases; that they may be legitimately tried on single melanotic growths and on certain cases of spindle, round, and giant cell tumors.

In Table 2 is shown an analysis of cases according to anatomical situation or tissue of origin. Of the intranasal and nasal accessory sinus cases it is striking that 5 of 7 are apparent cures. These include fibrosarcoma of the septum and ethmoid, giant cell sarcoma of the antrum and superior maxilla, large spindle cell sarcoma of ethmoid, small round cell sarcoma of the antrum and ethmoid, and small round cell sarcoma of the antrum, ethmoid, superior maxilla, posterior septum and nasopharynx.

TABLE II.

Analysis of Cases According to Anatomical Situation and Tissue of Origin.

Group	A	B	C	D	E	F
Nose and sinuses			2			5
Tonsil		1	1			
Pharynx	1		1			
Bone (not giant cell)	4	1				
Giant cell	1					1(1)
Abdomen	(7)					
Cervical glands		1(1)	(3)	1		
Skin				4		
Miscellaneous	1 sperm. cord 2 thigh 1 pelvis	2 thigh	1 parotid		1 kidney	
Totals	10	5	5	5	1	6

Of the bone cases, exclusive of giant cell growths, there were 5 cases, all failures. Of giant cell cases there were 3, one failure and two apparent cures. One of the latter has been included elsewhere in the table and is indicated in parentheses. The other was a spine case and will be referred to later.

Of the abdominal cases, 7 in number, none showed any apparent change with toxin treatment. All were either extensions from thigh, true pelvis or spermatic cord or metastases from distant tumors and are, therefore, indicated in parentheses.

Of the skin cases, 4 in number, it is striking that all belong to Class D. Three were melanotic sarcomata previously mentioned, and the other a spindle cell sarcoma arising from a pre-existing benign tumor on the arm.

This analysis according to anatomical situation or tissue of origin suggests that toxins offer practically no expectation of benefit in sarcomata arising from skin or subcutaneous tissue, in sarcomata occurring in the abdomen, and in sarcomata arising from bone, excepting perhaps giant cell sarcoma; but they are apparently of value in sarcomata arising in the nose and accessory sinuses, whether round cell, giant cell, or spindle cell.

Apparent Cures.

Case 1. M. L., age two. Throat records, vol. xiv, p. 245. Referred by Dr. Mosher.

Dec. 3, 1910, admitted to House with history of appearance of sore in the nose accompanied by much discharge and passage of pieces of tissue. The nose appears flattened, and one-fourth inch of the anterior end of the septum has disappeared. The exposed septum is much thickened. Tuberculin skin test and Wassermann test negative. December 8, specimen removed for examination.

Pathological Report by Dr. Whitney: fibroma or fibrosarcoma.



FIG. 7.

Case 7. Apparent cure. Giant cell sarcoma of spine. Photograph taken April 11, 1914, fifteen months after toxin treatment discontinued. The operation scar is shown. In the center of this is seen a large, broad scar, and at the upper extremity of this scar. To the left of these are shown four or five smaller scars. These scars are all soft, not adherent to the structures beneath and represent healed craters through which the recurrent tumor, $5\frac{1}{2} \times 3\frac{1}{2} \times 2$ inches, was sloughed out under toxin treatment. There is no evidence of recurrence.

Jan. 20, 1911. Operation. Dr. Mosher. Ether. Septum and thickened ethmoidal region removed as far as possible and packed with gauze.

Jan. 24, 1911. Treatment with mixed toxins instituted and continued five months. Reactions slight, rarely severe. Maximum dose three and one-half minims.

Patient has since been seen by me with rhinologist every few months. Now two years, eleven months since toxins discontinued, there is no subjective or objective evidence of recurrence.*

Dr. Whitney has kindly re-examined the sections recently and reported, as previously, fibroma or fibrosarcoma.

Criticism. Owing to the pathological report it may be argued that this case should be excluded. It has been included because the process involved not only the septum but extended up into the ethmoid cells.

CASE 2. E. M. McK. A school girl of 12. Throat records, vol. xv, p. 161. Referred by Dr. Mosher.

Feb. 17, 1911, record states: right incisor stands alone pushed out in front of tooth line. Gum on this side very much enlarged and darker in color than surrounding tissue. Both antra dark to transillumination.

Feb. 18, 1911. Operation. Dr. Mosher. Ether. Right upper canine removed and found to be sound. Tumor tissue hard and fibrous, slightly suggestive of osteosarcoma. This was found to extend upwards into antrum. The anterior wall of the antrum together with tumor removed with chisel. Cavity curetted. Considerable hemorrhage. Packed.

Pathological Report. Giant cell sarcoma.

March 1, 1911. Toxin treatment started and continued for six weeks. Maximum dose $2\frac{1}{2}$ minims. Constitutional reactions of moderate character. Local reactions (pain in cavity after injections) severe.

March 4, 1914, two years, eleven months since toxins discontinued, patient found in her new home. Well developed and nourished girl of good color without subjective or objective evidence of recurrence.*

* May 29, 1914. This patient is still well, three years, one month since treatment discontinued.

* May 29, 1914. This patient is still well, three years, one month, since treatment discontinued.

Criticism. Owing to the good results obtained by excision and curetting in cases of this type it may be argued that this case should be excluded. It has been included on account of the size and extent of the process.

Case 3. L. E. F. A woman of 46. House No. 180,998. Referred by Dr. Crosby Greene.

Feb. 12, 1912. Admitted to Ward G with following history. Eight years ago first noticed movable mass inside the nose which was partially removed. Recurred one year later. At second operation (Dr. Greene) under ether a considerable quantity of tumor tissue and ethmoidal bone removed with cutting forceps. Pathological report, spindle cell sarcoma. No evidence of recurrence until last year when began to experience frontal headache and frequent epistaxis, and lately dizziness, nausea, and throbbing in head.

Feb. 12, 1912. Operation. Dr. Greene. Ether. Through an incision at side of nose and beneath eye the antrum opened. Its inner wall and middle turbinate removed. Ethmoidal region found filled with vascular growth which was evacuated with curette. A large portion of the right nasal bone was removed and cribriform plate exposed. Brain pulsation visible.

Pathological Report. No. 122-45. Spindle cell sarcoma. "A piece of growth from ethmoid showing upon microscopical examination bundles of large spindle cells interlacing irregularly. Blood vessels in many places with distinct walls."

Treatment with mixed toxins instituted in one week and continued six weeks. Reactions moderate. Maximum dose 4 minims.

Dec. 2, 1913. A letter from Dr. Greene states that one year after operation (Feb., 1913) no subjective or objective evidence of recurrence.

March 6, 1914 (two years since toxins discontinued). A letter from patient states that her health is very good and there is no indication of old trouble.*

Criticism. An extensive infiltrating spindle cell sarcoma. An extensive operation by Dr. Greene. It may be argued that all of the growth was eradicated at operation. This is possible but at the time it did not seem probable. Perhaps this case should be excluded.

Case 4. L. A. W. A man of 55. Throat records, vol. xiii, p. 297. Referred by Dr. Barnes.

Oct. 14, 1910. Admitted to Ward G. For three months difficulty in breathing through nose. For two months epistaxis twice a week lasting one to six hours. For two months frontal headache, especially on the right, and nasal discharge.

Oct. 14, 1910. Operation. Dr. Barnes. Cocaine. Two large pieces of tissue snared from nose followed by profuse hemorrhage. Ether necessary to check bleeding by packing.

Pathological Report. Small round cell sarcoma. "A small piece of tissue showing upon microscopical examination a solid growth of round and slightly elongated cells infiltrating the tissue in all directions."

Nov. 28, 1910. Operation. Dr. Barnes, Ether. One and one-fourth inch incision on right side of the nose. Nasal process chiseled away and sarcomatous tissue exposed. Posterior nasal plug inserted. Mass scooped out with finger. Antrum then opened through canine fossa and found filled with growth which was scooped and curetted out. The whole naso-antral wall was found to be destroyed. Antrum and right naris packed with gauze.

Dec. 5, 1910. Toxin treatment started and continued five and one-half months (May 23, 1911). Forty-nine injections. Maximum dose 10 minims. Reactions often severe. During this time the appearance of septum became suspicious and a small piece was removed which showed small round cell sarcoma. Toxins continued two and one-half months longer at which time a note in the throat department states "Nose clean. Everything in fine condition." Patient had gained 25 pounds.

Dec. 12, 1911. (Seven months since toxins discontinued.) My record reads, "looks well, good weight and color. Working as janitor. No symptoms of recurrence. No evidence of same. Seen by Dr. Mosher who finds no evidence of recurrence."

Last seen Dec. 24, 1913 (two years, seven months since toxins discontinued). In excellent health, good weight and color, working steadily as janitor.

Criticism. A small round cell sarcoma of the antrum and ethmoid. Seems quite improbable that curetting eradicated such an infiltrating process, as recurrence showed. Seems fair to attribute apparent cure in part, at least, to toxins.

Case 5. L. P. Italian woman of 32. House records E. S. vol. 676, p. 221; vol. 702, p. 37; vol. 716, p. 159; vol. 722, p. 57. Referred by Dr. Scudder.

March 2, 1910. Operation. Dr. Scudder. Ether. Resection of right superior maxilla for sarcoma of the antrum. Ethmoid cells curetted out. Frontal sinus not involved. Sphenoidal sinus opened, contained pus, curetted.

Pathological Report by Dr. James Homer Wright. Malignant Lymphoma. "Specimen consists of the greater portion of the right superior maxilla. Tumor mass fills up antrum, involves bony parts of the right side of the nasal cavity, and also appears on the outside of the bone at two points. Tumor consists of whitish translucent, moderately firm, rather homogeneous tissue. Microscopic examination (paraffin section). Tumor chiefly of cells, generally closely packed together, and a relatively small amount of stroma. Masses of cells are like large lymphocyte forms of cells found in lymphadenoid tissue. Some small lymphocytes are present. There are areas of necrosis."

Oct. 20, 1910. Operation. Dr. Scudder. Ether. Partial removal of the septum for recurrent sarcoma.

Pathological Report. (1010-69.) Dr. Whitney. Malignant lymphoma. "A few bits of tissue showing on microscopical examination growth of lymphoid cells, in places slightly elongated and spindle shaped."

May 11, 1911. Moved to operating room. Seen by Dr. Scudder. "Radical operation with enucleation of eye intended but impossible to pass Crile ether tube on account of obstruction. Piece of growth removed with tube, evidently sarcoma. Process had extended to left side of nose and face. Only hope lay in attack of both sides of face. Deemed inadvisable."

* Letter received from patient May 29, 1914, states she is still in excellent health, two years, two months since treatment discontinued.

Pathological Report. (Pieces of tissue removed with Crile tube) (115-42) Dr. Whitney. "Round cell sarcoma. Small pieces of tissue from the nostril showing upon microscopic examination a small round cell tissue with new-formed blood vessels and remains of small glands scattered throughout it."

May 11, 1911. Toxin treatment instituted and continued three weeks. Maximum dose 3 minims. Reactions severe. Patient followed five months outside hospital, then referred to Boston Dispensary for consolidation in right lung. Later treated at Burroughs Place Clinic, at Long Island, and at Middleboro for tuberculosis of lung.

Feb. 28, 1914. Seen at her home. Still thin but of good color, has done her own housework for the past year, and expects to be confined in a few days. Examination through nose and mouth and opening beneath right eye, which exposes whole nasopharangeal cavity, shows no evidence of recurrence.

(March 26, 1914. Seen at home. Normal child born March 5, 1914. Mother still well.)

Criticism. A small round cell sarcoma of the nasopharynx, nose, and left side of face after radical attack of right side. Considered inoperable. No evidence of malignant disease 2 years, 9 months after toxin treatment. Seems fair to attribute apparent cure in part, at least, to toxins.

CASE 6. A. J. M. Boy 16 years of age. House records, orthopedic, vol. xx, p. 67; W. S. vol. 761, p. 161. Referred by Dr. Porter.

June 10, 1912. Admitted to Hospital with following story. Fell three months ago striking spine. Pain and tenderness have persisted in this region ever since and for two weeks numbness over external and anterior surface of right thigh with absolute loss of sensation.

Patient walks with slight instability, complaining of weakness of right knee, steps with great care, the slightest jar causing excruciating pain in lower dorsal region of spine, shooting up to head. Slight depression in region of tenth dorsal spine with swelling about the size of hand in posterior subcostal region. Both legs may be raised over about one-third normal arc beyond which pain in the back and to right side of spine. Ankle clonus and Oppenheim sign on right. Area of analgesia over external aspect of right thigh just below trochanter. X-ray negative.

June 21, 1912. Nerve consultant (Dr. Baldwin) finds double ankle clonus and Oppenheim with disappearance of tactile and pain sense over right anterior crural distribution. Diagnosis, partial paresis of traumatic origin.

June 22, 1912. Swelling of back appeared fluctuant but aspirating needle revealed nothing.

June 26, 1912. Operation. Dr. Porter. Ether. Bluish colored, rather tense, fluctuant mass exposed beneath muscles of back; incised with escape of quantity of dirty liquid which was found to be encapsulated in rather definite sac with thickened broken-down tissue in walls. Vertebrae involved. Curetted out and during operation Dr. Wright reported giant cell sarcoma. Transverse process removed, bone curetted, capsule trimmed as much as possible. Bleeding profuse. Cavity tightly packed. Patient to bed in very poor condition but recuperated rapidly.

Pathological Report. (126-126.) Dr. Hartwell. Giant cell sarcoma. "Specimen consists of soft irregular pieces of tissue. Microscopical examination shows richly cellular tumor composed of spindle cells with numerous giant cells. The cells are very atypical and their richness varies in different areas of the tumor, some places being quite fibrous. There are scattered necrotic areas in the tumor tissue."

Treatment with mixed toxins started at once and continued until Jan. 29, 1913, seven months. Injections every other day and then twice a week. Maximum dose 18 minims. Reactions usually severe. Seen 108 times. Injected 62 times. Early injections into belly, legs, and arms, and later into recurrence which rapidly developed. Recurrence became in length 5½ inches, in breadth 3½ inches, in elevation 2 inches with paresis of right leg. Despite violent reactions treatment persisted in. Tumor began sloughing in several areas and in January, 1913, no evidence of any mass or disturbance of sensation of limbs.

Since that time patient has reported every week or fortnight; has steadily gained in strength and weight; no evidence of recurrence by examination or x-rays.

Last seen March 21, 1914. (One year, two months since toxins discontinued.) Well developed and nourished. Good color. No subjective or objective evidence of recurrence. Scars soft and not adherent to structures beneath. Has worked many months as chauffeur. Recently began work in tool and lathe company.

Criticism. It seems fair to attribute this apparent cure in part, at least, to the toxins.*

I have been much interested in the phenomena resulting from injections. Some injections may cause marked local reaction characterized by pain, heat, redness, swelling and tenderness with practically no constitutional reaction. Other injections in the same individual may cause only slight local reactions, but marked constitutional reactions, characterized by chill, fever, vomiting, pains in head, back or extremities, and disturbance of bowels. In all cases in which growths have been accessible injections have been made into the growths. As has been already stated, in some cases the growths have shown marked changes and have in a few cases permanently disappeared. In some cases (Group D), however, although growths under treatment have disappeared, new growths have simultaneously occurred. The beneficial action of the toxins in such cases appeared to be more local than systemic. In other cases, on the contrary, in which growths were inaccessible (intranasal and accessory sinus cases) injections at a distance (usually into the abdominal wall) have produced

* This patient was shown before the staff at the time this paper was read, and also, through the courtesy of Dr. Porter, before the International Society of Surgery at the Massachusetts General Hospital, April 27, 1914. In June, 1914, a routine x-ray examination discovered a small mass apparently arising from lateral surface of spinous process of third lumbar vertebra. This mass was not evident by inspection or palpation and was producing no symptoms. The boy was apparently in excellent health. At operation Dr. Porter removed a circumscribed bone cyst. The boy has made an excellent recovery. Pathological report: bone cyst, no evidence of malignancy. This was a benign cyst, an inflammatory reaction. It still seems fair to claim that the toxins averted invalidism with paralysis (perhaps lingering death) from the early, rapidly-growing recurrence.

apparent cures. In such cases the action of the toxins must be regarded as systemic.

In one case, a melanotic sarcoma of the back, a bluish-black mass about 1½ inches in diameter was resolved by local injections to an apparently fibrous mass of dull red color about ¾ inch in diameter. During this period another pigmented mass was developing within a few inches of this mass. The second mass attained the size of a pigeon's egg, despite the diminution in size and change in appearance and consistency of the other mass. Both masses were then excised under ether with an elliptical area of skin, subcutaneous tissue and fascia about 6 x 2¾ inches. Fourteen sections were then made of the two masses, the treated and the untreated. Figs. 3 and 4 show characteristic portions of the untreated tumor. Figs. 5 and 6 show characteristic portions of the treated tumor. The magnification in all plates is 375 diameters. The differences in appearance are striking. Fig. 3 shows cells of various sizes and shapes, many of which are pigmented, and very little stroma. Fig. 4 shows another area of the untreated tumor in which the cells are more uniformly large and in which there is a greater amount of stroma. In marked contrast to these are Figs. 5 and 6 of the treated tumor. In both, the picture is of small round cell infiltration with new connective tissue and blood vessel formation. In Fig. 5 these small round, new connective tissue and young endothelial cells predominate. The picture is of inflammation rather than of malignancy. In Fig. 6, although there are many small round, new connective tissue and young endothelial cells, there still persist some large pigmented tumor cells. These plates demonstrate microscopically what is evident clinically: first, that the tumor is destroyed by an inflammatory process; and second, that in this group of cases (Group D), at least, the action of the toxins must be considered as local rather than systemic.

CONCLUSIONS.

1. The treatment of primary or recurrent inoperable sarcoma with mixed toxins must be intensive. The severity of reactions may be lessened by certain measures and I see no contraindication to such humane practice. The increment of dose and the interval between injections requires some experience but, even after a considerable experience, this method of treatment is always uncertain.

2. This method of treatment is so uncertain and so distressing that,

(*a*) Its institution is unjustifiable in any case in which operative measures of reasonable safety offer possible hope of removal.

(*b*) A frank statement of the nature and severity of the reactions and the possibility of benefit should be made to the patient or some responsible person before treatment is instituted.

(*c*) It should be instituted in no case unless proven microscopically to be sarcoma.

(*d*) Its institution is unjustifiable in all cases of inoperable sarcoma.

3. The percentage of apparent cures may be regarded as varying from 9.4 to 18.8.

4. This study suggests that the toxins offer no expectation of benefit in cases with multiple melanotic growths, in cases with mixed cell growths, in cases with intra-abdominal growths, and in cases with growths arising from subcutaneous tissue or bone, excepting perhaps giant cell growths. It suggests that they may be legitimately tried in cases with single melanotic growths. It suggests that they are apparently of value in cases with sarcomata arising in nose and accessory sinuses, whether spindle cell, giant cell, or round cell.

5. The operative treatment of true giant cell tumors gives in the majority of cases such good results that the toxins are not indicated. Their use is, however, warranted in those cases in which the growths are so situated that complete surgical eradication is impossible (such as giant cell tumor of the spine) and in these cases, I believe that the attack should be primarily surgical, followed immediately by toxin treatment.

ON THE DIAGNOSIS OF INCOMPLETE FORMS OF PYLORIC STENOSIS BY MEANS OF THE X-RAY.*

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and

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The diagnosis of gastrectasia due to stenosis of the pylorus is not usually difficult, especially when the cardinal symptoms of this disease are present. The vomiting of the collective type, together with peristaltic or antiperistaltic waves, point clearly to the diagnosis; and this becomes even more certain when food remains are observed in the fasting stomach in the morning, and especially when the gastric contents are of the three layered variety, and contain numerous sarcinae; or when the rice test of Hausman or the chlorophyle test of Boas is positive; but we all know that these findings are only present when the obstruction is marked or nearly complete, and that there are a large number of cases, in which obstruction is suspected, and yet many weeks often elapse before the stenosis becomes sufficiently marked to warrant a positive diagnosis. For the symptoms already noted occur only as late manifestations of the disease, and are not present or are only occasionally observed as early signs. At times spastic contractions of the pylorus, due to former ulcers, or the irritation of the gastric contents upon erosions, and fis-

* Presented at the meeting of the American Gastro-Enterological Association at Atlantic City, June 22, 1914.

sures in this region present similar signs. For practical purposes cases of pyloric stenosis may be divided into two classes.

First. Those cases with marked and constant retention of food remains and stagnation.

Second. Those with a moderate amount of retention, often intermittent and frequently associated with a gastro-succorrhea chronica, as has been described by Soupault and Enriquez and Durand.

There is, however, nothing definite in this classification, and the two types are often only stages of the disease in the same individual.

As we have already pointed out, the diagnosis of the first type is extremely simple, and inasmuch as we are able to diagnosticate this variety of stenosis so easily, it is unusual nowadays to observe patients who have reached the extreme stage of this disease, except in those instances in which the stenosis is due to malignant disease.

The diagnosis of the second type, however, is fraught with great difficulty. The condition is due to a partial stenosis of the pylorus, and inasmuch as the symptoms produced by it are extremely vague, the condition is often overlooked, or an incorrect diagnosis is made.

The physical signs of the disease are not marked, peristalsis being usually absent, and vomiting occurring irregularly, the vomitus being devoid of the usual features occurring in gastric stasis. A symptom very frequently present is pain appearing sometime after meals, and becoming most intense two or three hours after the ingestion of food.

This pain is due to the pyloric spasm produced by the incomplete obstruction, and is temporarily relieved by the ingestion of food or of alkalies. As is well known, this symptom is characteristic of ulcerative lesions in the pyloric or juxta-pyloric region, but inasmuch as in many instances partial obstructions have their origin in pyloric and juxta-pyloric ulcerations, this symptom is valuable as an early sign of the disease. As additional evidence of the presence of partial stenosis is the existence of gastric secretion in the fasting stomach, especially if this condition is observed in frequent examinations. If the fasting stomach is constantly empty of gastric secretion partial stenosis may usually be excluded. The diagnosis may be based, therefore, on the presence of secretion in the fasting stomach, occurring continuously or intermittently, together with stasis, though even of small amount, appearing at more or less frequent intervals.

These signs appear, however, so intermittently that they are often overlooked, especially when overshadowed by the usual symptoms of dyspepsia occurring in this affection.

Moreover, we are convinced that in many instances, certain affections associated with slightly delayed motility, such as is observed at times in atony of the stomach, are frequently not due to simple muscular relaxation, but are produced by partial stenosis of the pylorus. The recognition of partial obstruction of the pylorus is not only of importance from a diagnostic point of view, but is equally important when considered therapeutically.

For it not infrequently happens that patients are treated for simple atony, nervous dyspepsia, and chronic gastritis when the actual condition at hand is a partial stenosis of the pylorus, which gradually becomes more and more complete, even without any evident change in the symptomatology, and valuable time is thus frequently lost in delaying proper medical treatment or surgical intervention, which, had the condition been recognized earlier, might have been more radical and consequently more successful.

The x-ray has given us a means of more thoroughly solving this difficult problem.

In the diagnosis of partial obstruction, the greatest difficulty that arises is that the stomach is not a hard and fixed subject; for we know that a perfectly normal stomach presents great variability, not only as to position, but also as to motility, and expulsion of contents. In a general way we may divide the various types of stomach into three classes.

First, the stomach of a very fleshy individual, in whom this organ occupies almost a horizontal position. Second, the stomach in the medium weight person, in whom we have the cow horn shape variety. Third, the stomach in the very thin individual, in whom we have the tubular fish hook variety with the fundus well down in the pelvis. Corresponding to these conditions we may have the motility of the stomach markedly affected; so that we have no hard and fast rule, according to which the stomach can be said to empty in a certain number of hours, and that if this time be prolonged, that the conclusion be reached that we are dealing with some pathological condition.

The best authorities have agreed that the stomach which discharges its bismuth meal in from three to six hours empties itself practically within a normal rate. Consequently with this wide variation it makes it extremely difficult to determine beginning partial obstruction. Of course, in those cases in which we have retention of contents from twelve to twenty hours, there can be no question as to the diagnosis, but there the pathological condition has advanced so far that the question of successful treatment from a medical standpoint is materially lessened. To obtain the best effect partial obstruction must be diagnosticated early.

In our work we have simply aimed to give a preliminary report, indicating the methods which we have followed to arrive at some conclusion concerning this very important subject.

At this point it is wise to mention the character of the bismuth meal that has been employed. Our experience has shown that with the different meals used there is always a slight

difference as to the motility of the gastro-intestinal tract, consequently it has been our procedure for the last four years to employ one bismuth meal, namely one and a half ounces of bismuth subcarbonate, in an ordinary glass of water, and sufficient mucilage of acacia to make an emulsion. This meal has the convenience of being very easily prepared, and does not tend to nauseate the patient, as so frequently happens when some other menstrum is used for the bismuth.

Our experience has been that the results as a whole are much more satisfactory if not too large a meal is given. Some of the meals vary in amount from 16 to 32 ounces, whereas we seldom use over twelve.

In taking up the question of partial obstruction, we must first look at this condition from three points of view.

First, obstruction from within; second, obstruction from without; and third, retention from muscular relaxation.

OBSTRUCTIONS WITHIN THE STOMACH.

In the first condition we are dealing chiefly with either a malignant condition around the pylorus, or ulcer with cicatrix or idiopathic thickening of the pylorus. These conditions produce practically the same effect upon the action of the stomach. In the early stages of this condition we have active contractions with the slow elimination of the stomach contents. Now, as has already been mentioned, a normal stomach empties its bismuth meal in from three to six hours. Generally we observe that the high stomach occupying the horizontal position, empties much more quickly than the prolapsed fish hook variety, so that it might be stated that from three to four hours is the normal rate for emptying of the horizontal stomach, and five to six hours for the prolapsed fish hook variety. When in these various types we note that, while the contractions are good, yet the expulsion of contents is slower than under normal conditions, we may consider the possibility of some beginning obstruction. A second very significant sign is the fact that in the study of the plates we frequently observe that a portion of the stomach just within the pylorus on the greater curvature in the prepyloric region shows a tendency to bulge.

This condition is produced by the active contractions of the stomach, forcing all of the food towards the pyloric region. The pylorus not being patent, the prepyloric portion of the stomach becomes dilated under this constant pressure, so that the plates present the pylorus not at the end of the stomach, as it were, but the prepyloric region extends further to the right than the pylorus, the pylorus resting on the top of the stomach, and pointing to the splenic region. The prepyloric bulging is dependent largely upon the duration of the affection. In early cases it is very small, but as the condition advances, the prepyloric bulging may reach the size of a hen's egg. If the condition persists, dilatation begins to take place, and after a time, practically the entire fundus yields so that typical sack-like formation is produced, and the entire bismuth rests in the bottom of the fundus. In this state the examination will present a retention of contents of from ten to twenty hours.

OBSTRUCTIONS FROM WITHOUT THE STOMACH.

We find this condition due chiefly to two factors. First, from a mass or growth pressing upon the pylorus and duodenum, and thus producing mechanical obstruction, and secondly, adhesions occurring around the pylorus and duodenum and omentum.

The first condition is rather unusual. It can be cleared up by palpation of the abdomen by either moving the mass or changing the position of the stomach, so that under massage the contents will be expelled quite freely. The second, obstruction from adhesions, is in this day of operative surgery quite common, as can be observed in many post operative cases which are explored, or by chance come to the autopsy room. One cannot help but be impressed with the fact how frequently adhesions are formed and are produced by various forms of pathological conditions. At the same time one is frequently amazed to see how nature will accommodate itself to the various malformations produced by such adhesions.

One of the most common causes of partial stomach obstruction is the formation of adhesions following an appendix operation or an unoperated chronic appendix. It frequently happens in these conditions, that by the formation of adhesions involving the cecum and possibly the transverse colon, the omentum will also become involved, and being pulled over to the appendix region, pulls down upon the greater curvature. This tension or pull is frequently so strong as to interfere with the motility of the stomach, so that proper expulsion of contents is impossible owing to the fact that the greater curvature cannot contract properly. With this condition, the stomach may be definitely dilated. The prepyloric region of the stomach will be observed resting in the appendix region and there will be definite retention of contents, varying anywhere from six to eight hours. This condition is so typical that if at the first examination the stomach occupies this position one can almost definitely state that we are dealing with a partial obstruction at or about the pyloric opening. Then, too, we can have quite a similar condition arising from adhesions being formed around the gall bladder. In these cases the duodenum or pylorus may be bound down so tightly as to very materially narrow the portal of exit. In these cases again we have the active contractions slow expulsion and retention

of contents beyond five or six hours. The degree of dilatation depends entirely upon the degree of obstruction.

RETENTION FROM MUSCULAR RELAXATION.

At times one will see a sluggish atonic stomach in which the contractions are so slow that the mere weight of the contents of the stomach will gradually cause a uniform dilatation of the fundus. The position at the point of greatest prolapse is always in the centre of the fundus. The stomach assumes the appearance of a rubber bag in which a great quantity of shot had been placed, thus causing the lowest point of the bag to sag, and become elongated. It is very difficult at times to distinguish between one of these atonic conditions, and one in which an obstruction had been existing for a sufficient length of time, when the stomach is almost worn out, so that there are practically no contractions and the stomach assumes the position of the atonic prolapsed organ. However, the picture of an atonic stomach is so characteristic and differs so markedly from that of partial obstruction that the two conditions can usually be easily differentiated from each other. In conclusion we may state that the x-ray is a very valuable aid in the diagnosis of beginning pyloric obstructions. First, in the cases in which the trouble is from within, as from ulcers and growths; second, it is especially valuable in cases where the obstruction is from without, due to adhesions producing an abnormal position of the stomach, and thus interfering with the motility. This is especially true of adhesions in the lower right quadrant, where so frequently we find the stomach bound and not functioning properly.

In these cases, the primary symptoms may be so marked, for example, those associated with disease of the appendix, that the gastric symptoms may be completely overshadowed, or the very reverse may be observed, that is, the symptoms produced by the abnormal position of the stomach may be so prominent as to entirely overshadow the primary condition. Third, these examinations should always be studied in conjunction with the clinical signs, being but a part of a general examination, developing, as it does, but one side of this very complex subject.

New Instrument.

AN EASILY-MADE AND RELIABLE DIALYSER FOR ABDERHALDEN TEST.

BY HORACE GREELEY, M.D., BROOKLYN, N. Y.

SINCE all the thimbles so far put upon the market require separate testing to determine their reliability and as they are somewhat expensive it is thought the following device will be of service to those making the tests.

Take a small-size test tube and file off the closed end, smooth raw edges and fold over the cut end a piece of lense-paper which should be held in place by a small rubber band twined over it about one-quarter of an inch above the edge of the tube. With a camel's hair brush paint collodion (U. S. P.) over outside of lense-paper, dry, and suspend tube in one of larger size, upon whose lip the lip of the smaller tube should rest. Sterilize in Arnold's sterilizer and apply usual permeability tests. A little practice may be necessary before one learns to properly regulate the thickness of the coat of collodion applied.

Medical Progress.

REVIEW OF PROGRESS IN BIOLOGICAL CHEMISTRY FOR 1913.

BY A. EVERETT AUSTIN, M.D., BOSTON.

SUGAR CONTENT OF THE BLOOD.

THE quantitative determination of the blood sugar has proved of great value in the differentiation of glycosuria due to hyperglycemia from all others. Several methods which require only minute portions of blood have been devised, but one of the most practical because demanding the smallest laboratory equipment, is the following, proposed by Kraus and Adler[1]: 1 c.c. of blood is to be obtained from a finger puncture, and is freed from albumin by dilution with water (10 parts) and the addition of 1 c.c. of dyalized iron, drop by drop, while shaking. The mixture can then be filtered or centrifuged and the distillate or centrifugate be cooked with 10 c.c. of 1-10 strength of Fehling's solution, which equals 5 mgms. sugar. The unreduced copper is then reduced by adding an accurate 0.4% glucose solution (better, 0.1%, ref.) when each c.c. contains 1 mgm. glucose. The difference between the c.c. added and the 5 mgms. required for the reduction of the copper will give the sugar content of the original c.c. of blood.

Tachau,[2] by the determination of blood sugar in many instances, has reached certain conclusions: If hyperglycemia (more than 0.85 part per thousand) is found while the patient is fasting, then true diabetes is present, apart from a few diseases (Basedow) associated with a blood sugar increase. When the fasting sugar is not increased, an increase an hour after the ingestion of 50 grms. of white bread has the same significance. If neither of these conditions is present, a glycosuria may be regarded as of renal origin. The amount of increase measures the severity of the disease. Increase or diminution of blood

sugar gives a better insight as to the effect of treatment than does urinary sugar.

Flesch[3], in an investigation of blood sugar in Basedow's disease did not find spontaneous hyperglycemia, but did find it in 60.7% of cases after the ingestion of 100 grms. glucose. This increases after operation, but soon sinks to normal with the improvement of nervous symptoms. A similar tendency to increase of blood sugar follows the ingestion of thyroid extract by the normal individual. This alimentary hyperglycemia may be used, when present, to substantiate the diagnosis of Basedow's disease when some of the usual symptoms are absent.

Freund and Marchand[4] have demonstrated that the common increase of blood sugar in fever is due to the nature and severity of the infectious agent and not to the accompanying fever and hence is only a symptom of the infection, increasing with the grade of this factor and not with that of the temperature. In hypertension with nephritis, Hagelburg[5] has shown an increase in the amount of blood sugar, which is particularly noticeable in general arteriosclerosis. In six cases of interstitial nephritis, on the contrary, the sugar was not increased. Port[6] also has discovered an increase in the sugar content of the blood in nephritis when accompanied by uremic attacks, apoplexy or eclampsia, and there is an associated increase of blood pressure; therefore the two symptoms of hypertension and hyperglycemia are not to be attributed to a common cause, exaggerated secretion of adrenalin.

INDOL AND INDICAN.

In a careful investigation of patients suffering from gastro-intestinal symptoms, Frankel and Franko[7] have found that when blood is poured into the digestive tract, even in the minutest quantities, indican is markedly increased in the urine; this is particularly true of blood from a gastric ulcer. As the ingestion of meat, and particularly of fibrin, may produce the same increase in indican, similar precautions must be observed, as in the search for occult blood in the feces, *i.e.* freedom from the ingestion of meat. The dependence of the amount of indol and indican formed on the character of the food has been studied by von Morazewski and Herzfeld[8], who found both increased upon a fat, vegetable and gelatine diet in healthy individuals, but a marked diminution occurs upon a starch or sugar diet. When on a starch and sugar diet a change to protein caused an increase and while on a fat diet a change to protein caused a diminution in both substances. A close connection exists between the fecal indol and the urinary indican in that they both increase and diminish conjointly. When an idicanuria exists two factors must be considered as its cause, first the absorptive power of the intestine, and secondly the power to destroy indol before its pairing on the part of the organism. The former tedious method of isolating indol from feces by distillation, extraction with ether, and its quantitative determination by weighing has been much simplified by Herzfeld and Bauer[9], who proceed as follows: 10 grams of feces are suspended in 1000 c.c. of water and 5-600 c.c. of this distilled off, the distillate shaken out with xylol, the latter allowed to evaporate, a definite amount of water added to the residue dependent on the amount of the control used, and Ehrlich's reagent (dimethylaminobenzaldehyde, 2.0, and acid hydrochloric conc., 100.0) added, until the most intense color is produced, when it is compared with a standard indol solution of known strength, to which some of the reagent has also been added. A colorimeter may be employed but is not necessary. Quantities as small as 1: 10,000,000 can be estimated in this way.

FORMATION AND ELIMINATION OF OXALIC ACID.

From a special study of the subject Weyrzynowski[10] comes to the conclusion that the proteins play no part in the formation of oxalic acid, but carbohydrates and fats (particularly glycerine) do. Furthermore, all our food contains certain substances which either directly through metabolism or indirectly aid the formation of this acid. The organism seems to possess only a limited ability to form such an acid as oxalic.

From the results of the investigations of Lichtwitz and Thoerner[11] we learn that in practically all cases of icterus there is an increase of oxalic acid in the urine, but when the obstruction of the choledochus is removed by nature or by operation, the urinary oxalic speedily diminishes. From these results and from those of other observers, it is evident that oxalic acid is positively eliminated to a certain extent in the bile. Two to five grams of glycocoll, when ingested, cause no increase of the urinary oxalic either in a healthy individual or in an icteric. Gelatine is a source of this acid.

AMINO-ACIDS.

These acids still seem to arouse the greatest interest among investigators. Abderhalden and Lampé[12] have observed that when meat is fed to dogs, the amino-acids may be found now and then in the blood, a circumstance equally observable when Wittes peptone and erepsin, together, are fed or introduced into the duodenum. It is also found that certain of these acids pass directly from the digestive tract into the blood current. There is so far no proof that when gelatine and ammonia salts are given, a synthesis of ammonia and carbohydrates or fatty acids takes place.

Galambos and Tausz[13] have investigated the disturbance of protein metabolism in diabetes mellitus, as well as the behavior of urinary amino-acids in both normal and pathological conditions. It was found that both the relative and absolute amount of urinary amino-acids was in-

creased in this disease. There is also a relative hyperaminosuria, dependent on food, found in true diabetes. The authors attribute this increase to a diseased pancreas.

The old analyses of the rectal wash water after nutritive enemata of milk and egg, by which absorption was proven have been shown by Bywaters and Rendle Short[14] to be fallacious. The daily nitrogen determinations of the urine of patients who were nourished solely by milk, peptonized for 30 minutes, or eggs, have shown that not an atom was absorbed. Amino-acids in solution or milk which had been peptonized 24 hours by which the former were formed, when given by rectal injection, have shown by the increase in urinary nitrogen that a fairly large portion of the nutrient enema is absorbed. The lack of increase in the ammonia nitrogen indicates that the increased nitrogen output is not due to the absorption of putrefactive products. Furthermore, the rectal wash water never possessed a putrid odor. The best results were obtained from milk subjected 24 hours to the action of pancreatin, to which 5% of dextrose was added.

Damask[15] has studied the elimination of amino-acids in individuals whose reserve store was exhausted and to whom 20 grams of glycocoll were given while still fasting. It was found that those with normal hepatic functions were unable to dispose of this quantity and some appeared in the urine. One with a diseased liver was usually able to take care of this quantity almost as well as a normal individual, if water was taken freely at the same time. The maximum of the amino-acid elimination by the kidneys occurs at the latest in the second hour with a normal liver or mild hepatic diseases (congestion, cholecystitis and icterus, cholangitis, etc.), but not earlier than the third hour in severer hepatic diseases (cirrhosis, amyloid and syphilitic hepatitis—gumma).

BASIC PURIN BODIES.

Apparently of equal interest with the former is the purin metabolism with its many peculiarities. This has been further elucidated by Hefter[16], who examined the purin bases elimination in healthy as well as diseased individuals. In the urine of normal persons on a nuclein free diet, the purin bases formed 6-11% of the total purin excretion. On the addition of food containing nuclein, the purin bases diminished. On the contrary, the intravenous injection of uric acid produced no effect. When gouty patients are placed on a purin-free diet, the relative amount of the purin bases remains the same as in the healthy, though occasionally it may be increased. When food containing nuclein is added to the diet of the gouty, the change in the percentage of purin bases is the same as in the healthy, but it does not take place so quickly. No change is made by the injection of uric acid.

PENTOSURIA.

Klercker[17] has had an opportunity to observe two cases of this abnormality in metabolism and thinks he has found some association of the pentose with food, in that, while fasting and undernourished, the patient eliminates much less of the 5 atom sugar. A relation with the amount of protein can be detected by the hourly determination of the sugar and the nitrogen of the urine which increase and diminish together, making it rather probable that the former is the source of the sugar. Several facts point to an association between pentosuria and true diabetes, such as the coincidence of pentose and glucose in the urine, the alternation of pentosuria and glycosuria in members of a family, and the fact that rarely the true diabetic eliminates pentose instead of glucose for short periods.

UROBILINOGEN AND UROBILIN.

Hildebrandt[18] calls attention to the fact that the general impression prevails that all urobilin exists in fresh urine as the mother substance, urobilinogen, and is only converted by contact with the air, but he has been able to show that this change may take place in the bladder, and a test like that of Ehrlich, which can be applied only to the former substance, may lead to error even in fresh urine. Hence he prefers a reagent containing zinc acetate, 10.0, and alcohol absolute, 100.0, to be well shaken every time before using. Equal parts of this reagent and urine are to be mixed and allowed to stand in contact with light and air or in the sunlight, if possible. The degree of fluorescence indicates the amount of both pigments combined. Before one can content himself with the Ehrlich test, the urine and the reagent should be warmed together and then examined with the spectroscope and the amount based upon the intensity of the lines found there.

ABSORPTION OF FAT.

The ability of the organism to absorb fat has so far been measured largely by the amount of fat found in the feces or the residuum after absorption had taken place. Neumann[19], on the contrary, has adapted to this purpose our ability to detect fat in the blood after a meal containing a large percentage of this food constituent with the dark field of a microscope. The details of the method are to give the patient the evening before a meal containing no fat, when the next morning no fat is found in the blood. The individual is then given a large amount of fat with a roll and tea, and at hourly intervals a drop of blood is taken and examined in the dark field. Normally, after an hour, numerous bright fat globules can be seen, which rapidly reach a maximum, to recede as rapidly. The abundance of paucity can be determined by the

eye after a little experience. This lack or diminution of fat may be due, of course, to faulty motility, digestion or absorption. The radiograph gives us information as to the first, while the presence of icterus or the existence in the stool of starch or meat fibers will place the stigma on the pancreatic secretion. With the ability to rule out these two factors we may say positively under such conditions that absorption of fat is impaired. This, the author found, might occur with catarrh of the small intestine accompanied by much fecal mucus or with functional intestinal disturbances unaccompanied by mucus.

Aschenheim[20] has studied the effect of fat and calcium-free food on infants and found that the stools are seldom solid. Even when butter is given to the extent of 30 grams daily, it does not change the character of the stool. When fat-free food is given there is still a small amount of fat in the stool, but not enough to interfere with the estimation of fat utilization in the study of metabolism. This fat must be eliminated by the epithelial cells of the intestine. The quantitative estimation of the fecal fat when no fat is given in the food shows that a considerable per cent. of the dried feces may be made up of this exuded intestinal fat. The calcium metabolism is very closely associated with that of fat.

Among the many chemical methods for the early detection of cancer two methods, though unfortunately not absolute, are still being employed, and Wolpe[21] has recently published his investigations based upon seven perfectly normal persons, fourteen suffering from cancer in various parts of the body, and sixteen patients with different non-malignant diseases (thirty-seven in all) on whom he used the Salkowski determination of the colloid nitrogen in the urine with the following results: (1) The positive outcome of this test is not always distinctive of carcinoma, but points to it strongly, since when a malignant growth is present this peculiar breaking down of the nitrogenous structures of the organism is found, even before any clinical symptoms may be present. (2) It may occur that when the diagnosis of cancer is positive the colloid nitrogen may not be increased and conversely there may be an increase in normal individuals, but it is rare. (3) There may be an increase in this form of nitrogen in other diseases, but never to such an extent as in malignant growths, so that this deviation from the normal may be considered as pathognomonic of carcinoma. (4) This test of Salkowski's is easily carried out in a clinic and hence should never be neglected when a diagnosis is doubtful.

The so-called glyoyltryptophan test for early diagnosis of gastric cancer has been subjected to a revision by Giana[22], who found that in sixteen cases of true gastric cancer, the test was positive in ten instances, failed in three, and in the other was sometimes present and at others absent. In eleven other forms of disease where gastric cancer could be positively excluded, the test was positive in three and negative in the remainder. Hence he concluded that the ferment may be present at times when cancer is present, though not of the stomach, with an entirely different group of symptoms. Furthermore, when gastric cancer is absent, we may ascribe the splitting of the glycyltryptophan to *pancreatic juice* or blood; nor must we lose sight of the fact that saliva also can split this amino-acid. In the sixteen carcinomatous cases the test was positive with the saliva of twelve and negative with that of four, while in three non-malignant diseases both the saliva and the gastric contents gave a positive result. Therefore he concludes that the test can never be interpreted absolutely until we improve the technic or eliminate the sources of error.

HYDROCHLORIC ACID OF THE STOMACH.

To avoid the use of the tube Friedrichs[23] has employed a thread impregnated with congo red and attached to a capsule which is to be swallowed by the patient twenty minutes after the test breakfast is taken. It is now withdrawn after thirty minutes and, if hydrochloric acid is present, the red is turned to blue, and the greater the preponderance of the latter color, the greater the amount of the acid.

After the method of Holmgren for the quantitative determination of hydrochloric acid, based upon the fact that a drop placed upon a piece of congo paper blues less area and moistens more without change of color, the more concentrated the acid solution is, had been almost forgotten, Schmidt[24] subjected it to an accurate supervision and concluded that while it offers results which differ somewhat from the old method, as one would expect upon comparison of a method based on capillarity with one based on alkali combining power, yet Holmgren's method is not without its merits and should be more generally employed.

According to Aebardt[25] the *normal* gastric mucous membrane secretes a normal amount of hydrochloric acid with, perhaps, a tendency to hypersecretion. When nephritics develop gastritis, between which there is no causal relation unless cardiac incompetency accompanies, the gastric acid is scanty. With acute Bright's a frequent hyperchlohydria is noticed. When at the height of a nephritic process hypo- or achlohydria arises, it is due to the combination of the hydrochloric acid with the volatile chlorides, and this tendency to such a union disappears as one recovers from the renal process.

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Reports of Societies.

CONNECTICUT STATE MEDICAL SOCIETY

ONE HUNDRED AND TWENTY-SECOND ANNUAL MEETING OF THE CONNECTICUT STATE MEDICAL SOCIETY HELD AT NEW HAVEN, MAY 20 AND 21, 1914.

DEMONSTRATION OF SKIN DISEASES.

DR. R. A. MCDONNELL, New Haven: This little girl has had a lupus vulgaris, which began some six years ago. The only satisfactory treatment for this disease is to destroy the bacilli. You try to cut the thing out, and use the x-ray on the scars; but it recurs again, in one place and another. We had a patient, a while ago, who died as the result of carcinomatous growth around the scar from that treatment.

Here is a case that no one would think of being tubercular. It is an old case of fibroid eczema of the palms and soles. That is something like a form of syphilis.

NEWER METHODS OF DIAGNOSIS AND TREATMENT OF GLAUCOMA.

DR. ARTHUR N. ALLING, New Haven: Glaucoma will always be the subject of perennial discussion. There is more written about it than about any other disease in ophthalmology. It is a condition of high intra-ocular tension, and the term "glaucoma" is practically synonymous with high intra-ocular pressure; although not absolutely so, because it is possible for a man to have glaucoma and yet, at times, not show tension—as in the case of glaucoma simplex.

In regard to the diagnosis of intra-ocular tension, we had formerly only one method. We measured the hardness of the eyeball with the finger. All of the instruments devised with the idea of testing the pressure scientifically have proved rather unsatisfactory. However, there is an instrument that we now possess for testing scientifically and accurately the intra-ocular pressure. Glaucoma results from interference with the drainage apparatus. The intra-ocular pressure normally is between 20 and 30 mm. of mercury. If it rises above that, we have, generally speaking, a glaucomatous state or condition. The treatment of it is another story. When this disease once attacks an eye, it is never recovered from. You may live your life through; but, nevertheless, the eye is never right. Our methods of attacking this disease have been, first, palliative, by means of pilocarpin and eserin, which will sometimes do fairly well; and secondly, making an iridectomy. Later, there have been other operations devised; for instance the LaGrange. Col. Eliot, of India uses a trephine for making a hole in the sclera and securing a permanent opening. He was the first to make the procedure useful in cases of glaucoma.

On this patient's eye, I performed an iridectomy, which is the sheet-anchor treatment for glaucoma. We should have what we call a little bleb over the seat of the operation, showing that filtration is going on satisfactorily; but in this case, there is no bleb. The tension, however, is down; which proves that it is possible to get relief of tension without the edematous swelling over the site of the wound.

Of course we are all enthusiastic over the Eliot operation; but, with my natural conservatism, I must say that perhaps the last word has not yet been said about the treatment of glaucoma. Bear in mind that with the procedure, the glaucoma is not cured. You still have the diseased condition that you had in the first place; although artificially you are getting a certain amount of drainage, and the disease may be arrested. Therefore, let us hope that something else may soon be offered by which a cure may be effected.

DIAGNOSTIC METHODS IN GASTRO-INTESTINAL DISEASES.

DR. L. M. GOMPERTZ, New Haven: The first case is that of a patient who, in August, 1909, complained of symptoms that led to a diagnosis of gastric ulcer. He was treated for a short time and felt so much better that he failed to return for further treatment. On May 11, of this year, he came back with an aggravation of the symptoms previously noted, and with loss of weight. A test supper was given him, and an examination of the contents of his stomach made. The test supper contained rice, meat, raisins and anything else he desired. In the morning, a tube was passed into the fasting stomach. Many physicians are unable to get a fasting stomach's contents. It is very simple. Suppose the patient has a dilated stomach, then he leans forward, you compress the tube, and anything that may be in this tube comes out. No matter how little you get, it is enough for a microscopic examination. We got

a little of the contents of the stomach of this man which showed the presence of sarcinae and food remnants. Hydrochloric acid must be present, in order to favor the growth of sarcinae. A diagnosis of cicatricial ulcer was made. Two pictures were taken; one shows the tube going down to the pylorus and then stopping. There is an abrupt ending of the bismuth meal at the pylorus, due to the cicatrix of an ulcer; so we know it is not a malignant growth.

The next patient has been seen at odd times since 1908, and when any excitement occurs, she has a spell of vomiting, and cannot eat anything. Everything comes up almost immediately after it is swallowed. A lot of mucus and food is vomited. In attempting to pass a bougie into her stomach, we encountered an obstruction just above the cardia, 42 cm. from the mouth. The treatment then was passing bougies, and giving tincture of belladonna and bromides. She recovered. Two years later she had another attack and immediately after it she had spasm. She has had these spells so often, coming on when there was any excitement, that there is dilatation of the esophagus above the cardia. It is well to note this fact because in the next case, which is one of malignant obstruction, the obstruction, which is right at the cardia, has only been going on for a short time, so that there is no dilatation above.

The next case shows very nicely the transition of a non-malignant growth into a malignant growth. The patient came to me June 20, 1907, with symptoms of ulcer on the cardiac end of the stomach. He had increased acidity. I treated him and he improved and gained weight. I did not see him for a long time after that. He came back in 1908 with a different history. His appetite was good, but he could not get food down. His bowels were constipated. I passed a bougie and met obstruction right at the cardia. At times, this obstruction lets up a little, so that food can go down through it. It is positively a malignant case, and he still has the obstruction. Of course this case will go from bad to worse, and without any possibility of help at all.

Another case that I want to relate to you is that of a young woman whom I saw eight years ago for the first time. The clinical history, chemical examination, etc., showed the case to be pure ulcer. She was treated for a month and I told her she needed an operation. After that I did not see her until a year ago, when she returned and said that she was ready for an operation. In passing the stomach tube I found hydrochloric acid, sarcinae and food remnants from the night before. I made a diagnosis of cancer of the pylorus, which was wrong. The reason for the mistake was that in passing the stomach tube I got to the obstruction in the center of the stomach instead of to the pylorus. Just before the operation I had an x-ray taken, not suspecting the presence of an hour-glass stomach. Dr. Verdi operated, and made an end-to-end anastomosis; and at the end of two months after the operation, this picture showed the stomach to be smaller, but normal in position. I have seen the girl within two weeks, and she is well and eating three square meals a day, and getting fat.

This case was of a woman who had stomach symptoms and it was perfectly evident that she had a gastroptosis. In passing the tube I got into a pocket, and thought that she had an hour-glass stomach. The next time I passed the bougie, I got into the stomach. I told her she should be operated on. At the operation, instead of an hour-glass stomach, multiple ulcers were found. The ulcers were taken out and stomach was brought in proper position by end-to-end anastomosis. With the aid of the x-ray, the microscope and chemical examinations, we can often arrive at a positive diagnosis; but, on the other hand, this is sometimes impossible. We should try all the different methods of testing, in order to try to arrive at the correct diagnosis.

PRESENTATION OF CASES OF BONE-GRAFTING FOR VARIOUS CONDITIONS, IN DIFFERENT LOCALITIES.

Dr. E. H. Arnold, New Haven: I have done bone-grafting in almost every situation in the body. I have grafted in club-foot, and have done two operations in the tubercular tarsus by inserting pieces of bone. I have grafted once on the tibia for an osteomyelitic defect. The next situation in which I have grafted is in the knee. This boy had a tubercular knee for three or four years. He first had it treated by scraping on the outside, brace treatment, and with plaster of Paris; but they did no good. The process of destruction went on. I did a resection of the knee, cut away as much as I could. The result was that he had some motion in the knee. He went back to his trade three months after the excision. As one of the sinuses still persisted I put in a bone-graft at the front of the knee, in order to do away with the movement. I have succeeded in this, but have not stopped the discharging, so far.

In treating hip-joint disease, we find, in spite of all that we can do, that we get great destruction of the head of the humerus and of the acetabulum. A tubercular knee does not make bone, and the best that we can hope for is fibrous union. No brace will secure absolute immobility, and you cannot keep a child in plaster always.

In this case, I opened the hip and inserted two grafts. One of these sloughed out, but the other remained in. It stimulated bone-making there to such an extent that I got firm bony union. The child now walks without a brace, and I do not think the union will ever break loose.

The next group in which I grafted are cases of sacroiliac and sacrolumbar disease. They are most difficult to treat. They usually go from bad to worse, and are cases that are in the hands of doctors for years.

When first I saw this man he was moribund. I put him on a plaster of Paris bed, and at the end of four months he tried to walk without a supporting brace; but he went to the bad again. I then operated, inserting a graft shaped like an inverted Y. He has a graft in the lower lumbar and upper sacral region. That did away with these joints, and I have secured immobility. In the third week after the first operation he was operated upon on the other side. We did two herniotomies; and within six weeks, he walked out of the hospital and went back to work after three months.

A bone-grafting can be done by anyone. You just take a piece of shin bone and put it in, and the patients all get well. I have grafted into the cervical region twice, and into the elbow for ununited fractures. I have also grafted into the shoulder, inserting the graft right in the glenoid cavity, and it has held, so far.

WASSERMANN'S TEST FOR SYPHILIS.

Dr. C. J. Bartlett, New Haven: The underlying principles of the complement fixation test is

what I will discuss, and I will try to tell you why we get, and why we do not get hemolysis. By this we mean the setting free of the pigment from the red corpuscles. When we speak of complement, we always mean fresh guinea-pig's serum. If we have hemolysis, we have ambocepter which is stable and complement, which is unstable. The test for syphilis depends on complement fixation or complement deviation. In testing for syphilis, we take some syphilitic antigen. Antigen is a substance that, when injected into an animal body, gives rise to an antibody. Theoretically, the organism producing syphilis is the antigen. It has been shown, however, that an extract of normal tissues will act as a syphilitic antigen in the same way as the red corpuscles act as an antigen. If the serum to be tested is from a case of syphilis, it will contain syphilitic antibodies. If the serum to be tested is not from a syphilitic there would be nothing to unite the antigen for syphilis to the complement and it would remain free. Then, when we put in the amboceptor for the sheep corpuscles, union would be brought about between the complement and the sheep corpuscles, which would give rise to hemolysis. The fluid would become clear, which would mean that the test is negative for syphilis. In making these tests we get our serum in quantities of 5 or 10 cc. We let the serum separate over night, and then heat it to 132° F. for half an hour. If we do not get a positive reaction, we know that the case was not syphilis. The simple negative test is not of much value. We have found that the blood serum will give a negative reaction sometimes when the spinal fluid will give a positive one. We also find that the reaction in the spinal fluid lasts longer than in the blood; so that we must examine the spinal fluid before we can discharge the patients as cured. We have found that almost always the blood becomes negative while the spinal fluid still remains positive.

EXPERIMENTS IN NUTRITION.

DR. T. H. OSBORNE AND DR. L. B. MENDEL, New Haven: The charts represent twenty-day periods and weighings. The length of life in the rat is not more than one thousand days on the milk food. The rat will grow for a time on starch and then decline, after forty or sixty days. The foods we use are water-free, and are mixed with lard. The rats grew on this food when it was mixed with protein, and failed to grow when it was not. We have here a chart showing the normal growth on a single protein, such as destin, casein, the albumin of the white of egg, glutein from meat, etc. On certain foods there was practically no growth. All that was necessary in order to have growth start again, was to change the diet from an imperfect to a perfect protein. Some proteins are enough for maintenance, but not for growth. When the animals declined, all that was necessary to make them come up was to substitute butter, butter fat or cod liver oil for a little of the lard. Instantly, almost like magic, there was perfect recovery and continuation of growth. The same is true of egg fat. Solid fats sometime failed to nourish the animal, but they quickly recovered when that fraction of the total butter was substituted by the butter oil. Most of the proteins that we have at our disposal to prepare these foods contain all the amino-acids, and are complete proteins. Others lack one or more amindo-acids, and are incomplete proteins. Using these enables us to determine whether the protein that is lacking is of importance for growth and maintenance. The trytophane group is essential for maintenance, for without it the animal dies in a comparatively short time. The lysin group is essential for growth, but not for maintenance. This brings up another question. How long can an animal be stunted and still recover the power to grow? They go down hill on zein alone, are maintained on zein with tryptophane, and have growth by the addition of lysin. Another question is, Can we supplement the deficiency of the protein by adding another protein to it? and how well can that be done?

If you double the proportion of casein, up goes the growth. One-fourth of destin is insufficient for growth; but with one-half, you come near it; and with three-fourths, you have it. The different proteins have very unequal value. Milk protein contains lysin and corn protein does not. When we add lysin it makes it all right. We added to a diet of nine per cent. casein, on which the rat was growing slowly, the cystin; and it improved the growth. Here is an illustration of a rather unique experiment—an animal that was kept for one hundred and sixty-eight days on a food that did not contain lysin, and so was inadequate for growth; yet it was able to give birth to young, and to maintain and nourish them; but it did not recover its original weight. The animal was an adult. It produced its young, and produced milk for them; but the embryo of the young was produced at the expense of the mother's life.

When we talk of anorexia as being due to sameness of food, we are probably in error. It is due, rather, to individual social conditions. You can eat the same thing, day after day, if you have the right diet. As soon as you have a defective food, however, anorexia is reproduced. When we give them a defective food, the rats stop eating. The malnutrition, then, is the cause of the anorexia, and not *vice versa*.

We were asked why we used rats for these experiments. Well, we cannot, of course, use men. We cannot use cattle, because none of us would live long enough to see his experiments through. In the rats, however, two hundred and fifty days covers the period of growth; two hundred and fifty days more is the period of middle age; and a nearly similar number of days includes the period of old age. The rats, also have comparatively the same rate of growth as human beings; and the cost of feeding them is within the capacity of a scientific institution.

TRANSPLANTATION AND EXPLANATION OF TISSUES AND ORGANS.

DR. ROSS G. HARRISON, New Haven: At the stage when these experiments are made, the embryos have no nervous system; and the number of successful operations is nearly one hundred per cent. There is nothing like a muscular contraction, so that it is not necessary to give an anesthetic for the purpose of overcoming any tendency to sudden movement. It is also safe to assume, as they have no nervous system, that they do not suffer any great amount of pain.

They are operated on under a binocular microscope, and the parts are brought together and held in position by means of wires. They have lived for weeks after the operation, and have grown remarkably. It is quite possible to unite organs of differ-

ent species together. Very often a union between parts of different species is very useful for experimental purposes, because the fact that the cells of the two species are of different color enable one to follow the development of the movements of the cells.

My early work in this direction was done by uniting relatively large pieces; but more refined methods have since been devised, whereby it is possible to use very much smaller parts. If older embryos are used and it is necessary to give an anesthetic, about two parts of chloretone added to ten thousand parts of water will stop movement. The animal can be kept in this for a week, and will undergo its whole development almost normally in this solution.

It was a great surprise to me to find that if the little disc of tissue that represents a limb be turned around through 180° in transplanting, we still have a perfectly normal limb, developing in a perfectly normal position. Therefore, the position must be determined by some factor in the body of the embryo as a whole. Likewise, in a great majority of cases, the interchange of right and left has no effect.

So far, I have been speaking of transplantation only. I shall now take up the question of explantation, whereby the parts are transplanted to some medium outside of the body. We know that the parts of animals may live for some time after the death of the organism as a whole. It is not strange, then, that muscles and nerves should survive outside the organism with which they have been connected, and undergo development as well. Muscle tissue that is entirely undifferentiated when taken out of the embryo will differentiate without the presence of any other tissue whatever. Other tissues will also develop normally. The development of whole embryos has been shown by this method. Even the mammalian embryo will undergo at least a portion of its development. A method has been devised whereby it is possible to obtain large quantities of plasms with which to carry on experiments concerning these processes of growth. Tissues have been grown, not only in this plasma medium, but also in a saline medium. The latter is not so good as the former, but adding sugar or other nutritive material improves it.

As a usual thing, tissues cultivated outside the body retain their specific function, although the gross morphology may not be retained. The degree and kind of solid support has considerable effect on the movement of the cells.

OPERATIONS.

Dr. O. G. Ramsay, New Haven: This is a young woman of twenty-one years, whom I saw first about six weeks ago. I could not get the child's head to engage. The pelvic measurements are very small. Last night she went into labor. We were able to carry her along until now, but the head it still freely movable above the brim. This is one of the selective cases for the operation of Cesarean section. She could be delivered by other methods; the head could be crushed, and the fetus possibly brought through; but we have had better results with the Cesarean, however. When she went into labor the cervix became dilated enough to prevent our having to bother with drainage. I have tried an experiment with this patient. Many of these cases bleed badly and the uterus does not contract very soon. We gave her a good dose of ergot before she took ether, to see what that would do for the contractions. We generally use the high incision, taking the umbilicus as the median point; as there is less chance for adhesions to form and of injuring the bladder. You can get at the baby just as well as though the incision were lower. You get better results if you are more careful in making the incision. We had one case of infection among these Cesarean sections, from letting the uterus lie against the bladder wall. We sew up the mucous membrane. By keeping it together you seem to get a little better result than by just putting in the heavy sutures. We had the opportunity of seeing one of these cases after two or three years. She came in with an active ovarian tumor, and it was remarkable to see how perfectly the wound in the uterus had healed. It seems as if some day this operation is going to be much more frequently done than now. It is a much easier method of delivering than other procedures. I had one case in which I went too far down. The patient had a hematoma; and it interfered with the convalescence, although she eventually got well. In this operation I will bring the peritoneum over the last suture and get it in apposition, so that it may heal more readily.

Dr. J. M. Flint, New Haven: This patient, a woman, aged thirty-eight years, has a perfectly typical clinical picture of subacute hyperthyroidism in exophthalmic goitre. The onset commenced last fall, without any factor with which she can make association. She began to get nervous, and her eyes commenced to be a trifle prominent; and this swelling appeared. The physical examination showed few ocular symptoms. There was no mononucleosis, which is usually associated with the more serious cases. We are using a general anesthetic, instead of attempting to remove the growth under cocaine anesthesia. We use pharyngeal anesthesia in head and neck cases, and in those in which the patient is inverted and the anesthetist has to work at a disadvantage. Its chief advantage is to avoid the anesthetists getting in the surgeon's way, The former can sit some distance away when this apparatus is used. This patient has a relatively small goitre; the right lobe is chiefly involved. It is soft, and has no palpable thrill; but there is a very distinct bruit heard on both sides. We use the simple operation in the toxic cases; that is, ligation of one or both sides of the superior thyroids. There is no evidence here of the thymus persistence, which is one of the interesting chapters in the recent discussion of exopthalmic goitre.

THE LUETIN REACTIONS.

(Dispensary Cases.)

Dr. J. B. Sullivan, New Haven: This is a pustular type of syphilis. The woman was injected eight days ago. Two years ago she had an initial lesion of the breast, from nursing a neighbor's child. Six months ago the Wassermann was positive. She has had four injections of salvarsan and mercury, and the Wassermann was four times negative thereafter. Later it has been found that the luetin reaction is still strongly positive, which means that she still has uncured syphilis. This patient, a man, has a specific prostatitis. His Wassermann is also positive. Here is another case in which the patient, a man, had a lesion of the soft palate, that most of us thought to be malignant, but we noticed that he had a perforated septum. The Wassermann was triply positive. Salvarsan and mercury were given, and

he showed a papular, and almost pustular reaction. It has left a scaly lesion. This baby came to the children's clinic for ulcers around the rectum and bad teeth. The x-ray showed osteitis and periostitis. We could not find spirochetes from the lesions, but the mother's Wassermann was triply positive. The luetin, however, was entirely negative. There was absolutely no reaction. The baby's luetin, however, was positive. It just means that at some stage of the disease all tests are not positive. You have to use every test possible, so as to make a sure diagnosis.

FRACTURES OF THE CLAVICLE.

DR. W. E. HARTSHORN, New Haven: We had quite a problem presented to us in the treatment of fractures of the clavicle at the dispensary. We found that with the ordinary plaster dressings, it was impossible to reduce the deformity. We did employ the ordinary Sayre dressing. At the end of the second week, in the treatment of these cases, or of the third in adults, the arm was restricted, and the forearm placed in a sling. Sayre's dressing is not very satisfactory, because it is extremely uncomfortable for the patient, and with enough strain put on the adhesive bands to really get reduction, the dressing is so tight that the patient cannot wear it. We next attempted to get adjustment by means of the Collins' method; but the same problem was offered as before, and the method did not stand up well. We then adopted the Bellamy dressing. It is better than the others, but was also very uncomfortable to wear. Last, we tried the Peckham dressing, and it works very well indeed in children. It reduces the deformity, is very comfortable to wear, and can be put on over the clothing. We find it very satisfactory.

APPARATUS FOR SUCTION AND ASPIRATION IN THE TREATMENT OF EMPYEMA.

DR. J. M. FLINT, New Haven: We have had a series of forty cases of empyemata of various kinds and types—the pneumonic, the hematogenous, and one or two interesting cases in which the empyematous process was secondary to abdominal infection. I mention this particularly, because of the recent discovery of a group of lymphatics passing through the diaphragm, and ramifying with the plexus on the surface of the pleura—which gives a definite anatomical route for infections occurring secondary to abdominal conditions, of which phrenic abscess is the most common. He have a method of treatment that we have found eminently satisfactory. There have been a great many apparatuses of various sorts devised to exert a negative pressure on the empyematous cavity. Five or six years ago we devised this empyema tube, which has given most excellent results. It is like an ordinary empyema tube, but has a large rubber dam. We operate on all cases under novocaine. The stitches are left untied, and the apparatus is inserted up to the hilt. The rubber dam is pulled back afterwards, and the wound is closed with silk-worm gut. The chest wall near the tracheotomy is smeared with ointment, and the rubber dam is folded against the chest and covered with gauze. Near the center, overlapping strips of adhesive are placed. The result is absolutely air-tight. Absolutely air-tight openings can be made in the chest wall, by which the normal tension can be replaced. The use of the Politzer bag is impossible in cases where empyema is associated with bronchial fistula, because the leak through the bronchus causes the bag to collapse. We devised a water vacuum to obviate this difficulty. Thus we are able to suck through the empyema tube enough air to overcome the ordinary leak and still keep a partial vacuum in the empyema cavity. Here is a patient with an empyema of eight months' standing and nearly complete collapse of the lung. The sinus had narrowed down until there was inadequate drainage. We enlarged the opening and put in a Politzer bag, which he carried for three months, the progress of the case being checked by the x-ray. The lung was gradually re-expanded and the patient cured. The apparatus can be carried around by the patient while attending to business, as it does not interfere with ordinary life at all.

APPARATUS FOR ASPIRATION AND IRRIGATION OF JOINTS.

DR. J. W. CHURCHMAN, New Haven: The spinal cord is an instance of a part of the body where infection is still an unsolved problem as regards surgical treatment. The joints present another unsolved problem of the same character. In the early days the same principles, incision and drainage, were applied to these diseases as to infection elsewhere. However, it was soon realized that this method would give unsatisfactory results, for if organisms got into a mucous membrane well below the surface, it was almost impossible to dislodge them. If they had penetrated to the base of the mucous membrane, these organisms persisted throughout life. We know of no antiseptic that will kill the organisms without destroying the mucous membrane itself. The earlier treatment has given place gradually to various forms of aspiration and irrigation; and the apparatus that I will show you is designed to enable us, with perfect technic (which is very essential) to aspirate a joint and wash it out, distending the joint at the same time, so that the material will reach all recesses of it. Any desired antiseptic fluid may be used without exposing the joint to subsequent infection. We aim to fill not only the space between the bones, but also all of the interstices. The apparatus we use consists of a series of tubes which connect, through common openings, with the tube inserted into the joint and with the tube leading from the pump, which can provide a force or suction power. The apparatus can be taken apart and cleaned, and can be autoclaved just as it stands. It is necessary to get the joint clean, the walls of which are lined and covered with little chunks of fibrin that must be first washed clean. We collect the pus for purposes of culture, forcing it into this bottle. When the joint is clean we fill the bottle with what we want to use, and then we force that into the joint. After the joint is full of the irrigating fluid, we draw it back again, and we may even repeat that operation with another fluid. I have used this method in two cases of arthritis and the results have been very satisfactory, in fact the second case was completely cured.

GENTIAN VIOLET IN SURGERY.

INFLUENCE OF GENTIAN VIOLET ON TISSUE CULTURES.

DR. J. W. CHURCHMAN, New Haven: We have found that a marked bactericidal action is possessed by gentian violet dye; and it was shown that Gram positive organisms were killed by it. At the present time it cannot be injected into the body, be-

cause if gentian violet is injected into the ear of a rabbit, in doses sufficient to kill the germs, the animal changes the stain within two hours, and renders it harmless to the organisms. That fact, however, may turn out to be of value, because if you can make the stain reach the organisms and stay unchanged long enough to kill them, and the body will change the stain and get rid of it, you will have a very valuable antiseptic. What is the effect of these stains on tissues? We have some cultures of tissues growing in gentian violet, absolutely unimpaired. In gentian violet we have a material which kills organisms, but does not impair tissue growth. We have a substance which is changed by a living being in the tissues, and which is harmless to the animal. That makes it valuable for killing organisms. The problem is to get it in contact with the organisms. When that is done, this or some similar material will be of great use in surgery.

STITCH ULCERS AFTER GASTRO-ENTEROSTOMY.

Dr. J. M. Flint, New Haven: The end results of our investigations make us believe that stitch ulcers of the jejunum following gastro-enterostomy are due either to sloughing out of the stitch or to changes in the circulation that the stitch has produced.

EXHIBIT OF FACIAL HEMIATROPHY.

Dr. Max Mailhouse, New Haven: Facial hemiatrophy is a rare disease, and usually occurs between the ages of ten and twenty years. This gentleman started in at the age of eighteen, with some discolored spots (from one-half to one inch in diameter), the manner in which it frequently begins, and gradually atrophy set in with some twitching of the muscles, and some pain in them, the atrophy involving skin, subcutaneous cellular tissue, muscles and bone. His family history is entirely negative and there is nothing specific in the case. There is no beard growing on the right side of the face, but there is a beard on the left side. His mouth has been drawn to the right, he can move his jaw to the left, but not to the right, there is marked atrophy of the right side of the tongue and also of the soft palate; but he has no difficulty in swallowing. The pathology of the case is unknown. However, Starr now classifies it under fifth-nerve affection. I think that there is more to it than that. It is a question whether there may not be some pituitary disturbance. There is considerable difference in the size of his right hand as compared with his left. It is much larger.

EXHIBIT OF CASE OF ACROMEGALY.

Dr. Oliver T. Osborne, New Haven: This case of acromegaly has no serious symptoms; but he has developed in recent years a perfectly typical hand and you could make a diagnosis from the face also. The jaw comes forward. Hypertrophy of the soft tissues goes on coincidently; but in this man's case it was not disturbed very much. Acromegaly means increased secretion of the pituitary gland, at one time or another. It is this way: the pituitary, as a gland, has three parts: The anterior, the middle and the posterior. If the anterior lobe is removed the animal dies in a few days. If a portion of the anterior part is left, the animal seems to live. If the anterior part of the gland hypersecretes, we have a condition of bone growth. If that begins when the human animal is young or a youth, before the cartilages of the epiphyses have united, he will become a giant. With this disturbance of the pituitary body there is generally more or less genital deterioration, loss of sexual power. These patients live from ten to twenty-five years and die normally from circulatory weakness and cardiac failure. There is no treatment that is curative.

EXHIBIT OF INTERESTING MEDICAL CASES.

Dr. Wilder Tileston, New Haven: There have been a number of ingenious methods devised for the accurate estimation of various substances in the blood. Among the most important are: The methods for the estimation of cholesterin in the blood; the estimation of sugar in diabetes; the estimation of uric acid; and lastly, the estimation of the non-protein nitrogen in the urea. I shall deal largely with the last-named. In health, the method has but little effect, the chief interest centering around nephritis and other kidney diseases. We have examined a considerable number of such cases. A uremic case showed the effect of diet on the total nitrogen. There were 56 mgm. of nonprotein nitrogen. After a few days of low protein diet, it sank to 24 mgm. In nephritis we have found all figures, from normal to ten times the normal. No case of uremia which showed high figures live more than a few weeks. This estimation also promises to be of value in hypertrophy of the prostate where operation is considered; but any patient showing as high as 75 mgm. would be a doubtful case for operation. In all cases of lead poisoning we found increased nitrogen—the lowest being 30 mgm. This shows how injurious the influence of lead is on the kidneys. Acute intestinal obstruction was the only disease not of the kidney that showed a marked increase. Acute infectious diseases showed only a moderate increase. In syphilis we found a marked increase in about half the cases, indicating that the kidneys are more often affected than has hitherto been supposed. The value of this method from the standpoint of diagnosis and prognosis is very apparent.

EXHIBIT OF INTERESTING MEDICAL CASES.

Dr. George Blumer, New Haven: I will speak of some points that have come up in our experience with pericarditis, especially with effusion. This disease is often almost without pain. One case of it with effusion, came to the hospital complaning of pain; one made no complaint; and the other two complained of discomfort in the region of the heart. Pericarditis is often only recognized on the autopsy table, and is frequently found unexpectedly in routine examinations. We have had two or three cases in which the effusion was undoubtedly proved and in which the apex impulse did not disappear. The presence of pericardial friction sound does not rule out pericarditis with effusion. One is apt to mistake extensive effusion with consolidation, for pleurisy with effusion. In fact the pericardium has been tapped in mistake for the pleura. The x-ray is valuable, not only in diagnosis, but as an indication of where to tap the patient. This little boy entered the ward with rheumatic endocarditis. Here is the right border of the heart with no effusion at the base. He recovered completely after the tap-

ping. We had one case where we tapped and the dulness persisted. Then we tapped the pleura, and found pleurisy there.

The following officers were elected for the ensuing year: President, Dr. Oliver C. Smith, Hartford; first vice-president, Dr. Stephen J. Maher, New Haven; second vice-president, Dr. John B. Kent, Putnam; secretary, Dr. M. McR. Scarbrough, New Haven; treasurer, Dr. Joseph H. Townsend, New Haven. The next annual meeting will be held in Hartford, on the third Wednesday and Thursday of May, 1915.

Book Reviews.

Treatment of Neurasthenia. By DR. PAUL HARTENBERG; translated by ERNEST PLAYFAIR, M.B., M.R.C.P. 12 mo, pp. 283. Edinburgh, Glasgow and London: Henry Frowde, and Hodder and Stoughton. Oxford University Press. 1914.

In this little book Dr. Hartenberg takes up the description and treatment of neurasthenia. This he limits to simple nervous depression, and in the chapters devoted to diagnosis he very clearly distinguishes between this disease or condition and the various forms of mental depression and psychoneuroses with obsessions, phobias and the like in a manner that is at once simple and convincing, pleading for exactness in diagnosis. The chapters on treatment, in which he advises various forms of tonic treatment, medicinal, hygienic and physiological, are suggestive and helpful. He also outlines clearly his ideas of the rôle of psychotherapy in this condition, assigning to it a somewhat subordinate duty, consisting chiefly of explanation and encouragement.

New Contribution to the Etiology and Pathogenesis of Pellagra. By GIULIO ALESSANDRINI and ALBERTO SCALA. Rome: National Typography of G. Bertero and Company. 1914.

This monograph of research from the Institute of Experimental Hygiene of the University of Rome, represents investigations carried on since 1909. A series of 94 animal experiments and 10 human cases are reported. The authors believe they have demonstrated that pellagra is not solely a nutritional disease, dependent on the ingestion of spoiled maize, but that it is a chemical aridosis, localized to regions where waters are drunk that have been exclusively in contact with argillaceous soils; that it is in short a silicon intoxication, which causes retention of salts, their fixation in the tissues, and then an excessive liberation of mineral acids which produces the lesions and disturbances of the disease. They consider that the cure in acute cases is injection of neutral citrate of sodium. The prophylaxis is obvious. Whether or not these theories prove correct, the work is an interesting contribution to the study of pellagra from the land of Lombroso. It is illustrated by 30 figures in the text and 8 colored microscopic plates.

Isolation Hospitals. By H. FRANKLIN POWERS, M.D. (Lond.), D.P.H. (Camb.); formerly first assistant medical officer of the Local Government Board. Cambridge: University Press. 1914.

This volume is the first of a projected "Cambridge Public Health Series," analogous to the "Oxford Medical Publications," to be edited by G. S. Graham-Smith, M.D., and J. E. Purvis, M.A., and to consist of monographs by acknowledged experts in various topics of the general subject. It is intended to appeal to practitioners of medicine, to bacteriologists and laboratory students, to municipal engineers and architects, to medical officers of health and sanitary inspectors, to teachers and administrators, to members of public health and hygiene committees.

This first volume fulfils well the promise of the series. Upon the author's untimely death during its publication, the work was corrected and completed by Dr. R. Bruce Low, formerly of the Local Government Board. It is illustrated by 55 excellent text figures, and constitutes a worthy introduction to what promises to be an important series of medical contributions.

The Hall of the Georgia Medical Society. By J. EWING MEARS, M.D., LL.D. Philadelphia: Dornan. 1914.

This monograph is an account of the ceremonies and addresses at the opening and dedication of the new hall of the Georgia Medical Society, at Savannah, Ga., on March 31, 1914. It is illustrated by two woodcuts and a full-page plate. The ceremonies on this occasion were described in the issue of the JOURNAL for May 14 (p. 772).

Anatomy and Physiology of the Eye and Its Appendages. By JOHN WELSH CROSKEY, M.D., ophthalmic surgeon to the Philadelphia General Hospital. Philadelphia: Smith-Edwards Company. 1914.

This monograph is a convenient brief manual of the anatomy and physiology of the eye, representing the author's instruction to students and nurses. It is well illustrated by two excellent colored plates.

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A NOTABLE SANITARY LAWSUIT.

THE New York State Health Department reports that a verdict was recently rendered at Auburn, in that state, in the case of the people against the board of trustees of the Union Free School of Moravia, which promises to set an important precedent in connection with problems of sewage disposal and water pollution. This school, which is attended by some three hundred pupils, discharges its sewage, it appears, by a four-inch sewer upon the bank of Mill Creek, a small stream emptying into the southern end of Owasco Lake, from which the city of Auburn, situated at the northern end of the lake and with a population of about 35,000, derives its public water supply. In 1911 an indictment was found against the trustees of the school for maintaining a public nuisance, under two sections of the Criminal Code, on three counts charging them with "offending public decency," "annoying, injuring and endangering the comfort, repose, health or safety of a considerable number of persons," and rendering "a considerable number of persons insecure in life or the use of property." The case did not come up for trial until the spring of 1913, when among the facts shown were the following. Considerable fecal matter accumulates on the bank of Mill Creek, at the mouth of the sewer, to be washed down into Lake Owasco (about four miles distant) in times of rain. In the autumn of 1907 the village of Moravia suffered from an outbreak of typhoid fever, with some twenty cases, at least three of which were among pupils of the school, and two of the latter patients afterwards returned as convalescents. In March, 1908, there was a heavy thaw, and, the ice breaking up, the level of the lake rose rapidly, while at the same time a marked increase was noted in the bacterial counts in the Auburn water. Shortly afterwards (in April) there broke out a sharp epidemic of typhoid in Auburn, comprising thirty-four cases within two months. The outbreak was distributed quite evenly over the city, it had all the characteristics of a water epidemic, and no other cases than those at Moravia which might have polluted the waters tributary to the lake were known to have occurred.

This first trial resulted in a disagreement, the jury standing ten for conviction and two for acquittal. At the recent second trial, as at the first, the defense denied the possibility of the causation of the Auburn epidemic assigned by the prosecution, claiming that sanitarians familiar with the protective effect of storage would certainly question the possibility of the transmission of virulent typhoid germs down a lake ten miles long and a mile wide, with an almost negligible current. This difficulty was met, however, by citing the results of a remarkable study of wind currents made by Mr. Ackerman, engineer of the Auburn water board, which has been reported in the last annual proceedings of the American Waterworks Association. By float measurements he worked out the relation between wind movement and surface water movement at different wind velocities, and showed that with south winds, which prevailed for considerable periods in the spring of 1908, surface water could easily be carried from the head to the foot of the lake in the space of two or three days. The principal expert witnesses for the people were Prof. W. P. Mason of the Rennselaer Polytechnic Institute, Troy, Prof. C. E. A. Winslow of New York, and Dr. F. M. Meader of Syracuse, and the jury, while finding for the defendant on the first two counts, convicted on the third count, rendering "a considerable number of persons insecure in life or the use of property." The state department of health regards this case of special interest in two respects: from the scientific standpoint, on account of the light it throws on the effect of wind currents and the consequent danger of long distance water pollution, and from the administrative standpoint, on account of the comparatively untried method it suggests for dealing with aggravated conditions of water pollution.

In connection with the case it is also of interest to note that the department has lately received the report of a special commission of experts which Commissioner Biggs appointed some time since to take into consideration a number of pressing problems as to the location of tuberculosis sanatoriums and other institutions upon watersheds used as gathering grounds for public water supplies and problems involving the general policy of the department toward sewage disposal plants and water supplies throughout the state. This commission consisted of Dr. T. Mitchell Prudden, vice-president of the Rockefeller Institute; H. N. Ogden, professor of sanitary engineering, Cornell University; Dr. W. H. Park, director of research laboratories, New York City Health Department; C. C. Whipple, professor of sanitary engineering, Harvard University; and C. E. A. Winslow, professor of biology, College of the City of New York. The first part of the report is devoted to seven specific questions propounded in reference to the matters mentioned and the answers to these by the commission. Then follow recommendations in regard to two specific problems: one having to do with a proposed site for a tuberculosis hospital in Westchester County, and the other with proposed changes in the sewage disposal plant of the Bedford State Reformatory for Women. In the concluding portion the following general recommendations are made: The state department of health should have power to require such improvements as it may deem necessary for the protection of the public health in the construction and operation of any system of public water supply. No new public water supply should be installed, and no new source of water drawn from, without the approval of the department. Whenever in any case the requirements as to the operation of a water supply are, in its opinion, not met, the department should have the power to take over, after due notice, the operation of the system, and continue such operation so long as it may deem necessary for the protection of the public health, such operation to be at the expense of the municipality, corporation or person owning such water supply. Whenever the sewage disposal plant of any institution or any watershed draining into a public water supply is, in the opinion of the department, operated in such a manner as to constitute a nuisance or a menace to public health, the department should have the power to take over the operation of such plant, and to continue such operation as long as it may deem necessary for the protection of the public health, or until the abatement of the nuisance; the expense of such operation to be borne by the institution. For the proper control of the water purification plants in the state, regular laboratory analyses of the treated water should be made by the municipality or water company owning the same, the results of which analyses, together with all essential operating data, should be promptly transmitted to the department.

TWO IMPORTANT MEDICAL CONGRESSES.

THE fifth annual session of the Clinical Congress of Surgeons of North America was opened in London on July 27, with about 1200 members in attendance. Addresses were made by Mr. Walter Hines Page, the United States ambassador to England, by Sir Rickman Godlee, president of the Royal College of Surgeons of England, by Dr. George Emerson Brewer, and by Dr. John B. Murphy. The work of the congress was devoted largely to clinical demonstrations. Among the distinguished foreign physicians who addressed the evening sessions were Sir William Osler, Prof. Tuffier of Paris, Prof. Krönig of Freiburg, Prof. von Eiselsberg of Vienna, Prof. Schmiegelow of Copenhagen, Sir St. Clair Thomson and Sir Watson Cheyne. At the closing session on Aug. 1 the following officers were elected: President, Dr. Charles H. Mayo, of Rochester, Minn.; first vice-president, Dr. H. A. Bruce, Toronto; second vice-president, Dr. Robert L. Dickinson, Brooklyn, N. Y.; secretary, Dr. Franklin H. Martin, Chicago; treasurer, Dr. Allen B. Kanavel, Chicago; general manager, A. D. Ballou, Chicago.

The eighty-second annual meeting of the British Medical Association was held during the same week at Aberdeen, Scotland. The president's address was delivered on July 28 by Sir Alexander Ogston, M.D., K.C.V.O., on "The Making of a Scottish Medical School." The address in medicine was delivered on July 29 by Dr. Archibald E. Garrod, F.R.C.P., F.R.S., on "Medicine from the Chemical Standpoint." The address in surgery was delivered on July 30 by Sir John Bland-Sutton, F.R.C.S., on "The Surgeon of the Future." In comparing the surgery

of the past with that which it may be hoped the future will afford, Dr. Sutton said in part:—

"In pre-Listerian days the path to surgery lay through the dissecting-room. A thorough practical knowledge of the anatomy of man was and is indispensable to a sound surgeon. Many surgeons whose names are prominent in the history of surgery,—from John Hunter to Fergusson,—taught anatomy by dissection. Surgeons no longer act as demonstrators of anatomy or conduct post-mortem examinations; the principles of antiseptic surgery forbid such occupations. The practical training in the dissecting-room and post-mortem room teaches men something they cannot learn from books,—the appreciation of tissue; this means, in plain terms, the power to recognize organs and tissues, normal and abnormal, at sight or by touch in the course of an operation.

"Surgeons are of two types, they are either craftsmen or biologists. The surgical craftsman invents variations in technic; metal plates, wires and screws for bones; or fancy methods of suturing wounds. Some expend their ingenuity on surgical cutlery and improve the knives and needles. The utility of a simple tool, such as the clip forceps is inestimable. In spite of much ingenuity among surgeons, an ideal ligature material awaits discovery. Clever contrivances like the laryngoscope, bronchoscope, and cystoscope have revolutionized special branches of surgery.

"The biological surgeon studies pathology in its broadest aspect and investigates, in the laboratory, problems of morbid anatomy and bacteriology. The diagnostic value of reports issued from the laboratory by the pathologist and the bacteriologist, to be of value, must be estimated with the help of clinical experience. If the surgeon has had no experience in bacteriological methods he must accept the reports from the laboratory with the hopefulness of a patient swallowing physic compounded from a prescription he does not understand and which he is often unable to read. The training of surgeons in clinical pathology is of great importance, and it requires little foresight to recognize that for men ambitious to attain high places in surgery the high road lies through the pathological institute."

CONVICTION OF A MIDWIFE: COMMONWEALTH vs. CONNOR.

In the East Cambridge municipal court a midwife, Katherine Connor, was convicted, on July 28, in charges connected with the blindness of a baby. Two mothers, one of them the mother of the blind baby, testified that Mrs. Connor had attended them in childbirth. In so doing she had practised obstetrics, a recognized branch of medicine; and not being a registered physician, she had thus violated (1) the medical practice act. The mother of the blind baby also testified that Mrs. Connor had seen the baby's eyes red and swollen and showing an unnatural discharge. Having seen "many such cases before," the midwife did not advise calling in an oculist, but herself provided a brown medicine which she dropped into the baby's eyes, and urged the mother to continue using. Here again, and in a more usual sense of the words, this midwife practised medicine without a license. According to the testimony of the assistant city clerk, Mrs. Connor also failed to give notice of the child's birth until twelve weeks afterwards, when legal proceedings had been begun. This midwife thus violated (2) the law which requires the filing of birth returns within twenty-four hours. As shown through a member of the local board of health, she also failed to report the symptoms of ophthalmia neonatorum. If a series of previous convictions have not been erroneous she, therefore violated (3) the law requiring a "nurse, relative or other attendant in charge" to give notice of such symptoms within six hours. On a technical doubt whether the mother did not share the responsibility for reporting these symptoms, the court acquitted the midwife on this third charge. On the two other charges, however, the court found her guilty.

The complaints were made by a member of the state police on behalf of the Board of Registration in Medicine and by the Massachusetts Society for the Prevention of Cruelty to Children. The case for the commonwealth was conducted by the assistant counsel of the Society for the Prevention of Cruelty to Children. On the request of the prosecution, and because of the defendant's extreme age (84), sentence was suspended and the case placed on file, on the understanding, however, that the defendant would absolutely *give up practice.*

This is, unfortunately, not the first case of blindness among babies in the practice of midwives, either in Cambridge and Boston or in other Massachusetts cities. It is to be hoped that the conviction of Mrs. Connor will not merely stop the activity of one dangerous practitioner, but will be a warning to others whose ignorance or carelessness threaten eyesight and even life.

THE EUROPEAN WAR.

THE terrific swiftness with which, from a status of apparent peace, a colossal war has broken out among the nations of Europe may be compared to the dramatic suddenness of onset of some of the acutely fulminating human infections. Apart from the intense interest of the racial questions involved, our professional concern in this war will of course be largely with its medical aspects. The medical departments of the great European armies and navies are elaborately and efficiently organized, and should demonstrate on a scale never hitherto possible the achievements of modern military and naval surgery, and camp sanitation and hygiene.

Civilians, too, will be called upon to take their part; and it is gratifying to note that among the first offers made to the French government was that of the directors of the American Hospital at Paris to fit up a wing in a school at Neuilly as a hospital to accommodate 200 French wounded, and to provide a full staff of American physicians and nurses. On Aug. 1 the municipal council of Moscow appropriated 1,000,000 roubles ($5,000,000), for the Russian Red Cross Service.

"The Russian Red Cross, one of the strongest in the world, comprises a board of administration, 8 boards of district administration, 95 boards of local administration, 509 local Red Cross committees, 60 communities of nurses, 90 ambulatory clinics, six emergency hospitals and seven convalescent homes, besides numberless asylums and homes for the care of widows and children of soldiers.

"In Austria alone there are over 65,000 Red Cross members, with the estimated wealth of the society placed at something like $1,741,249. In Japan, which would aid the British, the permanent endowment fund alone is over $10,000,000. The estimated wealth of the French Red Cross Society amounts to nearly $5,000,000.

There need probably be no apprehension for the safety of American physicians in Europe, many of whom are now travelling after the Clinical Congress just adjourned in London. To our professional brethren of all the nations involved we can only extend our cordial sympathy, with confident assurance that in their share in this great struggle they and the nurses who work with them will exemplify the world's noblest ideals of peace.

MEDICAL NOTES.

CAUCASIAN TROPICAL SANITATION.—At a recent meeting in Mobile, Ala., of the Alumni Association of the University of Alabama Medical School, Dr. William C. Gorgas, U. S. A., spoke in part as follows on the relation of tropical sanitation to the habitability of the tropics by Caucasians:—

"I have lived for three years in South Dakota, where the winters are very rigorous, and I have spent many years in the tropics. Up in the Dakotas labor is expensive and arduous because of the long winters. In the tropics very little labor is necessary to support life.

"Given the same amount of labor in the tropics as in the Dakotas, I am positive that it would produce many times the wealth of the North. If this is a fact, it is also self-evident that it will be only a question of time till this condition induces English-speaking people to settle the tropical countries. The health problem is the only obstacle, and it can be eliminated. It has been demonstrated that modern tropical sanitation not only protects the men and women in these countries, but that with such protection they live as comfortably and healthfully as in the Northern States. Our work on the Canal Zone demonstrated that men can live and work and produce in as good health as anywhere in the world. There was nowhere a place so unhealthy as this region before we commenced to construct the canal.

"Civilization has placed her hand upon that country, a new empire has sprung up and it will develop so that wealth can be easily produced without the waste of labor and effort. We can look forward to the time when the Anglo-Saxon race will people the tropical countries. Our Southern states, and notably Alabama, will see the time when the Gulf states, the West Indies, Mexico, Central America and South America are as dense with people as India, and the only thing that impedes immigration now is tropical sanitation."

EFFECTS OF THE WAR.—It is reported that there has been a rapid rise in the price of certain drugs during the past week. Among these is opium, menthol, thymol, Russian cantharides and ergot. Carbolic acid is said to have doubled in price and wholesalers are conserving their supply. The drug and chemical dealers in general are among those which receive the hardest blow from the war, inasmuch as their business depends largely upon uninterrupted trade with foreign countries. It is also of interest to the medical profession that the price of automobile tires has been considerably advanced, due to the small amount of crude rubber in the country.

and the probability that the war will prevent importation of this commodity.

The Carrion Monument Fund.—At the sixth Pan-American Congress, held last year at Lima, Peru, a fund was started to erect a monument to Daniel A. Carrion, a medical student of that city who in 1885 died from the effect of a voluntary experimental inoculation with verruga. Contributions may be sent to Dr. E. Odriozola, dean of the medical faculty of Lima.

BOSTON AND NEW ENGLAND.

Massachusetts Association of Boards of Health.—A quarterly meeting of the Massachusetts Association of Boards of Health, held on July 30 at Galloupe's Island Quarantine Hospital, was attended by about 70 members from all parts of the commonwealth. Papers were read by Prof. George C. Whipple, of Harvard University, on "Sewage Disposal in the Country Village and Small City," and by Dr. E. H. Place, of the Boston City Hospital, on "Scarlet Fever."

Boston Death-Rates in 1913.—A recently published bulletin of the United States Public Health Service shows that in 1913, among American cities with over 500,000 inhabitants, Boston had the lowest death-rates from diphtheria, malaria, meningitis, smallpox, tuberculosis, and typhoid.

"In Boston the death-rate of diphtheria cases per 1000 inhabitants was 3.013. The death-rate per 100 cases was 7.08. In Philadelphia the case-rate was only 1.603, but the death-rate was 13.76. St. Louis is ranked next to Boston, with a case-rate of 3.882 and a death-rate of 7.41.

"During the year there were only 28 cases of malaria in Boston, with no deaths. In New York there were 13 deaths and in Philadelphia five deaths.

"The number of deaths in Boston from epidemic cerebrospinal meningitis was four, as compared with 202 in New York, 161 in Philadelphia, 158 in Detroit, 58 in Chicago, 53 in Cleveland and 12 in Pittsburgh.

"In Boston there was only one case of smallpox, without a single death. Chicago had 136 cases, with one death, Cleveland had 19 cases, Detroit had 539 cases with one death, New York had 20 cases, Philadelphia 19 cases, Pittsburgh two cases, and St. Louis 28 cases.

"All death-rates were high for tuberculosis, yet Boston's was the lowest. This city had a case-rate of 4.827 and a death-rate of 36.13. The city to approach nearest to this was Chicago, with a case-rate of 3.974 and a death-rate of 41.28.

"With typhoid fever there were .705 cases for every 1000 inhabitants and 11.79 deaths for every 100 cases. New York ranked second, with a case-rate of .508 and a death-rate of 13.73. The actual number of deaths in Boston was 60. In Detroit there were 143 deaths.

"With measles Boston's case-rate was 7.789 and her death-rate was 1.37. This was second to Philadelphia's record of a 9.556 case-rate and a 1.27 death-rate.

"In scarlet fever the case-rate here was 2.630 with a death-rate of 4.05. St. Louis bettered this with a case-rate of 1.511 and a death-rate of 3.48."

Cases of Infectious Diseases reported to the Boston Board of Health for the week ending August 4, 1914, are as follows: Diphtheria, 34, of which 1 was non-resident; scarlatina, 16, of which 2 were non-residents, measles, 39, of which 6 were non-residents; typhoid fever, 9, of which 1 was non-resident; tuberculosis, 34, of which 1 was non-resident.

The death-rate for the week was 13.61.

NEW YORK.

Vaccination in Schools.—The Court of Appeals has recently handed down an important decision, confirming the prosecution, in the case of Hagbard Ekerold, who sent his unvaccinated son to a public school in New York and, on the refusal of the school authorities to admit the child, kept him out of school. The opinion of the Court, written by Justice Hiscock, was in part as follows: "The defendant was duly convicted before a magistrate of violating the duty imposed on him as a parent by section 624 of the Education Law; which violation is made a misdemeanor. Our public school system has been developed with great pains and solicitude, and its maintenance and support have been recognized as so important for the welfare of the state that they have been provided for and safeguarded in the Constitution itself. As a part of this system a statute has been passed requiring attendance at school of children within certain limits. If indifferent or selfish parents for ulterior purposes, such as the desire to place young children at labor instead of school or from capricious or recalcitrant motives, may be allowed to manufacture easy excuses for not sending their children to school, a ready method will have been developed for evading the statute compelling such attendance. It is perfectly evident that in a great city like New York regulations must be adopted for the purpose of preserving discipline, order and health in the pub-

lic schools. The question which within certain limits is presented here is whether the statute and the by-laws of the board of education in that city, adopted under and in accordance with the statute requiring vaccination as a condition of attending the public schools, are under ordinary conditions so unusual or oppressive that a parent should be allowed to make his unwillingness to comply therewith a basis for not sending his children to school; for that is what the present position of the defendant amounts to. I do not think they are of such a character. So far as the evidence discloses, the defendant's refusal to comply with the requirements of attendance at school was arbitrary and capricious, and as one reads the record and argument of his counsel the impression somehow arises that he was more interested in asserting his right to refuse to comply with the law than he was actuated by the purpose of protecting his child from some possible or supposed injury. I think there is still another reason why the defendant was not excused for disobedience of the law requiring him to see to the education of his child. The vaccination statute applies only to the public schools. It is well known that there are schools of other kinds and classes which might have been attended by the defendant's child, where attendance would not have been subject to the conditions which he now urges as an excuse for his failure to send his child to school. It is answered in his behalf to this suggestion that that would entail expense. This might or might not be so, and even if it were, it would not be sufficient to excuse the present position and situation of the defendant."

NEW HEALTH MONTHLY BULLETIN.—New Rochelle, Westchester County, the acting health officer of which Lieutenant-Colonel Charles E. Woodruff, Medical Corps, U. S. A. (retired), is the latest addition to the list of cities of the state now issuing a health monthly bulletin.

ADVICE TO MOTHERS.—State-Commissioner of Health Briggs has commenced the sending to every mother of a child whose birth is reported to the department of a friendly letter of advice, signed by himself, in which he expresses the wish that she shall feel that the State Health Department was created and is supported by the taxpayers to give her baby every chance to grow up to be a strong, healthy citizen. The physicians of the mothers are not likely to make any objection to these letters, as in one portion it is said: "The one thing to remember, however, above all others, is that your physician is the best protector of your baby's health. Consult him every time the baby shows the least sign of not being well."

BATHS.—In a paper on the Public Baths of New York City published in the *Monthly Bulletin* of the City Health Department, Dr. C. F. Bolduan, chief of the Division of Public Health Education, states that in the borough of Manhattan there are 12 free public interior baths, and until this year there have been 11 free floating baths. The borough of Brooklyn has eight interior baths and a large public bath at the seaside, and until this year has had two floating baths. In addition to these bathing facilities, the city provides baths, almost all of the shower type, in many of its public schools. Their value as a necessary equipment of public school buildings, particularly in congested districts, is being gradually recognized. At the present time 67 of the schoolhouses (58 of which are in Manhattan and Brooklyn) are thus equipped, and one, the High School of Commerce, has a swimming school in addition; while there is also a fine swimming pool in the College of the City of New York. Undoubtedly the most popular of all the baths maintained by the city is the seaside bath at Coney Island. In addition to the fine ocean bathing beach, over 1,000 feet long, this consists of a substantial concrete structure containing 1,300 individual dressing-rooms for women and 700 each for eight persons, for men; so that the bath will accommodate about 7,000 patrons at one time. During the year 1913 there were over 10,000,000 free baths given by the city in floating and permanent baths. It is apparent that some change must be made in the policy of the city toward river bathing, as under conditions now existing this is practically the same as bathing in diluted sewage. All things considered, it would seem best to educate the public to the use of interior baths, open all the year round.

TETANUS ANTITOXIN FOR AUSTRIAN ARMY.—The City Health Department received on Aug. 4, a cablegram from the Serum Institute of Vienna requesting the immediate delivery of 50 litres of tetanus antitoxin for use in the Austria-Hungarian army. This amount exceeded the supply on hand, but an order was sent to

the laboratory at Otisville, where the antitoxin is prepared, to furnish the desired quantity as promptly as possible.

Current Literature

Medical Record.

July 25, 1914.

1. Satterthwaite, T. E. *Some Problems in Genetics.*
2. Wendkos, S. *Chronic Intestinal Stasis.*
3. Burnham, A. C. *Parenteral Nutrition and Its Surgical Application, with Special Reference to the Use of Glucose Solutions in Postoperative Shock.*
4. Palacios, G. D. *Why Yellow Fever Is Endemic in the Tropical and Atlantic Region.*
5. Kerr, L. *The Interrelation of the Ex-Interne and the Hospital.*
6. Schwarz, E. *Metrorrhagia.*
7. Cruice, J. M. *The Diagnosis of Chronic Bronchitis.*
8. Miller, H. R. *A Preliminary Report on a Method of Treatment for Diphtheria Carriers.*

New York Medical Journal.

July 25, 1914.

1. Dickinson, R. L. *Primary Perineorrhaphy by Buried and Subsurface Catgut Suture.*
2. Case, J. T. *Roentgen Examination of the Appendix.*
3. McGlinn, J. A. *Tubal Gestation.*
4. *Brooks, H. *The Significance of High Blood-Pressure.*
5. Davidson, A. J. *Pott's Paralysis. Restoration by Albee's Operation.*
6. Crigler, L. W. *The Present Status of Cataract Extraction.*
7. Weiss, R. *The Quantitative Estimation of Uric Acid, Cholesterin, and Sugar in the Blood.*
8. Whitney, C. E. *Protection of the Public by the Law.*
9. Waugh, W. F. *Is Constipation an Evil?*

4. Brooks argues that high blood-pressure is not a cause, but usually a result. It is not a disease though the evidence of it. It is not pathological, but usually, if not always, physiological in meaning. It is truly a conservative process and tends more to prolong life than to shorten it. Where its causes cannot be removed it is not to be treated, but maintained. [L. D. C.]

The Journal of the American Medical Association.

July 25, 1914.

1. Frazaer, C. H. *The Cerebrospinal Fluid as a Problem in Intracranial Surgery.*
2. *Davis, E. P. *The Treatment of Placenta Previa.*
3. *Deaver, J. B. *Hysterotomy.*
4. Rucker, W. C. *The Necessity for the Establishment of a National Leprosarium.*
5. Dyer, I. *The Duty of the Government in Leprosy Cure and Control.*
6. *Wilbur, R. L. *The Therapeusis of Pericarditis.*
7. Litchfield, L. *The Abuse of Normal Salt Solution.*
8. *Newburgh, L. H. *Therapy of Cardiovascular Disturbances.*
9. Judd, C. C. W. *A Comparison of Cholesterinized and Non-Cholesterinized Artificial Antigens in the Wassermann Reaction.*
10. Hoskins, R. G., and Lolellith, C. R. *The Adrenals and the Pulse-Rate.*
11. Henderson, Y. *The Time That the Breath Can Be Held as an Index for Acidosis.*

2. Davis reports seventeen cases of placenta previa treated with abdominal Cesarean section with no maternal mortality or morbidity and a fetal mortality of 40%.

3. Deaver shows why for the purpose of diagnosis of obscure conditions in the interior of the uterus, hysterotomy is a safe and sane procedure, and often makes the more serious and mutilating operation of hysterectomy unnecessary.

6. Wilbur makes the following statements, based on experimental evidence largely. The accessibility of the pericardium makes local treatment valuable and surgical treatment possible, and leads to the hope that further study may permit the application of remedies directly to the interior of the acutely or chronically inflamed sac. Induced pericarditis in animals offers a good field for study along this line.

8. Newburgh concludes as follows: "Since the blood-pressure is not low either in persons showing grave symptoms of pneumonia or in those dying of that disease, and since it has been proved that the vasomotor areas are normal in animals near death from pneumonia, it is logical to conclude that the vasomotor mechanism is not impaired in pneumonia. Strychnine does not improve or augment the work of the heart in persons suffering from broken cardiac compensation." It could not be shown that either strychnine or caffiein stimulated the cardio-vascular apparatus in any of the conditions studied.

[E. H. R.]

Münchener Medizinische Wochenschrift.

No. 26. June 30, 1914.

1. Grafe, E. *The Caramel Cure for Diabetes.*
2. *Wilbrand, E. *The Effect of Sodium Bicarbonate on Pancreatic Secretion.*
3. Moewes, C., and Jauer, K. *The Copper Treatment of Pulmonary Tuberculosis.*
4. Messerschmidt, T. *The Vaccine Treatment of Chronic Furunculosis of the Skin.*
5. *Fürst. *The Growth of Pathogenic Intestinal Bacteria on Bread*
6. Schloessmann. *Healing, with Good Function, of a Hand Nearly Severed from the Body.*
7. Calpern, J. *The End Result of Pyloric Extirpation.*
8. Streerel, J. *Gonorrheal Keratitis Following Gonorrheal Vaccine. Metastatic Gonorrheal Conjunctivitis.*
9. Mauss, T. *The Surgical Treatment of Spinal Cord Tumors.*
10. Levinson, A. *A Modified Pirquet's Mouth Spatula.*
11. Rauch, R. *A Simple Method for the Treatment of Ektropion.*
12. Deutsch, S. *A Practical Circumcision Clamp.*
13. Pfeiffer, H. *The Occurrence of Peptolytic Ferments in the Serum of Burned Rabbits.*
14. Mendelbaum, M. *The Occurrence of Peptolytic Ferments in Blood.*
15. Feldt, A. *The Tubercle Bacillus and Copper.*
16. Walter, J. *Blood-pressure and Venous Stasis.*
17. Grassl. *Politics and Science.*

2. Wilbrand studied the effect of sodium bicarbonate on pancreatic secretion in dogs by inserting separately cannulae into the duodenum and obtaining gastric juice, and a mixture of bile and pancreatic juices which were measured over intervals of time. In a control experiment the dog was given 100 gms. of meat. In other experiments the same amount of

meat was given with 10 gms. of sodium bicarbonate, either in tablet or solution. The sodium bicarbonate had slight effect on the gastric secretion, but a very definite action in checking the outflow of bile and pancreatic juice. Wilbrand argues from these observations that since the external secretion of the pancreas may be inhibited by sodium bicarbonate, it is probable that the internal secretion may be affected in a similar way. Therefore these experiments may be of certain practical value in the treatment of diabetes, as Wilbrand concludes that sodium bicarbonate affords a means for inhibiting the pancreatic functions.

5. Fürst reports an epidemic of typhoid fever in which bread seemed the most probable vehicle of transmission. The bread supply of the infected area was obtained from a bakery in a neighboring town where several cases occurred among the baker's staff. Other commoner sources for the epidemic were ruled out. Fürst, on this account, conducted inoculation experiments with different kinds of breads, and found that various organisms of the typhoid-cholera group could live in bread over considerable periods of time, depending on the hardness and thickness of the crust. From this evidence, Fürst believes that in future epidemics bread must be considered as a possible carrier of disease. [R. F.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 27. JULY 7, 1914.

1. HESS, C. *Recent Experiments on Reaction to Light in Animals and Plants.*
2. RIEDER, H. *Xray Studies in Appendicitis.*
3. v. STUBENRAUCH, L. *Arthritis Deformans in Relation to Recent Investigations.*
4. LESCHKE, E. *Studies on Renal Function.*
5. STRAUB, H. *Acidosis in Uremia.*
6. FLATOW, L. *The Effect of Blood Serum on Cascin.*
7. DEJONG, D. A. *Intradermal and Conjunctival Pregnancy Reactions.*
8. HERZFELD, E. *A Colorimetric Method for Determining Dialysable Substances Reacting with Ninhydrin.*
9. RHEIN, M. *Jaffé's Indican Test.*
10. SALZER. *The Derivation of Keratoblasts in Regeneration of the Cornea.*
11. GOLDSCHMIDT, M. *The Treatment of Pneumococcus Infections of the Eye with Ethylhydrocuprein.*
12. *KALL, K. *Salvarsan in Secondary Anemia and Diseases of Digestion.*
13. FÖHRENBACH, F. *Larosan in the Polyclinic.*
14. LICHTENSTEIN, A. *Albumin Milk.*
15. ANTONI. *The Dermatoses in Hysteria.*
16. KRAUS, E. *Anesthetization of the Uterus.*
17. v. BECKH-WIDMANSTETTER, H. A. *A New Ligature Carrier.*
18. *HOFFMANN, E. *Should Salvarsan be Used as a Prophylactic Measure in Cases of Soft Chancre?*

12. Kall has used intravenous injections of salvarsan or neosalvarsan in secondary anemias. Arsenic given in this form has produced no toxic effects and has appeared to cause a rapid improvement in the blood picture, and gain in body weight. Kall believes that the intravenous use of arsenic reacts on the entire organism and on the blood-forming cells more quickly than when the drug is given by mouth, and obviates digestive disturbances or difficulties in assimilation which occur when the drug is administered by other methods.

18. Hoffmann admits that many cases of syphilis occur in cases which clinically appear to be of soft chancre. Nevertheless he considers that by careful examination, and by repeated Wassermann reactions, the occurrence of syphilis can be discovered. Hence salvarsan should not be used as a prophylactic measure in suspected cases, but should only be given when syphilis is known to exist. [R. F.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 21. MAY 25, 1914.

1. *MEYER, E. *The Relation of Progressive Paralysis and Tabes to Syphilis, and the Question of Their Treatment.*
2. STRASSMANN, F. *Concerning Instruction in Legal Medicine.*
3. KLIENBERGER, C. *Nephritis in Typhoid and Paratyphoid (Nephrotyphus and Nephroparatyphus).*
4. ARON, H. *Experiments on the Influence of Nutrition on Growth.*
5. KAFEMANN, R. *Progress in Iodine Therapy.*
6. BIRNBAUM, R. *"Valamin" in Gynecological Practice.*
7. GOEBEL, O. *On the Theory of the Action of the Labyrinth.*
8. LOEWY, E. *Progress in Investigations Concerning Epilepsy.*

1. This is a short review of the subject in which the author takes up Noguchi's work in finding the spirocheta pallida in the brain of paralytics, and discusses the pros and cons of treatment with salvarsan and mercury. [R. H. M.]

ARCHIV FÜR KLINISCHE CHIRURGIE.

VOL. 104. PART 2.

11. AXHAUSEN, G. *New Experiments Concerning the Rôle of Cartilage Necrosis in the Pathogenesis of Arthritis Deformans.*
12. HART, C. *The Influence of the Thymus upon the Onset and Course of Basedow's Disease.*
13. DEMMER, F. *Pneumatosis Cystoides Intestini Hominis.*
14. KUMARIS, I. *Lymphangioma Cysticum "Pendulum" of the Peritoneum of the Diaphragm.*
15. TODYO, T. *Cystic Degeneration of the Mammary Gland.*
16. VISCHER, A. L. *Traumatic Subdural Bleeding after a Long Interval.*
17. *DATYNER, H. *Renal Hematuria.*
18. KISCH, E., AND GRÄTZ, H. *The Influence of the Sun's Rays on Tuberculous Fistulae.*
19. GROSS, H. *Tuberculosis of the Pancreatic Lymph Region. An "Aerogenous Infection"?*

17. Datyner, of Caspar's clinic, reviews the literature on renal hematuria, discusses the various opinions upon this subject, and reports three cases. He believes, as do most urologists, that in the majority of cases of so-called "essential hematuria" the bleeding is due to nephritis. He holds to the opinion, however that hematuria without any demonstrable cause may exist. Such cases he thinks may be due to an angioneurotic condition of one kidney, and he cites a report by Guthrie of hereditary hematuria. If the bleeding is associated with nephritis, Datyner believes it is probably due to the effect of the nephritic toxin on the blood-vessels of the kidney, which are thus rendered more pervious. In arriving at a diagnosis of essential hematuria, one may be misled by bleeding due to a tumor of the renal pelvis (in which case the renal function would be normal) or by a small uric acid stone situated in the cortex, or by the scratching of urinary crystals. Hypernephroma may be ruled out by demonstrating good function from the bleeding kidney. If one is certain of the diagnosis, and has ruled out tumor satisfactorily, he may treat the case by medical methods unless the colic or the bleeding requires intervention. If the diagnosis is in doubt, or if the bleeding is serious, operation should be resorted to. Nephrotomy should be done first, the writer believes, and nephrectomy only after nephrotomy fails, or in case of hemorrhage following nephrotomy. Decapsulation has been enough to stop the hemorrhage, but has not been done enough as yet for us to be certain of its advantages. [G. G. S.]

Vol. 104. Part 3.

20. Axhausen, G. *Free Bodies in Joints and Their Relation to Arthritis Deformans.*
21. Troell, A. *Chondroma of the Joint Capsule.*
22. *Schwarz, K. *The Causation and Surgical Treatment of Peptic Jejunal Ulcers.*
23. Zahradsicky. *The Results of Appendicitis Operations in 1913 and the Results of the Same Operations for the 16 Years 1898-1913.*
24. Hahn, A. *Three Cases of Paranephritis Due to Perforating Renal Calculi.*
25. Fossler, H. *The Causation of Cysts of the Spleen.*
26. *Ruge, E. *Operative Treatment of Stubborn Obstipation, with Description of a Simple New Method.*
27. Kappler, W., and Erkes, F. *The Value of the Focal Tuberculin Reaction in the Diagnosis of Obscure Hip Lesions.*
28. Keppler, W. *The Recognition of Actinomycosis.*

22. Schwarz has collected from the literature 136 cases of peptic jejunal ulcer following gastroenterostomy, and adds 10 cases from his own experience. Of the 146 cases, 36 died, 30 were unrelieved or relapsed, and the others have so far remained cured. He classifies the ulcers according to the results caused by their perforation, such as general peritonitis, sub-phrenic abscess, fistula into transverse colon, etc. He finds that the great majority of recurrences occur in men (due probably to the use of alcohol), and with few exceptions occur in gastroenterostomies of the anterior type, or in those with a long loop or done by the Y-method of Roux. The short loop posterior gastro-enterostomy is the best from the point of view of ulcer prevention, and this is so because the duodenal contents are after this operation best able to flow into the stomach and neutralize the gastric juice. Where there is no gastric juice, there will be no peptic ulcer. For the cure of these cases, Schwarz separates the gastro-enterostomy, closes the holes and does a new gastroenterostomy, taking care to suture the mucosa with fine catgut.

26. Ruge reports two cases of stubborn obstipation operated upon with success by a new method. The ileum was severed above the ileo-cecal valve, both ends closed, and a lateral anastomosis with sigmoid in one case, descending colon in the other, was done. The original feature of these operations was the narrowing of the lumen of the large bowel just above the anastomosis by encircling it with a strip of fascia. This is sutured about the gut just tightly enough to prevent the back-flow of feces, and yet loosely enough to allow the secretion of the large bowel to pass through. [G. G. S.]

Deutsches Archiv für Klinische Medizin.

Band 114. Heft 1 and 2. April, 1914.

1 v. Hoesslen, H. *Observation on Pulsus Alternans and Pseudoalternans.*
2. *Griessmann, B. *Functional Tests for Diseased Kidneys.*
3. Deutsch, F., and Schmuckler, W. *Tests for Renal Function by Phenolsulphonephthalein, and Schlayer's Methods.*
4. *Hedinger, M., and Schlayer. *Tests for Renal Activity by Means of Test Meals.*
5 Barautschek. *Excretion of Sodium Chloride in Heart Disease.*
6. Roth, O. *Diagnosis and Prognostic Importance of Pulsus Alternans.*
7. Hausmann, T. *Diagnosis of Hair Balls in the Stomach.*
8. Hess, O. *Single Muscle Cramps Produced by Peripheral Stimulation in the Region of the Ramus Descendens of the Hypoglossal Nerve.*

2. Griessman tried out the three tests for renal function which at the present time are receiving a good deal of attention in internal medicine. After having the patient on a known diet for a short period, 20 grams of salt are added on one day and the excretion noted. A few days later an increase of one or two litres of water is made to the usual amount and the ability to excrete that noted. Finally, 20 grams of urea are added in order to see the ability of the kidneys to excrete nitrogen. He describes his standard diet on which the patients are kept during the experiment. He concludes after a series of cases that as a rule disturbances occur in the excretion of both salt and nitrogen in chronic nephritis, but that cases occur in which only one or the other fails to be excreted. He believes, therefore, in the classification of Hidal and v. Müller. Although he had in mind to note the relation of these tests to the anatomical finding he did not have enough material to form any conclusions.

4. Hedinger and Schlayer in this report try a new plan for the study of renal conditions. It is to arrange the diet for a day and follow the urine throughout the day in order to see what effect the different foodstuffs and fluids taken have. These test meals for renal efficiency, as they call them, were first tried on normal individuals and the time of urinary excretions, etc., through the day noted, and charted. The plan was then tried out on a number of patients with chronic nephritis. The results from the charts are quite variable but the authors feel that the plan is of value and should be tried out further. They feel that it will be possible by this means to separate these cases which should be stimulated by diuretics from those that should be spared, etc. [C. F., Jr.]

Band 114. Heft 5 and 6. May 5, 1914.

1. Lapinsky, M. *The Question of Knee and Ankle Joint Disease Occurring at the Same Time as Diseases of the Visceral Organs.*
2. Chusten, T. *The Points in Dynamic Pulse Diagnosis.*
3. Renner, O. *The Innervation of the Adrenals.*
4. *Neumann, J. *Venous Pulse and Tricuspid Insufficiency.*
5 Hefter, J., and Siebeck, R. *Investigations in Nephritis. The Relation of Concentration of Nitrogen and Chlorides in Healthy and Diseased Kidneys.*
6. *Büdingen, T. *The Possibility of Nourishment of the Cardiac Muscle by Introducing Glucose Solution into the Circulation.*
7. Romers, B. *Essay on Arrhythmia Perpetua.*
8. *Rolly, F. *Respiratory Exchange in Chronic Anemic Conditions.*

4. Neumann has investigated the relation between venous pulse in the neck and insufficiency of the tricuspid valve. At one time it was thought that pulsation in the veins meant surely a tricuspid insufficiency, but more recent and careful study has upset this feeling. Neumann concludes that a positive venous pulse in auricular fibrillation is neither a sign for or against a tricuspid insufficiency. Diagnosis of this condition in auricular fibrillation is possible when the pulse wave is strong in the vein and may be felt or a murmur heard, or if the liver is pulsating. If, on the other hand, the pulse is very slight it is probably not tricuspid insufficiency. Positive venous pulse with regular heart beat is usually tricuspid insufficiency.

6. Büdingen, in a long article, takes up the question of feeding the heart by intravenous injections of glucose. He feels that by this way the nourishment of the cardiac muscle may be improved and thus

more powerful beats obtained. He mentions several different ways in which the sugar may be given. As a result of his work he feels that it does some good and recommends further investigation.

8. Rolly has studied the respiratory exchange experimentally and in man. He finds that there is no diminution in the respiratory gaseous exchange in anemias in dogs whether produced by bleeding or chemical means. Also in human toxic anemias there is no diminution. On the other hand, with all known forms of anemia there is frequently a distinct increase in the respiratory exchange, and especially in cancer and primary anemia. If the anemia in dogs is produced by hemorrhage the increase in the exchange is accompanied by marked diminution in red cells. In the chemically produced anemias the increase comes with a less severe anemia. In man with chlorosis and light anemias there is no increase of respiratory exchange. [C. F. JR.]

BAND 115. HEFT 1 AND 2. MAY 22, 1914.

1. *ZONDEK, H. *The Influencing of Blood-Pressure of Rabbits with Acute Experimental Nephritis by Means of Pancreas Extract.*
2. v. MONAKOW, P. *A Study of the Nephropathies.*
3. KOCHER, R. A. *The Amount of Albumen Destruction in Fever and in Hard Work.*
4. SAHLI, H. *Volume Measurement of the Human Pulse (Volumbolometry), Also a New Method for Measuring the Working Capacity of the Pulse.*
5. *BRÖSAMLEN, O. *The Relation of White Blood Corpuscles, Especially the Eosinophiles in Diagnostic Tuberculin Injections.*
6. *VEIL, W. H. *Clinical Phenomena in Cystic Kidneys.*
7. KÖUNECKE, W. *Nucleic Acid in Blood Diseases.*

1. Zondek has tried out the blood-pressure lowering effect of pancreas extract from cattle upon rabbits in whom an experimental nephritis had been produced. He produced the nephritis by means of uranium nitrates, potassium chromate, and corrosive sublimate. He found that in all three types of nephritis the pancreatic extract showed a decided blood-pressure lowering effect. In the nephritis caused by uranium and sublimate the blood-pressure is raised and this rise is entirely neutralized by the pancreas extract. The rise is by no means neutralized in the chronic nephritis. This difference he thinks fits into the theories that different substances cause different types of nephritis in these animals and that the rise in blood-pressure in the different types is caused by a different agent.

5. With people who clinically showed no evidence of tuberculosis the blood picture was apparently uninfluenced by the injection of tuberculin for diagnostic purposes. In tubercular patients the injection caused a leucocytosis and also an increase in eosinophiles. The reaction on the part of the leucocytes, and especially the eosinophiles, is more delicate than other clinical manifestations as a rule. The author considers it an anaphylactic phenomenon and that it corresponds to a protective reaction. Further investigation is necessary to discover if this fact has any therapeutic value.

6. Veil had an opportunity to study three cases of double cystic kidneys. He found a diminution in the ability of the kidneys to concentrate the urine. If the salt and nitrogen of the diet was kept low a normal amount of urine was present. On an ordinary mixed diet polyuria was present. The ability of the kidneys to excrete salt, nitrogen, water, milk sugar, potassium iodide, and phenolsulphonephthalein was limited. The average systolic blood-pressure was between 235-240 cm. of water by the v. Reclinghausen method. The evidence of heart hypertrophy existed. The blood showed normal concentration, osmotic pressure and non-protein nitrogen. [C. F. JR.]

BAND 115. HEFT 3 AND 4. JUNE 5, 1914.

1. HERMEL, H. *Observations upon Vasoconstricting and Vasodilating Substances.*
2. *V. MONAKOW, P. *Essay on the Knowledge of Nephropathics. Cases with Salt Retention.*
3. HAVERS, K. *Experimental Studies on Physiology and Pathology of Cholesterin Metabolism, with Special Regard to Pregnancy.*
4. *EDENS, E., AND FORSTER, W. *Diagnosis of Obliterating Pericarditis.*
5. EMDEN, K., AND ROTHSCHILD. *Chloroma and Its Relation to Myeloblastic Leukemia.*
6. LÖWY, J. *Refractory Determinations of Blood Sera and Transudates.*
7. LANDAU, M. *The Morphology of Secretion and Absorption in the Kidneys.*
8. JARISCH, A. *Pathological Anatomy of Perpetual Irregular Pulse.*
9. LONG, E. R., AND WELLS, H. G. *The Purin Enzyme in the Pneumonic Lung.*
10. *KOCHER, R. A. *Uric Acid Content of the Blood as a Symptom of Disease.*

2. Monakow in a long paper takes up the question of chronic nephritis in which salt retention is the main feature. The whole paper is too comprehensive to be reviewed in such short space. He emphasizes one point which is rather a new therapeutic plan. In cases with water retention, in which even theocin fails to increase the urinary output, he favors the use of urea, which has been known for some time for its diuretic effect, but which has not had very much use as a therapeutic agent in cases of chronic nephritis. He finds that it always produces some diuresis.

4. Edens and Forster take up a study of several cases of obliterative pericarditis in order to emphasize the fact that there is no one sign upon which one can surely make a diagnosis of this condition. They emphasize how one or the other of the classical signs may be lacking in any given case. The new points which their study has brought out are: The striking smallness of the jugular pulse, so much so that jugular tracings are difficult or even impossible to obtain; a similar difficulty in obtaining tracings from the esophagus balloon; disappearance of the auricular pulse in the esophagus tracing; and also smallness of and sharp descent after the v s wave.

10. Kocher takes up the increase in our knowledge of the uric acid in the blood, due chiefly to the different chemical methods which have recently been devised for determining the substance accurately. He has been studying the blood content of uric acid in a variety of diseases and finds that it is increased in severe renal disease with hypertension, in which cases other products normally put out by the kidney are retained, in gout where a real increase from pathologic conditions occurs, and in all conditions in which there is increased cell destruction, such as leukemia, pneumonia, carcinoma, and febrile cases. [C. F. JR.]

DIE THERAPIE DER GEGENWART.

JUNE, 1914.

1. MEISSER, E. *Prolonged Observation of the Sick.*
2. LENZMANN. *Further Studies on the Treatment of Scarlet Fever with Salvarsan.*
3. SOBERNHEIM, W. *The Treatment of Laryngeal Tuberculosis by Pfannenstiel's and Friedmann's Methods.*
4. VOGT, H. *On the Treatment of Pulmonary Tuberculosis in Children.*
5. MÜHSAM, R., AND HAYWARD, E. *Results with Friedmann's Remedy in Surgical Tuberculosis.*

Revue de Médecine.

June, 1914.

1. *Claude, H., Porak, R., and Rouillard, J. *A Clinical Manometer, with Especial Application to the Study of Cerebrospinal Pressure.*
2. *Caussade, I. *Cyto-diagnosis of Gastric Fluids, and Its Clinical Value.*
3. Lévy, L., and Bonlud, R. *Glycosuria Provoked in the Dog by Intravenous Injections of the Cerebrospinal Fluid of an Acromegalic.*

1. The authors have devised a simple and apparently very accurate apparatus for the determination of cerebrospinal pressure. It consists of an aeroid manometer, graduated in terms of centimeters of water, which is attached through a "three-way" arch to the needle. It is possible to determine in this way the fluid pressure before, during and after the removal of any quantity of fluid. The use of this apparatus has enabled the investigators to collect valuable data in regard to hypertension of cerebrospinal fluid, and its relation to diagnosis. The removal of appropriate amounts of fluid in such cases has a marked beneficial therapeutic action, which is, however, only palliative in the vast majority of instances. Investigations have also been made in regard to venous pressure of ascitic and pleural fluids.

2. Caussade has made a detailed study of centrifugalized sediments, the product of gastric lavage. After the stomach is rendered empty by expulsion of the fasting content or by lavage, the test is performed. Unfortunately, the author has neglected to state fully the details of this process, contenting himself with stating that he introduces "250 cm. of physiologic serum," which serves as a vehicle for obtaining the desquamated cells and at the same time acts as a preservative. The tube is passed at once, and the recovered material is centrifugalized, stained and studied. By this means the author has been able to make a diagnosis, in a high percentage of observations, of varying gastric conditions, including acute and chronic gastritis, ulcer, cancer, etc. In the latter instance the results are perhaps most striking and should be given in detail. Out of 20 cases of "gastric neoplasm" he has found "cancerous cells" in 18. In 10 of the latter the absolute diagnosis was made from the great clearness of the cell findings. The presence of laked and broken-down red blood corpuscles is of great help in the diagnosis of an ulcerative process, of benign or malignant origin. [L. H. S.]

Revue de Chirurgie.

June, 1914.

1. Moure, E. J., and Cannyt, G. *Cinical Considerations on So-Called Naso-Pharyngeal Polyps.*
2. *Moreau, L. *Anatomo-Chirurgical Researches on the Aponeuroses of the Axilla, in Their Relations with Adeno-Phlegmons of That Region.*
3. Brulé, M., Garran, H., and La Salle, Leg. *Latent Biliary Retentions in Certain Toxic and Infectious Lesions of the Liver.*
4. Bertein, P. *Intermittent Voluntary Subluxations of the Joints. (To be continued.)*
5. Potet, G. *Essay on the Congenital Malformations of the Limbs. Their Pathogenic Classification. (To be continued.)*

2. As a result of his investigations in the literature and the dissecting-room, Moreau regards every axillary aponeurosis as a continuation of the middle cervical aponeurosis. He reports seven cases illustrating the behavior of adeno-phlegmons in the axilla. [R. M. G.]

July, 1914.

1. *Morestin, M. H. *The Correction of Permanent Flexions of the Fingers Following Panaritia and Phlegmons of the Palm of the Hand.*
2. *Lacouture and Charbonnel. *The Operations for Pancreatic Lithiasis. Retroduodenal Pancreatotomy.*
3. Bertein, P. *Intermittent Voluntary Subluxations of the Joints. (Conclusion.)*
4. Potet, G. *Essay on the Congenital Malformations of the Extremities. Their Pathogenic Classification. (Conclusion.)*

1. Morestin describes the technic of his flap-plastic, and reports five cases of his personal treatment, with convincing illustrative photographic figures.

2. The authors report a case of pancreatic lithiasis of their own observation, and from the literature collect 19 other cases of this rare condition treated by various operative procedures. In this series of 20 cases there was a total mortality of 25%. [R. M. G.]

Annales De L'Institut Pasteur.

Vol. xxviii. No. 4. April, 1914.

1. Calmette, A., and Guerin, C. *Contribution to the Study of Antitubercular Immunity in Cattle.*
2. Calmette, A., and Massol, L. *Contribution to the Study of the Reaction of Fixation of Bordet and Gengou During the Course of Infection and Tubercular Immunization.*
3. *Levaditi, C., Danulesco, V., and Arzt, L. *Meningitis by Injection of Pyogenic Microbes in the Peripheral Nerves.*
4. Henby, A., and Cinca, A. *Experimental Study of Cenurose in the Rabbit.*
5. D'Herelle, F. *Coccobacillus of the Grasshopper. (Concluded.)*
6. Seegbut, E., and L'Heritier, A. *Work of Destruction of the Grasshoppers in Algiers by the Coccobacillus Acridiosum of d'Herelle.*
7. *Yamanouchi, F. *Experimental Study upon a Therapeutic Measure Based upon Stimulation of Phagocytosis.*
8. Vighes, H. *Influence of Lecithin and Cholesterin upon the Toxicity of Eggs and Ovaries.*

3. It has been pretty well felt in the past that the poison of rabies and poliomyelitis will travel up the course of a peripheral nerve trunk, and thus reach the central nervous system. These authors, working with the median nerve of the monkey have succeeded in producing acute cerebrospinal meningitis by the injection of an organism which was apparently the pneumococcus. The incubation time for the appearance of the meningitis was three days. Evidence of a neuritis preceding the meningitis makes it seem evident that the infection travels along the lymph spaces in the nerve sheath.

7. Substances to stimulate leucocytosis and phagocytosis have been tried in the past with varying success. In addition to formation of abscesses, colloidal silver and nucleate of soda have been used. In 1905 Doyen produced a preparation called mycolysive, which was supposed to stimulate both leucocytosis and phagocytosis. Yamanouchi has tried out this and the other two substances experimentally and on humans and finds that the mycolysine produces in man a leucocytosis which lasts from four hours to four or five days. The larger the dose the more the action, especially when given subcutaneously. The reaction is more marked in vigorous subjects. It also exerts the same power in rabbits. He then gives figures showing the relative ability of these different substances to produce leucocytosis and their power of phagocytosis. The mycolysine has been successful in protecting animals especially from staphylococcus inoculation and less so against the streptococcus. It does not act directly upon the organisms in any way but augments the opsonic power of the serum.

[C. F., Jr.]

Miscellany.

THE INTERNATIONAL OPIUM CONVENTION.

In former issues of the JOURNAL we have from time to time commented editorially on the work of the International Opium Congress in suppression of the mercantile traffic in habit-forming drugs. The latest session of this congress was in December, 1911, when a convention was drafted for ratification by the countries represented.

"There were twelve Powers party to this agreement — America, China, France, Germany, Great Britain, Italy, Japan, The Netherlands, Portugal, Russia, Siam and Persia.

"It was pointed out that it would be useless for these countries, the largest producers and users, to agree to radical measures for the international control of habit drugs so long as it was open to the citizens of states not represented at the conference to continue or take up the production and traffic. Therefore the congress adjourned on Jan. 23, 1912, with the understanding that the thirty-four governments of Europe and America which had not participated should be invited to join in the ratification of the convention. If this could not be accomplished by Dec. 31, 1912, another conference was to follow at The Hague to provide for the ratification of the convention. This date was subsequently postponed until July 1, 1913; then again to June, 1914.

"In the meantime the government of The Netherlands and the United States Government earnestly addressed themselves to the task of securing the adherence of the outside Powers. No doubt is entertained at the state department of the ultimate approval of the convention, though it is admitted that some effort may be made to amend it in certain respects. The next step then will be for the various governments to deposit at The Hague formal ratifications."

The session of the congress, so long and so often postponed, was finally opened at The Hague, Holland, on June 15, by Dr. London, minister of foreign affairs of The Netherlands, who announced in his opening address that Turkey and Servia had refused to sign the convention, and that Greece had made reservations with regard to her new territory. The United States representative at the congress is Mr. Charles Denby, American consul-general at Vienna.

"The convention provides that the contracting Powers shall enact effective laws or regulations for the control of the production and distribution of raw opium, unless laws or regulations on the subject are already in existence, and that, regard being had to the differences in their commercial conditions, the Powers shall limit the number of towns, ports, or other localities through which the export or import of raw opium shall be permitted. Further, that they shall take measures to prevent the export of raw opium to countries which have prohibited its entry, and to control the export of raw opium to countries which restrict its import, unless regulations on the subject are already in existence. The full text of Article X of the convention is as follows:—

"The contracting Powers shall use their best endeavors to control, or to cause to be controlled, all persons manufacturing, importing, selling, distributing, and exporting morphine, cocaine, and their respective salts, as well as the buildings in which these persons carry on such industry or trade. With this object, the contracting parties shall use their best endeavors to adopt, or cause to be adopted, the following measures, unless regulations on the subject are already in existence:

"(*a*) To confine the manufacture of morphine, cocaine, and their respective salts, to those establishments and premises alone which have been licensed for the purpose, or to obtain information respecting the establishments and premises in which these drugs are manufactured and to keep a register of them.

"(*b*) To require that all persons engaged in the manufacture, import, sale, distribution, or export of morphine, cocaine, and their respective salts, shall be furnished with a license or permit to engage in these operations, or shall make to the competent authorities an official declaration that they are so engaged.

"(*c*) To require that such persons shall enter in their books the quantities manufactured, imports, sales, and all other distribution, and exports of morphine, cocaine, and their respective salts. This rule shall not necessarily apply to medical prescriptions and to sales by duly authorized chemists.

"The Powers having treaties with China undertake, in conjunction with the Chinese government, to take the necessary measures to prevent the smuggling into Chinese territory, as well as into their Far Eastern Colonies and the leased territories which they occupy in China, of raw and prepared opium, morphine, cocaine, and their respective salts. The Chinese government on their part, are to take similar measures for the suppression of the smuggling of opium and of the other substances referred to from China to the foreign colonies and leased territories. The conference at which the convention was signed, considered it desirable to direct the attention of the Universal Postal Union to the urgency of regulating the transmission through the post of raw opium; to the urgency of regulating as far as possible the transmission through the post of morphine, cocaine, and their respective salts, and other substances, and to the necessity of prohibiting the transmission of prepared opium through the post. The conference also considered it desirable to study the question of Indian hemp from the statistical and

scientific point of view, with the object of regulating its abuses, should the necessity thereof be felt by internal legislation, or by an international agreement."

It was agreed on June 19 that the convention can become operative as soon as the adhering Powers have ratified it, despite the abstention of some other Powers. The conference adjourned on June 25.

It is sincerely to be hoped that after so much delay so important a measure of international concern may be successfully put in action by the ratification of all the signatory Powers.

A PILGRIMAGE TO AVICENNA'S TOMB.

In the July issue of the *St. Bartholomew's Hospital Journal** is an account of a pilgrimage by Dr. A. R. Neligan, of Teheran, to the tomb of Avicenna, the Arabic physician, at Hamadan.

"Abu Ai al Hussein ibn Abdullah abn Sina was born near Bokhara in 980 A.D. At 16, after studying mathematics, philosophy, metaphysics, and medicine, he was already practising as a doctor. At 17 he was appointed physician to the Amir of Bokhara. This post gave him access to the celebrated library of Bokhara, and thus enabled him to pursue his studies. After travelling in northeastern Persia he settled at Hamadan, where he spent the rest of his life. He became physician to the ruling prince, Shams-ed-Dowleh.

"Like many a Persian doctor of the present day, Avicenna took to politics and became a Minister. The sea of Persian politics has always been particularly stormy, and therefore it is not surprising that Avicenna was often in peril of his life, and was at one time thrown into prison. After a time he made his escape from Hamadan and took refuge in Isfahan, where the governor welcomed him and made him his physician. In that capacity he made several campaigns, and in the course of one of these, which was directed against Hamadan, he was attacked by colic, and thus it came to pass that he died in the town from which he had fled and was buried there.

"Wherever Avicenna was and in whatever circumstances he found himself he was an indefatigable writer. His varied adventures did not prevent his going on with his great treatise, the *Kanun*, or Canon of Medicine. In that work, which was divided into five books, Avicenna collected all that was best in the medical knowledge of his time. It was the text-book at the universities of Louvain and Montpellier up to the middle of the seventeenth century, and it is read in Persia, Arabia, and India at the present day. It was taught in the royal university at Teheran as recently as twenty years ago. It was translated into Hebrew and Latin, and the Latin version went through thirty editions. Avicenna is said to have written in all more than 100 books, most of them dealing with medicine, but others with logic, philosophy, music, natural history, astronomy, and physics.

"His grave is in a simple brick building near the steep banks of the river which flows through Hamadan. A little mausoleum of fire-burnt bricks with a mud dome stands at one end of a small compound, surrounded by a low stone and mud wall. The building is square, but inside there are small arches at each corner, which give it the appearance of being eight-sided. The internal measurements are as follows: Floor, 15 ft. by 15 ft.; apex of dome from floor, 16 ft. The floor is paved with large square bricks. Immediately opposite the doorway is the tombstone, 49 in. long, 21 in. wide, and 24 in. high. The inscription is carved in large bold characters. It begins with the usual invocation, 'To Him who is and does not die': this is followed by a verse from the Koran reciting the virtues of the Almighty. Then come lines of verse, in the translation of which Dr. Neligan acknowledges the help of his friend Moin-ul-Vazareh: 'Worthy testimony upon earth of the omnipotence and wisdom of God, Abu Ali Sina sprang from nonexistence into being in the year 373. He had mastered the sum total of knowledge in 391; in 427 he bade farewell to this transitory world.' Then comes the usual conclusion to epitaphs on the graves of Mohammedan sages or celebrated men: 'The death of Sheikh Abu Ali Sina, may his tomb be surrounded by light! 427.'"

* Quoted in the *Lancet* of July 25.

MEDICAL SECTIONS OF THE LYONS EXPOSITION.

The Lyons exposition, which was inaugurated on May 22, and is intended to continue through the current summer, has a number of sections devoted to various aspects of public health. These were described in part as follows in a letter by Alvan F. Sanborn to the Boston *Transcript* from Draviel, France, on July 23.

"The section of hospitals and asylums includes several pavilions, eight rooms of which are devoted to an illuminating comparative exhibit of ancient and modern hospital methods. Over against a faithful reproduction of a seventeenth-century ward of the Lyons Hotel-Dieu (with an enormous bed for several patients and a collection of antiquated surgical instruments and pieces of orthopedic apparatus, recently discovered in the garret of that venerable institution) and a lunatic's cell from the Antiquaille Asylum, are a modern hospital ward and operating room and models of new hospitals of Grange-Blanche and René Sabran (tuberculous children) at Grin in the Department of Var. Other rooms of this section are occupied by a radiological laboratory (to be utilized for experiments, by a radiological congress, an isolation

box installed by the Pasteur Institute, model ambulances and dispensaries and exhibits of various training schools for nurses, of the Red Cross Society, and of fully a hundred other medical or sanitary societies and enterprises in all sections of France.

"There is a section of infectious diseases, subdivided into the following classes: infectious or parasitic diseases of man, infectious or parasitic diseases of animals, infectious or parasitic diseases of plants; animals as propagators of disease and means of protection, vaccines and serums, anti-variolus vaccine, cancer, rabies and anti-rabic treatment.

"These divers classes depict most vividly the prodigious social and economic, as well as scientific importance of the winning fight that has been carried on against microbian or parasitic diseases since the first triumphs of Louis Pasteur.

"Special sections of the exposition are also consecrated to milk, hygienic drinks (appellation which means in France wine and beer), cleanliness and care of the body (with a retrospective dating back to the Roman baths of Lugdunum), hygiene and protection of labor, school hygiene, physical culture, puericulture, consumers' leagues, the crusade against alcohol, and the crusade against tuberculosis.

"The tuberculosis section includes practically all the French anti-tuberculous agencies. It is divided into six classes: the Koch bacillus and lesions, tuberculosis hospitals, tuberculosis sanatoria, tuberculosis dispensaries, industries related to tuberculosis" and preservation of children from tuberculosis,—each of which reveals, from a different point of view, the progress that has been made in diminishing the ravages of the terrible white plague. The section is under the patronage of the statesman-sociologist, Léon Bourgeois, and the venerable pathologist, Dr. Chauveau, and under the immediate direction of Dr. Paul Courmont, the successor (and for many years the collaborator) on the Lyons medical faculty of the eminent and beloved tuberculosis specialist Arloing."

APPOINTMENTS.

COLUMBIA UNIVERSITY.—*Dr. Homer F. Swift* has been appointed associate professor of medicine at the College of Physicians and Surgeons and associate attending physician at the Presbyterian Hospital, New York.

FORSYTH DENTAL INFIRMARY.—The trustees have appointed *Dr. H. DeWitt Cross*, of Boston, director, and *Dr. William Z. Hill*, of Philadelphia, assistant director. Other appointments are as follows. Consulting roentgenologist, *Dr. A. W. George;* roentgenologist, *Dr. Albert Kinley;* oral surgeons, *Dr. Harry B. Shuman, Dr. L. M. S. Minor, Dr. B. Strout;* permanent staff, for full time, *Dr. Andrew P. Bulger, Dr. Dwight R. Clement, Dr. Raymond H. Hanrahan, Dr. Harold F. Hart, Dr. J. Warren Holt, Dr. Joseph A. Kelly, Dr. George F. Marsh, Dr. Harrison A. Parker, Dr. J. Mark Smith, Dr. Robert A. Spratt, Dr. Henry F. Stevenson, Dr. Daniel J. O'Meara, Dr. Joseph A. Manning, Dr. George P. Pendleton* and *Dr. Lawrence M. Staples.*

UNIVERSITY OF GÖTTINGEN.—*Dr. Eugen von Hippel*, of Halle, has been appointed professor of ophthalmology.

UNIVERSITY OF PENNSYLVANIA.—*Dr. A. I. Ringer* has been elected assistant professor of physiological chemistry.

UNIVERSITY OF STRASSBURG.—*Dr. Franz Keibel*, of Freiburg, has been appointed professor of anatomy in succession to Dr. G. A. Schwalbe.

UNIVERSITY OF WISCONSIN.—*Dr. Paul Franklin Clark* has been appointed assistant professor of bacteriology.

RECENT DEATHS.

DR. CHARLES T. BUFFUM, of New York, died in the Presbyterian Hospital on July 21, in his 62nd year. He was a native of Brooklyn, N. Y., and was graduated from Harvard in 1874 and the College of Physicians, New York, in 1878. After studying for some time in Europe he returned to New York, and for many years was in the service of the Health Department.

DR. MARCUS KING, of the borough of Bronx, New York City, died on August 3, at the age of 42. He was born in Minsk, Russia, and was graduated from the medical department of the University of Pennsylvania in 1890.

DR. JOHN HENRY GRIFFITH, of Phillipsburg, N. J., died on July 21, at the age of 72. He was born in Monmouth County, N. J., and was graduated from the Jefferson Medical College in 1870. Dr. Griffith was mayor of Phillipsburg in 1882 and 3.

BOOKS AND PAMPHLETS RECEIVED.

A Text-book of Military Hygiene and Sanitation. By Frank R. Keefer, A.M., M.D. W. B. Saunders and Company, 1914.

A Text-book of General Bacteriology. By Edwin O. Jordan, Ph.D. W. B. Saunders and Company, 1914.

Letters to a Doctor and Others by a Lover of Truth and Justice. Wyman and Sons, Limited. London, 1914.

The Question of Alcohol. By Edward Huntington Williams, M.D. The Goodhue Company, New York, 1914.

Public Health Reports, Vol. 29, No. 31, July 31, 1914.

Hygienic Laboratory, Bulletin No. 92, June, 1914. Gaseous Impurities in the Air of Railway Tunnels. By Atherton Seidell and Philip W. Meserve.

Atmospheric Air in Relation to Tuberculosis by Guy Hinsdale, M.D. Smithsonian Miscellaneous Collections, Vol. 63, No. 1.

Les Caractères Médicaux dans L'Écriture Chinoise. A. Maloine, Editeur, Paris, 1914.

Psychopathology of Everyday Life. By Prof. Dr. Sigmund Freud, LL.D. Translation by A. A. Brill, M.D. The Macmillan Company, New York, 1914.

A Text-book of Medical Diagnosis. By James M. Anders, M.D., and L. Napoleon Boston, M.D. B. Saunders Company, 1914.

The Student's Handbook of Gynecology. By George Ernest Herman. William Wood and Company, 1914.

Treatise on Diseases of the Skin. By Henry W. Stelwagon, M.D. W. B. Saunders Company, 1914.

Chronic Colitis, Its Causation, Diagnosis and Treatment. By George Herschell and Adolphe Abrahams. Longmans, Green and Company. 1914.

Practical Sanitation, a Handbook for Health Officers and Practitioners of Medicine. By Fletcher Gardner, M.D., and James Persons Simonds, B.A., M.D. C. V. Mosby Company, 1914.

Massachusetts Medical Society

THE SHATTUCK LECTURE.

THE FUNCTION OF THE SPLEEN WITH PARTICULAR REFERENCE TO HEMOLYSIS AND THE HEMOLYTIC ANEMIAS.*

By Herbert C. Moffitt, M.D., San Francisco.

The spleen has always been a subject of interest and speculation; at one period in ancient times it was regarded as the seat of laughter, at another as the source of bad temper and melancholy. *Aristotle* (384-322 B.C.) regarded as its chief function the withdrawal of unnecessary moisture from the stomach—a foreshadowing of the more modern theory, of a regulating mechanism for the digestive blood supply. He was probably the first to suggest that the spleen was not absolutely necessary for the preservation of the life of animals, though there is no evidence that his suggestion rested upon any firmer basis than speculation. It is interesting to note, in view of the hyposthenic function assumed by Banti in certain cases of splenomegaly, that it has been recorded that the Romans occasionally removed spleens in gladiators to increase their strength and endurance. In *Pliny* A.D. 23-79 one may read of the spleen that "This member hath a property by itself sometimes, to hinder a man's running; whereupon professed runners in the race that be troubled with the splene have a desire to burn and waste it with a hot iron and no marvel, for why? they say that the splene may be taken out of the bodie by way of incision and yet the creature live nevertheless; but if it be man or woman that be thus cut for the splene hee or shee loseth their laughing by the means. For sure it is that intemperate laughers have alwaies great splenes." *Galen* (130 A.D.) referred to the mystery of its function and mentioned, what has been recorded by more than one modern author, that with enlargement of the spleen bleeding from the left nostril was a common symptom. *Philagrios* of Epirus, writing toward the end of the fourth century, was long regarded as an authority on diseases of the spleen and was quoted later by *Actius, Alexander* of Tralles and *Rhazes*. He described the association of splenomegaly with abdominal distention and recognized the splenic tumor of malaria and infectious diseases. *Harvey* (1578-1657) and his pupils extirpated the spleen in dogs and found that the animals continued to live apparently in perfect condition, and in the end of the seventeenth century *Malpighi*, likewise experimenting with dogs, noted the regeneration of splenic tissue in the peritoneum in some cases after splenectomy. *Thomson*, in the first century, described extirpation and cauterization of the spleen in man but his observations are probably no more authentic than the accounts of splenectomy in gladiators. In the sixteenth century *Fioravanti* recorded an instance of an accidental splenectomy following a stab wound of the abdomen. A little later he referred for operation a patient with a greatly enlarged spleen to the Neapolitan Zaccarrello, a famous cutter for stone. Proper advertisement of the successful operation was effected by exposing the spleen in the shop of a well-known merchant for three days. In 1581 *Viard* saw a case in which the spleen had escaped through a wound severing the false ribs; he tied the vessels and removed the organ successfully. These are probably the first authentic splenectomies.

After antisepsis and asepsis came to rob surgery of its dangers, removal of the spleen ceased to be a rare operation and frequent opportunity was afforded to study the effects of its loss on the general economy. The fact was abundantly confirmed that the normal and diseased organ could be removed with little or no apparent effect upon the general health. It was recognized, moreover, by pathologists that the spleen is occasionally absent congenitally without obvious influence upon development or function. *Hodenpyl* collected ten such instances and *Sternberg* and *Glinski* have each added an additional case. On the other hand it was found occasionally both in animals and in man that after splenectomy a regeneration of splenic tissue took place in various parts of the abdominal cavity. *Von Stubenrauch* in a second laparotomy one year after removal of a ruptured spleen observed numbers of small bodies the size of peas scattered in the mesentery and omentum, with a structure between that of lymph glands or hemolymph glands and spleen. Similar observations have been recorded by *Kostjurin, Bonecki, Faltin, Albrecht* and others. The supplementary function of accessory spleens has been frequently noted after splenectomy or in splenic disease, and it is interesting to find that accessory spleens have been described as occurring more commonly in those regions in which splenic enlargements are most often observed. Thus *Giesker* and *Rosenmüller* found them frequently in autopsies upon southern Europeans, whereas the incidence in northern Germany is recorded as only one in four hundred.

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Note. At an adjourned meeting of The Massachusetts Medical Society held Oct. 3, 1860, it was

Resolved, "That The Massachusetts Medical Society declares that it does not consider itself as having sanctioned the opinions in former published Annual Discourses, and that it hold itself responsible for no opinions contained in any future similar discourse."

Resolved, "That the Committee On Publication be instructed to print a statement to that effect at the commencement of each Annual Discourse which may hereafter be published."

I. THE RELATION OF THE SPLEEN TO BLOOD FORMATION AND TO THE BONE MARROW.

Since recognition of the fact that only red-blooded animals have spleens, the interest in the

relation of the organ to blood formation has naturally been great. In the human embryo there can be no question of the production of erythrocytes in the spleen, but there can be no question also that this production ceases at birth and that in later life the spleen is normally not concerned in the regeneration of red cells. Pathologically there may be extensive areas of myeloid metaplasia, as in myeloid leukemia, with actively dividing megaloblasts and normoblasts which may be added to the blood stream. The small foci of myeloid metaplasia so frequently seen in the spleens of pernicious anemia or of infectious disease have little influence on the production of erythrocytes, and are rarely of clinical interest. *Milne*, in dealing with the experimental production of myeloid changes in the spleen and other organs observes that probably most of the new-formed tissue is made up of endothelial proliferation and that the new-formed cells do not, except in small part, represent erythroblasts. The clinical importance of the splenomegaly due to myeloid transformation in cases of generalized aleukemic myelosis will be considered later in connection with the splenomegaly of certain atypical cases of pernicious anemia. Undoubtedly we must regard the bone-marrow as practically the sole source of the red blood cells in post-natal existence. With the leucocytes, however, the conditions are different. It is not yet certain whether there are irreconcilable differences between myeloblasts and lymphocytes or whether at times the granular leucocytes may be evolved from lymphocytes. Probably in the spleen lymphocytes have their origin in the adenoid tissue of the follicles and the granular forms are produced in the pulp. There can be little doubt that leucocytes are normally added to the circulation from the spleen; *Kölliker* and *Ebner* found many more leucocytes in the splenic vein than in the splenic artery. After manipulation at operation, during the contractions accompanying digestion, after injection of pilocarpin numbers of lymphocytes are added to the circulation from the spleen. The large mononuclears (splenocytes) formed in the spleen probably do not enter the blood stream but remain sessile and serve as a partial source of hemolysins; the macrophagocytes likewise do not enter the general circulation. The leukopenia very frequently observed in splenic disease may be due in part to the failure of the organ to add the usual number of lymphocytes and perhaps of other forms to the blood stream. There is reason to believe, however, that even normally the spleen exercises a certain degree of inhibition upon the bone-marrow, influencing the formation and addition to the circulation of both red and white cells. In disease this inhibition may be increased and may lead to anemia and leukopenia, thus Banti is inclined to refer the anemia characterizing his disease partly to the difficulty of hemoglobin synthesis and partly to a pathological retention of erythrocytes in the marrow. *Lethaus* observed the development of a polycythemia (10-11,000,000 erythrocytes and 150% Hgb. after removal of a ruptured spleen in a man of 39. He thought of some unknown function of the spleen regulating hematopoiesis through a hormone or through nervous influence; if this regulating influence was removed by operation the bone marrow was unduly irritated and great numbers of normal and immature cells were thrown into the circulation. Polycythemia has been noted also by *Küttner* and by *Roughten* and *Legg* after removal of normal spleens accidentally ruptured, and by *Schupfer*, *Levison* and *Mühsam* after splenectomy for relief of Banti's disease (cited in the article by G. Klemperer and H. Hirschfeld). Usually, however, after splenectomy there is little or no change in the red cells, but a marked polynuclear leucocytosis occurs, lasting a few days or a few weeks and gradually giving place to a normal count with relative eosinophilia. After splenectomy in dogs *Musser* and *Krumbhaar* constantly found an anemia reaching its height in three to six weeks and approaching normal again in five to ten months, and *Bayer's* experiments on dogs give results identical with these. (*Von Decastello* and *Biedl* noted the frequent appearance of Howell-Jolly bodies after splenectomy in dogs.) *G. Klemperer* was led to advocate splenectomy in pernicious anemia in the hope of influencing favorably bone-marrow regeneration and the tremendous medullary reactions after the operation in many cases of pernicious anemia have formed the subject of numerous recent papers. Blood platelets which are as a rule much diminished in pernicious anemia increase greatly after operation and lymphocytic leukopenia gives place to a neutrophilic leucocytosis. Pain in the long bones after splenectomy has been observed by Löhlein, Ballance, Bovée, Heaton, Simpson; it is probably associated with increased medullary activity and *Regnier* four months after splenectomy amputated a lower extremity and found red marrow throughout the femur.

II. THE RELATION OF THE SPLEEN TO IRON METABOLISM.

From work done in very recent times by Asher and his pupils Grossenbacher and Zimmermann, by Schmidt, Vogel, and Bayer it seems probable that the spleen is a depot for iron derived from destruction of blood and tissue cells and that the liver stores the iron coming to the body in the food. After splenectomy there is marked reduction of erythrocytes and hemoglobin when the animals receive but little iron in the food, and rapid improvement when iron is added (Bayer). Hemoglobin determinations both by the liquid and dry methods have shown that normally there is a higher content in the blood from the splenic vein than from the carotid (Middendorf, Darjuvitsch). Banti has confirmed these observations both experiment-

ally and in clinical cases, but even with this authority any one who has attempted similar determinations will be doubtful of their accuracy and import. When large amounts of pigment and iron-containing pigment are found in the spleen according to William Hunter they denote "not an increased but a slower hemolysis -not recent death, but an honored old age (with decent burial in the spleen) of the red corpuscles concerned." Increased siderosis in the spleen may be an indication, therefore, of general tissue-cell destruction and may be found in cases of ulcerative tuberculosis in cirrhosis of the liver, etc. Increase of iron-bearing pigment in the liver and kidneys is, on the other hand characteristic of active or hemolytic processes and particularly of active hemolysis in the spleen.

III. THE RELATION OF THE SPLEEN TO DIGESTION.

Through its power of contractility, afforded by the content in smooth muscle and elastic fibres the spleen may vary its store of blood considerably and may perhaps have some influence upon stomach and liver hyperemia. The occurrence of gastric hemorrhage after splenectomy is well known. There is no clinical or experimental evidence to support the views that pepsin and trypsin are not properly elaborated in absence of the spleen and the theory of a tonic inhibition of the intestine through the autonomic nervous system has been evolved from a few clinical observations alone. After removal of the spleen in Banti's disease, in pernicious anemia and in hemolytic icterus improvement in appetite and disappearance of gastric distress and vomiting have been noted in a number of instances.

IV. THE RELATION OF THE SPLEEN TO THE DUCTLESS GLANDS, LYMPH GLANDS AND HEMOLYMPH GLANDS.

The thymus occasinally enlarges after splenectomy and perhaps may compensate for the loss of lymphocytic production in the spleen; enlargement of the thyroid has also been observed. The lymph and hemolymph glands are often involved in infections or general diseases like lymphogranulomatosis, pernicious anemia, leukemia which affect the speen as well. In animals after splenectomy the formation of many new hemolymph glands has been noted by Tizzoni, Wimogradow, Mosler, and Warthin, and more rarely enlargement of the peripheral lymph glands has been recorded after splenectomy in man. *Pearce* and *Austin* have observed an increase of endothelial cells in the lymph glands after splenectomy in dogs and have found that these cells become phagocytes for red cells after the injection of hemolytic sera, compensating for the erythrocytolysis of the spleen and the failure of splenectomy to benefit certain cases of pernicious anemia has been referred by Eppinger to the increased hemolytic activity of numerous new-formed hemolymph glands. On account of the vascularization of lymph glands which follows splenectomy it has been proposed in the Wiener Frauenklinik to remove the spleen in cancer operations in order to prevent glandular metastases.

V. THE SPLEEN AND INFECTIONS.

Owing to the hyperemia and enlargement in the course of most infectious diseases the spleen has enjoyed a certain reputation as a power for good in the struggle with infection. There is no evidence, however, to show that immune bodies are more favorably developed in the spleen than in other organs. *Lewis* and *Margot* investigating the function of the spleen in experimental infection in white rats and mice, found that rats and mice surviving after intraperitoneal injections of cultures of tubercle bacilli had big spleens. But they found that even greater resistance to general infection after intraperitoneal injections was shown by the animals after splenectomy. No such changes in resistance to infection were observed in guineapigs or dogs. Patients without spleens have gone through successfully such infections as typhoid, pneumonia, empyema, acute articular rheumatism. A patient of *Brewer* recovered from typhoid but after splenectomy had a relapse which proved fatal.

VI. THE RELATION OF THE SPLEEN TO NEOPLASMS.

Remarkably interesting work has recently been done by *Murphy* in the Rockefeller Institute in regard to the defensive mechanism of the spleen in the chick against implantation of heteroplastic tissue. Rat sarcoma can be grown freely in chick embryos but only until the spleen begins to develop. If a piece of adult spleen be planted in the embryo the same resistance to invasion by foreign tissue is established. Murphy concludes his article by saying: "Whatever the various functions of the spleen may be, these experiments show conclusively that when that organ in the adult state is supplied, the embryo chick otherwise subject to heterotransplantation becomes as resistant as the adult animal to growth of alien tissues. Hence the spleen and, to a less extent, the bone-marrow provide a defensive mechanism that prevents the development of foreign tissues in the chick embryo." The spleen is rarely the seat of primary or secondary carcinoma or sarcoma. *Oser* and *Pribam* have shown that injection of spleen emulsion into rats with tumors leads to retrogressive changes in the growths and they as well as *Apolant* have demonstrated in animals a decreased resistance to tumor implantation after splenectomy. *Carrel* (The Production of Antibodies by Tissues Living Outside the Organism) has found that connective tissue growth is activated to the greatest degree by embryonic tissue extract and next in order by extract from the adult spleen (of dogs). A case of Eppinger may be mentioned in this

connection. A man of 46 had the spleen removed in April, 1913, because of a Banti Symptom Complex. The rectum had been examined and found normal but six weeks later a large tumor was present. Evidently the tumor grew rapidly after the splenectomy.

VII. THE RELATION OF THE SPLEEN TO HEMOLYSIS.

Normally there is a remarkable balance between hemolysis and hematopoiesis. The bone-marrow reacts delicately to increased CO_2 tension of the blood, to the products of erythrocytic disintegration, to many chemical and infective agents, and is held in check possibly, as we have seen above, by an inhibitory influence of the spleen which may prevent the entrance into the blood stream of immature forms or excessive numbers of erythrocytes. It is difficult to determine the average life of a red cell; Quincke estimates it at two or three weeks, Brugsch and Retzlaff at 20 days, Latschenberger from experiments on animals at 12 days, Hofmeister at 50 days. Normally there is little if any active hemolysis of erythrocytes in the general circulation but their slow destruction is effected in the spleen, liver and marrow—particularly in the spleen—by means of autolysis and phagocytosis. The iron of the corpuscles is changed to an albuminate of iron and deposited probably in greatest part in the spleen to be used later in the elaboration of new erythrocytes and hemoglobin. The spleen, however, is not an indispensable agent in this degradation and elaboration of hemoglobin, as *Gilbert, Chabrol* and *Bénard* have shown that the absence of the spleen does not limit the power of the liver to transform hemoglobin into bile or bile derivatives. McNee would refer to the Küppfer cells of the liver the function of splitting off the iron containing part of the blood coloring matter. The amount of bile pigment produced daily has been accepted as the best measure of the degradation and destruction of erythrocytes. *Eppinger* making use of the experiments of Stadelmann on dogs has computed that approximately .5 grm. bilirubin is produced in the body daily. A normal man of 70 kgm. has about 3600 cc. of blood. This corresponds to 504 grams hemoglobin or 20 grams hematin, 20 grams hematin equalling 18 of bilirubin. The .5 gms. bilirubin produced daily represents then the destruction of about 100 cc. blood and the entire blood of the body, according to this calculation of Eppinger, would be renewed every 36 days. *Widal, Guillain* and *Troisier*, and recently *Whipple* and *Hooper* have doubted the correctness of the present belief that bile pigment is derived solely from the hemoglobin of the red blood cells and that the transformation occurs only in the liver. Whipple and Hooper think it possible that the liver cells may elaborate bile from substances not derivates of hemoglobin, and that hemoglobin transformation may be effected by cells outside the liver.

Eppinger lays great stress upon the value of urobilin excretion in urine and stool as a measure of the degree of hemolysis, although he realizes clearly that many uncertain factors play a part both in the formation and elimination of urobilin and that its determination is only of relative and approximate value. With *Charnas* he has elaborated a method of determining urobilinogen in the stool and their quantitative results show plainly the value of the procedure in estimating the activity of blood destruction in various hemolytic anemias. In the normal adult .12 to .15 gm. urobilin is excreted daily in the stool. Pathologically the highest figures are observed in hemolytic icterus, polycythemia, pneumonia, hypertrophic cirrhosis, marked passive congestion, lead poisoning, malaria and pernicious anemia: 3 or 4 grams daily may be eliminated in hemolytic icterus. Eppinger regards a high urobilin content of the stool in pernicious anemia as the determining clinical factor in advising splenectomy. The advice appended to this is interesting: "Für diejenigen die nicht in der Lage sind, dies zu ermitten, möchte ich empfehlen sich mit der Qualität des Duodenalsaftes zu begnügen." *Eppinger* and *King* have shown that the iodin content of the blood and hemolytic processes run fairly parallel, the iodin content of fat being a measure of the hemolytic power of the unsaturated fatty acids. The highest iodin values are found in pernicious anemia, hemolytic icterus and Hanot's cirrhosis.

Hemoglobin in blood serum and urine is of course unmistakable evidence of pathological blood destruction. It is of rare occurrence although there is reason to believe that in some instances it may be associated with morbid activity of the spleen. Increased bilirubin content of the serum, on the other hand, is frequently observed, and anemia, icterus and enlargement of the spleen are valuable clinical signs of pathological blood destruction.

Many authors, among them Kölliker, Gabbi, Heinz, Hunter, Banti, Minkowski, Chauffard and Eppinger, would assign an active rôle to the spleen in hemolysis; others like Ponfick, Paton, Goodall, Achard would have it play a passive part. The enlarged spleen would be to the first group an evidence of actively increased function; to the second a spodogenous tumor swollen by the products of destruction brought to it in the circulation. The experimental and clinical evidence emphasizing the importance of the spleen in hemolysis was admirably summed up in a communication by Banti to the last International Congress in London. He cited the work of *William Hunter* who first showed that removal of the spleen modifies or abolishes the hemolytic action of certain chemical agents like toluylenediamine; of *Bottazi* who found increased resistance of erythrocytes after splenectomy; of *Pugliese* and of *Gauckler* who demonstrated in animals that the secretion of bile was reduced 50 to 60% after splenectomy. From his own extensive clinical and experimental experience

Banti concludes that "the spleen is the organ in which hemolytic processes are most active. The other organs enter into action, especially when the dose of the hemolytic agents is higher, but their activity is always inferior to that of the spleen. Clinical facts have shown us in no doubtful manner that the spleen exercises so important a function in hemolytic processes that its extirpation is followed by rapid recovery from maladies which owe their origin to pathological hyperhemolysis. The experimental and histopathological results have fully confirmed this function, and therefore it appears that no reasonable doubts can be raised as to its existence. . . . From what has been said it follows that the spleen (as for that matter, the other organs also) has not an autochthonous and primitive hemolytic function; it responds in a secondary manner to the agents which have been carried to it by the blood. It is simply an instrument which is stimulated to hemolytic action by agents which do not reside within it. . . . Splenectomy does not, therefore, eradicate the disease—that is, the agents of the disease, whose nature and seat remain entirely unknown to us—but eradicates rather the principal instrument, by means of which these agents become pathogenic. These agents, whether on account of their nature, or because of their small amount, or for other reasons at present unknown, are not capable of exciting in the secondary hemolytic organs a pathologic hyperhemolysis, and the extirpation of the spleen is clinically equivalent to the cure of the disease."

Since Bottazi in 1894 found that extirpation of the spleen was followed by increased resistance of erythrocytes to sodium chloride solutions and to certain chemical hemolysins, the observation has been confirmed by workers in many different fields. The increased resistance may be demonstrated from the ninth to the twenty-seventh day after operation and may persist indefinitely (over a year, Pearce and Peet), (eight years, Banti). It does not depend upon the numbers of young cells in the circulation (Pearce and Peet), nor is it related to an increase of stroma constituents as determined experimentally in phenylhydrazine anemia by Morawitz and Pratt. According to Port certain hemolytic poisons like saponin act directly on the bone marrow so injuring it that corpuscles of decreased resistance enter the blood stream. Poisons of another class, like benzol, attack the circulating erythrocytes and the degeneration products stimulate the marrow to greater effort and to the elaboration of more resistant cells. Port would attribute the lessened fragility to an increase of the total lipoid and nuclear phosphorus. *Pearce* and *Karsner* conclude that "The erythrocytes of splenectomized dogs show increased resistance to the action of hypotonic salt solutions and to specific hemolytic immune serum. The degree of resistance appears to increase with the length of time that has elapsed after splenectomy. This increased resistance of the erythrocytes is not due to an increased antihemolytic power of the animal's serum or to a diminished complementary value of the serum, but is a property depending upon the erythrocytes themselves . . . as anemia of varying grade is a characteristic result of splenectomy, it would appear that the increased resistance of the corpuscles is a concomitant of the regeneration of the red cells following such anemia." In man, however, it has definitely been proved that the increased resistance does not depend upon anemia alone.

Since first described by *Chauffard* increased fragility of the erythrocytes has been recognized as a fairly constant sign in hemolytic icterus, although it may vary at different times in the same case or in different members of the same family afflicted with the disease. It is usually favorably influenced or totally disappears after splenectomy, although *Kahn* has reported its persistance after operation in a case of congenital hemolytic icterus. Decreased osmotic resistance may occur in hemachromatosis and rarely in pernicious anemia; all my recent cases of this last disease corresponded with the rule of normal or increased resistance.

Slowly, in light of experimental and clinical evidence, a classification is being attempted in the confusing group of splenomegalies. We may separate first of all a class of cases in which jaundice and enlargement of the spleen are more or less striking features. During last summer and fall through the courtesy of Dr. Hans Eppinger and Dr. A. von Decastello of Vienna it was my privilege to see a number of cases of hemolytic splenomegaly and of pernicious anemia, and to study sections of the spleens removed at operation. A number of others—among them hypertrophic cirrhosis, hemachromatosis, splenic vein thrombosis, Banti's disease and pernicious anemia were observed in my clinic during the last six months.

I. *Chronic Family Jaundice.* (Congenital Hemolytic Icterus) may be taken as a type of the hemolytic splenomegalies. The disease is most often hereditary or familial but there are acquired forms as well. There are families in which various members through several generations have from time to time symptoms which the older writers grouped under the familiar head of "biliousness." Occasional gastro-intestinal upsets with mild nervous symptoms are associated with a muddy complexion or slight icteric staining of the skin or conjunctiva. Through life there may be no accentuation of these symptoms and no swelling of the spleen. *Gilbert* and his pupils have used the term simple family cholemia to describe these cases, and have shown in them that the bile content of the serum is slightly above normal. The resistance of the red corpuscles may or may not be decreased, the hemolysis as marked by the icterus and urobilinuria is of the mildest. These cases represent probably the slightest departure from normal in the direction toward the well defined entity

hemolytic icterus. Two varieties of this disease are sufficiently divergent to be described separately:

1. Congenital Hemolytic Icterus. Though first mentioned by Murchison and described by Hayem it remained for Minkowski in 1900 to bring the disease prominently before the profession. The icterus which characterizes the affection is slight or moderate and may be present from birth or may not appear until the tenth or fifteenth year or even later. There are rare cases in which it may even be absent—the complex being recognized in these cases by the large spleen, increased corpuscular fragility and the familial association; thus *Lommel* records the case of a woman with hemolytic icterus who had two children with splenomegaly but no other symptoms. The jaundice varies frequently and may deepen after a diet error, or emotion or an intercurrent infection, although in this form deep jaundice and fever are much rarer than in the acquired. Bile is found in the serum but only exceptionally in the urine, whereas marked urobilinuria is a fairly constant occurrence. Moller found, quantitatively, that urobilin in both urine and feces was greatly increased, and the extensive investigations of Eppinger and Charnas have been mentioned above. Eppinger has found three or four grams of urobilin excreted daily in the stools instead of the normal amount. .15 gram. With this tremendous hemolysis there is little anemia as the bone marrow keeps pace with the blood destruction, there may be crises of blood degeneration but the anemia is rarely as profound as in the acquired form. Usually the count will remain in the neighborhood of 3,000,000 or 3,500,000 and as Chauffard has said, the patients are icteric but, as a rule, not sick or anemic. The characteristic feature of the blood examination is the increased fragility of the erythrocytes, first described by Chauffard. This decreased resistance may hold for various hemolytic agents but is usually tested by freeing the corpuscles from the plasma and placing them in sodium chloride solutions of varying strength. Normally hemolysis begins at .44 to .48 and is complete at .28 to .32; in hemolytic icterus it may begin at .6 or .7 and may be complete at .5. Microcytosis and anisocytosis are features of the blood smear, normoblasts are common. A relatively high polynuclear count and occasional myelocytes with great numbers of reticulated red cells, and erythrocytes with basophilic granulations mark the great degree of medullary activity. The great destruction of red cells leads to increased production of bile, to bile thrombi in the liver and so to jaundice. As we have already seen, this destruction of erythrocytes does not take place in the blood stream but to the greatest extent in the spleen; the splenic tumor is partly spodogenous but probably in chief part an expression of greater hyperemia and functional activity. The spleen is very rarely normal in size, usually it reaches to the umbilicus or fills the left side of the abdomen; weights of 900 to 3000 grams have been recorded. I have notes of two Italian families with hemolytic icterus; in one the mother and children of three and five were affected, in the other the mother and children of six, nine, and thirteen. There are some 150 cases to be found in literature. Minkowski and later Chauffard first suggested that an affection of the spleen was the chief factor in the congenital form of hemolytic icterus and the entire disappearance of symptoms and signs after splenectomy has brought clinical proof of the theory. The pathological findings at autopsy have been the same in hereditary and acquired forms. There have been few changes in the liver except great increase in pigment and frequent occurrence of gall-stones; siderosis is marked in the kidneys as in the liver, the bone marrow is red and shows signs of marked activity, the spleens at autopsy or operation are enormously hyperemic, most of the blood being in the pulp and not in the sinuses; pigment granules are much increased.

2. The acquired form of hemolytic icterus presents, as a rule, a decidedly graver clinical picture than the congenital. Anemia is often much more marked and predominates over icterus. The disease may begin abruptly with jaundice; fever is not uncommon, may be high and accompanied by delirium or stupor. The whole course of the disease is much more variable than in the congenital variety. It may extend over many years with remissions and exacerbations or may prove fatal in one, two or three years. The spleen is usually not so large as in the hereditary variety; hyperhemolysis, however, is sometimes even more in evidence, and the same high values for urobilin are found in urine and stool (Eppinger). The anemia may be extreme and may simulate pernicious anemia. These atypical cases of acquired hemolytic icterus are particularly worthy of note as mistakes in diagnosis may occur in several directions. Icterus may be absent or very slight and a diagnosis of Banti's disease is made. *Lommel* has emphasized this difficulty in diagnosis especially in cases of hemolytic icterus with normal erythrocyte resistance, and one of Tileston's cases had been labeled Banti's disease by a most competent clinician.

The number of cases with profound anemia has increased rapidly in the last two or three years. Many different names have been employed particularly in the reports by French and Italian authors but it seems wise in the light of our present knowledge, not to subdivide too minutely. Thus the *splénomégalie hémolytique* of Banti means nothing more than the sporadic form of hemolytic icterus which we have been considering, and his *splénomégalie hémolytique anhémopoiétique* indicates simply an exhaustion on the part of the bone-marrow with leukopenia. Dependent upon the degree of hemolysis and the varying reactions of the marrow there will naturally result many different clinical combinations. *Chauffard* and *Troisier* have reported under the

name of "*Ictère Hémolysinique*" a case of hemolytic icterus without fragility of the red cells but with hemolysins in the serum, and in this connection Guillain and Troisier have published very interesting observations upon the rôle of hemolysins in the local production of decreased erythrocytic resistance and of local hemolytic jaundice, as in hemothorax.

Even with red counts approximating 1,000,000 the decreased osmotic resistance and the characteristics of the stained specimens will usually distinguish from pernicious anemia, although confusing transitional cases have been recorded. Thus G. Klemperer has described a case with 1,500,000 erythrocytes, 1500 leucocytes, a color index of one and numerous megalocytes and megaloblasts with normal resistance of the red cells. Stejskal and Chauffard have both recorded cases with blood counts below 1,000,000 and Chauffard has described the occurrence of a hyperchromatic megalocytic type of blood cells. Parkes Weber has reported a case of acquired chronic acholuric jaundice with a blood picture at one time resembling that of pernicious anemia. Banti, J. Chalier, Chauffard and Troisier, Gilbert, Chabrol and Bénard, Antonelli, Micheli, Fiori have instructive papers on the association of splenomegaly with icterus and grave anemia. *Giffen* in his communication "Clinical Observations on Splenectomy" from the Mayo Clinic, mentions a case of atypical anemia which he considers as possible pernicious anemia. At operation two and a half years before, the spleen removed weighed 1540 gms. Hemoglobin at that time was 45% with high color index, and a few normoblasts and megaloblasts were present in the smears, and after splenectomy a shower of normoblasts and megaloblasts appeared in the blood stream. The man is still living but is anemic, weak and unable to work. Osler in his second report on splenic anemia changed the diagnosis in one previously observed case from Banti's disease to pernicious anemia. There can be no question, therefore, that some forms of acquired hemolytic icterus and some cases of pernicious anemia have much in common and differential diagnosis may be difficult. An intermittent course with occasional fever, slight icteric tint with bile in the serum, and large amounts of urobilin in the urine and feces, grave anemia, may be features common to both affections. Usually the increased fragility of erythrocytes in hemolytic icterus is not found in pernicious anemia. There are cases of pernicious, anemia, however, with slightly decreased resistance of the red cells and there are cases of hemolytic jaundice with normal resistance. Deep jaundice may occur in acquired hemolytic icterus, though rarely; it does not occur in pernicious anemia. The megalocytic hyperchromatic type of blood is the most constant criterion of pernicious anemia; in rare instances it may occur in hemolytic icterus. The spleen is, as a rule, greatly enlarged in acquired hemolytic icterus though not to the extent found in congenital cases. Splenomegaly in pernicious anemia is extremely rare but moderate enlargement is probably more common than clinical reports would indicate. Cabot records enlargement in 13 of 110 cases, Billings in 5 of 20 cases, McCrae in 6 of 40 from the Johns Hopkins material. In the last 10 cases personally observed the spleen was plainly palpable 2 to 10 centimeters below the rib border in 7. How difficult it is to classify some of the transition cases may be seen by the report of von Decastello at the last German Congress for Internal Medicine. In a man of 52 with rather sudden onset of the disease with fever there was icterus, a splenic tumor, achylia and a blood count as low at one time as 800,000 with leukopenia, a high color index and megalocytosis. The resistance of the erythrocytes was, however, decreased and splenectomy was followed by disappearance of the jaundice and great improvement in the general condition and the blood picture.

That the diagnosis is not always easy in other directions as well, is illustrated by the following case of mine seen some years ago by a well-known Eastern consultant who held positively to his diagnosis of malignant endocarditis. It was before many reports of the favorable influence of splenectomy had appearad and the original diagnosis of hemolytic icterus was confirmed at autopsy. A very stout man, weighing nearly 300 pounds was taken acutely sick during a journey back from Mexico, just after he had run for a train, became much overheated and drank freely of cold lemonade. After high temperature for a week his color was noted to be decidedly yellow, and he continued to be weak and to be bothered with shifting muscular and rheumatic pains. When seen in May, 1910, eleven months after the onset of symptoms, he had a large heart with hemic murmurs, a moderately enlarged liver and a spleen 10 cm. below the rib margin. Icterus was but slightly marked but urobilinuria was constant and pronounced. The Wassermann was negative. The red cells were from 3,000,000 to 3,500,000, hemoglobin 50 to 55%, leucocytes 4500 to 5000. During exacerbations in July, 1910, with temperature varying from 101° to 103° there was outspoken macrocytosis; during a later remission the size of the red cells became nearly normal and a few normoblasts appeared. Death took place 18 months from the onset of the disease during an exacerbation of fever. At autopsy there was no disease of the heart, the liver weighed 2000 grams, was not cirrhotic but contained much iron-bearing pigment. The spleen weighed 1550 grams and was tremendously hyperemic; microscopically the follicles were normal, the pulp hyperemic and granular pigment was seen in large amounts both in and between the cells of the pulp.

There can be no question of the value of splenectomy in this group of hemolytic anemias. In the congenital form of hemolytic icterus, owing

to the benign course of the disease the operation will not often be indicated. *Kahn*, however, has recently reported two cases much benefited by splenectomy, icterus disappeared and the corpuscular resistance rose considerably although it did not reach normal. Banti in 1893 first had the operation performed though the case was not classified as acquired hemolytic icterus or splenomegalic icterus until much later. Later communications of Banti, Antonelli, Fiori, Micheli, Exner, Mühsam, Eppinger and Ranzi, Chauffard and Troisier, Gilbert, Chabrol and Bénard give account of over 50 cases in which splenectomy has been performed. The general condition of the patients usually improves rapidly, hyperhemolysis ceases—as evidenced by disappearance of the excessive amounts of urobilin in urine and stool—icterus fades quickly, the resistance of the red cells approaches or becomes normal, and anemia is almost at once favorably influenced. Eppinger and Ranzi conclude: "Auf Grund unserer Resultate müssen wir bei typischem erworbenem hemolytischen Ikterus die Splenektomie für unbedingt indiziert halten; das Hauptkriterium erscheint uns nicht der Milztumor oder der Ikterus, sondern ausschliesslich der enorme Urobilinwert im Stuhl." The clinical results of splenectomy outweigh any theoretical considerations and it is impossible to deny the rôle of the spleen in the hemolysis that lies at the foundation of the disease.

3. Pernicious Anemia. Borderline clinical cases have been sufficiently discussed above. Eppinger has dwelt upon the similarity of the pathological changes in the spleen and other organs in hemolytic icterus and pernicious anemia, and has emphasized the identity of many of the clinical symptoms. In March, 1913, influenced by an unsual experience with splenectomy in varied effections, he caused the spleen to be removed in a case of pernicious anemia. In the same month and without knowledge of Eppinger's work von Decastello, another Vienna clinician, referred a case for operation on account of the success obtained by Antonelli, Banti and Micheli, in cases of hemolytic icterus with a blood picture resembling pernicious anemia. In a recent paper before the Association of American Physicians I was able to collect 33 cases of splenectomy in pernicious anemia and in discussion Dr. Thayer of Baltimore added two and Dr. Miller of Chicago one, a total of 36. Of the 36 cases eight died immediately or not long after the operation. There can be no question that in a number of instances rapid improvement followed the surgical procedure. A few patients have regained strength so rapidly—long before the blood count has risen much—as to confirm the opinion of Banti that poisons from the spleen act at times hyposthenically. Von Decastello and Dr. Judell have noted improvement in appetite and disappearance of stomach symptoms; the achylia persisting in von Decastello's cases. In nearly all instances reported the pathological hyperhemolysis was controlled by splenectomy. The icteric coloring if present, disappeared, the liver became smaller, urobilinuria ceased in a few days or a few weeks and urobilinogen in the stools was no longer excessive. In the case of Huber, however, urobilinogen was still present in large amounts in the stools three months after operation and in a case of Eppinger urobilinuria persisted and urobilinogen in the feces was still above normal. My patient noted the complete disappearance of the characteristic paresthesiae that had been so bothersome before operation. In the patients of Dr. Thayer and Dr. Miller spinal symptoms were unchanged. Chief interest centers in the remarkable changes in the blood picture almost immediately after operation. The characteristic feature is the appearance of great numbers of normoblasts, reticulated erythrocytes and erythrocytes with Howell-Jolly bodies. At times there is a quick rise in the number of erythrocytes, a million within a week, and there may be rapid improvement in the differential blood picture but the characteristic megalocytic type of blood may be found months after operation when the patient feels quite well, or after initial improvement or even disappearance the megalocytic picture may be reëstablished.

The spleens removed at operation are above the normal weight, if we assume this to be 200 grams.—570 grams (Mosse), 432 (Port), 500, 350, 350, 286, 435 (v. Decastello), 390 (Moffitt). Occasionally the spleen may be small, hard and fibrous. Usually there is marked hyperemia of the pulp, the sinuses being comparatively thin and empty. I have studied sections from eight operated cases. The capsule and trabeculae are usually little changed. The follicles may be somewhat atrophied, or normal, or decidedly increased. Eppinger has laid great stress upon certain changes of the smaller arteries which he regards as constant and characteristic. These changes are well illustrated in a number of these preparations. The walls of the follicular arteries are thickened and the lumen often narrowed by hyalin masses: the pulp capillaries are also thickened. It is difficult to believe with Eppinger, however, that these vascular modifications can divert the normal blood flow from the pulp and Seidel capillaries to the sinuses, and turn it through the intrafollicular capillaries into the interstices of the pulp. Occasionally macrophagocytes seem definitely more numerous and erythrocytes and fragments of erythrocytes can be seen within them. Small foci of myeloid metaplasia are not uncommon. Pigment varies greatly,—in two cases there was practically none, in two there was a small amount and in four there were great quantities of coarse brownish granules in and between the cells of follicles and pulp. The hyperemia of the pulp and the thickened arteries seem to be the most constant histological findings, but even these vary considerably. There is certainly no morphological indication of a greatly increased

phagocytic function in any of the preparations.

It is difficult to define the results of splenectomy in pernicious anemia with our present evidence. In certain cases no benefit has been obtained, in others striking improvement has resulted and cases are reported as apparently cured after periods of three or nine months (Mosse, Eppinger); in still others great betterment in symptoms and blood picture has been followed after weeks or months by a relapse. The varying degrees of reaction to the operation must depend upon the condition of other organs, particularly liver, bone-marrow and lymph glands. A number of writers, particularly Weigert, Warthin and Dock and Eppinger, have emphasized the increased activity of the hemolymph glands, and Eppinger is inclined to refer relapses after splenectomy to their increased hemolytic function. He suggests the administration of arsenic to check their development and counsels early operation in pernicious anemia before other hemolytic organs than the spleen have been involved.

Though since the early work of William Hunter we admit the great importance of the hemolytic function of the spleen in pernicious anemia, I think we must, with Warthin, realize that the infective agent or toxin of pernicious anemia "may act differently at different times or that there may be several hemolytic poisons and that there may be splenic, lymphatic, hemolymphatic or marrow hemolysis." The shifting clinical pictures, the various reactions at different times to remedial measures like arsenic, blood transfusion, thorium-x, salvarsan, splenectomy—the marked hemolysis in some cases (urobilinuria, icterus) and its absence in others, the inconstancy of marrow reactions—all speak for a widespread influence of the poison in the economy with maximum effects apparent now in this organ, now in the other. Perhaps, as Banti and Warthin first suggested, and as Eppinger now affirms, there may be some cases of pernicious anemia in which the hemolytic activity of the spleen overshadows other lesions, and perhaps in these splenectomy may, as in other hemolytic anemias, lead to permanent improvement, or even cure. But the proof of this theory is still inconclusive despite the benefit reported from operation, and it is difficult to decide in just which cases of pernicious anemia the operation is indicated and justifiable. I would agree with Eppinger in considering the prognosis decidedly better in those cases with large amounts of urobilin in the stool and mild icterus, especially if the spleen was definitely enlarged. We have in the operation, as Klemperer and von Decastello point out, a means of bringing about a remission fairly certainly when other means have failed, but that medullary reactions may occur in desperate cases of pernicious anemia as well as in apparent total exhaustion of the marrow in the course of other diseases is a fact well known to all clinicians, which counsels moderation of the enthusiasm in regard to operative results. In a case seen recently with Dr. Jellinek of San Francisco the necrotic changes in mouth and tonsils of a young woman who had until two weeks before been perfectly well, suggested at once an acute leukemia. There was marked anemia without nucleated reds and a leucocyte count of 800 to 1000, and from 98 to 100% of the leucocytes were lymphocytes. There was fever and profound exhaustion. Blood cultures and Wassermann were negative. There was no enlargement of glands or spleen and the bones were not tender. The diagnosis lay between aleukemic leukemia and profound streptococcic infection,—though the mouth lesions were not those of streptococci infection. Unusual in my experience was the degree of hemolysis and the slight icteric coloring. The prognosis seemed absolutely bad and yet perhaps influenced by the therapy, x-ray and leucocytic extract,—there was a prompt medullary reaction with disappearance of leukopenia, and restoration to health and a normal blood picture in the course of a fortnight. It may be mentioned in this connection that in a case of pernicious anemia no longer reacting to arsenic, improvement in the blood picture followed injections of leucocytic extract.

There is difficulty at times, as we have seen above, in distinguishing between cases of hemolytic icterus in which jaundice is either absent or little marked and cases of so-called Banti's disease. It is hard to determine just which splenomegalies should be included under the heading of

4. Banti's Disease. Tuberculosis and syphilis of the spleen may last for years and give rise to splenomegaly, to anemia and to hemorrhages. In a woman seen some years ago chronic enlargement of the liver with anemia, leukopenia and a large splenic tumor seemed to demand the diagnosis of Banti's disease. Recurrent metrorrhagia, however, raised the suspicion of syphilis, which was confirmed by the Wassermann reaction and results of treatment. Tremendous splenomegaly, enlargement of the liver and anemia were seen in both father and son not long since on a basis of syphilis. Marchand has particularly emphasized the importance of these cases. The splenomegaly of Gaucher's disease can now occasionally be diagnosticated clinically thanks particularly to the work of American authors, although in the eighteen cases of Banti's disease recently reported by Giffen the spleens of three were found after operation to show the endothelial proliferation characteristic of Gaucher's disease. The splenomegaly of tuberculosis rarely lends itself to a positive diagnosis. A young man of 26 was recently under observation in the University of California Hospital. His grandfather died at fifty from stomach hemorrhages and a big spleen. Apart from jaundice for a month in 1906, the man was perfectly well until he noted an enlargement in the

left hypochondrium in July, 1911. In September, 1911, after an unusual strain and a long automobile trip there was a large stomach hemorrhage. In December, 1911, he contracted lues and hematemesis occurred after salvarsan intravenously, and further large gastric hemorrhages have occurred recently. An enlarged spleen was found in October, 1911, and the present condition of the abdomen is seen in the appended photograph. Early in 1913 he had so-called "pneumonia" for eight weeks and cough and hoarseness have persisted. There is a tubercular laryngitis and tubercle bacilli are present in the sputum. The Wassermann and luetin reactions are now negative, there are 4,584,000 erythrocytes, 4,800 leucocytes and 65% hemoglobin, the resistance of the red cells is normal, urobilin in the feces is not increased, the streptothrix skin test is negative. The splenic tumor is smooth, but there is no way of determining clinically whether the case is a pure Banti or one of tuberculosis of the spleen with gastric hemorrhages, such as has been described by Lereboullet.

Cases of splenomegaly with hemorrhages from stomach and bowel should always suggest splenic vein thrombosis. In some instances the thrombosis follows a pylephlebitis due to infection of the navel at birth (Turk), at other times the clinical picture described by Eppinger may help in diagnosis as in a case recently observed in a hospital. A druggist five years ago in Manila had chills and fever occurring irregularly over a period of five months. Plasmodia were never found and the fever did not yield to large and continued doses of quinine. Since that time he had never been well. Gastric and bowel hemorrhages had twice occurred, and in the last year ascites had developed, necessitating tapping occasionally. On examination, the splenic tumor was out of proportion to the liver changes, and on account of the history of chills and fever at the onset, a diagnosis of splenic vein thrombosis was made clinically. There was secondary anemia and leukopenia but no hyperhemolysis. Operation was refused and autopsy showed an old splenic vein thrombosis. A man seen some years ago presented almost exactly the same symptoms over a period of six years except there was no ascites. The illness started in a malaria-free region with chills and fever lasting some weeks, there had been numerous attacks of hematemesis. When seen the spleen was below the level of the umbilicus and the liver not much changed, and at operation there were tremendously enlarged veins leaving the spleen in several places; they were thick walled and calcified, and death occurred after operation, from stomach hemorrhage. It is difficult to say whether the following case is one of splenic vein thrombosis or of Banti's disease. A girl of 19, with neither luetic nor tubercular history, was seen two years ago, just after a large stomach hemorrhage which had come on without apparent cause. Against gastric ulcer at the time was the presence of many minute bleeding points in the rectum. The blood picture was that of a secondary anemia with 10,000 leucocytes. The spleen was enlarged by percussion, but could not be felt. There was no fever. During the next year and a half stomach hemorrhages recurred and the bowel mucous membrane continued occasionally to bleed from small areas. The spleen enlarged slowly until it nearly reached the umbilicus, the liver was moderately enlarged with sharp thin edge. On account of failure to control hemorrhages splenectomy was done last December by Dr. Levison of San Francisco, death occurring some days later from stomach hemorrhages. The marked degree of cirrhosis of the liver found at autopsy speaks more for Banti than for splenic vein thrombosis, and the thrombosis of the vein shown in sections seems recent rather than old. I have seen three cases of enlarged spleens in young individuals with continuous bleeding from minute points in the rectal mucous membrane, and no other hemorrhages. These cases of primary splenic vein thrombosis with recurrent hemorrhages are certainly more serious from the surgical standpoint than those of apparent primary Banti disease, as abnormally dilated and changed veins are encountered at operation and the danger from post-operative stomach and bowel hemorrhages is greater. Apart from splenic vein thrombosis I have seen nine cases of Banti's disease, four with stomach or bowel hemorrhages and five without. In a man seen recently in the University of California Hospital there was an eosinophilia ranging from 10 to 25%, for which no explanation could be obtained clinically or at autopsy, and in my experience eosinophilia must occasionally be referred to disease of the spleen alone. Interesting in this patient, in view of the communication of A. G. Gibbons concerning the presence of streptothrical organisms in the spleen in six cases of splenomegaly, was the negative skin reaction to streptothrix cultures. This test is being used now in the hospital in all cases of splenomegaly as well as in atypical lung and bone disease, as undoubtedly streptothricosis is much more common clinically than has hitherto been suspected.

There can be no question from the many reports now recorded that splenectomy may lead to a permanent cure in Banti's disease. Excellent recent communications are those of Mühsam, Eppinger and Ranzi, and of W. J. Mayo, Wilson and Giffen from the Mayo clinic. I agree entirely with Giffen that it is impossible as yet to correlate clinical and pathological findings, as the same clinical picture may be caused by spleens presenting marked differences in the relative relations of follicles and fibrous stroma. There is much to favor the view of Eppinger that the "*Fibro adenie*" described by Banti as typical of the disease may represent an effort toward reaction and healing from several varied morbid processes. Banti is inclined to think

that, even without obvious evidence of blood destruction, the underlying condition may, after all, be one of slow hemolysis, but the blood changes and the failure of urobilinuria and of icterus would in my mind speak more for an inhibition of bone marrow rather than for any hyperhemolysis. My experience with splenectomy in Banti's disease has been unfortunate—five operations and five deaths. Doubtless, as in all branches of surgery, fatal results are less often reported than the favorable ones.

Just as there may be transitions between hemolytic icterus and Banti's disease so, when icterus becomes a prominent feature, there may be transitions from hemolytic icterus to hypertrophic or Hanot's cirrhosis.

5. Eppinger has reported a number of instances of splenomegaly with peculiar clinical symptoms and has proposed to characterize them by the uncompromising name of megalosplenic cirrhosis. An apparent catarrhal icterus opens the picture, though in later months and years jaundice is variable or decreases. Pain in the liver region, chills and temperature are frequent. Pruritus and urobilinuria are constant and pruritus is often a dominating symptom. Liver changes are entirely in the background, while enlargement of the spleen is steady and, after years, enormous. Splenectomy leads to disappearance of pruritus and icterus. These cases are no distant relatives of splenomegalies reported by Giffin occurring in the course of chronic gall-bladder disease. In a man observed over a period of years pruritus and urobilinuria with an eosinophilia from 6 to 15% were the prominent clinical features, mild icterus was present from time to time with attacks of upper abdominal pain, the spleen was only slightly enlarged and anemia was often marked with occasionally a megalocytic blood picture. Death occurred after operation for relief of pyloric stenosis due to a chronic gastric ulcer. There was no cirrhosis and gall-stones were not present.

6. Hanot's cirrhosis has lately been added to the group of hemolytic splenomegalies. Eppinger thinks the liver changes due to thrombosis and rupture of bile capillaries following hyperhemolysis and excessive bile formation; clinically the cases resemble both hemolytic icterus and hepatic cirrhosis. Even with marked jaundice, if hemolysis be excessive as evidenced by large amounts of urobilin in the stool, splenectomy has led to surprising improvement. Eppinger goes so far as to say that "in allen Fällen von 'hypertrophischer' Lebercirrhose, wo ein Milztumor besteht, mächtiger Ikterus seit Jahren das Krankheitsbild beherrscht, und wo speziell eine alkoholische Anamnese nicht unbedingt im Vordergrunde steht, die Splenektomie anzuempfehlen ist." In an old woman seen recently thrombosis of the right femoral vein occurred seven years ago. This was followed by abdominal pain and fever, during which the spleen enlarged. Practically ever since then pruritus has been the cause of untold misery, though only in the last two years has jaundice been deep and bilirubin present in the urine. There is great enlargement of the liver and spleen, deep icterus, large amounts of bile and urobilin in the stool and a number of enlarged veins over the lower abdomen. Evidently thrombosis of the femoral and iliac veins was followed by thrombosis of the splenic vein with subsequent splenic tumor and hemolytic icterus. This in time has slowly been superseded by the clinical picture of hypertrophic cirrhosis.

7. The pathogenesis of hemachromatosis is still under discussion. Recent work of *Sprunt* suggests the possibility of a local origin of the pigment through autolytic changes in the cells of the liver and other organs, the cell degeneration taking place first and pigment deposits and cirrhosis coming later. The preponderance of evidence, however, favors the hemolytic origin of the disease. Mosse in a recently reported case found bilirubin in the blood serum and a marked urobilinuria. He raises the question whether splenectomy would not be an indication in hemachromatosis, as in hypertrophic cirrhosis. The specimens shown here are from a case seen in the hospital too late to consider operative treatment. There was a marked anemia, a bluish slate-colored pigmentation of the face, chest and arms, and a peculiar greenish-brown color to the ascitic fluid; sugar was not present in the urine.

8. It is impossible more than to touch upon the interesting Aleukemic Myeloid Splenomegaly lately described by Hirschfeld. The enlarged spleen, with varying types of anemia may lead to confusion with Banti's disease on the one hand and more rarely, with pernicious anemia on the other. The diagnosis in some instances may only be possible by finding evidence of myeloid metaplasia from splenic puncture.

It is not possible to consider here other interesting splenomegalies—as the Leishman-Donovan infection or the Egyptian Splenomegaly recently re-described in a paper of Owen Richards of Cairo. In dealing with the group of so-called hemolytic splenomegalies we are well aware of the incomplete character of our present clinical and experimental evidence. There are still many unknown quantities in hemolysis, and although we are fairly persuaded the spleen plays an important rôle, we are as yet ignorant of just how it acts. The mutual relations of spleen and marrow and liver and lymph glands are still imperfectly understood. In the enthusiasm which the results of splenectomy in this group of diseases naturally arouses we must remember that in most instances we are but breaking one link in the chain of morbid processes. Hypersplenism may be compared to hyperthyroidism, and in splenic as in thyroid disease, the triumphs of surgery have come through dealing with effects rather than causes. We must not be deterred, therefore, by the brilliant successes of operation

from seeking for the *ultimate* causes of hyperchlorhydria and splenomegaly; the triumphs of the future in this newly opened field, like those of the past, can only come from patient correlation of work in the experimental laboratory, in the post-mortem room and in the clinic.

Original Articles.

ERGOTHERAPY IN THE TREATMENT OF MENTAL DISORDERS.

By Ida Chamberlain Reed, M.D., San Francisco.

For centuries the unfortunate victims of mental disease were segregated and cared for simply because society had to be protected from them, and this was accomplished at the least possible expense and trouble to the community. They were considered as beings apart from ordinary humanity,—witches, monsters, "possessed of the devil." Those who were not burned at the stake or put to death in some such manner were locked up in cells, chained to posts or floors, placed in stocks, straight-jackets, cribs or cages. The only attention they received was to be given sufficient nourishment to keep them alive. When Pinel, in 1745, struck from the inmates of the Salpêtrière the chains which had bound them for years, he instituted the era of the humane treatment of the mentally sick, and the civilized world began to realize that these unfortunate individuals were not necessarily dangerous to themselves or others. From that time the instruments of torture and restraint began to disappear from the asylums, and for another century the most advanced of these institutions considered they were doing their duty by their patients when they gave them humane, custodial care. It was not until the latter part of the last century that the subject of the treatment of mental disorders began to agitate the minds of the leading psychiatrists. It was very soon discovered that this long-neglected branch of therapeutics was worthy of investigation, and that much could be accomplished toward the cure and amelioration of mental diseases. As a result, in up-to-date hospitals for the insane, patients are being treated by psychanalysis, mental suggestion, opso-, radio-, hydro-, and ergotherapy.

Ergotherapy, or the work treatment, although to many it seems the most rational and productive of any of the general agents employed in the treatment of cases of mental disorder, is still neglected to a deplorable extent in our present-day institutions. Considering the importance of work in the well-being of the normal mind as well as the body, its value in the treatment of the abnormal mind can readily be surmised. "Employment," said Galen, "is Nature's physician." In every place and under every circumstance, we see idleness conducive to unhappiness, mental, moral, and physical deterioration. The fact that employment can distract the mind from physical disorders, and stimulate the functions of the body, is being recognized and utilized by the medical profession in general. The phenomenal success of a sanatorium in California for the treatment of tuberculosis in wage-earning women is no doubt partially due to the fact that they are engaged in an occupation which diverts their minds and defrays their expenses. Idly contemplating a long illness entailing great expense and enforced idleness for months, and perhaps years, would be sufficient, in the case of the average young person who is accustomed to work, to produce a mental depression which would almost prohibit recovery. Paranoia was once described as an "inability to forget." The average hospital for the insane gives its patients no chance to forget the past, and makes no attempt to substitute new interests for those left behind in the home, society or place of business. If forgetfulness of real or imaginary wrongs was difficult in the old environment, it is impossible in the new.

Although the patients in hospitals for the insane have for many years been encouraged, and in many cases forced to work, it was purely a question of economics, and not therapeutics. It is only within recent years that any attempt has been made in this country to utilize, in a systematic and scientific manner, occupation as a therapeutic measure. At the present time only sixty per cent. of the state hospitals in America are making such an attempt.

Last year, the American Medico-Psychological Association appointed a committee on diversional occupation of the insane, which reported, "Diversional occupation, scientifically and systematically applied, marks the standing of a hospital, and if neglected or omitted, the patients are not receiving the most modern care and treatment to which they are entitled."

Work may be made a great detriment or a valuable therapeutic agent in the treatment of mental disorders, according to whether or not it is scientifically applied. In institutions where much of the hard labor is done by patients, and a certain amount *must* be accomplished, the tendency is to make drudges out of the willing and efficient workers, and to allow to remain in complete idleness those who require to be instructed, supervised and handled with tact. Let us consider the fate of a female patient suffering from dementia precox, and committted to the average state hospital, where little or no attention is paid by the physician in charge to the occupation of the patients. Shortly after the case is diagnosed, she is sent to a chronic ward. If she shows an inclination to work, she is given a trial in the laundry, sewing or dining rooms of the

institution. If she proves careless or inefficient in her work, she is sent back to the ward. Because she allowed an "iron to burn out," spoiled a garment in the making, or broke a few dishes, many a poor soul has been condemned to perpetual idleness for the remainder of her life. Returned to a chronic ward, without any occupation or diversion, her life naturally falls into a dull and monotonous routine, unless she creates some diversion by assaulting those around her, tearing her clothes or destroying furniture. The notes on such a case show that each year she becomes a little more untidy, a little more indifferent, a little more demented, until she is completely "hospitalized," and as a result we see the finished product,—the untidy, indifferent, destructive, violent precox found in large numbers in every hospital for the insane, and constituting its greatest problem.

On the other hand, if a patient prove to be a willing and efficient worker, she is condemned to a life of hard labor. In every state institution we find old demented patients whose life has become an existence of hopeless drudgery, with no time allowed them for recreation or diversion. This system of overworking patients has resulted in physical deterioration in many cases, and tuberculosis has been contracted. These patients being too demented to realize their failing strength, have gone on working in poorly ventilated workrooms until their condition became hopeless. Illustrative of this fact, was the case of an old woman recently under care in a state hospital. Seeing she was failing physically, she was given parole of the grounds, and urged to spend part of the day sitting in the open air. At first she replied, "No, no, I have not wasted a minute in ten years, and I can't take the time to sit idly on the parole ground." Equally pathetic, and illustrative of the harm done by overworking patients was a case who was transferred from another state institution. For months after her admission to that hospital, she worked in a poorly ventilated basement room, stitching overalls. She developed a cough, and felt that her strength was failing. Permission to discontinue her work was denied, as the institution was short of workers, so she decided to escape. The attempt was unsuccessful; she was brought back and placed in restraint, where she remained until transferred to my service. On admission, she was defiant and suspicious. When she found that she was not going to be compelled to work, she gradually changed her attitude, and at the present time has parole of the grounds, which she never abuses, spends part of her time doing fancy work, and is happy and contented.

The benefit to be derived from the scientific application of ergotherapy will result in threefold advantage,—to the patient, the institution and the state. The busy patient is happier, more contented and deteriorates less rapidly than the idle one. If all the patients were employed, an institution would require fewer attendants, there would be less destruction of clothing and furniture, and the hospital, and consequently the state, would reap the benefit. In every hospital for the insane, public and private, there is a vast amount of energy going to waste that might be utilized to make the institution largely, if not completely, self-supporting.

In order to make ergotherapy effective in the treatment of mental disorders, there are three factors which are absolutely essential: first, physicians who are trained psychiatrists; second, vocational instructors; and third, nurses trained in the care of mental cases. Our concern is with the second essential.

Every hospital for the treatment of mental cases should have one or more vocational instructors, whose duty it should be to consult with the physician in regard to the employment of individual cases, distribute the work to the various wards, instruct the nurses in the oversight of the patients, conduct classes in the various occupations, attend to the purchase of materials and the sale of articles manufactured.

In order that patients who cannot receive instruction in classes should receive individual instruction, it is necessary to have nurses in charge of each ward trained in the care of mental cases and able to do some vocational work. Large hospitals for the insane all over the United States are establishing training schools for nurses, but very few of them include in their curriculum a course on the occupation and diversion of patients. In the Sheppard and Enoch Pratt Hospital, Maryland, such a course was established in 1912. This includes instruction in playing games, string work, paper folding, book-binding, basketry, embroidery, leather, wood and metal work. Each nurse, in addition to taking the course, is required to spend one month as assistant to the vocational instructor. In small hospitals, however, it is impossible to organize training schools, and for that reason every state should have a training school for mental nursing, and only graduates from these or similar schools should be employed as charge nurses in state hospitals.

Having secured physicians who are experienced psychiatrists, vocational instructors and nurses trained in the care of mental cases, it is possible to teach every patient, aside from senile and paretic cases, some useful occupation which will make them partially or wholly self-supporting, and prevent habit deterioration. Pursuant to this idea, the writer has personally supervised the occupation of every new patient received on the female service of a state hospital for the past year. With the exception of two senile cases and two cases of general paresis, every one of the sixty cases received has shown that she is capable of being taught to do some kind of work. Under the proper conditions, there is no reason why these patients should not continue to work so long as they are in the hospital.

In order to accomplish the best results with ergotherapy, it is necessary to commence early. As soon as the patient becomes accustomed to the new environment, and the initial excitement has subsided, work should be insisted upon. Each individual case is a study in itself, and it is often necessary to change a patient many times before a suitable employment can be found. Individual tastes must be consulted. One of my patients refused to do anything but plain hand-sewing. She stated that the currents from the electric sewing machines affected her head, and all forms of fancy work she considered unmitigated foolishness. Another refused to do anything so prosaic as plain sewing, but loved to weave baskets, in which she intermingled in a wonderful manner colors of the most brilliant hue.

A new occupation is the most beneficial in convalescent cases and depressions, where there is a tendency to introspection and retrospection. The mental effort of learning to do something new distracts the mind and stimulates the faculties. On the other hand, dementing or demented cases often refuse to make the mental effort necessary to acquire even new motor reactions, and if disturbed in the routine they have followed for years, they refuse to do anything.

It is likewise important that patients be put to work on something obviously useful. No permanent improvement results from teaching patients to piece together picture puzzles, solve maze puzzles, place pegs in a board or fold paper. Even the most demented can see the futility of such proceedings, and soon tire of them. In the majority of cases, patients retain their interest in an occupation better when they receive some reward for their labor. This can be arranged by providing extras in food, clothing, more liberty, for those who work in sewing rooms, laundry and dining rooms, and by apportioning to each individual patient a certain percentage of the proceeds from the sale of work. This sum they can spend in any way their fancy dictates. Regarding the kind of work that can be done by patients in a hospital for the insane, there is no ordinary work that can *not* be done by them, if the work is adapted to the individual cases and they are properly instructed and supervised.

There are a few general rules which might be laid down in the application of the different kinds of work to different classes of cases. The only cases to which ergotherapy may be applied indiscriminately are the chronic alcoholic and drug habitués, which the already overcrowded state hospitals of California have had thrust upon them. A careful observation of these cases, and testing by the Binet scale, has shown that they belong largely to the moron type, and have an average mentality of a child about ten years of age. They are sufficiently high-grade to escape commitment to a home for the feeble-minded, not sufficiently vicious to be sent to a prison or penitentiary, yet not sufficiently high-grade to avoid getting into trouble. These patients, coming as they do from the middle and lower classes of society, have been accustomed to hard work, and having no resources for entertaining themselves, welcome work as a relief from the monotony of institutional life.

The work of the epileptics must necessarily be circumscribed and spasmodic. Nevertheless, they should be urged to employ themselves constantly at something. They should be encouraged, as a rule, to stick to one kind of work. After a time, its performance becomes mechanical, and as dementia proceeds, the motor reaction takes place without the expenditure of any mental effort. I have frequently seen epileptic women so demented that they could scarcely tell their own names, who could crochet or embroider with unusual skill.

The treatment of the manic-depressive psychosis by ergotherapy is a problem which demands long experience, careful study and observation of individual cases. If the hypomania which so often precedes an attack of mania were diagnosed and treated by the general practitioner by the removal of the mental stress and strain incident to school or college work, business, professional or society life, and a complete change and rest ordered, many a case of manic-depressive insanity would be spared the inconvenience and humiliation of being committed to a hospital for the insane. By the time such cases are received at the hospital, the excitement is usually well developed, and the apparent superabundant energy of the patient is being wasted prodigally in purposeless, if not harmful, activity. To attempt to limit this activity by physical restraint is worse than useless, but to direct it into useful channels is a task which calls for the greatest skill, patience and tact. The more like play the work can be made the better, and it should be such as to call for no continued mental effort or exercise of patience on the part of the patient. It is often necessary to try first one kind of employment and then another. If the patient can be made to work only a few minutes on the first trial, the length of time can be gradually increased. These patients often have a dominating idea of reforming everyone and everything about them, and it is sometimes well to take advantage of this idea. I recall one manic-depressive who regularly, during her excitements, undertook the reformation and re-education of a case of dementia precox on the same ward. She taught her to dress herself, comb her hair and help with the ward work. The excitement of others may take the form of a graphomania, and these patients can be encouraged to write letters for patients who cannot do it for themselves. I recall another manic-depressive case who took it upon herself to renew the interest of several neglectful relatives of patients on her ward. This

she did by writing lengthy epistles, appealing to them in various ways, and some of these letters accomplished their purpose.

During an oncoming depression of manic-depressive insanity, I believe work is, as a rule, harmful, and these patients should be relieved from the discharge of all duties, and if possible, be made to remain in bed. A manic-depressive formerly under my care told me that for years before her admission to a hospital she had warded off depressions by dropping all her household cares and social obligations when the first symptoms appeared, and going away for a rest. She likewise stated that even to dress herself seemed such a gigantic undertaking that she would lie awake and wonder how she could accomplish it. A patient who formerly had a depression every few months has been under my care for the past year, and has not had an attack during that time. As soon as I noticed the slightest change in her appearance or demeanor I made her discontinue all work, and ordered rest in bed and hydrotherapy. She herself is confident that at least two depressions have been warded off in this manner. When convalescence is established, interesting and absorbing occupation should be furnished.

Dementia precox, like manic-depressive insanity, often shows itself during a period of unusual mental or physical strain, with the difference, however, that as the excitement of a manic-depressive increases he becomes more and more zealous in his work, oversteps the limit of his authority and over estimates his strength and ability, while the precox gradually loses interest in his work, becomes indifferent, apathetic and often hypochondriacal. These patients, on admission to a hospital, usually give a long history of having drifted from one occupation to another, their failing efficiency being evidenced by a gradual decrease in salary.

In view of the fact that more than one-half of the permanent population of hospitals for the insane is composed of cases of dementia precox, it would seem that this class of cases offers the best field for operations in ergotherapy. The importance of preventing habit deterioration by early and systematic cultivation of the work habit is evident. Perhaps the first hospital in the United States to make any attempt to progress along this line was the Taunton State Hospital, Massachusetts. Dr. George C. S. Choate, the superintendent, in his Annual Report of 1854, gave it as his opinion that two-thirds of the patients in his hospital were capable of employment of some sort. Although the work there has been allowed to lapse somewhat from time to time, the report of that hospital for 1912 shows that seventy-four per cent. of the patients are working. In the New York state hospitals considerable work is being done in the re-education of advanced cases of dementia precox, with good results. At the Government Hospital for the Insane, Washington, D. C., a series of experiments were undertaken by Dr. Helen Grace Kent and Mr. E. G. Boring, to ascertain the extent to which this re-education could be carried. The principle conclusions drawn by Dr. Kent from several months' work were: "(1) Definite practice effects can be obtained by means of a short series of tests from advanced cases of dementia precox. (2) Practice effects are transferable from one kind of work to another, differing in perpetual but not in motor aspect. (3) Energy expended in mischievous performances may be directed into favorable channels." Mr. Boring's experiments, which included the teaching of rug making, showed similar results, with the additional conclusion that, "Patients suffering from dementia precox are capable in simple industrial operations of a quality of work sufficiently good to be of commercial value." These experiments, which consisted of arranging and cancelling digits, identifying geometrical figures, solving maze puzzles, etc., had the disadvantage, with the exception of the rug-making, of lacking appeal to the patient's esthetic or industrial sense. They could see nothing to be gained by such exercises, and consequently lost interest.

To re-educate the vast army of demented patients in our hospitals for the insane, would be a task which would involve an expenditure of time, energy and money which, in all probability, would not be warranted by the results obtained. The new cases of dementia precox can, however, with comparatively little trouble, be directed into better paths, to the end that the chronic wards in hospitals for the insane will be filled with patients who, although demented, will be quiet, tidy, industrious and contented.

THE USE OF A SECTION OF THE SCAPULA IN CORRECTING A NASAL DEFORMITY.

By Oliver A. Lothrop, M.D., Boston,

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The various types of nasal deformity require entirely different operative procedures for their correction. The simplest type is that of the fracture-dislocation of the nasal bones, and the operation required in such cases consists in a re-fracture and then a reduction of the dislocation. A second type is exemplified in the lateral deviation of the cartilaginous portion of the nose. Another type may be noted in the aquiline deformity which requires a special technic for reduction.* The irregular humps often

* An Operation for Correcting the Aquiline Nasal Deformity, Boston Medical and Surgical Journal, May 28, 1914 Vol. clxx, p. 835.

found at the distal extremity of the nasal bones are amenable to special surgical procedures.

Depressions of the nose bridge and destruction of the septal, supporting cartilage, so that the tip of the nose is depressed and unsupported, require the addition of material to fill in the depressions or support the tip. Trauma, syphilis, and abscess of the septum are the common causes for these destructive deformities. Deformed noses resulting from a combination of one or more of the above types present the most difficult cases in external nasal surgery with which the rhinologist has to contend. It is with the plastic surgery for correcting this complex type that this paper is concerned.

Paraffin injection, cartilage taken from the nasal septum, rib cartilage, and pieces of bone have been more or less successfully employed in filling in depressions of the nose bridge. Paraffin was one of the first substances used and was injected under the skin to fill in small depressions. It was often successful in these cases, but could not be used to fill in large depressions or to support or straighten the tip of a nose. Its distribution could not always be controlled and it was liable to travel, break down and become septic.

The cartilage obtained when doing a submucous resection of the nasal septum has no adherent perichondrium to nourish it and it is so very pliable that it is almost impossible to avoid contamination while withdrawing the section from the nose. In case of infection during its use, which is not infrequent, there is danger of having it slough away, and even in cases where it has been successfully grafted, occasionally, after some time, the cartilage has slowly absorbed.

Rib cartilage is more satisfactory. In the first place, it can be obtained sterile; second, a piece of any size and shape may be removed; and, third, perichondrium to nourish it can be left on one surface at least. On the other hand, it is not easy to remove a rib and there is always a chance of puncturing the pleura, with its attendant discomfort and possible danger. This cartilage, too, is pliable and can be used only where there is support at all points beneath it.

Bone is more vascular and can be more surely kept alive and nourished through its periosteum. It is rigid and, hence, does not need the support that is required for cartilage. On the other hand, it cannot be shaped easily and there are few places in the body where a satisfactory piece of bone covered with periosteum can be spared and at the same time be easy and safe to remove.

It was while giving these facts consideration that the writer decided to experiment with a strip of bone from the free vertebral border of the scapula. Here one may obtain a thin, rounded strip of vascular bone, straight for two inches or more, covered with periosteum on two surfaces and its free border. This needs no shaping other than to determine the length and width required. Other advantages which may be mentioned are the safety of operating in this region, the superficial and easy access to the scapular border, and the facility with which a strip of bone may be removed,—all tending to consume very little time.

The technic of obtaining and employing this scapula bone graft in correcting a deformed nose can be illustrated best by describing an actual case.



Photograph of patient before operation showing the deflection of the nasal bones to the patient's left and the cartilaginous portion and tip depressed and twisted to the right. The broken line accentuates the median line of the nose.

J. J. B., 21 years of age, was referred to me by Dr. Jelen for operation. Many years ago he was struck on the nose by a baseball bat, but otherwise, does not remember the cause of his deformity. There was no evidence of syphilis. As is shown in the accompanying photographs of the patient, the nasal bones were dislocated to his left and there was a prominence at their distal extremity. There was no support from the cartilaginous septum, so that the tip of the nose had fallen and deviated to his right. What was left of his cartilaginous septum was fractured, deviated, telescoped and cicatrized into a mass obstructing his breathing.

The operation was performed under ether anesthesia with patient in the recumbent position on the operating table. The vestibules and external nose and the face were rendered as sterile as possible. First, the septum was resected submucously in the usual way in order to remove all obstruction to breathing, and also to free the soft tissues of the tip which could then be raised and moved easily in all directions.

Then the patient was turned on his left chest and his back thoroughly sterilized. A 3½-inch skin incision was made over the vertebral border of the left scapula. The incision was then carried through the



Oblique view before operation showing prominence of nasal bones and sag and twist in the cartilaginous portion.



Front view after operation.



Side view before operation showing there was no support to the tip of the nose from the cartilaginous septum.



Side view after operation.

deep fascia down to the bone. The attachments of the muscles were cut from the border and from the external and internal surfaces, great care being taken not to denude the bone of its periosteal covering. One should be careful not to enter the bursal sac between the subscapularis muscle and the chest wall because this opens a space in which blood and serum may accumulate. A strip of bone, two inches long and about one-quarter of an inch wide was then removed from the free border with bone cutting forceps and wrapped in wet, sterile gauze. The fascia was sutured with interrupted, plain catgut sutures, and the skin approximated with interrupted silk-worm gut sutures.

The patient was returned to the dorsal position, the nose re-sterilized, and a quarter-inch incision made in the under surface of the tip of the nose, half way between the tip and the beginning of the columella. A subdermal passageway was made in the nose bridge extending to the distal extremity of the nasal bones. At this point the periosteum of the nasal bones was cut and elevated along the crest

of the nose bridge up to the frontal bone. The nasal bones were now ground down with a rasp, in order to remove the prominence and deviation to the left above referred to. The coarser bone filings were scooped out of the passageway with a curette and the graft which had been taken from the scapula was inserted through this passageway and under the periosteum until the end reached to the frontal bone. The incision in the tip of the nose was closed with two interrupted horsehair sutures and covered with a cocoon. Slight pressure was applied over the graft at its frontal end in order to hold it pressed against the nasal bones and to stretch the contracted soft tissues of the tip.

The patient made a good recovery and there was no infection about the nose. The nose was much swollen and this swelling subsided rapidly after the third day. The anticipated ecchymosis under the eyes lasted a few days. Removal of the horsehair sutures took place on the fifth day and the wound had healed by first intention. No discomfort had been experienced by patient from either his nose or his back and, after healing, he had full play of his scapula and the attached muscles.

For four weeks a narrow strip of crêpe lisse was stretched from the tip of the nose to the forehead, being made adherent to the skin at these points with collodion and exerting just enough tension to raise the tip. Counter pressure was made over the frontal end of the graft by placing a ball of cotton between this point and the strip of crêpe lisse.

In two weeks granulations had attached themselves to the periosteum of the graft, thus binding it to the nasal bones so that the graft was becoming firmly fixed. In three weeks the graft was quite solid and in four weeks it was very rigidly held in place on the nasal bones and the dressing was omitted. By this time the skin of the nose had resumed its normal color.



[illegible] Lateral view, showing the scapula bone graft in [illegible] The graft rests on and is adherent to the prepared surface of the nasal bones and stretched on its length projects forward [illegible] supporting the soft tissues of the tip. The end of the graft does not reach to the extreme tip of the nose by three-[illegible] inch, support there being unnecessary.
X-ray [illegible] through the kindness of Dr. Walter Dodd.)

The advantages of an incision at the tip rather than the one usually made at some point on the bridge are that a long straight graft may be introduced without bending; it can be more accurately inserted under the periosteum of the nasal bones, and the scar is in an inconspicuous position, leaving no external signs of operation.

Clinical Department.

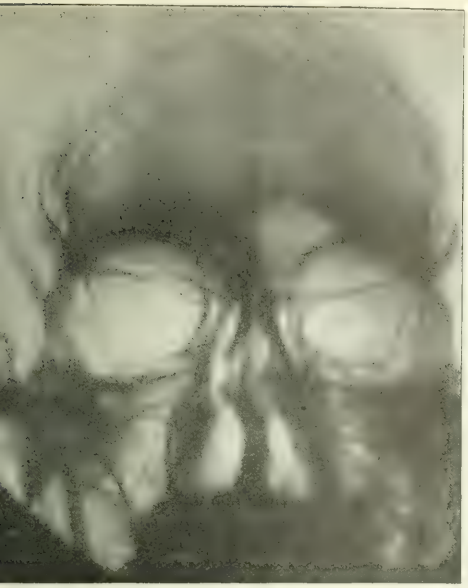
ANOTHER CASE OF SYPHILIS OF THE NOSE.

By Joseph Prenn, M.D., Boston.

That syphilis is sometimes, though rarely, responsible for the condition of "atrophic" rhinitis with ozena is reported in literature. It is usually characterized by a copious discharge, mostly bi-lateral, sometimes uni-lateral, with or without crusting, with either marked or slight involvement of one or more of the sinuses: ethmoid labyrinth, sphenoid and frontal sinuses, and antrum of Highmore. Sometimes only a cloudiness of the mucous membrane of the sinuses can be demonstrated.

The text-books place syphilis alongside with tuberculosis as a possible etiological factor of this condition. Neither in the former nor in the latter, do we get characteristic lesions such as ulcerations or broken-down tubercles or gummata, respectively. It is reasonable to assume that the condition is brought about by the low resistance of the mucosa due to the disease. The blood is impoverished; and in the case of syphilis, it is also reasonable to assume that gradual changes take place in the walls of the blood vessels, as the disease is known to sclerose the same in other parts of the body. The cells, therefore, do not get the proper nutrition. The mucous membrane becomes eventually atrophied, its cells do not secrete sufficient mucous to lubricate and wash away injurious element that may gain access into the nasal chambers, and erectile tissue may shrink. The picture is that of anemia. The pyogenic bacteria invade the partially devitalized mucosa and form pus. The latter accumulates, especially in the tight places where drainage is deficient, opposite and around the middle turbinates and the openings of the different sinuses, and eventually the bacteria may extend into them. A vicious circle is then formed. When the vitality of the mucosa is very low, the bacillus ozenae, like the saprophytic bacteria, is attracted by the dying tissue, and by further decomposition, produce the nauseating odor.

Sometimes the nauseating odor alone, without the invasion of the pyogenic bacteria, and without any discharge in the nasal cavities or the sinuses, as proven by the x-ray, may be the only manifestation of the existing disease. One looks in vain to ascertain the source of the odor, until



he gets the idea of a possible existing syphilis. Much the same as the clinician would think of an unexplainable tumor, that it might be a gumma, and subject the patient to KI. as a therapeutic test. He takes the blood for a Wassermann and it is found to be positive.

As we have stated above, the diagnosis of syphilis of the nose in conditions of atrophic rhinitis, copious discharge around the middle turbinates, and ozena, cannot be made definitely by local lesions. We think of syphilis in these cases as a differential diagnosis, and it is only in a very small percentage of cases that it is actually the cause.

The case we are about to describe had certain findings by which a diagnosis of syphilis could be justified clinically.

Male, 32, married, shipper. No syphilitic history. Complained of nasal obstruction, hoarseness, frontal headache of long standing.

Examination. No external nasal deformity. Left nostril: hypertrophied inferior turbinate, anterior deviation, copious discharge covering the middle turbinate, and turbino septal space. No crusting. No ozena. Right nostril: high deviation of septum along the perpendicular plate of the ethmoid. On close observation, one could see that he is not dealing with a simple deviation only. There was an appreciable thickening on the convex side. The probe proved it to be hard, and not a soggy mucous membrane. No discharge. The pharynx showed signs of pharyngitis sicca with discharge coming down from the epi-pharynx. Larynx showed dry, reddened vocal cords with discharge between the arytenoids and along the posterior wall. Therefore, chronic laryngitis, with discharge dropping down from the naso-pharynx. The diagnosis of syphilis was made based upon the symptom complex with the special aid of the marked thickening of the septum, assuming it to be a gumma or a syphilitic periostitis. It had to be differentiated from a possible sarcoma. X-ray and the blood for Wassermann were taken before anything was done to the nose. The x-ray as is shown by the very interesting accompanying photograph, brought out very markedly the following points: marked right frontal sinusitis with slight ethmoid involvement, affection of antrum and ethmoids on the left side. The condition of the septum is beautifully illustrated. There is a dissolution of the continuity of the septum, an empty space on the side showing the loss of bone substance which is the gumma, with a marked wide convex shadow around it which may be a syphilitic periostitis. The fact that the x-ray shows a right frontal sinusitis is not necessarily in conflict with the clinical findings of the discharge in the left nostril. Discharge means drainage, plenty of discharge means plenty of drainage; hence, no empyema may be in back of it, while, when there is no discharge, it may mean obstruction of the infundibulum with an empyema behind it. This holds true everywhere, and in our case, we must also consider a gumma which is entirely independent of the discharge.

The Wassermann was triple positive.

Operation in such a case would be out of the question. The patient was put on an antisyphilitic treatment with salvarsan injection.

The writer wishes to express his thanks to the x-ray department of the Boston City Hospital for the loan of the plate, with permission to print.

Medical Progress.

REPORT ON DERMATOLOGY.

By John T. Bowen, M.D., Boston.

The Nevocarcinomata.—The Nature of Rodent Ulcer.—The Healing of Skin Cancer with Salicylic Acid.—Generalized Zoster, with Changes in the Cord.—The Treatment of Pruriginous Dermatoses with Normal Serum.—Tinea Imbricata.

THE NEVOCARCINOMATA.

Darier,[1] who reports the results of an extensive study of this class of cases, follows Unna in describing the nevocarcinomata as the malignant tumors that have their origin in the cellular nevi or soft warts. As these nevi are most often pigmented, the nevocarcinomata are also usually pigmented, at least in part, hence they have been called melanotic carcinomata, melano-sarcomata, melanomata, melanoblastomata, chromataphomata, etc. In this class belongs also the "malignant lentigo of old age," or infective melanotic freckle, which has been recently studied by Dubreuilh under the name of circumscribed precancerous melanosis. These are late, non-elevated nevi, identical anatomically

with the cellular nevi, and may be equally the point of origin of nevocarcinomata.

Much controversy, as is well known, has arisen as to the origin of these cellular nevi or soft warts. Considered, following Virchow, for a long time as of connective tissue origin, and the malignant tumors which often follow them as sarcomata, it remained for Unna to be the first to question this view. He showed that in all the nevi of the new-born, and of infants, a connection could be traced between the rows and clusters of cells, and the epidermis, and its appendages, and concluded that the nevi and nevocarcinomata were epithelial formations.

Basing his conclusions on histological studies of these neoplasms extending over twenty years, Darier believes firmly that thes nevi and nevicarcinomata are tumors of epithelial nature, and deserve to be included under the epitheliomata of the skin. His figures show clearly the connection in places between the epidermal structures on the one hand, and the cellular masses on the other hand. There is present in the epidermis a special cellular alteration and the altered elements are pushed both downward into the corium, and upward into the horny layer.

With regard to the pigment, his preparations give the distinct impression that it is formed in the epidermic cells, especially in those of the first row, and that its formation marks the début of the cell-alteration. It may be the only apparent lesion in certain of the cells, but it is by no means constant and may be totally lacking in some nevocarcinomata in full development. The view of Unna, Delbanco and others, according to which the pigment may be the exciter of the segregation and proliferation of the cells, is opposed by the fact that there is no relationship between its abundance and the evolution of the tumor.

These nevi may show themselves at birth or may appear at any age, even advanced age. In any case, they seem to be due to a local malformation of embryonic origin. A cellular or pigmented nevus may take on at any time malignant attributes, although it may be said, considering their extreme frequency that this transformation is exceptional. According to Darier, the symptoms that suggest and give warning of a malignant tendency are a relatively rapid growth, a congested border at the periphery and pricking sensations experienced by the patient. Ulceration, enlargement of the lymphatic glands, the appearance of metastasis or melanosis are, of course, conclusive. the secondary metastatic tumors differ in their point of origin, development and microscopical anatomy, from the initial tumor. In these secondary tumors no point of connection with the epidermis are found. They resemble the secondary nodules of a cancer of the breast, for exemple, and result from a cancerous lymphangitis.

With regard to the treatment of this class of cases, it is certainly irrational to counsel the destruction of all fixed cellular nevi and so-called soft warts with a view to escaping the possibility of their assuming a malignant character. If, however, for cosmetic or other reasons, this course is decided on Darier gives preference to carbon dioxide snow, electrolysis, etc., rather than to the knife. Less active caustics and radiotherapy are not favored, the former methods being dangerous, the latter method uncertain. With regard to the treatment of the progressive nevi, and the nevocarcinomata, he says that surgeons and physicians of surgical temperament do not hesitate to insist on radical excision, with a good margin of security, together with the suspicious glands. He has seen, like others, good success from this treatment, but also cases of rapid generalization, with melanosis and metastases, which explain the traditional distrust that this method inspires in many physicians. He considers electrolysis on the whole the most favorable method of treatment in progressive nevi and nevocarcinomata. Needles are inserted through and beneath the neoplasm, in numerous places, and a current of about four to five milliamperes is passed for from one and one-half to four minutes. It is best to attempt the total necrosis of the tumor in a single sitting. The pain is not unendurable even for infants, and the cicatrix is always less than one expects. He is not so decided as to the proper course to take if the glands have already become affected, but points out the fact that they may sometimes disappear after treatment of the initial neoplasm by electrolysis, as he and others have observed many times. This method does not, of course, apply to cases where there are secondary tumors, a localized or general melanosis, or visceral involvement.

THE NATURE OF RODENT ULCER.

Adamson[2] details four cases of epithelioma adenoides cysticum in one family, showing the resemblance of these cases to rodent ulcer in appearance, distribution and pathological anatomy of the growths. Rodent ulcer, since it was first described by Jacob of Dublin, in 1827, has continued to attract great interest in Great Britain. Most British observers have regarded it as distinct in clinical features and in pathology from other forms of malignant cutaneous epithelioma, while continental dermatologists, with a few exceptions, have not until recently recognized it as a special type of epithelioma. The grounds of the British for considering rodent ulcer a special type are the fact that it does not invade the glands, that histologically the cells are smaller than those of squamous-celled epithelioma, that they were arranged in lobules, and did not form horny cell-nests. It was recognized as an epithelial growth but was refused the name of epithelioma, this latter term being reserved for the growths with malignant ten-

dency containing horny pearls. Some recent German writers consider rodent ulcer to be a special type of epithelioma starting in the hair follicles, and call it tricho-epithelioma. Adamson seeks to support his own view that rodent ulcer is an affection distinct from true malignant carcinoma and that it belongs to the class of nevoid growths, which include adenoma sebaceum and multiple benign cystic epithelioma.

He considers that true carcinoma cannot be regarded as a nevoid growth or as the awakening of embryonic cell remains in Cohnheim's sense. He regards as a striking feature of squamous cell epithelioma, as contrasted with rodent ulcer, the fact that it always(?) arises on skin or mucous membrane that has been previously damaged by injury or long-continued irritation. This includes the so-called "precancerous conditions," which arise in scars from burns, old syphilitic scars or the scars from lupus, chronic irritation of the lower lip from pipe smoking, leucoplakia of the tongue or vulva, the scars of x-ray burns, and perhaps the most common of all, the results of chronic dermatitis produced by frequent exposure to the sunlight and known as keratosis senilis, sailors' skin, etc. The same may be said of carcinoma of the pylorus, gall-duct or gall-bladder, cervix uteri and the lower part of the intestines,—all of which parts are liable to chronic inflammation and ulceration.

In rodent ulcer, on the contrary, the tumors do not arise on parts that have been previously damaged or subjected to continued irritation, but in regions where benign nevoid growths are very apt to occur. Rodent ulcer does not occur on mucous membranes, nor does it invade lymphatic spaces, or glands.

Adamson had previously, in the *Lancet* of Oct. 17, 1908, published an account of two cases of multiple rodent ulcer in which the histological features closely resembled those of benign cystic epithelioma. In both these epithelial growths the cells involved belong to the basal layer of the epidermis, which are normally destined to become pilo-sebaceous follicles. The chief difference is that rodent ulcer usually appears late in life and tends to ulcerate, while the benign form appears in childhood and does not ulcerate. Jarisch was the first to suggest that there was a relationship between the two affections.

Adamson further describes a case of non-ulcerated tumor of the lower eyelid (tricho-epithelioma) present since birth, associated with rodent ulcer of the nasolabial fold, which appeared in middle age. The patient was a man of thirty-seven who had two growths, one on the left lower eyelid, and one on the left nasolabial furrow. He considers that his cases support the view that rodent ulcer is a nevoid growth derived from the basal cell layer of the epidermis, and closely related to the benign tricho-epithelioma, known as epithelioma adenoides cysticum, and hidradenoma or tricho- epithelioma of the lower eyelid. He regards rodent ulcer as a delayed attempt to form hair follicles and sebaceous glands, and as an illustration of Cohnheim's theory of cell rests. The exceptional occurrence of prickle-cells and of cell nests in typical rodent ulcer, and the fact that in rare instances rodent ulcer may infect the glands, are explained by regarding the rodent ulcer, with its tendency to imperfect repair by scarrings as in itself a precancerous condition, which may in rare cases give rise to epitheliomatous growths, in the same way as the scars of lupus vulgaris. Another objection, that it is not uncommon to find among the squamous-celled epitheliomata of keratosis senilis other growths which are histologically indistinguishable from rodent ulcer,—in other words, true basal-celled epitheliomata, is met with the reply that this does not constitute them rodent ulcers, and it may still be claimed that the fact that they are situated on skin that has been subjected to injury and constant irritation is sufficient to distinguish them from rodent ulcers which originate from embryonic remains of cells, and are not at the sites of injury or constant irritation.

HEALING OF SKIN CANCER WITH SALICYLIC ACID.

Weinbrenner[3] has treated rodent ulcer by applying pure salicylic acid on the affected parts and then covering with Beiersdorf's zinc plaster-mull, and twenty per cent. salicylic acid plaster-mull. The sloughs were removed every second and every third day, the surface bathed with boracic acid solution, and then pure crystallized salicylic acid applied. The result of the treatment is a reddening and swelling of the parts surrounding the lesion, and the tumor substance is converted into a grayish red, closely adherent slough, which may be pretty easily loosened after two or three days. In the further course of treatment there is a deeper and more extended action, which is accentuated in appearance by the swollen periphery. After the slough has been removed the borders of the ulcer appear indented and irregularly bounded. The cartilage may be attacked, but this tissue and the vessels are, on the whole, relatively resistant. In the case of a woman of sixty-four years, the treatment of a lesion of the ala of the nose by this method showed, after the destruction was finished, cartilage or muscle exposed, as in a perfect anatomical dissection. The pain from this procedure is considerable as long as the process of destruction lasts. On the first application of the salicylic acid there is only slight pain, which becomes considerable in twelve to twenty-four hours, and decreases from day to day, according to the individual susceptibility. In one case the absorption of the drug was demonstrated by its presence in considerable amount in the urine. The action of the salicylic acid on the morbid tissue seems to be elective in so far as the destruction does not progress regularly in every direction, but in cases where the affection is situated on the nose and beneath the eye, it

works downward and toward the sides; in cancer of the abdomen above the umbilicus, upward and towards the sides. The duration of this treatment was in the case of smaller growths two and one-half to three months on an average, eight months in cancer of the abdomen.

GENERALIZED ZOSTER WITH CHANGES IN THE CORD.[4]

Cases of zoster have frequently been reported in which a few scattered vesicles were found outside of the zones of eruption. In a few cases quite numerous lesions have been described, although they are usually few in number.

Von Zumbusch reports a case of generalized zoster observed in Vienna and shown at a meeting of the local medical society. The patient was a man of seventy-four who had been affected with his present trouble for about three weeks, which had been ushered in with very sharp pain in the right side of the chest, followed in a few days by an eruption in the same location. When admitted to the hospital, it was noted that his skin was everywhere slightly atrophic. On the right side of the thorax at the level of the sixth and seventh ribs, the skin was dark colored, dry, and covered with irregularly formed, rather superficial, ulcers of various sizes, showing often the confluence of two or more. Over the whole body there were scattered foci of the same eruption, which spared only the face and forehead. There were many lesions on the breasts, loins, scalp, shoulders, arms and legs. They were in irregular groups and showed nowhere a characteristic arrangement. There were more than 200 foci seen. They were in type small vesicles or pustules, often covered with a black necrotic crust. Fibrillary muscle twitching of the shoulders, abdomen and lower extremities and loss of the right patellar reflex were noted. The patient died suddenly the third day after admission.

At the autopsy an infiltration such as is commonly described as occurring in zoster was found in all the ganglia examined. The peculiarity of the infiltration lay less in its composition than in its topical arrangement. While some of the ganglia, especially those of the middle and lower portions of the cord at the part examined showed a diffuse, and in places very dense infiltration, in other ganglia these infiltrations were more localized in isolated, circumscribed places. Some of the cells were seen to be completely destroyed by this dense infiltration. It was also noteworthy that the infiltration extended to the posterior roots and the connective tissue sheaths and also to the meninges. The posterior horns were, however, the parts most affected, showing moderate irritation in all segments; the middle of the dorsal region being most prominently affected, although without any evidence of severe destruction. The anterior horns were affected in relatively few segments. Slight changes only were found in the white substance.

All of these findings point to a primary zoster following an inflammation of the spinal ganglia. The fact that all of the ganglia were not infiltrated to the same extent would explain the varied distribution of the lesions. From this inflammation of the ganglia, the process had spread along the posterior roots and their vessels into the pia and posterior horns and given rise to a process similar histologically to a poliomyelitis. Although this case cannot decide the question of the identity of zoster and poliomyelitis, it nevertheless demonstrates that the zoster process is not limited to the spinal ganglia or the peripheral nerves, but may also break through the boundaries and affect the cord itself. The foregoing case is similar to some others that have been reported, but is remarkable for its severity and for the large number of aberrant vesicles, over 200 in number, more than has ever been noted before. Also it is very seldom that zoster is the cause of death, although in this case the age of the subject is to be taken into account. The author thinks also that the degeneration in the posterior columns should be looked on as a senile change, rather than as due to the zoster.

TREATMENT OF PRURIGINOUS DERMATOSES WITH NORMAL SERUM.[5]

Ullmann, in Neisser's clinic at Breslau, stimulated by the favorable results reported by Linser, treated eighteen cases of pruriginous dermatoses with injections of normal serum. Linser's experiments were incited by the results reported in herpes gestationis, and other dermatoses connected with the puerperal state by the injection of serum from puerperal and normal subjects. Linser's results included the complete cure of two out of six cases of pemphigus. Ullmann's cases were drawn from those that had proved rebellious for a long time to all local and internal treatment, and had continually recurred. During the serum treatment all other therapeutic measures were bandoned, and in the case of persons in whom psychical effects might be expected, small quantities of salt solution were injected between the treatments, without the patient's knowledge.

The serum was obtained chiefly from young, strong men, who exhibited clinically no trace of internal disease, and who showed a negative Wassermann. No unpleasant accidents were experienced during the injections, and the general condition was in no wise influenced. The experiments concerned seven cases of dermatitis herpetiformis, two cases of generalized eczema in children, three cases of urticaria, four cases of pruritus of undetermined causation, one case of prurigo, one case of pemphigus vulgaris.

The results were as follows: No influence on the course of the affection was attained in the two cases of infantile eczema. Neither the pathological anatomical alterations, nor the pruritus were ameliorated, although both cases were healed rapidly later on by local therapeutic

measures. Similarly, with regard to the cases of dermatitis herpetiformis, neither the itching, the existing efflorescences, nor the tendency to recurrence were affected in the least by the injections. On the other hand, a diminution of the pruritus was attained in two of the cases of urticaria after the injections, although a complete disappearance could be claimed in no instance, and a recurrence was not prevented. The most favorable results were attained in purely nervous pruritus. The four cases treated were dismissed after the treatment with a very marked improvement in the tendency to itch. In these cases the psychical element must be taken into account. In the single case of prurigo Hebra treated, the itching was greatly benefited.

The writer, in summing up, declares that no results were obtained from the use of normal human serum in dermatitis herpetiformis, but that a favorable influence on the pruritus was shown in the case of those dermatoses which rest on a purely nervous functional basis. In the case of other pruriginous skin affections, such as prurigo and urticaria, the itching may be favorably influenced, but there is no definite improvement or lasting cure. He agrees with Lanser that the serum injections have no influence on the general condition of the subjects, and he has never seen any signs of anaphylaxis. It is in great measure on account of this attribute of safety that he considers it justifiable to resort to this method of treatment in those cases of universal dermatosis which have defied other therapeutic measures. He thinks that the percentage of successes will be increased if this method of treatment by the intravenous injection of normal human serum is confined to the class of toxic dermatoses, to the exclusion of all forms of eczema, psoriasis, and those affections that begin with the formation of bullae.

TINEA IMBRICATA.

Castellani[6], director of the government clinic for tropical diseases in Colombo, Ceylon, who has been prominent in his researches in the field of tropical diseases, describes the result of his experience in the affection called tinea imbricata by Manson, which has received a number of different names in the localities where it has appeared. He defines the affection as a tropical dermatomycosis, or more correctly, a group of dermato mycoses, due to fungi of the genus Endodermophyton, clinically characterized by extensive flaky, scaly patches, the scales being large, tissue-paper-like, firmly adherent by their bases, and arranged in concentric rings or parallel lines.

It seems to have been first referred to in 1789. In 1874 Tilbury Fox gave a good description of it under the name Tokelaun ringworm, considering it to be similar to, if not identical with, the fungus of European ringworm. Castellani thinks that the organism described by Tilbury Fox was an aspergillus-like contamination. After that time discussions began as to whether the disease was a separate affection or merely European ringworm modified by varying climatic conditions. The majority of European observers were inclined to consider it a variety of ringworm, while those who practised in the tropics regarded it as a distinct disease.

Tinea imbricata seems to have started in the Malay peninsula, from which it spread south and east to many islands of the South Pacific, northward to parts of China, and westward to Burmah and Ceylon. At present from one-third to one-half of the population is affected in certain of the Pacific Islands. It is common in parts of the Philippines. It appears to have made its appearance in Ceylon in 1904, in which year Castellani recorded the first case. Since then it has spread, and is now fairly common in the islands, although not so much so as in the Malay Peninsula and in Fiji.

A warm, damp, equable climate with a temperature of 80°-90° F. seems to be most favorable to the development and spread of the disease,—the same climate, as has been pointed out by Manson, that is most favorable to the growth of cocoanuts; in fact the geographical distribution of tinea imbricata corresponds almost exactly to the districts where cocoanuts thrive. It is not prevalent in places which have a cool or cold season, in addition to an extremely hot one.

Manson inoculated scales on normal individuals and reproduced the disease typically. He made a series of inoculations and showed that the disease always presented the same characteristics and never those of ringworm, and therefore regarded it as a distinct disease. Castellani dissents from the view that the genus aspergillus and similar ones are the cause of the disease. By using a special technic he has succeeded in growing the true fungi causing the disease, which he has proved by reproducing the affection in human beings by inoculating with pure cultures. He suggests for these fungi the generic name endodermophyton, and maintains that there are a number of species of these fungi, as is the case with tinea corporis. Thus far he has succeeded in growing two species.

In Ceylon the species is most common in young adults, attacking women more frequently than men, country people more often than those who live in cities. There does not seem to be any racial predisposition. Beginning as one or several small, round, slightly raised, pruritic patches, it soon takes the form of concentric scaling rings. In a well-marked, advanced case the skin of practically the whole body is covered with round patches, each of which presents several concentric, not inflamed, scaly rings. The scales are flaky, resembling tissue paper, of large size, dry, of a dirty grayish color, and slightly curled. The largest scales are usually on the back. Any part of the body may be affected, except the scalp. The general health is not much affected, but the patients complain of the disfigurement and of great pruritus. The

fungus never invades the hair follicles. Inoculation experiments, either from the scales or from pure cultures are easily successful in from 8 to 20 days. In some instances the affection becomes diffuse and resembles ichthyosis.

The disease has no tendency to spontaneous cure and the treatment is difficult. Pain, itching and the disfigurement are chiefly complained of. In advanced cases coolies are unable to work on account of the extreme pruritus. Castellani has experimented with various modes of treatment, and has found on the whole the application of strong liniment iodi, or resorcin dissolved in tincture benzoini (resorcin ʒiii, tr. benz. ʒi), chrysarobin ointment (5-10%), the most satisfactory routine treatment. When chrysarobin is used the patient must be carefully watched, and the urine regularly examined. In one case symptoms of absorption appeared after a single application.

With regard to prophylaxis, Castellani points out that isolation is hardly practicable in cases where a very large number of people are affected. In places where the affection has not yet appeared much may be accomplished by the medical officer keeping on the watch for its appearance and promptly isolating the first cases discovered, and boiling or burning all infected clothing. An epidemic was observed in a hospital in which a patient suffering from the disease was allowed to enter and mix with the other patients. The natives believe that anointing the body with cocoanut or other oil is a preventive. While the treatment of an advanced case of tinea inbricata is extremely difficult, it is easy to stop it in its initial stages by treating the early lesions by applications of liniodi, chrysarobin ointment, or resorcin dissolved in tr. benzoini.

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Reports of Societies.

AMERICAN SURGICAL ASSOCIATION.

ANNUAL MEETING, HELD IN THE ASTOR HOTEL, NEW YORK CITY, N. Y., APRIL 9TH, 10TH AND 11TH, 1914.

The President, DR. WILLIAM J. MAYO, in the chair.

THE PROPHYLAXIS OF CANCER.

DR. WILLIAM J. MAYO, Rochester, Minn.: All vertebrate animals suffer from cancer in situations affected by their habits or conditions of life, leading to local lesions in the protective mechanism. We should look upon local lesions as an invitation to cancer without regard to just what the actual cause of cancer may be. The term precancerous should be limited to those conditions which clinically and microscopically cannot be said to be surely benign or surely malignant. The character of the cells are changed; they lack differentiation, but as yet there is no infiltration of the surrounding tissue. This cellular change is found in the periphery of malignant growths and in conditions which have afterward developed malignancy. The local lesion is the invitation and the precancerous condition the probable acceptance.

Sites of local irritation are divided into three groups: (1) congenital, or acquired neoplasms, such as moles, warts and benign tumors, which may undergo malignancy; (2) trauma, which strongly influences not only the development of sarcoma, but of carcinoma; (3) chronic irritation, which I consider the most important of all the precancerous conditions, whether the result of mechanical, chemical, or infectious agencies. Among the many examples cited are the development of cancer in the mouth from betel-nut irritation in India, amounting to nearly half of all the epithelial cancers of the country; the development of cancer in local lesions produced by heat, as cancer of the lip from smoking, the "Kangri" sores following burns, which form more than 50% of all cancers in Kashmir; those cancers on the shins of locomotive drivers who have been exposed for years to the direct action of heat; cancers following chronic irritation due to different forms of radiant energy, x-ray, etc.; cancers following the local lesions due to infections, such as Bilharzia of the bladder, treponema pallidum in keratosis linguae, nematodes in testicular tumors in horses and in gastric cancer of rats; and the "horn-core" cancer of cattle, due to the irritation of the ropes through the horns with which the cattle pull their loads. If the betel nut were not used in India and the Kangri basket in Kashmir, the cancers in these two countries would be reduced one-half.

It is important to apply the evidences of local chronic irritation in the production of cancer to the solution of problems as regards the development of cancers on the internal mucous surfaces of the body. For example, cancer of the gall-bladder from gall-stone irritations and cancer of the stomach following gastric ulcer. Fifty per cent. of cancers of the pelvis of the kidney are demonstrably superimposed on extensive renal calculi formation. Carcinoma of the appendix usually occurs in association with chronic obliterative processes. In the sigmoid and rectum, the irritation in diverticula may have given rise to malignant disease. Cancer of the stomach occurs in 30% of all cancers in civilized man, but is not common in primitive races or in lower animals. When cancer of a certain organ is found in only one class of individuals or one species, it means a single cause, like betel-nut cancer and Kangri cancers. Cancer of the stomach must be due to one cause; if many, the lower animals and primitive races would be more often affected. Something in the habits and customs of civilized man in connection with the cooking and preparation of food must be responsible for this large percentage of cancer of the stomach.

SOME PROBLEMS IN THE EARLY DIAGNOSIS AND TREATMENT OF SARCOMA OF THE LONG BONES.

DR. WILLIAM B. COLEY, New York City: The results are submitted of 121 cases coming under per-

sonal observation. Of the cases in which the mixed toxin treatment was used either before amputation in the hope of saving the limb, or immediately thereafter in the hope of preventing recurrence, 19 have remained well for from three to fifteen years. In the cases in which the toxins were not used 1 have remained well for over three years. Attention is called to the extreme malignancy of sarcoma of the long bones, especially of periosteal sarcoma. Of the older statistics quoted by Butlin nearly a generation ago, in 143 cases of periosteal sarcoma of the long bones, only one remained well after three years from date of operation. In all these cases most radical operation was performed,—high amputation; and in femur cases, at the hip-joint. The most recent and very valuable statistics published were in the discussion before the Royal Society of Medicine in London two years ago on Sarcoma of the Long Bones. Of 106 cases observed in the last decade at St. Thomas's Hospital in London 53 were suffering from periosteal sarcoma, and only one of these remained well three years after operation. Of the total number of cases, including the central or myeloid type, only ten were alive and well three years after operation. A very important point is that the preliminary use of the mixed toxins has resulted in the saving of the limb in nine cases in my own experience. Combining this with the experience of other men, the toxins have proved successful in about twenty cases. The results of this series of cases I believe establishes beyond reasonable doubt the advantages of the preliminary use of the toxins before sacrificing the limb; and, after operation, as a prophylactic against recurrence.

Early diagnosis requires accurate clinical knowledge of all the conditions most likely to stimulate sarcoma, and also a great amount of actual examination and careful clinical study of a large number of cases of sarcoma of the long bones. The tactile sense is of inestimable diagnostic value. While the x-ray may often be misleading in the early stages of sarcoma of the long bones, it may also be of valuable help in making early diagnosis, and large experience in interpreting the x-ray is required. In periosteal sarcoma there are lesions that closely simulate sarcoma, especially in the non-ossifying type. Tuberculosis, syphilis and chronic osteitis may simulate this condition, and here the x-ray is of very great help. In such cases the tendency of new bone to form spicules which stand out or radiate at right angles to the shaft of the bone is regarded by many authorities characteristic of sarcoma. Personally, however, I have observed many important exceptions to this rule. The advantages and disadvantages of exploratory operation and microscopical examination of the specimen removed are discussed at length. With the history and clinical signs strongly positive I would not subject the patient to the risk of an exploratory operation, but would immediately perform the operation indicated. Upon two such occasions I did total excision of the clavicle for a rapidly growing periosteal tumor of only three weeks' duration. Another group of cases in which I would not do an exploratory operation is that in which, though the clinical evidence be less strong, the anatomical location of the tumor might render probable severe hemorrhage, and a sinus difficult to heal. Exploratory operation is indicated in cases of sarcoma of the upper end of the tibia or lower end of the radius in which it is most important to know the type of tumor being dealt with. The exploratory operation is also indicated in periosteal sarcoma of both the shaft and the extremities of the long bones, especially in the early stages. The chief requirements for the early diagnosis of sarcoma of the long bones may be summarized as follows:—

1. A more careful study of all known clinical data.
2. A large clinical experience in the diagnosis of sarcoma of the long bones.
3. Early x-ray examinations in all suspected swellings of the long bones, especially those following trauma.
4. Exploratory operations and microscopical examinations of the tissue removed in selected cases, but not as a routine measure.
5. The importance of not placing implicit reliance upon the negative report of the pathologist, especially when in conflict with clinical and x-ray evidence that is strongly positive.

DISCUSSION.

DR. C. A. PORTER, Boston: In a case of sarcoma of the upper lumbar vertebra in a boy of 19 the condition at operation was found to be typical giant-cell sarcoma. Curetting would have been ineffective. There was free bleeding and the wound was packed. Large doses of the Coley toxins were given and the boy is perfectly well one year and a half since operation.

DR. JOHN H. GIBBON, Philadelphia: I have had one case of periosteal spindle cell sarcoma in a girl of 17; prompt recurrence after incomplete operation, refusal of shoulder joint amputation. She was then given the toxins and x-rays. It has now been five years with absolutely no evidence of recurrence. The woman has since married and borne a child. In another case my assistant at the Pennsylvania Hospital, Dr. Allen, operated for a recurrent spindle cell sarcoma of the forearm. Prompt recurrence taking place, the patient was put on the toxins and x-ray treatment. The growth melted under it, and at present, eight or nine months since the treatment was started, there is no evidence of recurrence. I use the toxins in every case of inoperable sarcoma.

DR. THOMAS W. HUNTINGTON, San Francisco: I am able to report two satisfactory cases treated with the Coley toxins. In each case I began with infinitesimal doses; in one case after extirpation of the clavicle. While the objection may be made that the operation cured the patient, it has now been six or seven years since treatment, which extended over six months, and there has been no recurrence. The second case was a large spindle cell sarcoma following in six months the kick of a horse in the muscles of the right thigh. The tumor was removed by the physician in the country, but it immediately returned. I did an extensive operation and placed the patient upon infinitesimal doses of the toxins, increasing these to the point of tolerance. The patient has now been well for about a year, and reports that in every respect his condition is satisfactory.

DR. ARCHIBALD MACLAREN, St. Paul, Minn.: My partner, Dr. T. deWitt, who studied with Dr. Coley, from a case of erysipelas drew his own toxins, and using them obtained a real result. In one case of partial removal of a spindle cell sarcoma of the parotid treated by the toxins there was recurrence inside of a year. Under the toxins the growth entirely disappeared. There was again a return, which disappeared after an ordinary attack of typhoid fever. In five years the woman died with general

sure metastasis, so that the original condition must have been sarcoma. There is no question that the growth disappeared after typhoid fever, nor is there any question of its complete disappearance under the administration of the toxins. Now, what was it?

DR. HOWARD LILIENTHAL, New York: I believe in the post-operative use of Coley toxins in every case of sarcoma and also in cases of carcinoma of the breast. I have used the toxins regularly and constantly. I have had fewer recurrences than I thought possible.

DR. WILLIAM L. RODMAN, Philadelphia: I have had no case of recovery after the use of the toxins for lesions in the long bones; yet I have had cases in which the condition was improved after the use of the toxins when the lesions were in the throat, and in one case in the parotid gland. The most marked case I have ever seen of benefit or relief was a patient of Dr. Kuhn of Louisville. Dr. Kuhn had operated five or six times on a young man of 20, the growth promptly returning after each operation. I was asked to see the case in consultation. I suggested the use of toxins and furnished the preparation. The young man is now a practicing physician and is well in every way. The condition occurred 16 years ago. In another case of sarcoma of the parotid the patient came under my care subsequent to two operations. Upon telling her that the third operation would be more extensive than the first two with almost certainly paralysis of the face, she declined the third operation. I used the toxins with complete disappearance of the growth, and so far as I know, the patient is well at this time. I have seen many other cases operated in which I believe, had the treatment been persistently carried out, complete cure would have resulted. I have not seen any good results from the use of the toxins in carcinoma.

DR. N. B. CARSON, St. Louis: In a patient seen many years ago with a tumor under the clavicle with a diagnosis of sarcoma, a second operation was refused. We used the Coley toxins and the tumor gradually disappeared. I was able to follow the patient for a number of years after the injections and there was no return when last heard of. In another case in the practice of a colleague, the whole lower abdomen was filled with what was taken to be a sarcoma. Under the use of Coley toxins the tumor gradually disappeared and the patient was well three years after treatment. I have at present the case of a young doctor who had a sarcoma of the humerus operated on when I first saw him and which recurred. The infection had involved the shoulder. I did a second operation and he has been using the Coley toxins, and on the anniversary of the operation he writes that he is perfectly well and doing a large practice. I have sometimes used the toxins in sarcoma without success; and, frequently in carcinoma with no success whatever.

DR. WILLY MEYER, New York City: The point mentioned by many speakers, of the Coley toxins having no effect in carcinoma, is substantiated in my observation, neither has it any effect in endothelioma. It has been my peculiar misfortune to have two patients with small tumors on the back simulating atheroma. In the one case which I operated the condition was endothelioma. In another case the patient, a man, had at the same time, a scirrhus of the breast. In these cases the toxins had no effect. In another case of sarcoma of the chest there were all the typical symptoms of tumor in the anterior mediastinum,—compression of veins, etc. The patient, a doctor, insisted upon thoracotomy. I asked him to first see Dr. Coley. After discouragement because of fever and chills, he again asked for operation. I again dissuaded him. Dr. Coley not long ago told me that this patient had written him that he was so much better that he wanted to continue the treatment at his own home. There is no doubt that sarcoma, and inoperable sarcoma, particularly, needs the Coley toxins besides the x-ray treatment.

DR. STANLEY STILLMAN, San Francisco: In a case of sarcoma of the chest wall attributed to the irritation produced by leaning over a boat in fishing, the tumor entirely disappeared upon the Coley toxins. The man, however, had mediastinal metastasis, and died just as we thought he was getting well; the parent growth entirely disappeared. It is important to remember in connection with Dr. Coley's paper that periosteal sarcomata are rarely recovered from. In my own experience, the cases amputated or disarticulated without the use of the Coley toxins died generally within one year. After amputation the use of the toxins may produce recovery.

DR. CHARLES H. PECK, New York: I would like to add the report of one case of incompletely removed sarcoma of the sub-maxillary region operated upon five years ago which was treated afterwards with the Coley toxins and was followed by a complete cure. I have used the toxins in a number of cases but this is the only one with beneficial results.

DR. JOHN B. MURPHY, Chicago. We are indebted to Dr. Coley for keeping alive an element of hope in showing that there is something that we do not understand, and that does occasionally produce an alteration in the clinical course, and that occasionally brings a good result. In the history of sarcoma we find many things influencing cases positively sarcomatous that have recovered, that Dr. Coley has kept to a system, and that that system shows that something produces a change in the cells. We have learned from Abderhalden that the protoplasm of each individual cell produces an enzyme and that enzyme has a specific inhibiting effect in the blood. That seems to me to be the line in which Dr. Coley's splendid work for so many years has directed us, and in which we should have hope.

DR. ARTHUR DEAN BEVAN, Chicago: I think Dr. Cole is entitled to a great deal of credit, and I would second very emphatically Dr. Murphy's statement to this effect, that he has for many years persistently carried on this work and has placed it on a thorough going basis. I am prepared to accept the fact that in the course of thousands of cases a limited small number, which if all of the cases were taken into consideration, amount to a considerable number but small percentage, have been influenced by the use of toxins. The important thing for us to determine is the possibility of this treatment in malignant disease. In 75 or 100 cases I have never seen a cure from the use of the toxins in either carcinoma or sarcoma. I have seen marked effects and I continue to use the toxins in inoperable cases. In my experience the x-ray has been of very much more benefit in both inoperable carcinoma and sarcoma than the toxins. I believe both should be employed, but with the estimate upon the toxins, that they simply give a possibility, not any great assurance of benefit.

Dr. Charles F. Stokes, Washington, D. C.: Some thirteen years ago in a case that had had an appendectomy a sinus persisted and at the site of operation a sarcoma developed. I was communicated with and suggested the use of the Coley toxins. Reply came back that the patient was in the hands of Dr. Feyleisen, and that he did not approve of this method of treatment in this case.

Dr. William J. Mayo, Rochester: I think the Association is to be heartily congratulated upon having a Fellow with the courage of Dr. Coley to carry this thing to the present time under the very great discouragements that have existed.

Dr. Coley, closing: I had little idea that the paper would provoke such a splendid discussion and so favorable a one. Despite the serious discouragements, no one can see the benefit in the cases that were hopelessly inoperable without believing there is something valuable in the toxins, and with that belief I have been obliged to continue the work. I have been inspired to continue by such splendid support as I have received from Dr. Gerster, Dr. Mayo, Dr. Lilienthal, and others.

THE TWO-STAGE OPERATION, ESPECIALLY IN ITS RELATION TO TREATMENT OF CANCER.

Dr. George W. Crile, Cleveland, O.: The newer developments in surgical technic, by which most of the danger and most of the suffering and discomfort, even of surgical operations, have been eliminated, have enabled the surgeon to fully utilize the advantages of two-stage operations for cases heavily handicapped by lowered vitality, while in cancer cases the danger of immediate re-implantation is minimized.

Critical cases of acute infections of the pelvis, of the appendix, or of the gall-bladder, may be more safely treated by a preliminary drainage, the operation being completed after the margin of safety has widened.

If we adjust the operation to the patient, rather than the patient to the operation, I believe we shall greatly reduce the mortality rate which now accompanies the surgical treatment for cancer of the stomach, intestines, larynx and tongue.

Dr. Fred B. Lund, Boston: I have employed the two-stage operation in ulcer and cancer of the stomach only in cases in which the patient was very weak. In cases in which there is doubt of the diagnosis of cancer I would be more inclined to use the two-stage method than in those in which I was sure of cancer, because not only may cancer progress during the waiting stage, but it may be more extensive than anticipated, and the adhesions from the previous gastroenterostomy may hamper a thorough operation at the second stage. In cases in which resection is easy, the patient in good condition, I should never think of the two-stage operation in undoubted cancer of the stomach.

Dr. James E. Moore, Minneapolis: I have for a long time been a firm advocate of the two stage operation in selected cases. I know of no more satisfactory procedure than, with enlarged prostate and infected bladder where ether anesthesia would be fatal, under a local anesthetic, to make a small incision suprapubically and drain the bladder. I am also in accord with Dr. Crile in reference to appendectomies. There is a strong tendency to undertake too much and to interfere with some of the undertakings of the Almighty. Many times have I opened a large abscess and not being able to find the appendix without ripping things up, have left it, had my patient recover, did a second operation followed again by recovery.

Dr. Howard Lilienthal, New York: It is now five years since I emphasized in a paper published in the *Annals of Surgery* in 1910 what I thought was the importance of the two-stage operation in resection of the pylorus. Since then I have concluded that the method is even more valuable than I at first thought. In ulcer cases particularly it is of importance. Some years ago I undertook a two-stage pylorectomy in which a large tumor the size of a duck's egg disappeared in two weeks. I let the patient go and he came back with a recrudescence undergoing carcinomatous change. I operated on him and he got well. By making a median incision, or even a left-sided incision for the gastroenterostomy, by examining the pylorus with great gentleness, using no gauze or other packing, there will be no adhesions at the time of the second operation. I am going to perform such a second-stage operation on Saturday afternoon on a man who had a nodule in his pylorus at the first operation, and whether still there or not, I am going to take out the pylorus.

Dr. Arpad G. Gerster, New York: There is not a doubt that the two-stage operation, where indicated by special conditions, is a very useful expedient, but the argument advanced by Dr. Moore, that in appendicitis we are doing too much and thus interfering with the designs of the Lord, might be applied to all surgery, which is all an interference with the designs of the Lord. There is a great difference between doing a two-stage operation where necessary, and doing it under all circumstances. I believe the broad application of this principle as a routine is entirely unnecessary. If I ever have to be operated on I shall be willing to run a little additional risk in order to get through at one clip. An extended experience in surgery demonstrates that in the majority of all major cases the two-stage operation is unnecessary. We ought to diminish the anguish and suffering to which the patient is subjected by an unnecessary operation. Further, it would hamper the hospital surgeon to a tremendous extent when ten or fifteen patients must be operated upon in three or four hours.

Dr. Frederic Kammerer, New York: With regard to the two-stage operation in tumors of the pylorus,—we have all done a gastroenterostomy for such tumors in cases in which the tumors have disappeared, being purely inflammatory in type. I have done the secondary operation in three cases in which no tumor remained. My experience in carcinoma differs from that of Dr. Lilienthal, for after a gastroenterostomy at the first stage, I have found the removal of the tumor at the second stage much complicated. It is my belief, especially when we consider that these patients, although with low hemoglobin count, will stand an operation remarkably well, that it is better and easier to do a resection and gastroenterostomy at one time.

Dr. Alexander Primrose, Toronto: While Dr. Crile has shown us that the two-stage operation has a very valuable application, I quite agree with Dr. Gerster that it should not be the routine method of procedure. For example, Dr. Crile spoke of the value of drainage of loops of gangrenous bowel; here I would take issue with him under certain conditions, and in illustration would refer to volvulus high up in the small bowel where the gangrenous area existed within some twelve inches of

the duodeno-jejunal juncture; there the excision of the bowel was made, or rather, drainage with partial excision because no further operation could be done, and we had here the further difficulty of nutrition to contend with. We were compelled to do a second operation in twelve days, and the condition of adhesions was such that the operation was exceedingly difficult and the patient succumbed. We could have possibly saved this life if we could have performed immediate operation in the first stage. Another case of volvulus of the small intestine occurring at a lower point occurs to me in which the bowel was gangrenous. Resection and anastomosis were followed by recovery. I would [illegible] in acute appendicitis. I think the gangrenous and septic appendix is a source of great danger and should be removed if at all possible to get it out. My experience is that there is trouble locally with also danger of spreading infection along the lymphatics with resulting subphrenic abscess [illegible] and the abscess drained.

Dr. Crile, closing: Of course I do not propose the two-stage operation for everything, but naturally, for the healthy risks which I stated at the beginning of my paper. The discussion centers down to two questions, what shall we do with the septic infections, and how shall we operate in cases of carcinoma. The only way to determine whether it is best to break down the walls of adhesions in a circumscribed abscess in acute appendicitis is to [illegible] long series of observations. We can show over 300 cases of all sorts of acute appendicitis, not those in which the resections are easy, but all kinds of cases, without a fatality.

SYSTEMIC BLASTOMYCOSIS.

Dr. Charles A. Powers, Denver: The paper gives the history, pathological conditions, course and ordinary termination of the disease. Two cases are cited, both of which were fatal. The first had been studied bacteriologically for nearly two years, the cultures of the micro-organism being carried successively from one animal to another. Blastomycosis generally results in death when it becomes systemic. Prolonged and increasing doses of potassium iodide and of cupric sulphate may possibly be of value. The condition generally begins with cutaneous or subcutaneous lesions and generalization may be prevented by very early and very wide excision of the affected tissues. Early diagnosis of the cutaneous and subcutaneous condition is, therefore, of prime importance. Interesting facts derived from one of my cases, regarding the botany of the organism, have been presented by Dr. Whitman, professor of pathology in the University of Colorado, in the *Journal of Infectious Diseases*, Vol. [illegible], July, 1914. I would advise early, thorough and wide excision of all blastomycetic lesions, when this is possible, with a view to preventing their generalization.

Dr. Arthur Dean Bevan, Chicago: Shortly after Gilchrist reported his first case of this disease I had a case, which was reported in the literature as the Hodgen-Bevan case, in which there were only two cases in the literature, Dr. Hodgen [illegible] and myself. [illegible] ing that he was uncertain whether it was the tuberculosis or the [illegible]. I extirpated an extensive lesion in the arm, submitted it to Dr. Hodgen and he reported the case [illegible]. Our attempts to grow this were unsuccessful. I tried a series of experiments on this particular case with bichloride of mercury internally, with no effect; potassium iodide with marked effect,—an extensive lesion clearing up almost entirely as we find a gumma disappearing under the iodide. In a considerable series of cases, however, this was not always true, but the drug had a marked effect on the organism. Later we used copper with some effect. My colleague, Dr. Ormsby, has collected from the literature 100 cases,—some 80 local, and about 20 cases of systemic blastomycosis which he has actually seen and in which he has obtained a number of postmortems. These cases are more frequent than is generally recognized. The Germans for a long time doubted the existence of this lesion, but it is quite as definite as syphilis or tuberculosis. Treatment rests upon the use of potassium iodide plus the x-ray, and by this treatment nearly all local cases are curable. So far none of the systemic cases under the observation of Dr. Ormsby and myself has gone on to recovery.

Dr. N. B. Carson, St. Louis: Sometime ago we seemed to have an epidemic of blastomycosis and two or three of the cases were of the systemic type, all of which died. They seemed to tolerate drugs very badly. We tried varying forms of treatment and in the local cases with very good results.

Dr. Emmet Rixford, San Francisco: I fear there is some little confusion on this subject in the minds of some of the speakers. The term blastomycosis is given to this disease which Dr. Powers and Dr. McNeil have reported. The organism is very different from the blastomyces, that is, the fungus which multiplies by budding. The cases mentioned by Dr. Bevan were cases of true blastomycosis. The disease reported by Dr. Powers is entirely limited to California and to a single valley,—San Joachim valley. The first case was found by myself in 1894. Dr. Gilchrist confirmed our observations as to the character of the organisms, which I thought were coccidiae. Dr. Stiles of Washington, to whom the material was then submitted, gave the name coccidiodes. Shortly thereafter we found a second case, in which the organism was distinctly different, as were also the clinical manifestations. The organism in this second case was much larger. There was high fever, great depression, and death occurred within six weeks of the first manifestation of the lesion. In the first case, which lasted two years, nothing did any good except vigorous local surgical procedures. Before the man died his face, eyes, and mouth were destroyed. There were lesions in his bones and at autopsy his lungs were found to be completely consolidated with innumerable white tubercles about the size of oldish miliary tubercles. The adrenals were as large as duck's eggs and consolidated with caseous material.

(To be continued.)

Book Reviews.

The Ready Reference Hand-book of Diseases of the Skin. By George Thomas Jackson, M.D., professor of dermatology in the College of Physicians and Surgeons, medical department

of Columbia University, New York. Seventh edition, thoroughly revised. 12 mo, pp. 770, with 115 engravings and 6 colored plates. Philadelphia and New York: Lea and Febiger. 1914.

The seventh edition of Dr. Jackson's admirable Ready Reference Hand-book of Diseases of the Skin illustrates the rate of growth of the subject of dermatology. The first edition, published in 1902, contained 502 pages, discussing 164 diseases. This edition comprises 726 pages, describing 257 diseases, although there has been much weeding out of obsolete matter. New sections have been added on fifteen new affections, and many of the old sections have been entirely rewritten. Drs. Engmann, Fordyce and MacKee have contributed articles on vaccines, salvarsan, and the use of the x-rays, respectively. There are some admirable new illustrations, in marked contrast to the old reproductions from the classical authors.

Auricular Flutter. By William Thomas Ritchie, M.D., F.R.C.P.E., F.R.S.E. Edinburgh and London: W. Green and Son. 1914.

This valuable monograph by a Scottish expert aims to illustrate the physiologic, pathologic, and clinical facts relating to auricular flutter, or extreme acceleration of the auricles, by cases from the author's own experience. It is further illustrated by 107 figures and 21 plates, chiefly electrocardiograms. The recent development of this method of investigating cardiac irregularities and disturbances makes this book particularly timely and useful to students and internist practitioners.

Text-Book of Local Anesthesia. For Students and Practitioners. By Prof. Dr. Georg Hirschel, Heidelberg. Translated by Ronald E. S. Krohn, M.D., Lond. New York: William Wood and Company. 1914.

The growing importance and use of local anesthesia in surgical procedures, made possible by the careful elaboration of its technic, gives particular value and timeliness to the English translation of this excellent German monograph. Beginning with the pioneer work of Braun the author undertakes to collate all known and tested facts relating to the subject. A notable merit of his book lies in the admirable and valuable series of 103 anatomic figures with which the text is illustrated, chiefly taken from the atlases of Spaetholz, Corning, Hasse, Toldt, and Fischer. There is an introductory preface by Professor Dr. Wilms, and a copious alphabetic bibliography. This book should prove almost indispensable to surgeons who wish intelligently to avail themselves of the newest methods and possibilities of local anesthesia.

Renal Diagnosis in Medicine and Surgery. By Dr. Victor Blum, tutor in urology at the University of Vienna. English translation by Wilfred B. Christopherson. New York: William Wood and Company. 1914.

This is an admirable English version of Blum's monograph, "Nierenphysiologie und Funktionelle Nierendiagnostik, im Dienste der Nierenchirurgie und der internen Klinik." It aims to be "a handbook of the theory and practice of functional testing of the kidney." It gives a historic review of the early work in functional renal diagnosis and a description of its present condition, illustrated by examples from the author's clinical experience. There are 16 good figures in the text, and an excellent alphabetic bibliography and brief index. Though literal, the translation is clear and idiomatic, and the book should prove useful to practitioners in the field of renal diagnosis.

Nurses for Our Neighbors. By Alfred Worcester, A.M., M.D. Boston and New York: Houghton Mifflin Company. 1914.

This volume of essays is written in the author's familiar and most charming style. The second of the series, on "Medical Methods Old and New," was first published in the issue of the Journal for Feb. 1, 1912, under the title of "Past and Present Methods in the Practice of Medicine." Some of the other chapters have been printed elsewhere, but most of the book is new. Dr. Worcester's long experience in the training of nurses, and his wide sympathy and insight into their problems and those of human suffering, give his work an especial authority and compelling grace. It should be read by nurses and physicians alike, and by the public which knows and understands altogether too little of the higher aspects of nursing.

Blood-Pressure in Medicine and Surgery. By Edward H. Goodman, M.D. Illustrated. Philadelphia and New York: Lea and Febiger. 1914.

This book aims to be "a guide for students and practitioners," "to make fully available the assistance which the study of blood-pressure affords in the diagnosis, prognosis and treatment of disease." It is clearly written and well illustrated with 57 figures in the text, and should prove a useful manual and text-book on an important and hitherto much neglected subject.

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PARAGEUSIA.

THE term parageusia was coined a few years ago, by Varden, to designate the complaint of bad taste when there is no material in the mouth to account for it. From time immemorial patients have called attention to bad tastes in their mouths, and it has always been customary to refer these exclusively to some condition of the gastro-intestinal tract, and particularly to stomach conditions. Naturally, some of them are unquestionably due to the latter, but it has lately been stated by a physician of extended observation that the larger the experience he has, the more is he inclined to discard in numerous instances a gastric origin for these bad tastes in the mouth. Many of them, he believes, are attributable to protein poisoning, and in support of this view may be cited the results of recent work at the Rockefeller Institute, which has shown that the amino-acids resulting from the breaking-up of proteins are primarily stored in the tissues; while the old idea, in support of which there has really never been any proof, was that the transmutation of peptones takes place in the walls of the intestine. It is possible that at the expiration of two or three hours after a protein meal some of these amino-acids may return to the mouth.

It would now appear that not only may a bad taste in the mouth be due to a great variety of affections other than conditions originating in the gastro-intestinal tract, but that in certain of these it may prove of positive diagnostic value. For this knowledge we are indebted to Dr. Thomas F. Reilly of New York, who in a paper read at the recent annual meeting of the American Therapeutic Society in Albany presented the results of a special study of the subject which he has been making during the past year. From this, Dr. Reilly is of the opinion that most physicians have so long been accustomed to associate a bad taste with digestive disorders that they have quite overlooked the fact that it may be an expression of various other diseased conditions. His attention was first directed to the matter about a year ago while he was engaged in studying a group of cases with high arterial tension. Associated with the latter he found this to be a constant symptom, and, since then, close questioning of all patients affected with high arterial tension and other evidences of nephritis has almost always revealed the presence of persistent bad taste in the mouth. In the early stages of chronic interstitial nephritis the patient had this symptom only on rising in the morning, resembling in this respect the suboccipital headache so characteristic of early nephritis. In the more advanced stages, however, it was present the greater part of the time, and, in general, the more continuous it was, the worse seemed to be the prognosis. In many instances this was the only symptom complained of, and he therefore suggests, as a working rule, that when a patient (particularly a person of forty-five or over) complains of persistent bad taste, a blood-pressure examination should be made at once. It is worthy of note that he often found this sign preceded the appearance of other symptoms by a month, or more, and he is convinced that in cardio-renal disease it is a diagnostic mark of distinct value. As to the treatment of the symptoms in this condition, in the cases associated with flatulence bromides proved more efficient than anything else, and in those without flatulence digitalis, either alone or in connection with hydrochloric acid, produced the best result. The nitrites and other vasomotors did not cause any improvement, but in a few instances diuretics of the diuretin type worked well.

Another affection in which he found this complaint of positive diagnostic value is gall-bladder disease, and its association with gall-stones and cholecystitis was next in frequency to its occurrence in connection with cardio-renal disease. Here the taste is usually a characteristic bitter

one, though in a few instances it was described as like that of musty eggs. This gall taste was practically always present in drainage operations of the gall-bladder, and it persisted as long as the bile drained. In several cases of catarrhal jaundice it was noted from three days to a week before the appearance of the jaundice. In some cases of pulmonary tuberculosis a bad taste comes on about noon and lasts the rest of the day, and in acute rheumatic fever a disordered taste, either acid or bitter, appears to be present in about 60% of the cases. In two cases of pernicious anemia a persistent bitter taste was found to have preceded the other clinical symptoms by six and eight months, respectively. Patients with arteriosclerosis sometimes complained of an inversion taste,—salty things tasting sweet, for instance. Anomalies of taste were also occasionally noted in disease of the central nervous system, and were believed to be often due to syphilis of the brain or cord. Among other conditions in which Reilly has found a complaint of bad taste are diabetes, hysteria, neurasthenia, pregnancy, gastric and duodenal ulcer, and cancer of the stomach and uterus. As the result of a year's close questioning of hundreds of patients, he concludes that persistent bad taste in the mouth is a symptom of much importance, that it is for the most part an expression of a serious toxemia, and that it may be of very great service in the early diagnosis of disease. In the two affections, interstitial nephritis and gall-bladder disease, when the sign is present it sometimes affords valuable information. As to the significance of its presence in other diseases, time will disclose, he says, whether or not it has any practical value.

EFFECTS OF THE WAR.

When the first news of the European War reached us the universal feeling was that a far-reaching calamity had overtaken us. Soon we shall realize that foreign books and instruments cannot longer be obtained, international medical congresses will be abandoned, the price of drugs, food supplies and automobiles will go up—they have done so already—and we shall be cut off from the recreation and profit gained by foreign travel and instruction at the great European medical centers.

The student of eugenics stands aghast at the set-back his cause has received. What is the use of studying declining birth-rates, the marriage of the unfit, and the many problems for race betterment when the chief nations of Europe are hard at work killing off their able-bodied men? The armies are picked men; all are in the flower of youth; there are no dwarfs, no cripples, no mental defectives, no old men. The better the soldiers fight the greater the mortality. The race in future must be propagated by those who are excluded by the physical recruiting tests and by those who escape death and the diseases of army life. Picture what our country might be today if those lusty scions of the early settlers of the land, cut off by cruel strife, had survived our Civil War. Could any more ingenious device be conceived to thwart the aims of practical eugenics than war, a carefully planned means of preventing the survival of the fittest?

In the days of the black death and extensive epidemics of contagious diseases the hand of the Lord was seen smiting his enemies; countless thousands of the Chinese were swept away annually because of unhygienic modes of living and inability to provide the necessities of life. Modern sanitation, preventive medicine and efficiency have worked extraordinary changes and the world has progressed through knowledge to a higher plane.

Although the Japanese in the Russo-Japanese war taught the army surgeon how to treat gunshot wounds in a really aseptic manner, and military medicine may gain something from the experiences of the present war, the field of battle is not the training place for the surgeon that it was in the time of Ambroise Paré. Recent discoveries have done away with, to a great extent, those great menaces to armies, typhoid fever and syphilis, and yellow fever and cholera are no longer prominent factors. The clever methods of destroying life represented by the rapid-fire gun, smokeless powder and the non-expanding bullet, dynamite bombs, the dirigible balloon and aeroplane, more than make up for the better results of surgery and improved sanitation. At the present moment Europe is in process of reverting to its status in the Middle Ages by means of the same chief agency in hampering progress employed at that time, namely, destructive warfare.

The Continent has lived through many lengthy wars and one era of Napoleon with its

shifting of boundaries and peoples, and it will probably survive the present disturbance. Let us trust that the United States may remain neutral, and may settle whatever differences arise by diplomatic means. We, who usher humanity into the world, who spend our lives repairing the broken frames and trying to prevent them from leaving this vale of tears, may well register a protest against legalized deliberate maiming and killing in this twentieth century.

AEROPLANE AMBULANCES.

THE present terrible European struggle, with the inevitable unprecedented number of wounded, makes a recent communication in the *London Lancet* concerning the possibilities of the aeroplane as an ambulance, of peculiar interest.

The report states that recently aeroplanes were experimented with in this connection and surprising results obtained. The speed at which the wounded could be transported to the field base would, of course, be one of the greatest advantages of the method, and would in a measure offset the limited number that could be carried at a time.

At the military manoeuvers by the French army last year, the report goes on to say, aviators searched for the supposed wounded after a sham battle, with surprisingly good results, many wounded being found who would undoubtedly have remained undiscovered by other methods of search.

Mlle. Marvingt, a well known French woman aviator, has had a special machine built to accommodate, besides the aviator, a physician and a litter. The idea was given that this aeroplane ambulance might be useful in a European war, the writer little thinking how soon the ambulance might be actually tested in this connection. When the wounded are left lying at night, hidden from observation by slight changes in the elevation of the ground, this may prove to be a valuable way of finding them.

Landing and starting the machine would, of course, present many difficulties, but it will be soon found out in the present crisis, how much real value there may be in the idea. A fleet of Red Cross aeroplanes is entirely within the possibilities.

[illegible], 1914

MEDICAL NOTES.

BUBONIC PLAGUE IN THE UNITED STATES.—The weekly report of the United States Public Health Service for Aug. 14, 1914, states that during the week ended July 4, 7 plague-infected squirrels were found in California and one at Seattle, Wash. Up to Aug. 14 there had been 15 human and 32 rodent cases of plague in New Orleans, La., since the outbreak of the epidemic at that city on June 27. Two new human cases were reported on Aug. 15, making a total of 17; and 20 more rodent cases, making a total of 52. It is believed that the infection was originally imported from Liverpool, where two deaths from plague have recently occurred.

INCIDENCE OF POLIOMYELITIS IN JUNE.—During the month of June, 1914, 10 cases of poliomyelitis were reported in Massachusetts, 8 in California, 6 in New York, 5 in Ohio, and 3 each in Minnesota and Mississippi.

HONOR FOR PRESIDENT ELIOT.—Dr. Charles W. Eliot, of Cambridge, Mass., has recently been elected a corresponding fellow of the British Academy.

MEMORIAL TO DR. WILSON.—A statue of Dr. Edward Adrian Wilson, who perished in the Antarctic with Captain Scott in March, 1912, has recently been unveiled at Cheltenham, England, Dr. Wilson's birthplace.

RABIES IN PITTSBURGH.—Report from Pittsburgh, Pa., states that rabies is at present epizoötic in that city, and that on July 29, eleven persons were bitten by rabid dogs.

LONDON DEATH-RATES IN JUNE.—Statistics recently published show that the death-rate of London for June, 1914, was only 12.6 per 1000 inhabitants living. Among the several districts and boroughs, the highest rate was 18.2 in Finsburg and Shoreditch, two crowded central and east end slums, and the lowest was 8.9 in Lewisham, a southern suburb.

FOSTER RADIUM CONSERVATION BILL.—Report from Washington, D. C., on Aug. 5 states that the Foster radium conservation bill will probably be brought up for early legislative consideration, owing to the shortage of radium occasioned by the European war, which has closed all the German radium manufacturing plants.

This bill aims to establish federal ownership of radium ore fields and operation of radium plants in the United States.

International Congress of Electrology.—The seventh biennial International Congress of Medical Electrology and Radiology was held from July 27 to 31 at Lyons, France, under the presidency of Prof. Renaut. Previous congresses have been held respectively at Paris, Berne, Milan, Amsterdam, Barcelona, and Prague.

BOSTON AND NEW ENGLAND.

Redistricting of Boston Milk Stations.—The Boston Milk and Baby Hygiene Association has recently announced a redistricting of its stations in the effort to secure closer and more efficient coöperation between them and the several Boston hospitals.

"Babies from milk stations in Roxbury and Dorchester will be sent by preference to the Infants' Hospital wards or the out-patient departments of the Children's Hospital; those from the North and West Ends and Charlestown will go to the Massachusetts General Hospital; those from the Lincoln House station will be sent to the Massachusetts Homeopathic Hospital; those from the South Bay Union station, Denison House station, South Boston and East Boston to the Boston Dispensary Hospital for Children or the children's out-patient department of the Boston Dispensary."

Boston's Lowest Death-Rate in July, 1914.—Boston's death-rate during July was the lowest ever recorded by the health department for any month. It was 12.48 and the number of deaths was 778. During the 33 years the records have been kept by the health department, this rate has never been equalled, and in July, 1881, with the population less than half the present population, the actual number of deaths was only 60 less than the number last month.

The deaths of children less than 1 year old during July was 139, which is also a record, the smallest number for any July in previous years being 163 in 1913. The highest death list of infants was 549, in July, 1896, and the July average for the period from 1881 to 1914 is 292.

Hospital Bequest.—The will of the late Charles W. Richardson, of Salem, Mass., which was filed recently in the Essex probate court contains a bequest of one-sixth of his residuary estate to the Salem Hospital.

The Cases of Infectious Diseases reported to the Boston Board of Health for the week ending Aug. 11, 1914, are as follows: Diphtheria, 44, of which 5 were non-residents; scarlatina, 8, of which 1 was non-resident; typhoid fever, 11; measles, 28, of which 6 were non-residents; tuberculosis, 54.

The death-rate for the week ending Aug. 11, 1914, was 13.89.

NEW YORK.

The Week's Death-Rate.—There were fewer deaths during the week ending August 1 than during the corresponding week of last year. There was in fact a saving of seventy-two lives. The death-rate for the first thirty-one weeks of 1914 was .33 lower than that for the corresponding period of 1913.

The most noteworthy feature last week was the decrease in the number of deaths from diarrheal diseases among infants, which is to be attributed in large measure to the cool weather that prevailed.

Bequest.—Among the charitable bequests in the will of the late Miss Cora Van Courtland Catlin of New York is one of $5,000 to the New York Post-Graduate Hospital, for the endowment of a bed in the children's ward in memory of the testator's father.

Current Literature

New York Medical Journal.

August 1, 1914.

1. Griffith, J. P. C. *Typhoid Fever in Early Life.*
2. Koelpinski, L. *Cardiac Headache.*
3. Morton, R. S. *Constitutional States in Relation to Gynecological Conditions.*
4. Applegate, J. C. *Four Unusual Obstetric Complications.*
5. Becker, H. C. *The Treatment of Scarlet Fever.*
6. *Leopold, S. S. *Eosinophilia in Chorea.*
7. Freundlich, D. B. *The Necessity for Coöperation of the Medical Profession in the Successful Treatment of Pyorrhea Alveolaris.*
8. May, C. H. *A New Electric Ophthalmoscope.*

6. Leopold studied the blood in eighteen cases of Sydenham's chorea. His results indicate that eosinophilia is present in the majority of cases of this disease. It is almost invariably present in recurring cases, especially where there has been more than a single recurrence. The absence of eosinophilia was noted in every case where the diagnosis of true chorea was in doubt. The presence of eosinophilia in the majority of cases is in favor of the theory of the infective origin of chorea rather than the theory that it is a functional neurosis. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

AUGUST 1, 1914.

1. VAUGHN, J. C. *Parenteral Protein Digestion.*
2. ECHOLIS, C. M. *Limitations of the Dialysis Method as a Practical Test for Pregnancy.*
3. *SCHWARZ, H. *Value of Abderhalden's Biologic Reactions to the Obstetrician and Gynecologist.*
4. *RUSI, W. H. *The Use of Salvarsan in Non-syphilitic Diseases.*
5. *FRIEDMAN, J. C., AND HAMBURGER, W. W. *Experimental Chronic Gastric Ulcer. A Second Contribution to the Experimental Pathology of the Stomach.*
6. JESSUP, D. S. D. *Adenomyoma of the Recto-vaginal Septum.*
7. *RAVOGLI, A. *A Few Practical Points on the Treatment of Leg Ulcers.*
8. DARNALL, W. S. *Pelvic Varicocele.*
9. HEATH, H. B., AND EILLAN, W. *Notes on Cases of Sprue Invalided from the Tropics. Will It Become Endemic Here?*
10. MCKIM, N. *The Blood in Acidosis from the Quantitative Point of View.*
11. KNOWLES, F. C., AND FRESCOLA, L. D. *Diphtheria of the Skin of Unusual Types. Report of Two Cases.*
12. WILLIAMS, E. M. *Lead Poisoning with Paralysis of the External Ocular Muscles.*
13. SMITH, W. H., AND KIRK, N. T. *Foreign Body in the Sub-maxillary Gland.*

2. Echolis believes that the dialysis test for pregnancy in its present stage of development is chiefly of value in a negative sense. That is, if a woman fails to give a positive reaction she is not pregnant. If, on the other hand, she gives a positive reaction one can only say she is probably pregnant, for 10 to 15% of non-pregnant persons give positive reactions.

3. Schwarz finds that this test is very complicated and often unreliable because of the difficulty in mastering the technic. He advises more effort to simplify the methods now in use.

4. Best finds from large clinical evidence that salvarsan is specific in any disease caused by any variety of spirillum. It has curative properties in those diseases in which the infecting organisms are found in the blood or lymph. It is of great value in conditions in which arsenic has been successfully used, and if used long enough, often in those diseases in which arsenic has been unsuccessful.

5. These authors have a very practical and valuable article on the experimental production of gastric ulcer.

7. Ravogli's article is of very practical interest and value. [E. H. R]

THE ARCHIVES OF INTERNAL MEDICINE.

JULY, 1914.

1. *DAVIS, D. J. *An Acid-fast Streptothrix.*
2. *ASH, J. E. *The Blood in Inanition.*
3. WIGGERS, C. J. *The Pathologic Physiology of the Circulation During Hemorrhage.*
4. *NEWBURGH, L. H., AND MINOT, G. R. *The Blood-Pressure in Pneumonia.*
5. *COLE, R. *Pneumococcus Infection and Lobar Pneumonia.*
6. MEYER, E. *The Color-Index of the Red Blood Corpuscles.*
7. *CLAYPOLE, E. J. *Human Streptotrichosis and Its Differentiation from Tuberculosis.*
8. *ARCHIBALD, R. A., AND MOORE, G. A. *Preliminary Report on the Production, Action, and Therapeutic Effects of Leucocytic Extracts.*
9. FITZ, R. *A Comparison of Bang's Micro-method for Determining Blood Sugar with Bertrand's Method.*

1. Davis reports a case of pulmonary infection probably caused by an acid-fast branching mycelial growth. These cases clinically are not usually distinguished from pulmonary tuberculosis. Potassium iodide in large doses constitutes the treatment for such cases.

2. Ash studied the blood of a man who fasted for thirty-one days. He found that there was a slight actual loss in hemoglobin, more marked during the second ten days. There were moderate fluctuations in water content, particularly during the first half of the fasting period. There was a decided rise in polynuclear neutrophiles in the early days. There was an increase in coagulability, especially after the first two weeks. The blood as a whole was distinctly resistant to the effects of uncomplicated inanition, permitting of entire abstinence from food for the thirty-one days without deleterious consequences, as far as the blood was concerned.

4. Newburgh and Minot studied the blood-pressure in fifteen cases of lobar pneumonia at the Massachusetts General Hospital. Their results are not in accord with some of the newer ideas upon which considerable stress has been laid. According to their observations there is not a failure of the vasomotor center in pneumonia. A low systolic pressure is not necessarily of evil omen; in fact, the systolic pressure in the writer's fatal cases tended to be higher than in the recoveries. Blood-pressure measurements, therefore, they say, cannot be used as a basis for treatment in pneumonia. The writers tested the value of Gibson's rule that when arterial pressure, expressed in millimeters of mercury, does not fall below the pulse-rate, expressed in beats per minute, the prognosis is good. In their series of cases they found this rule wrong more often than right. The rate of the pulse and not the level of the pressure is the chief factor in deciding whether the pressure will fall above or below the pulse.

5. Cole discusses the theory and the present status of the serum treatment of pneumococcus pneumonia. The outcome of a case, he says, depends upon the virulence of the organisms concerned and upon the ability of the body, first to limit the local infection, and second to prevent the invasion of the blood by the organisms. Leucocytes play a part in the resistance to the local spread and probably also to the general infection. The most important part in prevention of general infection is probably played by immune substances contained in the blood serum. Pneumococci differ in their immunological reactions and for effective treatment it is necessary to use serum immune to the group of organisms to which the special organism causing the infection belongs. The writer has produced immune sera effective against two of the most important groups of pneumococci, and has used them on a limited number of cases of pneumonia with promising results.

7. Claypole discusses streptotrichosis and its differentiation from other infections, especially tuberculosis. Streptotrichins (glycerinated bouillon cultures, concentrated), made from the non-acid-fast mycelial and partly acid-fast bacillary organisms, give definite skin reactions on persons with frank infections, but do not show on controls (including cases of recognized tuberculosis). Gland and bone-infections with streptotriches may be demonstrated by skin reactions, too. Streptotrichosis and tuberculosis may exist in the same person at the same time, as evidenced by the appearance of both organisms in the sputum and both skin reactions.

8. Archibald and Moore report on an experimental study undertaken with the purpose of obtaining leucocytic substances in quantities that would render them therapeutically practical and commercially possible. They were able to obtain these substances in such quantities directly from the blood of normal guinea-pigs. They found that the parenteral injection of leucocytic substances caused profound changes in the blood, producing a marked leucocytosis and marked changes in the individual leucocytes.

THE INDIAN MEDICAL GAZETTE.

JULY, 1914.

1. *WALL, F. *Fatal Case of Ophitoxemia.*
2. TUKE, A. W. *Cocaine Eaters of Bombay.*
3. CONNOR, F. P. *Plague Jottings.*
4. SHORTEN, J. A. *Osseous New Growths at the Elbow Joint Following Injuries.*
5. DOWDEN, R. *Three Cases Illustrating Unusual Sequelæ of Malarial Fever.*
6. HANCE, T. B. *The Treatment of Uncomplicated Retroversion of the Uterus by the Sling Operation.*
7. SCOTT, L. B. *The Nature of Jail Dysentery.*
8. RENAULT. *Notes on the Treatment of Cholera by the Exhibition of Chlorhydrate of Emetine in Hypodermic Injections.*
9. CHATTERJEE, G. C. *A Case of Pulmonary Tuberculosis Treated with Tuberculin.*
10. *DARNVALA, B. P. *Two Cases of Transposition of the Viscera.*

1. Wall reports a case of death in ten hours from the bite of the common Indian krait (Bungarus cæruleus) with symptoms of fulminating toxemia typical of Colubrine poisoning. He has seen only two other fatal cases.

10. Darnvala reports two cases of complete situs transversus viscerum, and believes that anatomic anomaly to be more frequent than is commonly supposed. [R. M. G.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 28. JULY 14, 1914.

1. BAUMGARTEN, P. *The Relation of Lymphosarcoma to Tuberculosis.*
2. *KRUSE, W. *The Cause of Coughs and Colds.*
3. MARCHAND, A. *Living Adult Monstra Duplicia.*
4. *NIKITIN, M. *The Influence of Protective Inoculations against Rabies in Cases of Epilepsy.*
5. v. DOMARUS, A., AND BARSIECK, W. *The Question of Protective Ferments.*
6. STROMEYER, K. *The Magnesium Treatment of Tetanus.*
7. SCHMID, M. *Results with Lipojodin-Ciba.*
8. WEISS, H. *A Case of Tuberculosis of the Bladder Cured by Locatul (Copper Lecithine).*
9. MASAREY, A. *Adalin in the Altitudes and Tropics.*
10. STÜMPKE, G. *Gonorrheal Granulations.*
11. v. MALAISÉ. *The Diagnosis of Brain Tumor.*
12. STRAUSS, H. *Intravenous Injections.*
13. KAUFMANN, K. *The Production of Artificial Pneumothorax.*
14. PFEIFFER, H. *Peptolytic Ferments in Blood.*
15. v. STUBENRAUCH, L. *Arthritis Deformans in the Light of Recent Studies.* (Conclusion.)
16. DÜRCK, H. *Dr. Gaspar Vianna.*
17. LENZ, F. *Resolutions on the Question of Births by the German Society for Race Hygiene.*

2. The cause of head colds has been attributed to a variety of micro-organisms. Recently Kruse obtained from the nasal secretion of one of his assistants a filterable virus. In four out of twelve individuals inoculated intranasally with this virus characteristic symptoms of head cold developed in from one to three days. In a later experiment thirty-six students were inoculated in similar fashion, and fifteen developed the disease, while of thirty-six who were not inoculated only one became infected. Kruse thinks from these observations that a certain percentage of ordinary colds are due to such a filterable virus and suggests further studies in regard to its nature and specificity.

4. In 1891, Nikitin saw a typical case of epilepsy which was given Pasteur treatment on account of a bite received from a rabid dog. Following this, except for one epileptic attack shortly after the treatment was begun, the patient has been well. This observation led Nikitin to make two series of studies. In the first, eight epileptic patients were injected for sixteen days with subcutaneous injections of an emulsion of normal rabbit spinal cord given daily. The patients were followed for a month. In no case was any benefit noted. In the second series of cases, epileptics were injected with a spinal cord emulsion from infected animals as in the preventive treatment of rabies. Nikitin found that this emulsion had a very beneficial effect on more than half of his patients. The epileptic fits diminished after a variable period of latency and gradually becames less and less frequent. Whether a cure of the disease can be accomplished by this treatment cannot be stated. The first case recorded, however, suggests that this is possible. [R. F.]

No. 29. JULY 21, 1914.

1. BUMM, E., AND WARNEKROS, K. *Cure of Deep-Lying Carcinoma by X-ray Treatment.*
2. *v. PIRQUET, C. *The Graphic Analysis of Cutaneous Reactions.*
3. WEYGANDT, W., JAKOB, A., AND HAFKA, K. *Clinical and Experimental Studies with the Injection of Salvarsan into the Central Nervous System.*
4. BAISCH, B. *The Treatment of Surgical Tuberculosis with Enzytol.*
5. HOTZ. *Continuous Anesthesia.*
6. WEINBERG, M. *Abderhalden's Dialysis Method in the Diagnosis and Differential Diagnosis of Malignant Tumors.*
7. FAUSER, A. *"Passive" Transference of Ferments from Psychopathic Patients to Rabbits.*
8. HOLZBACH, E. *Continuous Irrigation of the Bladder and Pelvis of the Kidney.*
9. SCHUTZ, R. *Chronic Gastro-intestinal Dyspepsia, Colitis, and Cirrhosis of the Liver.*
10. DRACHTER, R. *Hare-lip and Its Operative Treatment.*
11. STÜMPKE, G. *Thigan.*
12. BERNEKER, O. *A New Arrangement for the Freezing of Circumscribed Skin Areas with Ethyl Chloride.*
13. MICHAEL, O. *A Box for Sterile Gauze.*
14. SCHINDLER, H. *Treatment of Post-partum Prolapse without Operation.*
15. MORO. *The Moro-Doganoff Reaction.*
16. HEGER, P. *Hugo Kronecker.*

2. von Pirquet describes a method for the graphic reproduction and analysis of intracutaneous tuberculin reactions. He measures the skin area involved at stated intervals after injection, and by an empirical scale the degree of redness, swelling or exudation. In this manner, he is able to plot three characteristic curves in a given test. The first is due to trauma, the second is due to the reaction to bouillon which he uses as a vehicle, and the third is due to the allergic reaction. The method is, therefore, more quantitative than the customary visual method of recording skin tests.

5. Hotz reports on a few surgical cases treated with "Anesthesin." This is a powder, whose components are not mentioned, manufactured by the firm of Höchst. "Anesthesin" is designed to act as a local anesthetic for a considerable interval of time, and thus to prevent post-operative pain and tenderness, and to remove causes for shock. In abdominal section before the sutures are placed, a small amount of "anesthesin" is powdered into the wound, which is then closed according to ordinary technic. Hotz has used "anesthesin" in only a few cases. Sepsis did not occur. Post-operative pain was diminished notably, so that the patients were able to move without discomfort and suffered little bodily and mental reaction to the operation. On the whole, Holtz concludes that "anesthesin" may prove of considerable value in post-operative treatment. [R. F.]

Deutsches Archiv für Klinische Medizin.

Band 115. Heft 5 and 6. June 26, 1914.

1. *Tobiesen, F. *The Composition of Pneumothorax Air.*
2. Mathiwa, E. *Work on the Chemistry of Sputum.—Ferments of Sputum.*
3. Achelis, W. *Adhesive Pericarditis and the Disappearance of the Vertical Dislocation of the Heart on Change from the Horizontal to the Upright Position, as Occurs Normally.*
4. *Landsberg, M. *The Question of Sugar Combustion in Pancreatic Diabetes.*
5. Eichhorst, H. *Latent Meningeal Cancer.*
6. Zadek, J. *Disturbances Following Pneumonia.*
7. Straub, H. *Dynamics of the Mammalian Heart.*
8. Wack, P. *Leucocytic Count in Miliary Tuberculosis and Its Diagnostic Importance.*
9. Semeran, M. *A Study on Pulsus Paradoxus.*
10. Schulz, W. *Treatment of Scarlatina with Human Serum and Lipoid Serum.*

1. Tobiesen has studied the chemical content of air introduced into the pleural cavity. If nitrogen, oxygen, carbonic acid gas, or mixtures of them, are introduced into the pleural cavity, they change their reactions somewhat by diffusion into the tissues so that they exist in a ratio of 90% nitrogen, 4% oxygen and 6% CO_2. If now an exudate of beginning pleurisy appears the oxygen will disappear and will do so before it is possible in other ways to demonstrate an exudate. The disappearance of oxygen may thus be of diagnostic value.

4. Landsberg takes up the different possibilities of glycosuria in the human and also the two theories of Minkowski and v. Noorden in regard to diabetes. The former looks upon the disease as an inability of the tissues to take care of sugar and a subsequent overproduction of sugar on the part of the liver. This inability depends upon the failure of a hormone from the pancreas, which normally stimulates the body tissues to burn the sugar. v. Noorden, on the other hand, thinks the primary trouble is an inability of the liver to turn the sugar into glycogen, due to the failure of some hormone from the pancreas. The author then takes up a review of the literature in support of the different points of view. He then reports on a series of experiments he has conducted upon dogs in order to see the activity of the blood cells in the breaking up of sugars. In his animals he produced diabetes by extirpation of the pancreas. From his work he finds no proof of even a diminution of the ability to burn up sugar in a diabetic organism. Blood cells from his dogs destroyed as much sugar as cells from normal animals. Normal blood cells in serum from diabetic dogs used as much sugar as similar cells in normal dogs' serum. The sugar burned up in working muscle of pancreatic diabetic dogs corresponds practically with that used in normal working animals' muscle. This work speaks against the view that a pancreatic hormone is necessary for the burning of sugar by the body cells. [C. F., Jr.]

Annales De L'Institut Pasteur.

Vol. xxviii. No. 5. May, 1914.

1. Tsuchinaka, Miss. *The Intestinal Flora of Mice.*
2. Bernard, S. N., and Blanche, J. *Influence of Mode of Penetration by Skin or Mouth of the Stephanurus Dentatus upon the Localization of This Hematode in the Pig and upon Its Evolution.*
3. Weinberg, M., and Seguin, P. *Biological Researches upon Eosinophiles.*
4. Livaditi, C., and Picrlot, J. *Phagocytosis of Neurons in Poliomyelitis.*
5. Lannoy, L., and Bouhl, M. L. *The Blood of the Fowl in Experimental Spirillum Infection.*
6. *Boinet, E. *Vaccine Treatment in Typhoid Fever.*
7. Raphael, A. *Note upon the Bacillus Perfringens.*

6. In this part of his article on treatment of typhoid fever, which is to be continued in a later number, Professor Boinet takes up a discussion of some 25 cases. He has used the sensitized vaccine of Besredka. He emphasizes especially the persistence of the vitality of the typhoid bacilli in this vaccine. This feature allows one to hope for an immunization more active and rapid and the formation of a greater number of antibodies. It also produces a more marked bactericidal power in the blood. He employs from three to six subcutaneous injections of not more than eleven cubic centimeters, and has seen no accidents from the inoculations. He emphasizes the importance of a positive Widal reaction or blood culture to confirm the diagnosis before treatment, as it is detrimental to the patient in tuberculosis. He considers that this form of treatment augments the number of antibodies and bactericidal power of the serum. There next follows the report of the 25 cases. Twenty-one of these cases acted favorably, and in part, he thinks, due to the action of the vaccine. In the four cases that died he considers the vaccine either did not have a fair chance or else the cases died of typhoid accidents, such as hemorrhage or perforation. [C. F., Jr.]

Vol. xxviii. No. 6. June, 1914.

1. *Besredka, A., and Manoukhine, J. *Reaction of Fixation in the Tubercular.*
2. Besredka, A., and Jupille, F. *Egg Gelatin Culture Media.*
3. Manouelian, D. *Investigation of the Cardiac Plexus and Innervation of the Aorta.*
4. Manouelian, Y. *In Regard to the New Theory about the Pathogenesis of Angina Pectoris.*
5. Manouelian, Y. *Remarks Concerning the Existence of Nerve Centres in Organs.*
6. Ramon, G. *Studies upon the Bacillus of Malasse and Vignal, the Pseudo Bacillus of the Guinea-Pig, Experimentally and in the Natural Course of the Disease.*
7. *Boinet, E. *Vaccine Therapy in Typhoid Fever.* (Second part.)
8. Alikaise, E. *Studies upon Ricine—Hypersensitiveness to Ricine.*
9. Chaussé, P. *Conditions of Saliva and Tubercular Sputum Powdered by Air Currents, and the Bacterial Content.*
10. Moran, V., and Bullack, J. *Experimental Studies upon Anaphylactic Reaction Produced by the Albuminoid Cristallin.*
11. Ronjentzoff, D. *Intestinal Flora of Rabbits Fed on Carrots and Others Subjected to Starvation.*

1. These authors tried out the test for deviation of the complement in tuberculosis experimentally and on human beings. They find that the guinea-pigs and human cases react pretty much the same way. The test can be used diagnostically and to a certain degree prognostically in tuberculosis. In early cases the fixation is always present, in older cases usually so and in late cases the reaction only partial or negative. In the negative cases death usually soon follows.

7. Boinet in this number of the journal adds 28 more cases to his list of patients with typhoid fever who have been treated with the sensitized virus of Besredka. From this series he is more impressed than ever with the value of this form of treatment, both from the point of view of cure and the chance of hastening the recovery. His figures in his two series certainly compare favorably with the figures for the cases in the hospital at the same time in the preceding year. He again emphasizes the importance of not using the vaccine in very severe cases. [C. F., Jr.]

Il Policlinico.

June, 1914.

MEDICAL SECTION.

1. Fragnito, O. *Tumor of the Right Frontal Lobe with Cerebellar Symptoms.*
2. Bianchi, E. *Experimental and Clinical Studies on the Basophilia of the Red Corpuscles.*
3. Vidoni, G. *The "Forearm Sign" in Mental Diseases.*

SURGICAL SECTION.

1. Beccherle, G. *A Case of Extrapelvic Tumor of the Round Ligament.*
2. Fioravanti, L. *My Method of Tendinous Plastic in Two Cases of Grave Traumatic Lesions.*
3. *Dialti, G. *Hematuria from Vesical Varices.*
4. Azara, P. *The Various Grades of Detachment of the Mesentery in Relation to the Vitality and Function of the Intestine.* (*To be continued.*)

3. Continuing and concluding his work on vesical varices, Dialti classifies them as, (1) idiopathic, (2) associated with pregnancy and gynecologic affections, (3) prostatic, and (4) associated with local and general maladies. There is a copious bibliography. [R. M. G.]

Miscellany.

FOREIGN BIRTH-RATES AND THE EUROPEAN WAR.

The Paris correspondent of the *Journal of the American Medical Association* has recently communicated the following additional data about the constantly diminishing birth-rate, and other important vital statistics of France:—

"There were 745,539 living infants born in France in 1913 as contrasted with 750,651 in 1912. No lower total has ever been registered, with the exception of the year 1911. In recalling the steady fall in the French birth-rate, it will be enough to mention that the annual average of living births was 945,000 during the period from 1872 to 1875; that, since 1907, the number of births dropped below 800,000, and since 1911, below 750,000. This means that in less than forty years the French births have diminished by more than 200,000 a year. The proportion of living children to every ten thousand inhabitants was 188 in 1913, instead of 190 in 1912, 187 in 1911, 196 in 1910, and 205 in 1906. The decrease, therefore, is accentuated each year. It is true that the birth-rate is falling in all the large countries of Europe, but the proportion is much less than in France; and, moreover, the excess of births over deaths is proportionately five or six times greater. Thus, for the year 1912, the excess of births over deaths for each ten thousand inhabitants was only 15 in France; in the same year it was 158 in Holland, 140 in Italy, 130 in Hungary, 127 in Germany, 107 in Austria, and 105 in England. Last year showed an excess of 41,901 births over deaths, or only 10 for each ten thousand. The excess in 1912 was 57,911, or 15 per ten thousand. This diminution is due to a deficit of 5,112 births and an increase of 10,989 deaths. The departments in which the birth-rate exceeds the death-rate are those of the north, Pas-de-Calais, Brittany, the frontier regions of the northeast, Limousin and Corsica. On the other hand, the valley of the Garonne, Normandy, the plateau region of Langres and Dauphiny continue to lose ground. The number of deaths (703,638) is greater by 11,000 than that of 1912, which was lower than any recorded number since the opening of the nineteenth century. The proportion of deaths to the population is 178:10,000, as against 172 in 1912, 196 in 1911, and 179 in 1910. The mortality has increased in 64 departments, and particularly in Bouches-du-Rhône, Dordogne, Var, Haute-Savoie, Corsica, Somme, Haute-Vienne, l'Aveyron and Tarn-et-Garonne. In 1913, 298,760 marriages were recorded, or 13,169 less than in the preceding year. The proportion of the newly married for each ten thousand has dropped from 158 in 1912 to 151 in 1913. The number of divorces has increased by about 500; 15,706 were recorded in place of 14,579 in 1912. The increase has therefore continued; in 1900 there were but 7,157 divorces; in thirteen years the number has more than doubled."

These statistics, always of interest for speculation, acquire new significance in the light of the great European war now in progress. If it be true that this war is at bottom racial, another step in the great medieval barbaric invasion of South European civilization by hordes of superior vitality from the north, then the outcome of the conflict, whichever way it may befall, should go far toward solving the question whether decreasing race fertility is or is not an accurate index of declining race vigor.

On Aug. 7 the Berlin correspondent of the Boston *Transcript* communicated still further data of interest in connection with the German birth-rate and population:—

"The imperial statistical department gives the population of the German Empire, for the middle of the year 1914 as 67,812,000. In the middle of last year it amounted to 67,000,000 in round numbers, and it is assumed that in the meantime it has increased to the amount of 800,000. Of course this is merely an estimate. But the statistical department is extremely careful in such calculations, so that the figures may be regarded as likely to be extremely accurate. As the population of France has increased by only 42,000 persons in the course of the last year, the natural increase of population in Germany would amount in the same period to nearly twenty times that of France.

"At the same time, it must be borne in mind that there has also been a falling off in the birth-rate of Germany of late years. For whereas in the year 1906, 2,085,000 children were born in Germany, in the year 1910 the total amounted to

only 1,983,000, that is to say, to over 100,000 less, and in the year 1912, the total amounted to only 1,926,000, that is to say nearly 80,000 less. This decrease in the births is, however, almost equalized by a nearly equal decrease in the death-rate. In the year 1905, 1,256,000 persons died in Germany, whereas in the year 1912 the total deaths amounted to 1,086,000; so that the falling off in the death-rate amounts to 170,000, the result being that this falling off is only 10,000 less than the decrease of births since 1908.

"Then we have the fact that there has been no falling off in the number of marriages in Germany during the last few years. The number recorded for the year 1909 was 494,000, and that for 1912 523,000. We see, therefore, that the number of marriages has increased by nearly 30,000, whereas in France the number has lessened almost to the same extent. This all points to the fact that, in contradiction to France, there is not likely to be any material falling off in the German birth-rate in the immediate future. Furthermore, the continued hygienic improvements being introduced into Germany, more especially all that is being done to fight against infant mortality, render it extremely unlikely that any increase of the death-rate should take place, of course, barring all unexpected events, such as epidemics or a war.

"It is extremely difficult to reconcile this steady fall in the French birth-rate with the continued increase of the peace strength of the army. An eminent authority, the French General Pédeya, has expressed his opinion that the reintroduction of a period of three years' military service will place an unnatural strain on the resources of the country. He points out that Austria-Hungary, with a population of ten million more, possesses a much smaller standing army. Another authority, Troussant, the inspecting medical officer of the French army, states that the health of the French troops is in a very unsatisfactory condition. An appalling percentage of the young men serving with the colors are tuberculous. It will readily be believed that the great physical strain to which the modern soldier is subjected, even in times of peace, is hardly likely to have a beneficial effect on such men. It is obvious that a country having a population of forty million inhabitants and increasing at the rate of only 40,000 annually, can keep the same number of men with the colors as a country of sixty-eight million inhabitants, and with an annual increase of more than 800,000, only provided that it is prepared to accept a far lower physical standard for its recruits, that is to say, such a country must take the recruits as they come, and be prepared to see a large percentage of them physically ruined by the strain thus imposed."

It is probably true that the Germans have already, especially in the larger cities, begun to feel and show the debilitating and deteriorative effects of modern civilization. The question therefore remains whether this effect is yet sufficient to make them unable to cope, on the one hand, with highly civilized nations with a low birth-rate, like France and England, and on the other with the perhaps still sturdier and more prolific stock of the more barbaric Muscovite and other Slavic peoples of Russia and the Balkan countries.

AMERICAN RED CROSS HOSPITAL AND NURSING PROVISIONS FOR THE EUROPEAN WAR.

THE outbreak of hostilities in the great European war was followed almost immediately by extensive arrangements on the part of all nations to provide adequate field and base hospital accommodations and nursing to care for the large numbers of wounded which may be expected. Not only the countries involved in the contest, but neutral nations as well, especially the United States, have made preparations to furnish many volunteers for this work.

On Aug. 5 Mr. Robert Lansing, counsellor of the United States department of state, as chairman of the international board of the American Red Cross, called a joint meeting of that body and of the Red Cross war relief board, of which General Gorgas is chairman, in the latter's office at the war department to consider ways and means of extending aid to the combatants.

"The meeting today was attended by Maj.-Gen. William C. Gorgas, surgeon-general U.S.A., chairman of the Red Cross war relief board, presiding; Miss Mabel T. Boardman, chairman of the national relief board of the Red Cross, and a member of the international relief board; Surg.-Gen. Braisted of the navy; Ernest P. Bicknell, national director of Red Cross; Maj. R. U. Patterson, chief of the Red Cross first aid department; Surg. J. R. Holcom, U.S.N.; Miss Jane A. Delano, chief of the Red Cross general nursing service, and Mrs. Lena S. Higbee, superintendent of the navy nursing corps, all members of the war relief board, and Bernard N. Baker of Baltimore and Director-General John Barrett of the Pan-American Union, members of the international relief board."

At this meeting it was voted to charter and equip an American Red Cross relief ship to carry hospital units to points nearest the various scenes of action. Each unit will consist of 3 physicians and 12 nurses. It is said that 5000 American Red Cross nurses have already volunteered for this service.

It was also voted at the joint meeting to issue the following official appeal for money contributions and support of the work.

"During our war with Spain thousands of dollars were sent by the European Red Cross

societies to the American Red Cross to aid in the care of our sick and wounded soldiers. Now in the hour of their supreme need the American Red Cross, both for the sake of humanity and to express our gratitude for their aid to us in the time of trouble and distress, has decided to charter a ship and send to each country involved nurses and hospital supplies.

"This ship, sailing under the Red Cross flag, will be under the protection of the treaties of Geneva and The Hague and can enter any harbor for the discharge of its beneficent duty. In no other way can this trained personnel so greatly needed reach the different countries. Protection is provided also for the personnel of the Red Cross societies of neutral States that render aid by the treaty of Geneva.

"The American Red Cross appeals most earnestly to all of our people, to the governors of states as presidents of the Red Cross state boards, to the Red Cross chapters, to mayors of cities, to chambers of commerce, to boards of trade and to all associations and individuals for contributions to carry on this work. Contributions may be designated by the donors, if they so desire, for the aid of any special country and will be used for the country designated, but assistance will be given to all in the true spirit of the Red Cross represented by its motto, 'Neutrality-Humanity.'

"Grieved as we may be over this terrible war, the agonizing cry of suffering men cannot appeal to us in vain. The American Red Cross asks for a prompt and generous response. Contributions may be sent to the American Red Cross, Washington, D. C., or to state and local treasurers of the Red Cross."

The following committees were appointed to take charge of special details of the enterprise.

To charter a suitable vessel—Surgeon General William Braisted, U. S. N.; Chief Constructor Watt, U. S. N., and Bernard M. Baker of Baltimore.

On personnel and hospital units—Surgeon-General Braisted, Major R. Patterson, Medical Corps, U. S. A., chief of Red Cross first aid department.

Designation of nurses—Miss Jane A. Delano, chairman of the American Red Cross general nursing service, numbering 5000 graduate nurses.

The American Red Cross relief ship will be adequately designated as such and will convey hospital units assigned to the several countries engaged in war as circumstances may direct.

"In order that the identity of the American Red Cross relief ship will be certain, it will be painted white, with a red band encircling the hull. A red cross will be painted on the smoke-stack, and it will fly Red Cross flags. At the time a particular country is receiving assistance the flag of that country, in addition to the Red Cross flag, will be flown."

The first acceptance of this offer of aid came on Aug. 6 from The Hague, stating that hospital units will be despatched thence as quickly as transportation can be obtained.

The women of Canada have also offered to provide a hospital ship for the British navy, and on Aug. 9 this offer was accepted by the admiralty at London. On Aug. 10 the former Empress Eugénie sent a subscription of 5000 francs for the British Red Cross. On Aug. 11, report from Rotterdam stated that the Dutch-American Steamship Line had placed its piers on the Hook of Holland at the disposal of the Dutch Red Cross. On the same day it was reported that Kaiser Wilhelm has given the sum of 400,000 marks to the German Red Cross.

On Aug. 12, it was announced from Washington, D.C., that Rear Admiral Aaron Ward, U. S. N., retired, has accepted the command of the American Red Cross hospital ship.

PROSPECT OF CASUALTIES IN THE EUROPEAN WAR.

THERE is an almost prophetic note in a volume[1] recently published in Paris by Dr. Octave Laurent, of Brussels, on the surgical aspects of the recent Balkan wars between Bulgaria and Turkey.

"Bulgaria put into the field during the two wars more than 500,000 soldiers, drawn from a population of about 4,300,000. In the first war 30,000 men were killed and about 53,000 were wounded. In the second war the killed numbered 16,000, and the wounded about 62,000. The totals for the two wars were: Killed, 46,000; wounded, 115,000. The total of killed and wounded, 161,000, represented one-third of the effective force of the whole army, or three per cent. of the entire population of the country. The deaths were one in twelve of the whole army, one in four of the wounded, and one in a hundred of the population. During the month of July, 1913, 150,000 men were killed or wounded on both sides; and more than half of these, at least 80,000, fell on the banks of the Bregalnitsa during the six days from June 30 to July 5.

"'If you put a zero behind each of these numbers you will have some idea of the effective strength of the armies and the losses that must be presumed to take place in any war which would tomorrow set the armed forces of any two first-class powers of Europe on the fighting line before each other. There would be not less than 1,500,000 dead and wounded in the course of the first month.'

"The high proportion of the killed to the wounded during the Balkan War is a modern feature that would be likely to be repeated. Artillery fire, meaning by that the use of explosive shrapnel, was responsible for more than half

[1] Commented upon by Mr. Benjamin Baker in the *Boston Transcript*.

of the deaths, but for less than one-fifth of the wounded. Rifle fire was therefore relatively ineffective by its failure to produce those massive destructive effects which follow so swiftly on the skilful use of artillery. It is precisely the reliance on the large use of artillery fire which would mark the operations of the great European armies, and from that one has little excuse for forecasting any but high figures for the killed.

"Under modern conditions, many of those wounded by the small calibre, high velocity bullets now used would stand good chances of recovery with probable small permanent disablement. One of the surprising features of the wounds in the Balkan War was the great number of perforations by bullets which did comparatively little permanent damage. In some of these seemingly serious cases of wounds, healing was rapid and uneventful. Even bones were sometimes neatly pierced with small holes, without fracture, or other serious consequences. This was not the rule in bone injuries, however, for there were many complicated fractures of the larger bones, these constituting a special surgical problem. Flesh wounds from direct rifle fire were often absolutely harmless; and in many cases the wounded were back on the firing line in two or three weeks after wounds that in the older wars would have meant absolute disablement. The mortality was distributed among fifty-five per cent. wounds of the head; thirty-five to forty per cent. wounds of the trunk; and five per cent. wounds of the limbs. Amputations were done in less than one per cent. of all the cases treated in the hospitals.

"In modern warfare, where the soldier fires under cover as much as possible, lying prone in a trench, bullets from the enemy either hit him on the head or catch his hands. The right hand is protected by the rifle, so that it is the left that gets hurt.

"Laurent suggests the use of a metallic shield, sufficiently light, yet resistant, to protect the head, another fixed to the left hand or on the rifle itself, and a third to protect the region of the heart. Many soliders have had their lives saved by the chance presence of a pocket-book filled with papers, or even of a metallic cigarette-case, in the left breast-pocket of their tunic. Superposed sheets of paper have always constituted, even in ancient wars, an excellent shield.

"Laurent's statistics show from 82 to 84 per cent. of bullet wounds, from 15 to 17 per cent. of shrapnel wounds, and 1 per cent. of wounds by cold steel. Infection by the projectile was observed in 40 per cent. of cases by shrapnel and from 10 to 28 per cent. of bullet wounds.

"The number of wounds cured without any complication was 75 per cent. Shrapnel bullets have a much less penetrative force than rifle bullets, at any rate when the shrapnel does not burst close to the soldier."

Correspondence.

WARNING.

Boston, Aug. 14, 1914.

Mr. Editor: A man who says he is the agent of the Alaska Fur Company sold me furs the other day which he said were lynx. An established furrier afterwards said that the furs were rabbit and were worth three-fifths of what I paid for them.

Yesterday this same man tried to sell his wares to another physician who was wise enough not to buy. This man used my name as a customer and it is evident that he is plying his trade among the physicians of the Back Bay, and I write this letter that you may warn your readers that his wares are not what he claims them to be.

Physician.

SOCIETY NOTICES.

American Electro-Therapeutic Association.—The annual meeting of the American Electro-Therapeutic Association will be held at Battle Creek, Mich., September 15, 16, and 17, 1914.

J. W. Travell, M.D., *Secretary.*

APPOINTMENTS.

University of Liverpool.—*Dr. J. S. Macdonald*, of Sheffield, England, has been appointed Holt professor of physiology.

University of London.—*Mr. T. B. Johnston, M.B.*, of Edinburgh, has been appointed lecturer and demonstrator in anatomy.

RECENT DEATHS.

Dr. George Harkness Payne, who died on Aug. 5 at Medford, Mass., was born in 1840, and in 1875 received the degree of M.D. from the Boston University Medical School. He was a member of the Massachusetts Surgical and Gynecological Society, and made a specialty of rhino-laryngology.

Sir Christopher Nixon, M.D., ex-president of the Royal College of Physicians of Ireland, died recently at the age of 65.

Dr. E. F. Arnold of New York, a graduate of the medical department of New York University in the class of 1885, died at Londonderry, Vt., on August 11.

Dr. Cleveland S. Stilwell, a retired physician and prominent citizen of Sag Harbor, Long Island, N. Y., died suddenly from cardiac disease on August 6. He was 61 years of age.

Dr. Robert Francis Gibson of West Somerville, a Fellow of The Massachusetts Medical Society, died at Hill, N. H., August 15, aged 40 years. He was a graduate of the Harvard Medical School in the class of 1901.

Dr. Daniel Campbell Rose, for thirty-six years town and school physician of Stoughton, died at his home August 15, aged 75 years. He was graduated from the Harvard Medical School in 1869 and was a native of St. James, N. B. He is survived by two daughters.

BOOKS AND PAMPHLETS RECEIVED.

What is a Safe Drinking Water? By Allan J. McLaughlin. Reprint No. 204 from the Public Health Reports. June 26, 1914.

Annual Report of the Department of Health of the City of Buffalo, N. Y., for the Year ending December 31, 1913.

The Twenty-fourth Annual Report of the Eye, Ear, Nose and Throat Hospital, 1913. New Orleans, La.

Original Articles.

THERAPEUTIC ARTIFICIAL PNEUMOTHORAX AS ASSOCIATE TREATMENT IN PULMONARY TUBERCULOSIS. A PRELIMINARY REPORT OF SIXTY-TWO CASES.*

By James A. Lyon, M.D., Rutland, Mass.,

Assistant Superintendent and Physician, Rutland State Sanctorium, Rutland.

Therapeutic artificial pneumothorax consists of the introduction of a sterile gas under pressure, into the pleural cavity, for the purpose of establishing and maintaining for an indefinite period a complete or partial collapse of an infected lung.

The principal results following the immobilization of a tuberculous joint, and the sudden reversal of the prognosis in certain advanced cases of pulmonary tuberculosis following the accumulation of a pleural exudate, are well known. Coincident with the accumulation of pleural effusion the cough and expectoration decrease, the temperature slowly returns to normal, and the patient's strength and weight also increase. It has been our practice, until recently, to refrain from removing the fluid unless there were well grounded reasons for so doing. Recently, however, we have been replacing the fluid with sterile nitrogen gas.

Carson, in 1821, proposed inducing pneumothorax as a therapeutic measure in pulmonary tuberculosis. Adams, in 1887, reported a case of advanced pulmonary tuberculosis in which the occurrence of an extensive hemoptysis was controlled by the sudden onset of a spontaneous pneumothorax. He, like Carson, recognized the possibility of establishing a pneumothorax as a therapeutic measure, but did not put it into effect. Forlanini, between 1882 and 1894, experimented on the immobilization of the lung, both on animals and also on human beings. At first he introduced various solutions, but, on account of unfavorable results, he discontinued their use, substituting oxygen and atmospheric air. These, too, however, on account of their rapid absorption, he found to be impracticable. Later, on account of its slow absorbing powers, he substituted nitrogen gas. In 1895, he reported the cure of an advanced unilateral case of pulmonary tuberculosis. This condition, which was at first a spontaneous pneumothorax, was maintained by frequent and prolonged introductions of nitrogen gas.

Murphy, in 1898, reported five instances of unilateral pulmonary tuberculosis treated by compression of the lung. At the time of the report all had shown improvement, but had been under treatment for only a few weeks. Schell, in 1898, reported a case of profuse hemotysis controlled by inducing pneumothorax. Lemke, in 1899, an associate of Murphy, made a preliminary report of 53 persons treated, but owing to his early death, a subsequent report was not made. In the years intervening between 1901 and 1911, therapeutic artificial pneumothorax was apparently discontinued in this country. Brauer, in 1906, published for the first time his observations on therapeutic artificial pneumothorax. Lapham, Robinson and Floyd, Rothchild, Balboni, King and Mills, Barnes, Hammon and Sloan and others have recently reported a number of patients treated by this method.

The selection of cases for pneumothorax therapy is difficult, and, in our present state of knowledge, it would seem best to limit its application to that class of cases which fail to respond to the usual sanatorium régime; to those of extensive or recurrent hemoptysis and to those which give a bad prognosis irrespective of the stage of the disease. Cases with an active process existing in both lungs are not suited to this treatment. If the treatment is resorted to with patients who are rapidly approaching their termination, the failures will be many and the unpleasant complications which persistently follow will be embarrassing. That unilateral cases, free from adhesions, will afford the best results is attested by all authorities on the subject of artificial pneumothorax therapy; but that its application should be limited to this class is by no means true, because if it were, its usefulness would be extremely limited.

With a few exceptions all our cases are bilateral, and it has been, and is our rule to refrain from establishing at once a complete collapse of one lung where the disease extends beyond the apex in the opposite one. We have felt that its greatest usefulness in these cases lies in relieving the cough, the amount of expectoration, and the toxemia, by restricting the mobility of the more extensively diseased lung, and later, if conditions are favorable, to establish a complete pneumothorax. In other words, it is our experience that if the disease in the untreated side has extended beyond the apex and is moderately active, the compensatory changes following the collapse of the opposite lung increases the activity of the other. In several instances we have witnessed the disappearance of all physical signs of active disease where the disease has been confined to the apex of the untreated side. We credit this change to the diminished cough, and the expectoration and toxemia following the collapse of the more extensively diseased lung.

Our failures are recorded under three headings:—unilateral cases with extensive pleural adhesions, instances where an active process in

* Read at the annual meeting of the Orange County Medical Society, Goshen, New York, January 6, 1914.

both lungs extended beyond the apices, and cases which are rapidly reaching the terminal stage.

With the majority of patients, percussion, auscultation or the x-ray will determine the area best suited for the introduction of the nitrogen gas. In not a few cases, however, one will be surprised at the simplicity with which the pleural cavity is reached, although the percussion note and respiratory murmur suggest extensive pleural adhesions. On account of the simplicity of the method, we adopted the operation advocated by Forlanini in preference to the more complicated one outlined by Brauer, which is as follows:—Shortly before the operation the patient is given an opiate. The areas to be operated upon having been determined, the arm is extended over the head, and several pads or pillows are placed under the patient's side to separate the intercostal spaces. Then the area is sterilized, cocainized, and an incision from five to seven centimeters in length is made through the skin, fascia and superficial muscles. The fibres of the intercostal muscles are then separated, exposing the parietal pleura. A dull cannula, with a small opening located upon the side near the point, is then forced through the pleura. A rubber urethral catheter can then be passed through the cannula to palpate the pleural cavity. In this way, one is enabled to determine more accurately the extent of the pleural adhesion if present. When it is determined that the pleural cavity has been reached, and there are no contraindications, nitrogen gas at body temperature is slowly introduced. Brauer advocates introducing from 500 to 1000 c. c. of nitrogen gas at the outset, claiming that it minimizes the danger of perforating the lung tissue during a secondary filling.

Forlanini, without local anesthesia, penetrates the tissues lying in the intercostal space with a small aspirating needle which is attached to an apparatus equipped with a manometer. If the needle is in the pleural cavity, a characteristic manometer reading will follow. The gas is then allowed to flow in. Forlanini introduces from 200 c. c. to 300 c. c. of nitrogen gas at the first sitting and advocates giving small doses at frequent intervals until the lung is completely collapsed. Brauer's operation has many disadvantages, in comparison with the simpler method of Forlanini. It is more complicated and more painful, and cannot be persistently performed several times at the same sitting. It is much easier to obtain the consent of the patient if he is told that the operation is painless and that there will be no unpleasant after effects.

Pleural shock, cardiac dilation, infection, spontaneous pneumothorax, air embolism, pulmonary hemorrhage and recrudescence in the untreated lung are the chief dangers accompanying induced pneumothorax. Floyd cites a fatality in his series caused by pleural shock and cardiac dilation.

Pleural shock comes on suddenly as a rule. We have seen it occur while injecting a solution of novocaine into the pleural cavity, and have witnessed it following the introduction of a small amount of nitrogen gas. The patient complains of a sensation of pressure in the chest near the heart, the pupils dilate, the heart beat becomes rapid and weak, the respiration shallow, cyanosis develops and the patient may become unconscious.

V. Muralt reports a case of pyopneumothorax following Brauer's method, while Hammon and Sloan cite an instance following Forlanini's method. Hemoptysis may occur if the needle is introduced into the lung tissue during manipulation. This happened in one of our cases. We have, in several other instances, punctured the lung but have not caused blood spitting, nor have we had an infection of the pleura follow. Keller and V. Muralt report cases in which a spontaneous pneumothorax followed the secondary filling. This occurred in one instance in our series (Case 9021), and, following a recent secondary filling, it ended fatally.

The possibility of sudden death being caused by air embolism can best be described by relating the experiences of Brauer. While he was giving a second filling the patient suddenly moved. At first there was a feeling of severe pain, following which the patient became unconscious. Later hemiplegia developed, and in a few hours he was dead. In another instance in a patient who had received but one treatment, Brauer was unable to get the characteristic manometer reading and, thinking the needle might be occluded, he introduced a small amount of gas. The patient at once became unconscious, and died in a few minutes.

The one infection which occurred in our series came about in this way. We were unable to get the characteristic manometer fluctuation, and slightly withdrew the needle. The manometer still refused to work satisfactorily and, thinking it occluded with a blood clot, we allowed the nitrogen gas to flow in. When a small amount of gas had been introduced, the manometer recorded a decided positive pressure, after which we withdrew the needle. Within a few hours the patient complained of severe pain extending over the anterior chest. Later, extensive redness and swelling of the tissue developed, and in a few days several dermal incisions were made and large amounts of pus were found to be present. There can be but little doubt that the infection was carried from within, and that the needle was in the extrapleural space when the gas was allowed to flow, spreading the infection throughout the soft tissues.

If the failure of the manometer to work satisfactorily had been regarded, or gas had not been introduced, it is reasonable to suppose that this infection would not have followed, because in all the other instances when we have punc-

tured the lung, with the exception of the slight hemoptysis cited above, no unfavorable complications developed.

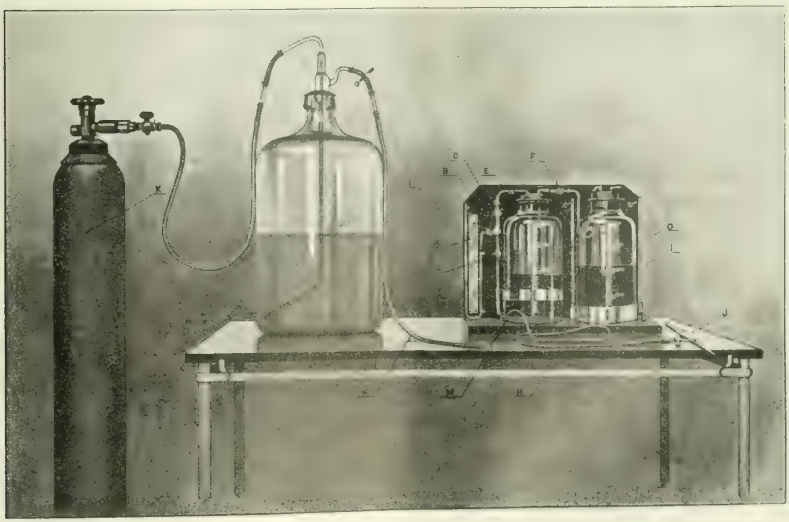
If, during the first few injections, the intrathoracic pressure is raised to too high a degree, the gas will escape through the opening made in the parietal pleura by the needle and invade the surrounding tissues, causing surgical emphysema. While this has occurred in several of our cases, we have witnessed it in but one where it caused any marked discomfiture to the patient. In this instance the patient was an emaciated subject, suffering from a complication of ulcerative laryngeal tuberculosis. During the first treatment following the introduction of 800 c. c. of gas, the manometer registered 1+ positive pressure. After the patient had returned to the ward she had a paroxysm of coughing and, within a few hours, the gas had infiltrated the subcutaneous tissue of the chest, neck, face and scalp. The patient suffered from dyspnea, dysphasia and hysteria for several hours. But within a few days the emphysema had entirely disappeared, and the treatment was resumed.

The apparatus used is the one devised by Robinson; the needle the one perfected by Floyd.

Before beginning the operation, the tubing *H* and the instruments are sterilized by being put into a hot 2% lysol solution for twenty minutes, and then passed through 95% alcohol, and finally rinsed in sterile water. The Robinson apparatus is then connected with bottle *L*, which contains a 1-500 bichloride solution, by tubing *N*, at point *M*. Cock *B* is closed, and cocks *C*, *D* and *F* are opened. The gas from tank *K* is then allowed to wash slowly through the 1-500 bichloride solution in bottle *L*, which in turn displaces the bichloride solution in bottle *E*, forcing it into bottle *G*. At this juncture the valve on tank *K* and cocks marked *C* and *D* are closed. The tubing *N* is then detached, and replaced by tubing H, to which is attached needle *J*.

As before mentioned, the site of the puncture is determined by the percussion note, the respiratory murmur, or the x-ray. Unless contraindicated, we have usually chosen the anterior chest in the nipple line on the right, or the anterior axillary line on the left. The site, however, will be governed by conditions present. One must be careful to avoid the proximity of the heart, the root of the lung and cavities. The patient reclines in bed, or on the operating table with several pillows under the chest to separate the intercostal spaces. The skin is then cleansed with benzine, and painted with tincture of iodine by the nurse. The operator, whose hands have been sterilized, places one or more sterile towels about the field of operation, and a sterile solution of 1% novocaine with 1 to 10,000 adrenalin chloride is then injected, first into the derma, then gradually into the underlying tissues until the pleural cavity has been reached.

This can usually be recognized by the lessened resistance of the plunger. After waiting from two to three minutes a small incision is made through the derma, and the needle *J*, which has been attached to the apparatus by the sterile rubber tubing *H*, is then cautiously forced through the tissues until its point has



established itself into the pleural cavity. This can frequently be determined by the consciousness of the lessened resistance afforded, and the ease with which the point of the needle can be moved about. The trocar is then withdrawn, and the cocks *C* and *B*, governing the manometer *A*, which contains 95% alcohol, are opened.

If the needle is free within the pleural cavity, there will be a negative pressure, depending upon the degree of adhesions present. If the opening of the needle is pressing against the visceral pleura, slightly withdrawing it will frequently give the manometer reading. This characteristic negative pressure will not follow if the needle has penetrated the lung, a cavity, entered a bronchus, or has merely encountered the tissues of the chest wall. If there are extensive adhesions present the manometer variations will be extremely limited, and the negative pressure will be slight, or entirely absent. In case the needle has penetrated the lung tissue, entered a bronchus, the variations will be marked, but irregular, and will give a mean pressure of about zero.

If it has been determined that the needle is in the pleural cavity, cock *B* is closed, and cock *D* is opened, allowing the gas to flow in slowly. The rapidity and force of its introduction may be regulated by elevating the bottle *G*, which contains 2000 c.c. of a warm 1-500 bichloride solution, and the amount given computed by reading the scale *I* on bottle *E*, which contains approximately 2000 c.c. of sterile nitrogen gas.

After each 100 or 200 cubic centimeters have been introduced the manometer reading should be taken, and the amount administered regulated accordingly. It has been our practice to regulate the amount given by conditions present, but we have usually limited the amount introduced at the first sitting to 400 c.c. At the outset, introductions are made twice a week until a complete pneumothorax is established, and then the time is extended to one week, two weeks, three weeks, and four weeks respectively. The frequency of injection must depend upon the conditions present, as shown by physical examinations. It is our experience that the interval between injections should at first be every three or four days, and that after the lung has been collapsed the injections should be given at least every four weeks.

In the absence of pleural adhesions the operation is comparatively simple. We have on quite a number of occasions attempted to break up dense adhesions by injecting gas cautiously under moderate water pressure, but, with few exceptions, we have met with failure. In some few instances we have been able to introduce from 50 to 100 c.c. of nitrogen, but the results have been unsatisfactory, and we have discontinued the practice because of the possible serious consequences. As the operation has not caused any discomfiture to the patient in the majority of cases, we have frequently made several punctures in search of a free pleural space. Under constant moderate pressure pleural adhesions occasionally break or stretch sufficiently to permit the formation of a complete pneumothorax. In four instances where pleural effusion has developed, we have removed the fluid and replaced it with sterile nitrogen gas. In the above mentioned cases the results have been satisfactory.

The technique of this operation is the same as that described above for introducing nitrogen gas. The level of the fluid is ascertained by auscultation, percussion, and an exploratory puncture with a glass aspirating syringe. The needle attached to the nitrogen apparatus is then introduced anteriorly through the intercostal space into the pleural cavity, just above the level of the fluid. Then a large needle attached to a vacuum bottle is introduced posteriorly in the sixth interspace, into the pleural cavity. As the fluid is withdrawn the nitrogen gas is introduced slowly, replacing the pleural exudate. The amount of gas administered should be sufficient to give a neutral pressure, as indicated by the manometer. Gas should not be introduced until the manometer gives a negative pressure, and if this does not occur on account of the fluid present, a sufficient amount should be withdrawn to produce it. Rigid technique should be practiced, lest a hydrothorax should be converted into a pyopneumothorax.

We have had but one instance in our series which developed hydrothorax (Case 9381) to any great extent. Two others developed it in a small amount, but not sufficiently for its removal. In both instances it was readily absorbed.

Graetz, Kistler, Langman and Forlanini have made pathological studies of the lung after it had been in a collapsed condition for months. When a complete pneumothorax has been established, the lung is in a firm mass lying close to the spinal column. The increased connective tissue, which is marked, is greatest in the regions where the compression has not been restricted by adhesions. The bronchi and alveoli are sometimes found imbedded in connective tissue. The epithelium of the alveoli is changed and becomes cuboidal or columnar in type. There are capsular formations surrounding old tuberculous foci, and there is a tendency to callous formation in the region of the blood vessels and bronchi.

Of the sixty-two patients treated in our series two were incipient ones, and treatment was given to relieve frequent hemoptysis. The lungs in both instances have been collapsed since April, 1913, and February, 1913, respectively. There has been no recurrence of the hemoptysis, and for the past several months the sputum has been negative to tubercle bacilli. It is our intention to discharge both these patients at an early date. There were thirty-one cases in the moderately advanced stage of the disease, two in which the prognosis was questionable, seventeen unfavorable, and twelve bad. In three

instances the lung was collapsed to relieve hemorrhage and the experiment was successful. The treatment had to be discontinued with two of the patients on account of a recrudescence of the disease in the opposite lung. One developed a severe hemoptysis in the uncollapsed side (Case 8833) and the treatment had to be abandoned. Four had to be discontinued on account of a recrudescence in the opposite lung, in one on account of neurosis, in three because we were unable to introduce a sufficient amount of gas to expect any results. In two instances the treatment was abandoned on account of the occurrence of pleural shock, on both occasions when we attempted to introduce gas the patient became unconscious. The treatment was discontinued in still another case which developed appendicitis. One died following a spontaneous pneumothorax (Case 9021), and the treatment was discontinued in another case on account of adhesions at the base of the opposite lung, causing marked dyspnea.

Of the fifteen remaining patients, five have been discharged and are doing well, three of this number are at present employed about the institution and are working eight hours per day. The treatment is being continued satisfactorily in the remaining ten cases, many of whom are soon to be discharged.

The greatest number of injections made in a given case was 28, the maximum amount given was 1700 c.c., and the minimum amount was 50 c.c., with the exception of the patients suffering from pleural shock. Here, none was given. In the twenty-nine far advanced cases the prognosis was unfavorable in ten, and bad in nineteen. The treatment was discontinued in eight instances on account of recrudescence in the untreated side, four on account of neurosis, ten on account of dense unyielding pleural adhesions. One died of acute cardiac dilation and pulmonary edema. Of the six remaining patients, one has been discharged as arrested and is working in the institution eight hours per day, three are progressing satisfactorily, the treatment was discontinued in another instance on account of pregnancy, and the one remaining is a spontaneous pneumothorax (Case 9529), and the collapsed lung has been maintained by occasional introductions of gas. The greatest number of injections with any one person was 20, the maximum amount introduced was 1600 c.c., and the minimum amount was 50 c.c.

When the results of the treatment are analyzed, it must be understood that in almost every instance the prognosis was not encouraging and was, in most instances, exceedingly bad. Of the sixty-two cases treated, fifty-eight were bilateral and four were unilateral. The treatment was discontinued in thirteen cases on account of dense unyielding pleural adhesions, and in twelve on account of recrudescence of the disease in the untreated side.

The following cases on account of their special interest are summarized:—

Case 8833. Female, age 22, waitress. Family history negative. Admitted April 29, 1912, classified as incipient. The presumable duration of the disease was six months. Physical examination on admission: general development good, patient well nourished; the intrapulmonary disease is moderately active and confined to the upper portion of the right lung, extending down to the third rib anteriorly, and to the third vertebra posteriorly. Prognosis favorable. During the third week of residence she had several small hemorrhages amounting to six or eight ounces. From this time on, the disease extended rapidly in the right lung and in a few weeks it had infiltrated its upper two-thirds anteriorly and posteriorly. She lost twelve pounds during the next two months, and on August 2, 1912, 1000 c. c. of gas was introduced into the right pleural cavity. Subsequent fillings were made every few days until the lung was collapsed, and then every few weeks. From August until January, 1913, she gained 11 pounds and the cough, expectoration and tubercle bacilli had been absent several months. The last introduction of nitrogen gas was made on January 10. On January 19 she had a pulmonary hemorrhage of about nine ounces, and for several days following had numerous ones, ranging from three to 11 ounces. A physical examination showed the right lung to be completely collapsed but numerous râles were heard at the base of the left. By April the gas in the right chest had, in part, absorbed, a few fine râles could be heard in the apex. The process in the left lung had extended from the base upward, involving the whole lower lobe anteriorly and posteriorly, and the lower portion of the upper lobe anteriorly. The patient was discharged July 1, 1913, as unimproved.

Case 9021. Male, age 20, clerk. Family history negative. Admitted August 19, 1912, classified as moderately advanced. The presumable duration of the disease was about seven months. Physical examination on admission: general development poor, slightly emaciated; there are a few interstitial changes in the right apex, and scattered infiltrated areas with moderate activity in the upper one-half of the left lung in front and behind. Prognosis unfavorable. During the first two months he failed to gain in weight and his temperature fluctuated from 97.8° F. in the morning to 102.4° F. (rectal) in the evening. The process in the lungs remained about the same. On October 21, 500 c. c. of nitrogen gas was introduced into the left pleural cavity under slight pressure. The day following the temperature dropped to 99.8° F., slowly to rise again to 100.8° F. on the third day. On October 24, 750 c. c. of gas was introduced after which the temperature returned to normal and remained so. On October 30, 650 c.c. of gas was introduced and a pneumothorax was established, with the exception of a small area anteriorly about the second and third interspace, where the lung appeared to be held down by adhesions. The patient began to gain in weight, the cough and expectoration had almost entirely disappeared, and on November 9 the patient was sitting up an hour a day in a reclining chair. In a few weeks he was up and dressed for the day. The treatments were maintained sufficiently often to maintain a complete collapse of the lung. In January, 1913, the physical signs of active disease had entirely disappeared in the right apex, the temperature continued to remain normal, and the patient

was able to go to the dining room to his meals. During the intervening months until July 18, he continued to make satisfactory progress and was on unlimited exercise. On July 14, after a period of one month had elapsed and a treatment had been given, the manometer reading was very limited, tending to be slightly negative. After 150 c. c. of nitrogen had been introduced, a pressure of 4+ was produced. A physical examination showed the lung to be collapsed against the point of adhesions in the second and third interspace near the sternum. Three days following, on the 17th, the patient had a severe coughing spell, and complained of dyspnoea. On the following day the temperature rose suddenly to 104.5° F. (rectal) and the pulse was rapid, 140, and weak. A metallic tinkling was heard all over the left chest extending to the bottom of the right pleural cavity, about four inches from the median line. He grew worse, and died on the night of the 20th. We were unable to obtain a post mortem examination, but the assumption is that the visceral pleura was torn during a paroxysm of coughing, and this resulted in the formation of a valvular pneumothorax. Death was due to shock, cardiac dilation, and pulmonary oedema of the untreated lung.

CASE 8783. Female, age 17, student. Family history negative. Admitted March 25, 1912, classified as moderately advanced. The presumable duration of the disease eight months. Physical examination: general development good, well nourished, color of lips and mucous membrane pale. There is a general infiltration scattered throughout the left lung with moderate activity, the right lung shows an incipient lesion in the extreme apex. Prognosis unfavorable. Sputum positive 6 Gaffky. During the first six months of residence she slowly declined, the cough was marked and troublesome, the expectoration increased, and there was persistent loss in weight. On September 30, 1912, 550 c. c. of nitrogen gas was introduced, under slight pressure, into the left pleural cavity. The lung movement became restricted, the râles fewer, and the breath sounds faint. October 4, the manometer gave a decided negative pressure and 600 c. c. of gas was introduced. The patient's condition afterward was good and the manometer showed that the negative pressure had been greatly reduced. Following the treatment the physical signs were the same as on September 30. Subsequent fillings ranging from 300 to 600 c. c. were given twice weekly for the next three weeks, at the end of which time the lung had completely collapsed. The period between treatments was then extended to one week, two weeks, three weeks, and four weeks respectively. With the exception of the treatment given on the morning of January 10, 1913, at which time 825 c. c. was introduced, the patient stood the operations very well. The physical examination before the introduction of gas on this occasion showed a complete pneumothorax. The manometer reading was negative, and a sufficient amount of gas was introduced to obtain a positive pressure of 4 cm. of alcohol. The patient's condition immediately following was satisfactory. About 2 p. m., she experienced a slight pain in the chest, and in attempting to find relief got out of bed and walked the floor, following which she became short of breath. The respiration ran up to 40 per minute, and she became cyanotic. The heart action was rapid and weak, with a pulse of about 140. The patient was extremely excited. A subcutaneous injection of morphine sulphate, grs. $\frac{1}{8}$, and atropine sulphate, grs. 1-100, was given, following which the heart quieted down and the respiration became less labored, and less frequent. The temperature, which was at first subnormal, rose to 101° F. Bromides in small doses were given every two or three hours during the night, and on the following morning the respiration had dropped to 24 per minute, the pulse was full and strong, and rated about 120 to the minute. We kept her in bed until the 14th, at which time she got up and went, in a day or two, to the dining room for her meals. This was a distinct evidence of cardiac dilatation brought on by too great an intrathoracic pressure, aggravated by the patient's exercising. On January 20, the pressure was negative and 450 c. c. was introduced, giving a slight positive pressure of about 1 cm. of alcohol. There were no unfavorable symptoms following this and subsequent treatments. The patient from the beginning of the pneumothorax treatment began to gain in weight; the expectoration and cough increased at first, then decreased, and in a short time disappeared altogether. The last injection, 500 c. c., was made on August 13, 1913, and the patient was discharged as an arrested case on the 15th of the following month. On repeated examinations during the last eight months of residence, the sputum was free form tubercle bacilli.

CASE 9094. Male, age 17, student, youngest of nine children. Family history negative. Admitted October 4, 1912, classified as moderately advanced. Physical examination: general development poor, fairly well nourished, net weight on admission 120 pounds. There is an infiltrated area in the upper lobe of the right lung with slight activity, and a general infiltration throughout the upper two-thirds of the left lung with moderate activity. Prognosis unfavorable. Sputum positive 6 Gaffky. During the first month of residence the patient's condition was unchanged, his temperature and pulse irregular. At times the temperature would suddenly rise to 102° F. (rectal), then in a few days slowly drop to normal. The daily maximum pulse rate was 130 beats per minute. His cough was moderate in extent, and the 24-hour amount of sputum was approximately 75 c. c. He had gained but two pounds in weight. On November 8, 1912, 800 c. c. of nitrogen gas was without difficulty introduced, under slight pressure, into the left pleural cavity, in the anterior axillary line. The manometer, which registered a marked negative pressure, was greatly reduced, but did not become neutral. Following the introduction of the gas the râles could be heard faintly, and breath sounds and respiratory excursion was diminished. The patient was transferred to the recovery room. Shortly afterward he complained of severe pain in the left chest, following which he became pale, his pulse fell to 40 and became slow and weak, after which he lost consciousness. Within a few minutes he regained consciousness and one drachm of aromatic spirits of ammonia was given. The pulse returned to normal within the next half hour. The patient was comfortable the following day, the maximum temperature being 101° F. (rectal) and the pulse 124. Within three days the temperature and pulse returned to normal and remained so until his discharge. Another treatment was given on November 20 in which 500 c. c. of gas was introduced without any ill effect. A com-

plete collapse of the lung was brought about on Nov. 22, at which time 600 c. c. were introduced. This complete collapse continued at the time of his leaving the institution, on December 24, with his disease arrested. In all, 26 injections varying from 1250 c. c. to 250 c. c. in amount were administered at different intervals. The last treatment was given on November 31. He had gained 17 pounds in weight and his cough and expectoration had completely disappeared. His sputum, during the last six months of residence, was negative to tubercle bacilli.

Case 9517. Male, age 27, laborer. One brother died of pulmonary tuberculosis two years ago. Admitted September 6, 1913, classified as moderately advanced. General development poor, poorly nourished and anemic. The disease was confined to the upper two-thirds of the right lung. On October 10, the right chest was found to be larger than the left, and was bulging. Percussion showed that the flatness extended up to the fourth interspace. Over this area the voice and breath sounds were absent, and over all of the left chest there was an exaggerated breathing. A small aspirating needle was introduced into the right chest and 1 c. c. of clear serum was removed. This was found to contain tubercle bacilli. On October 15 the needle attached to the nitrogen apparatus was introduced into the pleural cavity in the mammary line and above the line of flatness. The manometer recorded a positive pressure. A large needle attached to an aspirating bottle was then introduced into the pleural cavity, posteriorly, in the sixth interspace in the mid-scapular line. After a small amount of fluid had been removed the manometer gave a slight negative pressure. Then, slowly 1250 c. c. of gas was introduced and, at the same time, we removed 1200 c. c. of pleuritic fluid. The manometer at this juncture gave a pressure of 10+ and, thinking it too great, we reduced it to 4+. The patient suffered no discomfiture or ill effects. There was no alteration of the pulse during the operation, nor was there at any time a tendency to cough. The pneumothorax has been maintained by frequent introductions of gas, and to date, there has been no reaccumulation of the fluid.

Case 9529. Male, colored, age 30, physician. Family history negative. Presumable duration of disease 15 months. Patient was admitted on September 15, 1913, classified as far advanced. General development good, poorly nourished. Pulse 120, irregular and thready; temperature 103° F. There was a marked bulging of the right side, and on percussion, flatness up to the fourth interspace. By oscultation over the area above, there could be heard a distinct metallic tinkling, the breath sounds were absent and there was a decided hyper-resonant note on percussion. The left lung appeared normal. Diagnosis, hydro-pneumothorax. Seven hundred cubic centimeteres of fluid were at once removed, but this did not relieve the patient. His condition remained critical and on October 15, 2400 c. c. of fluid was withdrawn, and 1450 c. c. of nitrogen gas introduced. After this, his temperature dropped one or two degrees, and he was more comfortable. On October 22, 710 c. c. of fluid was withdrawn and 750 c. c. of nitrogen gas was introduced. On November 6, 1200 c. c. of fluid was removed and 1200 c. c. of gas was introduced. On November 24, we removed 310 c. c. of fluid, but did not introduce nitrogen gas, as it was not considered necessary. Again on December 31, 1150 c. c. of fluid was removed and 600 c. c. of nitrogen gas was introduced, following which the manometer recorded a neutral pressure. The patient's condition is somewhat improved and a complete collapse of the impaired lung is present, but the outlook is unfavorable.

Therapeutic artificial pneumothorax will give the best results when administered to those suffering from unilateral pulmonary tuberculosis free from adhesions. That its application should be confined to this class of patients is by no means true, and if it were, its usefulness would be extremely limited. Bilateral cases in which the active disease in the untreated side is limited to the apex, will, in many instances, show satisfactory improvement after being subjected to this treatment. When the treatment is resorted to where the active disease has extended beyond this point in the untreated side, the results will frequently be unsatisfactory.

The replacing of tuberculous pleural effusion with sterile nitrogen gas will prevent the formation of pleural adhesions and will prevent the reaccumulation of the fluid.

It is our belief that artificial pneumothorax therapy is applicable to a very limited number of advanced cases of pulmonary tuberculosis, and that the best results will follow its careful administration in that class of incipient and moderately advanced patients who fail, after a reasonable length of time, to respond to the older and better known forms of treatment.

THE FUNCTIONS OF A DISPENSARY OR OUT-PATIENT DEPARTMENT.

By Michael M. Davis, Jr., Ph.D., Boston.

Director of the Boston Dispensary.

In 1687 the medical profession of London, stirred by the evident amount of unrelieved illness in the growing metropolis, voted, through their official organization, the College of Physicians, that all members should give, without charge, their services to the poor. They transmitted this resolution in due form to the Lord Mayor and Aldermen. At the end of the seventeenth century the drug-shop was more in the foreground of medical treatment than it is today, and, unfortunately for the charitable intentions of the medical brethren of London, the pharmacists of the city were organized as "Apothecaries' Hall," the guild of the trade: and the prices of prescriptions established by the guild were beyond the means of the poor. Although the physicians were prepared to donate their services, Apothecaries' Hall would not reduce its prices. Fifty leading members of the

profession, therefore, roused to carry out their intentions despite the monopoly of the prescription market, paid ten pounds apiece to Dr. Thomas Burwell, one of their number, and established their own dispensary, with capital sufficient to provide a supply of medicines for the poor. Thus, about Christmas time, 1696, the first dispensary was opened in London in the building of the College of Physicians, and within five years after its foundation, had dispensed 20,000 prescriptions.

About the year 1700 leading physicians of London complained that the public seemed to be more impressed by the dispensation of medicine than by the freely-given services of the medical men. The dispensary appears to have been regarded as a medical soup kitchen. The dole of medicine to the sick poor seemed equivalent to the coffee and roll of the bread line.

TEACHING "MATERIAL."

Sir William Osler in his "Remarks on the Function of an Out-Patient Department" at the opening of the new out-patient building of the hospital at Cardiff, in 1908, expressed another function of a dispensary:

"That an out-patient department is simply for the relief of the poor—the common idea—is to take an altogether too narrow view of its functions. . . . Of course the first and most important (function) is the relief of the poor. . . . In acting as the training school for the younger members of the profession, the out-patient department fulfills its second great function. . . . With sufficient staff, there is no reason why just as careful notes should not be taken in these rooms as in the wards, and let me remind the younger physicians in the audience that some of the most brilliant reputations in the profession of this country have been built up upon the solid foundation of notes taken in out-patient departments. Let me urge you to make ample provision for your medical students in the out-patient department, where they see the patients in their native state, so to speak, before they have been scoured and cleansed by the nurses in the ward."

A well-known institution in one of our largest cities advertises, in a circular designed to attract students to its post-graduate courses, that the "daily average of dispensary patients admitted as clinical material" is 550. When a dispensary is closely affiliated with a medical school, supplying the students with "material" will usually be the prime reason for the interest of the medical staff in a dispensary. When a dispensary is an out-patient department of a hospital whose teaching functions are absent or at least not prominent, the medical staff is largely interested in the dispensary because it supplies patients to the beds in the ward. In either case, the medical interest in the dispensary, as such, is secondary.

Dispensaries and out-patient departments, as we know them today, have developed under the joint stimulus of two forces: the charitable impulse to relieve the sick poor, and the medical impulse to secure clinical material for hospital study or for teaching purposes. The dispensary has thus been—either or both—

1. A medical soup-kitchen,—
2. A medical feeder.

As a medical soup-kitchen,* the dispensary has not been taken very seriously by the lay public. As a medical feeder, it has not been recognized by physicians as possessing distinct functions of its own. Both as a medical and as a charitable institution it has been over-shadowed by its rich relation, the hospital. Though the hospital beds treat fewer patients than the dispensary clinics, in the wards appear the crises and climaxes of disease which are usually more dramatic, and apparently more important. Certain advances in medical science, together with the rapidly-growing interest in public health work, raise the question as to whether the dispensary or out-patient department has any distinct functions of its own, and whether, if so, dispensaries are at present so organized as to fulfill these functions properly.

THE ORGANIZATION OF SPECIALISTS.

The practice of medicine, in advancing from an art to a science, as it did during the latter part of the nineteenth century, has necessarily developed in too many directions, and too intensively, to enable the whole to be mastered by any one mind. At the present time, thorough medical work almost always involves, or ought to involve, more than one medical man. To put this in another way, no person can receive medical care today, on a level with the best standards, from the hands of a single practitioner. A man with symptoms of "indigestion," before his disease can be properly diagnosed, will probably require an examination by an internist, an x-ray expert, a surgeon, a laboratory worker and an oculist. The best medical work requires coöperation in diagnosis and team-play during treatment. This coöperation and team-play is impossible, or is uneconomical, without organization. So long as the specialists work independently in their respective offices, their coöperation is far too expensive for any but the well-to-do to afford.

In the modern hospital the medical service has been organized for the benefit of bed patients, with splendid results. In the best modern dispensaries it has been organized similarly for ambulatory patients, with excellent results. The dispensary represents an association of specialists, who, meeting in the same building simul-

* The phrase is obviously unworthy of the really fine spirit of service which usually actuates the medical and lay managers of dispensaries; but it does suggest the point of view from which dispensaries have been commonly regarded by laymen.

taneously, or at times near together, can give to any patient the benefit of joint consultation. The medical men themselves also profit greatly in thus learning from one another. Moreover, the dispensary offers laboratory and x-ray facilities and other medical equipment on a scale rarely available in the private offices of physicians. The medical principle on which the dispensary is founded is that of the organization of specialties, and this is one of the important functions of this type of institution, a function which is likely to play a large part in the medical practice of the future.*

SPECIAL MEDICAL FIELD OF THE DISPENSARY.

So long as the dispensary or out-patient department is regarded as a "medical feeder," its "clinical material" is habitually classified by the attending physicians as follows:

1. Routine cases.
2. "Interesting" cases.

The "interesting" case means, as a rule (*a*) a patient with an unusual or rare disease; (*b*) a case of developed acute serious disease requiring hospital care or operation; (*c*) a case of value for teaching medical students.

That a patient makes any of the above contributions to medical experience is a legitimate ground for medical interest in him. From the standpoint of the public health, however, the medical material in an out-patient clinic must be classified differently. From this angle a rough division of the typical medical field of the dispensary may be made:

1. Minor surgical accidents.
2. Serious diseases.
   a. In their early and often preventable stages.
   b. In their convalescent stages following bed treatment in the hospital or at home
3. Certain serious diseases which do not usually require any period of bed treatment; *e.g.* gonorrhea.
4. Minor diseases. Often these, if not properly cared for, will diminish earning capacity, or lessen resisting power, so as to lay the way open to serious disease.
5. *a.* Diseases of special organs; *e.g.* the eyes, the ears, the teeth, the throat, etc.
   b. Developmental defects of childhood.

A brief summary will show the practical bearing of this enumeration.

Minor surgical accidents constitute a considerable part of the "medical material" at many dispensaries. Prompt, efficient treatment of these accidents means the saving of large sums of money by reducing the period during which an employee is incapacitated. The community as a whole, and employers of labor in particular, have a direct economic interest in seeing that surgical treatment in out-patient departments is efficient. From this standpoint, a surgical out-patient clinic is not a medical feeder to the hospital, but has an important economic as well as humanitarian function of its own.

Modern medicine has emphasized the importance of diagnosing and treating *serious diseases in their early stages* whenever possible. In a dispensary, cancer, heart disease, kidney troubles, digestive and intestinal disorders, and tuberculosis, appear early in their course. In an efficiently-conducted dispensary with adequate laboratory facilities, accurate and early diagnosis of these troubles is practicable—often even more so than in private practice. The dispensary thus has a function of the utmost importance from the standpoint of the public health, and not at all dependent upon its relation to the hospital: the function of detecting serious disease in its early and often preventable stages. This function of the dispensary has been recognized in a large way in the anti-tuberculosis movement. During the last ten years this has become a great national campaign — better organized, better financed, than any other general public health movement. In 1905, when the campaign was in its infancy, there were 18 tuberculosis dispensaries in the United States. On May 1, 1913, there were 389, distributed over 35 States of the Union. The leaders of the anti-tuberculosis movement recognize that the dispensary, with its physician and visiting nurse or social worker, is as essential in the diagnosis and control of early tuberculosis, and in the control of cases discharged from institutions, as are the hospitals and sanitoria themselves in the treatment of the disease at a later period. Pennsylvania has placed a state tuberculosis dispensary in every county. State laws have been enacted in Massachusetts, New Hampshire and elsewhere, which, when finally enforced, will cover these states with a tuberculosis dispensary system.

OUT-PATIENT WORK IN MENTAL DISEASES.

In another branch of medicine a campaign has been organized,—against *mental disease*,—and a National Committee on Mental Hygiene is now at work, with several state branches. This committee is urging the establishment of out-patient departments and dispensaries for mental disease, either in connection with hospitals for the insane, or separately. The Psychopathic Hospital in Boston and the Phipps Psychiatric Clinic in Baltimore have out patient depart-

* Dispensaries and out-patient departments are ordinarily supposed to treat only "the poor," as are the ward beds in the hospital. "The poor" and the well-to-do thus have easy access to the best medical service today. The self-supporting middle classes, including the great majority of the population of cities and towns, have not access to such service; nor have rural communities. We may expect in the near future to see the problem of how medical service to this middle class met on an organized basis. Groups of physicians representing different and complementary [illegible] probably organize in groups, so as to make hitherto unattainable diagnostic and treatment accessible to those who can [illegible] neither "worthy," nor "poor," and who can pay moderate fees. This will not mean cheap practice, but organized practice. The joint use of equipment and the diminution of waste time on the part of the medical men, will render a more economical and a more scientific service to patients both practicable and profitable. Modern medicine is inconsistent with its own standards [illegible] vice is organized to meet the needs of the mass of the people as it now is for the two social extremes.

ments already at work, and there are indications, especially in New York, that many more will follow. Such clinics, whether large or small, will fulfill the double function (2 *a* and 2 *b*) of "spotting" and of diagnosing mental disease in its early stages, and of caring for the discharged or the convalescent cases that have been sent out from hospitals for the insane.

Early diagnosis of *internal cancer* provides at present the only hope of its cure, and the newly organized "American Society for the Control of Cancer" has already called attention to the important part which dispensary clinics should play in detecting cancers in early stages, and bringing them to operation at a time when surgery can really accomplish a cure. The gynecological section of the Associated Out-Patient Clinics of New York City has issued a special circular on this point.

CHILDREN'S DISEASES.

Another important group of serious diseases which are the special province of the out-patient clinic, are certain acute functional disorders of early childhood, particularly the gastro-intestinal and bronchial. The baby or little child who has a digestive upset may be at death's door if seen tomorrow, but on the road to speedy cure if taken today. The mother is ready to take the child to a hospital when the doctor assures her that hospital care is necessary to save the child's life, but she is willing to bring the child herself to the dispensary *before* the child's life is in danger. The function of the pediatric out-patient clinic is not to supply the hospital wards with sick children. Its proper end is to keep children from becoming sick enough to need the hospital. Recognizing this, pediatricians have developed an extensive dispensary system as part of the campaign to reduce infant mortality. This is another public health movement which has also been organized throughout the United States in the National Association for the Study and Prevention of Infant Mortality, with some eighty local societies engaged in field work in different cities and towns.

The out-patient clinic now holds a recognized place in the program of this national campaign. In addition to the many out-patient clinics for babies and young children in connection with general hospitals or children's hospitals, at least 150 special clinics for preventive work with babies have been established—often called "Consultation Clinics."

VENEREAL DISEASES.

There are two diseases, of the first importance, which the dispensary may almost be said to have for its special province: gonorrhea and syphilis. The complications of gonorrhea and the later manifestations of syphilis bring many patients to the hospital wards. Yet large though the number of these bed-patients is, they represent only a fraction of the total who suffer from the venereal scourges. The large majority demand treatment as ambulatory cases. This treatment is secured in one of four ways:

1. From private physicians in their offices.
2. At dispensary clinics.
3. In the offices of advertising doctors, or at medical "institutes," or by correspondence with such "institutes."
4. Self-treatment — the patient prescribing for himself on advice obtained from friends, from literature, or from drug clerks, with drugs bought at pharmacies.

No one knows the relative proportion of patients who secure treatment through each of these four sources, but three points are clear: (*a*) the last two agencies of treatment are thoroughly undesirable; (*b*) they are widely used; (*c*) this fact is evidence that the desirable agencies of treatment are, for one reason or another, not adequate to the immediate existing needs.

Can private practice be developed to meet these needs? The fact is that, despite increasing numbers of physicians, and increasing competition for practice, private practice does not so develop. Furthermore, the treatment of gonorrhea and syphilis in private offices is seriously handicapped by lack of the best modern facilities for diagnosis, and also for treatment. These facilities are too expensive to be at the command of the average practitioner who treats these diseases.

There is a rapidly advancing campaign against venereal disease. At the present time this campaign is concerning itself especially with the problem of education in sex hygiene; but the increase of facilities for the treatment of venereal disease must also be a part of the program. From preliminary reports of the hearings of the British Royal Commission on venereal disease, it appears that this commission will probably recommend a great enlargement of well-equipped dispensary clinics for gonorrhea and syphilis. The recent book by Abraham Flexner on "Prostitution in Europe" shows that much has been accomplished by the municipal dispensaries for venereal disease developed in Scandinavian countries. Under the present and the probable future conditions of private medical practice, American communities may find that the enlargement of dispensary facilities is the only means by which adequate opportunities for treating venereal disease can be provided.

"MINOR" DISEASES.

What are commonly called "minor diseases," often have more than minor effects upon the health and working efficiency of the sufferer. Such diseases, which do not confine the patient to his bed, fall particularly within the province of the dispensary: for example, many skin diseases, very troublesome, and in some instances infectious; the common cold and its sequels;

nervous disturbances; digestive disorders; septic processes of hands and feet, together with minor surgical injuries among working people; and a large proportion of the diseases and defects of special organs, particularly the throat, nose, ears, eyes, and teeth. New demands have come upon the dispensary because of the growing sense that "minor" diseases are important. Medical school inspection is adding more to this demand than any other factor. When medical school inspection is carried out to the extent which now obtains in a number of cities, almost the entire population between the ages of six and fourteen years receive periodical medical examinations, and an enormous number of defects, as well as functional diseases, are revealed. Questionable eyesight, bad teeth, defective hearing, enlarged tonsils, occluded nasal passages, postural defects or malformations are found to be widespread.

The community at once realizes that it is of little value to spend money in discovering such defects unless it is prepared to remedy them after they are found. In every city where medical school inspection has raised this problem, private medical practice has proved itself incapable of solving it. A large proportion of the children never secure treatment because their parents cannot pay for it. Much of this treatment involves work by specialists, such as operations in special surgery. Even self-supporting, working-class families cannot afford the usual fees charged for such work at private offices. Consequently dispensary clinics have been extensively used, in a number of cities, as a means of providing needed treatment. Even with this aid the need has nowhere been fully met, and the demand for additional clinics is becoming insistent. Dental clinics for school children have been established in several cities. School eye clinics have been begun by the board of health of New York City.

To recapitulate: The typical medical material of the dispensary includes some of the most prevalent and dangerous diseases: tuberculosis, syphilis, gonorrhea, cancer, infantile disorders; and these appear chiefly in the stages when they can be most advantageously cared for. Within the special province of the dispensary are that great mass of diseases which are individually called "minor," but which collectively are the major part of private medical practice: the disorders and impairments of the special sense organs; the developmental defects of childhood; and last, but not least, the convalescent stages of disease following bed care.

THE DISPENSARY AND THE HOSPITAL.

The task of the dispensary is its own: it is not merely secondary to that of the hospital; and though the hospital and the dispensary are mutually interdependent, each has its own place in the public service. The hospital needs the dispensary for three reasons, which might be summarized in three words: the dispensary feeds, follows up, and forestalls the hospital. The out-patient clinics feed the wards of the hospital with which they are connected, or of other hospitals in their community. When a patient is able to leave a hospital bed, he frequently requires further medical supervision. This the out-patient clinic, if properly equipped, can provide, with benefit to the patient and direct economy to the hospital. Many are the re-admissions to the hospital wards caused by too early discharge at the first admission. The dispensary bridges the gap between ability to walk and ability to work.

Finally, by detecting serious disease in its early stages and by successfully treating minor defects and diseases which lead up to serious illness or infection, the dispensary keeps patients from needing hospital care. Inasmuch as bed care, on the average, costs per patient from three to ten times as much as efficient out-patient service, a dispensary, if so equipped as to be efficient, is a money-saving investment for a community.

Of course, there is much to be said on the side of the hospital's service to the dispensary: the dispensary needs the hospital exactly in the same way as private medical practice and the community as a whole need it. The hospital is the center of medical work for its community. The intensive study of acute and serious disease; major surgery and its advancement; scientific laboratory research; and the training of physicians and nurses—have a place in the dispensary, but their center in the hospital. Private medical practice and dispensary service are alike dependent upon the hospital in this sense.

From the clinical standpoint, the dispensary is related to the hospital very much as, in private practice, the physician's office work relates itself to his visits to patients in their homes. There is another standpoint,—that of the administrator: Is not the dispensary subordinate to the hospital so long as physicians and surgeons seek hospital appointments as the great prizes, and leave dispensary appointments to the young men or the second-raters?

The truth is that, so soon as we recognize that the dispensary has special functions of its own, of high importance from the standpoint of public health, we shall develop physicians who are interested in performing these functions. Public health work (*i.e.* in the health departments of cities or states) is passing through just this evolution today. Many young men now receiving their medical training are debating seriously whether they shall take up practice, or enter salaried health service. The dispensary does perform—and in the future will be more fully recognized as performing—a type of medical work of special interest to certain men.*

* The dispensary will not cease to be a field in which Dr. Osler said, the younger members of the profession will receive training. They will seek appointment in the hospitals during their period of study, perhaps to leave it later. The heads of services in the dispensaries of the future, however, must take up the work as a branch of public health, giving upon the time as a career. Such positions must, of course, be salaried.

PREVENTIVE WORK.

The final function of the dispensary lies outside the sphere of clinical medicine, and wholly in that of preventive. The dispensary has unequalled opportunity as a center for the instruction of patients and their families in hygiene. Out-patient clinics dealing with large numbers of the sick, develop a host of contacts with the well, especially the well members of the families of their patients. The dispensary should be an effective center for lectures, exhibits, and the dissemination of literature upon health subjects. Finally, the dispensary is in a position to supply periodical medical examinations on a more efficient and more economical scale than is possible in any other way, because in the dispensary may be found a group of specialists, who, through coöperation, can make the most thorough study of a patient. Modern medicine is preaching that everybody should have periodical medical examinations, in order not only to discover physical defects, but also to develop the individual's knowledge, so as to promote his health and working efficiency.

APPLYING MEDICAL KNOWLEDGE IN PRACTICE.

The wonderful progress of medical science, since the epoch-making discoveries of Pasteur, has brought knowledge sufficient to control many of the most serious diseases of mankind. This progress has been achieved chiefly through scientific research, in which hospitals, medical schools, and practitioners have coöperated with the workers in pure science—chemists, physicists, and bacteriologists. The present generation should not diminish its support for scientific research along medical lines, but it should and must greatly enlarge its provision for rendering the fruits of this research of practical benefit on a large scale. Although in case after case, the cost of disease has been proved to be greater than the cost of prevention, the general public is not yet sufficiently penetrated with the new knowledge to support the initial expense of applying it among all classes of society. There is now a rapidly-advancing interest in public health work of all sorts, and this growing interest really means that the public is gradually becoming ready to pay for putting scientific knowledge into practice.

In this process of application, the dispensary will play a large part. Curative medicine has found that, in dealing with bed cases, medical organization is essential to the best results. Curative medicine is appreciating more and more the importance of dealing efficiently with ambulatory cases, and is finding that here also medical organization among complementary specialists is a prerequisite to the most effective work. This medical organization simply means: the dispensary. Preventive medicine will continue to develop city-wide, country-wide programs, and apply them as Colonel Gorgas did at Panama; but in individual case-work, where preventive medicine must also be applied, the dispensary is the best field of large-scale application.

Up to the present time, the serious, and, on the whole, the just criticism of dispensary work has been its relative inefficiency, due to inadequate equipment, insufficient staffs, incoherent organization. So long as the dispensary is regarded as merely a "soup-kitchen" or a "feeder," it will continue to be treated as secondary and it will be second-rate. So soon as its proper medical functions, and its special contributions to public health, are recognized, it will be treated as an institution which must be efficient, and the funds and energy which are necessary to make it so, will gradually be forthcoming.

SUMMARY.

The main points in this paper may be summarized as follows:

1. The dispensary developed as a medical soup-kitchen.

2. It became also a feeder for hospital wards and for medical teaching.

3. The dispensary has therefore been merely secondary in medical work.

4. The development of modern medicine has created specialists, and the best medical work can only be done as the team-work of specialists.

5. The work of specialists demands such elaborate equipment, and their team-work requires so much time, that it is impracticable, on a basis of private practice, except for the wealthy.

6. Dispensary organization, as now developed, is applicable not only to "help the poor," but to provide medical service for those who can pay reasonable fees. In no other way can the best medical service be made available to the people as a whole.

7. The organization of self-supporting dispensaries, on a business though not a merely commercial basis, is thus called for in the near future.

8. The dispensary has a special medical field of its own. In this field fall a large group of important diseases, and many other diseases in their early stages. The dispensary is also peculiarly adapted for preventive work.

9. The dispensary and the hospital are interdependent: the hospital is the center for advancing medical knowledge and medical education in its community; the dispensary is a center in which medical knowledge is to be applied for the benefit of the largest proportion of the population. The dispensary feeds hospital wards, follows up discharged patients (thus promoting hospital efficiency), and forestalls the need of hospital service by detecting and curing illness before it requires bed care (thus promoting economy of hospital service).

10. Criticism of inefficient dispensary work is wholesome. The number of dispensaries in the United States has increased from about 100 in 1900 to over 700 in 1914. Standards of service must now catch up with magnitude of service.

AN ANALYSIS OF ONE HUNDRED CASES STUDIED IN CONNECTION WITH THE MUNICIPAL CRIMINAL COURTS OF BOSTON.

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Of the many wonderful strides of modern civilization none are more striking than the reduction of disease and mortality. The elimination of those terrible pestilences, small-pox, yellow fever, bubonic plague, malaria, etc., that once depopulated great districts has proven one of the greatest blessings that science has ever contributed to mankind; making habitable desolate and pestilence-ridden districts and saving millions of human lives; making possible such feats of undertaking as the Panama Canal, more a lesson to the world in the prevention of disease than in engineering skill, for the French failed not because of their poor engineering ability but because of the terrible death rate from yellow fever, malaria, etc. So high was the rate of death, that one, it has been said, could walk across the Isthmus on dead bodies. With the discovery of the causes of yellow fever, malaria, bubonic plague, etc., by our laboratory investigators, and the utilization of this knowledge by the medical profession in the eradication of these diseases, the Isthmus of Panama is practically a health resort, its death rate being lower than some of our American cities.

Compare the extraordinary death rate in our Civil and Spanish-American wars due to typhoid, many thousands in each succumbing, with the almost total absence of typhoid among the Japanese in the Russo-Japanese war. A feat of prevention; a memorial to preventive medicine.

So in our fight against the diseases of childhood, the diseases of middle life, and in the great battle against the White Plague, the key note of all our progress is prevention.

Now in her social problems, Society has similar methods to pursue. Crime must be looked at in the light of natural phenomena, and an effort made to discover the underlying causative factors that are responsible for its production. This is not to be done by hasty generalizations, not by the guesswork of untrained observers, but by patient and persistent study at the hands of those trained in methods of scientific research.

Dogmatic assertions have been made that poverty, social inequality, alcoholism, or what not, was at the basis of crime. The burden has been laid on a faulty environment, and efforts have been made to eradicate it by improving social conditions. The expected decrease, however, has not come about. It still remains one of the most serious problems that Society has to face. One state alone, last year, spent thirty-five million dollars in handling the crime problem.

Almost universally now are earnest students attributing this failure to the fact that in our search for the causes of crime we have overlooked the most important factor in the whole situation, the criminal himself. We have sought for external conditions associated with crime, and passed by its real source. We have overlooked the real springs of human conduct, the impelling forces within the individual that drive him to commit a criminal act, and have directed our attention on the act itself together with the environment within which the criminal lives. As might have been predicted, the treatment administered under such conditions, being simply plain guessing, based on nothing more than intuition,—without an adequate diagnosis of the criminal himself, of what he really is and really needs,—has very often missed the mark.

Now if we are to make any progress in the handling of the crime problem, if we are to get at the very roots of crime, we must adapt the particular treatment to each individual offender as he needs it. This is not a matter of guesswork, but depends upon the constitution of the offender; it depends upon a knowledge of the psychopathical makeup of the individual himself.

In the practice of medicine if we should treat a man with typhoid for tuberculosis, our ignorance might be the cause of his death. In these modern days we demand a careful examination and diagnosis before we begin the treatment of a disease. We want to know just what is the matter with our patient, else our ignorance is liable to result in disastrous consequences. The same thing is true in the treatment of the criminal, except that the Court's failures are followed by recidivism rather than the death of the patient.

If our Courts are in sympathy with the spirit of progress, if they desire to improve the present court procedure and reduce perceptibly the apparently increasing criminal army, they have it within their power to utilize the same scientific methods for careful examination and diagnosis, as well as prognosis, before they undertake to say what kind of treatment shall be meted out to an offender.

The need of such a rational procedure I am sure requires no unnecessary urging, for it must be self evident how different should be the disposition of the case of a mental defective from that of an individual capable of profiting well by experience; or in what a different light are we to view the misconduct of an epileptic from

that of a normal individual; or the entirely different type of disposition required in the case of a mentally deteriorating chronic alcoholic from that of a mentally disordered inebriate; problems that are at the very root of crime.

With these things in mind I have made a hasty analysis of my last one hundred cases, in order to illustrate the varying types of individuals that are to be met with in the ordinary daily run of the court, as well as the great importance of handling each according to the particular problem he or she presents.

Before proceeding with the discussion of our cases, it might be profitable to speak of the methods used in studying these individuals. First, our purpose is to secure as accurate a life history of our individual as is possible. This is secured from the individual himself, from relatives, from acquaintances, and whatever sources are available. We aim to go rather carefully into the family history, looking for any heritable defects or traits. Next, the personal history, starting from birth, through infancy, childhood, adolescence and adult life; in other words, a careful developmental history up to the present. Then a study of his habits and instincts, an estimation of his ethical relations, and an examination of those qualities that constitute his value in relation to his fellows. Finally, an evaluation of his present environment as far as such is possible. Next, our purpose is to get an idea of his present physical condition. The neglect of fundamental matters, such as the investigation for sensory defects and causes for general weakness, is absolutely inexcusable, so great is their relationship to the production of criminality. Finally, and most important of all our investigation of the offender, is the study of his mental life, which may be arranged under two headings: first, the psychiatric method, investigating for the presence of mental disease; second, and by far the more important, the psychological. Here we lay under tribute the psychology of individual differences and the impelling forces of human conduct. That method of psychology to which I wish to call your *special attention*, however, is the method of mental tests.

By mental tests we mean the experimental determination of mental capacity, the scientific measurement of mental traits. It is a method superior to casual observation, inasmuch as it is purposeful and methodical. It is a method common to experimental investigation at large, in that one is able to control conditions, subject the obtained results to quantitative treatment and secure the possibility of repetition. The giving of mental tests to offenders is in almost every case an indispensible condition for diagnosis of the individual. Surprising defects and aberrations may be found in many, even apparently normal, and surprising capabilities may be discovered in some who appear sub-normal. The grading of vocational aptitudes is in very general terms possible by the use of tests.

The examination should include; first, a scale of tests that would give us some idea of his mental level, as compared with that of a normal individual; second, a determination of our individual's various mental powers and traits, such as different types of memory, powers of mental representation and analysis, ability to plan, or to show foresight, ability to appreciate rational relationships in various ways; his psychomotor abilities, and so on. In general, we desire to determine by our various tests what are the capabilities, the adaptabilities, the needs, of our individual. For such purpose we have at hand the Healy and Fernald tests, and various methods that have been standardized by the psychological laboratory.

Having thus before us a life history of our individual, of his present physical and mental condition; a fairly accurate knowledge of his mental capacity; of his mental traits; of the preponderating opportunities and interests as shown by study of his mental content. This information is laid before the judge in the following manner:

We have here an individual with,—

1st. Such and such physical characteristics.
2nd. Such and such mental abilities and mental traits.
3rd. Committed such and such types of delinquent acts.
4th. In the background are such and such conditions of defective heredity, pathological development, injuries, early teachings of immoral conduct, bad personal habits, lack of educational opportunity, or what not.
5th. In the light of his being what he is, physically and mentally, and having this background, we can offer on the basis of known predictability, such and such a prognosis, if such and such treatment is afforded in such and such an environment.

One may ask, why is all of this elaborate scientific investigation necessary? Why should the courts or society in general concern itself with a careful diagnosis of the capabilities and adaptabilities of individuals whom it is forced to consider as serious social problems?

As hinted at in the beginning of our paper, it seems quite clear to anyone who thoughtfully views the general situation, and especially the procedure of courts which deal with offenders, that the agencies intended to produce the desired reform are set in operation without any careful ascertainment of the actual needs of the individual himself. In other words, treatment is undertaken without diagnosis.

A most cursory inspection shows that daily there appear in our courts many cases presenting extremely difficult problems. This fact, together with observation of the failures of insti-

tutional treatment, is leading many people who are acquainted with first-hand facts to the conclusion that perhaps one of the greatest causes of the lack of success in our handling of criminals has been our neglect of the study of their actual mental conditions, and the paramount importance of psychological work and mental tests in this field is self evident.

It is quite clear, and needs no argument to prove, that the judge, with his slender opportunities for observation of the offender, and his lack of results of carefully conducted examinations, is often in a poor position to do the best that could be done.

We know too much about mental defectives, who have the gift of language, appearing bright, and with good enough presence to readily pass muster in court; we know too much of defectives who can do well under the prescribed conditions of institutional life, to believe that without competent psychological examination differentiation can be safely made between those whom it is wise for society to allow out on probation and those who, in the interests of social protection, should have proper institutional, or other guardianship.

We are now prepared to discuss more particularly the results of our analyses of one hundred cases. In the first place, our individuals appear on the court record under the following offences: 22 cases of larceny, 45 cases of drunkenness, 6 cases of assault and battery, 1 case of selling drugs, 10 offences against chastity, 2 cases of running away from home, 2 cases of vagrancy, 7 cases of non-support, 1 case of highway robbery, 3 for threats, and 1 for obtaining goods under false pretenses.

Admitting that there are extra legal considerations, and taking the view that our individual must be handled in the light of what he is as well as what he has done, we find that our 22 larceny cases contain 8 feebleminded individuals, 2 cases of dementia praecox, 3 constitutional psychopaths, 4 sub-normal individuals, 2 epileptics, 1 case of ataxic paraplegia and 2 normal individuals.

Of the 45 individuals arrested for being drunk, our records show that 11 of them were feebleminded, 3 were suffering from dementia praecox, 1 was a case of alcoholic hallucinosis, 17 were constitutional psychopaths, 5 were sub-normal in mentality, 5 were epileptics, 1 senile dementia, 1 hysteria, 1 normal.

Of the 6 arrested for assault and battery, 3 were feebleminded, 1 dementia praecox, 1 epilepsy, 1 normal.

The one individual arrested for selling drugs was a general paretic.

Of the 10 individuals arrested for offences against chastity, 5 were feebleminded, 3 were sub-normal in mentality, 1 was an epileptic, 1 normal.

Of the 2 individuals arrested for running away from home, 1 was feebleminded, and 1 was sub-normal.

Of the two vagrants, 1 was feebleminded and 1 was a constitutional psychopath.

Of the 7 cases of non-support, 1 was feebleminded, 1 was suffering from dementia praecox, and 5 were constitutional psychopaths.

The one individual arrested for highway robbery was, from the intellectual standpoint, normal. He was a boy under 21 years of age, who quite early began to show criminal tendencies. There was in the background no family control, grew up in the streets, early bad associates. Mental examination showed a very quick, active mind, vehement rather than stupid, of an adventurous disposition, not in the least suggestible, and of strong anti-social tendencies.

Of the 3 cases of threats, 1 was suffering from dementia precox, and 2 were constitutional psychopaths.

Finally, the one individual arrested for "obtaining goods under false pretenses," was a constitutional psychopath, who had been on one of his periodic drunks for several weeks, was markedly disordered mentally and had a partial amnesia for the events at the time of examination. (The stupidity of his offense was most evident: he was ordering goods in the name of another man, and having these goods sent to this man's place of business. The receiver of the goods made complaint against him, and he was arraigned in court, where he still persisted in giving his name as that of another man.)

So that if our courts would substitute for the vagueness of moral responsibility the natural responsibility of the psycho-physical constitution of the offender and for the concept of punishment that of treatment we would have in these 100 cases the following facts for our judges to consider along with the record of their misconduct: first, that 30% of them were feebleminded, mentally defective individuals, not criminals in the sense of innate wickedness, but weak minded defectives, incapable of understanding and measuring up to the dictum of society. Individuals who from the very nature of their own non-development, fail to understand their obligations to the order of society and who consequently fail to obey its mandates. Individuals who more easily become entangled in the meshes of crime, simply because of their stupidity; who naturally, because of their greater economic stability, when at large, drift into prisons, alms-houses, hospitals and other institutions. Unteachable, unemployable, a nuisance to themselves and everyone else, without a place in the economic régime of a law-abiding community, the position of the unsupervised defectives is extremely forlorn, and can hardly fail in the long run to compel them to swell disproportionately the criminal ranks. The treatment based on giving them another trial, on sentencing them to a short term of imprisonment, is not even touching the problem. It ignores not theories,

but facts. After a short term of imprisonment the mental defective is turned out into society again unmodified, no more adaptable to social conditions than the day he was sent to prison, and after a short period of freedom again he is found in the courts, and off he is sent to prison again for another short term, again out into society and then back into the courts—off to prison again, and so the vicious circle goes.

The question presents itself: what is to be done with these mental derelicts who form a large part of the criminal army to be seen passing through the courts of our larger cities? First, their reactions should be differentiated from real crime. How? By an examination at the hands of a psychologist and alienist. When? At the time of the investigating court trial. The court should be furnished the necessary scientific assistance to secure an accurate and positive diagnosis and classification, and on such findings the accused should be *committed* to such an institution as is best suited to the particular needs of his case, where intelligently directed efforts may be made to render him adaptable, *if this be possible,* to the demands of society.

Our courts would have to consider further, that out of our one hundred cases eight per cent. were suffering from dementia praecox, a form of mental disease, a psychosis essentially of adolescence, characterized by a dementia tending to progress, though frequently interrupted by remissions; a mental disease, in the etiology of which heredity plays a marked rôle; often recurring repeatedly in the same family. Inasmuch as their anti-social conduct has its basis in a delusional background, sentencing them to a short term of imprisonment in no way solves the problem. Here, too, their reactions should be differentiated from crime, and they should be *committed* to such an institution as is best suited to the needs of the case.

One per cent. had alcoholic hallucinosis, a condition not likely to be overlooked, even in the crude methods of examination incident to the ordinary court room procedure.

Twenty-nine per cent. were constitutional psychopaths; a most important type for our courts to recognize, inasmuch as they form such a large part of the criminal army. Careful psychological examination shows that these individuals are in no sense defective in intelligence, and that they are not suffering from any form of psychosis; but that they have certain anomalies of character which lead to a rather inefficient type of adjustment to their environment, and that they sometimes become actually disordered. The most striking defects found in these individuals is in the field of volition. They seem to be inhibitionless. Their problem is a most difficult one, and always requires an understanding of the causative factors in the background, the impelling forces of their conduct, if it is in any sense to be solved.

Thirteen per cent. of our one hundred cases were sub-normal individuals, who according to the mental tests appeared to rank between the feebleminded and normal in intelligence. Not quite so capable of complying with the demands of society as the normal, they accordingly fail to conduct themselves in such a manner as to avoid coming in contact with the law and thus appear in a greater proportion in the army that passes through the courts than do those of normal intelligence. They are individuals far more capable of profiting by experience than the mental defectives, and thus more amenable to proper remedial measures.

Nine per cent. were epileptics, possibly the most important of all this entire group for society to recognize, inasmuch as their reactions are absolutely unpredictable. Mental tests on these individuals show rather interesting results: one gets different levels of intelligence on different days of examination. But the important thing for society to know is that the most serious and revolting crimes are often committed by these individuals; that after an epileptic attack they often act as pure automatons; that the tendency in the majority of all cases is toward mental degeneration.

One per cent. had general paresis; an individual with the most bizarre delusions of grandeur, and was committed as insane.

One per cent. ataxic paraplegia; a disease of the spinal cord that has associated mental symptoms and changes in conduct; and six per cent. was normal. The latter group no less demanding individualization than the most serious of the others, inasmuch as among them is to be found the opportunity of making out of so-called criminals, non-criminal and useful citizens. Especially is it true of this normal group that what society does or fails to do for them is shown in their reform or tendency to a repetition of the criminal act.

As previously stated, this group of one hundred cases by no means represents the actual percentage of abnormal classes among those accused of crime. On the contrary, it only represents a series of individuals picked out by judge, or probation officer, as manifesting sufficiently abnormal conduct to warrant a mental examination. But it does serve to call attention to the need of careful examinations and accurate diagnosis of a very large percentage of those individuals upon whom our courts are to pass judgment, if the problems which they present are to be satisfactorily solved, and a repetition of their anti-social conduct to be avoided. It serves to call attention to the fact that behind every individual's conduct there are certain causal factors within the individual himself that cannot be ignored. This does not in any sense diminish punishment or loosen the safeguards of society, but it serves to direct them along more rational lines.

A study of the 45 cases arrested for drunkenness showed some rather interesting results; six

more individuals were added to this group inasmuch as alcohol seemed to be the exciting causal factor in their conduct, making all told 51 cases.

These cases could be readily grouped into two distinct types: the "periodic drinkers" or "inebriates," and the "steady drinkers," or "alcoholics."

The inebriate seems to be an individual who has distinct drink paroxyms which subside and are followed by periods of sanity and rational thought and conduct. Suddenly the storm breaks out again, and he drinks to great stupor, and is clearly insane. From this he recovers, only to have another paroxysm. As in the epileptic, these seem to be convulsive fits which are uncontrollable.

Thirty-seven of our 51 cases were periodic drinkers of the inebriate type. Of these 67.5% were constitutional psychopaths, inhibitionless, neurotic types of individuals, of good intelligence when not under the influence of alcohol, but who drink spirits convulsively. Thirteen and five-tenths per cent. were epileptics; 2.7 % suffering from hysteria; 2.7% alcoholic hallucinosis; and only 13.5% defectives. So that we may say that the periodic drinker is a neurotic, an unbalanced and an unstable type of individual, in whom alcohol acts in an explosive manner, and is not a defective or insane. He is not an individual demanding any prolonged institutional treatment, as the periodic nature of his attacks seems to remain unmodified. His mental disorder usually clears up in a short while and he remains perfectly sane until another attack ensues. Over these attacks he has little control. He belongs to a class of individuals whom society must incorporate into its scheme of living and handle by well directed social measures.

On the other hand, the "alcoholic," the "steady drinker," presents quite a different picture. Fourteen of our cases were of this type; "steady drinkers," "alcoholics." Fifty-seven and fourteen one-hundredths per cent. of these were mental defectives; 21.5% dementia praecox; 7.14% sub-normal mentally, 7.14% epileptic; 7.14% senile dementia. All rather serious problems; all showing an insidious, progressive impairment of all the senses, a lowering of the functional activities of the body and a degeneration of the higher mental faculties. The more careful and accurate the measurements on these cases were made, the more positive deviation from the normal became. All of these individuals were institutional cases. All showed evidence of poisoning from alcohol, not that they evinced from casual observation any marked stupidity or mental degeneration; on the contrary most appeared reasonably sane, and some even impressed one favorably.

One case of the group will illustrate the point: This particular individual showed from a physical and mental examination all the physical and mental stigmata of chronic alcoholism, and the examiner felt that prolonged detention was necessary if his condition was to be improved. He made a fairly good impression in court and was given "another chance." When out, the obsession for spirits, the morbid impulse for drink, against which his paralyzed will was absolutely helpless, landed him again in the Tombs within twelve hours, and again for trial he appeared next morning. This is what is to be expected of practically all the alcoholic group. Giving them another chance, or a short term of imprisonment, ignores certain positive physical and mental facts calling for treatment, and that treatment consists in a prolonged detention in institutions suited to their needs.

So that we have the inebriate, a neurotic differing in makeup from the alcoholic, and requiring entirely different measures in his treatment; an individual having periodic alcoholic attacks. Their apparent recovery from individual attacks in no sense constitutes a genuine recovery; always liable to another outbreak. They are a most difficult problem for society to handle. The alcoholic is a more simple problem, in that prolonged detention is usually indicated.

Certain points stand out in the mental examination of these individuals, which may very profitably be applied to court-room procedure in any offenses where the question of alcohol may enter:—

(1) The defect in memory was very evident in all the cases. The derangement of the brain prevents the impression of the senses from being registered with any sort of certainty, and thus varying degrees of amnesia were present.

(2) The powers of perception and discrimination were distinctly impaired. The fine distinctions, the uncertainties, the doubts, characteristics of the average mind when confronted with the complex problems of daily life, give way in the inebriate and alcoholic to a certain positiveness that is misleading. This type of individuals would become dangerous witnesses.

(3) It is quite clear that inebriety and alcoholism do impair the sanity and integrity of brain and body, and that such persons do not possess the free will and ability for self control that is ordinarily attributed to them.

Such work as we have already done tends to lead us away from the theories of criminal law and ethics, and closer to life; tends to cause us to look past the deed to the sources and springs of human conduct; tends to create in us a conviction that in the study of criminalism there are causes and sources that are strong enough to partake of the nature of natural phenomena, and that in neglecting their influence and existence we are disregarding the first principles of common sense. We have come to the conclusion that the commission of crime is largely the result of the mental condition of the offender, and that a study of the mental life of offenders brings appreciation of human differences,—makes us realize that it is impossible for all persons to avoid conduct which is in violation of

the law, just as it is impossible for every one to be truthful, or generous, or courageous.

A careful study of offenders brings to light special defects and peculiarities, and experiences, both personal and social, that have *all to do* with the production of anti-social conduct.

A careful study of offenders leads us away from the old concepts of the Lombrosian school, from the born criminal, to the recognition of the same types as are to be found in the non-criminal class. The difference is one of degree, and not of kind: of a quantitative, rather than a qualitative character. "Some are vicious, some are stupid, some are brutal, some are excitable, some are lazy, some are careless, some are vehement, some are dull." But none seem born criminals. In every stupid mind, in every careless mind, in every mind that is vehement and impulsive, crime finds an easier foothold. One feels that if society is to do its work well, if the question of conduct is to be handled so that society will be protected to the utmost, then it must take cognizance of the facts of mental life under which all conduct is determined; the psychological laws through which, so far as behavior is concerned, we live, and move, and have our very being.

One feels that whenever the problem of human character is in question, whenever it forms the basis of such a complex issue as that of crime, whenever for the improvement of the offender social agencies are directed, or penal measures considered, first of all should be required an accurate diagnosis; a diagnosis that presupposes systematic and positive methods of examination; a diagnosis that lays before the judge a knowledge of the makeup of the offender, that gives him an understanding of the actual underlying causes of the particular individual's conduct, and points to the safest and surest method of solving the problem.

REMARKS ON THE DIAGNOSIS AND TREATMENT OF EARLY PULMONARY TUBERCULOSIS.

By John B. Hawes, 2d, M.D., Boston.

The physician who makes a diagnosis of early pulmonary tuberculosis should always remember that in so doing he is assuming a grave responsibility. To stamp a person as a consumptive is a serious matter; to make such a person break up his home and family, give up work, and possibly go to a sanatorium is a still more serious matter, while on the other hand, failure to recognize and treat tuberculosis in the early and curable stages is the most serious matter of all. In addition to this, the physician should always bear in mind the difference between tuberculous infection and tuberculous disease, and, of still more importance, that the former may at any time and often does become the latter.

DIAGNOSIS.

There are two grave mistakes which any physician may make in the diagnosis of early pulmonary tuberculosis. The first and more important of these errors is putting off making a diagnosis until too late; the second consists in making a diagnosis on insufficient evidence.

The chief factors which lead many doctors to delay making a positive diagnosis of incipient consumption and instituting treatment may be grouped as follows:—

1. Waiting for a positive sputum.

How many tragedies are caused by this hyperconservative attitude on the part of physicians. How many patients are lulled into false security by the possession of a postal card bearing the words, "Sputum negative" or "Tubercle bacilli not found." How many doctors have persuaded themselves that a careful chest examination or a detailed questioning of the patient is unnecessary because of the negative sputum. We do not require a positive Wassermann test to diagnose syphilis; we do not always find plasmodia in the blood of every case of malaria; nor do we need an x-ray to diagnose all fractures. Why, therefore, should we so often demand a positive sputum before diagnosing pulmonary tuberculosis?

2. Disregard of the fact that a hemorrhage from the mouth almost always means pulmonary tuberculosis.

Despite the fact that it has been proved beyond a doubt that such a hemorrhage only in the rarest of instances comes from any other spot than the lungs, and despite the fact that every physician in this state *knows this to be true,* and would say so if asked by another doctor, it is unfortunately true that patients with whom a hemorrhage, large or small, has been the initial symptom, are constantly being sent away with the cheerful untruth that the blood comes from nose, throat or stomach.

3. Failure to note and give due weight to constitutional signs and symptoms. Such signs and symptoms may be:—

(*a*) Fever and rapid pulse.
(*b*) Unexplained loss of weight.
(*c*) Loss of strength and energy.
(*d*) Undue fatigue and ease of tire.

I have seen patient after patient in whose lungs I could find little or nothing, but who constitutionally showed clear and definite evidence of active tuberculous disease proved by the subsequent course of events.

4. Failure to take a careful history.

There is probably no disease whose onset is so insidious as tuberculosis unless it be some forms of gastric cancer. There certainly is no condition in which a detailed and painstaking history is of more real value in diagnosis as well as in future treatment.

5. Unwillingness to make a definite diagnosis for fear of losing the patient or of making a mistake.

It is hard to believe that this can be a factor in preventing doctors from making early diagnoses. The experience of any specialist in this subject, however, whether in private practice or at a dispensary, shows only too clearly that this often happens.

6. Being in too much of a hurry.

This is one of the commonest causes of error. The routine taking of pulse and temperature, and of having the patient strip to the waist is too often neglected, while the knowledge of a waiting-room filled with patients is constantly present in the physician's mind. Certain diagnoses can be made in a very short time. It takes but a few seconds to make a culture for diphtheria, or to diagnose various surgical conditions. One cannot and must not hurry in diagnosing incipient phthisis.

These, in brief, are what I believe to be the chief causes of the lack of early diagnosis. I wish to refer now to that other mistake which is often made, and which I fear will be made in the future still more often,—that of making a diagnosis on insufficient evidence. Here I would roughly group what I believe to be the chief factors in causing errors, as follows:

1. Failure to remember that in young adults particularly, extensive signs in the lungs *without* constitutional signs or symptoms are often not of tuberculous origin.

Chronic influenza, bronchitis, an ordinary localized bronchitis, lung abscess, unresolved pneumonia, as far as the lungs are concerned, will often closely simulate a tuberculous process. Aside from the fact that the sputum is negative, the fact that these extensive signs in the lungs are compatible with perfectly good health and a blooming personal appearance and physique is evidence against tuberculosis. The burden of proof, however, still rests with the physician to demonstrate this.

2. Disregard of the fact that in children processes due to either pneumonia or influenza may cause consolidation, produce symptoms, and run a course resembling a tuberculous process in every detail.

I once sent a young girl up to Saranac Lake under such circumstances as this. Signs in the lungs and constitutional symptoms were all those of tuberculosis. Shortly after the child's departure, the young brother came down with a similar attack which cleared up at home. I believe these two cases were of pneumococcus origin. The child was greatly benefited in every way by her sojourn at Saranac, but at another time I should not send her so far away, if at all.

3. Ignorance or forgetfulness of the fact that exophthalmic goitre often closely resembles incipient phthisis.

The distinction between these two conditions may be very hard to make. Absence of definite lung signs, along with a rapid pulse, tremor, slight thyroid enlargement, or exophthalmos, will usually clear up the diagnosis. Treatment is practically the same in either case. In some cases time alone will show the true cause of symptoms.

4. Forgetting that pulmonary syphilis is not so rare as is commonly supposed. Any patient who presents other signs of luetic infection should be put through a Wassermann test. Brilliant cures of so-called consumption are not infrequently brought about by salvarsan, iodide of potash and mercury.

5. Failure to bear in mind that it is perfectly possible for a person to lose weight and strength, become weak and anemic, and even develop a cough and run a fever without these being due to tuberculosis.

In these days when the professional and lay mind is constantly being prodded in regard to tuberculosis and its cure and prevention, it often happens that the young and enthusiastic medical student or physician becomes imbued with the idea that tuberculosis is the cause of all our chronic coughs, colds, and run-down conditions. To a large extent this is undoubtedly true, but the fact that there are other causes of such conditions must not be forgotten.

I have purposely made no mention of tuberculin in the diagnosis of these cases. I do not believe that it ought to play any part among general practitioners in such diagnoses. Likewise in regard to the x-ray, except in the case of children, I believe that only in rare instances it is of much help in discovering cases of incipient phthisis.

TREATMENT.

Leaving now the problem of diagnosis, I shall take up briefly the treatment of incipient phthisis. I classify such patients in my own mind as follows:—

1. Those who will get well anyway, with or without treatment.

2. Those who are going to do badly despite every effort that can be made to save them.

3. Those who need only a comparatively slight change or improvement in their method of living in order to make an apparent cure.

4. Those who should go to a sanatorium, or should at least take rigorous and aggressive treatment for a long period of time in order to get well.

The patients who belong to the first class, *i.e.* those who are going to get well whether or not they have treatment, cannot be picked out beforehand. It is, therefore, utterly unsafe to assume that any given patient belongs to this class, no matter how slight may be the signs and symptoms and how bright the outlook. These patients comparatively rarely consult a doctor primarily for their lungs. It is usually in the course of an examination for some other trouble that there is found a definite history of

a hemorrhage or a period of semi-invalidism years ago, which has been followed by perfect health, without giving up work or undergoing treatment of any kind.

One of my own patients, an incipient case who has done splendidly following a year at Saranac Lake, told me that his older brother while a student at Yale had a brisk hemorrhage, which was undoubtedly of tuberculous origin, and from which he entirely recovered without giving up his work or changing his method of living in the slightest. This man is a typical example of this class.

It is likewise true of those unfortunate patients who must be assigned to the second class, —those who are doomed to go steadily down hill despite all treatment,—that no one can tell with absolute certainty beforehand that such is going to be the case. A few men of long sanatorium experience seem to have remarkable powers in recognizing this type of patient. Dr. Karl von Ruck of Asheville is said to have almost uncanny prognostic abilities. Often it is a sort of unexplainable, instinctive feeling on the part of the physician. In my own clinic at the Massachusetts General Hospital, Dr. P. C. Bartlett, late superintendent of the Rutland State Sanatorium, who assists me, has often remarked concerning a given patient that he believes the outlook in this case to be absolutely bad. In many instances I am unable to see any reason for this. I presume that it is the long sanatorium experience and the opportunity there given to watch patients from beginning to end that gives the physician this power to foretell the future. At all events, whether or not the doctor believes the case to be a hopeless one from the start, he must in no way let up in the care, enthusiasm, or optimism with which he approaches the patient.

The third class of patients, consisting of those who need only a short rest or vacation, or a modified or improved method of living, is constantly confused with those in the next class, which includes those who should go to a sanatorium or else take strict and rigid treatment for a long period of time. The solution of a large part of the tuberculosis problem depends upon the wisdom and foresight which the medical profession uses in distinguishing between these two groups of patients. Whether a given patient should be assigned to the first or second of these two groups depends on:—

1. Family history.
2. Occupation.
3. Financial and social standing.
4. The patient's intelligence and mental attitude toward his disease.
5. Physical makeup of the patient.
6. The mode of onset of the disease.
7. The extent and nature of the signs in the lungs.

A careful study of these various factors will usually enable the physician to assign the patient fairly accurately to one or the other of these classes. A bad family history and an unfavorable occupation or trade, and financial inability to live under good conditions, on the part of the patient, would suggest the more conservative course.

The patient's mental attitude is of the greatest importance. I have sent many patients to a sanatorium simply because they were apparently unable to grasp the seriousness of the situation, and because I therefore deemed it utterly unsafe to allow them the liberty of action which they would have outside of an institution. The physical makeup of the patient is not so important, although naturally the chances are in favor of the strong and robust individual.

In regard to the mode of onset, it seems to me that those cases in which the onset has been very gradual, with a slight loss of weight, gradually increasing weakness and ease of fatigue, are less apt to do well than those in which the attack has been more sudden.

Concerning the signs in the lungs, the presence of much moisture, as shown by râles, etc., would certainly make the physician very cautious in prognosis. I have found it a safe general rule to follow, and there are exceptions to every rule, that patients with bacilli in their sputum should go to a sanatorium regardless of other conditions. Again, I believe that a persistently high pulse-rate means a poor prognosis. If you place a patient in the first of these two classes, and tell him that he only needs a short vacation, a trip to the country, shorter hours, more food, etc., but that he need not permanently give up his work, remember that your duty is not done by merely seeing him once and giving him what you believe to be two dollars' worth of good advice. He should be kept under supervision and made to report once a month regularly for five or six months. He must be made to realize that he is distinctly on trial, and that it is "up to him" to prove that both you and he are justified in not taking more radical measures.

Likewise with those patients whom you do send to a sanatorium or otherwise put under a strict régime, the need of continued observation is essential. Two or three months at a sanatorium never really cured a case of pulmonary tuberculosis. The real cure or permanent arrest only comes after months or years of careful living. If the patient cannot or will not profit by the lessons he has had every opportunity to learn at the sanatorium, his case may as well be given up. Dr. Paterson of the Brompton Sanatorium in England once said to me, "Hawes, you can't cure a consumptive who is alcoholic or a damn fool!" I have every reason to agree with this statement.

REPORTING OF EARLY CASES.

The law clearly states that tuberculosis is a disease dangerous to public health and therefore that it must be reported. Ordinary com-

mon sense and humanity demand that such be the case. For who can tell when the patient with absent or negative sputum will become one with sputum loaded with bacilli? But—and I feel very strongly on this point—just as public safety demands that those cases be reported, humanity demands that they be not made martyrs of, that their trouble should not be made public property, and that their houses and homes should not necessarily be visited time and time again by agents of boards of health, district nurses, and other interested individuals, where this is not absolutely necessary. I freely admit, however, that it is only in rare instances that such visitation should be altogether omitted.

In my own practice, it is my custom in this class of patients invariably to report them, but also to explain to the local board of health that the patient is under adequate supervision, is intelligent, and is not in any way a danger to the public health, if such be the case.

Finally, I would again emphasize the fact that it is the careful study of the patient as a whole, —his history, and that of his family, his occupation, habits and surroundings, his constitutional signs and symptoms,—which will lead to a correct diagnosis, and that were the stethoscope used less and the thermometer and common sense used more, we should not make so many mistakes.

SOME UNUSUAL PHASES OF SIGMOIDOSCOPY.*

By Ralph W. Jackson, M.D., Fall River, Mass.,

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The value of the pneumatic sigmoidoscope as a means of diagnostic accuracy in proctology and in general medicine and surgery is no longer debatable. The better hospitals are rapidly including rectoscopy in their routine examinations and recording the findings thereof in every case where such investigation is in the least indicated. Unfortunately, however, the same cannot yet be said of extra-institutional practice. The average physician, still unappreciative of the possible value of sigmoidoscopy, neither knows how to use the instrument nor with any frequency consults one who can. Even the medical schools, which have been progressive enough to include in their curricula instruction in rectal disease, have not taken any pains to demonstrate to their students the instruments of precise rectal diagnosis. I have been surprised to see how many young men, who come to our hospitals as internes, have never seen a sigmoidoscope in use and much less know how to handle one or interpret the findings.

No time need be spent in enumeration of the pathological conditions which are discoverable by means of the sigmoidoscope. Enough has been written and is easily available along this line, but equally explicit statements of the therapeutic uses of the instrument, which are considerable, are not at hand. Foge's[1] atlas, with case histories and graphic colored plates, has almost nothing to say of such uses. Much the same may be said of Schreiber's[2] fundamental work and of the writings of Strauss.[3] Mummery's[4] small, but excellent, volume treats this phase of the subject only transiently in connection with generous discussion of the diagnostic value. Likewise, in all the American and English text-books on rectal disease, at no one point are all the therapeutic possibilities of the sigmoidoscope suggested, as they might profitably be, in connection with the description of the instrument and the technic of its use.

The most obvious facts about the sigmoidoscope are that it enables one to do, as well as see, things in the rectum with the accuracy of the sense of sight, rather than with the lesser accuracy of the sense of touch, and for three times the distance within the anus, for the finger reaches only 4 cm. and the instrument may pass 30 cm., possibly more. In stricture, if low, the lumen may be felt digitally, and, if high, not at all; but in either case attempted dilation with bougies must be blind, and may possibly involve much traumatic manipulation in the search for it, unless this be avoided by introducing them visually through a proctoscope, preferably of operating diameter, carried up to the constriction. If the stricture is to be divided, a polyp removed, or a bleeding point reached, forceps, knife, snare, cautery or thyrotome (Lynch) can be intelligently used only through a protoscope or sigmoidoscope. I am skeptical as to constipation ever being due to hypertrophy of the rectal valves and have never seen a case which I believed could be explained by this condition; but, if ever justifiable, valvotomy makes such an instrument indispensable. Proctitis and sigmoiditis are as frequently localized conditions due to fecal stasis in the organs involved, or to other causes, as they are parts of a general colitis; and, especially when accompanied by ulceration, are often more effectually handled by topical treatment through the sigmoidoscope than by blind irrigations, which reach and possibly spread infection to healthy mucosa far above existing lesions. Recently I have seen and been impressed with the frequency of sigmoid impaction of feces without similiar concurrent rectal condition, and have found the sigmoidoscope of signal use in diagnosing the condition, affording a means of breaking up the accumulation by long forceps or by pouring in upon it small amounts of hydrogen peroxid with immediate and happy results.

So much for some of the more common uses of the sigmoidoscope and the results of its employment, but occasionally there may be surprising

* Read before the sixteenth annual meeting of the American Proctologic Society, Atlantic City, N. J., June 22-25, 1914.

consequences, sometimes harmful and sometimes beneficial.

Not infrequently the sigmoidoscope produces abrasions and irritation of the bowel which are unpleasant, but which, I believe, are usually avoidable with careful handling of the instrument. As to the more serious consequences of sigmoidoscopy, Tuttle says,[4] "It may be suggested that there is danger of rupturing a weakened and inflamed intestine by such distention, but as a matter of fact it is never so great as to produce any such effect. Whenever the pressure assumes any force, the air will escape through the sphincter or the plug will slip out." I am not so sure of all this, for I have heard, but have been unable to obtain details, of cases of intestinal perforation from pneumatic endoscopy or from forcing the instrument through some ulcerated area. It is not easy to find specific reports of such cases, perhaps from the natural reluctance of any one to tell of results so certain to be construed against him. Some years ago Hill[6] cited a case which had been reported by Sultan.[7] In a woman suffering from chronic intestinal catarrh a rupture from pneumatic inflation occurred above the 20 cm. mark. Peritonitic infection, abscess formation and eventual fatal result followed. This case is also cited by Strauss[8] along with two others. One is from Schreiber.[9] Following an operation for multiple polypi of the rectum a peritonitis appeared which terminated in the death of the patient, and only at autopsy was found a rupture which had been produced by the sigmoidoscope. The other case is from Anschutz.[10] A perforation following an examination was repaired by laparotomy and resulted in complete recovery seven weeks later. Fortunately for myself, but unfortunately for this paper, the accident has never happened to me and I have no case to report. Perhaps the discussion may bring out the acknowledgment of some.

The two cases to follow were simple sigmoidoscopies, done for other physicians in consultation, and afforded unexpected results pleasing to all parties concerned.

CASE 1. Mrs. E. P., American, aged 86, was seen Mar. 13, 1913, at her home in Fall River in consultation with Dr. A. A. Howland. She had had no recent illness except arterio-sclerotic conditions incident to her age, which were rather marked. There was a history of progressive constipation and she had had no dejection for one week previous to the examination. She was in bed, was extremely weak and resented all disturbance. Her general condition warranted a very bad prognosis. She had fever, nausea and vomiting, some abdominal pain and was moderately distended. There was tenderness but no palpable tumor in the lower left quadrant. For the constipation cathartics and enemata had been given repeatedly and without result. The enemata came back as fast as given, and a rectal tube could be inserted only 8 or 10 cm. and was pushed back at once. Her nurse had introduced a finger through the anus and thought she felt some obstruction, which the physician confirmed. My digital examination did not show much but an exaggeration of the common downward pressure into the ampulla of the less fixed structures above. There were no feces in the rectum. I verified this by proctoscopic examination, and within a few hours passed the pneumatic sigmoidoscope for about 20 cm., reducing a fairly marked incipient intussusception, but reaching at the above-named point an impassable angle. Immediately after the examination an enema was given which, unlike all previous ones was retained sufficiently long to produce a satisfactory dejection. On the 14th she had several stools and improved, but on the 15th her symptoms recurred and I repeated the sigmoidoscopy. No feces were found, but the mucosa was then intensely inflamed and edematous and bled freely from the instrumentation. A stormy few days followed, but the bowels were readily kept open with small repeated doses of laxative medicine. She improved steadily thereafter and has remained well since except for a similar but milder attack some months after, which was relieved by gravity injections in the knee chest position. She was in extremis, but the sigmoidoscopy did something which changed the entire aspect of things.

CASE 2. Mr. C. B., Syrian, aged 24, seen Mar. 4, 1910, at the Union Hospital in Fall River in consultation with Dr. M. B. Swift. The previous history was vague, and details of present illness not clear, as he had been treated by other physicians, at another hospital and at home before his removal to the Union. Some weeks before he probably had a pleurisy with effusion and later gastric disturbance, abdominal pains and bloody stools. Previous to my examination he had been seen by several members of the staff and no satisfactory diagnosis made and the indications were not definite for surgical interference. He had an average temperature of 102, pulse 140-50, and cold sweats, and looked septic. He had a leucocytosis of 28,000 to 30,000 with 93-95% polymorphonuclears. Widal was negative. Examination of chest and repeated aspirations in the area of supposed pleurisy were negative. He had nausea and vomiting, some abdominal distention and much pain, to relieve which he laid on his abdomen most of the time. There was an apparent tumor, or pathological resistance, of some size in the lower left quadrant. He was having frequent bloody discharges from the anus with scanty feces. Upon request for a sigmoidoscopic investigation. I passed the pneumatic instrument for about 25 cm. with comparative ease except that an unusually sharply defined fold at the site of what was probably O'Beirne's sphincter was gotten by with great difficulty. There was no rectal or sigmoidal impaction, the mucosa was nearly normal, and the bleeding point or points were not in evidence. After removal of the sigmoidoscope the inguinal mass was at once almost imperceptible. The patient was relieved, began to improve, had a quick and uneventful convalescence, left the hospital shortly, and so far as known, has remained well since. Sequence does not necessarily mean consequence, but improvement in this case followed the sigmoidoscopy so closely that one can hardly avoid some such conclusion.

Such results are explainable on the supposition that the instrumentation cleared away an occlusion which was not absolutely definite in either case. One must consider, first what ob-

structive conditions there were, and second how the sigmoidoscopy relieved them, and probably need not go far to determine either. The notable thing is the apparent infrequency of such cases, simple in origin, serious in effect, yet simple in relief.

Everything in the physiology and anatomy of the human tends to pile up in the pelvis a mass of viscera, some belonging there and some not, but all crowded down upon the pelvic diaphragm and producing a pressure thereon unknown to any other creature; in a word, pelvic visceroptosis. No better recognition of the consequences of this has appeared recently than the working out by Moschcowitz[11] of his theory of the causation of procidentia of the rectum, and his rational and satisfactory operative cure for it. Combine with the above, first the usual hypermobility of the sigmoid due to excessive mesenteric length, and second the existence below of the fixed and more or less open rectal ampulla, and one has the elements necessary to produce the conditions of invagination, angulation and volvulus which are admittedly more common here than elsewhere in the bowel, and which, in varying degrees of mildness and chronicity, I believe to be frequent rather than infrequent, and therefore potentially the cause of acute cases. Cripps[12] and Gant[13] have both called attention to the commonness of chronic invagination of the distal colon and rectum, and Delatour[14] laid considerable stress on the frequency of obstructive sigmoidal angulation, especially in the aged.

Sigmoidoscopy properly conducted, *i.e.* preferably in the knee-chest position or in the nearest possible approach to it, reverses the conditions productive of the above troubles. As in the Trendelenburg position, the pelvis is emptied of all but the fixed organs, and they are pulling away from rather than pressing upon the pelvic floor. And if gravity alone is not sufficient to this end, atmospheric (often alone quite effective) or pneumatic pressure, admitted through the sigmoidoscope, and intelligent manipulation of the instrument may accomplish the desired effect. The result may be the unfolding of kinks, coils, angulations and invaginations, unless they have been of sufficient duration and intensity to bind the bowel by inflammatory adhesions in its pathological position. Foges[15] recounts a similar case history where, in the course of an examination which determined the diagnosis of invagination, the same was disinvaginated by the instrumentation.

In both of my cases the patients were too ill to be placed in the knee-chest attitude but an extremely exaggerated Sims was used. In Case 1 the digital examination showed the sigmoid beginning to invaginate into the ampulla, which was more evident on visual examination and disappeared with the upward passage of the sigmoidoscope. Recurrence of the symptoms was relieved by the same treatment and this time permanently. In Case 2 the instrument passed the sigmoido-rectal juncture with great difficulty, but beyond that with comparative ease. Was it the passage of the angle at this site or the insufflation of air beyond the extreme point of introduction, distending and relieving some unseen kinking or invagination, that caused the deceptive tumor to disappear at once and for good?

The means which relieved the acute occlusion in these cases and the probable way in which it was brought about, all seem too simple to require lengthy dissertation, yet two lives were saved thereby during a mere effort at diagnosis. If the sigmoidoscope may thus *unwittingly* become an instrument of therapeutic value, will not the greater prevalence in its use, which we ask of the profession, bring to light many more cases of similar character, where it may be *deliberately* used as such?

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Clinical Department.

GONORRHEA IN MALE CHILDEN.

By Walter D. Bieberbach, M.D., Worcester, Mass.

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On March 23, 1914, the father of a family of three children consulted me at the genito-urinary clinic at the Worcester City Hospital in regard to a male child of the age of six years. He complained that during the past ten days the child was very restless and had considerable trouble in passing his urine.

On examination a boy of six years of age, well developed physically, presented a marked case of phimosis. There was considerable narrowing of the preputial orifice, so much so that it was impossible to retract the foreskin over the glans penis. About the margin of the prepuce was a copious offensive white discharge. The foreskin was tender, edematous and congested.

At this visit a diagnosis was made of phimosis, the cause being balano-posthitis due to a long tight foreskin. The treatment advised was circumcision and on the following day the child was operated upon.

On account of the marked edema, circumcision was performed under ether. A dorsal incision was made and the flaps were trimmed. The edges were sutured with silk-worm gut.

Some few hours following the operation the child was unable to pass his urine. The dressings were removed and the external meatus was found to be pouted and swollen and glued together. On separating the lips of the meatus there was a free flow of thick white pus which relieved the child, thus allowing him to pass his urine. Microscopical examination of the pus showed a number of Gram negative diplococci both intra and extra cellular. Cultures were made which showed the presence of gonococcus.

A few days after, the mother brought to the clinic the youngest child who was three years old, complaining that he was having similar trouble as his brother.

On examination he presented the same condition as the first. In this case the foreskin was retracted over the glans penis thus showing a free urethral discharge. On microscopical examination the pussy discharge showed the presence of gonococci both by staining and culture. In the case of the boy of six years both urines were cloudy, containing pus and a number of shreds. The first urine of the boy of three years was cloudy, the second clear.

An attempt was made to learn the source of infection. The mother and father were asked to submit to examination, also the remainder of the family, which consisted of a girl thirteen years of age and a boy eighteen years old. This boy was a stepbrother to the other children, his father having been dead for the past few years, and this being his mother's second marriage.

The mother and father denied all venereal disease and on examination were negative. The oldest boy of eighteen gave a history of suffering from an acute attack of gonorrhea four months ago. He had been under the care of a physician and one month ago was pronounced cured. To date he has had no signs or symptoms of the disease. Examination in his case showed no sign of infection and I would say that he was cured. A gonorrheal complement-fixation test was done and reported as negative.

Examination of the girl of thirteen years showed that she had a ruptured hymen and on separating the vaginal wall there was a somewhat free, thin, greyish discharge which on microscopical examination showed the presence of gonococci. Smears made from the urethra were negative. From the absence of the acute symptoms and the microscopical picture I would say that the girl was suffering from a sub-acute or chronic gonorrhea.

The fact that the three children were suffering from gonorrhea was all that I was able to obtain. It was impossible to get a clear history of any of the cases.

The mother and father could give very little information as to the source of the infection. They stated that the boy of six years and the girl of thirteen attended school every day, while the child of three years was kept at home. Furthermore, none of the children was away from home for any length of time. I thought that if someone was sent to the house of the parents to investigate their mode of living we might be able to come to some opinion as to the source of the infection.

The cases were reported to the Society for the Prevention of Cruelty to Children and through their kindness a female agent was sent to investigate the living conditions of the family. Each of the children was questioned closely but no information could be obtained from the two boys suffering from gonorrhea. They were very stubborn and refused to answer questions. The girl of thirteen was taken into a room alone and after careful questioning admitted that six or seven weeks before, while the parents were away one afternoon, the oldest boy of eighteen years placed her on his lap and attempted sexual intercourse. Following this attack she suffered considerable pain and for some time afterwards experienced a burning sensation on urination. She said nothing to her parents of what happened; the reason for this we were not able to have her explain.

On the day of this examination the boy of eighteen learned on his return home that an agent of the Society had been to the house to investigate the cause of the infection. Confronted by his mother on what had transpired he immediately turned about, left the house, and to this date has not been seen or heard from.

CONCLUSIONS.

The source of infection in the two young children was from the girl of thirteen. The three children occupied the same bed. I believe that sexual relations had occurred between the girl and two younger boys. The sexual organs of both male children were well developed and much larger than the average child of the same years.

The girl's infection dates back to the time that she states that the older boy of eighteen attempted sexual intercourse with her. At that time the boy was suffering from subacute gonorrhea and I believe infected his stepsister.

I do not believe that the infection of the two boys could have been obtained from bed clothing or contaminated articles of the household, because during the supposed period that the girl was suffering from her acute infection the two boys were free from urethral infection. While it is possible for the male to become infected from articles that contain fresh gonorrheal pus, it is more probable that such infection would take place from sexual intercourse.

CARE AND TREATMENT OF THE TWO BOYS.

Prophylaxis was placed on both cases. The mother was instructed as to the pussy discharge

and ordered to burn all dressings. She was also warned of the dangers of gonorrheal ophthalmia. The children were placed on a non-stimulating diet. Excess of meat was avoided, also highly seasoned salty food. Liquids were restricted to milk and water, water being used very freely.

For the purpose of catching the urethral discharge and keeping it away from the clothing a small bag was made in which the penis was carried. Absorbent cotton was placed in the bottom so as to catch the discharge.

THERAPEUTIC TREATMENT.

The boy of three years was given ten drops of thyresol daily, while the boy of six was given fifteen drops. From these doses their stomach or kidneys showed no irritation and they were able to take this amount during the course of treatment.

LOCAL TREATMENT.

In both cases the anterior urethra was irrigated every other day with a solution of protargol. I started with a solution of 1:8000 and gradually increased the strength up to 1:4000. Irrigation was performed by inserting a soft rubber catheter into the anterior urethra and gently forcing the fluid through by means of a large hand syringe.

At the end of the first week the boy of six years developed a posterior infection. This was treated by placing the catheter in the posterior urethra just behind the cut-off and gently irrigating the canal. After a few irrigations of the posterior urethra it cleared. At the end of the second week both cases showed very little urethral discharge and on microscopical examination few gonococci were found, the first glasses being turbid, the second clear. At this stage of the disease instillations were substituted for irrigations.

One dram of a quarter of one per cent. of protargol was instilled into the anterior urethra and retained five minutes or until the child complained of pain. This was performed every other day and the strength of the solution was increased until five per cent. was reached which seemed as strong as either child would tolerate.

At the beginning of the fourth week both glasses became clear and the urethral discharge subsided. On stripping the urethra no discharge was obtained. Smears taken from the anterior urethra by means of a swab were negative.

All treatment was stopped and the children were kept under observation for two weeks. At the end of this time no signs or symptoms of the disease being present, they were discharged as cured.

Reports of Societies.

AMERICAN SURGICAL ASSOCIATION.

Annual Meeting, Held in the Astor Hotel, New York City, April 9, 10 and 11, 1914.

The President, Dr. William J. Mayo, in the chair.

(Continued from pag. 346.

THE VALUE OF GLUZINSKI'S TEST IN THE DIAGNOSIS OF GASTRIC ULCER.

Dr. Johan Nicolaysen, Christiania, Norway: Kocher in 1912 recommended Gluzinski's test as a means of making the differential diagnosis between ulcer and cancer of the stomach.

Ulcer, as a rule, is accompanied by hyperacidity while cancer is attended by an atrophic catarrh which causes the disappearance of the free hydrochloric acid.

When cancer develops upon the basis of an ulcer there may be demonstrated at an early stage of the disease an insufficiency of function of the stomach to produce hydrochloric acid. This is made by giving two test-meals, one following immediately upon the other. While the amount of free HCl will increase from the first light meal to the second heavier (beef) one in cases of ulcer, it will decrease in cases of cancer of the stomach.

The author and his assistant, Dr. Grondahl, have examined 86 cases of ulcer of the stomach and duodenum, cancer of the stomach, gastroenteroptosis, appendicular dyspepsia and gall-stones. Of the cases of cancer, only two had free HCl in the gastric contents. These gave Gluzinski's reaction, to wit: the amount of free HCl decreased in the second meal. But the same insufficiency of function was also found in cases of gastro-enteroptosis.

In all cases of ulcer but one, there was found a pronounced increase in the amount of free HCl in the second meal.

This phenomenon may be used as a differential symptom in the diagnosis between ulcer and other diseases of the gastro intestinal canal, which cause dyspepsia.

In two cases referred from the medical ward with the diagnosis of callous ulcer, there was no increase in the amount of free HCl and no ulcer was found by the operation, only adhesions which had given rise to the dyspeptic symptoms.

Gluzinski's reaction is reliable, nevertheless, its result is to be considered only as a symptom which must be judged in conjunction with the other symptoms and the history of the case.

RÉSUMÉ OF THE ROENTGENOLOGICAL DIAGNOSIS OF SURGICAL LESIONS OF THE STOMACH AND DUODENUM.

Dr. George Emerson Brewer, and Dr. Lewis Gregory Cole, New York City: The most satisfactory diagnostic method up to the present time has been serial roentgenology, *i.e.* the study of 50 or 60 roentgenograms of the patient in various postures, taken in several series at intervals of two hours until the stomach is empty. We have per-

fected a true roentgenocinematographic machine, capable of making 50 roentgenograms of a single cycle, or 200 roentgenograms of an individual peristaltic contraction from the fundus to the pylorus. The information gained by such an examination includes: Size, position and shape or type of the stomach; activity of peristalsis and width of peristaltic contractions; character of the systole and diastole; depth of the rugae and the direction in which they run; degree of dilatation and the motor phenomena of the descending and horizontal duodenum; character of the pyloric sphincter and of the cap (pilleus ventriculi).

The interpretation of findings has been worked out by a study of about 20,000 roentgenograms of 680 cases. A report on 27 consecutive cases examined roentgenographically by Dr. Cole and operated upon by Dr. Brewer shows the accuracy of the method. The clinical history, physical examination and gastric analysis were unknown to the roentgenologist. In the evidence furnished by this series of 27 cases we find that of the 21 cases definitely diagnosed by the roentgen method, subsequent operation proved that 20 were correctly diagnosed and one incorrectly. In 10 of these cases the diagnosis was negative regarding the presence of a gastric or duodenal lesion, although the clinical history was so strongly suggestive of ulcer or carcinoma as to justify exploratory incision. In not one of these cases was there found an organic lesion. In the six instances in which the roentgenologic diagnosis was not definitely stated, the opinion expressed was correct in four instances and incorrect in two. In other words, in this particular series, a correct diagnosis was made by serial roentgenography in 89% of the cases. The objections to the method are that it requires considerable time and is moderately expensive. In the opinion of the writers, however, serial roentgenography will give more accurate information concerning lesions of the stomach and duodenum than any other method employed at present.

A FURTHER REPORT ON PYLORECTOMY OR EXCISION OF THE ULCER-BEARING AREA.

DR. WILLIAM L. RODMAN, Philadelphia: If ulcers are situated at or near the pylorus, as they are in about 80 per cent. of all cases, and the pyloric end of the stomach and proximal portion of the duodenum can be easily mobilized, pylorectomy, which gets rids of the present ulcers and prevents future ones to a large extent, removing as it does, four-fifths of the ulcer-bearing area, is certainly the operation of choice. The frequency with which hemorrhage, perforation, and cancer, especially the latter, follow after gastroenterostomy renders it inadequate.

If, however, the converse obtains, the stomach and duodenum being bound down by adhesions to adjacent viscera, such as the pancreas, liver, gallbladder, tranverse colon, etc., simple gastroenterosomy, the anastomosis being made about the middle of the stomach, or preferably to its left, should be practised. If the symptoms are not relieved within a reasonable time, then pylorectomy may be performed.

The operation can also be done in two stages in those patients not in good condition, whether it be from hemorrhage, perforation, anesthetic or other cause. It is often best to perform pylorectomy for cancer in two stages, and practically the same conditions may confront the surgeon in ulcer; but, it will be much less frequently the case.

Gastric ulcers, duodenal as well, are more frequently multiple than is appreciated; some excellent authorities state that such is usually the case. All potential dangers are increased with the number and chronicity of ulcers; hence, radical measures are more urgently called for in both varieties.

Ulcers away from the pyloric end, that is, occupying the expanded four-fifths of the stomach, should be preferably treated by partial gastrectomy or removal of the ulcerated area. Although such ulcers rarely undergo cancerization, they frequently bleed and perforate, both of which dangers are increased by the freer movements of this portion of the stomach during respiration, and the further fact that protective adhesions are less apt to form if we except the lesser curvature, which is relatively immobile.

A METHOD OF SUBTOTAL GASTRECTOMY.

DR. FRANCIS T. STEWART: The method of subtotal gastrectomy consists in removing the diseased segment of stomach from left to right, after performing an end-to-side anastomosis between the lower portion of the incision which amputates the stomach and the upper of the jejunum, the operation being so conducted that the suturing necessary to unite the stomach to the intestine is completed before either viscus is opened. It is thought that the operation will prove to be easier, quicker, and safer than the methods usually employed. The operation cannot be understood without studying the illustrations which accompany the paper.

(To be continued.)

Book Reviews.

Manual of Military Hygiene. For the Military Services of the United States. By VALERY HAVARD, M.D.; Colonel, Medical Corps, United States Army, Retired; former President Army Medical School. Second edition, thoroughly revised and greatly enlarged. New York: William Wood and Company. 1914.

This second edition of a well-known manual of military medicine, presents many advances over the original, being increased in bulk from 503 to 786 pages. Published, as it is, under the authority and with the approval of the surgeon-general of the United States Army, it may be regarded as an official work representing the most modern practise of the medical corps. The chapter on venereal diseases advocates venereal prophylaxis, regulation of prostitution, and the restoration of the canteen as a means of making camp-life more attractive and affording safe diversion for troops instead of tempting them to resorts of vice. The book is fully illustrated with seven plates and 251 engravings, and has a new and complete bibliography.

Report of the Commissioner of Education. For the Year Ended June 30, 1913. Washington: Government Printing Office. 1914.

This belated annual report of Dr. Philander P. Claxton, United States Commissioner of Education, records the activities of the bureau of education of the interior department for the fiscal year 1913. Chapters III and IV of the first volume deal with progress in medical and dental education, and chapter XIX with methods and means of health teaching in the United States With regard to the teaching ot sex hygiene, Mr. Fletcher B. Dresslar, author of the latter chapter, says in part, "The main precaution now to be taken is to limit as far as possible the overstatement and exaggeration of supposed facts." There are interesting chapters also on educational topics in other countries. The second volume consists almost wholly of statistics. The entire report is of the usual interest and value, and to physicians especially those portions that deal with medical education and public health.

Variolation in the Eighteenth Century. By Arnold C. Klebs. Giessen, Germany: Alfred Töpelmann. 1914.

This German monograph, published as a volume in the series of data, studies and transactions in the biology of micro-organisms, is a historic contribution to research in immunity. It deals with the early history of inoculation and vaccination, and especially with experimental attempts to produce true variola in the lower animals. There is a bibliography of 119 titles.

Avian Tuberculosis. By L. Van Es and A. F. Schalk. Agricultural College, N. D. April, 1914.

This monograph, issued as a bulletin (No. 108) of the North Dakota Agricultural Experiment Station, represents the results of the authors' investigations in a series of 601 domestic fowls with tuberculosis. In birds the disease is typically acquired through the alimentary tract. The disease affects the peritoneum, liver, and spleen. Its diagnosis may be made by the reaction to a tuberculin inoculation into the comb or wattle. The reaction in the latter is more constant and reliable, the comb and the other wattle being used as a control. Many other animals have been proved susceptible to infection with fowl tuberculosis, but the avian bacillus has rarely been found associated with human tuberculous lesions. The work is illustrated with three excellent colored plates and has an appended bibliography of 291 titles.

Etiology of Certain Biliary Cirrhosis of the Hot Countries. By Dr. Emile Legrain, of Algiers. Paris: Maloine. 1914.

In this monograph, illustrated by five figures and five charts, the author, after reporting several cases of biliary cirrhosis of splenomegalic type, points out that such cases have their maximum frequency in regions with endemic dysentery and are very often preceded by diarrheal gastro-intestinal troubles. He believes that they are often manifestations of amebic infection, and may be ameliorated or cured by injections of emetine hydrochloride. His work is a useful contribution to the study of amebiasis.

The Nuclei Tuberis Laterales and the So-Called Ganglion Opticum Basale. By Edward F. Malone. Baltimore: The Johns Hopkins Press. 1914.

This monograph (No. VI in the new series of the Johns Hopkins Hospital Reports), from the anatomic laboratory of the University of Cincinnati, is concerned with the cell-groups of that portion of the mammalian telencephalon known as the pars optica hypothalami. It is based on a study of four complete series of homo, one of macacus rhesus, two of lemur rupus, and three of felis domesticus. It is illustrated by a series of 15 plates, comprising 58 figures, 23 of which are colored, and constitutes a valuable contribution to comparative neurohistology.

The Philosophy of Radio-Activity or Selective Involution. By Eugene Coleman Savidge. New York: William R. Jenkins Company. 1914.

The English works hitherto published on radium, by Dawson and Turner, Finzi, and Newcomet, have been concerned with the purely scientific and practical aspects of its description and therapeutic application. This new monograph, originally intended as an introduction to the author's medical writings, undertakes to elucidate the theory of its action upon living tissues, of radio-activity in general, of the relation between the animate and the inorganic worlds, and of the place of radium as a vital force in the scheme of the universe. It thus deals with the borderland domain between biochemistry and metaphysics, and raises questions concerned with the origin of life, the determination of sex, and the nature of malignant disease and cell processes. Inevitably so much that is speculative is involved in such a discussion that its exact merit and value cannot at present be determined, but must await the verdict of time and the gradual growth of human knowledge.

THE BOSTON

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RED CROSS PREPARATIONS FOR THE EUROPEAN WAR.

IN last week's issue of the JOURNAL we commented on the preparations being made by the Red Cross of the United States and other countries to render aid to the armies and navies of the several nations engaged in the European War. On Aug. 13 President Wilson issued the following appeal to the American people for money contributions to the Red Cross fund:—

"To the People of the United States:

"The present wars in Europe are certain to impose upon the Red Cross of the nations engaged a burden which demands the sympathy and aid of the world.

"The American Red Cross is earnestly desirous of assisting its sister societies in their endeavors to alleviate distress and suffering among the combatants, and, therefore, appeals for funds to be expended impartially for the relief of the sick and wounded soldiers of the nations at war.

"Contributions for this purpose may be sent to the American Red Cross, Washington, D.C., or to local treasurers of the society in other cities. I confidently hope that the humanity and liberality of the people of the United States, so often manifested in the past, will cause them to respond promptly and generously to this appeal.

(Signed) WOODROW WILSON,
"President of American Red Cross."

On Aug. 15 the first call for enrolled Red Cross nurses to go on the relief expedition of the American Red Cross hospital ship was issued in New York, Brooklyn, Buffalo, Albany, and Rochester, N. Y.; Philadelphia, Chicago, Boston, Baltimore; Cincinnati and Cleveland, Ohio; Newark, N. J., and New Haven and Hartford, Conn. It is announced that 150 nurses are needed to sail on the first voyage of the Red Cross ship. They will be under charge of Dr. Robert W. Patterson of the United States Army medical corps.

In an open letter to the daily press, Miss Mabel T. Boardman, of the national executive committee of the Red Cross, points out the urgent need of funds for the extensive work to be undertaken.

"Not since the Red Cross Society was organized has that organization been face to face with so great a task as that which confronts it today in the war-ridden countries of Europe. But the Red Cross is rising to the test and already thousands of dollars are pouring into its treasury daily for the work of mercy that it has already set under way to lessen as much as possible the suffering that will follow the clash of the armies of the great European powers.

"In addition to its work on the battlefields, the Red Cross will be expected to have men and means of transportation available for the removal of the sick and wounded from field to base hospitals, to provide the medical and nursing forces that will be needed to carry its work forward, and the providing of countless other things which will be needed to ease suffering and make the lot of the wounded soldier more comfortable. There must be central bureaus of medicine, nursing, material, and intelligence, and each must be in charge of an experienced person with an ample force of capable assistants.

"Now, at a time when so many people in all parts of the world are contributing to the various Red Cross war funds, it is of interest to know what this great organization will do with those funds. First of all it must pay the expenses of its huge field force which will operate with all the armies. It must pay for its great stores of medicines and medical supplies and hospital equipment; it must support a service of intelligence with which friends and relatives can communicate to ascertain the fate or whereabouts of soldiers in the field; and it must organize and have in efficient working order great supply depots, easy of reach and from which can be instantly drawn the articles that are needed in hospital work on so gigantic a scale as that which now faces the Red Cross."

Report from Montreal on Aug. 15 states that the movement to equip a Canadian hospital ship for the war is well in progress.

"A message from Sir Thomas Shaughnessy, president of the Canadian Pacific Railway, at St. Andrews, states that acting on behalf of the company he has offered a ship for this purpose.

The National Chapter of the Imperial Order of the Daughters of the Empire called an emergency meeting in Toronto of all the women's societies of Canada, and it was decided to equip a hospital ship and place it at the disposal of the Admiralty during the war, as a gift from the women of Canada. This offer was met with keen enthusiasm by Premier Borden, their royal highnesses the Duke and Duchess of Connaught, and the members of Parliament. It is in cooperation with this movement that the Canadian Pacific Railway is supplying a suitable ship. As yet the name of the vessel has not been announced."

Report from Paris on Aug. 15 states that two wealthy English ladies have offered to establish a French-English base hospital at Le Touquet, or wherever else may be deemed convenient. This hospital is to contain 2000 beds and to be maintained as long as the war lasts.

On Aug. 17 the Rockefeller Foundation made a contribution of $10,000 to the American Red Cross fund. A unanimous joint resolution was passed on Aug. 18 by the national Congress authorizing President Wilson to admit to American registry foreign-built ships for use by the Red Cross. On Aug. 19 the American Red Cross offer of relief had been accepted by Holland, Russia, France, England, and Servia.

NURSES AND THE EIGHT-HOUR DAY.

A compulsory universal eight-hour day bill has recently been passed by the legislature of the State of Washington. Its acceptance as a law will depend upon the popular vote at the referendum next fall. Interestingly enough, it is being opposed by the nurses, to whom its provisions would also apply. A recent editorial on this subject in the Tacoma *Ledger* says:—

"If the socialistic advocates of the universal eight-hour bill assumed that everybody whose work would thereby be limited to eight hours would support the bill, they were in error. The bill violates common sense by proposing a uniform rule for an immense variety of activities. It was conceived by theoretical dreamers, whose aim is to restrict property rights and ultimately have the state own and operate everything.

"Graduate nurses of Spokane have come out strongly against it. They readily see that few families could afford to employ three different nurses for a day of twenty-four hours, and they understand, too, that it would not be well for the sick to have so many different nurses. There are about one thousand registered nurses in the state, and practically all of them are expected to vote against the bill and to work against it, too, which will mean more votes against it. Should the bill pass when it is referred to the people next November, one nurse predicts that it would drive the sick to the hospitals and would practically do away with nursing in the home."

The real evil of such measures, as with trade unions, is their paternalistic interference with personal liberty of the individual. It is perhaps right to say that no one shall work less than eight hours in twenty-four, but certainly unjust to say that no one may work more. The more liberal a profession, the more elastic should be its time of employment; and nurses have hitherto generally been glad to share the physician's privilege of working over eight hours a day.

QUO USQUE TANDEM!

The physician making a casual visit to our down-town markets, or to any New England market for that matter, asks himself, "How long, O Lord!" There, exposed to view, without the slightest protection from the flies or dust, are the delicacies which appear raw on our tables in the evening,—berries, fruits of all kinds, lettuce, radishes, oysters. Outside are literally hundreds of market teams and teamsters, and in the immediate neighborhood is a trucking business of every description.

Let us look squarely at this situation for a moment in its medical light. Of the thousands of men working here, there are probably forty to fifty who have active tuberculosis, while the list of those having other contagious diseases, including typhoid, diphtheria, and acute naso-pharyngeal infections, is much larger. Up and down the streets sweeps the wind, depositing dust and dirt on our evening berries. Flies travel back and forth from the street to the booths, picking up manure and sputum and depositing it in like manner. Fortunately most of our food is cooked before being served, but there is enough food eaten raw to cause many deaths and a large morbidity each year.

Here again is an opportunity to wage a "Safety First" campaign, and let no one cry out that the cost of living is high enough already, for it is cheaper to save lives than to have sickness.

It is perhaps not an opportune time to compare some of the European countries with us in many respects, but it is an opportune time

for us to carry on this campaign at home. It is one which they have managed far better than we, who as yet have hardly begun the struggle.

MEDICAL NOTES.

DR. CARREL AS A FRENCH ARMY SURGEON.—Report from Paris on Aug. 13 states that Dr. Alexis Carrel, of the Rockefeller Institute for Medical Research, New York, has joined the French forces as an army surgeon.

SICK-RATES AT VERA CRUZ.—During the week ended Aug. 15 the sick-rate among United States troops at Vera Cruz, Mexico, was only 2.18% as compared with 2.3% for the preceding week, and that of the marines was only 1.93% as against 2.23%.

BUBONIC PLAGUE AT NEW ORLEANS.—Report from New Orleans, La., states that on Aug. 16, 17, and 18, three new human cases of bubonic plague were reported in that city, making a total of 20 since the outbreak of the infection there on June 27.

ENLARGEMENT OF AMERICAN HOSPITAL AT TOKIO.—It was announced on Aug. 15 that the American St. Luke's Episcopal Mission Hospital at Tokio, Japan, is to be extended into a modern international institution.

"Already a large sum of money has been contributed in the United States for this purpose, an American council has been formed, with headquarters at New York and an American woman's auxiliary board will help to make the project successful. The latest step is the organization of a Japanese council, with Premier Count Okuma as president, which promises to furnish land for the hospital.

"The institution was founded fourteen years ago by Dr. Rudolf B. Teusler, who came from Richmond, Va., as a missionary doctor. It is now an institution of eighty beds with a staff of three foreign and ten Japanese doctors, a nurses' training school with forty pupils and a medical society of about fifty Japanese members. The professors of the medical department of the Imperial University are consultants to the hospital. Foreigners throughout Japan as well as members of the embassies and legations avail themselves of the hospital. The project is to erect a new institution on the pavilion plan at a total estimated cost of $485,000."

BOSTON AND NEW ENGLAND.

NEEDS OF THE BOSTON FLOATING HOSPITAL.—The Boston Floating Hospital has recently issued the following urgent appeal to the public for funds to enable the completion of this season of its work:—

"The demands on the hospital have been greater than usual during the summer of 1914, and, owing to the Salem fire and the disturbances in Europe, the management fears that the subscriptions will not be adequate to continue the work during the present season. If the hospital is to complete its season the management must be assured of raising at least $15,000, and appeal is made to all friends of the hospital to assist in raising this sum. Subscriptions should be sent to George C. Lee, treasurer, care of Lee, Higginson and Company, 44 State Street, Boston.

WORK OF MILK AND BABY HYGIENE ASSOCIATION.—The recently published midsummer report of the Milk and Baby Hygiene Association shows an increase of twenty per cent. in the number of babies for which it cared. From June 1 to August 15, 2126 babies were under the supervision of fifteen physicians and sixteen nurses. During that period last year 1784 babies were under care. The twelve milk stations are filled to their capacity, the largest three being those in the West and North Ends and East Boston.

TRUSTEES OF FOXBORO STATE HOSPITAL.—On Aug. 17 the board named by Gov. Walsh to take charge of the Foxboro Hospital, since its divorce from the Norfolk State Hospital, organized at the State House. The commissioners are: Henry T. Schafer (chairman) of Boston, Isaac Heller of Boston, Dr. S. E. Coppinger of Needham, George C. Shields of Mansfield, Dr. T. J. Scanlan of Boston, Mary A. Mahan of Boston, Joseph H. Guillet of Lowell. Dr. S. E. Coppinger was chosen secretary, Mary A. Mahan was appointed chairman of the finance committee, J. H. Guillet chairman of the committee on commitments, and Isaac Heller chairman of the executive committee. The board assumes the duties of trustees of the Foxboro institution.

DIAGNOSIS OF TUBERCULOSIS IN CHILDREN.—The trustees of the Massachusetts Hospitals for Consumptives have recently sent the following circular letter to physicians throughout the state:—

"DEAR DOCTOR: Do you consider that the prevention of tuberculosis is one of the most important social and medical questions of the day?

"If you believe it is true that protection of the child against tuberculous infection is of paramount importance, do you realize that you as a physician hold the key to the situation?

"Will you read carefully the following plan and cooperate with us?

"Into every household come people either as visitors, boarders or workers, who either continually or spasmodically have tubercle bacilli in their sputum. Children as a rule associate with these people intimately, which association may in a few weeks thoroughly infect the child. If the child is very young and the infection is a virulent or massive one, acute tuberculosis in some form often results and brings about the death of the child. The older children, with greater powers of resistance, check this infection with their glandular apparatus and may remain in good health or perhaps only slightly ailing through school life. It is these children, however, who cannot stand the strain of young adult life and who furnish our thousands of new cases of pulmonary tuberculosis each year.

"It is your opportunity, first to protect these children from infection, and second, to see that they are cared for when such infection has taken place. If you delay making a diagnosis until actual disease is evident the case has probably gone beyond the stage when cure is possible. A diagnosis of 'infection' as contrasted with a diagnosis of 'disease' is the key to this problem. We ask you to help us by reporting these cases, simply as a matter of record, to the State Board of Health, which board will furnish special cards for the purpose.

"The von Pirquet test is of great value in these cases. Any physician in the state who applies to this office will be notified where he can obtain practical instruction in the performance of this test at a place near his home, and also training in the examination of children's chests.

"Furthermore, remember that milk from tuberculous cows is extremely dangerous for young children and urge your patients to pasteurize all milk.

"For these infected children open-air schools are a necessity. Will you not begin now to agitate this question, an early start insuring success in obtaining such schools for next winter.

"Walter C. Bailey, M.D.,
Chairman.
"Arthur Drinkwater,
"George A. Dunn,
"Albert C. Getchell, M.D.,
"Sylvia B. Knowlton,
"Daniel L. Prendergast,
"Simon Swig."

Cases of Infectious Diseases reported to the Boston Board of Health for the week ending August 18, 1914: Diphtheria, 34, of which 5 were non-resident; scarlatina, 9, of which 1 was non-resident; typhoid fever, 6; measles, 23, of which 1 was non-resident; tuberculosis, 38.

The death-rate of the reported deaths for the week was 13.92.

NEW YORK.

Weather and Infant Mortality.—In contrast with the two previous weeks, not only was the general death-rate of the week ended Aug. 17 higher, but the death-rate from gastro-intestinal diseases of infants was also higher. The latter are traceable to the hot weather that prevailed during the past week and again demonstrate that hot weather is the greatest enemy of infants. Undoubtedly when the public is sufficiently educated in the proper care of infants during the summer months, the infant death-rate will be reduced still further, for most of the deaths are distinctly preventable. The task of aducating the public is not an easy one, particularly as each year finds a large number of parents recruited from the newly arrived immigrants. The success achieved during the past years, however, should encourage us to continue our efforts in behalf of infants.

Despite the increased number of deaths last week, the death-rate for the first thirty-three weeks of 1914 still remains lower than that for the corresponding period of 1913.

The Health Department's bulletin issued Aug. 16 shows that there were 132 fewer deaths than during the same week last year. The greatest saving was in infants under one year, and is due, according to the health officials, to the cooler weather prevailing this summer. This opinion is borne out by the absence of deaths from sunstroke and the decreased number of deaths from drowning, falls from fire escapes, roofs and windows.

In discussing this week's mortality, Dr. Shirley Wynne assistant registrar, said: "We should be guided by the teachings of Nature. Last week's mortality figures show clearly that health may be retained and death from the preventable summer diseases avoided if we will only follow a few simple rules of living. In warm summer weather, we should dress lightly, eat sparingly of plain nutritious food, drink plenty of pure water, avoid many of the mixtures sold under the guise of summer drinks, bathe frequently and secure sufficient rest. The

babies may be tided over the warm weather if the same general rules are adopted for their care."

The death-rate for the first thirty-two weeks of 1914 was .35 less than the rate for the corresponding period of 1913. If this decrease in the death-rate continues until January, 1915, the city of New York will have had the lowest death-rate in its history.

SCHOOL MEDICAL INSPECTION.—The *Weekly Bulletin* of the City Health Department denies the correctness of the statement recently made in a German medical journal that school medical inspection in the larger cities of this country was 11% more efficient when conducted under the supervision of the educational authorities than when administered by boards of health. After pointing out apparent discrepancies in the figures quoted, it says: School medical inspection was instituted by health departments for the purpose of giving them a method of reaching children of school age, and thereby not only controlling contagious diseases, but instituting preventive and corrective public health measures among a large class of the population during the most plastic and receptive period of their development. The true purpose is not medical control of school children, but medical control of children of school age. The schools offer the easiest method of reaching the greater part of the children of the city; they serve as clearing houses. In New York, Boston, Chicago, Philadelphia, Baltimore, Cincinnati, Pittsburgh, Buffalo, Detroit, the system is under the control of the health departments. In only two cities of the first class, Cleveland and St. Louis, have the health authorities neglected to appreciate fully the enormous field for public health betterment that lies in reaching the children. Where boards of health are well organized and efficient, the great majority have the system of school medical inspection under their control. In smaller cities the lack of a comprehensive public health program, or meagre equipment of health departments, has resulted in the school authorities taking the initiative. In many communities school boards are more permanently organized and more efficient in their methods than health boards. It is in such communities that the latter have neglected what is undoubtedly one of the most important factors in preventive public health work.

MORTALITY STATISTICS.—The weekly reports of the Health Department show that during the month of July the mortality in the city represented an annual death-rate of 11.83, as against 11.97 in June and 12.19 in July, 1913. Among the diseases in which there was a diminished fatality were the following: The weekly average of deaths from measles declined from 19 in June to 7.25 in July; the weekly average from scarlet fever, from 10.5 to 3.25; from diphtheria and croup, from 29.75 to 28; from epidemic cerebrospinal meningitis, from 7 to 3; from tuberculous meningitis from 17.25 to 15.75; from pulmonary tuberculosis, from 169 to 143.25; from acute bronchitis, from 10 to 6.25; from pneumonia, from 72.75 to 38.75; from bronchopneumonia, from 81.5 to 59; from appendicitis and typhilitis, from 13.25 to 12.75; from hernia and intestinal obstruction, from 10.25 to 9.75; from cirrhosis of the liver from 12.75 to 11; from Bright's disease and acute nephritis, from 114.75 to 91.75; and from puerperal diseases, from 12.25 to 10. Among the diseases in which there was an augmented fatality were the following: The weekly average of deaths from typhoid fever increased from 4.75 to 7.75; from whooping-cough, from 5.25 to 6.75; from apoplexy and softening of the brain, from 15.25 to 23.75; from diarrheal diseases under five years, from 37 to 126.75; and from organic heart diseases, from 142.75 to 163.75. The general death-rate, as well as the infant mortality, was the lowest ever recorded for the month of July.

BEQUESTS.—By the will of the late Marcus Muritzer of New York $10,000 is left to the Hebrew Orphan Asylum and $500 each to the Mount Sinai Hospital, Lebanon Hospital, the Montefiore Home and Hospital for Chronic Invalids, and various other charities.

Massachusetts Medical Society

APPOINTMENT OF DR. CHARLES F. MCCAFFREY.—Governor Walsh has sent the name of Dr. Charles F. McCaffrey, of Somerville, a Fellow of the Massachusetts Medical Society, to the Executive Council, as Medical Examiner for the Second District of Middlesex County, in place of Dr. Thomas M. Durell, whose term expired in January.

Current Literature

Medical Record.

August 1, 1914.

1. Roper, J. C. *Serum Treatment of Pneumonia.*
2. Abbe, R. *A Case of Sigmoid Diverticulitis Simulating Malignancy; Demonstrated by Radiographs; Operation and Specimen.*
3. Verbrycke, J. R. *Ulcer of the Lesser Curvature.*
4. Levin, I. *Primary Carcinoma of the Vagina Treated by Radium and Roentgen Rays.*
5. Tobie, W. E. *A Case of Volvulus of the Jejunoileum with Anterior Gastroenterostomy.*
6. Baruch, S. *An Apparatus for Neuro-muscular Training.*
7. Robinson, B. *Conservatism in the Treatment of Disease.*
8. Philbrick, I. C. *Socialization of Medical Training and Practice.*
9. Radley, J. H. *Spinal Subluxations; Their Nature and Cause.*
10. Greeley, H. *The Organism of Small-pox, Chicken-pox, and Vaccinia.*

New York Medical Journal.

August 8, 1914.

1. Nascher, I. L. *Lane's Autointoxication Complex and the Manifestations of Senility.*
2. Woolsey, G. *Conservatism in the Operative Treatment of Simple Fractures.*
3. Horowitz, P. *The Treatment of Diabetes Mellitus with Bacillus Bulgaricus.*
4. Hitzrot, J. M. *Fractures of the Upper End of the Humerus.*
5. Gottheil, W. S. *The Autoserum Treatment of Dermatoses.*
6. Drennan, J. G. *A Gram Negative Streptococcus Pathogenic for Guinea-pigs.*
7. Arnold, J. D. *Some Signs of Danger in Labor, and How to Meet Them.*
8. Juettner, O. *Frederick Forchheimer.*

The Journal of Experimental Medicine.

August 1, 1914

1. *Adler, I. *Studies in Experimental Atherosclerosis. A Preliminary Report.*
2. Krumbhaar, E. B., and Musser, J. H., Jr. *The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice. X. Concerning the Supposed Regulatory Influence of the Spleen in the Formation and Destruction of Erythrocytes.*
3. Austin, J. H., and Pearce, R. M. *The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice. XI. The Influence of the Spleen on Iron Metabolism.*
4. Ebeling, A. H. *The Effect of the Variation in the Osmotic Tension and of the Dilution of Culture Media on the Cell Proliferation of Connective Tissue.*
5. Losee, J. R., and Ebeling, A. H. *The Cultivation of Human Sarcomatous Tissue in Vitro.*
6. *MacCallum, W. G., Lambert, R. A., and Vogel, K. M. *The Removal of Calcium from the Blood by Dialysis in the Study of Tetany.*
7. Fleisher, M. S., and Loeb, L. *The Experimental Production of Necrosis of the Liver in the Guinea-pig.*
8. Fleisher, M. S., and Loeb, L. *The Effect of the Intravenous Injection of Substances Affecting Tumor Growth on the Cyclic Changes in the Ovaries and on Placentomata.*
9. Ghoreyeb, A. A. *A Study of the Circulation of the Kidneys Following Ligation of One Ureter.*

1. Adler makes a preliminary report on his experimental studies of atherosclerosis in dogs. All his injection experiments were negative. These included poisoning with nicotine, lead, with bacteria and bacterial products. Feeding experiments with oil, cholesterin and hydrochloric acid gave suggestive findings which, however, require confirmation.

6. MacCallum, Lambert and Vogel removed a large part of the calcium from the blood by dialysis and were able to produce in an isolated extremity of an animal extreme hyper-excitability of the nerves quite like that observed in tetany. Furthermore, when the blood of a parathyroidectomized animal in tetany was replaced with normal blood the tetany was relieved, but when replaced by calcium-poor blood the tetany was not relieved. This seems further proof that the twitching and hyperexcitability of the nerves in tetany is due to the lack of calcium in the blood.

[R. I. L.]

Annals of Surgery.

July, 1914.

1. *Carrel, A. *Experimental Operations on the Orifices of the Heart.*
2. *Meyer, W. *On Bronchiectasis.*
3. *Mumford, J. G., and Robinson, S. *The Surgical Aspects of Bronchiectasis.*
4. *Murphy, F. T. *The Choice of Anesthetic in Operating for Abscess of the Lung.*
5. *Greenough, R. B., and Simmons, C. C. *Results of Conservative Treatment of Cystic Disease of the Breast.*
6. Crile, G. W. *The Two-Stage Operation, Especially in Its Relation to Treatment of Cancer.*
7. *Goodman, C. *Arteriovenous Anastomosis of the Femoral Vessels for Impending Gangrene.*
8. Hertzler, A. E., and Gibson, E. T. *Melanoblastomas of the Foot (Chromatophoroma Melanoma, Melanosarcoma).*

1. Carrel reports opening the aorta and cauterization of the sigmoid valves and patching of the pulmonary artery and arterial cone with a piece of vein. The operations were performed on dogs anesthetized by the Meltzer-Auer method. There were operations of the first type with 2 fatalities. There were 8 of the second type with 2 fatalities. Arrest of circulation was accomplished by seizing the pedicle en masse with rubber-covered Doyen clamps. By thoroughly oxygenating the blood before closing the clamp the circulation could be safely arrested for two and one-half minutes. Entrance of air into the right heart was without accident, but into the left ventricle and aorta caused death. This was obviated by aspiration with cannula and vacuum apparatus through suture line before removal of clamp.

2. Meyer considers pathological anatomy, etiology, symptomatology, diagnosis, course, non-operative and operative treatment. Radiography is of so little value in diagnosis of bronchiectasis that Meyer is about to try insufflation of collargol into depth of trachea and bronchi. Patients who have all subjective symptoms of pulmonary tuberculosis, but with sputum continuously negative for tubercle bacilli, most likely suffer from bronchiectasis, particularly if sputum is of foul odor and taste, and if condition is a sequel of pneumonia, caused by aspiration or otherwise. He remarks upon the frequency of suppurative processes in the central nervous system in the course of the disease, and upon the apparent resistance of the bronchiectatic lung to tuberculosis. Under non-operative treatment is considered Singer's thirst cure, intravenous injection of electrargol, inhalation of superheated air with admixture of suitable drugs, and intrabronchial application of drugs by means of catheter and atomizer. The last two methods, he

believes, merit greater recognition. He has tried the former with some success. Under operative treatment is considered pneumotomy, collapse therapy (artificial pneumothorax, pneumolysis with introduction of a plomb, thoracoplasty, phrenicotomy), ligation of branches of pulmonary artery and pneumectomy. In performance of pneumotomy he advocates free lung incision for control of hemorrhage, incision with cautery rather than knife, and single stage operation except in the very weak. Artificial pneumothorax has been of little value. Thoracoplasty frequently gives great improvement but rarely cures (Meyer has had 1 cure). He has practiced ligation of branches of the pulmonary artery to produce carnification of the lung three times with improvement. Pneumectomy is regarded as the only method certain to effect a cure, but to date the mortality has been 50%.

3. Mumford and Robinson regard lung resection as an ideal method of treatment, but only rarely applicable in bronchiectasis. They have had one cure. They favor preliminary collapse therapy, followed by resection, to resection in one stage. Friedrich's pleuropneumolysis is considered a dangerous operation. They have had two fatalities and one narrow escape. Artificial pneumothorax is advocated in all early cases of bronchiectasis. If it fails, thoracoplasty is not entertained, but lung resection alone considered.

4. In considering the choice of anesthetic in operating for lung abscess Murphy dismisses chloroform as too dangerous; ether, although much safer, has the disadvantage of being a respiratory irritant; nitrous oxide and oxygen is regarded as ideal but, as a general anesthetic, increases the danger of pulmonary infection, and its use is therefore reserved for those cases in which preliminary exploration of the lung is necessary for the localization of the abscess, and for children. In other cases he advocates the use of local anesthesia with or without morphia or scopolamine, with some of the less toxic drugs, such as stovaine or novocaine. He reports two cases so operated; one cured and one ending fatally after a third severe hemorrhage. In both cases the two-stage method was used.

5. Greenough and Simmons have assembled from the records of the Massachusetts General Hospital and from the private records of some of the members of its surgical staff 102 cases of cystic disease of the breast treated primarily by something less radical than amputation, in which gross and microscopical pathological examinations had been made. In 83 of the cases the later results have been obtained. Of these, in 14 instances both breasts were operated upon. They distinguish three main classes: the simple fibrocystic with flattened or atrophic epithelium, and two types showing epithelial proliferation, papillary epithelial and adenomatous epithelial. They have excluded cases of the type known as "papillary cyst adenoma," "villous papilloma" or "duct cancer." Four and eight-tenths per cent. of the 83 cases developed carcinoma of the breast, three after partial plastic resection and one after simple excision of the tumor: 5.9% showed recurrence of cystic disease in the other breast: 9.6% showed recurrence of cystic disease in the breast tissue left by the first partial operation; in 20% therefore partial operation for cystic disease was unsuccessful. They, therefore, advocate the removal of all gland tissue of affected breasts, best accomplished by "subcutaneous amputation" or by elliptical amputation, but where the diagnosis is doubtful by elliptical amputation. Partial plastic resection should be practiced only in earliest and mildest cases.

7. Goodman reports 14 cases of arteriovenous anastomosis of the femoral vessels for impending gangrene. Six were successful. Eight required subsequent amputation: one of these was a side-to-side anastomosis and three were cases with spreading gangrene. Sepsis and advanced gangrene contraindicate the operation. The pre-gangrenous stage is the opportune time for intervention. The resulting improved nutrition in cases of non-septic gangrene, however, permits lower amputation than would be otherwise possible. [T. W. H.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 12. MARCH 19, 1914.

1. KIRSCHBAUM, P. *The Chemistry and Toxicology of the Toxin of Dysentery.*
2. FRAUHEL, S. *Discussion of the Above.*
3. KORENCAN. *Regeneration of Long-Bone from Bone Graft.*
4. ROIC, V. *The Removal of Pancreatic Cysts.*
5. KROKIEWICZ, A. *Acute Tuberculosis without Focus.*

No. 13. MARCH 26, 1914.

1. VON TSCHERMAH, A. *Tonic Innervation.*
2. BACHRACH, R., AND LOWY, R. *New Treatment of Kidney Disease.*
3. MATZNAUER, R., AND HESSE, M. *The Wassermann Reaction Technic.*
4. HERTZ, R. *Determination of Residual Nitrogen in the Blood.*
5. BOTTERI, J. *Dextroversio Cordis.*
6. PELLER, S. *Weight of the New Born in Relation to Mother's Circumstances.*

No. 14. APRIL 2, 1914.

1. FREUND, E., AND KAMINER, G. *Serochemistry in Cancer.*
2. *HATIEGAN, J. *The Clinical Sign of Galactosuria in Liver Disease.*
3. POPPER, E. *The Use of "Papaverins" in Treatment of Children.*
4. FINZI, A. *Case of Transcortical Motor Aphasia with Paralysis and Inability to Read Correctly.*
5. KAHANE, H. *Obsessions and Psychotherapy.*
6. RIEHI, G. *Balneotherapy and Skin Disease.*

2. The author's views agree with those of other workers in the same line, namely, that galactosuria appears in practically all cases of jaundice after the ingestion of 40 gm. fasting. In differential diagnosis of liver conditions the quantitative estimation is used. In catarrhal jaundice the amount was from 1.95 to 8.8 gm. In cancer of the liver it was absent in seven cases and less than 1. in five others. In one it was 2.5. In a majority of cases in other liver conditions it was under 1. and never over 2.5. [F. S. K.]

IL POLICLINICO.

JULY, 1914.

MEDICAL SECTION.

1. *CANTELLI, O. *Some Studies on Indol and Its Derivatives.*
2. BOSCO, P. *On Lipemia, Especially in Diabetes Mellitus.*
3. MANTORANI, M. *The Use of Active Serum in the Serodiagnosis of Syphilis by Wassermann's Method.*

1. Cantelli describes some experimental studies of indol formation and excretion in health and disease. His results do not bring out any new facts. Indicanuria is not of importance except as an index of intestinal putrefaction, although a constant excess of indol in the urine denotes a functional deficiency in the organism with respect to protection against poisons in general. [L. D. C.]

SURGICAL SECTION.

1. SCALONE, I. *The Surgical Cure of Basedow's Disease. (To be continued.)*
2. *DURANTE, L. *Clinical and Anatomo-Pathologic Contribution to the Study of Tuberculosis of the Female Breast.*

3. Ligabue, P. *A Case of Subphrenic Abscess. Following Measles.*
4. Nota, A. *A New Procedure in the Radical Cure of Inguinal Hernia in Children.*
5. Sebastiani, A. *Subglenoid Dislocation of the Humerus.*
6. *Azara, P. *The Various Grades of Detachment of the Mesentery in Relation to the Vitality and Function of the Intestine.* (*Conclusion.*)

2. Durante reports two cases, in women of 33 and 19 respectively, and collects an alphabetic bibliography of 114 titles on the subject.

6. From the results of his experimental work on dogs, Azara formulates the following rules for treatment of traumatic mesenteric detachment.

a. With a detachment of not more than 5 cm. along the intestinal margin, or of 6 cm. at a distance of 1 cm. therefrom, treatment should be conservative.

b. With a detachment of 6 or more cm. along the intestinal margin, resection should be performed.

c. At a distance of 3 cm. from the intestinal margin, a detachment of 15 cm. or less should be treated conservatively, one of 16 cm. or more should be treated by resection. [R. M. G.]

Bullettino delle Scienze Mediche.

June, 1914.

1. Bonfanti, W. *Effects of Iodine Saline Inhalations on the Phosphorus Metabolism.*
2. *Beretta, A. *The Etiology of Gangrene of the Dental Pulp.*
3. Cavina, G. *Puriform Cerebro-Spinal Fluid in Two Cases of Cerebral Hemorrhage.*
4. Montanari, A. *Experimental Stenosis of the Pulmonary Artery.*

2. As a result of his experimental researches on guinea-pigs and dogs, Beretta reaches the following conclusions with reference to the etiology of dental caries.

a. Bacteria circulating in the blood-stream may locate in the normal dental pulp.

b. Their sojourn there may be of varying duration.

c. In the pulp of teeth with a closed root they may remain almost as long as in the lymphoid organs.

d. Bacteria have an affinity for the dental pulp, which for the most part is greater than that for the lymphoid organs.

e. In the dental pulp even under perfectly normal conditions, saprophytic bacteria may be found.

f. It is admissible, at least in certain cases, that spontaneous death of the pulp is in relation to an infection supervening by the hematic route.

g. Acute inflammatory processes, which often supervene in pulp previously dead, are probably to be interpreted as bacterial localizations arriving secondarily by the hematic route in a *locus minoris resistentiae.* [R. M. G.]

Correspondence.

LONDON LETTER.

Clinical Congress of Surgeons of North America.

Notes on the London Session.

London, August 1, 1914.

Mr. Editor: Probably nothing in the way of a surgical congress has ever occurred quite comparable to this now in session in London. It is unique in that it is an association of surgeons which has transported itself bodily from its home in North America to another land, 3000 miles away, and is during this week, beginning July 25, the guest of the hospitals and surgeons of London.

If this, the first day of the congress, be any criterion of the whole week, it can safely be said that for hospitality, cordial welcome and unparalleled efforts to show to the visiting surgeons the best of everything which can interest them, the world has never seen the like. Under the tireless efforts of the London committee of arrangements, headed by Sir Rickman J. Godlee, retiring president of the Royal College of Surgeons, supplemented by the well-known organizing ability of Dr. Franklin H. Martin, secretary of the congress, and his able executive, Mr. A. D. Pallou, the machinery of the congress started this morning without friction, and by ten o'clock the one thousand and more members were distributed about the city in the operating theatres of the thirty hospitals, intent upon the miracles in surgery being wrought by the master surgeons of London. The operating theatres here are small, and designed so, as explained by Sir Rickman J. Godlee in his address of welcome this evening, because the teacher-surgeons of London long ago discovered that efficiency in imparting surgical knowledge required that teacher, patient and student must be in close communion,—in other words, that a small class in close touch with both patient and surgeon gives better results than a large class in a large operating theatre, many of whom are so far away that they can see little or nothing. This is keenly appreciated by the American surgeons now in attendance upon the clinics. Admission to each clinic is by ticket, and no more are issued than each respective operating theatre will accommodate.

Sir Arbuthnot Lane's clinic at Guy's Hospital easily takes precedence in popular interest. You feel as you sit in his little operating theatre as though he is one among you, and that his quiet conversational voice is talking to you individually. His personality is unique,—a rugged face, keen piercing blue eyes, a slightly stooping but athletic figure, which speaks of great reserve physical strength, terse, crisp diction,—and he is a master of forceful epigram and withering, biting sarcasm. Like all pioneers in new and startling enterprises, he has been most caustically criticized by his confreres for his radical measures in the treatment of fractures (bone plating) and his equally bold doings (removal of the colon) in cases of chronic intestinal stasis. But he is a man who strikes back, and follows steadily on in his course of original work and investigation. Here are a few examples of his "back firing": "Bone plates fail in the hands of my colleagues because they do not know how to use them. If they put them in dirty, they are bound to come out. If they are put in clean, they will stay in."

Speaking of specialists—"The more they develop of special sense, the less they have of common sense." "We have lost our common sense." "Common sense is what we need." "We must get at the cause of things." "The physician is like the parson, he is governed by a creed." "The physician's box of tricks (his medicines) is all rubbish." "His little doses of poisons are no good." "We must clean up the food supply."

"I'm telling you what I think. You can form your own conclusion—that's your job."

"The way to do an operation is not to buy a lot of instruments. In my cleft palate operation I use four. An esteemed colleague of mine covers the table."

"The colon is the cesspool of the human body. My distinguished colleagues do everything but the right thing for their cases of intestinal stasis. They pour down cathartics and they pump up enemata, all to no purpose as far as real cure is concerned. Here is a case which has had every possible thing done but the right thing,—ovaries removed, appendectomy, hysterectomy, gastro-enterostomy,—and everything else under the sun has been taken out but the right thing. Short-circuiting the colon has cured her, and she stays cured. Drain the intestine and your cases of chronic intestinal stasis will get well of goitre, cervical adenitis, tuberculosis wherever localized. Raynaud's dis-

ease, Addison's disease, rheumatic arthritis; and their general condition will change from toxemia and malnutrition to good digestion, good assimilation and good health."

"Their tubercular sanatoria are all rubbish, from start to finish—just a popular craze."

"This operation (colectomy) is as simple as any on the palate—any fool can do it."

"It is the most simple operation in the world if you just know how to do it."

"Nothing can be more pathetic than the way this thing (the protruding colon) is asking to come out."

"We'll give this case as much rectum as is justifiable—which is as little as possible."

"You imagine you want a lot of small intestine. It's all nonsense! You can do very well with a couple of feet of it."

"The anatomists (who know nothing about surgery) call these things bands and congenital adhesions. If they are congenital children ought to be born with them, but they are not.

"I find everybody is modifying this operation. They are doing it the way I did it thirteen or fourteen years ago. That's the way they modify it. I've tried all these things."

"I don't know anything about shock from pulling on the mesentery. I pull on the mesentery all I want to. It's all right as long as you keep pumping in salt water. Keep pumping in salt water, and you need have no fear of shock."

"Go to women if you want to learn to sew. If we invent a stitch, we call it after somebody's name. It doesn't do any harm and it pleases people. But the women have known about it all along."

"The biggest fool thing is to do a gastro-enterostomy for ulcer—unless you've got mechanical obstruction."

Whatever may be said of Sir Arbuthnot's original work, theories and results, he is a careful, painstaking, skilful operator—a master surgeon—and he cannot but leave a deep impress upon the history of surgery.

SIR WATSON CHEYNE AND KING'S COLLEGE HOSPITAL.

What historical memories are associated with King's College Hospital! For it was partly here that Lister worked out his epoch-making discoveries and methods which revolutionized the surgery of the world. But old King's College is no more, for a magnificent new group of buildings has been erected far out in the suburbs at Denmark Hill. These together constitute the new King's College and Hospital, and represent the latest and best in hospital construction, design and architecture. It is now a generation and more since Lord Lister achieved his fame. His successor, Sir Watson Cheyne, is now "The Grand Old Man" of English surgery. He represents the type of surgeons of Lister's day—careful, conservative, loth to change methods which have stood the test of time. In his operating room his motto is, "Do not trust to others what you can do yourself." Therefore, he does the last cleaning of the field of operation with his own bare hands, adjusts the towels, dons his gloves, then proceeds rapidly with his work. Carbolic acid is still included in his antiseptic armamentarium and he continues to use sea sponges.

Today's evening session has been one of surpassing interest, including addresses of welcome by Sir Rickman Godlee and Mr. W. H. Page, the American Ambassador, the inauguration of President J. B. Murphy, a scientific paper on "Ulcer of the Stomach" by Prof. von Eiselsberg of Vienna, and an illustrated address by Dr. Murphy on "Arthrodesis." It will be recalled that Sir Rickman Godlee, then president of the Royal College of Surgeons, came to Chicago last November to attend the first convocation of the American College of Surgeons, and by his presence and masterly address did much to add weight and dignity to that occasion. He has been tireless in his efforts to make this London session of the surgical congress a success, both in the preliminary arrangements and his cordial personal welcome to every visiting member. It has been largely through his influence that the Royal College of Surgeons was thrown open to the congress on Wednesday afternoon, and all guests received in state by the president, Sir Watson Cheyne, and his associates. It was like a chapter out of the past to wander through the great library and museum, the largest in the world of their kind, where those mighty men, John Hunter, Sir Astley Cooper, Edward Jenner, and others of past centuries made history and fame.

It is impossible to speak in detail of the many splendid examples of operative skill and technic which have been exhibited by the London surgeons during this week of the congress. In addition to those already mentioned, the writer has been particularly impressed with the special excellence of the work of Bland-Sutton, Berkeley, Handley and Bonny of the Middlesex Hospital; Barker and Spencer, of the University College; Berry of the Royal Free; Messrs. Makins, Battle and Ballance, of the St. Thomas; Sir Victor Horsley, of the National; Openshaw, of the London; Burford, of the London Homeopathic; Tate, of St. Thomas; Eden, of the Charing Cross; and Barrington-Ward, of the Children's.

The evening sessions have been of absorbing interest and largely attended. The only noteworthy variation from the announced program has been the absence of Professor Krönig, on account of the Austro-Servian War. The only real, but brief, disturbance of the serenity of the course of the meetings was an outburst on Friday evening by one of the female furies of England (suffragette), who mounted a chair and succeeded for a time in creating a pandemonium. She was quickly "drowned out" and hustled out. The chairman begged the indulgence of the audience on her behalf, suggesting that she and her ilk might be the innocent subjects of the malady last mentioned on the evening's program—intestinal stasis.

The annual executive session was held Friday afternoon for election of officers, appointment of delegates and committees. Dr. Charles H. Mayo, of Rochester, Minn., was elected president; Herbert Bruce, Toronto, vice-president; Robert L. Dickinson, Brooklyn, second vice-president; Dr. Franklin H. Martin, Chicago, general secretary; Allen B. Kanavel, treasurer. No formal discussion occurred on the plan of the 1915 meeting, but it is "in the air" that Boston is the place where a large percentage of the members would like to gather for the next clinical congress. The total registration has been upwards of 1400, and every state in the Union has been represented.

In the last hours of the congress disquieting tidings are circulating that a cataclysm of war is imminent amongst the European nations. The leading English surgeons have received government notice to be in readiness for field-hospital military duty. American tourists are rushing across the Channel from the Continent, and many of the American surgeons and their families who desire to return to the United States are unable to secure passage or promise of return at either early or remote dates.

Truly yours,

HORACE PACKARD, M.D.

RECENT DEATHS.

DR. HASKET DERBY, one of the founders of the American Ophthalmological Society, and a pioneer in this specialty in New England, died at Falmouth Foreside, Me., August 21, aged 79 years.

DR. SAMUEL A. NICHOLSON, who died on Aug. 17 in Haverhill, Mass., was born at Bambas, P. E. I., in 1874. He was a graduate of the Boston College of Physicians and Surgeons, and had practised his profession in Haverhill since 1903. He is survived by his widow and by one son.

Original Articles.

AN EXAMPLE OF DISSOCIATED PERSONALITY.

By Ernest G. Grey, M.D., Boston,

and

Warren R. Sisson, M.D., Boston,

Peter Bent Brigham Hospital, Boston, Mass.

INTRODUCTION.

In the literature there are reported a great many cases of so-called multiple or dissociated personalities. A number of these have been published in detailed form—for example, the well-known studies of Prince, and Sidis and Goodhart. From a review of these reports, references to which we add at the close of this paper, we have become more or less familiar with this type of abnormal psychology, and have been able to understand many similarities between the clinical pictures.

The case we wish to report, while properly it represents a disordered personality, is rather unusual in several aspects and may add additional data to that already assembled upon this type of psychosis.

In March, 1913, a woman came to the out-door department of the Peter Bent Brigham Hospital, bringing her small child for treatment. Our interest at this time was centered entirely on the child. He was poorly nourished, poorly disciplined, anaemic, and represented the type of infant that is "boarded out." The mother manifested surprisingly little concern for her child. The grandmother, who also accompanied the child, assumed apparently all the responsibility of his welfare. The contrast between the mother and grandmother was striking, the one an obese, purposeless, disinterested, harmless person, the other, older, but an energetic, modest, thoughtful housewife. The two had no interests in common, not even the child.

After a few visits with the child the mother returned unaccompanied. She gave her name at the admitting desk as Mrs. X,* her age as 23; her address was that given for her child. She had no definite complaint, but came to see a doctor because of "not feeling well." A complete history was taken. We learned that she had chorea as a child; and had been told that she was often nervous. A number of years ago she had "rheumatic fever." She was married and had a child 16 months of age. Very recently she had a miscarriage; it was associated with no complications and was attributed to a fright with a subsequent fall. On physical examination the main interest centered about the heart. She had definite signs of a mitral insufficiency.

Inquiry was now made concerning the patient's home conditions. It was learned that she occupied very comfortable rooms on a third floor, and that her husband earned $25.00 a week. It seemed advisable to inform the patient of her cardiac condition, but with care so as not to startle her. She was not aware of having had any heart trouble before, and seemed very little worried. She was dismissed from the room, being merely advised to move to a first floor apartment. Apparently the patient had something else to say, however, and returned immediately complaining of menstrual disorders.

Two days later a most unexpected event took place. The attendant at the admitting desk announced to one of us, with an expression both of disgust and bewilderment, that a patient whom she recognized definitely as having seen two days before, and whom she knew to be Mrs. X, the mother of a child also a former patient, was now at the desk under an assumed name, attempting to gain admission. The deceit was so apparent and ridiculous that the patient was admitted at once in order to investigate its cause. She informed us that a well-known gynecologist had referred her to the hospital. Her complaint was not stated definitely but during the visit she said she would like to have a child. She gave her name as Mrs. A, said that she was 24 years of age, resided at an entirely different address from that of Mrs. X, and was born in Scotland. (Mrs. X was born in Massachusetts.) All this information was given without any hesitation, and with no apparent motive to deceive.

A history of Mrs. A was now taken. She stated that she was married but had no living children. She gave no cardiac history, etc. A complete physical examination was made and the same conditions were noted as had been found in the case of Mrs. X. A pelvic exmination showed essentially normal findings and Mrs. A was encouraged to return for observation.

Again two days later we were once more surprised. One of us was called to the telephone, where someone was inquiring concerning her sister's, Mrs. X's, condition. As the exact name of the inquiring party could not be ascertained, no information was given, but the party was advised to come to the hospital in person. On the following afternoon a person, apparently a total stranger, came to the administration building and called for one of us. We found a well-dressed young woman accompanied by a small child. On being addressed she acted as if she had never seen us before, announced that she was Miss B, Mrs. X's sister-in-law, was a milliner and lived in a suburban town. She came with Mrs. X's baby to inquire about Mrs. X's heart trouble. There was no doubt whatsoever whom we were addressing. It was unmistakably Mrs. X herself. Miss B stated that her sister-in-law had been recently to a dance where she had fainted. This fact, together with her sister's (Mrs. X's) announcement that she had heart trouble, led Miss B to consult her sister-in-law's physicians. Miss B spoke very freely of her sister and a great many very interesting facts concerning her life were ascertained.

One episode told by Miss B, later referred to in detail by Mrs. X and Mrs. A, is of interest. Previous to Mrs. X's marriage she had been engaged to a medical student. He proved untrue and Mrs. X had been obliged to break the engagement. This

* We have used Mrs. X throughout the paper to designate the true personality of the patient; and Mrs. A and Miss B to designate the other personalities presented by the subject.

caused her great disappointment. Later Mrs. X referred continually to this, believing that her life had been ruined. She seemed to respect her present husband, who really is solicitous for his wife, and is an industrious man. She said, however, that she did not actually love him. Miss B now displayed a watch that the medical student once gave her sister, previous to her marriage, and said that Mrs. X had attempted to return it but it had been sent back to her. Consequently Miss B appropriated it.

In the course of the conversation Miss B stated that her sister-in-law, Mrs. X, had often embarrassed her greatly by calling herself Mrs. A. When Mrs. X was carrying her baby she went to the home of her husband's parents, where the child was born. While on the street one day she gave her name to a neighbor as Mrs. A. Later Miss B was met by the same person who inquired for Mrs. A. This experience was verified by the husband and other members of the family. Recently a number of rather amusing situations have arisen when Mrs. X has been addressed as Mrs. A. On one occasion Miss B was asked by one of the nurses how her child was. Again, presenting herself as Miss B, she was introduced to one of the doctors as Mrs. X. She immediately corrected the statement, apparently being somewhat amused, and stated that a number of people had made the same mistake.

Soon after Miss B's visit to the hospital, Mrs. X again returned. The latter told of her sister-in-law's visit in her home and of her experience at the dance. To her astonishment her sister-in-law, husband, and friend, all had accused her of impersonating other people. Mrs. X could not understand what they meant and asserted that Mrs. A was a woman larger than herself, a woman of an entirely different type.

In a number of subsequent visits many most interesting facts were ascertained. Time would not permit to relate in detail many of the conversations we had with the various personages. Often the true Mrs. X seemed very much worried for fear that she had said or done some indiscreet thing while she was Mrs. A or Miss B. She complained occasionally of feeling that she was deceiving everyone. On one occasion she came to the clinic in great haste to ask our advice. It seemed that, as Mrs. A, she had written a certain gentleman, apparently a friend of the family. The letter had been returned by the receiver. Mrs. X said she was entirely unconscious of ever having written it. The contents worried her even more, for she had informed this gentleman that she would gladly accede to any demand that he might make. She now recognized that, as she had no recollection of having written the letter, she might also have been unfaithful to her husband. If she had what should she do?

The anxiety of the patient was so apparent and the complications that might develop so numerous that it did not seem wise to us to pursue the analysis further. We therefore endeavored, as tactfully as possible, to inform her of her actions. The occasion of this disclosure was one evening when she appeared as Mrs. A. A very long introductory conversation was held and finally the full details of her past actions were set forth. Mrs. A seemed to have little comprehension of the import of our conversation, though it was indeed no new information, for her husband and friends had spoken of it before. On being escorted to the door that evening she asked, "Who, then, am I now?"

At the outset of the explanation to her we felt that her responses would lead probably to a satisfactory interpretation of her previous difficulties. The complete absence of emotion during this conversation, the almost apathetic acceptance of our accusation, and the confusion, nearly amounting to complete depersonization, indicated to our satisfaction that there had been definite, temporary disintegrations of the personality. As the patient had shown throughout the study a marked susceptibility to suggestion, it was not very difficult, in the course of time, to reëstablish what apparently is the original personality, Mrs. X. During the past few months we have had opportunity to use suggestive measures, and these, together with careful surveillance of her daily life, have kept intact the personality X. It is of interest to add that the patient has again become pregnant. While this may lead ultimately to a repetition of her former difficulties, her attention is centered at present on the features of this situation.

In several instances an attempt was made to discern just how much Mrs. X remembered of her actions while she was Mrs. A or Miss B. A most striking illustration of her amnesia is shown by the following. On one occasion Mrs. A. wrote to one of us. The letter contained a rather desultory discourse upon Platonic friendship. One day when Mrs. X appeared she was asked about the letter. She denied ever having written to either of us. We then allowed her to read it. She recognized immediately her own handwriting, which is essentially the same as that of Mrs. X. She read the letter through with apparent interest, and insisted that she did not remember ever having written it. As she recognized the writing, however, she acknowledged that she was probably its author. On another occasion, when Mrs. X called, she was questioned concerning her actions when she appeared in the administration building of the hospital as Miss B. Apparently she had no recollection of the events of this visit. Certain other incidents, on the other hand, have shown that the amnesia has not been always so complete.

DISCUSSION.

Concerning the interpretation of this case we have certain views which we shall mention briefly. These we have endeavored to keep entirely distinct from the history of the case.

By making use of neurologic methods in the examination and with clear conceptions in mind of the natural history of nervous diseases, the diagnosis of hysteria seems justifiable. There was a complete absence of any sense of incompleteness. There was also a marked absence of struggle against her impulsive acts, and a lack of any definite discomfort which might have hindered the progression of her ideas into actions. Particularly during the early course of the observations it seemed likely that some expression or action ultimately would indicate dissimulation in the subject's attitude. This, however, did not prove to be the case. She never manifested the slightest suspicion of the new development in her mental life. Prior to her readjustment she believed completely in the induced ideas. Afterwards the suggestion of her

physicians, in whom she appeared to have every confidence, sufficed to abort any misgivings which might have arisen.

The response to suggestion throughout the study, the immediate and complete reunion of the personalities under suggestion, and the cutaneous anaesthesia, indicate definite hysterical stigmata. Repeated observations by different examiners have demonstrated an area of complete anaesthesia involving the right breast, shoulder, and upper arm. While the boundaries have varied from time to time the extent of the anaesthesia has remained practically constant. There were no restrictions of the visual fields, no abnormalities of the skin and tendon reflexes, no pupillary inequalities, and no secretory alterations.

The morbid features here, it seems fair to assume, formed a definite system—a system sufficiently organized to alternate in mass with the normal personality. This probably was brought about by physical and environmental stimuli. There are, furthermore, several complexes discernible in the case which seem powerful enough to account for most of the psycho-neurotic symptoms. The disturbances of personality represent a certain degree of compromise between opposing groups of ideas—ideas with marked affective coloring. The complex largely responsible for these symptoms seems to have centered about an early love affair. She had been engaged to marry a man to whom she was deeply attached. Previous to the marriage, however, the young man became involved with another woman, and the patient was forced to sever her relations with him. Though shocked and disappointed, the circumstances altered in no way her affection. Had it not been for a fear of society despising her she would have married him willingly in spite of all else. A conflict developed in this way, probably leading to a successful exclusion of her love from the focus of consciousness. At length she married another person and was able for a time to concentrate her attention upon her new domestic duties.

Nevertheless the repression appears to have persisted only up to the time of her first pregnancy. It seems that she never had experienced more than a friendly interest in her husband and that the marriage relations were always disagreeable to her.

With the inception of maternal life the stronger complex reached consciousness again, this time, however, it appeared in a compromised form. The repressed psychic activities took the form of several personalities, first Mrs. A. and later Miss B. The real Mrs. A, the counterpart of the personality of Mrs. A, we are led to believe, was fortunate in having had all of her expectations of married life gratified. The real Miss. B is an attractive young milliner whose numerous admirers undoubtedly make her life more or less enviable.

While the disorder of consciousness at this early date was of very brief duration, it is important to remember that certain psycho-neurotic symptoms persisted—the endeavors to escape the commonplace situations of the home life, to associate and correspond with other young men, to read books treating of unfamiliar subjects, etc.

The onset of the second outspoken disorder of personality, we think, can be associated more or less definitely with her visit to the Out Door Department. It seems likely to us that certain stimuli in this new environment were sufficiently suggestive to bring this about. Since then, up to the writing of this report, there have been no further repetitions. Since the apparently successful reëstablishment of the personality, Mrs. X, however, the patient has again become pregnant. While this may lead ultimately to a reappearance of her former difficulties, there is nothing at present to suggest it. Her thoughts now are occupied largely with the exigencies of gestation, and, coupled to these, with various schemes for artificial abortion.

In conclusion we believe that from the study of the case recorded above we are justified in considering this a periodic dissocation of personality in a hysterical subject. The ease in readjusting the patient, moreover, once the condition was ascertained, seems to warrant the emphasis we have attached to this type of mental aberration. The absence of any outspoken disharmony in the family relationship, the failure after repeated examination to ascertain a more extended sexual basis for the condition, together with the temporary character of the dissociation are interesting. It seems probable that such cases are less unusual than we ordinarily believe.

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SOME OBSERVATIONS UPON PYOGENIC INFECTIONS OF THE UPPER URINARY TRACT.*

BY ARTHUR L. CHUTE, M.D., BOSTON.

A LITTLE while ago it was pretty generally considered that most pyogenic infections of the upper urinary tract were "ascending," that they had their origin in the bladder and invaded the kidney by way of the ureter. More recently it has been evident that many of the acute renal infections come by way of the blood stream, and some have inclined, in the light of this new knowledge, to minimize the rôle played by the ascending infections. I should hesitate to give an opinion as to which is the more common; it is my feeling that both ways of infection are common. If I were asked however, which infections I believe the more important, that is, which threaten the kidney most, I should say the ascending, since they are so often associated with back pressure or obstruction of some sort, factors that tend to make a renal infection especially destructive. I shall have occasion to refer to this point again.

There is another more or less probable route of infection, and that is by way of the lymphatics. We have little definite knowledge upon this point, but the frequency of infections with the colon bacillus suggests that the route may not be so uncommon as we have thought.

The organisms found in these pyogenic infections include most of the common ones and some that are not especially common. In my personal experience the colon bacillus has been more frequently met than any other organism. Next in frequency have come some of the staphylococci, of which there are evidently a number of varieties, some of which are urea splitting and some of which are not. Another rather striking organism is the pyocyanus. I have chanced upon two infections of this sort in the past week. In fact there are few pyogenic organisms that may not serve as the medium of an infection of the upper urinary tract.

There is no constancy of the lesion brought about by the infection of a kidney with a given organism. Neither does the route of infection produce a definite lesion. In a general way one may say that a pelvis that is enlarged with a flattening of the renal papillae speaks for an ascending infection—in the same way that a cavity in the renal tissue that bulges into the pelvis speaks for a blood-stream infection. Neither is definite, however, as it is perfectly evident that an infection that began in the cortex may extend to the pelvis and persist there after the original cortical focus has healed, producing the effect that an ascending infection brings about. In the same way, an infection that began in the pelvis of a kidney may extend into the secreting tissues and there lead to a focus of suppuration though the process in the pelvis clears up.

The dilation of a ureter even for some distance below a kidney does not mean that an infection has necessarily come up the ureter. In two cases within the last few months I have seen a dilatation of the ureter that has begun above and has extended some inches along the course of the ureter. In neither of these cases was there any recognizable obstruction in the ureters. This process was evidently one of stretching of an inflamed and inelastic ureter by the muscular action of the kidney pelvis. There are, of course, plenty of instances where the dilation has taken place from below, noticeably the cases with obstructions at the bladder outlet. The point I wish to make is this, that the presence of a dilation of the upper segment of the ureter does not necessarily mean an ascending infection; it may be a descending one.

The lesions that we commonly see in pyogenic infection of the kidney are pyelitis, pyelo-nephritis, abscess of the kidney and pyo-nephrosis. If one insisted upon being absolutely literal, I suppose he would have to say that a pure pyelitis (if such ever exists) would come only from an ascending infection. While this may be so literally speaking, yet practically any of these lesions may arise by either route of infection.

The diagnosis of these pyogenic infections often presents much that is confusing. In the acute stage, if the swelling of the kidney tissue is enough to cause pressure on the capsule, one sees pain and tenderness as well as temperature—usually the temperature is rather out of proportion to the apparent illness of the patient. Often, if the invasion is not very acute, there is little to localize the process, and exceptionally it may be recognized only by the condition of the urine. This is especially likely to happen with young children when the question of an acute renal infection must always be considered in a patient presenting an indefinite illness with temperature.

It is doubtful if we often see cases of pure pyelitis. There is usually some involvement of the renal tissue as well, so that, strictly speaking, the cases are pyelo-nephritis. The importance of the process depends on the nephritic element, the extent of which is roughly indicated by the amount of albumin present in the urine. With the exception of papillomata of the bladder, I think one never sees bladder lesions that give more than one per mille of albumin by Esbach—this of course excepts bloody urines. On the other hand, the presence of a smaller amount of albumin does not by any means rule out a kidney infection since there are plenty of renal infections that show less than one per mille of albumin. For accurate diagnosis the ureters must be catheterized, and the amount of albumin considered in relation to the specific gravity. The estimation of the amount of albumin is an easier and quicker way of distinguishing between an inflammatory invasion of the upper and lower

* Read before the New England Branch of the American Urological Association, Nov. 18, 1913.

urinary tract than depending upon the finding of casts and other distinctly renal elements. With a considerable suppuration casts are only rarely found—therefore, their absence is of no real value.

In the chronic renal suppurations—not alone the cases of pyelitis and pyelo-nephritis—but where there are abscess cavities, or even pyo-nephrotic sacs, provided the pus is not under tension, there are often no symptoms that point to the renal origin of the process. What subjective symptoms there are may, in fact, point more to the bladder than to the kidney. The sure way of diagnosis is the catheterization of the ureters. It allows not alone the localization of the suppuration, but the differentiation between kidneys showing foci of suppuration and kidneys that have been turned into pyo-nephrotic sacs. For instance, the appearance of moulds of pus from a ureter indicates a pyo-nephrosis so advanced that there is little secretion of water. In the same way collecting a urine from the ureter (not the kidney pelvis) of a suppurating kidney will give a very fair idea of the secretion and consequently of the extent to which the suppuration has destroyed its function. The application of the phenol-sulphone-phthalein, and the indigo-carmine tests accomplishes the same results.

The prognosis in the acute pyogenic infection of the kidney is good, as a whole. More especially so in the hematogenous ones which a few years ago we were advised were especially dangerous, but concerning which fortunately wiser advice now prevails. The acute pyelo-nephritis of ascending origin that is seen in cases of back pressure due to obstruction at or near the bladder outlet is much more dangerous than the acute hematogenous infection, since the back pressure has already greatly crippled the kidney, and its persistence prevents the kidney from freeing itself of its infection.

In a general way we may expect the acute pyogenic infections of the kidney to clear up in the vast majority of instances in which the kidney empties itself. These suppurations do not necessarily clear up at once, and one sees instances where, without deformity, a kidney pelvis holds more than it should for some time following an acute infection. Certain of these eventually clear up and I believe the persistence of the trouble over some little time is due to an infiltration of the pelvis and consequent interference with its muscular function. When, due to some deformity, a kidney does not empty itself, an acute process may not clear up but become a chronic suppuration.

Besides the chronic suppurations that follow acute invasions of the kidney there are others that are chronic from their inception. They occur for the most part in organs that do not drain perfectly, and perfect drainage is as necessary to clear up an infection of a kidney as it is in instances of infection of the bladder. The prognosis in these cases is not good: without interference the progress will be slow but steady until a greater part of the kidney has been destroyed.

The treatment of acute infections of the kidney should be expectant for the less acute cases—the very acute cases of pyelo-nephritis with miliary abscess formation will be benefited by decapsulation and occasionally by nephrotomy. Nephrectomy is so seldom indicated that it is only a very slight exaggeration to say that it should never be done.

The underlying principle for the treatment of the chronic infections is the securing of adequate drainage, in the cases where conservative treatment is possible. This consists in the simplest instances in freeing abnormally tied-down organs or in fastening in place abnormally mobile ones. In other instances it consists in doing plastics of various sorts. The object is to secure perfect drainage of the infected kidney. The result gotten in some of these cases of renal suppuration is gratifying, even in cases that were unpromising; on the whole, however, my experience with conservative operations on kidneys that have shown definite foci of chronic suppuration, has not been very encouraging. The removal of a suppurating kidney in the presence of a well fellow is attended with such brilliant results that I think we all tend toward the radical operation. It is fair to expect, however, that our increasing knowledge of the subject will lead in the future to more satisfactory results from conservative operations upon suppurating kidneys.

TREATMENT OF MOVABLE KIDNEY WITH OR WITHOUT INFECTION, BY POSTURE.*

By Hugh Cabot, M.D., Boston,

and

Lloyd T. Brown, M.D., Boston.

The basis for the work which Dr. Brown and I have been doing is a follows:

We, all of us, recognize a certain type of individual, the body type described years ago by Harris, with which ptosis in its various forms is commonly associated. Of this ptosis mobility of the kidney is of course a part. We further recognize that obstruction of the ureter is at least a very important cause of renal infection. Many of these patients come to the surgeon on account of symptoms chiefly referable to the kidney and many of them have a pyelitis with more or less tendency to relapse. The fixing of these kidneys by surgical measures is sometimes a most effective measure but should it be possible to limit the mobility of the kidney by other means it is obviously desirable.

The work done by Goldthwait and his col-

* Read before the New England Branch of the American Urological Association, Nov. 18, 1915.

leagues suggests that considerable benefit may be obtained by alterations in posture and our work has been in the determination of the effect upon these kidneys of alteration of posture similar to that suggested by Goldthwait. The work is too young to entitle us to conclusions and such tentative suggestions as we have to offer will be discussed by Dr. Brown. I only desire to point out that our success thus far obtained seems to me so encouraging as to warrant a much more extended trial.

As our methods of diagnosis have become more and more exact we have found that the separate specialties in surgery and medicine have begun to overlap each other more and more. Where once genito-urinary surgery meant to some of us only the care of the venereal infections it now has a much larger and more interesting field. Where orthopedics used to mean, to many, only the care of the feet it now has a scope which is broadening every year and one, the principles of which, we feel will eventually be of the greatest assistance to the other specialties.

These principles are derived entirely from the consideration of the human body as a vastly complicated machine and from examining each and every patient firstly for any organic lesion and secondly, for any marked variations from what we consider to be a normal human body. The term "normal human body" is used advisedly as it differs very markedly from what is included in the term average human body.

First of all, what may be considered a normal human body and then what are the variations and what may be some of the results of these variations from the normal?

As physicians we can learn a great deal which will be of use to us in our examinations of human bodies by using some of the points which jockeys and horsemen consider of importance in the examination of racing horses. The following is a quotation: "The shape of a race horse is of considerable importance, although it is said with some degree of truth that they win in all shapes."

"The body or barrel (of the horse) should be moderately deep, long and straight, the length being really in the shoulders and in the quarters. The back should be strong and muscular with the shoulders and loins running well in at each end. The loins themselves should have great breadth and substance, this being a vital necessity for weight bearing and propelling powers."

Let us now take a normal human being and see how well this description fits. Here is an athlete: notice the body or barrel, for this is the part which supplies the legs and arms and head with the energy and endurance to stand long strains. See Fig. 1. As with the race-horse the body is moderately deep and long and straight. The loins also have great breadth and substance. You have all seen a horse rear and stand on his hind legs and may have been struck by the way the ribs stand out and the belly itself is perfectly flat, in fact almost concave. In this athlete nearly the same thing is true. Let us now examine the inside of the athlete's body and see if there is any reason for this fullness in the lower rib region and the flat lower abdomen.

In this picture taken from Cunningham's anatomy you can see the normal arrangement of the organs. See Figs. 2-3. First notice the shape of the ribs, the width of the xyphoid angle and that the direction of the ribs themselves is more nearly horizontal than straight downward. The chest itself, as with the race horse, tends to run well in at each end, thus in the lower part giving some support to the liver and other organs here. Now look at the organs themselves. As you see all the important organs, the liver, spleen, stomach, pancreas, duodenum, kidneys and large branches of the abdominal aorta and the solar plexus are all above the umbilicus and are practically all above the lower border of the lowest ribs. Notice especially that the liver in back, comes down below the upper pole of the right kidney. In this sagittal section notice the shape of the abdominal cavity and how the liver is enclosed by the rounding in of the ribs. See Fig. 4. In this picture part of the liver has been removed to show the right kidney, lying in its bed of retroperitoneal fat. See Fig. 5. Notice that the axis of the kidney is backward so that the kidney tends to fall backward upon its bed. As mentioned before the posterior lobe of the liver comes down in front of the upper pole of



FIG. 1.—Normal human figure. Notice fullness of lower rib region and flatness of lower abdomen.

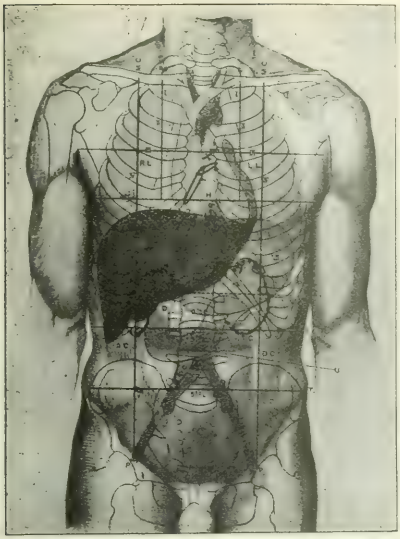


Fig. 2.—A normal body showing that all the most important of the abdominal viscera are normally within the region surrounded by the ribs.

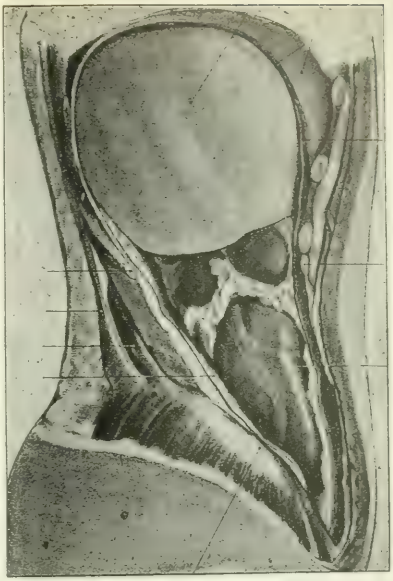


Fig. 4.—Sagittal sections showing shape of abdominal cavity and the relation of the organs.

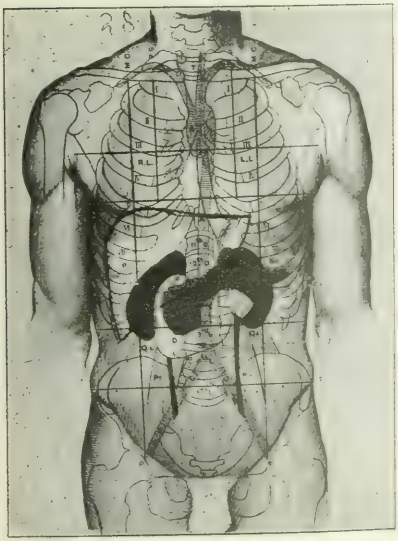


Fig. 3.—A normal body showing that all the most important of the abdominal viscera are nominally within the region surrounded by the ribs.

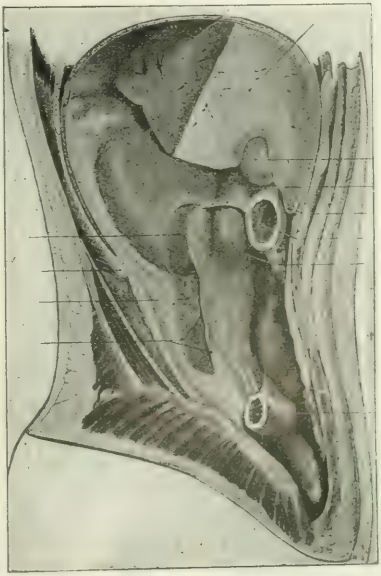


Fig. 5.—Sagittal sections showing shape of abdominal cavity and the relation of the organs.

the right kidney and so anything which tends to crowd the liver down would in turn tend to push the kidney downward into its bed of retroperitoneal fat. It is well known that pressure on fat causes the fat to disappear. To get another idea of the shape of the abdominal cavity examine these cross sections of the abdomen. See Figs. 6, 7 and 8. This one at the twelfth dorsal vertebra shows the size of the cavity in this region. As we go further downward notice that the lumbar vertebrae get larger and the depressions at the sides of the vertebrae are gradually filled up by fat and lower down by the psoas muscles so that at the region of the fifth lumbar, which is below the umbilicus, the cavity is very narrow. This lower part is normally filled by the small intestine and sigmoid which, provided there is room enough in the upper abdomen to prevent downward pressure on the organs, may act, as Codman says, as balloons and give some support to the viscera.

Having thus carefully examined both externally and internally a normal human body, let us now take an average body, or better, one that is below the average. Consider first the possibilities of impairment of function which may come from the changes in shape of the chest and abdominal cavity, and secondly, what can be done to repair the damage already present.

This is the picture of a woman who gave the following history. See Fig. 9. I wish to thank Dr. Goldthwait for permission to report this case.

June, 1912. Woman 32 years, single. The symptoms were that she had much weakness in the abdomen so that it was impossible for her to sit up for long. Much backache low down and at the back of neck. Much abdominal pain. Four years ago the right kidney was hitched up and the appendix removed. These operations were performed for pain in the right side of the abdomen. After this she was better for two years when she developed neuralgia in the left chest and then shingles on the left side. Since this the abdominal pain has returned and increased. The nights are bad. Digestion is poor. Vomiting occurs at times with much gas. Much constipated and always used up for some hours after movements. Urine is controlled normally. She had been for six months in the Adams Nervine and had been discharged as not being a nervous case. She had been seen by a prominent internist and given a hopeless prognosis. This internist had only seen the internal organs and had not taken into account at all, the shape of the body itself.

The treatment was planned to change the shape of the body from the very cramped and poorly functioning condition seen in this picture. The hope was that as the body changed its shape there would come a readjustment of the abdominal organs which would allow them to functionate better. By Oct., 1912, the condition in this picture was obtained and now the woman is able to be back again on her job. See Fig. 10. Compared to her former condition she is a well woman, but she still has very definite limitations. If she gives up taking certain positions after meals and wearing the braces and corsets which were necessary in her case she has a return of the indigestion. From the point of view of complete anatomical readjustment she has not yet attained the normal, but as she has more and more approached this she has had increasingly better health. She probably never will be perfectly normal because undoubtedly there are congenital de-

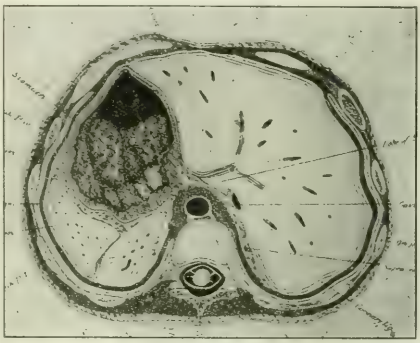


FIG. 6.—Cross section of abdomen at intervertebral disc of 11th and 12th dorsal vertebrae.

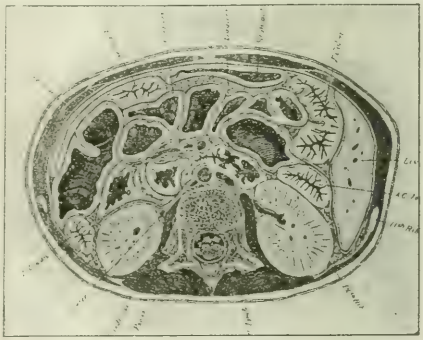


FIG. 7.—Cross section at second lumbar vertebra.

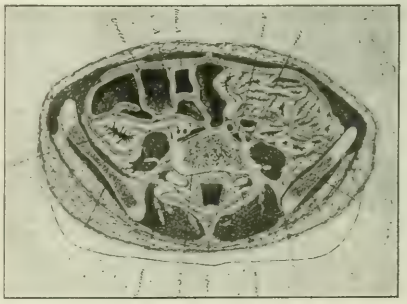


FIG. 8.—Cross section at fifth lumbar vertebra. Notice how the anteroposterior dimension of the abdominal cavity has changed from Fig. 6.

fects in the attachments of the hollow and solid abdominal viscera which have been increased by the acquired habits of posture, but her condition today is so much better than formerly that she considers herself practically, with certain limitations, a well woman. We hope that as the improvement in the anatomical readjustment continues these limitations will get less.



Fig. 9.—A not uncommon type.



Fig. 10. The same type but [illegible]

Consider now in this case a few of the points of anatomical adjustment which must be present when the shape of the abdominal cavity is as much changed as it is here. Notice that the ribs instead of being nearly horizontal and rounded are much more nearly straight downward and are flat and almost concave. The eleventh and twelfth ribs are also very straight downward and being so are often a serious difficulty in operating on a kidney. In this picture, see Fig. 9, notice how thin and narrow are the loins of the patient. There was practically no resistance here to bimanual palpation. The depth of the lower chest or upper abdominal cavity as you can see, is tremendously narrowed, so that at times one can almost see the great vessels and spinal column. What must this narrowing mean? It must mean that the space for the liver being narrowed by the crowding in of the ribs, the liver itself is crowded upon and the pressure upon it is downward and backward. This means that the right kidney is pressed upon by the posterior lobe of the liver and it in turn is crowded downward into its bed of fat. There is not time to go into the possibilities of interferences in the functions of the kidney which may come from this pressure nor to consider what effect this crowding may have on all of the great blood vessels and the sympathetic nervous system, the solar plexus, which controls these vessels and which are immediately in this region.

It is enough to say that we as orthopedic men believe the possibilities of impairment of function which may come from the faulty mechanical use of the body as a whole are so many and so important that a consideration of and an attempt to correct these faulty postures will be of the greatest help to other specialists in meeting some of their difficult problems.

THE ROENTGEN DETERMINATION OF CERTAIN RENAL AND URETERIC VARIATIONS AND DISORDERS.*

By Percy Brown, M.D., Boston.

The rate of progress attained by roentgen-rays, as a diagnostic agent, with respect to such regions as the biliary reservoir or the alimentary apparatus, eclipses, perhaps, its advance in situations where the urinary functions are concerned. This is not to say, however, that there has been no degree of development in the urologic application of roentgenology; quite the reverse, indeed, which fact modern pyelography is alone enough to exemplify. It has been but few years since we were obliged to search, step by step, as with a divining-rod, the entire urinary field, from suprarenal to symphysis, in the hope of some visible manifestation of urinary lithia-

* Read before the New England Branch of the American [illegible] Surgical Association, Nov. 18, 1913.

sis, formerly the one pathologic spring to be discovered by this method. From then on an advance has been made, not so rapid, as has been said, nor yet so spectacular as in other anatomical stamping-grounds. Our progress, by its very subtlety, may well arouse us today to the surprising realization of what is actually ours in the way of diagnostic accomplishments. The blind divining-rod has given place to a broad and clear simultaneous record of both kidneys in their true relation to their adnexa and to each other; likewise, the entire course of both ureters from renal pelvis to bony pelvis can be swept in a glance of the eye. The urinary bladder is now a reservoir of information as well as of excretory material. All these forward steps have been made more firm and sure with the aid of the cystoscopic art, by means of which soft and delicate structures, otherwise hidden, can be brought to view with the temporary help of substances atomically heavy and thus roentgenologically dense.

Complete voluntary control, even over a structure amenable to it, is oftentimes difficult, but by pursuing our diagnostic record-making with a physical force increased in vigor and in power, we are no longer in need of shouldering our patient with the responsibility of protracted immobility.

One of the profound influences which roentgen-rays are bound to exert in the future shall be their influence upon our anatomic understanding and specially upon the teaching of anatomy. This is exemplified in a desertion, on the part of the modern clinician as well as the anatomist, from the original conception of the shape of the human stomach. It has been found that the stomach of daily life and the stomach of the dissecting-room are two different things. We believe that this is so with respect to the kidney, although to a lesser degree. Allowing for the phenomenon of optical distortion, we believe that we can better determine the shape and size of the renal viscera as they exist in the *living* than can be done in the dissecting-room at varying intervals after death. We feel that many kidneys have been measured and recorded, in the dissecting-room, as presenting anatomical anomalies in size which owe their dimensional variation to previous pathological change only to be determined microscopically, perhaps. The converse is as true, of course.

It is indeed fortunate that the kidney, although to be classified as a soft organ, is, by virtue of its relations and physiological functions, to be roentgenologically isolated. The case with which this can be done depends on several conditions. Certain of these conditions can be rendered favorable at once and, therefore, can be better described under a head of technic. Other conditions are, of course, inevitable, favorable or otherwise. The renal viscus most difficult to portray by x-rays, is, strangely enough, the "lean kidney," as it may be called. The kidney which is the possessor of a rich *capsula adiposa* is much more likely clearly to be outlined. This is altogether fortunate, for the subject who generally envelops his kidneys with fat is apt generously to deposit an ever present surplus of it in his abdominal wall—a fact most depressing to him who attempts to investigate the urinary tract by the aid of x-rays! The original ordaining that the kidneys should lie in the retroperitoneum is likewise fortunate, for the perirenal neighborhood can thus be approximated with relative intimacy to our screen or to our diagnostic plate, in the course of our examination. In this way, the element of shadow-distortion, always present in some degree, can practically be disregarded.

The information obtained as to the size of a kidney from measurements of its shadow, corresponds closely with that obtained from measurements made *in situ* or *post mortem*. Quain gives as the normal measurements of the kidneys: ten centimeters in length, six centimeters in breadth and three-plus centimeters in thickness. We have recently measured one hundred kidneys taken at random from cases in which there was no reason to assume the existence of renal disorder.

	LENGTH.	WIDTH.
In 11 cases	12.5 to 13.2 cm.	8.0 to 8.5 cm.
In 16 cases	10.3 to 10.8 cm.	6.7 to 7.1 cm.
In 54 cases	9.8 to 10.7 cm.	6.0 to 6.5 cm.
In 19 cases	8.2 to 9.7 cm.	5.4 to 6.3 cm.
100		

In over half of these kidneys, the interpolar measurements are found to varv from near ten to near eleven centimeters and the distance from renal pelvis to outer cortex to vary from six to six and one-half centimeters. Considering the fact that we are measuring so-called shadows, the figures are in surprising accord with those of the anatomists. All our measurements were made from records which were produced with the retroperitoneum under compression; thus, the renal viscera were as closely as possible approximated to the screen or to the diagnostic plate. We are convinced that there is no appreciable change in shape or in contour of the kidney under compression. In our experience, to obtain an accurate record of the thickness of the kidney is a matter of the greatest difficulty. By stereoscopy alone is an approximate idea obtained, and this amounts to a mental impression only. The dimension of thickness is to such an extent out of proportion to that of length and breadth, that such stereoscopic impression is unsatisfactory. The point is one of anatomical interest rather than clinical.

Roentgen-delineation of the urinary tract, by virtue of tissue-consistency, becomes impossible, in health, beyond the contour of the renal substance. The further aid of Art is required to reveal the outlines, *in situ*, of pelvis and ureter. Art, and real art, is involved, because not merely the presence of colloidal silver suffices; it must

be present in such an amount as to portray pelvis or ureter free from the influence of distention. It is natural to assume, even if our knowledge were lacking, that normal pelvic or ureteric mural tissue is less distensible and possesses more tone than if diseased. Patients differ, however, in degree of physical sensibility and especially with the method of forceful injection (as opposed to that by gravity) it is easy to overdistend even the remote calices. The writer continues to marvel at the skill displayed by some cystoscopists in controlling the limitation of this injective force.

The ureter in health can be portrayed by one of three methods; by colloidal injection, by the radiographic catheter (so-called in reality and in romance) and by the intraluminal insertion of foreign material of high atomic weight. Each of these methods has its short-comings. The presence of colloidal silver within ureter, pelvis or calix under undue pressure is a cause of inaccurate interpretation; the modern radiographic catheter is an improvement over its predecessors, but even a delicate catheter may force, into a false position, a ureter the kinking of which it is the heart's desire to observe; material introduced by catheter, such as leaden fuse-wire either possesses the fault of the catheter if too coarse, or is difficult to introduce and to extract if too fine. The writer feels, however, if catheter and fuse-wire can properly be combined as to their individual excellencies of pliability, that such a combination is an ideal arrangement. If really fine lead fuse-wire can be employed successfully, its power to produce a shadow of rare clearness is unquestioned.

Both the roentgenologist and the surgeon should become familiar with the roentgen picture of the normal kidneys *in situ*. The position of each is generally, but not invariably, in accordance with anatomical description. The lower position of the right viscus is constant in a large percentage. It is sometimes higher, however, in the supine posture; if so, the writer is inclined to believe that the situation becomes abnormal on the ground of hypermobility. The normal kidney, either right or left, should never be examined alone, but in company with its fellow, for the reason that slight changes in size can thus alone be determined, since individual anatomic variation exists in the urinary tract, as elsewhere.

The element of visceral abnormality in which the roentgen rays have proven to be a diagnostic factor, may be divided, in this field, into

(a) Enlargements of the renal viscus, with but secondary reference to its pelvis.

(b) Dilatations of the renal pelvis, with no especial reference to the general interstitial tissue.

(c) A combination of renal enlargement and pelvic dilatation.

The specific causes of such abnormal phenomena are usually seen by the roentgenologist as:

1. Hypertrophies from compensatory change.
2. Hypertrophies and dilatations from hydronephrotic change.
3. Hypertrophies and dilatations from change due to malignancy, such as the hypernephromata, etc.
4. Hypertrophies, with or without degeneration, from changes pyo-nephrotic or cystic.

Relative or absolute change in visceral position (as obtained by shadow) may occur in any of these aberrations. Simple ptosis, with or without hypernephrotic change and ureteric functional embarrassment, offers to roentgenology a fertile field and a difficult one as well.

It is generally extremely hard, without accessory or secondary knowledge, to determine roentgenologically between a hypertrophy due to compensatory change or an enlargement due to hydrostatic pressure or to primary disease. Merely to declare this fact is not enough. It remains for the devotee of the method to reiterate; first, the necessity for coöperation on the part of the cystoscopist and the roentgen-worker; and, secondly, the absolute necessity for the simultaneous examination of both renal fields, as well as of both ureteric fields. On the one hand, the revelations obtained from a collargolized ureter may indicate immediately a hydrostatic cause for the renal hypertrophy. On the other hand, the unexpected discovery of a degenerated or totally absent kidney on one side may determine the compensatory cause of the renal hypertrophy.

Undue enlargements of either renal shadow should always stimulate further investigations, both below and opposite.

Next to the interest which such hypertrophies arouse is that to be elicited by the renal pelves. In such instances, the aid of cystoscopy is an absolute necessity and the skill of the cystoscopist largely governs the positive or negative findings. On his part, the cystoscopist is equally dependent upon the roentgen procedure; he may know, by measurement, that the kidney will hold a greatly increased amount of fluid, but he has naturally a keen interest as to where it goes and where it is contained. There are many kidneys of reasonable size and with generous calycine distribution and, on the other hand, there are many renal pelves of enormous size but having in relation but little calycine extension. The situation may be likened to the accessory nasal sinuses of diminutive extent, *per se*, but with prodigious supraorbital extension. These cases are often vexatious as clinical problems.

That the course of the ureter is largely influenced by the effect of the supraimposed kidney is well known. Properly to determine the question of kink, therefore, as a possible cause of Dietl's crises and the like, to say nothing of renal back-pressure, the erect posture as well as the supine (or prone) is necessary. Under these circumstances, the changes in the courses of some ureters is surprising. Often the element

of distention proximal to the kink will become apparent only when the kidney sags under the full influence of gravitation. Ureteric lumina which are so distended as to be unaffected by posture offer simpler problems, of course.

To revert, for a moment, to the renal field, it should be mentioned that occasionally there are instances where the entire viscus may be outlined sufficiently well by nature, or rather by the vagaries of nature, to an extent that similar efforts upon our part are not necessary. Many kidneys, particularly of a degenerative type, may present limy deposits within the interstitial mass as well as the parenchyma. These changes, as observed by the roentgenologist occur most often, it is believed, in cases where the kidney presents a tuberculous degeneration.

Definitely to mention in detail the question of technic in the proper roentgen-delineation of the urinary tract is but to repeat the substance of many assertions on the part of the writer heretofore. Likewise, such an exposition would be as misplaced as an attempt to interest a group of roentgenologists as to the various excellencies of the many types of cystoscope. The writer feels, however, this: the urologist is bound the more deeply to respect a method when he is the recipient of the benefit of all its possibilities. The roentgen-examination of a renal or ureteric situation is incomplete when it does not end by portraying, for the sake of the urologist and the patient, the simultaneous delineation of both kidneys and their immediate appendages. The same may be said with regard to the lower ureteric and the vesical regions. By virtue of the element of distortion engendered, it is unsatisfactory to attempt to reveal the entire urinary tract at one examination, at least in a way pictorial, unless the patient happens to be of unusually diminutive stature. The urologist has a right to demand the results of an examination which has been of this extent and nature. The question of diagnosis, in a renal situation at least, is totally incomplete without simultaneous knowledge of the condition of affairs obtained in its fellow.

As one looks back upon the progress, during the last five years, of the combined services to medicine rendered by what may be termed roentgen-urology, one cannot help but look forward, possibly an equal period of time, with nothing but the greatest degree of hope and anticipation. Personally, the writer feels that it is within the urinary bladder that definite advance shall be made. There are still many situations, in connection with this structure, as well as with the prostate and other of its adnexa, capable of amplification and elucidation by such a method as this. The success of the future, as has been the success of the immediate past, must depend, however, upon what Hunter Selby, late roentgenologist to the Mayo Clinic, has done so much to emphasize, namely: *collaboration* between surgeon, cystoscopist and roentgen-worker. If the surgeon pursues his own cystoscopy, so much the better, for the relation will be, therefore, the more intimate. Any roentgenologist of experience is, as has been said, deeply impressed with the degree of technical skill required successfully to pursue the art of cystoscopy. It behooves him, then, so to improve his own technic that he may keep pace and step with his partner in such a fascinating and satisfying form of teamwork.

THE EARLY DIAGNOSIS AND TREATMENT OF MANIC DEPRESSION.*

BY ARTHUR HALLAM RING, M.D., ARLINGTON HEIGHTS, MASS.

THE word "insanity" has been omitted from the title, first, because all that is necessary is implied in the expression "manic depression," and secondly, because the word "insanity" is still obnoxious to many. And certainly a term that is both unnecessary and unpleasant has little left to excuse its existence.

In making an early diagnosis of manic depression, first secure from near-relatives as complete a history as possible of the family, not only in regard to the disease *per se* but also as to oddities, idiosyncrasies, and habits. It is most interesting to see how history repeats itself with but trifling variations, dependent probably upon environment. Davenport says that "studies of the families of epileptics, dementia precoxes and manic depressives reveal the fact that they belong to strains of mental weakness." Unlike the one-horse shay, we all have by heredity some tissue that is less resistant than the others. In manic depression I believe that this lowered resistance does not show itself so much in neuropathic (psychic) temperament seen so constantly in dementia precox as it does in a neuropathic (somatic) sympathetic constitution, that is, in rapid changes in weight, skin abnormalities, erratic digestion, erotic disturbances which suggest an unstable nutritional and defensive ability of the blood stream, and an irritable, sympathetic, nervous mechanism.

If one adds to this hereditary background the story of the patient's personal tendencies and traits, it will be found that while he may have been considered either sickly or perfectly well by his family, he will usually show marked nutritional vacillations. He has been subject to flatulence, constipation and capricious eating as a child; was over-fat or more commonly thin and lank and had some postural error. He was moody or elated, and had periods of stagnation or acceleration of thought. None of these were sufficient to attract attention and indeed are more or less common to many of us, which is only another way of saying that under deter-

* Read before the Dedham Medical Club Dec. 10, 1913, and the Worcester District of the Massachusetts Homeopathic Medical Society, Nov. 12, 1913.

mining conditions many of us may have manic depression.

With this substrata as a starting point, there are two somewhat typical ways in which the acute condition may come on; the first sudden, the second gradual.

1. In cases of sudden onset the doctor is frequently not called until mental symptoms predominate; but it is not uncommon to learn that these patients have been treated for a week or two for acute indigestion, and have been known not to be well for two or three months. After memory has been prodded the family will say that they now realize that for a year or more the patient has not been himself but they never suspected anything of this sort. This statement brings out the necessity for keener supervision on the part of the family doctor, the insidiousness of the disease and the commonplaceness of the early symptoms, it also emphasizes the fact but too little realized, that there are a large number of aborted cases whose mental disturbances never go beyond queerness. This queerness has been known in the family through generations and is, therefore, passed over as a family characteristic. In these cases of sudden onset, which are most commonly of the manic phase, the patient after a few nights of insomnia suddenly evinces unmistakable mental symptoms, suspicion, undue excitement, pressure of activity, rapid flight of ideas, distractibility, and an unstable emotional mood, and the family has no alternative but to turn him over to institutional care.

2. In the second type, *i.e.* those of gradual onset, the mental symptoms do not become marked for sometime, the physical symptoms predominating. We all vary in our resistance to discomfort and our tendency to complain, and it may well be that these patients, being of an introspective turn of mind, lay greater stress upon their physical discomforts and are more ready to talk about them. Anyway this type places a greater responsibility upon us because we are offered a chance to help them before mental symptoms have developed. Most commonly they come under treatment for digestive disorders, liver trouble and the like.

A patient whom I have known for some months, though not to treat, complained first of stomach trouble and was sure she had gastric ulceration, hence she ate little and capriciously. There was building and blasting going on near her home, and the noise was a source of such annoyance that she made it a subject of conversation well into the night and slept but little. The family was warned of the probable outcome, but they said she was mentally normal and they could not afford treatment. Later she was committed to the Westboro State Hospital for mania.

I do not know that this case could have been aborted, but I do know that much could have been done that was neglected. One of the greatest difficulties in these cases is to get the insight and coöperation of the family, and here is one of the places where the mental-hygiene movement may greatly aid us in the future.

Another case of gradual onset was as follows:

The patient was a man about 50 years of age. He was one of three children, the others dying under one year of age. His father was a sea captain and died of dropsy, probably of renal origin. His mother died in childbirth. No family history of nervous or mental disease could be elicited.

The personal history of the patient up to the present illness seems to be of little interest, except that he has always had a saddleback and flat feet. He had been a man of exemplary habits and wide interests, business and social, and holds several positions of great trust and responsibility. He is normally religious and has lived a very sedentary life. Venereal disease can be eliminated. He has always been of neurotic and moody temperament.

Last spring he said he felt unusually well, notwithstanding he had lately had a deep bereavement through a death. This state of exhilaration continued into the fall, when he began to suffer increasingly from flatulent dyspepsia and bad taste in the mouth and loss of weight. Through December and January he became increasingly conscious that he could not think clearly, mind was muddled. He began to accuse himself of having neglected many opportunities for doing good, of having been criminally selfish, and read depreciatory ideas in the innocent statements of his friends. Yet he was able to be about and to attend to his business until the last of January, when his friends insisted that he should take a rest. He went for a short water trip, slept little, was very restless and returned worse than when he went away. In spite of his mental depression and suspicion, he had been able through it all to appear normal under effort and even to smile and take apparent interest in conversation. Now, however, he paced the floor or sat silent most of the time, making only occasional comments in reply to questions. He said that a short time ago his head suddenly cleared up and he was then able to see what a "complete failure he had made of life"; condemned himself for not having realized it before. Intellectually, he was simply fogged, but under effort could attend and remember perfectly; he could write a logical letter. He knew his ideas did not coincide with those of his friends but was positive that they were wrong, not he, and thought that he should be allowed to go back to business. Emotionally he was depressed. On the motor side, he resisted almost everything that was done for him, not because he was obstinate or disagreeable nor because he doubted the efficacy of the treatment, but because he could not bring his will to the point of volitional coöperation.

Physical examination showed a man of medium stature, weighing 157 pounds (normal weight, 170 pounds). Hair iron gray, complexion sallow, face drawn and worried, flesh flabby. Lungs negative, heart negative, except that it is slow (60) and labored. Blood pressure, systolic 130; diastolic 80. The abdomen was negative. The deep and superficial reflexes were normal. The urine was of good quantity and, except for the presence of indican, was normal. He ate and slept fairly well.

Cases will doubtless suggest themselves to you, however, out of your own practice. There is, perhaps, no single psychosis which occurs

with such frequency. Diefendorf says it constitutes from 12 to 20 per cent. of admissions to insane hospitals. In its early state there is no psychosis which so commonly goes unrecognized; it is tagged "just nervousness," "the blues," neurasthenia or even as hysteria, and it frequently does not get beyond this mild form. Because of the mildness of its early symptoms and the slight degree to which the intellect is involved at first, its victims form by far the larger part of the so-called border-line psychoses. Certainly, there is no psychosis in which an early diagnosis is of such vital importance and none from which so much may be expected of timely and well-directed therapeutics. In this it almost ranks with tuberculosis, for prompt treatment instigated in its incipiency may abort or at least modify the severity of most attacks. I believe the reason this fact has not been more strongly emphasized is because the larger institutions do not get these patients until the manic or depressive phase is so pronounced that the patient cannot be kept at home. They do not, therefore, see the lighter forms, and the general practitioner who does perhaps see them is not commonly interested or trained in psychiatric matters. Again, many of these patients think they are "just tired" and treat themselves at home, until suddenly they are found climbing out of a window in their nightclothes or attempting suicide.

In the more severe forms with persistent insomnia, great elation or depression and anomalies of nervous (volitional) control (excessive rapidity or retardation) it is easy enough to recognize manic depression, especially if accompanied by hallucinations or delusions.

Diefendorf gives the following definition: "Manic depressive insanity is characterized by the recurrence of groups of mental symptoms throughout the life of the individual, not leading to mental deterioration. These groups of symptoms are sufficiently well defined to be termed the manic, the depressive and the mixed phase of the disease. The chief symptoms usually appearing in the manic phase are: psychomotor excitement with pressure of activity, flight of ideas, distractibility, and a happy though unstable emotional attitude. In the depressive phase we expect to find psychomotor retardation, absence of spontaneous activity, dearth of ideas, and depressed emotional attitude; while the symptoms of the mixed phase consist in various combinations of the symptoms characteristic of both the manic and depressive phase."

This definition could scarcely be improved, and a description of the symptoms when the disease had settled down to this point could only be an elaboration of this concise statement. I prefer, therefore, to let it stand for these late symptoms and to dwell here upon the early premanic depression symptoms.

Every one has felt tired and blue. We are told that this feeling is due to the development of toxines in the system, the result of incomplete elimination of the day's waste products; in other words, a lack of nutritional balance. Now let this failure of metabolic equlibrium go a little further and we have a neurasthenic. At this stage, simply going to bed for a few days at home and living on a light diet is sufficient for a cure. But suppose there is some strain upon the body as a postural error or some faulty chemistry which keeps up an over-production of the body poisons, and suppose that these poisons have a predilection for the finer nervous tissues. Then undoubtedly the disturbance is going to apear first in that part of the nervous system most susceptible and directly involved or contiguous and since that would be the sympathetic nervous mechanism, especially the larger abdominal or pelvic plexes, we would expect to find a main mental disturbance in the psychic field over which these preside, that is, in the feelings: and this is just what happens. Manic depressive insanity is primarily a disease of the feelings. The patient feels excessively happy (mania) or blue (depression). At first he does not attempt to explain this except in the simplest way. Any of us can look into our recent experiences and with very little distortion find intellectual excuse for being either happy or sad, and this is what occurs in these patients. But intellectual balance is largely dependent upon emotional stability, and this in turn upon metabolic balance. It is but another verification of the James-Lange view of emotional genesis: *i.e.* that the emotions grow out of (are the psychic equivalent of) the bodily state.

Max E. Whitte ("Psychological Observations in the Insane," *American Journal of Insanity*, Jan., 1913) says: "Thought and feeling are in reciprocal relation. Feeling by association influences, colors even call up thought; thought, on the other hand, likewise association of past experiences in memory gives rise to feeling. In this manner a vicious circle is established. The morbid, painful feeling gives birth to the distressing delusion of being forever lost, which in turn revives and intensifies the already existing anxious emotional state to one of utter terror and despair. As is so characteristic in painful states of feeling, the vital processes of the body are depressed and disordered, the nutritional functions are disordered and impaired, appetite is lost, digestion is poorly performed, excretion is deranged (especially the sebaceous) respiration is shallow, circulation weakened. The patient is thin and emaciated, autogenic poisons circulate and influence the central nervous system already suffering from deficiency of nutriment in the blood."

I quote Whitte thus at length to show the importance of (1) the feelings and (2) the bodily state in manic depression and (3) to emphasize the fact that the intellect is only affected secondarily and that little attention should be paid to what the patient thinks about his own illness or the phrases with which he attempts to explain

his feelings. This is most important in mild cases since it reverses the common practice of accepting the patient's statements as a basis of treatment. To me, the disease is primarily a physical one, and the psychic disorder only an unfortunate result of a much-disturbed metabolism plus an inherently weak nervous system. The nature of the disturbance is still a subject of conjecture, but these lines of investigation suggest themselves; namely: (1) bacteriological, (2) chemical, (3) postural disturbances, and (4) a combination of these.

The term "manic depression" helpful as it is diagnostically, is very broad and within its boundaries are many cases with similar symptoms which yet run very different courses, and one cannot help feeling that many subdivisions are necessary in order to make classification and treatment concise. The cases occuring during the early years of life are apt to run a sharper course, but recovery is more probable than in the climacteric cases. There are cases with almost typical symptoms which later turn out to be definitely of infectious origin, developing acute arthritis or endocarditis.

There is a type which may be said to present almost an entity. The mental picture in these cases vary from mild psychasthenia to agitated and even frenzied mania, always of the depressive type. They are hysterical, dramatic and persistently delusional. Physically, they are ill-nourished, ptosic and loosely knit, often with postural irregularities which result in back, shoulder or neck ache. The thyroid gland is slightly enlarged, though there are no other obvious symptoms of goitre, *i.e.* no tremor, no tachycardia or ocular protrusion. The skin is usually a dark color, moist and oily. It would seem reasonable to suppose that this type of mania is due to some disturbance of the internal glandular secretions in which the postural and ptosic errors play a part.

There is yet another type that seems from the first to be so profoundly toxic that nothing can stop its downward course. These cases die before there is much chance for treatment, usually in a week or two. It would seem that in these patients some neurotoxic substance is at work which overpowers the nervous system before the defensive mechanism can recover and get to work. The whole subject of immunity is thus opened up, and it would seem that here the subject of anaphylaxis offers an especially hopeful field.

Enough has been said to show that the preponderance of symptoms of manic depressions are somatic. Whether of the depressive, manic or the mixed phase it manifests itself mentally as a disturbance of the feelings, psychologically expressed as an exaggeration of the sense of pleasantness and unpleasantness. Since we know ourselves, our ego, by our accustomed feelings the patient's first thought is "I am changed, different, things don't seem the same; I must be crazy." In fact these patients frequently realize the mental disturbance before it is objectively evident. To this extent the personality is disturbed; but the patient can, if he exerts himself, in the early stage tell you that he knows the change is in himself, thus distinguishing his condition from dementia precox, in which the patient insists that he is all right, but is abused by people or things outside himself. This is not so true of the more advanced stage.

Now physiological psychology teaches the intimate relationship between the sympathetic nervous system, the feelings and the personality, and we are justified in assuming that manic depression is a symptom complex due to a disturbance of the sympathetic system, the result of some toxic, chemical, internal, glandular, postural or bacteriological cause. I am aware that these factors overlap and may mean much the same thing or be interdependent, but I place them separately to emphasize the possibilities. With the idea of the somatic or sympathetic origin of the disease in mind it seems reasonable to regard manic depression as a type of toxic delirium, of low grade and long duration. Also it directs researches toward the abdominal and thoracic organs and gives us a cue as to treatment.

THERAPEUTIC.

The treatment must often begin before we have made a definite diagnosis, because the early symptoms are not pathognomonic; it must, therefore, be symptomatic. But if there has been a previous attack or if the family history favors the possibility of it, systematic treatment should not be delayed, for one can never tell when the sudden onset of mental symptoms may lead to some unpleasant incident.

The first thing to do is to give the responsible relatives an understanding of the condition and the importance of treatment without frightening the family or losing their confidence. This is especially important in manic depression because the patient is frequently unable, owing to slight retardation, to carry out consecutive treatment, and you must, therefore, depend upon a mother or sister. If this coöperation can be had, you can treat the patient satisfactorily at home; if not, he should be sent to a suitable institution.

While confidence in the doctor and a happy environment are important, I do not believe that psychotherapy can go further than this in manic depression. Psychoanalysis should be tried in suitable cases, as good results have been reported, but these cases were doubtless hysterics and not manic depressions; hysteria may simulate anything. The remainder of the treatment is physical and may be summarized as follows:

1. *Rest in excess of apparent physical need.* This is true of practically all cases, but especially those who are exhilarated. It is a good plan to have breakfast in bed and remain there until the morning treatment is given. The patient should be put to bed again in the afternoon for one or two hours. Many patients will say that

they cannot sleep. This does not matter; they can get muscular rest and relaxation. Again some will say that it prevents sleep at night. This is rarely true; all these cases suffer much from insomnia, and this additional rest favors sleep at night. Here I want to enter a plea against the erroneous habit of sending these cases traveling around the globe. Their weakened state rarely stands travel well and I could cite many cases in which this advice has proved not only expensive but harmful, and been the means of shaking the confidence of the family in their medical adviser. Manic depression is a bodily disease primarily and should be treated as such. Too much diversion is harmful.

2. *Excess of fresh air.* The afternoon rest may well be taken on a cot out of doors, as an excess of fresh air is an essential of the treatment. States of auto-intoxication have often been likened to a choked furnace, and certainly a forced draft with an excess of oxygen does much for these cases. For this reason as much time as possible should be spent in the open air.

3. *Diet.* This should be a fruitful field. Unfortunately, though much work has been done upon it, nothing of definite usefulness has been demonstrated. Each case must, therefore, be a law unto itself, applying general dietetic principles. Commonly digestive disturbances are among the earliest symptoms, and emaciation is soon marked, so that as soon as one has decided that there is no organic error in the alimentary tract, it is usually best to give an excess of nutritious food, avoiding only what has been known previously to disagree with the patient.

4. *Exercise.* Massage, vibration, Faradic electricity and walking should all be used in their proper places. In the postural cases with visceral ptosis the exercises suggested by Dr. Joel Goldthwait and his colleagues should be practised. The two most important of these are hyperextension and prone hanging. Hyperextension is accomplished by placing a thin, firm pillow just below the shoulder blades, the patient lying extended back downward on a bed. This pillow throws up the ribs, allowing the viscera to fall back upon the diaphragm, thus giving the stomach contents the benefit of its churning motion and reducing the trapping of food at the pylorus. It also makes deep breathing easier by putting the ribs in a position advantageous to the traction of the lateral chest muscles. This position should be assumed for from ten to twenty minutes after meals. Prone hanging in the knee-chest position or some modification of it, *i.e.* lying face down with the legs and lower trunk resting on the edge of the bed and the chest and head inclining downward on a slightly lower stool. This serves the same purpose of throwing the viscera upwards, but in addition allows it to hang away from the large vessels, thus theoretically at least allowing a freer splanchnic circulation.

5. Further to promote the tone of the splanchnic and sympathetic apparatus, a large incandescent lamp (from 50 to 300 c.p.) may be played upon the abdomen until the superficial vessels are thoroughly engorged, *i.e.* from seven to fifteen minutes, and this immediately followed by a large, cold wet compress, left on about an hour or until it steams. This makes an excellent treatment for the afternoon rest period.

6. The question of elimination is of extreme importance; most of these cases have suffered for a long time from constipation, and this must be energetically and persistently treated. Very frequently there is evident stagnation with excessive gas distention. Each one will have his pet way of treating this situation. I have found in milder cases cascara sagrada or phenolphtalein and properly given high enemas sufficient, while in severe obstruction with palpable scybala I have resorted to castor oil. For the excessive gas nothing is so useful as a hyperdermic injection of eserine sulphate, grain one-sixtieth. To secure an active elimination through the skin, the prolonged tub bath is simplest and best. It should be given at 96 degrees F. for an hour or more at bedtime in the mild cases. It is a grand sedative to patients who have no arteriosclerosis. These latter are made worse by it. Severe cases with active mania may be tubbed for several hours on a stretch with much benefit. After prolonged tubbing the patient must be dried and rubbed with oil of some sort and urged to rest.

The urine rarely gives any trouble except that of concentration from insufficient intake of liquids, and for this reason water drinking should be prescribed in definite quantities at stated times. Where the patient refuses water it should be given as high saline milk enemas. Indican is generally found in excess, and the breath frequently has an acetone odor similar to the diabetic. This symptom should be promptly met by the administration of bicarbonate of soda, five to ten grains every two hours.

Drugs. As one would expect with our present ignorance of the basic error we have no specific but must fall back upon symptomatic or empiric prescribing. In depression I have thought I saw some benefit from the prolonged use of gold. In the emaciated and hallucinated cases, small doses of arsenic, usually Fowler's solution, have seemed useful. These may be combined in the form of chloride of gold with arsenic. This mixture has long been used with benefit in diabetes and is certainly useful in patients who are on the verge of a manic-depression breakdown.

Sedatives and hypnotics must be used in most cases. If the tub bath will accomplish the purpose, so much the better; but this is only in the early cases. Malonal, veronal and bromide have served me best. All of these cases suffer from insomnia, usually for sometime before other symptoms appear, and this symptom should be combated. It not only wears out the patient and reduces resistance but is also a great source of discouragement. Not that I would have it thought that the mere producing of sleep will cure manic depression, but it is an avenue to

the patient's confidence and an important symptom in directing study and treatment. In severe and persistent excitement nothing is so useful as a one-thirtieth grain of apomorphia, though occasionally a one-two-hundredth of hyoscin may be of equal service.

In conclusion let me urge that you scan your neurasthenic closely for symptoms of manic depression and institute thorough treatment at the first moment, install a competent nurse to carry out a daily schedule, which must be carefully arranged in great detail for the special needs of the case. In this way I am confident many a patient will be saved a sojourn in a hospital for mental diseases.

A SCHEME FOR PROMOTING EFFICIENCY IN STATE SANATORIA.*

By Walter C. Bailey, M.D., Boston,

Chairman Massachusetts Tuberculosis Commission.

AND

Carl C. MacCorison, M.D., Reading, Mass.,

Superintendent North Reading State Sanatorium.

Any one who examines intelligently and at close range the work of a large state sanatorium must feel discouraged at the attitude of many of the patients and the consequent slight impression that the earnest efforts of physicians and nurses make upon them in any permanent way for their own cure and for their enlistment in the anti-tuberculosis crusade. In one of our institutions that we studied particularly, not only was there almost no co-öperation on the part of the patients, but an actual systematized antagonism against the efforts of the physician was found to exist. This spirit had become so strong that any patient who evinced any desire to aid the management was made an object of abuse and hazing. This state of affairs naturally wrecked the efficiency of the work and was most discouraging to the physicians who saw their painstaking work being wasted.

First came the determination to put an end to this condition of affairs and second a search for a fundamental working scheme. This finally evolved from an optimistic trust in human nature, and the belief that there was resident in the majority of these patients gratitude, loyalty, and a desire to help themselves and others. Our efforts were then focussed toward crystallizing these attributes and making them a potent force. Viewing the anti-tuberculosis movement as a propaganda, a great social movement, it was realized that most of the work done up to the present time, had been done by the educated classes and had been forced on the mass of the people who furnished the bulk of the cases.

Now, no great movement of this kind has succeeded until the mass of the people themselves took hold of it; and with this as a starting point, it was determined to present this view at a meeting between the trustees and the patients and to explain to them that the trustees were no longer going to take the responsibility for their cure; that the responsibility was going to be placed where it belonged, on the patients themselves, we simply providing them with every facility for taking the cure, and with expert medical advice and care.

Furthermore, as an aid to them in this task, the patients were to divide themselves into two voluntary classes. The first was to be called the "sanatorium class," and here would group themselves those patients who really wished to get well, who would coöperate with and aid the sanatorium management in every way, who would help others in the institution and who, when they left, would still keep up the fight and would get their societies and unions to study the problem and help to solve it. In the other class to be called the "hospital class," were those who did not care particularly about their own health or that of others, who did not care to obey rules, who did not want to coöperate, but simply used the sanatorium as a boarding-house. They were told that the régime for the sanatorium class was to be a strict one; but that the results would prove that it was for their benefit, and that from time to time the gain of those in the sanatorium class over those in the hospital class would be tabulated and furnished to the patients.

Furthermore, by this scheme the difficult question of discipline was made automatic; for if a patient in the sanatorium class broke a rule, he dumped himself automatically into the hospital class without any action by the superintendent. If those in the hospital class broke important rules flagrantly, they automatically dumped themselves out of the institution.

Moreover, if friends of patients complained that their brother, or sister, or cousin, was dissatisfied and was not doing well, we could turn to the record and explain why, because most of these cases would be found in the hospital class.

Lastly, by this method we can compile statistics from our own sanatorium class patients as to what state sanatorium treatment can accomplish as distinct from the boarding-house treatment received by the hospital class.

This system was inaugurated at the North Reading Sanatorium last June and more recently in the other state sanatoria. I will speak only of the results at North Reading as the figures there are large enough for conclusions, and time enough has elapsed to allow of judgment on the system. The immediate results noted following the inauguration of this plan were decrease in hemorrhages, pleurisies, and fevers, with attendant falling-off in orders for medicine, special diets and raw eggs. There was also a marked decrease in the number of needless com-

* Read at a meeting of the National Association for the Prevention and Control of Tuberculosis, May 8, 1914, Washington, D. C.

plaints and fault-findings; in short there was established an *esprit de corps*. There followed week by week a marked increase in amount of weight gained, until the record for all the years has been surpassed by many hundred pounds. Another proof of the efficacy of this system is found in the figures obtained from a census taken in one of our sanatoria as of April 15, 1914. On that date there were in the sanatorium 195 patients—107 men, 88 women. Of this number, 64 men were in the sanatorium class and 53 women. On this date, 55 per cent. of the total number of men were classified as "improving"; and of this latter number, 46 per cent. were in the sanatorium class, 9 per cent. in the hospital class. Of the women, 54 per cent. show improvement, and of this number 50 per cent. were in the sanatorium class and 4 per cent. in the hospital class.

The testimony of the officials who were pessimistic at first is entirely and enthusiastically in favor of this system. As a logical result, there might well be a complete separation of the two classes with the expensive care focussed on the members of the sanatorium class, and the other class considered as in a segregation camp.

Reports of Societies.

AMERICAN UROLOGICAL ASSOCIATION.

FALL MEETING OF THE NEW ENGLAND BRANCH, BOSTON MEDICAL LIBRARY, NOVEMBER 18, 1913.

President, DR. HUGH CABOT, Boston.
Secretary, DR. R. F. O'NEIL, Boston.

DEMONSTRATION OF SPECIMENS AND REPORTS OF CASES.

A CASE OF CALCULOUS PYONEPHROSIS.

DR. R. F. O'NEIL, Boston: I wish to show this kidney which I removed recently. Although the organ is enlarged its substance has been entirely destroyed by the comparatively small calculus which you see occupies the uretero-pelvic junction and extends somewhat into the renal pelvis. The case is of interest in that four years ago the diagnosis of renal calculus was made by x-ray; operation was advised and refused. The damage to the kidney at that time was probably slight and simple pyelotomy would have saved the kidney.

A CASE OF TWO STONES IN HORSESHOE KIDNEY.

DR. F. B. LUND, Boston: The patient was a young man, twenty-three years of age, who for several years had had attacks of pain in the left side, with occasional passage of bloody urine. A recent examination of the urine had shown blood and pus. An x-ray showed two stones, one large and one small, both apparently in the pelvis of the left kidney. I have here the x-ray plate and the two stones.

On September 15, 1913, at the Deaconess Hospital in Concord, Mass., through the usual lumbar incision, I exposed the kidney, which appeared very long. In clearing the upper pole, I opened the peritoneum and had to suture the opening. On clearing the convex surface of the kidney, I found I could not get it up at all into the wound; and on attempting to clear the lower pole, I found I could not get around it. I followed it as far as the vertebral bodies, and it was still going. It apparently went over the median line, and must have been a horseshoe kidney. Although I could not get the kidney up into the wound, I could feel the larger of the two stones on the front of the kidney, and found that the pelvis in this case was on the front instead of, as normally, behind. The renal artery was above, and the renal vein below the pelvis, and I had to dissect down between them to get at it. After incising it and removing the larger stone, which could be felt, I could not get a catheter to pass down into the ureter, and on introducing my finger into the pelvis, I could not feel the small stone anywhere. I cut in the direction in which it ought to be, however, along the front of the pelvis, and found it in a pocket just below the large stone. After suturing the pelvis of the kidney with catgut, I sutured the wound around a drain. After the operation, a ureteral fistula was established, and the boy ran a temperature for three or four weeks. His ureters were catheterized, and Dr. Walker, who did it for me, found a clear urine coming through the right side, and purulent urine coming from the side operated upon. This, of course, did not establish the fact of whether we were dealing with a large horseshoe kidney with two pelves, or with two separate kidneys.

While we were considering whether further operative interference would be necessary, the boy's temperature returned to normal, and the urinary sinus healed up. He is now in first class condition, has gained in weight, and has gone to work.

A CASE OF RENAL TUBERCULOSIS.

DR. H. C. PITTS, Providence, R. I: This case is of interest because of the patient's having received Dr. Friedman's turtle serum. She was referred to me from the Rhode Island Sanitarium for Tuberculosis. She had had bladder symptoms for about four years and was suffering from a moderate pulmonary involvement. I cystoscoped her about one week before her first injection. Bladder capacity four ounces. There was marked ulceration just posterior to both ureteral orifices. The bladder wall was more or less covered with punctate red spots like tiny ulcerations. Both ureters functioned properly, except that the left one was a trifle rigid and was surrounded by very minute red spots. The trigonum was edematous. Two weeks after the serum injection, I cystoscoped her again. The punctate spots scattered over the bladder wall had disappeared, but a grey deposit had appeared around the left ureteral orifice. The patient received a second injection of serum about one week later. The bladder symptoms remained about the same during the summer. She was sent to me again one week ago. The cystoscope showed some healing of the ulceration. The same grey deposit showed about the left ureteral orifice and the left ureter was not functioning. Pressure on the corresponding kidney, however, brought down a quantity of pus.

I sent her into the hospital and two days later removed the left kidney. You will see it is not particularly enlarged, but section shows a well-marked broken down area in either pole. There is no ulceration in the pelvis of the kidney, but the ureter was very much thickened and friable. The patient has done well. Her pain is somewhat lessened, though, of course, the frequency continues.

DISCUSSION OF DR. PITTS' REPORT.

Dr. Hugh Cabot, Boston: I have seen one patient treated by Dr. Friedman's serum with striking temporary benefit and rather disastrous consequences. The patient was a woman of forty, who twenty years ago had well marked pulmonary tuberculosis, for which she was sent to Saranac. About fifteen years ago tuberculosis of the left kidney was recognized by Dr. Tilden Brown, but operation was not thought advisable on account of the pulmonary condition. Five years ago a very completely destroyed left kidney was removed, though it was believed that the right kidney was already infected. The operation was done on account of extreme bladder irritability. This was not relieved and three years ago a vesico-vaginal fistula was made in order to make life more tolerable. In April, 1913, she received two injections of Friedman's serum without my knowledge. There was prompt and very complete relief of symptoms, which lasted until July, when some frequency of urination and pain returned. Early in September she began to complain of severe headache, to have a considerable elevation of temperature and great drowsiness. She remained in a typhoidal condition for three or four weeks and the diagnosis of meningitis was made by three competent observers. The bladder condition at this time had returned to its previous marked irritability and a sinus persisted at the sight of the injection of the serum. I have lately heard from her physician that the meningeal symptoms have disappeared and that she is substantially in the same condition as she was before Dr. Friedman's treatment.

Symposium.

THE DIAGNOSIS AND TREATMENT OF LESIONS OF THE KIDNEY OTHER THAN THOSE DUE TO TUBERCULOSIS AND CALCULUS.

a. Pyogenic Infections of the Upper Urinary Tract.* Dr. A. L. Chute.
b. Treatment of Movable Kidney, with or without Infection, by Posture.† Drs. Hugh Cabot and Lloyd T. Brown.
c. The Roentgen Determination of Certain Renal and Ureteric Variations and Disorders.‡ Dr. Percy Brown.

DISCUSSION.

Dr. John H. Cunningham, Jr., Boston: The papers considering the subject of acute infections of the kidney and the subject of pyelography are so comprehensive that little or nothing may be added other than congratulations to the readers and emphasis of a few of the most important points.

Infections within the kidney other than that of tuberculosis frequently present themselves for our consideration, and are observed, either as an acute or a chronic process, the infection gaining access to the kidney either by extension of an infection in the bladder along the ureter or being brought to the kidney by the blood stream. With the former manner of infection (ascending infection) the organism producing the renal inflammation is usually the B. Coli. This inflammatory process is usually chronic in its course except when secondarily infected by some of the pyogenic organisms. In nearly all ascending infections the subjective symptoms are referable to the bladder and are much more pronounced subjectively than those referred to the kidney, and urinanalysis shows a predominance of bladder elements.

Ascending infections of the kidney cannot take place without a defect in the ureteral orifice, whereby the infectious material in the bladder may gain access to the upper urinary tract.

Renal infections of hematogenous origin produce an entirely different clinical picture. The onset is acute, there is an active progressive toxemia, high temperature, pulse and leucocyte count; and the subjective symptoms are referred to the region of the kidney, both to the back and to the abdomen on the affected side.

The urine shows little or nothing abnormal as the early renal lesions are in the cortex of the organ and do not drain the inflammatory products into the renal pelvis.

The acute onset and the abdominal signs which may be present, have several times led to errors in diagnosis, the signs inducing the belief that the lesion is intra-abdominal, usually of the appendix or gall-bladder. The pathognomonic sign is costovertebral tenderness, and I have found that pressure on the lower ribs is painful. Death has resulted from the progressive toxemia in several cases where errors of diagnosis have been made. The difference in the severity of hematogenous and of ascending infection is due to the greater virulence of the pyogenic organisms which are the infecting elements in the hematogenous infection.

In regard to treatment: In the ascending form the bladder must receive appropriate treatment, and a kidney infection usually subsides by flushing the organ by ingestion of large amounts of water and the administration of urinary antiseptics, or by injecting antiseptic fluids into the renal pelvis through a ureteral catheter. After the acute stage of the infection has subsided, B. Coli vaccine is of much value when this is the offending organism. It is seldom that the kidney requires surgical treatment, yet in some of the severe infections, abscess formation may take place, requiring drainage, and pain, which may persist for long periods of time, has been much relieved by decapsulation.

In the acute hematogenous infections of the kidney, the treatment is seldom other than surgical. There are small abscesses scattered through more or less of the renal parenchyma, from which absorption takes place and severe toxemia results. In the severer infections death will take place if this absorption is allowed to continue for many days. Nephrectomy is the operation of choice when the toxemia is severe, and the abscesses numerous. If the abscesses are confined to a circumscribed area, that portion of the kidney which contains the lesions may be successfully resected, as I have done in one case, removing the middle third, and uniting the upper and lower thirds.

It is difficult to drain small multiple abscesses in the kidney, and I have seen death result from such an attempt.

* See page 368. † See page 369. ‡ See page 374.

It has been pretty well decided that if the kidney shows small multiple abscesses scattered through its substance at the time of operation that the only means of saving the patient's life is by sacrificing the infected organ. In a series of seven cases of this type which have been under my care but one died, and that was one in which the kidney was drained; the other six, in which nephrectomy was done, all recovered, and I have no doubt that if nephrectomy had been performed in the case in which the kidney was drained, we would have had a favorable result also.

In regard to the subject of pyelography, there is but little question that this method of diagnosis is a great aid in determining the internal arrangement of the kidney and in locating kinks, and abnormalities in the ureter. It is an important aid in the understanding of certain abnormal conditions of the kidney; yet if one does not mention the suffering that the individual may experience when it is done we only present one part of the story. Following the injection of collargol for Roentgen ray study of the kidney, I have seen very severe suffering. Fortunately it occurs in but a small percentage of the cases thus examined, but when it does take place, rest in bed for several days and large repeated doses of morphia have been required. This unpleasant result of this diagnostic measure must be borne in mind.

The patients in whom this severe pain has occurred, have usually been those with more or less acute inflammation within the renal pelvis, and in those cases in which renal drainage was interfered with by a kink in the ureter. It has been observed especially in cases of movable kidney. In all cases of renal inflammation I now use a solution of argyrol of from 25% to 50% instead of collargol, as it seems to be less irritating when inflammation exists. I believe the best method of injecting the kidney is by gravity, as pain has more often resulted when I have made the injection with a syringe or the instrument devised by Dr. Harold Baker. It is interesting to note that there have been several cases in which renal pain of long standing has been lessened, or has entirely disappeared after using this procedure of diagnosis.

DR. F. B. LUND, Boston: In regard to the treatment by posture of cases of movable kidney in which there may be infected urine. I would like briefly to report a recent case which, it seems to me, belongs to a class of cases upon whom we do not wish to operate and put the patient to the accompanying expense and trouble unless we are pretty definitely sure to relieve him.

In movable kidney, slight infections of the urine, with colon bacillus or even staphylococcus, may be cured by suturing the kidney in position and thus providing adequate drainage. But it sometimes happens that this operation is not efficient and one is at a loss what to do. For slight infection of the pelvis of the kidney, one cannot think of establishing drainage through the loin. Such a case was recently seen by me. It was, briefly, that of a woman about forty years of age, a multipara, whose husband I had operated upon for high insertion of the urethra with hydronephrosis. By performing a plastic on the pelvis of the kidney, I was successful in relieving him. She herself suffered from pains in both sides of the back and pain in the right side, and the right kidney was somewhat movable and could be easily palpated.

Examination of the urine showed pus and colon bacillus infection, and cystoscopic examination showed that what little pus there was came from the right kidney. Injections of the pelves of both kidneys with collargol showed that there was no deformity of the pelvis or ureter.

For the reasons given above, I hesitated to subject this woman to operation, especially as I thought that a large part of her symptoms might be of nervous origin. Dr. Goldthwait kindly saw her with me and instituted treatment by postural measures and braces, with the result that her urine cleared up, and she went home after two or three weeks, considerably improved. I have heard since that she remains well.

In regard to ptosis of the kidney as a part of a general ptosis, I have made one or two interesting observations lately. We used to think that the loss of the support of the abdominal wall caused by distention from repeated pregnancy would be practically certain to cause general ptosis and ptosis of the kidney. This is not always the case, however. I have recently operated on two women for ventral hernia due to separation of the recti from repeated pregnancies. The thin, wrinkled, abdominal wall hung out between the recti like a wrinkled bag. X-rays showed, however, that there was only slight ptosis of the stomach, and on opening the stomach, I found that both kidneys were firmly fixed in their pads of fat and in their normal position.

A more common cause of movable kidney is the actual squeezing out of the kidney between the liver above and the abdominal wall behind, when the liver is forced back by depression of the ribs, such as is shown in Dr. Brown's pictures.

The looseness of the attachments of the colon in front of the kidney also has a good deal to do in allowing it to fall. As everything is loosened together, the ureter goes down with the kidney, which explains to my mind why, while movable kidneys are so common, kinks of the ureter are so rare. Abnormal blood vessels are said to cause these kinks, and I have divided such blood vessels to relieve them, but the mechanism of the obstruction is often hard to understand. High insertions of the ureter and kinks at the junction of the ureter with the pelves have been often relieved in my hands by a plastic operation.

DR. BENJAMIN TENNEY, Boston: My experience with pain after introducing collargol into the kidney pelvis agrees with what Dr. Cunningham says of his own. All my cases have had pain and one has had morphine. One case, followed by nephrectomy, suffered more than any other that I recall. Dr. Mallory was more pleased over the specimen than I was. The collargol had passed through some opening in the kidney pelvis and made a wedge-shaped infarct with base towards the cortex. It seems to me that the pain is due more to spasm or cramp of the pelvic and ureteral muscles than to over-distention. I have observed the same appearance of discomfort for a few seconds after distending the pelvis with warm boric acid solution, but this passes away as soon as the pressure is let up, while the pain after collargol lasts an hour or more. It may be that the collargol is itself more irritating than we think.

Infections of the upper urinary tract are more frequent than most of us were taught. The teaching of fifteen and twenty years ago was that the urinary symptoms,—frequency, urgency, and pain, associated with pyuria,—were due to an inflamma-

tion of the bladder. The patient's sensations are still located there, but the cystoscope and ureteral catheter have shown us that the lesions are above the bladder in the majority of cases. Cystitis is usually secondary to some infection above or below when it does really exist. The remedy for these renal and pelvic infections is the same as that for confined infections elsewhere, and that is drainage. Flushing of the kidney is desirable, but an infected kidney with an obstructed ureter has little chance of being washed clean until the obstruction is removed. It is a theory of mine that a kidney with free exit for its secretion seldom suffers from these infections, and conversely, that the existence of such infection is a piece of evidence which should lead us to look for obstruction.

Dr. W. J. Dodd, Boston: It seems to me that pyelography is too valuable an aid in diagnosis to be abandoned on account of the distressing symptoms that have prevailed in some cases for an injection of collargol.

Undoubtedly much of the pain that has been caused is due to the fact that the collargol has been injected by the means of a syringe and the amount of pressure in some cases, is undoubtedly sufficient to cause the collargol to go beyond the pelvis and the calices into the substances of the kidney.

We have been able to determine this experimentally and we know that such a condition has been found both at the time of operation and on post mortem examination.

Braasch has suggested the use of the gravity method and also suggests that the collargol solution be heated to a temperature of about 100° and not above 102° and then carefully filtered. They claimed to have had far less painful results since using this method.

In spite of this observation, however, it does seem as though there was probably something inherent in the collargol solution which cannot be always avoided.

Dr. H. W. Beal, Worcester: I wish to report the case of a young woman with bilateral colon infection. Subsequent investigation by the pathologist proved the infection to be pure typhoid. The patient gave a history of typhoid thirteen years before. During that thirteen years only three cases of typhoid could be traced in her history.

The pathologist gave a long treatment with autogenous vaccines, without effect. The urine was persistently alkaline, and all attempts to make it acid while administering urotropin, failed. The next step is to be irrigation of the kidneys, and the effect remains to be seen.

Dr. A. Binney, Boston: I have had a limited experience with the injection of collargol into the pelvis of the kidney, and perhaps for this reason have not seen the severe attacks of pain following it, referred to by Dr. Cunningham and others.

It seems to me obvious that it is not simply the distention of the renal pelvis that causes pain, but that the collargol is at fault and that there may also be damage to the parenchyma through its entrance into the tubules of the kidney. A number of observers have, I believe, reported such unfortunate results.

In a recent number of the *International Abstract of Surgery*, there was published a method of using silver iodid for this purpose. It has the advantage of being non-irritating and giving a good x-ray shadow in 5% suspension, being insoluble, and it is claimed it will not enter the tubules of the kidney. The authors used it on animals and demonstrated microscopically that the renal parenchyma was not injured. I have not had a chance to put it to the test, but this seems worth mentioning as a possible means of avoiding some of the bad results of collargol.

Dr. R. F. O'Neil, Boston: In regard to the detail of collargol injections, I understood that the moderate heating of the collargol was to make it more readily soluble. It is to be prepared and filtered just before use. A 10% solution can be filtered with little or no residue, therefore it is not a suspension.

One of the last cases I injected was done by the gravity method with very little elevation of the burette and no over-distention. In spite of this the patient was restless and had a very uncomfortable afternoon and early part of the night. The solution used was the ordinary unfiltered 10%.

Dr. George O. Clark, Boston: How previously heating to 102° F. may affect the collargol solution is a question relating to the chemistry of collargol about which I know nothing; but if this previous heating is done solely with the idea of avoiding pain for the patient by introducing to his kidney pelvis a warm solution rather than a cold one, my experience convinces me that the heating is altogether superfluous.

In Albarran's clinic it was laid down as a maxim that the kidney pelvis is not sensitive to heat, cold, or chemical contact,—but is sensitive only to distention. Sensitiveness to distention is so exquisite that though the pelvis will tolerate hot or cold solutions of even concentrated strength, production by injection of the slightest degree of distention beyond the normal or acquired capacity of the individual pelvis is sufficient to cause pain. The pain will vary from mild discomfort to a condition identical with "renal colic."

All agree on the importance of ascertaining the exact quantity required to fill the pelvis. The bladder catheter will indicate any leakage around the ureteral catheter, and the onset of mild renal discomfort will indicate exactly the stage of complete pelvic distention. Over-distention means faulty technic because it is unnecessary, painful, and might even damage the renal parenchyma by causing the solution under pressure to be forced far into the uriniferous tubules.

Dr. A. L. Chute, Boston: I want to give my testimony as to the value of the work done by the orthopedist in cases of this sort. I have had one or two such cases of late that have been extremely satisfactory. The roentgenologist's accuracy has been of the greatest assistance to me. I have arrived at the point where it is a daily necessity.

I am sure I do not see why Dr. Cunningham has so much trouble with collargol injections of the kidney pelvis. I do not take any particular precaution in its use except that I inject slowly with a piston syringe, and that I stop injecting when the patient begins to complain of discomfort in the loin. I have had but one real colic out of a considerable number of cases. I do not heat the collargol because I feel the kidney pelvis is susceptible only to irritation from distention and do not believe that it reacts to moderate changes in temperature or chemical irritation. If colics are common, I believe too much collargol is injected into the pelvis or that it is injected too forcibly.

DR. HUGH CABOT, Boston: The unsatisfactory nature of our present methods of dealing with the cases of movable kidney associated with infection has been brought forcibly to my mind by some recent cases. The first of these was a patient whom we saw two years ago with a very movable kidney, considerable dilatation of the renal pelvis and a moderate persistent colon bacillus pyelonephritis. The diagnosis was carefully worked out by modern methods, including the injected radiograph. The kidney was cut down upon, fastened in position and the immediate result was excellent. She returned to us a year and a half later with the kidney in excellent position, the urine clear and sterile, but with practically all of her painful symptoms still present. An injected radiograph showed the kidney in good position and adequately drained, the only abnormality being the great loss of kidney tissue due to contraction of the previously formed scar tissue. This patient's symptoms were relieved only by nephrectomy.

Immediately after this there came under our care a patient with similar symptoms, previously operated upon by another surgeon, and who still had much discomfort in the region of the kidney. The conditions found were essentially those in our previous case, and again nothing short of nephrectomy relieved.

These cases strongly suggest that though we have remedied all the mechanical difficulties by operation we have still left behind some condition capable of causing much discomfort and which is really more important to the patient than the anatomical normality of her kidney. The most characteristic thing about all of these patients is their faulty standing posture, the contracted lower segment of the thorax and the general visceral ptosis. The suggestion is, therefore, strong that the kidney participates in the ptosis. Its vitality is lowered by strain upon the vessels and kinking of the ureter and upon the basis thus laid infection results.

Our belief in the correctness of this hypothesis has been considerably strengthened by several patients whom we have treated in conjunction with Dr. Brown. The most striking of these was a woman of 28 who, at the time that we saw her, had recently had a severe attack of right-sided pyelitis. The active process had quieted down but much pain and frequency of urination continued. The urine, however, was entirely normal. The right kidney was extremely movable and she was treated by fixation of the kidney, followed by correction of faulty posture. The relief was immediate and has remained complete for a year. Since two procedures were employed in this case it is difficult to be sure which, if either, was most effective. Consequently, immediately after this a woman of 32 with very faulty posture, who was seen during an attack of acute left-sided pyelitis, was treated solely by correction of posture. The symptoms have been entirely relieved and the result seems to be as satisfactory as in the case treated by operation and corrective measures.

These observations must be regarded as purely tentative, but we have now seen several other patients to whom the application of these principles has given great relief and as the hypotheses seem to us sound I think we should continue to apply the method until permanent results can be reported upon.

We have had at the clinic three cases which tend to confirm the view expressed by Dr. Cunningham. In these cases injected radiographs had been done with a moderate amount of reaction resulting. At operation, which in all these cases was done within three or four days, there was brownish mottling of the renal cortex. The tissue about the plevis was edematous and there was some brown staining of the fat capsule. It seems pretty clear that in these cases the collargol had been widely diffused through the kidney substance and had to some extent penetrated the tissues outside of the kidney.

In some injections of the kidney made postmortem by my associate, Dr. Young, it appears that a very moderate amount of pressure exerted by means of a syringe will make the collargol enter the tubules and penetrate almost to the cortex. These observations and experiments have convinced us that the gravity method is safer than the use of a syringe, since by the latter method an unknown amount of pressure is used and too great an amount of force has clearly been exerted in certain cases.

DR. LLOYD T. BROWN, Boston: I have been much interested tonight in the talk about the use of collargol because I do not know anything about it. The thing that is most interesting to me, however, is that you seem to have patients who have kidneys with more or less infection. Associated with this infection is more or less back pain and side ache and the other symptoms of pyelitis. By means of rest in bed, drainage, nephropexy, etc., it is possible to control the pyelitis, but even when this infection has been much reduced, when the patient gets up and around again there is at times a recurrence of the back and side pain. Now this makes one think whether the infection of the kidney is the primary cause of the pain, or whether the pain may not be due to some possible crowding or intereference with the function of this organ.

From the point of view which I tried to expresss tonight, it seems to me that it would be a help in some of these cases to try in connection with the other methods of treatment, to correct the postural maladjustments which are so commonly present.

Dr. Cabot mentioned a case of pyelitis of fifteen years' duration, with all the usual symptoms of side ache, bladder pain, constipation, etc. She had been in bed for three months because whenever she got up in a chair or on her feet her pain and discomfiture were much worse. Abdominal palpation was difficult because of tenderness. She has been under treatment designed to correct her postural defects, which, by the way, were of the most marked type. She is now upon her feet about five hours a day, with almost no pain. The sterile specimens of urine, which at first showed B. Coli and staphylococcus, now show only staphylococcus. Abdominal palpation now is not painful. The reason for this change in her symptoms is, I believe, due in part to the very marked change in the shape of her body. The lower rib region, which was formerly extraordinarily narrow, is now wide and full. This enlargement of the size of the lower rib region must necessarily have reduced the amount of pressure which comes on the kidney when the liver is crowded downward by the narrowing in of the ribs. This crowding downward of the liver may affect the kidney in three ways: first, by direct pressure on the kidney; second, by pressure on the renal vessels, either direct or indirect; and third, by pressure on the sympathetic nerves which control the kidney and its circulation. Any one or all of these

may cause congestion of the kidney, which, of course, makes a good field for infection.

Therefore it seems rational in planning the treatment for these cases of chronic pyelitis not only to try to remove the infection but also to try to correct all the cases which tend to make the function of the kidney less perfect and to make the kidney itself more liable to infection.

AMERICAN SURGICAL ASSOCIATION.

ANNUAL MEETING, HELD IN THE ASTOR HOTEL, NEW YORK CITY, APRIL 9, 10 AND 11, 1914.

The President, DR. WILLIAM J. MAYO, in the chair.

(*Continued from page 354.*)

DISCUSSION.

DR. FRED B. LUND, Boston: It has seemed to me that it is only in the advanced cases of carcinoma of the stomach that we can make a diagnosis by skiagraphic radiography as we have used it. In a man of 65, with blood in the stools and in poor condition, with diminished HCl and other signs of gastric ulcer, I was unable to tell from the x-ray whether the condition was one of ulcer or cancer. I, therefore, cut down upon the induration at the pylorus and did a gastroenterostomy. The area showed a shallow ulcer, certainly a chronic ulcer. Results showed it to be early carcinoma. There was not a single gland involved and the case was a most favorable one for operation. I therefore believe that where we can remove these ulcers simply and safely they should certainly be removed. In cases of doubt where it is easy always excise even an ulcer.

DR. A. J. OCHSNER, Chicago: Every patient coming under my care has the history taken, then a physical examination is made and written down with the suggested diagnosis. Then the history is taken again by the roentgenologist and chemist. In a considerable number of cases we have found that (my diagnosis goes in a sealed envelope) where the diagnosis based on a physical examination and the history is positive, that there the x-ray examination and the chemical examination are also likely to be positive. In the marginal cases, some 20%, in which the diagnosis based on the first two elements is doubtful, the diagnosis by means of these two methods,—the x-ray and chemical examinations, is also likely to be doubtful. The three methods together are likely to clear up some of these doubtful cases. We have made it a practice to always operate these cases in the presence of the roentgenologist and chemist. It is in the doubtful cases that the two latter methods are likely to be of the least use. That they are positive in the simple cases does not make their value too great in the doubtful cases as one might be led to believe.

DR. ARTHUR DEAN BEVAN, Chicago: A group of three or four of us for the last few years have been attempting to handle these cases of lesions of the stomach, duodenum and bile tracts as clinical research. We have endeavored to obtain the evidence from the internist so far as diagnosis is concerned, from the roentgenologist and from the surgeon and then have the internist and roentgenologist follow the case through to the exploratory operation. The attempt is made to have the internist offer all of the clinical evidence, submit a definite diagnosis, both anatomical and pathological, and draw a picture of his idea of that diagnosis before exploration. Then by exploration the internist's diagnosis, made from the symptoms, is checked up by the findings. The evidence has been divided under four heads: (1) history; (2) laboratory findings; (3) physical findings; (4) x-ray findings. We have concluded that so far as the diagnosis is concerned the history represents two-thirds of the value. Repeatedly after a mistake we would find that we had not properly elicited the history. The value of other evidence is (2) physical findings; (3) laboratory findings; (4) the x-ray. I do not believe that any mechanician or radiologist, unless intimately associated with a team of internist and surgeon, will ever become as well able to interpret the x-ray as the truly medical man himself.

DR. JOHN H. GIBBON, Philadelphia: Of the four methods of diagnosis mentioned by Dr. Bevan I would also place history first in value, but I would place the x-ray second and not fourth. Dr. Rodman referred to the unsatisfactory results from gastroenterostomy. I believe that the large percentage of failures is due to the fact that this operation is done where no ulcer is found. To obtain the comparative value of gastroenterostomy and pylorectomy we must take the number of cases of gastric ulcer which after gastroenterostomy have developed cancer. Then is to be estimated the difference in the mortality between gastroenterostomy and pylorectomy which will show whether the percentage developing cancer is greater than the difference in the mortality between these two operations. If the percentage of cases developing cancer after gastroenterostomy for simple ulcer is 5%, and if the mortality from pylorectomy is 10% and from simple gastroenterostomy 3%, I would say that gastroenterostomy is the right treatment. My own conviction is that the difference in mortality is much higher in percentage of cases developing cancer after gastroenterostomy. I want it understood that I am speaking of ulcer cases, not doubtful cases, not carcinomatous, not cases in which the ulcer is in the body of the stomach and easily excised.

DR. JOHN BAPST BLAKE, Boston: Regarding excision of the pylorus, it was early shown that food put into the stomach where gastroenterostomy without obstruction of the pylorus was practiced did not go through the new stoma but through the old opening. Permanent obstruction is obtained only by cutting it off, and if you cut it off and sew it over, you might just as well excise it as Dr. Rodman says. In this way you get rid of the ulcer-bearing area and most effectually close the pylorus.

DR. HOWARD LILIENTHAL, New York: I think we should protest against the expression "easy cases." If the treatment is good in an easy case it is still better in a hard case. I should say the operation should be done in the hard cases at any rate; in the easy ones, probably. Although I want to be shown, I would not venture to interpret a plate against the opinion of an experienced radiologist. I have so far found roentgenology of enormous benefit and believe that in the future it will prove of more rather than of less value.

DR. GEORGE W. CRILE, Cleveland: I rise to sup-

port Dr. Rodman's views as to the excision of the ulcer-bearing area of the stomach, because I have seen in my own cases all the things happen which he has mentioned. I think Dr. Gibbon put the question well in saying that it really depended upon the mortality rate of the operation of excision of the pylorus. I believe we can reduce the mortality rate in resections of the stomach and make the operation sufficiently safe to bring it within the limitations of Dr. Rodman's description. Speaking for myself, I have been too much disposed to operate on all cases alike rather than to adjust the operation to the patient.

Dr. William J. Mayo, Rochester, Minn.: I think we can put the radiogram first in the early diagnosis of cancer of the stomach, because in 100 consecutive cases in which the radiologist did not know anything about the history of the case he was able to make a diagnosis of cancer definitely in about 87%, while the best we have been able to do by history or any other means was a bit over 60%. In ulcer of the stomach, taking all cases, I believe the x-ray would again be first; perhaps the history might be put ahead of the x-ray. In ulcer of the duodenum, unless there be instruction, the x-ray does not equal the history in value, but it is a close second. I like to look at the plates, but for reading a hard plate, give me a man who is used to it.

To back up, Dr. Bevan, the most illuminating part is to get the whole crowd into the operating room day by day, show the plates, open up the patient, and then show the radiologist his mistakes. In a little while you will be surprised how modest he will become, and how much he will learn to help him in the next case.

Dr. Brewer, closing: I do not believe there is now a surgeon who would not take an x-ray diagnosis of ureteral or urethral calculus in preference to history and chemical examination. This I believe is also true in fractures. In regard to the stomach, by a rather new method we are developing a procedure of serial radiography to follow peristalsis right through from beginning to end, to see where it is not normal, and where it becomes abnormal. This method, I believe, will give increasingly accurate results. If the x-ray will help to differentiate gastric ulcer and save the patient the necessity of a doubtful exploratory operation it will be of the greatest value. I think we are approaching this position.

Dr. Rodman, closing: I should like to emphasize my statement that ulcers in the expanded four-fifths of the stomach are not very liable to undergo cancer, but should be subjected to partial extirpation with a mortality of less than two per cent.; and, that these ulcers are more likely to bleed and perforate subsequently due to the greater mobility of the stomach during respiration. Therefore, protective adhesions do not form, except in the lesser curvature of the stomach. It has been made very clear to me that a great many injudicious operations have been done for pylorectomy in patients who had perforated, who had bled severely. It would here have been better to do a gastro-enterostomy first and attend to the pylorus later. In that way, I believe, the mortality of pylorectomy for ulcer can be brought down to approximately five per cent. I believe that our best results in the future in operations on the prostate, stomach and other organs, in cancer of the intestines, etc., will be secured by the use of the two-stage operation.

SUGGESTIONS REGARDING THE ANATOMY OF, AND THE SURGICAL TECHNIC IN, THE TREATMENT OF JONNESCO'S MEMBRANE.

Dr. John E. Summers, Omaha: The Jonnesco-Jackson-Reid membranes should be considered as congenital. They may always be demonstrated in every individual should the incision admit. They are purposive and intended by nature as ligamentary supports preventive of intestinal stasis rather than causative; and if this is so, they should be divided only after they may have become restrictive of intestinal function from loss of nervous and muscular tone resulting from chronic intestinal toxemia. The so-called "white line" is the line of fusion of the duodenal and colonic peritoneum with the parietal peritoneum after rotation has been completed, and can be made manifest by rotating the attached hollow viscus in a direction continuous with the course of the blood vessels and fibres of the membrane, a direction opposite to the fetal rotation. The "white line" may be called the ligament attachment of the pericolic membrane to the parietal peritonium. The viscera of men differ in as great a degree as do their faces,—there are no two exactly alike. The Jonnesco-Jackson membranes are the cause of intestinal stasis only when their support is defective, or where it may be excessive and cause angulation. These membranes, although present in children, seldom produce symptoms in them because intestinal peristalsis is sufficiently powerful in children to overcome minor difficulties. I have never observed symptoms of these membranes in anyone under seventeen years of age. Most of the sufferers are from thirty to sixty years of age. Intestinal stasis can be caused independently of any angulating bands or ptoses, as it has been clinically proved to be caused by an incompetency of the ileocolic valve in a large number of people,—250 out of 1500 examinations—and the condition remedied by an operation correcting this incompetency. The x-ray study of the alimentary tract is of invaluable service in locating the cause of obstruction in obstinate cases. Very many sufferers from stasis due to ptoses of the hollow viscera are best relieved by mechanical supports.

THE ILEOCOLIC VALVE AS A FACTOR IN CHRONIC INTESTINAL STASIS; OPERATIVE TREATMENT.

By Dr. Edward Martin, Philadelphia.

Dr. George E. Armstrong, Montreal: Keith of the Royal College in London, is inclined to regard the ileocolic valve rather as a sphincter than as a valve, and some of the x-rays in the London Hospital have tended to show that normally there is a stenosis at the lower end of the ileum, and the large number of lymphatic nodes situated in this region would seem to be another evidence that there is normally stenosis with a more than usual amount of absorption. Examination of a series of cases has determined that while, as a rule, there seems to be a constitutional stenosis at the lower end of the ileum just before it enters the cecum, it is not always true that the taking of food stimulates the emptying of the cecum. I think it quite possible that this valve may be designed, to a certain extent, to delay the emptying of the ileum, and may also have a valve action to prevent the back flow of the content of the colon loaded with bacteria where bacterial digestion

goes on normally from receding into the lower end of the ileum.

Dr. Jabez N. Jackson, Kansas City, Mo: Since my name has been indentified somewhat with this membrane about the right side of the colon, I feel called upon to correct some errors. When I first had the honor of presenting this subject in 1908 most of the Fellows said there was no such thing. Now it is said to be a congenital condition in everybody. Although I have seen a considerable number, I am still in doubt as to its etiology. When one makes an effort to demonstrate a pericolic membrane when there are no symptoms to warrant it, and pulls up the lax colon on the outside until the veins are put taut, he will have a rapid engorgement of the parietal peritoneum which will be called pericolic membrane, which, however, shows no interference with the mobility or action of the colon. I wish, therefore, as my name is attached to this, to say that under no circumstances would I consider that to be Jackson's membrane, unless it can be positively demonstrated to be producing mechanical interference with the gut, and becomes the subject of surgical discussion, just as a tendon becomes surgical when producing a contracture. With the presence of this contracture and obstruction there are associated clinical symptoms and evidence is also afforded by the x-ray.

LIGATION OF THE INNOMINATE ARTERY FOR SUBCLAVIAN ANEURYSM WITH REPORT OF A SUCCESSFUL CASE.

Dr. C. A. Hamann, Cleveland: The patient, a woman aged 68 years, was operated upon in February, 1913. Partial resection of the clavicle was done in order to facilitate access to the vessel; the innominate was tied with a double-braided silk ligature and the right common carotid with chromicized catgut. Prompt healing of the wound occurred, and the aneurysm was completely cured. Fourteen months after the operation the patient was found to be in good condition and there was no trace of the aneurysmal sac to be felt. There have been 53 cases of ligation of the innominate artery up to the present time; of these 14 recovered, the most frequent cause of death has been secondary hemorrhage.

ON THE TECHNIC OF INTRATHORACIC OPERATION.

Dr. Alexis Carrel, New York: The report of intrathoracic operations by American and European surgeons shows that pleurisy is still a frequent complication. In the experimental operations performed lately by the writer, this complication was completely avoided. This result was obtained by a few technical details which prevented the irritation and infection of the pleura. Through a small opening a silk membrane is introduced into the pleural cavity. Afterwards two large compresses made of a sheet of absorbent cotton and two sheets of black Japanese silk are introduced into the pleural cavity and used for walling off the operating field. The pleura is never seen by the operator or touched by his fingers. This will protect against the germs of the air, and the blood from the operating field is absorbed by the cotton inside and compresses. This simple procedure seems to play a large part in the results obtained by the writer.

EXPERIMENTAL OPERATIONS ON THE ORIFICES OF THE HEART.

Dr. Alexis Carrel, New York: 1. On eight dogs a patch of vein preserved in cold storage was sutured on the anterior part of the pulmonary artery and of the left ventricle. Then the wall of the vessel and of the the ventricle was cut under the patch. One dog died on the operating table, another dog died of pericarditis; six other dogs are in excellent condition six months after the operation.

2. On three dogs the pedicle of the heart was clamped for about two and a half minutes. The sigmoid valves and the pulmonary orifices were exposed. They were either sutured together or cut and sutured. The three dogs have remained in excellent health.

3. In a few other dogs preliminary operations for the purpose of cauterizing the valves of the aortic orifices were made. In the first dogs operated upon death occurred by fibrillary contraction due to the entrance of air emboli in the coronary arteries. Then this complication was prevented by aspirating the air contained in the ventricle after the completion of the operation. On one dog the aspiration was insufficient and after re-establishment of the circulation air emboli were seen in the branches of the coronary arteries. Next, one of the branches was perforated with a needle, No. 16, and the blood and air escaped. The heart immediately started pulsating in its normal way. The animal is still living.

(To be continued.)

Book Reviews.

Diagnostic Symptoms in Nervous Diseases. By Edward L. Hunt, M.D., instructor in neurology and assistant chief of clinic, College of Physicians and Surgeons, New York City. 12 mo., 229 pages, illustrated. Philadelphia and London: W. B. Saunders Company. 1914.

This little book will be found most useful to teachers, and also practitioners, in that it adopts a plan much more often followed in German books than in those issued in English, of grouping by symptoms, explaining the significance of them, and giving the diseases in which they are found. This plan is carefully worked out and the result is admirable. Occasionally one notices a too general statement which might be made absolute, though such statements are necessary in teaching beginners. Rarely an explanation is too indefinite, as on page 153, where the Bechterew-Mendel reflex is stated to be either a flexion or extension of the toes. The book might be made still more useful if the author could add sections with good diagrams illustrating the topographical diagnosis in organic lesions of the nervous system. Here and there explanations might well be amplified, as for example, in speaking of crossed hemiplegias, always a puzzling subject for students.

The Principles of Pathologic Histology. By FRANK B. MALLORY, associate professor of pathology, Harvard Medical School; pathologist to the Boston City Hospital. W. B. Saunders Company. 1914.

This book differs very materially from the usual text-book. To quote from the preface, "It is based so far as possible on the study of lesions from the earliest to the most developed, not on what some one else has written about them." Herein lies the chief difference between it and other text-books of pathology. It is not a compilation; it is a personal book. The reader obtains the author's view of the subject under discussion: the reader may not agree with the view but he knows what the author's view is. This view usually is very simply and clearly stated; sometimes it is stated almost too briefly and too much is left to be read between the lines. This apparent defect, however, is made up in large part by the remarkably good, beautifully reproduced illustrations on almost every page of the book, which furnish the needed elaboration of the compact style of the next.

Mallory's book will have two uses. To the student of pathology it will be of great help in connection with his laboratory work. The illustrations and text used in connection with the students' microscopic study of sections will be of the greatest help. To the pathologists the book will bring many new view-points with regard to the histology and histogenesis of pathologic lesions. Rarely do authors today publish in text-books their studies of original material, but Mallory has done this in very considerable measure. Much in the book in the hands of others would have appeared in the form of numerous papers in the various pathological journals. The advanced student will gain much from reading the book.

To the critic who reviews Mallory's book it must be kept in mind that it is a pathologic histology, not a pathology, consequently there is relatively little description of macroscopic appearances and little discussion of general principles. In a book of this kind, it is hardly possible not to have some subjects treated with much more elaboration than others. This is recognized by the author in the preface. "The book is incomplete owing to lack of time and of pathologic specimens which would render possible the study of all stages in the development of the various lesions." It is to be hoped that there will be frequent editions of the book in order that readers may have speedy access to the information obtained by the author as time and opportunity add to his collections specimens previously lacking for the more complete elaboration of some of the subjects.

Dr. Mallory is to be congratulated on this book. It fills a place long vacant in pathology. As a pathologic histology it is easily the best book. In the way of printing and illustrating, it is exceptionally good. It is the kind of a book badly needed in many fields of medicine. The reviewer would like to feel that in the future he who contemplates writing a medical book, would first read Mallory's book and then in the same way turn to his cases and specimens and elaborate from them his views rather than to compile them from other text-books, as is commonly done. Should the prospective author so do, with few exceptions he would find that a decade or more would have to pass before his material was ready for press. The reviewer fancies that the medical reading public would gain, however, in the delay and there would be fewer text-books, but better ones, as the result.

Transactions of the American Pediatric Society. Twenty-Fifth Session. Edited by LINNAEUS EDFORD LA FÉTRA, M.D. Volume XXV. Chicago: American Medical Association Press. 1914.

This volume contains the proceedings of the American Pediatric Society at its meeting in Washington in May, 1913. It consists chiefly of the 36 original papers there presented, including the presidential address by Dr. John Lovett Morse, and articles by Dr. L. Emmett Holt, the late Dr. Thomas Morgan Rotch, and others. Several of the articles are illustrated by excellent plates.

Defensive Ferments of the Animal Organism. By EMIL ABDERHALDEN, director of the Physiological Institute of the University at Halle. With 11 text figures and one plate. Third enlarged edition. English translation by J. O. Gavronsky, L.R.C.P., M.R.C.S., M.D., and W. F. Lancaster, M.A. New York: William Wood and Company. 1914.

Abderhalden's important work on the defensive ferments in the blood-serum, first published in 1912, has already reached its third edition, and this English translation, at once idiomatic and accurate, places it within reach of American scientists who cannot read German. It deals with the specific ferments developed against "substances out of harmony (*fremd*) with the body, the blood-plasma and the cells; their demonstration (by the use of the optical method and the dialysation process), and their diagnostic significance for testing the functions of different organs." This method, first applied in the sero-diagnosis of pregnancy, promises to be extended to other applications. Since the development of the Wassermann test, Abderhalden's work is the most valuable contribution made to the science of immunology, and should be studied with interested attention by all physicians.

THE BOSTON

Medical and Surgical Journal

THURSDAY, SEPTEMBER 3, 1914

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EFFECT OF THE WAR ON MEDICAL JOURNALISM AND ON THE PROFESSION ABROAD.

THE progress of a great war not only involves wholesale destruction of life, health, and property, and consumption of garnered resources, but also inhibits many, if not all, of the productive activities of peace. This is already abundantly illustrated in the present conflict in Europe. Since the outbreak of hostilities, for instance, not a single one of the regular medical periodicals has been received from France, Germany, Russia, or Austria. Whether they have suspended publication is unknown. This effect seems also to have extended to non-belligerents, like Italy. The English medical journals continue to arrive, but are being printed in greatly curtailed form, owing to the scarcity and high cost of paper.

Naturally the war is also seriously affecting the conditions of life and practise of the medical profession. In England large numbers of able-bodied British physicians have gone to the front for medical service in field and base hospitals, and arrangements are being made by the British Medical Association to have their practises cared for by locumtenents during their absence. The work of panel physicians under the national insurance act will be largely increased, and they may be called on to give free care to families of soldiers.

"Many men on the staffs of the hospitals—both honorary and resident—have left for active service, and not a few of the huge general hospitals are left without adequate medical service, and in some instances patients have been sent back to their own homes so as to relieve the pressure upon the wards. Nurses have also been requisitioned, and as the war is on a large scale, the extent and gravity of which it is impossible to foretell, the drain upon the medical profession in the United Kingdom is likely to continue for a long time. Not only is there an absolute shortage at the present moment in all classes of public and private medical practice, but the war is absorbing all the floating margin of qualified practitioners available, as well as senior medical students who are invited to join the Army and Navy as dressers."

Not only are physicians themselves affected, but there is a large increase in the cost of drugs and supplies.

"The price of medical dressings has already advanced 10 to 20% owing to the great demand from the government (who have precedence) as well as from hospitals all over the kingdom. Cotton wool, wood wool, lint and bandage cloths are especially affected."

The president of the British Pharmaceutical Society has sent out the following circular letter of comment and suggestion:—

"In connection with the threatened shortage of supplies of medicinal substances, I should like to draw the attention of physicians and pharmacists to the desirability of employing sodium salts wherever possible instead of potassium salts. In England we have an unlimited supply of sodium carbonate, but we depend for potassium carbonate almost entirely upon the mineral deposits of Germany, which are now closed to us. Such salts for example, as the acetate, benzoate, bicarbonate, bromide, carbonate, chlorate, citrate, formate, hydroxide, iodide, nitrate, nitrite, phosphate and tartrate can be used in most cases either as the potassium or sodium salts. At the present rate of consumption the available supplies of potassium compounds will soon be exhausted, but if the sodium salts are used in every possible case, the supply of potassium salts, where such have any medicinal properties not possessed by the corresponding sodium salts, will last very much longer."

In this connection the British government, in the course of an inquiry into the supply of food and other necessaries, has found that there is a shortage of a number of drugs, on account of the stoppage of foreign supplies and the general dislocation of commerce.

"Among the drugs of which the British market is at present short, in addition to potassium salts, are salicylates, bromide salts, preparations of mercury, and permanganates. There is not at present any serious shortage of quinine and cinchona preparations, or of iodine, though the

prices of both have been put up. Dr. B. A. Richmond, secretary of the London Panel Committee, states that he has made special inquiry, and that among drugs which should be added to the above list are syrups, phenacetin, phenazone (antipyrin), and acetanilide (antifebrin). The British Medical Association has received an invitation to a conference, to be held at an early date, to assist the government in considering how the medical profession can best coöperate in dealing with the situation. It is hoped that this shortage will be only temporary, and that soon alternative sources will be opened up. Meanwhile, practitioners are invited as far as possible to replace the preparations indicated above by others having similar therapeutic effects."

Similar conditions doubtless prevail in France and Russia, and to a much greater extent in Austria and Germany, whose commercial isolation from the rest of the world is much more complete, and whose domestic resources are probably less, than those of the allies.

THE MILK SITUATION IN NEW ENGLAND.

THE movement of the Boston Chamber of Commerce inaugurating a series of hearings under the auspices of that body, the United States Department of Agriculture and the agricultural boards, agricultural colleges and granges in the various New England states, as to the number of cows and the production of milk,—a "milk survey" of this part of the country,—is to be highly commended. This action is the result of a conference which took place at the rooms of the Chamber of Commerce July 1 and the first conference was held at Putnam, Connecticut, August 26.

It has long been apparent that the herds of New England have been diminishing in numbers from year to year, and that the cities are reaching out farther and farther into neighboring states and even into Canada for milk and dairy products, so that the action of the Chamber is timely. It is a subject which interests the medical profession most intimately; for how can the people be served with a sufficient quantity of milk in a reasonably short time after it has left the cow,—the chief desideratum in the milk question,—unless there are enough cows close at hand?

At each hearing the granges and other State interests undertake to procure the attendance of at least four milk producers from each town, where milk is produced in any quantity, in the territory which the hearing is expected to cover. All questions concerning the cost of milk production and the problems of the farmer relative to the milk industry, are to be freely discussed and the results obtained are to be printed and distributed. The second hearing was held in Hawleyville, Conn., August 27; the committee of the Chamber will sit in Providence, R. I., September 1; and during that month three hearings will be held in New Hampshire,—on the 16th at Portsmouth, the 17th at Concord, and the 24th at Whitefield. In October two hearings will be held in Massachusetts; in November, two in Maine; and in December, two in Vermont.

CONTINUED RED CROSS PREPARATIONS FOR THE WAR.

DURING the past week Red Cross preparations for care of the wounded in the European war have been continued by the several nations involved. In accordance with the Hague convention, the French and Russian governments have designated vessels to be used solely to aid wounded, sick, and shipwrecked persons,—France the transport *Dagouay Trouin* and the steamers *Canada* and *Bretagne*, Russia the steamers *Nicolajeff* and *Ariadne*.

"Dr. Ritter, the United States minister from Switzerland, announced that a meeting would be held in the Swiss Home in New York on Aug. 21 for the purpose of arranging an appeal to Swiss-born residents of the United States, numbering 150,000, to contribute to the general Red Cross fund of Switzerland. The Swiss government has practically offered to turn the country into one great hospital to care for the wounded of Europe, regardless of their nationality. As yet no notice of the attitude of the European governments toward the proposal has been received.

"Pamphlets will be sent to every person of Swiss birth and every Swiss newspaper in the United States, asking them to contribute. In case the warring nations refuse to take advantage of Switzerland's offer, which is doubtful, according to Dr. Ritter, the money will be used to purchase food in this country for shipment to Europe, where it will be distributed in Switzerland and among the destitute women and children of the adjoining countries."

Report from London on Aug. 21 states that the activities of the British Red Cross will be

supplemented by those of the British Purple Cross, which has asked funds and volunteers to engage in relief work for horses on the battlefield.

On Aug. 24 the Hamburg-American Steamship Company offered to place its vessel, the *Prinz Joachim* at the disposal of the American Red Cross for the actual cost of operation, which is estimated at $1100 a day.

"In addition, the owners stipulate that the neutrality of ship and crew must be guaranteed, and the United States government must insure her against all risks. It is proposed to have the *Prinz Joachim* visit the harbors of the warring nations, giving aid wherever possible. The line limits the trip to sixty days."

On Aug. 24 the sum thus far received by the New York State Board of the American Red Cross for the European relief fund reached a total of $36,248.38, and that received by the Massachusetts board a total of $2037.39. On Aug. 25 Count Adalbert von Sierstorpff reached New York on board the Dutch liner *Noordam* to promote Red Cross relief work in the United States for the German army.

In England elaborate preparations have been made for the care of sick and wounded soldiers.

"The gap in the nursing and medical department of the Territorial army is to be filled by Voluntary Aid Detachments, men and women. In a typical county, say Kent, upon whom the first brunt of duty will probably fall, there are scattered all over the area, even in quite small towns, sections, 50 in number, consisting each of one lady commandant, one quartermaster (superintendent of stores), one lady superintendent, who must be a trained nurse, and 20 women (four of whom must be qualified cooks); a medical officer may or may not be attached to each detachment. All these women must hold a certificate in first aid, and a further certificate in nursing, as issued either by the Red Cross Society or by the St. John Ambulance Association or certain other bodies approved by the War Office. The local control of these detachments is vested either in the Territorial Association of the county or in one of the bodies mentioned above, usually at the discretion of the Territorial Association. In either case the detachments have been periodically inspected by the Royal Army Medical Corps authorities, and the dispositions made for the reception of wounded have been similarly examined and approved.

"The War Office has also scheduled the equipment which must be furnished for temporary hospitals. Each detachment has retained certain buildings, usually schools, public halls, clubrooms at inns and other large rooms, where domestic offices of some sort are attached or can be improvised. These have been arranged either to form clearing hospitals and larger rest stations dealing with up to 200 sick and wounded, or entraining and smaller rest stations for 50 cases for the night. The concentration of cases is not always easy to arrange, on account of the lack of suitable large buildings, but in some instances it is being done. In many small places the difficulty is not the buildings but the equipment. If the nurses are insufficient in one area of the country, arrangements are being made to obtain the surplus from other areas. Near main lines and railway junctions preference has been given to providing rest stations for preparing and serving meals and refreshments to sick and wounded during transit by railway, and the women's detachments are to take charge, in the evacuation stations or temporary hospitals, of such severe cases as are unable to continue the journey."

MEDICAL NOTES.

Dr. Carrel in Paris.—Report from Paris on Aug. 24 states that Dr. Alexis Carrel, of the Rockefeller Institute for Medical Research, who volunteered for service in the European war, has been placed in charge of one of the large military hospitals in that city. He will make a particular study of vascular surgery and the transplantation of tissues and organs.

The Ricketts Memorial Laboratory.—It is announced that the new laboratory of medical sciences of the University of Chicago, now under construction, is expected to be ready for occupancy on Oct. 1.

"The new building will consist of general and private laboratories, research laboratory rooms, class- and working-rooms, and also an assembly room in the rear, thirty by forty feet, to accommodate one hundred and fifty to two hundred students. The building, one story in height, will be of brick exterior. This new laboratory will be occupied by the department of hygiene and bacteriology and the department of pathology. The cost of the building will be about $50,000. The university board of trustees has voted to give the name of Howard Taylor Ricketts to the new laboratory. Dr. Ricketts, who was connected with the department of pathology at the university for eight years, died in Mexico from typhus fever, which he contracted while investigating the disease."

Antityphoid Inoculation in the British Army.—The British War Office has recently issued to officers of the royal army medical corps the following memorandum on the importance of early resort to antityphoid inoculation during field service in the present European war:—

"1. There is no need to remind officers of the Royal Army Medical Corps of the disastrous effects of typhoid in recent campaigns.

"2. It can hardly be hoped that improved sanitary precautions will succeed completely in safeguarding the force from infection, since it will certainly be exposed to three sources of infection, difficult or impossible to control, namely:

"(*a*) Men in the incubation stage of typhoid who have accompanied or joined the force.

"(*b*) Unsuspected typhoid carriers.

"(*c*) Contact with the inhabitants of the country in which typhoid may be present.

"3. The preventive value of antityphoid inoculation is now universally recognized, and is well known to all who have served in India.

"4. As it was not found possible to inoculate the force on mobilization, only a small percentage of the men will have been protected, but it should be practicable, by seizing every opportunity, to raise the number of inoculated very considerably. If a unit is likely to be stationary for a short time, advantage might be taken of this, with the consent of the general staff, to inoculate a certain number of men,—for example, a company or half a company, and in this way a whole regiment or other unit might be protected, without any serious interference with its duties.

"In the same way individual men temporarily disabled by minor ailments, or otherwise available, might be inoculated.

"It is strongly urged that medical officers lose no opportunity of introducing and carrying through some such system.

"5. Antityphoid vaccine has been sent to the base depot of medical stores, and will be issued, as required, on requisition."

THE PLAGUE SITUATION IN NEW ORLEANS.—The following statement with reference to the plague situation in New Orleans has recently been issued by Dr. W. C. Rucker, assistant surgeon-general of the United States Public Health Service:—

"The plague situation in this city is entirely under the control of the Public Health Service of the United States. There are ten commissioned officers now in the city with 300 employees under their command. All freight passing through and out of New Orleans receives thorough inspection from the officers of the Public Health Service. On the water front there are five officers on duty, besides the fumigating ship *Neptune*, belonging to the quarantine service. Every vessel entering and clearing from this port is fumigated with carbon monoxide gas, which effectually destroys all vermin or other animal life without in the slightest degree injuring the most delicate cargo. Every vessel leaving this port receives one of two documents, stating either that it has or has not complied with the quarantine regulations here. There is also a quarantine officer in charge of an inspection force which examines all freight coming into and leaving the city by way of the Old Basin and New Basin Canals. In view of these precautions there is no danger of the plague being carried by any sea-going vessel, and the only country now maintaining a quarantine against vessels from New Orelans is Costa Rica.

"Rail freight leaving this city receives a thorough inspection. As rat fleas are the only carriers of plague, all freight cars are inspected when empty by officials of the Public Health Service, who see that they are clean, free of rats, and rat proof.

"Cars which are not proof against rats are required to be repaired before loading is permitted. During the past week 800 cars were ratproofed and ten condemned. Approximately 2000 cars a week are being inspected. Not only are the cars inspected, but the freight intended for them is also examined and packages likely to harbor rats are required to be repacked. All cars are loaded under the direct supervision of inspectors of the Public Health Service. Each car so loaded is closed by the inspector and sealed with a lead seal bearing the Service device. Cars loaded under this inspection are labeled with the inspection number, car number, destination, and the legend, 'Inspected and passed as rat-free, conditional upon unbroken seal.'

"Freight passing through this city is handled with the utmost dispatch and there is no need for the diversion of freight intended for any destination other than Costa Rica from this port. Several of the railways entering New Orleans have already taken up the question of rat-proofing their storage and freight terminals in accordance with the plans which are being drawn up by the Public Health Service."

BOSTON AND NEW ENGLAND.

A CHEERFUL CENTENARIAN.—Mrs. Ebenezer Carpenter, of Worcester, Mass., is said to have been born on Aug. 26, 1806, at Warwick, Kent county, R. I., the first of a family of 13 children. She was married in Providence, R. I., on July 1, 1834, and had six children, including one pair of twins, all now deceased. Her health remains excellent, and she attributes it and her persistent longevity to her habitual cheerfulness. Perhaps, however, she is rather mistaking effect for cause.

HOSPITAL BEQUESTS.—The will of the late Dr. Almena J. Flint, of Boston, which was filed recently at Winter Harbor, Me., contains bequests of $10,000 to the Massachusetts Homeopathic Hospital, and $5000 to Boston University Medical School.

The will of the late George L. Thorndike, of East Boston, bequeaths his entire estate of $200,000 to erect in Boston a hospital in memory of his brother, the late Dr. William H. Thorndike.

NEW YORK.

PHYSICAL EXAMINATION OF HEALTH DEPARTMENT EMPLOYEES.—The physical examination

of its employees periodically, recently instituted by the City Health Department, has already shown that the system is of far-reaching importance. The results of the first 300 examinations, which included that of Commissioner Goldwater, at whose suggestion the plan was introduced, are given in the *Weekly Bulletin* of the department, and these indicate the usefulness of the examination, especially in the prevention of disease development and the promotion of efficiency. Commenting on the report, the bulletin says: "It is hoped that the summary here presented of the items of interest which appear on reviewing the records of the first 300 examinations made will convince those who have been doubtful of the feasibility of carrying out a plan of this kind, or fearful of its depressing mental effect on the subjects, that the science and art of medicine find in this work a proper and fruitful field. The experience of the Department of Health, if typical, shows that among any group of active workers in average health there is likely to be found a considerable proportion who, without being cognizant of the fact, are in need of, and can be materially benefited by medical advice and aid. To present this advice and to offer this aid in a manner befitting the need and the occasion is a task which may well be entrusted to physicians of proper professional training, keen personal sympathies, and enlightened social understanding." The department recommends the adoption generally of physical examination of employees, but urges that no compulsion, other than that of common sense, should be employed in instituting the practice.

Bovine Tuberculosis.—The commission authorized by the Legislature to investigate the subject of bovine tuberculosis and its economic and health effects, and report its findings to the legislature, has now been appointed by Governor Glynn. The head of the commission is Dr. Theobald Smith, director of the division of animal pathology, Rockefeller Institute, and among the other members are Dr. H. M. Biggs, State commissioner of health; Dr. Philip Van Ingen, of the New York Milk Committee; Dr. H. L. Shaw, professor of diseases of children, Albany Medical College; Professor V. A. Moore, dean of the New York State Veterinary College, Cornell University; and C. J. Huson, State commissioner of agriculture. An appropriation of $5,000 is available to defray the expenses of the commission, and its work of investigation will be commenced as soon as possible.

Compulsory Vaccination.—Dr. John H. Finley, State commissioner of education, having sent out a notification to the officers of public, parochial and private schools throughout the State that no pupil shall be admittted without having been vaccinated, as required by law, some of these officers have applied to the attorney general of the State for a construction of the compulsory vaccination act. Accordingly an opinion has been rendered which is in part as follows: "It is apparent that the danger is existent in parochial schools, as well as in schools supported by public money, and the purpose of the statute being so plain, good citizens will not question its application. The difficulty of penalizing a parochial school which existed when Attorney-General Cunneen examined the question some years ago, has not been removed from the present statute. However, the ordinance powers conferred upon municipalities, and the general powers of local boards and of the State commissioner of health, are such that I believe vaccination could be enforced where schools not supported by the public money endanger the health by persistently refusing to comply with this highly commendable requirement."

Bequests.—In the will of the late Ernst Thalmann of New York are bequests of $10,000 each to Mount Sinai Hospital and the Hebrew Orphan Asylum and $5,000 to the German Hospital and Dispensary.

Massachusetts Medical Society

Addresses Wanted.—Fellows of The Massachusetts Medical Society will confer a favor by reporting to the Librarian, Dr. E. H. Brigham, 8 The Fenway, Boston, the addresses of the following Fellows, whose mail has been returned by the Post Office Department as "Left":

Samuel W. Langmaid, Brookline.
Julia T. Metcalf, Brookline.
Joseph M. Putnam, Chelsea and Boston.
Joseph T. Herrick, Springfield.

Current Literature

Bulletin of the Johns Hopkins Hospital.

August, 1914.

1. *Halsted, W. S. *The Significance of the Thymus Gland in Graves' Disease.*
2. Marshall, H. T. *A Summary of Studies of Loco-Weed Disease in Sheep.*
3. Baetjer, W. A., and Sellards, A. W. *The Behavior of Amebic Dysentery in Lower Animals and Its Bearing upon the Interpretation of the Clinical Symptoms of the Disease in Man.*
4. Thayer, W. S. *In Memoriam. Rupert Norton.*

1. Halsted, in a long and careful paper, describes certain fulminant cases of hyperthyroidism in which even operations of the simplest nature, such as ligating one artery, taking ten minutes to do it, result fatally. In these cases he believes that the thymus gland and its secretion plays an important part.

"From facts gleaned at the autopsy table, from animal experiments, and above all from the results following primary thymectomies," he is convinced that the thymus gland "may play an important part in Graves' disease and in some cases assume the title rôle. There can be but little doubt that the secretions of these two organs, the thyroid and the thymus, have an intimate relationship in the production of Basedow's disease." Halstead discusses the work and opinions of others on this subject, and gives details of his own work and experiments. The article is a most interesting and important one. [J. B. H.]

THE LANCET.

JULY 25, 1914.

1. DUPUY, E. *Localization of Motor and Speech Centres in Definite Areas of the Cortex of the Brain.*
2. DUDGEON, L. S. *A Reduction in the Virulence of Tubercle Bacilli Stored in Normal Saline.*
3. *STAINTHORPE, W. W. *Observations on One Hundred and Twenty Cases of Lead Absorption from Drinking Water.*
4. BATTEN, F. E. *Further Note on the Use of Celluloid Splints in the Treatment of Acute Cases of Poliomyelitis.*
5. COCKAYNE, E. A. *Epidemic Catarrhal Jaundice.*
6. KENT, A. F. S. *Some Problems in Cardiac Physiology: Contributions to a Study of the Relations Which Exist Between the Various Chambers of the Mammalian Heart.*
7. MILLER, J., AND HEWAT, A. F. *A Case of Tuberculous Disease of Vertebræ Complicated by an Extensive Acute Suppurative Meningitis.*
8. O'CONOR, J. *The Surgical Treatment of Streptococcic Arthritis.*
9. BULLOCK, W. E. *The Technic of Abderhalden's Serum Reaction.*
10. MURRAY, R. W. *The Geographical Distribution of Appendicitis.*

3. Stainthorpe makes an interesting study of 120 cases of lead poisoning. Four deaths were directly traceable to this poison. Each one showed certain premonitory symptoms, such as general lassitude, depression, irritability, drowsiness, etc; 102 showed abdominal symptoms,—distention, colic, epigastric pain, etc.; 91 had headache, 96 anemia, 89 nervous and muscular disorders, etc. In only 15 cases was a blue lead line present. Granular stippling was not present in any case! The diagnosis was based in each case on the presence of lead in the urine with clinical signs and symptoms. [J. B. H.]

AUGUST 1, 1914.

1. GARROD, A. E. *Medicine from the Chemical Standpoint.*
2. BLAND-SUTTON, J. *The Surgeon of the Future.*
3. *CHEYNE, W. W. *Gastric Ulcer, with Special Reference to Its Treatment by Gastrostomy.*
4. *EISELSBERG, A. *The Selection of the Method of Operation in the Treatment of Gastric and Duodenal Ulcers.*
5. JONES, R. *Internal Derangements of the Knee.*
6. *SCHMIEGELOW, E. *The Results of Operation (Laryngo-Fissure) for Intrinsic Cancer of the Larynx.*
7. *MAYO, C. H. *Hyperthyroidism: Primary and Late Results of Operation.*
8. ARMSTRONG, G. G. *Typhoid Perforation.*
9. PERCY, J. F. *The Treatment of Inoperable Carcinoma of the Uterus by Application of Heat.*
10. EASTMAN, P. R. *Factors of Safety in Cleft-Palate Surgery.*
11. JULLETT, H. *Suture of the Levator Ani Muscle in Perineorraphy Operations.*
12. WILSON, T. *The Results of Radical Operative Treatment of Cancer of the Uterus.*

3. Cheyne, in a short paper on the surgery of gastric ulcer, recommends gastrostomy instead of gastroenterostomy as the operation of choice in many cases where the ulcer can be infolded.

4. Eiselsberg reports in summary on 434 cases of gastric ulcer, etc., operated on by him. He does not operate in hemorrhage cases. In stenosis, gastroenterostomy is the operation of choice. In cases with an increase of HCl the chances of the operation doing good are lessened.

6. Schmiegelow urges further operative measures in cancer of the larynx. In 63% of his 96 cases there was great relief from symptoms for more than one year after the operation.

7. C. H. Mayo, in a long and interesting paper based on wide experience, discusses the operative treatment and its late results based on 6868 operations, 3295 of which were in cases of hyperthyroidism. He classifies and arranges these cases in an elaborate table. He discusses the relative merits of the various operations, ligation, sympathectomy, and thyroidectomy in all its variations. Ether is the best anesthetic. His average mortality was 1-3%. [J. B. H.]

BRITISH MEDICAL JOURNAL.

JULY 25, 1914.

1. *LEITCH, A. *The Serum Diagnosis of Pregnancy and of Cancer: A Critical Study of Abderhalden's Method.*
2. FISHER, J. B. *National Health Insurance.*
3. THOMAS, J. L. *The Position of the Country Doctor in 1879 and Tomorrow.*
4. *BAHR, P. H. *Sprue.*
5. *STOCKDALE, G. V., AND HODSON, R. *The "Controlled" Use of New Tuberculin in the Treatment of Pulmonary Tuberculosis.*
6. MACARTHUR, W. P. *A Note on Sixty-three Successive Cases of Enteric Fever Treated with Vaccines.*
7. BRAITHWAITE, L. R., AND CRAIG, W. *Hernia of the Uterus, Vagina, and Fallopian Tubes in a Boy.*

1. Leitch discusses the serum diagnosis of cancer, and reports on 100 cases in which the dialysation reaction has been tried. In 17 cases the result of the reaction was entirely wrong, which in itself is enough to prove its worthlessness.

4. Bahr describes sprue as a disease of tropical and subtropical countries, occasionally, however, being found in temperate zones. It is prevalent in Ceylon, especially among Europeans. It may occur in a mild or in a very virulent form. Clinical and chemical research point to an invasion with the thrush fungus forming a marked alimentary toxemia, as the cause.

5. The writers conclude that in afebrile cases tuberculin may do good in regard to the local lesion, but has no appreciable effect on the constitutional signs and symptoms. It is contraindicated in all febrile cases. [J. B. H.]

AUGUST 1, 1914.

1. OGSTON, A. *President's Address. On the Making of a Scottish Medical School.*
2. GARROD, A. E. *Medicine from the Chemical Standpoint.*
3. BLAND-SUTTON, J. *The Surgeon of the Future.*

THE PRACTITIONER.

AUGUST, 1914.

1. *TAYLOR, F. *Rigor.*
2. *BARKER, A. E. *Leukoplakia.*
3. CORNER, E. M. *Some Practical Notes on Dislocations of the Hip.*
4. TUBBY, A. H. *Orthopedic Surgery.*
5. SMITH, B. T. P. *The Intermittent Pulse.*

6. Hewlett, R. T. *Review of Tropical Diseases.*
7. Freshwater, D. *Ringworm of the Scalp and Beard.*
8. Kempster, C. *Treatment of Rodent Ulcer by X-rays.*
9. *Thomson, W. S. *The Advantages of Intubation of the Larynx over Tracheotomy in Laryngeal Diphtheria.*
10. Jervis, J. J., and Martyn, C. E. *The Treatment of Diphtheria.*
11. Panting, L. C. *Cystic Hygroma.*
12. Pike, J. B. *Case with Comments: Perforation of the Bladder from Chronic Ulceration, with Secondary Appendicitis.*

1. This is a typical general paper, presenting nothing new whatsoever but summarizing the various causes of chills. As such a summary it has certain value.

2. Barker describes leukoplakia, its causes, such as syphilis, local irritants, etc., treatment, local and general, with special reference to the possibility of its transformation into cancer or other form of malignant disease. He is of the opinion, however, that the tendency to believe that every case of leukoplakia invariably degenerates into cancer has been much overdone.

9. Thomson, in a long article discusses intubation in diphtheria as compared with tracheotomy, and concludes that for many reasons,—safety, simplicity, ease, absence of scar, it is preferable to tracheotomy. [J. B. H.]

Edinburgh Medical Journal.

August, 1914.

1. Hart, D. B. *A New Route of Inquiry as to the Nature and Establishment of the Typical Sex-Ensemble in the Mammalia. II.*
2. *McNeil, C. *Anaphylaxis and Status Lymphaticus; Their Relation to Intensified Types of Disease in Infancy and Childhood. II.*
3. Brock, A. J. *Habit as a Pathological Factor.*
4. *Struthers, J. W., and Thomson, H. T. *The Intratracheal Insufflation of Ether.*
5. Price, E. *On the Roentgen Ray and Bismuth Meal Method as an Aid in Diagnosis of Some Alimentary Diseases.*

2. In the second paper McNeil discusses the anaphylactic diathesis and the lymphatic diathesis, thyroid hyperplasia and status lymphaticus, and their relation one to the other. He describes status lymphaticus as "a condition in which anaphylactic phenomena occur not in the ordinary, but in an intensified degree." He believes that when fulminating cases of bacterial infections occur they are always accompanied by marks of status lymphaticus, and that these exaggerated types are examples of intensified anaphylaxis. Thyroid hyperplasia usually accompanies these conditions.

4. Thomson and Struthers describe in detail the technic of giving ether by intratracheal insufflation, with illustrative cases, and urges its further use as a safe and efficient method of anesthesia. [J. B. H.]

Deutsche Zeitschrift für Chirurgie.

Band 130. Heft 1-4. June and July, 1914.

1. Markuil, F. *Meningitis after Subcutaneous Injuries of the Skull and Vertebral Column.*
2. *Tichy, H. *Clinical and Experimental Contribution to the Operation for Mobile Kidney.*
3. *Schwers, H., and Wagner, A. *Primary Round-Celled Sarcoma of Both Kidneys in a Child.*
4. Stierlin, E. *Fibrous Osteitis in Congenital Defecture.*
5. *Guye, G. *Compression Fracture and Traumatic Softening of the Semilunar Bone.*
6. *Maisel, A. *Pulmonary Tuberculates Treated in 1911 and 1912 by Wilms's Pillar Resection.*
7. Pohl, W. *Incarceration of the Appendix.*
8. *Schmidseder, M. *Primary Pelvic Bone Sarcoma.*
9. Rost, F. *Experimental Investigations on Suppurative Parotitis.*
10. Schmitt, W. *The Operative Treatment of Dislocation of the Talus.*
11. *Wagner, A. *Ileus from Gall-stones.*
12. Troell, A. *The Knowledge of Abnormal Appendix Locations.*
13. Alberts, G. *A Contribution to the Operative Treatment of Acute Gastric Hemorrhages.*
14. Ingebrigtsen, R. *Incomplete Rotation of the Colon, Mobile Cecum, Ileus.*
15. Haehner. *Retrosternal Dislocation of the Clavicle.*

2. From König's surgical clinic at Marburg, Tichy reports a case and describes the technic of a new method of suspending a mobile kidney to the periosteum of the twelfth rib, and summarizes the literature on the subject in an alphabetic bibliography of 461 titles.

3. From Witzel's surgical clinic at Düsseldorf, the authors report, with eight excellent illustrative plates, a case of bilateral renal sarcoma in a girl of eight years, and collect from the literature an alphabetic bibliography of 32 titles on the subject.

5. From de Quervain's surgical clinic at Basel, Guye reports seven cases of compression fracture of the semilunar bone. He regards this condition as distinct from traumatic fracture; and believes it is preceded by central necrosis and softening of the bone from trophic disturbance due to occupation. He collects an alphabetic bibliography of 63 titles on the subject, but fails to mention the work of the late Professor Dwight, who pointed out that such fractures are probably often due to incomplete fusion of the epilunatum and hypolunatum.

6. As an experimental contribution on compression of tuberculous lungs by rubber balloons, Maisel reports 24 cases treated by Wilms's pillar method, which consists in the resection of two or three ribs, from tuberosity to angle, through an incision parallel with the vertebral column. He collects from the literature an alphabetic bibliography of 151 titles on the subject.

8. Schmidseder collects from the literature 178 cases of primary pelvic bone sarcoma, and to these adds a case of his personal observation. He also summarizes previous work on this subject in an alphabetic bibliography of 51 titles.

11. From Roth's surgical clinic at Lübeck, Wagner reports four cases of gall-stone ileus, and from the literature collects and tabulates 159 similar operated cases, 93 spontaneously cured and 82 dead without operation. He finds that the condition usually occurs in women in later life. The stones generally reach the intestine through a spontaneous cholecystduodenostomy, often symptomless. The locus is commonly in the ileum. The best treatment is early median hypogastric celiotomy. If the obstructing stone is facetted, others should be sought for in the intestine and gall-bladder. Since his work was completed six more cases have been reported, making a total of 240. [R. M. G.]

Obituary.

HASKET DERBY, M.D.

Dr. Hasket Derby, of Boston, died August 21, 1914, at the age of 79.

Dr. Derby was an ideal practitioner of medicine. Prompt, accurate, observing, acute and resourceful, he added to an unusual diagnostic

ability, a personality which inspired his patients with faith that they were under the care of a master of his profession; and that faith, as is not always the case, was fully justified.

His armamentarium was extraordinarily large. Always ready to try the latest method and promptly to accept it if it proved worthy, he never forgot the older therapeusis and had an almost uncanny knowledge as to which particular procedure, whether old or new, would produce the promptest relief in the case under consideration. As a consultant, to hear him sum up the symptoms and his findings made the listener wonder why he had even thought there was a doubt as to the diagnosis or that there should have been the slightest hesitation as to what course should be pursued in the conduct of the case.

As an operator he had good judgment and great technical skill. His operative practice was large and the power of his personality in the control of his patients was well shown by the fact that before the discovery of any local anesthetic for the eye, he invariably operated on cases of senile cataract without any anesthetic whatever. He adopted this procedure because he had convinced himself that the nausea and excitement of the recovery from an ether anesthesia were harmful when the eye had been so widely opened as in operation for the extraction of cataract. The cases which he was unable to control and to whom he was obliged to give ether were surprisingly few.

In his attendance as visiting ophthalmic surgeon at the Massachusetts Charitable Eye and Ear Infirmary, he was always prompt, arriving at the exact hour and minute appointed the day before, and naturally his house officers and the hospital attendants found him a strict disciplinarian, albeit always just and one who gave them full credit for their work if it was well done. His colleagues in the institution found him positive in his opinions in whatever he thought was for the advantage of the hospital. To his juniors he was kind and never missed an opportunity to forward their interests, either in the hospital or after they had left the hospital and were establishing themselves in their professional careers.

Dr. Derby was born in Boston, June 29, 1835, and was graduated from Amherst College in 1855 and from the Harvard Medical School in 1858. He served as house pupil in the Massachusetts General Hospital for one year. He then went abroad, where he spent four years in the study of ophthalmology under von Graefe, Helmholtz, Donders, and others of the brilliant group of distinguished men who at just that period were putting ophthamology on a scientific basis. Before his return home he had an army service in the latter part of the Civil War, and at the end of that period established himself in practice in Boston.

He was an active ophthalmic surgeon of the Massachusetts Charitable Eye and Ear Infirmary for twenty-five years. He founded the eye clinic at the Carney Hospital and for five years was the only attending ophthalmologist. He was for several years lecturer in ophthalmology at the Harvard Medical School. He was also a trustee of the Boston Public Library, of the Children's Institutions Department of the City of Boston. He organized the New England Ophthalmological Society and was one of its early presidents. He was one of the original members of the American Ophthalmological Society and was for five years its president. He was a Fellow of The Massachusetts Medical Society from 1862 until his death.

He was a forceful medical writer; the greater proportion of his articles may be found in the Transactions of the American Ophthalmological Society. He had a large practice and was accorded a national and international reputation as a man of learning and skill in his profession. He gave up practice several years ago, and has since lived in retirement at Mattapan, Dorchester. He will be remembered with admiration and gratitude by all who knew him, and especially by those who had the good fortune to be his assistants during his active career.

Dr. Derby is survived by his widow (Sarah Mason), and by a daughter and five sons, one of the latter being Dr. George S. Derby, who practises his father's specialty in Boston.

Miscellany.

A ROMAN OCULIST'S SEAL.

EARLY during the current year was reported the finding at Beaumont, in the Puy-de-Dôme, France, of a Roman oculist's seal. The following description of this interesting archeologic medical discovery is from an editorial in the issue of the *Lancet* for April 11, 1914.

"It bears an inscription in eight lines, half of which are the quadruple repetition of the owner's name, a new one in the category of Roman oculists. The text runs as follows: 'Aulus Uritius Hermodorus: Melinum Opobalsamum ad Aspritudines. Diasmyrnes lenementum Thurinum ad (Suppurationes). Crocodes ad Caligines.'' The name Hermodorus, or Hermodoros, suggests Greek nationality, genuine or assumed, for the oculist, and it is interesting to note that three of the collyria are merely Latin renderings of Greek titles, opobalsamum being *ὀποβάλσαμον*, diasmyrnes *διασμύρνης*, and crocodes *κροκώδης*. Opobalsamum, sometimes on these signets written opobalsamatum and diaopobalsamum, was balm; it is enumerated as a remedy upon these seals, and not heretofore as a cure for aspritudines or the palpebral granulations of ophthalmia. Here the word is qualified by the word melinum, which has appeared previously upon several of these signets and has given rise to some discussion. One explanation is that it refers to the yellow color of the rem-

edy. In fact, Galen says distinctly that the 'emplastra melina' were thus named because of their 'colour,' which may have been produced by oxide of copper. Sir James Y. Simpson was the first to discuss the precise meaning, or meanings, of melinum, when noting in his 'Archaeological Essays,' 1872, the discovery of an oculist's seal at Bath. This bore an inscription reading 'Chrysomelinum ad claritatem,' meaning obviously that the collyrium was of a golden yellow color. In another seal the balm is qualified as 'chloron' (χλωρός, green). Subsequently another seal discovered at Cirencester again brought the word into prominence; it read 'Melinum ad omnem dolorem.' Sir James Simpson cited several instances in which Galen uses the term 'melinum' as indicating the color of collyria, and proceeded to make up a specimen collyrium, using the ingredients prescribed by Galen to produce what he had termed 'collyrium melinum delicatum.' The result was a composition of yellow color. The same effect would also be arrived at by the collyria Galen terms 'melines,' which have saffron as an ingredient[1]. There is, however, good reason for thinking that in some cases the name 'melinum' had quite a different derivation and meaning. Pliny says when writing of alum: 'The best is that which is called melinum from the isle of Melos. It represses the granulations in the eyes (oculorum scabritias extenuat).' In another passage he states that the Melos alum is the most efficacious. It is true that up to the present no oculist seal yet recovered has certified melinum as a special remedy for scabrities, save the Cirencester seal with its inclusive recommendation 'ad omnem dolorem.' It is certain that Melos alum in classical times had a geographical title, that of melinum, just as we speak of gum arabic or cognac. Moreover, the connection of the Melian melinum with collyria viridea is distinctly confirmed by Dioscorides, who says of melinum, 'Emplastris viridibus efficaciteur inseritur.'' This agrees with both Andromachus and Galen, the first of whom gives 14 and the second 11 emplastra melina. A third possible derivation of melinum is μήλινος, 'pertaining to quinces.' Pliny refers to melinum (oleum) quince oil, and melinum (unguentum) quince ointment. Thurinum (sometimes Turinum) is derived from thus (sometimes tus), θύος, incense. This term was used occasionally for dialibanum, the Latin equivalent of διαλιβάνον. Many classic writers affirm its efficacy for ocular diseases. Floridus Macer relates its virtues in the following panegyric:—

"'Thus calidum siccumque gradu dixere secundo.
Lumina clarificat, lacrymo si solvitur ovi
Contritum vel femineo cum lacte tepenti.'

Many oculist seals speak of women's milk as entering into their collyria. The word following Thurinum is effaced, but was probably 'ad suppurationes.' A seal whereupon Turinum provides a cure for suppurations is that of an oculist, M. J. Satyros, which is in the British Museum. The final sentence, 'crocodes ad caligines,' refers to saffron, a medicament mentioned almost as frequently as myrrh upon these relics, and held to possess the property of improving obscure vision. A special kind of crocodes named 'crocodes of Mars,' was a bicarbonate of iron. Some of the crocodes specified by oculists on the seals are specified as crocodes Paccianum. The title was derived from the name of the famous Augustan physician, Paccius Antiochus. Curious details as to his attainments and career are to be found in Scribonius Largus (De Compo. Med., c. xiii). So great was his reputation that both medical men (including Galen) and quacks applied the term paccianum to their various special preparations. Diasmyrnes, or myrrh, is the most favorite remedy mentioned upon relics of this kind. Galen and Scribonius Largus give many collyria containing myrrh. The best specimens came from Arabia and Syria, probably, as the name suggests, from Smyrna. It was an article of commerce, the price of which could be artificially raised by cornering it, and was therefore included in Diocletian's great edict, 'De pretiis rerum venalium,' which fixed a maximum price for articles of public necessity. The occurrence of this ingredient upon the oculist stamps was fully treated of in *The Lancet* of August 10, 1907. Lenementum (or lenimentum) implied a soothing remedy. Ancient medical authors applied the term 'lene' to many remedies. Aetius says: 'Leniora medicamenta semper sunt inflammatis partibus accommodatiora; verum debiliora quam ut, depulsa inflammatione, ad perfectam sanitatem perducere queant.''

[1] Galen specially mentions three melina—M. Atarachum, M. Lucii, and M. Delicatum.

LEPROSY IN THE MIDDLE AGES.

One of the most copious works ever written on the history of leprosy is that by the late Zambaco Pacha, published in Paris early this year. A writer in *Le Progrès Médical*, quoted in the issue of the *British Medical Journal* for March 7, 1914, has founded on this work an account of the way in which leprosy was dealt with in medieval France.

"According to Guy de Chauliac any one under suspicion of being a leper had to have his blood tested with salt, vinegar, and the urine of a young man. If he was declared to be healthy, the priest publicly pronounced absolution in church. If the case was doubtful, the suspect had to submit to twenty-two examinations. When a person was adjudged to be a leper the civil authorities informed the parish priest and the sentence of isolation was pronounced.

"The church was hung with black; imitations of the tombs of lepers formerly expelled from society were put up; and there, before the public who were present, though keeping at a distance, the leper, conducted by the keeper of the leper house, escorted by his relations and friends and placed in front of the choir, heard the mass for the dead said for him. After this, stretched on a litter of ropes, he was covered with a shroud and carried to the cemetery, where a yawning grave had been dug for him. The priest threw earth on the head of the leper, after which he was taken to the leper house and admitted there in due form.

"In towns where there was no large leper house the ritual was not so solemn. The leper was taken to his hut and then exhorted to live virtuously. The following written instructions were left with him:—

"'As long as you are ill, you will go into no house but your hut. You will not sleep out, you will not go into a mill, you will not look into a fountain or a well, and you will eat only by yourself. You will go into no dwelling, you will not go into a church. When you speak to a person you will place yourself to leeward of him. You will sound your rattle when you ask for alms. You will not wander far from your dwelling unless you are clad in your leper's blouse which will be of uncolored coarse stuff, in order that you may be recognized. You will drink at no stream, but only at your own barrel with your dish. You will not get water at other wells or fountain than your own. You will not touch the rope of a well without gloves. You will not touch anything which you are buying until it is yours. You will wear your gloves and will touch nothing with the bare hand. You will not walk outside nor sleep at night outside your dwelling without the leave of your parish priest and of the official. You will not have connexion with any women other than your own wife. You will not touch children nor give them anything. I forbid you to eat and drink in company except with lepers.'

"Then the priest blessed the furniture and the utensils of the leper,—barrel, funnel, dish, bedclothes, basin, pot. In front of the hut he planted a wooden cross with a box to receive the alms of the passers-by. The priest put in his own offering first, and the people followed his example. The leper henceforth was an outcast from the world. He was civilly dead; he could neither make a contract, nor inherit, nor make a will. He could contract marriage only with a woman who was willing to marry him knowing him to be what he was. Lepers had the beard and the hair of the head shaved, and carried on the shoulder a red badge, a goose's foot or a hand. Some cultivated the garden of the leper house. Others went begging for the community. They nursed each other. Those who had means took a servant, who according to the regulations had to be of such an age that there was no chance of her conceiving."

ASSISTANT SURGEON.

TREASURY DEPARTMENT.

UNITED STATES PUBLIC HEALTH SERVICE.

Board of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 B Street, S.E., Washington, D. C., and at the Marine Hospitals of Boston, Mass.; Stapleton, N. Y.; Chicago, Ill.; St. Louis, Mo.; New Orleans, La., and San Francisco, Cal., on Monday, October 19, 1914, at 10 o'clock a. m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service, when applications for examination at these stations are received in the Bureau.

Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Service in hospitals for the insane or experience in the detection of mental disease will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two years' professional work.

In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate and that they will serve wherever assigned to duty. The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists of examination in the various branches of medicine, surgery, and hygiene.

The oral examination includes subjects of preliminary education, history, literature, and natural sciences. The clinical examination is conducted at a hospital. The examination usually covers a period of about ten days.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order. They will receive early appointments. After four years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon.

For invitation to appear before the board of examiners, address "Surgeon General, Public Health Service, Washington, D. C."

RECENT DEATHS.

DR. JAMES HENRY SANDERSON, of Worcester, died in that city from pneumonia, August 28, aged 47 years. He was a graduate of Columbia University, College of Physicians and Surgeons in 1890, and was an interne in Bellevue Hospital in New York. He is survived by a brother and a sister.

DR. DUDLEY LEAVITT, of West Stockbridge, Mass., who died in Pittsfield, Mass., on Aug. 23, was born at West Stockbridge in 1864, the only son of Dr. William W. Leavitt, of Pittsfield, a retired Fellow of The Massachusetts Medical Society and for many years a practising physician in Pittsfield. He was a graduate of Yale, and in 1890 received the degree of M.D. from the College of Physicians and Surgeons of Columbia University. He is survived by his widow, a son, and a daughter.

APPOINTMENTS.

INDIANA UNIVERSITY MEDICAL COLLEGE.—*Dr. Virgil H. Moon*, of the Memorial Institute for Infectious Diseases, Chicago, has been appointed head of the pathology department.

UNIVERSITY OF CALIFORNIA.—*Dr. H. T. Summersnill*, superintendent of the New Haven (Conn.) Hospital, has been appointed superintendent of the University Hospital in San Francisco.

BOOKS AND PAMPHLETS RECEIVED.

Manual of the Diseases of the Eye, by Charles H. May, M.D. William Wood & Co. 1914.

Collected Papers from The Research Laboratory. Parke, Davis & Co., Detroit, Mich. Reprints. Volume 2. 1914.

Massachusetts Medical Society

Meeting of June 10, 1914.

SYMPOSIUM ON SYPHILIS, WITH ESPECIAL REFERENCE TO ITS IMPORTANCE IN MASSACHUSETTS.

I. Syphilis in Massachusetts. By Abner Post, M.D., Boston.
II. Syphilis of the Eye in Hereditary Syphilis. By George S. Derby, M.D., Boston.
III. Vascular and Cardiac Syphilis. By George G. Sears, M.D., Boston.
IV. Primary Syphilis of the Tonsil. By C. Morton Smith, M.D., Boston.
V. Syphilis of the Lung. By E. A. Burnham, M.D., Boston.
VI. The Relation of Syphilis to Internal Medicine. By David L. Edsall, M.D., Boston.
VII. What the City Should Do to Control Syphilis. By Thomas B. Shea, M.D., Boston.

I.

Syphilis in Massachusetts.

By Abner Post, M.D., Boston.

Recent scientific studies have brought the subject of syphilis very prominently before the attention of the medical public. Magazine articles, popular lectures, and eugenic studies discuss the subject for the general public. Social reformers talk glibly of phases of the disease which have baffled the research of clinician and scientist. It has been deemed a proper subject for consideration by this body, and it has fallen to my lot to say something on syphilis as it affects our own state.

It is possible to overestimate the amount of syphilis in the community. This is especially easy to those who insist upon classing syphilis with other diseases under the name of venereal and enumerating all together.

It is also very easy to under-rate the disease and refuse to see it, because it does not conform to our preconceived ideas.

The tendency in the past has been to ignore and undervalue it. It has been taught that it is a disease of other countries and of cities. That was once true, but the conditions of other countries have been imported to this, and the increasing ease of travel is fast amalgamating city and country.

It has been said that it comes only to those who seek it, but this is very far from the truth.

The title "Syphilis in Massachusetts" might lead one to expect the result of a census, but no census exists.

This paper is intended to answer such questions as:

"What does syphilis mean to us in this state?"

"Is it of any importance?"

"Is there any reason why we should pay any attention to it, and if so, what?"

We can only estimate the amount of syphilis in the community by references in reports of various State institutions, and question its gravity in sources that are more interested in other directions. One of the very great difficulties in estimating the amount of syphilis in a community lies in the fact that syphilis and gonorrhea are so generally classed together, under the one head of venereal disease.

Whatever may be the case from the standpoint of the moralist, from the view of the pathologist, syphilis is a very distinct entity. Its relation to the public health, deserves study as a separate disease. Its distinctive microbe, its different beginning, its curious tendency to lie dormant or at least without outward manifestations, its occasional serious attacks on internal organs, its appearance in the offspring of a certain number of patients in fatal or disabling forms while it shows no effect in others, form a pathological entity that merits study as a distinctive disease, even if it is largely discriminated by unchastity. In other words, it is very much more than a venereal disease.

In every department of state industry or charity, this disease is a source of constant inquiry. In no one bureau can the questions be answered as to the exact amount or even the approximate amount of syphilis dealt with by that particular department.

It may be said that it is reported as most abundant in those departments which have learned to recognize it. Some years ago, the remark was made by a Massachusetts man that tuberculosis of the genito-urinary organs was rare in Massachusetts, and he was answered that it was apparently so, because Massachusetts doctors failed to recognize it; and time has shown the truth of that remark.

The largest number of state institutions under any one head, come under the control of the insanity board.

If I read the report of the insanity board correctly, the general average of cases of insanity of syphilitic origin amount to 6¼ per cent. (6.28), (while the cases of unknown origin in insane hospitals, amount to 32 per cent). But the number in different localities varies very largely—at Worcester, the proportion of syphilities is said to be 6.25; at Danvers, it is called one of the principal causes of insanity; at the mental wards of the State Infirmary, it is given as 23.21 per cent.

The introduction of the Wassermann examination of the blood, gives a better means of testing the presence of syphilis than any we have hitherto possessed. The following extract from the annual report of the Psychopathic Hospital will give some idea of the percentage of syphilis as

found by the authorities of that institution, by the use of the Wassermann serodiagnosis.

In the report referred to we read:

"The value of routine Wassermann examinations of the blood serum, to establish the question of previous syphilitic infection, has been convincingly proved to every one associated with the clinic, and it seems unquestionable that all the insane hospitals of the state must get the benefit of routine Wassermann examinations if they are to single out the great number of mental diseases produced or modified by syphilis.

Doubtless the percentage of syphilis demonstrable in asylum material may rarely run over 10 per cent., but the acute material of the active hospitals may yield a percentage somewhere between 20 and 30 under the present conditions of society. Certain leads in therapy are thereby indicated.

More than ordinary attention is given to routine examination of the blood and of the urine, and special attention is given to the examination, by a variety of methods, of the cerebro-spinal fluid in cases where blood serum has proved by the Wassermann method a pre-existent syphilis."

In regard to the Wassermann reaction as a test of the presence of syphilis, it must be remembered that no one has ever claimed for the Wassermann reaction that it detected all the cases of syphilis, so that even the highest number reported with the Wassermann as a guide, is short of the absolute total. It must be appreciated that the failure to get a positive reaction, does not positively rule out syphilis.

The manner in which syphilis is developing as a cause of disease in internal organs, in form hitherto regarded as too infrequent to deserve consideration, is very striking. Syphilis of the stomach is a subject of investigation and the knowledge of its appearance as studied by the x-ray has advanced sufficiently to allow of its recognition at our hospitals. Certain cases of supposed tuberculosis, in our tuberculosis hospitals, in which the tubercle bacilli have never been discovered, are now recognized as syphilitic. Syphilis of the heart and great vessels is by no means uncommon. Of cases of sudden death from natural causes which came to autopsy in the Northern District of Suffolk County, during the last three years, 21 or 5 per cent. were due to syphilis. One was a gumma of the brain, 20 were due to endarteritis with aneurysm or stenosis of the coronary arteries. The examiner for the South District lays the same weight upon syphilis of the vascular system, especially of the aorta, as a cause of sudden death. These findings of the medical examiners are in accord with the findings of our insurance medical directors. That these forms of disease are recognized clinically in the state will be shown later this morning by other readers.

Hereditary syphilis has never received among us the attention it deserves. The reason is not far to seek—it has been pictured as largely fatal very early in infant life and as presenting a characteristic appearance, easily recognized, in those who survive. This characteristic appearance is found in a comparatively small number—others there are in whom the diagnosis is one of the most difficult of medical problems. During childhood, early or late, there may occur a series of symptoms too poorly defined to prove diagnostic. These children apply at separate clinics for ailments of the eye, ear, nose, throat, joints or nervous troubles. It is only by putting together all these symptoms, by studying the family, and making use of serological tests that one finally arrives at the truth. These children may be very greatly helped when their disease is recognized.

Such children are occasionally the source of very great annoyance, of legal action and of perversion of the medical truths. Their various lesions are attributed to violence and innocent people are accused of causing them. A comrade is accused of causing disease of the bones, by a kick; a teacher is accused of boxing a boy's ears and causing disease really due to an antecedent hereditary syphilis. Some of these children are believed, by their credulous relatives to owe all their ailments to vaccination.

At the children's hospitals, the bone and joint diseases of hereditary syphilis are with difficulty distinguished from tuberculosis and sometimes from various forms of osteomyelitis.

These children are present in the institutions for the feeble-minded and the epileptic—in how great proportion it is impossible to tell. It is very difficult to recognize any very great number in these institutions as syphilitic, but when we consider the mental status of known syphilitic children, the mental and nervous affections seem more numerous.

Heart disease in hereditary syphilis as well as in the acquired, is shown to be frequent and probably due to the constitutional disease.

The eye affections among these children are comparatively frequent. Mr. Greene, the field agent for the Commission for the Blind, remarked in a recent communication, "Interstitial Keratitis" apparently causes fully half as much practical blindness as ophthalmia neonatorum and many more cases of seriously defective eye sight."

Of the deaf and dumb children of the state, no very serious attempt has been made to determine the effect of syphilis. Some of the children are evidently syphilitic—a very cursory study of their personal and family records justifies the statement that possibly one-sixth of the total number of deaf and dumb children now being educated in the state, owe their defect to an antecedent syphilis.

There is very serious difficulty in the recognition and treatment of syphilis in hospitals, especially in the smaller hospitals of the commonwealth. There is constant difficulty in reconcil-

ing the rule that venereal diseases shall not be admitted, and the impossibility of excluding their after-effects.

The same or a similiar difficulty is found in many hospitals as regards the danger from these patients—which of them are infectious and which are not, is a matter of great uncertainty to the management.

The disease has not been taught as it ought to be. In many of the smaller medical schools, it is difficult to find in their catalogues any evidence that it is taught at all. And when it is taught, emphasis is laid upon its venereal character rather than its characteristics as a chronic and constitutional disease. So even with the most honest institutions on the part of the practitioner it passes unrecognized.

One of the most interesting manifestations of the presence of syphilis in our midst, occurs in connection with the claims for compensation for occupational injuries before the accident board. Whether the syphilis of the employee was alone responsible for the accident, or whether it was a contributary cause—whether the injury contributed to bring into activity a hitherto latent syphilis, are questions which present themselves in wonderful variations—questions which are often incapable of exact solution, and the different opinions of doctors consulted render the solution still more difficult.

Perhaps in no part of the state machinery is the need of more accurate knowledge of this baffling disease more manifest. It is encouraging to note a disposition on the part of this board to thoroughly investigate these cases, and it bids fair to give a distinct impetus to the study of syphilis by our profession and by the general public.

At the State Industrial School for Girls, 50 per cent. have either syphilis or gonorrhea—such was the statement of Mr. Carl Dreyfus a year ago, speaking as one of the trustees of the institution. Unfortunately, for present purposes, such a statement makes it impossible to distinguish between these two diseases. We seem to be justified in assuming that the syphilis was no insignificant part and the particular gravity of the situation lies in the fact that these girls, before being committed by the court, have attended schools or been employed in house-work or as nurse girls—thus coming in contact with the healthier part of the community.

The commission appointed to investigate the white slave traffic in Massachusetts, pointed out the fact that the great majority of prostitutes were the victims of syphilis or gonorrhea or both. The commission started an investigation into the sources of syphilis, occurring in the practice of physicians in the state. This investigation was abandoned as beyond the scope of the commission, but the few figures they gathered, I am permitted to state, indicated, so far as they went, that a large number of the inoculations of syphilis come from other sources than professional prostitutes.

Scanty as these returns are, they allow the inference that the control of prostitution must always fail to control the spread of syphilis. Syphilis is far too widely spread.

In considering these few available figures upon syphilis, it must be remembered that we are dealing with a disease which is purposely hidden, which is never mentioned by name if it is possible to find a synonym or a name of a symptom which may be made a cloak.

In a table of thirty families recently published by the reader, thirty children recognized as syphilitic (usually the first surviving child in the family after a series of fatalities) had been preceded by the death of 86 children at an early age, all or most of whom have died more or less directly from syphilis. In these 86 deaths, syphilis is returned as the cause of death in only two cases.

Its wide-spread distribution through all the different institutions of the state, points to a much larger number of actual cases than are represented by any available figures.

An actual census of cases is hardly at present, to be hoped for, but means of gaining better knowledge is certainly within our reach.

This paper has shown us that it is very widely scattered—that it is a serious menace to public health—that it deserves our serious attention.

It is proper to add that it ought not longer to be allowed to spread, without some attempt to check it. We have the means of controlling it very largely and we are not using as we should these means.

II.

Syphilis of the Eye in Hereditary Syphilis.

By George S. Derby, M.D., Boston.

In hereditary syphilis we may have many diverse affections of eyeball and its accessories, keratitis, iritis, cyclitis, choroiditis, retinitis and optic neuritis, together with various paralyses of the extra- and intraocular musculature. The limited time at my disposal, however, I propose to devote entirely to the commonest and most significant pathological process that affects the eye, and which is known as interstitial keratitis (also called parenchymatous keratitis by the German-speaking people), one of Hutchinson's famous triad of signs.

Interstitial keratitis begins out of a clear sky by the patient complaining of photophobia and lacrimation of one eye. If we make an examination, we will see a more or less diffuse injection of the blood vessels around the corneal border, and usually in one spot there is a deep clouding of the cornea, which on magnification is found to be made up of fine gray and gray-white dots, flecks and lines of varying size and appearance. This opacity advances slowly, usually spreading

across the cornea, although other forms are occasionally observed.

A well developed case of insterstitial keratitis shows a gray or gray-white cornea with a dull stippled surface, the characteristic ground glass appearance. The opacity may often be so dense that the iris and pupil are not at all, or hardly to be seen.

With the beginning of the opacity, or somewhat later, a development of vessels in the affected cornea takes place, which may be so intense as to give a marked salmon pink color to the affected tissue (so-called salmon patch), or so slight as hardly to be detected.

The stage of progression, accompanied according to its severity with a varying degree of watering, photophobia, pain, and the like, may last in mild cases only a couple of weeks, in the more severe cases three to four weeks, and in the very severe two months or even longer. Finally it arrives at its maximum, and then gradually begins to decline. According to the severity of the inflammation goes the involvement of the neighboring structures of the eye. Iritis, irido-cyclitis and chorio-retinitis may involve the eye, even to the point of total and irrecoverable blindness; or the process may be so mild that it is limited entirely to the cornea.

As the inflammation declines, the corneal opacity slowly begins to clear, starting most often in the periphery where the clearing is most complete, and reaching last the corneal center, where some opacity is generally left behind.

Years after the healing of a well-marked interstitial keratitis, although no corneal opacity may apparently be visible, a careful examination with the ophthalmoscope will usually show the faint network of a previous corneal vascularization.

At the height of the disease the vision is always more or less affected, and may be reduced to perception of movements of the hand.

Both eyes are commonly affected, the second generally before the first has cleared. The average interval may be put at six to eight weeks, but wide variations occur. The whole course of the disease takes weeks and months, even up to a year or eighteen months.

In general, it may be said the younger the individual the milder the course of the disease.

One or more recurrences may take place in a percentage of cases variously estimated at from 14 to 22. These may occur in three or four months, and usually between two and ten years after the previous attack has healed, rarely later the longest interval to my knowledge being thirty-eight years.

Interstitial keratitis does not belong to the commoner of eye diseases, and yet it is certainly not rare. About 90 cases during the twelve months are seen at the Massachusetts Charitable Eye and Ear Infirmary, a clinic of approximately 20,000 new eye cases a year. More general statistics, however, show an average of about one case in every 180. We should remember, however, that in our eye clinics somewhere around one-half of our patients come to the hospital for refraction of the eye, and therefore these cases should be excluded in computing the percentage of disease.

How much damage is done to eyesight by this disease?

I may answer this question specifically by quoting some observations made by Igersheimer on 152 eyes which had undergone interstitial keratitis. Seven of these regained full sight, 27 had 5-10 of normal sight or over, 56 had sight varying between 2- and 3-10. Thus, about 60% of these 152 eyes had sight of considerable practical value.

Of the remainder, 34 could see enough to do coarse work, 23 could get around with difficulty, 5 were blind, 40% were fitted only for the coarsest work or were disabled entirely.

There is a certain amount of relationship between the sight of the two eyes. It was found that, where the disease had been severe enough to reduce the sight of one eye to less than 2-10 of normal, the other eye averaged about the same, was seldom much better, and sometimes worse.

In 71 cases, the earning capacity of 28 was unchanged, while 43 suffered a greater or less diminution.

It should be remembered, also, that subsequent to the disappearance of the disease we have an eye less able to stand the strain imposed on it by modern conditions. The sight is usually more or less diminished by the corneal scars or by the changes produced back of the cornea. In order to see more clearly, the child brings the book closer to the eyes than is normal, and we have an ideal condition present for the development of a myopia, which often reaches high grade.

Many of these children, therefore, must be limited in the use of their eyes, and consequently they are unable to obtain the education that would otherwise have been at their disposal.

I can call to mind a child of parents of moderate means, who, at the age of five developed a well marked interstitial keratitis first in one eye and then in the other. Her sight was reduced in the right eye to 4-10 of normal, in the left to 1-10. Subsequent to the disappearance of the original attack and one recurrence, myopia developed so rapidly that schooling soon had to be largely curtailed; and now at the age of 14 she is entirely dependent for her education on the eyes of others, and will never be able to use her eyes except with the greatest caution.

Interstitial keratitis affects the two sexes equally, and occurs most often in the ages between 5 and 20, occasionally earlier, not infrequently in the third decade, and rarely after 35 years of age. In general, it may be said the younger the patient the more benign is the course of the disease, but that is by no means invariably the case. I can recall from my own

experience several children under ten years of age practically blind as the result of the severe type of the disease which they had suffered from.

Diagnosis. Although my title limits me to diseases of the eye due to hereditary syphilis, a word in regard to interstitial keratitis in general may not be out of place.

Any non-suppurative inflammation which attacks the deeper layers of the cornea may be termed an interstitial or parenchymatous keratitis, and there are a number of diseases which can produce such a process in the cornea. By custom, however, the term has come to designate a process of a certain type, usually easily to be recognized; and it is stated that 70 to 90% of these cases are due to hereditary syphilis, while the remainder are caused by other diseases, chiefly tuberculosis.

I believe that classical interstitial keratitis is always syphilitic in origin, usually on an hereditary basis.

There are, however, a certain number of cases of somewhat atypical appearance where the diagnosis cannot be made on the clinical appearance of the cornea alone without a period of observation. In such cases, the finding of other signs of the disease will at once make the diagnosis reasonably certain.

The point I wish to bring out is this: the diagnosis of interstitial keratitis means now, in the vast majority of cases, a particular ocular inflammation of syphilitic origin. I believe the term should be limited strictly to such a meaning.

Igersheimer, who has devoted much time to this disease, and whose experience covers several hundred cases carefully studied, states that in at least 90 to 95% of primary, untreated interstitial keratitis other signs of syphilitic disease are to be obtained.

On the other hand, it is stated by others that in 40 to 50% of these cases no trace of syphilis can be found. This latter statement was written, however, before the general adoption of the Wassermann test. The truth lies between the two.

The majority of cases show other signs of syphilis; a large majority give a positive Wassermann reaction. It is probably true that the younger the patient the more likely is the Wassermann to be positive. It should be strongly affirmed that a negative test, especially in patients over ten years of age, does not exclude syphilis.

Igersheimer cites, in this relation, an 18-year-old girl with interstitial keratitis at the age of ten years, who at the age of 17 showed a negative Wassermann. At 18 she appeared with a recurrence of the corneal disease, and the Wassermann had become positive.

I believe Dr. Post will bear me out when I state that in a certain small, but definite, percentage of cases the ocular process represents at that period of the patient's life the only demonstrable evidence of his hereditary disease.

The manner of production of hereditary, luetic keratitis is still shrouded in mystery, and pages could be written on the various theories which have been advanced to explain it. Certain facts are of exceeding interest.

The natural assumption would be that it is a direct infection of the cornea by the spirocheta pallida. This view is supported by the fact that interstitial keratitis of a somewhat atypical variety may affect the fetus in the uterus and also infants soon after birth. In two such cases spirochetae have been found in the diseased cornea.

The injection of syphilitic material has caused interstitial keratitis of a sort in animals. From a ten year old boy with interstitial keratitis Igersheimer was able to demonstrate in a piece of excised corneal tissue a single spirocheta.

Interstitial keratitis is rare in nursing infants, but the spirocheta has often been found in their corneae, and apparently may exist harmlessly there for a considerable time.

In 14 cases of interstitial keratitis Clausen excised pieces of the cornea and was unable to find the organism in any.

Were interstitial keratitis due to direct spirochetal infection, a marked action on the course of the disease would be expected from anti-syphilitic treatment, and this is not the case. Interstitial keratitis is thus laid to disturbance of nutrition of the cornea, to the action of syphilitic toxins, to anaphylaxis, and various other modes of production. The exact mechanism of its production is still uncertain.

Treatment. About the local treatment of interstitial keratitis little need be said. Briefly, it consists in hot applications to the eye, the use of a mydriatic to dilate and to keep the pupil dilated, and the proper shading of the eyes from light. To dilate the pupil and to keep it dilated is of paramount importance and sometimes of the greatest difficulty.

The general treatment of this disease appears to be discouraging, in that little immediate and local benefit from the use of any anti-syphilitic remedy is to be found. Mercury, iodide and salvarsan are all powerless to improve, to any noticeable extent, the condition of the eye. Much was expected of salvarsan, and certain writers report success with it, but general opinion does not bear this out. The disappointing effect, or rather, lack of effect, of remedies on the local process has led many specialists into the mistaken course of omitting general treatment in these cases, or of simply ordering a little iodide in addition to the local measures.

We specialists are apt to become absorbed in our one little corner of medicine, and to fail to realize the broad aspects which many of our patients present.

Interstitial keratitis is one sign of a serious general disease. The treatment of the local

process is but one half of our duty to the patient. It is universally recognized that hereditary syphilis should be treated over a long period. The ocular process is healed long before the general one. Once the need for the skilled services of the eye specialist is over, the child will no longer be brought to the eye clinic and the treatment of the general disease is likely to be cut short.

My thesis is this: Very frequently the ophthalmologist is the first to see these patients. After he has prescribed the appropriate local treatment, he should provide for proper general care that will keep the patient under observation and treatment for years, if necessary, and most important, the parents of the case must be educated to a knowledge of the significance of the disease.

At the Massachusetts Charitable Eye and Ear Infirmary, up to three years ago, the treatment of interstitial keratitis was most unsatisfactory. We were awakening to the fact that we were not doing our duty to a class of patients that certainly deserved our best efforts. We then, through our Social Service, began to place these patients for general treatment in the hands of Dr. Post and Dr. Smith at the Boston Dispensary, and this solution of the problem has been so satisfactory that it has been more and more followed. In 1912 somewhat over 25% of the interstitial keratitis cases were given this treatment, while in 1913 some 66% were so handled.

This experiment has been of benefit not only to the patients themselves, but to the writer and others who have followed these cases. Certain results, I believe, have been achieved by observation of these patients.

The corneal disease is to a slight extent favorably affected. An interstitial keratitis under general anti-syphilitic treatment gets well somewhat sooner than the untreated case. The general condition of the patient is very much improved. The long period of observation makes this evident, whereas it was lacking in the former shorter period.

As to the prevention of the later accompanying lesions of hereditary syphilis, the lesions of the bones, nerves and joints, only observation on many cases over a long period of time will show.

Another point should also be impressed on the specialist. A case of interstitial keratitis is a guide post to a syphilitic focus in the community. Seek out the family and see that all who need treatment are put in the way of getting it. Possibly, a certain number of cases of interstitial keratitis and late lesions of hereditary syphilis may be prevented by improved methods for the discovery of syphilis in children, and early discovery means early treatment.

III.

Vascular and Cardiac Syphilis.

By George G. Sears, M.D., Boston.

Syphilis, or a synonym, as a name for certain clinical phenomena, has passed its fourth centennial, but syphilis, the disease, its nature and significance, is of comparatively recent discovery, and some of the most important chapters in its history have been written in the past ten years. The proof that it could be transmitted to other animals than man, the finding of its specific organism and a specific blood reaction in its victims, have so stimulated the interest of the profession and made the diagnosis of previous infection in many cases so easy that it would seem almost time to sound a warning that there are other causes for degenerative changes than a pre-existing syphilis. This appears to be particularly true of the special portion of the subject which has been assigned to me this morning.

An understanding of the clinical manifestations of syphilis of the circulatory organs is so dependent on a clear conception of the pathological changes induced by the disease, that a very brief description of the latter may not be out of place. In order to give this the weight of authority, I shall quote freely from Dr. Mallory's recent work on "The Principles of Pathological Histology" without permitting the interruption which the use of quotation marks entails.

Of all organs in the body, from the standpoint of syphilitic infection, the blood vessels are the most important from their wide distribution and their relation to all other specific lesions. The treponemata find their way into the vessels more often through the adventitia than the intima, but both locations are frequently affected at the same time. The media may thus be involved from either or both sides. The intima at one point, or in its whole circumference, may thicken and cause narrowing or complete occlusion of the lumen. The lesion thus produced represents an inflammatory reaction to a mild form of injury. The clinical manifestations depend on the character of the vessel involved, its size, the extent of its involvement, and also on the vascular coat which is most affected. Complete obliteration of the lumen leads to necrosis and the formation of a gumma.

In the veins, if the adventitia bear the brunt of the infection, a periphlebitis results, which often presents a definite clinical picture; but the scanty literature on the subject seems to show that this is more often overlooked than diagnosed. In the cases which have come under my own observation, the arms have been affected quite as often as the legs, but unless checked by treatment, the process may wander from one vein to another until all four extremities may

be involved, and it may even extend to some of the veins of the trunk. The larger vessels feel thickened, hard and beaded, the smaller have the feeling of stiff cords beneath the skin. If superficial, some redness may appear, in the earlier stages, along the course of the veins, which later become blue or purplish in color. Tenderness and pain are common symptoms, and are partly due to the inflamed condition of the vessel walls, and partly to an involvement of the accompanying nerves. The coincident neuritis, in some cases, is responsible for the occurrence of certain sensory disturbances like impaired sensation, or a feeling of numbness or of "pins and needles," which may be so prominent as to mask the underlying condition, and lead to a diagnosis of neuritis. As the lumen of the vessel remains pervious, except possibly in the smaller branches, which may become occluded by the swelling of their walls, edema is absent or present only in a mild degree. Occasionally small reddened nodes appear along the course of the veins, due to the formation of gummata, which resemble somewhat erythema nodosum. In a most striking case of this description, seen a year or two ago, such a diagnosis had been made by the attending physician, and his suspicions were aroused only by the long persistence of the condition. These nodes were present in the forearms and lower portions of the legs. The thickened vessel could be felt either above or below or on both sides of the lesion. Their rapid disappearance under antiluetic treatment cleared the diagnosis.

Specific inflammation of the inner coat of the veins produces the clinical phenomena of a thrombo-phlebitis with all its dangers, but in the cases which I have seen, the pain has usually been less intense and the febrile reaction less marked than in those due to other infections. This form also appears to have a special tendency to wander along the course of the veins and from one branch to another until its nature is recognized and appropriate treatment given.

Syphilitic disease of the arteries may manifest itself by a general arterio-sclerosis, suspicion of its specific nature being more actively aroused the more prematurely it is manifested in the life of the patient. The clinical phenomena are those which are common to the condition, whatever its origin. Of the local lesions special interest attaches to the infection of the aorta from the relationship which it bears to aortic aneurysm. The process may start in the intima or adventitia, most commonly in the former, and it certainly, as a rule, extends to the media, but the attempt to make the presence of a mesaortitis a pathognomonic sign of syphilis has failed. The arch is the portion most commonly involved. The earliest stages necessarily escape detection, but as the disease progresses, the patient may complain of substernal pressure or pain, anginal attacks, breathlessness, etc., but it is difficult to say that such symptoms are due solely to the aortic inflammation, and not in part, at least, to a coincident affection of the heart or its vessels. A broadening of the arch may at times be made out by percussion, but an x-ray examination is often an important aid to diagnosis. Apart from this more general involvement, an acute gummatous endarteritis of a vessel of the arch may lead to perforation of the aorta and sudden death, but the logical result of a specific aortitis is a gradual weakening of the walls and the development of an aneurysm which is now generally recognized as due, in a great majority of cases, if not in all, to lues.

Endocarditis, due to the treponema pallidum, resembles more closely toxic endocarditis than the common forms due to infection. The spirochaetes do not, like bacteria, grow in masses on the surfaces of the valves, but infiltrate the subendothelial connective tissue and produce a slow chronic type of inflammatory reaction with deformity and retraction. Its most common manifestation clinically is in aortic regurgitation, which is more often due to syphilis than to all other causes combined, though to say that 90% of such cases are of specific origin is possibly an exaggeration. The mitral valve may also be infected, at times as an extension downward of the process in the aortic, at times as an independent focus, but such statistical evidence as I have been able to gather, points to some infection other than syphilis, or at least suggests great reserve in diagnosis where the mitral valve alone is involved, and also even when it is combined with an aortic lesion. This is particularly true of cases of mitral stenosis. A murmur due to mitral regurgitation from relative incompetence may, of course, appear in all cases of aortic regurgitation, whatever its origin.

Though the treponemata are often found disseminated through the myocardium in congenital cases, they occur there very infrequently in the acquired form, and except for some broadening of the connective tissue septa, the direct injury produced is not evident, myocardial syphilis being essentially syphilis of its blood vessels. The effect produced depends on the size of the vessel attacked, the extent of the lesion and its locality. An obliterating endarteritis of the smaller branches of the coronary arteries leads to necrosis and the formation of a gumma, which in its evolution produces fibrous myocarditis, which, if extensive enough, may go on to cardiac aneurysm. Gummata particularly affect the septum between the auricles and ventricles. From their position they may interfere with the conductivity of the muscular fibres and disturb the mechanism regulating the heart beat. A tiny gumma in the bundle of His is often the cause of heart block. Invasion of the coronary arteries themselves or of their larger branches, either as a localized or more general process, may interfere with the nutrition of the myocardium and produce a chain of symptoms due to myocardial weakness, or provoke attacks of angina pectoris which are often the most striking clinical manifestations of coronary syphilis, and may

occur even when the branch attacked is no greater than that of the third grade. Cases of angina which originate under the age of forty-five are strongly suggestive of syphilis.

The diagnosis of specific cardiac disease is largely presumptive. A previous history of lues, the presence of a Wassermann reaction, or of symptoms of some nervous affection recognized as specific in origin, demands careful consideration of the possible influence of the disease in producing the cardiac symptoms of which the patient complains, but their absence does not exclude syphilis. An antecedent specific infection gives no protection against other causes of cardiac disease, but diagnosis becomes easier if other causes can be excluded.

The interval of time between infection and the beginning of symptoms may help, for, excepting the signs of cardiac disturbance which may appear during the secondary stage analogous to those occurring in other infections, they come on with extreme rarity inside of three years, and the interval is usually much longer. Premature arterio-sclerosis, not otherwise accounted for, or attacks of angina pectoris coming on before the age of 45, point strongly to a specific origin, but syphilitic angina may come on at any age. One of the most satisfactory cases of the latter which I have had occasion to treat, occurred in a man well over 70 who had innocently acquired the disease seven or eight years before. Heart block is so frequently due to the disease that one's suspicions should always be aroused. In aortic regurgitation the weight of evidence favors the presence of syphilis.

No symptoms of syphilitic cardiac disease are pathognomonic, nor are there any which may not appear in affections of the same portion of the heart due to other causes, though a very striking feature of some of the cases which have come under my own observation has been the sudden onset, in the midst of apparent good health, of severe cardiac symptoms, and even sudden death, as the result of some strenuous exertion. Even if a positive diagnosis cannot be made, the importance of inaugurating treatment early is so great that a probability, perhaps even a possibility, of the symptoms which the patients present being due to syphilis, should be met by active antiluetic medication controlled by the Wassermann reaction, though not to the exclusion of one's clinical common sense.

If one studies the results of treatment from the purely statistical side, they are disappointing. The recognition of the importance of syphilis as a cause of cardiac disease is of so recent date, and the dissemination of this knowledge through the ranks of the profession so slow, that before a diagnosis is made, a large proportion of the cases have passed beyond the stage where hope of material benefit remains. The evolution of the specific lesion has already gone on to the production of connective tissue which we are powerless to influence. How can we expect to reduce a well established aneurysm, to render pervious a coronary artery blocked by organized tissue, to make soft and pliable a contracted aortic valve, or to restore its contractility to a fibrotic patch in the myocaridum? In these neglected cases the most which treatment can accomplish is the prevention of a further advance. The hope of the patient lies in early diagnosis for then most satisfactory results may be obtained. Iodides and mercurials should be used with thoroughness and persistence, but also with care, since their overzealous employment may do more harm than good. Salvarsan has a distinct place in the therapy of syphilitic cardiac disease. Frequent warnings have been given of its dangers, but these should not prevent its employment in properly selected cases. Small and repeated doses should be the rule. The only instance in my experience in which alarming symptoms followed its use was in the late stages of mitral stenosis, where, in my opinion, it should never have been used, since no benefit could be hoped from it and the patient's condition was such that no risk was warranted. It has also proved valuable in certain patients with cardiac symptoms due to lesions undoubtedly arising from other causes than syphilis since they were present before the syphilitic infection occurred. The improvement in the patient's general condition following its use enabled the weakened myocardium once more to successfully take up its burden.

IV.

Primary Syphilis of the Tonsil.

By C. Morton Smith, M.D., Boston.

In 1852 Velpeau wrote it seemed impossible for a primary lesion of syphilis to develop in the tonsil.

In 1858 Fournier tabulated the site of all the chancres occurring in a service of Ricord. Of 471 primary lesions found in 15 different localities, not a case was seen where the primary sore was situated in the throat. However, he later published a series of 77 chancres of the mouth, among which was one case of primary syphilis of the tonsil.

The following year, Rollett recorded four cases of this sort. Diday, in 1861, published four cases of positive primary of the tonsil and four others where the retrospective diagnosis was the same without a doubt. To him really belongs the credit of pointing out the practical importance of primaries of the tonsil, so far as I am able to learn.

For the next two decades, little mention is made of this class of inoculations. Various authors from time to time reported an occasional instance. Mauriac in 1883, and Legendre in 1884, published some extended observations on this route of infection, which was then being

recognized more frequently, and they considered that, aside from primary lesions of the lips, chancre of the tonsil is the most frequent of the mouth initial lesions.

Donaldson in 1885 wrote an excellent article on this subject, with the report of a case and gave a list of recorded observations up to that time. He states that "theoretically, tonsil chancre should be more common among women than among men," and in confirmation of this idea quotes Morrell McKenzie's seven cases, six of whom were women. Kissing, he gives as a frequent mode of infection and mentions disgusting practices in a way that leads one to consider them a frequent means of tonsil inoculation.

The writer's observations are not in accord with the greater frequency in women, and in no case has there been a suspicion of indecent practices.

Diday and Denos did not find chancres of the tonsil less frequent in men.

In 1887, Nevet published a list of 338 cases of primary lesions of lips, tongue, tonsils, mouth and throat, seen in Fournier's clinic the preceding year; of this number 29 were primary syphilis of the tonsils—23 males and 6 females. In this series, lip, tongue, tonsils, were the order of frequency, and the more than 3 to 1 proportion in men, is interesting, as its testimony, given nearly 30 years ago, is in accord with the writer's observations, that an equal or greater proportion occur in men, a fact that fails to support Osler's statement in his latest text-book, that "mouth and tonsillar sores result as a rule, from improper practices." Ferro in 1897 quoted the above figures and stated that such practices played a very slight part in the etiology of primary syphilis of the tonsil, and gives as his belief that kissing is really the most important method of infection in this class of cases. To this should be added the over-crowding in poor homes, with the too intimate use of drinking cups and eating utensils, smoking one another's pipe, etc.

The public cigar cutter must be a source of danger, as many men have the habit of moistening the tip of the cigar in the mouth, before inserting it in the cutter. Cigar and cigarette stubs, picked up and smoked soon after being thrown away by syphilitics, have been accused. Hard candy and troches which had recently been in the mouth of a syphilitic are given as a cause, and the attendant of a luetic baby has been infected while testing the temperature of the milk in the bottle, by putting the nipple in her mouth. Small epidemics have been reported among glass blowers, from using a common blowpipe, now no longer permitted.

Bulkley, in 1893, reported 2000 cases of syphilis from his private practice; in many nothing was known of the primary lesion. However, 111 were positively extra-genital infections, of which 15 were primary of the tonsils, 8 males and 7 females.

Fournier was inclined to place tonsils second only to lips in frequency of mouth chancres.

Boeck, of Norway, considered the tonsil the most common site of extra-genital primaries. In his country, among the poor, he thought it due to their manner of living, *e.g.* one spoon doing duty for several persons.

There can be little doubt that the frequency of chancre of the tonsil is due largely to the location and anatomical structure of the tonsil. The spirochetes, carried past the lips and tongue, easily lodge in the crypts and follicles of the tonsil, where an almost ideal spot is found for their development and subsequent invasion of the entire system.

Why the chancre develops more often on the right than on the left tonsil, apparently remains unexplained. Our table shows right 14, left 8, and 3 cases showed both tonsils involved. Of Bulkley's 15 cases, 9 were right, 3 left, and in 3 both were affected.

Most cases give a history of sore throat as the first symptom. With some the pain is intense, in others, slight or lacking. It is apparently not dependent upon the amount of swelling or ulceration in or about the tonsil, but due to the chancre itself.

Patients with such primaries are said to have a bad facial expression, with yellow skin and drawn features, loss of appetite and perhaps some vertigo. Swallowing is difficult and painful, and even ices are not agreeable.

Fournier gives the following important diagnostic signs:—

1. Unilateral occurrence.
2. Persistence of sore throat.
3. Induration.
4. Character of glandular enlargement.

A consideration of these signs should make the diagnosis of chancre of the tonsil fairly easy, provided one thinks of such a possibility.

These inoculations occur most often in young adults. Before spirochetes were known or the Wassermann test was available, an immediate diagnosis was well nigh impossible in individuals past middle life, where the possibility of cancer had to be excluded.

The importance of primary syphilis of the tonsil is not so much its frequency as the possibility of its passing unsuspected by the patient and unrecognized by the physician. In either case, both the individual and the community may suffer from the lack of prompt recognition.

One should always look with suspicion on a sore throat that has lasted over two weeks, does not respond to treatment of simple angina, and is accompanied by pronounced glandular enlargement on one side only. Many physicians have failed to recognize or interpret the importance of this sign, which explains why the satellite bubo of tonsil chancre has been incised for cervical abscess and no pus found, or mistaken for tuberculous glands and carefully excised.

Like primary lesions elsewhere, the uncomplicated process is constructive rather than destructive, and early in its course takes on a distinct induration. Both the size and hardness have considerable variation. The surface of the tonsil is usually only eroded or superficially ulcerated, but may be phagedenic or gangrenous, in which case there is an offensive odor. In many cases, a whitish or greyish false membrane is present, and before cultural diagnosis of diphtheria was possible, such cases were not infrequently mistaken for diphtheria. Fever is usually present, the afternoon temperature being 100° or 101.°

At the end of a week or ten days, the lymph glands under the angle of the jaw or beneath the sterno-cleido-mastoid muscle, on the affected side, undergo a non-inflammatory enlargement. This is the satellite bubo, which is usually larger and more painful than when occurring in the groins.

There is no reddening or involvement of the skin, but the mass takes on a smooth, brawny pork-like hardness without suppuration. This glandular reaction is of the greatest diagnostic importance, beginning soon after the appearance of the primary lesion; its peculiar characteristics remain until the second stage of the disease is well established. In the differential diagnosis one has to consider: cancer, late syphilis, abscess of the tonsil, and perhaps diphtheria and Vincent's angina. There is no more important symptom in this connection than the behavior of the neighboring lymph glands, always showing an early enlargement in chancre of the tonsil. In fact it is at times the swollen gland that first attracts the attention of the patient, and to the physician it should serve as the finger pointing to an existing or healed initial lesion, from which a retrospective diagnosis of primary syphilis of the tonsil is possible, thereby solving an occasional troublesome problem, viz., acquired syphilis without history of initial lesion, and no evidence of genital sores.

It is sometimes difficult to distinguish between chancre of the tonsil and tonsillar abscess during the first week or ten days. However, in abscess the onset is sharper, pain more severe and extends to the neck or shoots into the ear. Not only the glands and periglandular tissue, but the muscles of the neck are involved, and not only swallowing, but motion of head and neck, are painful. Chills, fever, headache, backache and general malaise are among the early symptoms of abscess and are much less or absent in chancre.

Ferro called attention to a valuable diagnostic sign which he had not seen mentioned in other works, viz., in abscess the patient opens his mouth with great difficulty so that it is almost impossible to get a good view of the tonsils and digital exploration is likewise unsatisfactory; when this can be done there may be a sense of fluctuation which is not present with chancre. In the latter there is no limitation of motion of the neck or difficulty with the visual or digital exploration, both of which should be carefully employed.

The difference in glandular reaction has been noted. Our cases show:—

SEX.		DIAGNOSIS.		LOCATION.		AGE.
Male	23	Positive	32	Right tonsil	14	From
Female	21	Probable	12	Left tonsil	8	3 years
						to
	—		—	Both tonsils	3	55 years
Total	44	Total	44	Not stated	19	
					—	
				Total	44	

OCCUPATION.

Unknown	15	Physician	1
Housewife	6	Order clerk	1
School	5	Clerk	1
Waitress	2	Lineman	1
Factory hand	2	Chauffeur	1
Dressmaker	1	Machinist	1
Foundry worker	1	Policeman	1
Cigarmaker	1	Traveling salesman	1
Conductor	1		—
Prison guard	1		
Matron	1		44

Glands do not enlarge in late syphilis and are only involved in cancer after the lapse of several months. In diphtheria and Vincent's angina if there is glandular reaction, it is slight, but inflammatory. Smears from Vincent's either stained or with the dark-field, usually show fusiform bacilli and coarse thick spirochetes in abundance.

In examining mouth lesions for spirocheta pallida, one must constantly bear in mind the close resemblance between the pallida and the dentium. Morphologically, the latter are thicker usually, shorter, and the spirals are less uniform and coarser. In cultures, the dentium always produces odor, the pallida never.

It was formerly difficult to make a diagnosis of chancre of the tonsil during the first few weeks of its existence. The methods of precision now available should make an early diagnosis possible in a large proportion of cases. Beyond the primary stage, there is no peculiarity in the course of syphilis beginning in the tonsil.

Bulkley felt these infections ran a more severe course. Fournier, on the other hand, states clearly that these individuals are liable to the same complications that occur in syphilis in general; neither the location of the point of entrance nor the method of infection has anything to do with the subsequent manifestations; syphilis, like vaccination, runs its course unaffected by the site of inoculation.

CASE 1. Age 28, domestic, noticed a sore throat, which was soon followed by a marked swelling of the gland under the angle of the jaw. She was treated at a hospital, where the swelling was considered an abscess and freely incised, but no pus found. The roseola devel-

oped while she was still in the hospital, recovering from the unnecessary operation.

2. John J., a young man of 30, had an amputation of the thigh five years before for tuberculosis of the knee joint. His handicapped condition compelled him to accept a minor position, with many other employees, where a common drinking cup was then allowed. On May 30 he noticed a sore throat, some weeks later he consulted a doctor, who gave him "yellow pills," which he discontinued in a few weeks, on being told by his dentist that he was taking mercury. His sore throat persisted; a month later he consulted his surgeon, who had just returned from an extended vacation. The surgeon diagnosed these glands as another manifestation of tuberculosis, and advised operation which was accepted. Just before ether was given, the patient called attention to a sparse, small papular eruption over chest and abdomen, and the surgeon remarked that had he not known the patient so well he should think his eruption was syphilis. He then proceeded to make a most careful dissection of all the cervical glands. As soon as possible, after the operation, the patient was sent to a farm in the country to recuperate on good food and fresh air. Throat lesions and enlarged glands were all considered a further manifestation of his old tuberculosis. Four months in the country failed to improve matters and he returned to a laryngologist, who recognized his syphilis and later the problem was solved. He had primary syphilis of the tonsil and his satellite bubo had been excised for tuberculosis.

Syphilis in his case was not unthought of, but the failure to find a genital sore in a man known to have had joint tuberculosis caused the error in diagnosis, resulting in a needless operation.

3. A young man was taken with severe headache, backache and sore throat, especially the right tonsil, on which he noticed a whitish patch, and sent for the family doctor. Cultures were taken which showed streptococci but no diphtheria organisms, whereupon streptococci vaccine was given for four successive days. The gland under the angle of the right jaw showed a hard painless swelling. On the fourth day of his illness, patient noticed a small papular eruption on forehead and chest, which at first was considered in some way the result of the opsonic treatment.

The eruption persisted, and recalling the initial headache and backache, the physician became apprehensive of smallpox. A conference with the local health department was held, and an expert from the state board was called. After three visits it was declared a case of smallpox and the patient was sent to the isolation room of a smallpox hospital, where the physician in charge, recognizing that it was not a case of variola, said he would have had no hesitation in calling it syphilis if he could have found the remains of a genital sore. The enlarged gland in the neck pointed to the tonsil as the site of infection and the puzzle was solved.

These cases are not quoted in criticism, but simply to emphasize the important part the tonsil plays as a port of entry in extra-genital syphilis.

V.

Syphilis of the Lung.

By E. A. Burnham, M.D., Boston.

Although the supposed infrequency of pulmonary involvement in syphilis has made it well nigh neglected in the differential diagnosis of diseases of the lungs, it can confidently be asserted that far too little care has been exercised in studying many doubtful conditions in the chest cavity. Dieulefoy in his Text-book of Medicine, is the only author whom I have found who pays special attention to the characteristics and diagnosis of this condition. Osler observed only twelve cases in twenty-eight hundred autopsies at Johns Hopkins, but reports show clearly that syphilis of the lung apparently completely heals, and, therefore, might show no pathological findings at autopsy.

During the last few years several articles have appeared in the medical journals, and these, together with case reports of such men as Fournier, Giraudeau, Dieulefoy, Panas, Lancereaux and many others, cannot but convince us that many cases have been overlooked.

In its early stages syphilis produces acute pulmonary conditions like bronchitis and bronchopneumonia, but its most frequent occurrence is in the tertiary stage when its lesions produce physical signs which are identical with those of pulmonary tuberculosis. Both diseases produce infiltration and softening of pulmonary tissue and are characterized by dullness on percussion, increased tactile and vocal fremitus, bronchovesicular breathing, and fine moist râles. Certain of the objective signs are somewhat dissimilar. The cough may be as severe, and the expectoration as profuse in one as in the other. Hemoptysis is much more frequent in tuberculosis although blood-tinged sputum is not uncommon in syphilis. The temperature curve in syphilis is not so variable as in tuberculosis and the loss of flesh and strength are not so rapid and marked. The patient with syphilis of the lung does not appear as sick as the one with tubercle infection of the same extent. Nothing definite can be determined by the location of the disease. While the middle and upper portions of the lung are often involved in syphilis, the majority of these cases which I have observed have shown lesions in the lower lobes.

In syphilis, of course, there are no tubercle bacilli in the sputum and this fact, established after repeated careful examinations, together with the presence of any of the stigmata of

syphilis such as Hutchinson's teeth, interstitial keratitis, periostitis of the tibia, and especially with a positive Wassermann reaction, should make a diagnosis almost beyond question of a doubt.

True it is both syphilis and tuberculosis can exist in the same patient, and at least one case has come under my observation where the patient showed tubercle bacilli in the sputum, and also gave a positive Wassermann reaction.

It is the disposition of these cases that makes their recognition of such great importance. It is a serious error to commit a patient with lung syphilis to a sanatorium for the treatment of tuberculosis, and the object of this paper is to put us on our guard lest we overlook a condition which can be easily treated at home and with the most gratifying results. In such cases there should be no question as to the line of treatment to pursue and our examinations should be thorough enough to establish a diagnosis differentiating the two conditions.

Of several cases with which I am familiar I will report one only which will illustrate the errors into which we may easily fall, and which I believe have been more frequent than commonly supposed.

On February 15, 1913, E. H., a robust female aged 29, presented herself for examination, complaining of severe cough, especially at night, profuse expectoration, and pain in the left side of the chest during the last two weeks. She is married, the mother of one healthy child. Her husband is living and well, and there is nothing in her family history bearing upon the present sickness. She denies having had venereal disease. A tuberculous person is said to have died in the apartment in which she lives.

At this time her temperature was 101.2; pulse 128; respiration 36; weight 147½. One of our best phthisiologists examined her, finding sibilant and sonorous râles in the upper parts of both lungs, with fine moist râles at both bases. A diagnosis of acute bronchitis was made and the case marked "for observation." Nine days later she returned and the same examiner reports, many moist râles above and below left clavicle; respiration broncho-vesicular and diminished at left. Resonance poor at both tops. At left base moist râles. Her temperature was 99; pulse 96; respiration 24. She was marked as a "very suspicious case." On March 3d her temperature was 101; pulse 118; respiration 30. The signs persisting at the left top, a diagnosis of pulmonary tuberculosis was made, and application for admission to the state sanatorium made. The case was also reported to the board of health.

Examination of the sputum on March 3d and 12th did not show tubercle bacilli. On March 17th the cough was still bad, there were moist râles at the left top and also at the left base. Her temperature was 100; pulse 104; respiration 28; weight 140½, a loss of seven pounds since first seen one month ago. The sputum on March 20th again showed no tubercle bacilli. On April 8th she was admitted to the state sanatorium where she stayed until May 29th when she left against advice. The diagnosis at the sanatorium was "advanced tuberculosis." On June 4th the sputum was again negative, but another examiner makes her a third-stage case. In August another institution made a diagnosis of second-stage tuberculosis. On December 3d I first saw her and found the same signs of pulmonary infiltration and moist râles as heretofore noted. I also noticed that the bridge of the nose was flat and a foul odor from the nose. An examination of the blood showed a double plus Wassermann reaction. She was given protoiodide of mercury one-sixth grain four times daily. The cough stopped almost immediately, she made very rapid improvement in every way and the record of January 7, 1914, says that she feels quite well, and sees no reason why she should return for further treatment.

This report is presented in no spirit of exaltation but as indicating in the most forceful manner the following conclusions:

1. Syphilis produces in the lung pathological changes which in turn produce symptoms and physical signs which are identical with those produced by pulmonary tuberculosis.
2. That the two conditions are confounded by our most skilled diagnosticians.
3. That great injustice is done the patient and great suffering often inflicted upon his family by sending cases with lung syphilis to tuberculosis sanatoria.
4. That greater care must be exercised in differentiating the two conditions, and especially those cases where there are signs of infiltration and open lesions in which tubercle bacilli cannot be demonstrated.

VI.

The Relation of Syphilis to Internal Medicine.

By David L. Edsall, M.D., Boston.

The title that has been given me permits me to make some general observations and I will first note the results of the recent large experience in Wassermann reactions in the medical wards that we have had at the Massachusetts General Hospital. These are of interest because they are large in number and during the period in which they were done, the reaction was carried out in a very large proportion of all cases admitted, even though they showed no signs of syphilis. Hence, they throw light upon the extent of the importance of syphilis in relation to a group of unchosen medical cases.

Between January 1, 1913, and May, 1914, there were admitted 2347 cases to the medical wards. In 1696 of these a Wassermann reaction was done. The reaction was not done in 651, slightly over 32%; 159 of the 1696 cases in which the test was done gave a distinctly positive reaction, 45 were doubtful, the latter meaning, as a rule, that the reaction was positive to one antigen but not to another.

A very large proportion of these latter were un-

doubtedly positive reactions from the nature of the case alone, but it is not possible to say exactly how many.

It is highly probable that a number of cases not tested would have given positive reactions and not improbably this number would somewhere near balance the cases that gave doubtful reactions but were not syphilis. Of the total number of cases then, including even those in which no test was done, 8.7% reacted, and 6.7% gave a definite reaction. Of the cases in which a test was done, 12% reacted and 9.4% gave a perfectly definite reaction.

All such statistics are subject to error and of course not every Wassermann reaction means absolutely that the patient has syphilis, but we may fairly say that about 8% to 10% of the cases admitted during this time to our service either definitely had syphilis or had signs which made it impossible to exclude this disease. These figures show clearly the very great importance of the disease in ordinary medical diagnosis in hospitals. They do not at all indicate its frequency in the general public of course but they indicate the general importance of it in hospitals. Of course in a hospital in which a larger proportion of human wrecks is received the proportion of reactions would be larger and in some hospitals the proportion would be smaller. The figures are, I would emphasize again, only approximate in their value but they are significant.

Now, as to the general character of these cases —the largest group had chiefly cardio-vascular manifestations of disease. There were 45 in this group. I have excluded those cases in which the cardiac disease was apparently of the ordinary infectious type of chronic valvulitis, even though a few of these did give Wassermann reactions, and even though syphilis probably had a rôle of some importance in causing the cardiac breakdown. In the 45, I have included only cases of aneurysm, aortitis and aortic regurgitation, myocardial degeneration and arteriosclerosis, in which syphilis was probably the dominating or a very important factor. These figures indicate how important the disease is in producing circulatory breakdowns and how important the circulatory system is as compared with other organs in considering the effect of syphilis.

The next largest definite group was syphilis of the central nervous system of which there were 33 cases. These figures, of course, would have been much larger in a hospital receiving into its wards a larger proportion of nervous cases than we do but they are fairly indicative of its importance in the general run of medical cases. Of these cases 18 were definitely tabes and 15 were put down under other or less definite diagnosis, some being probable tabes, others general paresis and irregular forms of central nervous syphilis.

The most striking fact brought out by our figures, however, and one that is entirely in consonance with the experience of other clinics elsewhere, is the much greater frequency of gastro-intestinal manifestations of syphilis than we have thought until very recent years. I would emphasize the fact that I say gastro-intestinal manifestations rather than gastro-intestinal syphilis, for in the largest and most important group of cases under this heading, the disease is not in the gastro-intestinal tract but in the central nervous system. But these cases may properly from a clinical standpoint, be discussed under this heading because the manifestations are so strikingly gastro-intestinal in character, and the mistakes in diagnosis that are likely to occur in this group are very serious, may readily lead to very erroneous treatment and are due to the fact that the symptoms are of gastro-intestinal character, and if it were once recognized that the patient had syphilis, the most important step would already be taken toward recognising the fact that the symptoms are probably due to the syphilis and probably of central nervous origin. We have long known, of course, that so-called gastric crises not infrequently occur in central nervous disease, particularly in tabes dorsalis, but there are several points that we have by no means clearly recognized until very recently. The first of these is that these cases are distinctly more frequent than we have thought and have evidently often been erroneously diagnosed. The second point is directly related to this, namely, much more frequently than we have thought gastro-intestinal symptoms may be present and may be very marked in the entire absence of any of the ordinary clinical signs of central nervous syphilis or when such signs are so very slight that they would be neglected were it not for our recent recognition of the frequency and importance of the manifestations in the digestive tract. The third point of importance is that the Wassermann reaction in the blood in these cases is very often negative but we have now in the examination of the spinal fluid a method by which we may very frequently make the diagnosis with a large degree of certainty even though all, or nearly all, other symptoms are absent, that is, even with a negative blood Wassermann, we may get a positive Wassermann with the spinal fluid and the cell count of this fluid and the colloidal gold reaction are extremely important and a strongly positive Noguchi reaction is also of importance.

We had during the time that I mentioned, 15 cases in the wards, which were either admitted with a diagnosis of gastro-intestinal disease or were given that diagnosis after entrance to the ward, in which subsequent examination showed that the case was one of central nervous syphilis. In nearly all of these the diagnosis was difficult and in some cases extremely so. In 11 the symptoms were those of either gastric or duodenal ulcer or gastric cancer; in four the symptoms strongly suggested malignant disease of the colon. The difficulty in diagnosis is shown by the fact that three of the cases with gastric symptoms and one case with colonic symptoms were operated upon after very careful study under

the impression that they had severe local disease of the parts mentioned but nothing was found at operation. These were earlier cases. In the last few months we have not made this mistake, but nevertheless the difficulty is such that we are very likely occasionally to repeat the error. The important point about these cases is to look sharply in all instances that suggest severe gastro-intestinal disease, particularly those with pain, but also in other cases, for evidences of syphilis and especially for even slight evidences of central nervous disease, and if the diagnosis appears at all doubtful to make a spinal puncture and examine the spinal fluid, at least before subjecting the patient to a severe operation unless there is some very definite reason for not doing this. Without spinal puncture, some cases are pretty certain in occasional instances to be mistaken anyway.

A striking instance of the ease with which this error can occur, a case, however, in which operation was not carried out was that of a man on the West Medical Service who had periodic vomiting beginning in 1909 and who first entered hospital in 1911 and after careful examination showed no central nervous symptoms. The blood Wassermann was negative, and he appeared to be probably neurotic. The spinal fluid was not then being examined. He entered again in April, 1913, having had the attacks repeatedly and in worse form but still without any pain or other symptoms excepting for very slight pain in the region of the left knee at very rare intervals. He still had no physical signs of central nervous disease on thorough examination but while the blood Wassermann was still negative the spinal fluid showed a positive Wassermann reaction, a high cell count and a positive Noguchi. He improved after treatment. The cases with symptoms suggesting disease of the colon were extremely interesting and confusing. In one it was possible even to feel apparently definite masses in the region of the colon and all his symptoms indicated severe increasing obstruction and the x-ray appeared to confirm this entirely. Operation showed nothing. This man had rather sluggish reaction of the pupils and no knee-jerks but his nervous symptoms were so slight and his colonic symptoms so very striking that it was still believed that he had disease of the colon and he was operated upon with negative results.

One point that must be kept in mind is that we are too prone to think of these gastro-intestinal manifestations of central nervous syphilis as having so-called critical or periodic attacks of symptoms. Many of the cases, particularly those that resemble gastric or duodenal ulcer or gastric cancer, have slight, if any, exacerbations of their symptoms in any critical form but rather present distress more or less constantly, thus more closely simulating persistent local organic disease.

Another very important fact that we have learned is that syphilis of the stomach itself is much more frequent than was earlier thought. We had eight, probably nine cases in which it was reasonably clear that severe local disease of the stomach was syphilitic. Three of these were diffuse disease of the stomach, producing a very extraordinary infiltration. The others were chiefly ulcers. It is now reasonably clear that any very large ulceration of the stomach, particularly when situated fairly high up on the stomach, and especially when it has undergone such infiltration and contraction as to have produced an hour-glass contraction should be sharply suggestive of syphilis, because so large a proportion of such cases are syphilitic.

There are certain other points about the gastro-intestinal tract that need emphasis in relation to syphilis. Four cases were in the wards under a diagnosis of cancer of the stomach in which there proved to be apparently no disease of the stomach but in which the condition was entirely due to syphilis. In three the exact nature was doubtful but the symptoms were abdominal; in one it was a syphilitic hepatitis. In all treatment cleared up the symptoms. There was another case in which there were symptoms of chronic colitis which appeared to be in part at least due to syphilis of the bowel, if the effect of treatment and a positive Wassermann reaction may be trusted.

There were 12 cases of cirrhosis of the liver with positive Wassermann reactions. Just what is the relation of syphilis to what we clinically call ordinary cirrhosis of the liver is not definitely clear nor has there been any final working out pathologically of the relation between syphilis and ordinary cirrhosis. It appears very probable that syphilis plays a much larger rôle in this than is generally recognized and I believe many pathologists suspect this also. The importance of hepatitis with gumma formation is of course, perfectly clear. One point I would emphasize in regard to these latter cases —I have seen several instances in which the diagnosis between diffuse syphilitic disease of the liver with gumma formation and abscess of the liver was by no means easy. One of these for example was a man who had been in the tropics, had had dysentery and had an enlarged liver with a dome-like projection upward, with pain, fever, leucocytosis and even a right-sided pleural effusion. It all cleared up with the utmost speed after the administration of salvarsan.

There were six cases that presented the symptoms of gall-stones or pancreatic disease, that had positive Wassermann reactions and in which all definite evidence of gall-bladder or pancreatic disease was absent. In all of them a strong suspicion remained at the end that the condition was due to syphilis. In several of them there were slight symptoms of central nervous disease on ordinary clinical examination and several improved strikingly upon treatment directed toward syphilis.

If we include these various cases that I have mentioned in which the symptoms were abdom-

inal and apparently referable to the digestive tract, we have all told, 46 cases in which the clinical manifestations were digestive. This is a striking fact, as this brings this group up to the point where it is the largest of all, at least in so far as the question of clinical opportunity for error is concerned. It is, however, hardly fair to call it the largest group, because as I have said 15 of these cases were really instances of central nervous disease, not of disease of the digestive tract.

There were eight cases of nephritis with a positive Wassermann reaction. What the relation of the syphilis to the nephritis was is still too confused a question to make it profitable to discuss it here.

There were four cases with very marked splenomegaly as the main manifestation and a number of others in which there was usually marked splenic enlargement in association with liver disease, these cases emphasizing again the important rôle of syphilis in splenomegaly.

There were four cases in which unusually marked intestinal adhesions occurred after operation in persons who had syphilis. These may have no significance but it seems to me perfectly possible that intestinal adhesions may form much more readily in persons with active syphilis than in those who have not this disease, and it indicates the desirability of treating any existing syphilis, even though quiescent, before abdominal operations, unless there is some strong contraindication.

There is another group of cases that I would mention, three of visceroptosis and neurasthenia and three of simple general neurasthenic symptoms, in one of the latter associated with marked inanition. All those with visceroptosis apparently developed their neurasthenic symptoms after the syphilitic infection and in the three cases with debility there was no other explanation of the condition than the syphilis. Some of these improved decidedly after syphilitic treatment. Unquestionably we need to keep sharply in mind the possibility that vague general symptoms may be due to syphilis just as they may be due to other infections such as tuberculosis or a low-grade fecal sepsis.

Finally, I would note that one may at times see the most unusual manifestation of syphilis and may be unable in the end to say what was the matter excepting in general that the patient had syphilis. For instance, a colored man was admitted to the ward with a diagnosis of tuberculous peritonitis and had marked loss of weight, slight irregular fever, vague pains in various parts of the abdomen, a somewhat prominent and boggy feeling abdomen, and did appear to have peritoneal tuberculosis. But he had a positive Wassermann and upon treatment almost immediately got entirely well.

In another case a woman had vomiting, moderate excess of pigmentation of the skin, prostration, low blood pressure and loss of weight. The vomiting was so severe that she had become much exhausted from it after a few days in the wards. The Wassermann reaction having been reported positive and salvarsan administered, she practically immediately recovered and remained well. I suspect she had mild syphilis of the stomach itself. She had no signs of central nervous disease and her recovery was too speedy for that.

All that I have said only emphasizes more emphatically through our recent experience what we have long known, namely, that syphilis is clinically one of the most important things in all medicine, that it manifests itself under the most varied forms, and that we are never safe from error unless we keep it constantly in mind and even then we shall occasionally fall into error in spite of our best efforts.

VII.

What the City Should Do to Control Syphilis.

By Thomas B. Shea, M.D., Boston.

The great progress that has been made in the past few years in the diagnosis and treatment of syphilis leads us to believe that this disease can be brought under control and supervision and with better results than has been accomplished in tuberculosis.

The outlook for the cure and prevention of this disease is more than probable if the good results recently reported attending the use of salvarsan are confirmed by time and experience.

If, by salvarsan, a patient can be sterilized so that he is not a source of danger to others, it is only a question of time before the spread of this disease can be materially diminished.

Every patient that is made free from infection means the removal of one focus of infection from the community.

With our present knowledge, and the methods that have been successfully tried for the diagnosis and cure, the time has arrived when this disease should be controlled the same as other infectious diseases.

In this state, once a disease is declared dangerous to the public health, it is the duty, under the law, for boards of health to furnish hospital accommodations and treatment for indigent patients. If progressive sanitary methods are to prevail for the care of this disease it will be necessary that health departments be furnished with all necessary information concerning cases that are in existence.

The source of infection must be sought out, and this information can be furnished only by the patient.

The first and most necessary step in any campaign against a communicable disease is to know the number of cases, the location of the same,

and whether or not they are a menace to the community.

The law of our state demands before cases must be reported by physicians, that the state board of health declare a disease once dangerous to the public health, and that this condition exists at the present time is a fact well known to physicians and those engaged in the work of preventive medicine.

The same objection to the registration and reporting of these cases will probably be brought forward as was formerly heard on the registration of tuberculosis, viz., physicians will not report their cases, patients will consult irresponsible practitioners for advice and treatment, the disease will be concealed.

About eight years ago the same conditions prevailed as regards tuberculosis as we have today in syphilis. Physicians were not obliged to report cases, no hospital facilities for abandoned and dying cases, no laboratory facilities for diagnosis, and no supervision of cases by nurses and physicians.

That physicians will obey the law has been demonstrated in the past few years as regards tuberculosis. At the present time, in our city, it is rare to have a death reported from tuberculosis without having a complete history of the case on file at our office.

No medical man acquainted, as he must be, with conditions at the present time can furnish or present any valid reason for not reporting these cases. The same system can be adopted as is now being used with such success in tuberculosis.

Cases that are receiving proper care and under the supervision of their own physicians need not be visited or kept under surveillance. Already, many states require, under penalty, the reporting of these cases. The law in some states provides that the reports shall be absolutely confidential, shall not be accessible to the public, nor shall such records be deemed public records.

Many of the states furnish salvarsan, also laboratory facilities, to practitioners for treatment.

Heretofore, the great objection to the control of this disease by health departments has been the long course of the disease.

It was impossible to segregate and treat patients for many years. The question of expense was prohibitive. Variola, diphtheria, scarlet fever, measles and other communicable diseases, with the exception of tuberculosis and leprosy, under the control of health departments, are diseases of short duration and yield readily to treatment.

At the present time there are not sufficient hospital facilities for patients with syphilis who are known to be a danger and menace to the community.

Cases are being called, almost daily, to our attention, which, after being investigated, show that the ignorant or careless patients have infected many individuals. We are unable to take action in many of these cases on account of lack of hospital beds and no legal control of patients.

The duty of a modern and efficient health department is the conservation of public health and the prevention of disease. To know disease and the dangers that may follow infection is one of our great aids in the prevention of disease. Therefore, the public must be educated and shown how much it means to themselves and their children, also the importance of early diagnosis and treatment.

The disease should be fought along the same lines as has been used in tuberculosis. Syphilis should be added to the list of diseases that have been declared dangerous to the public health, and therefore would be reportable; health departments be equipped with laboratory facilities for diagnosis and blood tests to determine condition of patients; there should be supervision of cases; the state furnish salvarsan for treatment, the same as is now being done for diphtheria and meningitis, and patients that are careless and liable to be a source of infection to others to be held in restraint. At the present time an individual that is infected with diphtheria, scarlet fever or any other disease that has been declared dangerous to the public health is quarantined and deprived of his liberty until declared free from infection. If such rigorous methods can be enforced for such diseases, how much more is it the duty of the state and the city, and especially those officials charged with the care of the public health to take charge and control of patients suffering with this disease.

If our public hospitals and clinics are to adopt modern methods in diagnosis and treatment they should be equipped with laboratories and set apart some beds for this disease. A Wassermann survey recently made in some of our large hospitals showed a large number of patients infected and being treated for other diseases.

Many beds now in use for the after-effects of syphilis can be released for other patients if the salvarsan treatment can be established in our hospitals.

This disease should be fought from a health standpoint entirely, and with the same methods that *are* now in use for other infectious diseases. The status and environment of patients should not be considered. All infected persons should be amenable to the regulations made for the protection of the community. The majority of cases are self-acquired and the results are well known to most patients before infection.

To enforce a law or health regulation on any one class or section of a community is bound to be a failure. Public opinion will not support health legislation under such conditions.

It is the duty of the medical profession, acquainted as they are with the results of this disease, to lead the way by educating the public and also advising the proper public officials of the necessity of finding funds for health de-

partments for the care and control of this disease.

Discussion.

Dr. Frederick T. Lord, Boston: I should like to refer to the diagnosis of syphilis of the lung in connection with Dr. Burnham's paper. Dr. Burnham has mentioned the infrequency with which this condition has been established at autopsy and refers to Dr. Osler's statement that only 12 cases in which lesions believed to be syphilitic were found among 2500 autopsies at the Johns Hopkins Hospital. The infrequency with which *acquired* syphilis of the lung has been recognized is even more striking at the Massachusetts General Hospital, where not a single instance has been established among 3,000 autopsies. Pulmonary changes at the root of the lung are not very uncommon in connection with syphilis of the trachea and bronchi, but their syphilitic character is difficult to establish, and the possibility of secondary changes in this region in consequence of syphilitic tracheo-bronchial stenosis must be taken into consideration. It may be that the apparent disposition of syphilis to affect the region of the root of the lung is due to secondary and non-syphilitic broncho-pulmonary infection. Syphilitic infection of the trachea and bronchi is so much more common than pulmonary syphilis as to suggest the desirability of its exclusion before deciding in clinical cases that the condition is pulmonary syphilis. Tracheo-bronchoscopy may be expected to be of assistance in such cases.

In consideration of the infrequency of syphilis of the lung it seems desirable that the utmost caution be observed in making this diagnosis. Tuberculosis should be rigidly excluded, and it is desirable that not only the sputum be shown to be negative for tubercle bacilli, but also that tuberculin be given by the subcutaneous method and the patient fail to respond to increasing doses up to and including 10 milligrams, in the case of adults. As Dr. Burnham has said, the stigmata of syphilis should be present, including a history of infection, other and coincident manifestations of the disease and a positive Wassermann test. The evidence is cumulative, and even at best tends rather to establish pulmonary syphilis with probability rather than with exactness.

Dr. E. O. Otis, Boston: I would like to say with reference to the tuberculin test in regard to syphilis, that it is a fact that a certain number of cases do respond to a tuberculin test. Whether or not there may be some latent tuberculosis which has been undiscovered, is a question. Probably such is the fact.

In a certain series of investigations which I made some time ago with regard to that same point, I found that out of 35 or 40 cases of pronounced syphilis, the diagnosis having been made in every case by Dr. C. Morton Smith of the skin and syphilis department of the Boston Dispensary, and with no evidence of tuberculosis from physical examination—that there were 17% of reactions from the use of tuberculin.

In the very difficult diagnosis in cases of syphilis of the lung, there is one point which is to be considered, and that is the constitutional symptoms are not as great as they are in tuberculosis for the amount of infiltration in the lung.

When we have a combination of syphilis and tuberculosis, it has been found by various observers that the use of salvarsan is not only beneficial for the syphilis, but also at the same time for the tuberculosis.

Reports of Societies.

AMERICAN SURGICAL ASSOCIATION.

Annual Meeting, Held in the Astor Hotel, New York City, April 9, 10 and 11, 1914.

The President, Dr. William J. Mayo, in the chair.

(*Continued from page 389.*)

Distant Results of a Suture of the Heart Following a Wound by Pistol-Shot.

Dr. R. Proust, Paris, France: On February 20, 1910, being on duty, I was called at 5 o'clock in the afternoon for urgent service at the Trousseau Hospital, in Dr. Savariaud's ward for a wound in the heart, diagnosis made by Messrs. Bloch and de Cumont, internes of the service. After a rather long period of hesitation I have the impression of a progressive aggravation and decide on operation. From the beginning I ascertain as far as possible the traject of the ball. For this, after having traced a cutaneous incision according to Fontan's rule, I lift the skin and soft parts along the border of the sternum, and find the fifth costal cartilage shattered by the ball; I raise it and come across a mass of liquid blood, which bubbles and is animated by beating, I then quickly complete the flap by sectioning the fourth and sixth costal cartilages at their sternal insertion. The turning down outwards of the flap simply by elasticity is quite easy since it is a question of a 13-year old boy. A spurt of blood is produced immediately and I clearly distinguish the wound in the pericardium from which it comes. I enlarge this wound with my scissors, both from the top and the bottom, to an extent of about eight centimeters or about three inches and mark the borders of the serous membranes with forceps after having isolated the operative field. I am thus easily able to explore the pericardiac cavity, but at the level of the basis I see only blood, and cannot distinguish the point of the heart. This is caused by the fact that all the basis of the pericardium is filled with a coagulum as large as the fist, which covers the point of the heart and compresses the heart upwards.

I extract the coagulum, and with it the ball which was free in the pericardium. As soon as the coagulum is taken away the point of the heart ap-

pears freely with its pinkish white color; there is clearly distinguished a wound in the front residing near the left border quite near the point; a jet of blood escapes from it at each systole. I have at my disposal only a curved Reverdin's needle of the current model. It is with this that I quickly make my first stitch which perforated totally the wall of the heart; once knotted it stops the hemorrhage a little, but blood escapes along the thread. From this first stitch I am able to make three others non-perforating, by using this time the small Reverdin's intestine needle. I then turn the heart upwards to look for a second wound on the posterior face, but I find none. But seeing the descendent obliquity of the traject of the ball, I come to the conclusion that it is a tangential wound although a penetrating one.

Suture of the pericardium with separated stitches of catgut No. O; the lowest stitch fixes a very small rubber drain, which is level with the serous membrane and even penetrates into it at a little less than a centimetre.

Operative consequences. The next day, February 21st, there is a considerable thermic reaction. In the morning 39.8° centigrade, that is about 103.6° Fahrenheit, and in the evening 40.4° centigrade, or about 104.8° Fahrenheit. In spite of this the general status is not alarming, the pulse indicates 110. The following days there is a slight fall in the temperature which, however, remains very high. On March 5th Messrs. Proust and Perinaud examine the patient in the evening; the pulse is very undulating, of very feeble tone and indicates 120. The heart beats are exceedingly dull on auscultating, the patient has some trouble in swallowing which has increased since the operation. Briefly, there are evident signs of pericardiac effusion. The small rubber drain, however, produces nothing. It is still solidly fixed in the depth and oscillates with the cardiac movements; I pull it away with a sharp tug and immediately out flows a great abundance of blood-stained serosity which is in no way purulent. The hand which palpates the radial pulse, feels that little by little it puts itself right from this moment. It becomes pronounced, excellent, very strong. From this moment the effervescence begins to cease, and finishes in less than 48 hours. The patient leaves the hospital on March 21, 1910, cured, one month after the operation. Immediately after his departure from the hospital, on March 12, 1910, he was engaged as telegraph messenger at the post office in Paris, and able to return to his normal mode of living. He followed this calling of telegraph messenger during three years, and in spite of the fatigue experienced in climbing long staircases, he did not show any functional cardiac troubles; at the most did he notice, in the beginning, a little panting after hurrying upstairs. Since a year ago he has changed his profession. He is now a bookkeeper and complains of no trouble whatever. I asked him if he would be examined to see if, a long time after operation, our investigation would show, in spite of the total absence of functional disorders, anything abnormal, either at the level of the cardiac suture, properly speaking, or as remains of the pericarditis he had shown. I asked my colleague and friend Dr. Bezancon, chief physician at the Charity Hospital, to be good enough to consult him; Dr. Aubourg, chief of the radiology service at the Boucicault Hospital, to kindly radiograph him; Dr. Bourguignon, chief of the laboratory of electricity at the Salpetriere Hospital, to be kind enough to trace out his pulse, and Dr. Boulle, chief at the Marey Institute, to be kind enough to take his electro-cardiogram.

The auscultation and electro-cardiogram have established that the working of the heart was almost normal. But the point of the heart seems a little too near the sternum and the electro-cardiogram shows a double at the time of the ventricular contraction. The radioscopic examination has shown us very slight modifications consecutive to the sutures. The part of the left ventricle which forms the left border of the heart, presents a normal shape: at the union of the external two-third and the internal one-third of the left border at the height of the fifth rib, is seen a permanent notch, which seems to be a fixed point which does not participate in the beating of the left border. The second part of the examination bears on the esophagus: The patient is placed in an oblique position, in order to distinctly see the clear space which exists between the vertebral column, the aorta and the heart. The patient has absorbed a milk of carbonate of bismuth: the bismuth has designed an esophageal duct of normal aspect as far as the origin of the large vessels. From this place, as far as the diaphragm, that is to say over nearly four inches, we have seen a diminution of size of the duct, which can be estimated at half of the normal calibre. We may, therefore, think that it is a question of lesions of the external tunic, perhaps by adherence to the pericardiac pouch in relation with the auricles.

This examination proves that there incontestably remains some esophageal troubles connected with pericarditis and that, on the other hand, there persists either a slight weakening of the cardiac wall at the level of the scar, or perhaps a pericardial adherence at this level.

THE SURGICAL TREATMENT OF AORTIC ANEURYSM.

PROF. DR. H. KUMMEL, Hamburg: The surgical treatment of aneurysm of the aorta is an indirect and a direct one. To the first group belongs the ligature of the art. subclavia and carotis and the introduction of a spiral wire. The light scratching of the wall with a fine needle, the laying around of a thin aluminum band as Gatsch and others did, strips cut out of the aorta of the animal on trial as was done by Halstead. The direct surgical method I would like to call the way of folding the wall of the aneurysm as Matas and Allen did. Tuffier has, after resection of the left thoracic wall under positive pressure, pinched off the sack of the aneurysm of the aorta thoracica and closed with a double suture of Carrel. I had the opportunity to seize directly an already burst aneurysm of the aorta thoracica, which has not yet been done before. I find no similar case in the literature. A man, 52 years of age, had been infected in New York with lues three years since. Some months ago he came to the medical part of our hospital in Hamburg. The diagnosis was made clinically and radiologically of an aneurysm of the aorta. The patient left the hospital after sometime, improved in health and looks. He returned shortly after looking suddenly reduced and with strange pains in a pulsating tumor of the left side. The patient was thin, complained of severe pains and shortness of breath, occasioned by an immense, prominent tumor going from the left pelvis over the left rib. Aneurysm of the aorta could not be diagnosed even after a

radiographic picture. We tried to keep alive this otherwise lost man by an operation. Our plan was to free the aorta above and below the burst sac, resect the five ribs near to the spine, setting free the aorta extra-pleurally without injuring the pleura. Compression of the aorta by the hand of an assistant. Extension of the cut downwards, setting free and clearing the sac of the aorta filled with thick bloody masses and which was already burst. That we could better overlook the operative field we lengthened the cut downward through the diaphragm retroperitoneally so that the whole aneurysm sac above and below could be perfectly overlooked. From the aneurysm sac we took so much away that a nearly normal lumen was obtained and the 10 cm. wide opening shut by a suture. After taking off the digital pressure still a little bit of blood appeared. A second suture was made then and bleeding stopped. Circulation in both lower extremities was entirely restored and normal. Shutting off the wound the pulse of the patient is comparatively good. He died later of weakness of the heart on account of the reduced state of his health.

Although the patient died, the operation showed that it is possible to be executed without compression apparatus retropleurally and retroperitoneally. In another case of removing a tumor I saw the aortic suture head perfectly. Similar cases are published elsewhere. In the future I will secure the suture by putting a spiral strip of fascia around it and oversewing the wound.

AURICULAR FIBRILLATION FROM TRAUMATISM OCCURRING IN A HEART PREVIOUSLY NORMAL.

Dr. George E. Armstrong, Montreal: The patient was a man 46 years of age, who had been shot in the chest. The bullet entered the fourth intercostal space a little to the left of the left border of the sternum. Fluoroscopically the bullet could be distinctly seen in the pericardium. It was quite free and readily changed its position when the man was rolled from side to side. Tracings showed complete auricular fibrillation. The pulse was irregular and of poor volume. Twelve hours after the bullet had been removed the pulse which had previously been 130 to 140 slowed down to 90 and became quite regular. The tracing taken then showed normal auricular and ventricular contraction. No record has so far been found in literature of a similar case.

THE INTERPLEURAL EXPOSURE OF THE HEART BY MEANS OF LONGITUDINAL SECTION OF THE STERNUM.

Professor Rehn, Frankfort, Germany: Infection of the pleura is the most important factor in the mortality of heart wound; the next most important is the great bleeding during the operation.

The method of operation for heart wounds which I warmly recommend gives the greatest safety since the pleura remains unopened during operation. It also gives us the possibility of immediately controlling the bleeding from the heart in that we can reach both venae cavae and lessen the supply to the heart as desired. In operating the incision is made from the left second chondrosternal articulation to the middle of the xiphoid process, then it follows the left costal arch; the latter incision is deepened, rectus and transversalis abdominis are cut, and the incision continued along the under surface of the costal arch and the sternum above. The finger easily separates the delicate fibres of the diaphragm and enters the mediastinum. The xiphoid process is now either pushed aside or removed. A well-rounded saline sponge is pushed up into the mediastinum. This pad now pushes the pleura out of the way on both sides and ensures the safe splitting of the sternum up to the third or even second chondrosternal articulation. The divided sternum is then forcibly held back by hooks and the pleura protected by gauze. When necessary the pleural folds are retracted by means of the gauze. (Care must be taken not to attempt to retract the pleura with the fingers, as it is easily perforated.) If the thorax is very rigid, the sternum must be divided transversely. The anterior surface of the pericardium is now freely exposed and one can open it as far as desired. The heart is just as easily accessible and the incision offers us an especially good opportunity to compress the venae cavae. After completing the operation the breast-plate section can be readjusted by several bone sutures. The pericardium should be closed by interrupted sutures which should not be taken too closely together, so that any fluid exudate can escape between the sutures. The mediastinal space must be drained and this in the absence of air (elimination of air by the negative pressure in the mediastinum). The space is walled off after a few days, when emphysema of the mediastinum is no longer to be feared. I have now used this method six times with satisfaction. I would consider it applicable if a complicating wound in the thorax subsequently required a wide opening in the pleura.

The indications for the operation are given and two illustrative cases cited.

DISCUSSION.

Dr. Francis T. Stewart, Philadelphia: In connection with Dr. Kummel's paper I wish to mention a case of aortorrhaphy. The patient was suffering from vegetative endocarditis and had an embolus lodged at the bifurcation of the abdominal aorta. There was beginning gangrene of the right leg and symptoms of gangrene in the left. The abdomen was opened, the posterior parietal peritoneum split, the aorta compressed between the fingers of an assistant and the embolus dislodged without difficulty. This was several days after impaction of the embolus, and aside from the successful suturing of the vessel is of importance in showing that the embolus was not adherent. The pulse was reëstablished in the lower extremity, but the patient died four days after operation from edema of the lungs as a consequence of the cardiac condition.

In connection with Dr. Armstrong's paper I would mention a patient with a bullet lodged in the fat about the base of the aorta within the pericardium. I operated with the idea that there was a heart wound and found the pericardium moderately filled with fluid, removed the bullet, did not drain the pericardium and the patient recovered.

In connection with Professor Proust's paper, at the last meeting of the American Surgical Association I reported five cases of suture of the heart. Three recovered, and at that time I said that those who were still living, showed no evidence of cardiac degeneration. These patients, I must admit, have not been examined as carefully as Dr. Proust's patients. X-rays have not been made and the electrocardiogram has not been used. One patient ap-

parently well, died at the end of five years. Autopsy showed what Professor Proust pointed out ought to occur, pericardial adhesions, and in that patient, the descending branch of the left coronary artery had been tied at the operation. In the area supplied by this artery there was a marked interstitial myocarditis with dilatation, not so great as to justify the diagnosis of aneurysm, but marked thinning and dilatation.

DR. WILLY MEYER, New York: From what I have seen experimentally I feel that the future of this subject lies in intrathoracic surgery, and not in splitting the sternum. In aneurysm of the aorta, it is due to Dr. Lewis, who has followed the method of introducing a special wire into the aneurysm and treating with electrolysis, that we at this time consider this the best method. The degree of success attendant upon this method does not mean that we have reached the end in treatment. All experiments should be continued and the future will show more radical methods.

DR. HOWARD LILIENTHAL, New York: I would like to call attention to the fact that splitting of the sternum may be followed by the accident of auricular fibrillation. I had a case not long ago in which I split the sternum by the Sauerbruch method down from above and then, carefully splitting the two halves, removed a large intrasternal growth. I have the tracings and the case will soon be published. Inasmuch as this method has been brought before us today, the possibility of this accident should not be overlooked. One of my colleagues found that no case was reported in which auricular fibrillation had been actually observed upon the heart itself in the human subject. Dr. Armstrong is quite right in saying that he is the first to show this pathologic phenomenon.

PROFESSOR CHARLES HENSCHEN, Zurich: For saccular aneurysms of the thoracic aorta in which Tuffier advocated the simple occlusion ligature, the Matas procedure is analogous to an operation. In the fusiform aneurysms of the thoracic aorta I have attempted experimentally the strengthening of the vessel wall by operation in two ways. In one of these the aorta, in segments, is strengthened from without by broad bands consisting of flaps of fascia sewed around it. Our attempts show that these cuffs of fascia make possible an easily healing, mechanically excellent reinforcement of the vessel wall. In the second method tubes of absorbable material (of galatholith) of a calibre corresponding to that of the aorta, and in any case corresponding to the lumen below the damaged area of the vessel, are inserted through a longitudinal cut in the wall of the aorta into the lumen extending through the whole aneurysmal portion. In these inserted tubes oval openings are made to correspond to the origin of the more important vessels in order to permit the free passage of blood. At the lower end of the galatholith tube is bored a circle of round holes which permit the fixation of the tubes by means of interrupted sutures, penetrating through the wall of the aorta. Perhaps a combination of the outer fascial wall reinforcement and the tube method is more to the purpose, although both are in the experimental stage.

DR. HARVEY CUSHING, Boston: Some years ago in Baltimore experiments were undertaken in operations upon the cardiac valves. These were done in a very much more crude manner than the methods employed by Dr. Carrel. The lesions were made by introducing into the heart, either into the apex or into the larger vessels, knife hooks by which we could divide the valves, and it is extraordinary how simple these measures actually are. The character of the lesion was determined by the application over the valve of a phonendoscope so one could tell by the murmur when the lesion desired was brought out. These experiments were chiefly useful in serving as subjects for the class in cardiac studies of physical diagnosis. We were able to accomplish satisfactorily only the insufficiencies of the four valves; the experimental stenoses were much more difficult to produce. With Dr. Carrel's method I doubt not that the stenosis by suturing of the valves in direct apposition can be produced. Recently a patient in the Brigham Hospital with a severe mitral insufficiency, and who finally came in with a complete decompensation, had suddenly in the ward an embolism of the right femoral artery, lodging just at the bifurcation of the profunda femoris. Had my colleagues as much respect for my ability as had Dr. Stewart's for his, we would have been called upon to remove this embolus. The man had a dry gangrene of the lower extremity up to the knee. Amputation was performed and not long after he succumbed to his cardiac lesion. At autopsy nothing was found in the heart, except the familiar button-like slit of the mitral valve. If one could only have put, as was done experimentally, a little knife hook into the apex of the heart, the man's difficult stenosis could have been transferred into an insufficiency, and he at least would have been much better off so far as the function of his heart was concerned. Does Dr. Carrel feel that, although these things are possible upon the normal heart, when disease is present there is any chance that we may be able to clamp the root of the heart or be able to carry out some of these more serious operations?

DR. STEWART, closing: Just at this moment it occurs to me in connection with Dr. Carrel's work that it might be possible to increase the orifice of the heart somewhat in the same way that the orifice of the pylorus or of the ileocecal valve is increased, as suggested by Dr. Martin, by an incision down to the endocardium but not into it, allowing the wound to spread and suturing in another direction. Or, if it is desirable to decrease the opening, a portion might be excised without cutting into the heart cavity itself, and the wound sutured.

DR. CARREL, closing: With regard to Dr. Cushing's question of the possibility of extensive operations to a diseased heart, this can be solved only by experience. If the muscle itself is diseased we certainly cannot make an extensive operation involving the clamping of the pedicle of the heart and the stopping of the circulation. Regarding Dr. Stewart's suggestion of making a plastic operation in stenosis and suturing in the opposite way, I do not believe it is possible from a pathological standpoint, because the tissues are so taut that we could not bring them together without rupture.

CHOICE OF ANESTHETIC FOR DRAINING FOR ABSCESSES OF THE LUNG. REPORT OF TWO CASES OPERATED UPON UNDER LOCAL ANESTHESIA.

DR. FRED T. MURPHY, St. Louis: The writer believes that surgeons too generally have failed, in considering the needs for the use of the negative and positive pressure methods of Sauerbruch and Brauer, or the intratracheal insufflation of Meltzer and Auer, to distinguish sharply between intro-

thoracic operations in which the free pleural cavity will or may be opened, and operation in which the pleural cavity will not be opened.

The essential factors in operating for non-tuberculous abscess of the lung are considered to be the correct diagnosis, interference before the patient is so toxic as to be beyond relief, drainage without infection of the free pleural cavity, and avoidance of any factors which may tend to cause extension of the infection to uninvolved portions of the lungs.

The value of x-ray plates is emphasized as an aid in diagnosis. Results with and without operation are compared. The need of protecting the general pleural cavity from the abscess content is emphasized.

A REPORT OF THE CASES OF LUNG ABSCESS AT THE MASSACHUSETTS GENERAL HOSPITAL CLINIC.

Dr. Charles L. Scudder: A total of 27 cases operated upon. There were 9 deaths, 18 recoveries; 11 cases without cough or sputum at varying times following operations; 8 cases were well 12 years, 5 years, 4 years, 8 years, 1 year, 1 year, 6 months, 6 months, respectively after operation. The remaining three cases have not been followed long enough to be sure of the result. This series illustrates the variety of the etiological factors concerned. Pneumonia with the influenza bacillus, embolism, actinomycosis and subdiaphragmatic infections were the chief causes. The necessity for the early recognition of bronchiectasis is emphasized that the surgeon may have the opportunity of removing the affected lobe before terminal conditions become established. The value of the x-ray is also emphasized. The operation of draining a lung abscess is best done in two stages unless the lung is adherent to the chest wall.

SURGICAL INTERVENTION IN CASES OF PULMONARY INFECTIONS

Professor Antoine Depage, of Brussels: The results of Forlanini's method for lung tuberculosis are most favorable in cases in which one lung only is affected and in which there are no pleural adhesions. Forlanini's treatment is rather medical than surgical. We are pleased to state that this medical treatment is based on a surgical principle. Artificial pneumothorax as created through this method acts as follows:

1. In allowing the affected organ to rest, while the movement of normal respiration would prevent healing.

2. In allowing the walls of the cavity to fall together, thus emptying themselves of pus. It diminishes the absorption of toxins and the increase of bacteria. It allows a better healing of the ulcerated surfaces, on account of their proximity.

3. It is favorable to sclerosis of the pulmonary organs because it diminishes the blood and lymphatic circulation and produces irritation by the introduction of nitrogen in the pleura. (Castaigne.)

The question of whether there would not be reasons to make wider applications of Forlanini's method, not limited to tuberculosis was brought to my mind by the following case: In 1900 I had a case of infectious pneumonia which seemed as though it would be fatal on account of intoxication. The patient was a healthy woman of 27; the right lung only was affected; temperature 39.3 C. With the resection of two ribs and widely opening the right pleura relief came rapidly and the patient recovered. Unilateral pneumonia may cause death by acute intoxication before the second lung became inflamed. At this moment I would not propose to resect the ribs as in the above case, but I believe that Forlanini's metnod would be indicated. The collapsed lung is put at rest; it is no longer disturbed by respiratory movements; its circulation is far less active than when the lung is in normal inspiration. A collapsed lung can be compared to a member lightly compressed by a bandage, and this without allowing the intra-pleural pressure to be greater than the atmospheric pressure, simply by the fact of elastic retraction of the organ. In suppressing the respiratory movements and in diminishing the quantity of blood circulating through the organism, the chances of absorption of toxins which are the causes of immediate danger are reduced.

PULMONARY ABSCESS AND BRONCHIECTASIS; A CLINICAL REPORT.

Dr. Howard Lilienthal, New York: Fourteen operations are reported in 11 cases of non-tuberculous intrapulmonary infection. There were five cases of bronchiectasis with one death in the hospital and one death a year later of hemorrhage, 3 cases of acute abscess with 2 recoveries, 1 chronic apical abscess recovered, 1 extensive gangrene died, 1 fetid bronchitis with minute abscesses mistaken for bronchiectasis died.

The various operations were: For direct drainage, free opening of the pleura, multiple rib resections, Tuffier's extrapleural tamponade; in 1 convalescent case not yet discharged the entire right lower lobe was removed for bronchiectasis.

The importance of bronchoscopy is emphasized in all cases in which operation is contemplated.

Intratracheal insufflation fills all indications when differential pressure is desired.

Conclusions arrived at solely from the cases reported are:—

1. The differential diagnosis of true lung abscess and suppurative bronchiectasis is important.

2. Radiographic study of each case is essential.

3. Bronchoscopic examination is a valuable procedure and should not be omitted.

4. Drainage of a lung abscess by thoracotomy is likely to result in cure.

5. Drainage of large infected bronchiectases may be followed by improvement, but complete recovery is unlikely.

6. Extensive thoracoplasty should be reserved for those cases in which other operations have failed.

7. Exploration of the pleural cavity and of the lungs by intercostal thoracotomy is feasible and reasonably safe.

8. Extirpation of a bronchiectasis by removal of the affected portion of lung may lead to complete recovery. The danger of the operation is great.

9. Artificial pneumothorax and Tuffier's extrapleural tamponade should be reserved for cases of pure tuberculosis.

10. Intratracheal insufflation is a simple, accurate and safe method of securing differential pressure.

11. Operations involving one lung can be performed with inhalation anesthesia.

THE PRESENT AND FUTURE IN THE SURGICAL TREATMENT OF TUBERCULOSIS OF THE LUNGS AND BRONCHIECTASIS.

PROF. C. HENSCHEN, Zurich: Severe and moderate cases of unilateral tuberculosis of the lungs, cavernous as well as infiltrated, namely, those with pronounced tendency to shrinkage, can through lung collapse and compression become cured clinically and anatomically. Every treatment of collapse must begin with an attempt at artificial pneumothorax; if the latter is impracticable on account of adhesions, then extrapleural thoracoplasty is indicated, with which in the clinic in Zurich, out of 122 cases 20% were clinically cured, 34.6% considerably improved, and 26% improved. In certain selected cases extrapleural pneumolysis and plugging also gave favorable results.

Among the bronchiectatics, the peripheral types with soft walls, principally those of post-pneumonic and post-empyemic origin may be treated by expansion and compression (verlagerung) measures (thoracoplasty, pulmonary ligature, intrapleural resection after Garré, extrapleural pneumolysis with plugging). Cases with primary disease of the bronchial wall or lesions situated centrally, around the hilum or with thick walls remain uninfluenced by this treatment. In the future a cure may be attained by working out the most practical compression method (verlagerung of the lower lobe under the diaphragm, after Henschen, in circumscribed bronchiectasis of the lower lobe), or through radical removal of the entire diseased lobe of the lung.

THE SURGICAL ASPECTS OF BRONCHIECTASIS.

DR. JAMES G. MUMFORD, Clifton Springs, N. Y., and DR. SAMUEL ROBINSON, Clifton Springs, N. Y.:

1. Granted that bronchiectasis is commonly the result of bronchial obstruction by foreign body, tumor, or disease, the first indication in therapy should be the removal, if possible, of this obstruction. Bronchoscopy for the removal of a foreign body has not infrequently arrested bronchiectasis.

2. In the earlier stages of the disease, nitrogen gas injection producing artificial pneumothorax is indicated, and should always be tried.

3. Pleuro-pneumolysis, or extensive rib resection, is a dangerous procedure, with additional dangers in bronchiectasis. It should be employed only when adherent pleura prevents the introduction of nitrogen gas. Even then it is a dangerous procedure, and one of doubtful value.

4. In late cases of bronchiectasis, where the disease is obviously confined to one lobe, lung resection is the sole source of relief. The attempt at lung resection at a one-stage operation has been attended with high mortality. Occasional successes do not prove that the one-stage amputation will become the method of choice. For the time being, at least, the general surgeon should, by artificial pneumothorax or pulmonary arterial ligature, first produce compression of the lung before attempting to excise any portion of it. Meanwhile, let us hope that the student of thoracic surgery will develop the one-stage excision.

ON BRONCHIECTASIS.

DR. WILLY MEYER, New York: This paper is written to give a picture of the present status of this disease, and because there is no treatise on this subject in the English language. It may be said today that bronchiectasis is a surgical disease, since medical, hygienic and specialistic treatment merely alleviate. It must, however, be considered a borderland trouble, because after operation the patient must pass into the hands of the internist and laryngologist for further treatment. It must be borne in mind that bronchiectasis is an affection of the bronchial tree, not of the pulmonary parenchyma. Hence, methods of benefit in tuberculosis cannot here have the same effect. A definite diagnosis is not easy. Stereoscopic radiography is here of great assistance. Since it has been shown that injection of a number of c.c. of fluid into the bronchi is well borne, I expect to try insufflation of argyrol, with the idea of enabling the radiographist to show more distinctly the contour of the walls of the distended bronchial cavities. The larger cavities of the lung are, of course, best treated by pneumotomy, and in localized and early cases this has given a number of cures. Loosening of the lung in conjunction with the costal pleura from the endothoracic fascia (pneumolysis) and the filling of this cavity with a transplant of fat tissue or omentum kept in cold storage (Tuffier) has shown some good results. A paraffin plomb for filling the cavity may also be of use, as has also thoracoplasty with resection of a number of ribs. The loosening of the lung from its adhesions with the pleural cavity and fastening its base further up on the diaphragm, giving the complementary space a chance to close by granulation was of benefit in one case of Garré's. Sauerbruch's and Brun's method of ligating branches of the pulmonary artery, which I have done three times, produces marked connective tissue formation in the effected lobe and firm adhesions between pulmonary and costal pleura, thus allowing the lobe to be compressed by thoracoplasty and phrenicotomy, to be performed later. In not a single case has real cure been obtained. In all patients a persistent expectoration of from one to three ozs. per day has been seen. It is possible that the quantity of expectoration may be further reduced by reduction of the fluid ingested (thirst-cure), and its character further improved by the inhalation of superheated medicated air, with the help of the hot-air douche, or by the direct application of fluids blown into the bronchus. Only the removal of the diseased lobe or lobes of the lung—pneumectomy—can effect a real cure in these patients. The efforts of the surgeon must be continued in the direction of overcoming the obstacles as to this radical interference. There are on record 8 pneumectomies for bronchiectasis with a mortality of 50%.

DISCUSSION.

DR. GERARDO M. BALBONI, Boston: My experience with artificial pneumothorax is based upon 61 cases treated during the last three years; 57 were cases of pulmonary tuberculosis, 4 were non-tuberculous. There were 2 lung abscesses and 2 cases of bronchiectasis. The experience with these four non-tuberculous cases is pertinent to this discussion. One lung case and one abscess case may be regarded as cured; the other two as improved. The puncture method was used in all these cases. The chief dangers associated with this method of treatment are pleural shock, gas embolism, spontaneous pneumothorax from rupture of the lung, and rupture of the mediastinum. It is best to produce the pneumotho-

rax gradually by frequent injections of nitrogen, bringing it to the desired volume and pressure. It should be maintained uninterruptedly for the entire period of treatment to bring about anatomical healing.

The manometer may show respiratory oscillations of three kinds,—negative, even oscillations, and positive. It is very important not to allow the lung to expand prematurely. The time to keep the lung collapsed varies with each individual case, depending upon the character and extent of the lesions. It is necessary to keep the lung collapsed for at least a year. When the patient has been free of symptoms for four or five months we may allow gradual re-expansion. With return of symptoms treatment should be immediately resumed. Frequent x-ray examinations are essential. The patient should have full knowledge that the treatment is long, tedious, troublesome and expensive and not devoid of dangers.

Dr. John B. Murphy, Chicago: There is no great danger from pneumothorax if you recognize the conditions which tend to produce a mortality. If you immobilize the mediastinum and fix the lung hilum you have no danger. Based upon my personal observation in from 2300 to 2400 cases, there is practically no danger from collapse of the lung. The series of cases presented today show that the chest can be opened and explored without special danger from pneumothorax if you immobilize the mediastinum. In my earlier work, when I let the mediastinum vibrate on inspiration, the septum went from side to side and there was no respiratory exchange produced. In the human if you will open the chest wall and compress the mediastinum to the opposite side you can go on with the work. In one case in which I opened both thoracic cavities in removing the anterior wall of the chest for carcinoma, in taking off the left side of the sternum I opened the right pleura. I heard the whistle and compressed it with my finger, completed the operation, sutured it, put back the flap, and aspirated the side on which we operated, which we always do to expand the lung. As a profession, I feel that we are not excused for postponing pneumothorax until we have the superlative lesions for which the more serious operations are done.

Dr. E. Wyllis Andrews, Chicago: I will follow my colleague, Dr. Murphy, to emphasize a point which has not been sufficiently brought out, and upon which he is a little heretical, as well as I,—the want of any indication for any kind of lung replacement in unilateral chest operations. Negative pressure is superseded by positive pressure. Experimental surgery has shown us that opening one pleural cavity is without risk, and we can go further and say that the opening of one pleural cavity does not in all cases stop the function even of the lung on that side; resection of the chest wall does not necessarily collapse the lung. That the lung should have a positive expansive power does not seem reasonable, but it has. If, as I have, you have seen a lung expand sufficiently with each respiration to thrust itself out into the outer air, you will believe that not in all cases will the lung collapse. One may cut a wide opening in the chest, and in the majority of instances even should the lung collapse no great harm is done.

Dr. Frank E. Bunts, Cleveland: I agree with Dr. Andrews regarding the innocence of opening one side of the chest and performing almost any kind of operation necessary without artificial means of insufflating the lung. My experience is confined to lung abscesses and three small intralobar abscesses which could be located only by the radiogram.

Dr. Emmet Rixford, San Francisco: I think not enough attention has been called to the difference between unilateral open pneumothorax and closed pneumothorax. In my experience immobilization of the mediastinum works well when you have the right side of the chest open, but on the left side I have found difficulty in putting sufficient pressure on the heart; the trouble came from pressure on the heart. You can, however, make a partial open pneumothorax by blocking the opening with a sheet of guttapercha tissue or a folded wet towel that can be slipped under the flap and some resistance made to increase the egress of air. With the respiration and pulse approaching the danger point we would close the opening with the wet towel when the respiration and pulse would subside. After closing the opening with the flap the air is aspirated from the cavity and the respiratory function is satisfactorily restored.

Dr. Fred T. Murphy, St. Louis: I would emphasize the importance of differentiating between the conditions in which the cavity is to be opened and in which it is not. In the acute abscesses it seems to me, althouh Dr. Bunts has had a large experience, that it is essential to fix the chest wall before drainage.

I believe it is distinctly essential to use intratracheal insufflation in the cases in which the exploration is extensive and the chest wall widely opened, and not to use a general anesthetic. The remarks in the discussion have been qualified by the statement that in nearly all cases nothing happens. Why take the chance in the odd cases with such a simple method as that of Meltzer and Auer at one's disposal?

Dr. Lilienthal, closing: I want to correct a misapprehension on the part of Dr. Andrews, who says he has seen the lung extrude itself from the chest and that the motions of the lung with the chest open are satisfactory. If he has seen this it certainly has not been with inspiration, but expiration; probably with the patient groaning and straining you will get from the other side something that looks like an expansion, but which is really a blowing up of the lung. Regarding the tamponade, I have tried paraffin and fat, and I would strongly urge any one not to use the paraffin, which is a rigid body. The fat is soft and plastic and will adapt itself to the cavity and exert pressure. It is easily transplanted, and in a case in which I had used it, I found it at the second operation apparently well nourished.

Dr. Samuel Robinson, closing: In connection with the treatment of bronchiectasis I would emphasize the importance of compression of the lung. Artificial pneumothorax will compress the lung in the early cases, but, unfortunately, the cases do not all come early. The compression should then be done by rib resection, if necessary, conservatively performed. All of the cases, with one exception, of complete removal of the lobe of the lung for an infectious disease, have been the result of a series of previous operations. Every case of successful lobe excision has been accomplished by the two-stage method. Our approach to bronchiectasis should be with the idea of eventual excision. The fact that excision has almost universally failed in the one-stage operation should contraindicate it in people

with low resistance. With abscess of the lung the mortality is low. I agree with Dr. Fred Murphy upon the necessity of local anesthesia when possible.

DR. WILLY MEYER, closing: From the discussion it would seem that bronchiectasis is a surgical disease and that the earlier the patient is turned to the surgeon the better for a successful issue. Let us hope that with insufflation of the fluid of argyrol into the bronchi there will be improvement in the stereoscopic radiography of the condition. In treatment we know that compression artificially has excellent results. As Dr. Rixford has said, there is a difference whether the compression is done gradually or suddenly. Differential pressure as such is taking thoracotomy out of emergency work. It has paved the way to opening the pleural cavity in a safe manner, with the result that this cavity is now as widely opened with the help of this pressure as can be the abdominal cavity.

PLEURAL AND PULMONARY COMPLICATIONS IN TROPICAL ABSCESS OF THE LIVER.

DR. JAMES E. THOMPSON, Galveston, Texas: The influence of the absence of peritoneum over a part of the upper surface of the liver on extension of infection towards the pleural cavity is discussed, and it is concluded that the presence of the peritoneal cavity is no barrier, but that infections spread equally easily in all directions.

Infection of the lung and pleura occurs in one of two ways: (1) by direct extension, (2) by metastasis. The former method is by far the more common. Metastatic abscesses have been found not only in the lungs, but in the brain. When the abscess opens into the pleural cavity, it may do so either gradually or suddenly, the former being the rule. If the abscess penetrates the lung and opens into a bronchus, the patient spits up chocolate-colored pus. The quantity expectorated is sometimes very considerable. Spontaneous cures have been reported, where the abscess was completely evacuated by this route. It is, however, a rare termination. Usually the liver abscess empties itself partially and continues to drain intermittently through the lungs. Amebic infection spreads to the lungs and produces cavitation in it. In many instances the liver abscess heals completely, but the cavity in the lung persists and increases in size, killing the patient eventually.

In such instances the patient spits chocolate-colored pus to the end, the source of the pus being the cavity in the lung.

The prognosis is very unfavorable. Many authors place it as high as 84.8%. The author's mortality was 45.4%. If, however, every case could be followed, at least 75% would die from the complication.

Treatment is considered under: (1) Purulent extravasations into the pleural cavity should always be drained, and an attempt made to place a drainage tube into the abscess cavity in the liver. (2) Abscesses opening directly into the lung should be treated conservatively for a time, because some heal spontaneously. If they drain badly and the patient is losing ground, they should be attacked boldly by the transpleural operation and the cavities in both lung and liver drained.

A paper entitled "Empyema" by DR. JOSEPH RANSOHOFF of Cincinnati was read by title.

DOUBLE AND ANOMALOUS FORMS OF EMPYEMA.

A Preliminary Report on a Proposed Method of Treating Empyema Without Resort to Pneumothorax.

DR. KENNETH A. J. MACKENZIE, Portland, Ore.: The author reports in detail four of his own cases of double empyema occurring during an epidemic of influenza in the Northwest in the year 1879. In all cases either bilateral simultaneous thoracotomy or bilateral thoracotomy with a few days' interval between operations, was done. Several interesting cases of anomalous forms of empyema are reported, including gunshot wounds, stab-wounds, putrid empyemata following aspiration, and one case in which the Paragonimus Westermanii was the etiological factor. Thirty fully reported cases of double empyema are collected from the literature, in all of which aspiration, incision and drainage, resection and drainage, or some combination of the three procedures was performed, either simultaneously or at intervals varying from one to 150 days. In one case simple bilateral aspiration effected a cure. Including the fully and partially reported, 140 cases of double empyema are found in the literature, with a total mortality of 37, or 27.14%.

The author concludes:—

1. That the inefficiency of aspiration alone, considered together with the danger of septico-pyemia, warrants a more thorough operation in all cases.

2. The shock of an acute traumatic pneumothorax and the present mortality in the treatment of empyema makes the development of a better procedure desirable.

A preliminary report of a very ingenious substitute for acute operative pneumothorax is submitted. The plan is to replace the serous or purulent fluid of pleurisy or empyema by a non-toxic and non-absorbable fluid, such as petrolatum or liquid paraffin. The technic of this procedure is given. The method offers the advantage of relieving empyema without the shock of a traumatic pneumothorax. The hydrocarbon will act as an inhibitor of bacterial growth. By holding the surfaces apart until inflammation is allayed, dense adhesions are prevented. The non-absorbable and non-toxic fluids may prevent progression to the purulent stage. This procedure may be substituted for compression of the lung by nitrogen gas whenever such means are resorted to for the cure of tuberculosis.

VISCERAL PLEURECTOMY FOR CHRONIC EMPYEMA.

DR. CHARLES H. MAYO AND DR. E. H. BECKMAN: Up to the time of Fowler and DeLorme, various operations for the relief of chronic empyema with a large cavity have been tried in order to obliterate the cavity by collapsing the chest-wall and without making any attempt to restore the function of the collapsed lung. The operations of Fowler and DeLorme have been accepted quite generally in Europe, but have not received much attention from American surgeons. A systematic review of the literature discloses but 24 cases reported by American surgeons in the last twenty years. It is believed that in a considerable percentage of cases of chronic empyema the lung will expand to a greater or less extent if visceral pleurectomy, combined with the gridironing of Ransohoff, is performed. In the experience of the authors, the operation is not so severe or so dangerous as the

Schede operation. Patients should be carefully prepared for operation by securing drainage at the most dependent part of the cavity, by reducing the infection to a minimum and the resistance of the patient to the maximum by vaccines. The operations for this condition cannot be made by rule, but must be selected individually for each case. They are often best done in stages, especially when the patient is in a debilitated condition. It is advised to try visceral pleurectomy first, as some lung expansion is nearly always obtained. If the cavity still persists, the operations of Estlander and Schede, or one of the modifications of these operations can be done at a later time to obliterate the cavity remaining. Four cases of visceral pleurectomy are reported, three of which healed primarily, and in the other two-thirds of an entirely collapsed lung is functioning. All the patients were adults.

DISCUSSION.

Dr. Joseph Ransohoff, Cincinnati: The thoracic cavity cannot be opened with the same ease and safety as the abdominal cavity, because of the actual shock accompanying the opening for such a small thing as aspiration. In my own service I know of two deaths upon the table from simple thoracotomy, deaths that occurred without premonition under general anesthesia. There is no place in the whole anatomy where the use of a knife is more likely to be followed by shock than in the chest, and if anywhere anoci-association is indicated, it is here. It is highly essential that we should open the chest under local anesthesia. One of the most admirable additions to our treatment of the simple cases is that of Hobben, of not aspirating the fluid but of blowing it out. The last essayist alluded to an operation which I devised some seven or eight years ago,—discission of the pleura. It is an operation like so many others that one makes because he cannot continue with an operation that he originally set out to do. How to designate this modification of the DeLorme-Fowler puzzled me until I remembered the operation of the ophthalmologists, known as discission.

Dr. Fred B. Lund, Boston: In 1910 I reported seven cases of pleurectomy. Since that report I have been able to modify Dr. Ransohoff's procedure by leaving on some little patches of pleura, and in favorable cases they will be long enough to suture part of the lung to the chest wall. In children if you do an Estlander or Schede operation and take out all the ribs, you invite curvature of the spine, but if you can make the lung expand you will find a straight back as the child grows. Local anesthesia in ordinary empyema is very valuable. Where you trephine the rib and put in a small drain you will not obtain satisfactory results, nor even where you put in a large tube. There is needed a large hole for the pus to come out and a long lap to come down over it so that the air cannot get in. I have used the skin for this lap recently, making the incision in the skin over the rib, below the rib you take out, suturing the top to the lower end of the incision, and the upper end is absolutely flush with the inside of the chest. Thick pus will lift up the lid, and when the chest expands the air is prevented from getting in.

Dr. Charles N. Dowd, New York: I have been much interested in the problem of decortication and have done the operation in 24 cases. Among my cases I had to operate three at periods of several months or years after the original operation, and I have been very much surprised to find how little lung remained for these patients. I think in the discussion today the difficulties of the DeLorme and Schede operations have been magnified. You will find in each of these chests a sinus running to the apex of the chest from the cavity. If you carry the incision through the anterior axillary line, cut one rib after another to the apex of the chest, and then cut through the pulmonary pleura and strip it back you will not give your patient very much shock.

Dr. Alexander Primrose, Toronto: In the case of a man who came with a pyopneumothorax and extreme emaciation and discharge I undertook to do an extensive Schede operation and succeeded in carrying him through and he made a complete recovery, returning to his work as a motorman. He continued for two years, when he contracted pneumonia and died. At post-mortem we found, as Dr. Dowd stated of his cases, very little functional lung on the operated side. It appears to me that if after section of the visceral pleura these lungs are capable of expanding, then these individuals are in better condition to withstand such an illness as my patient had.

Dr. Russell, Melbourne, Australia: It occurred to me that Dr. Ransohoff laid too much stress upon the fact of opening the pleura widely. In Australia it is noticed that in cases of hydatid of the chest, extreme danger and sudden death are liable to attend a slight procedure such as diagnostic puncture. The explanation is still to be sought. It is a nervous phenomenon from effect on the vagus. It is not a case of drowning the patient by the escape of the hydatid fluid into the cavity and the bronchus. It is also well known that sudden death is liable to occur from a cause so slight as syringing out the pleura.

Dr. Frank E. Bunts, Cleveland: If I am not mistaken Dr. Murphy gave us an interesting account of treating some of these cases by the injection of formalin without the necessity of opening the thoracic cavity. I wondered whether in double empyema where there is presumably danger in opening both cavities at once, if we opened one, we could not inject the other with the formalin solution. I recently had occasion to operate on a child of thirteen for appendicitis and subsequent pleural pneumonia, then empyema, which I opened and drained, and the child then developed an empyema on the other side. I was afraid, not knowing the good results which Dr. MacKenzie has spoken of in treating both sides at once, to open the other side, and advised the injection of formalin and glycerin; this was done and the pus continued and on account of the embarrassed respiration it was necessary to aspirate that side every day for several weeks until the side which was draining closed. Then I resected the rib and drained the other side. The patient made a satisfactory recovery.

Dr. John B. Murphy, Chicago. Answering Dr. Bunts, he is quite correct. I did recommend this plan and still use it. I never open an empyema without using that first, and I rarely have to open them after using it. I never use it where the empyema communicates with the bronchus, and in postpneumonic empyemas, if treated early, one to three injections are sufficient. I have not had any untoward accidents from it. Brewer's comment in "Keen's Surgery," that he had learned of two fatal cases, does not agree with my experience.

DR. THOMPSON, closing: The constant spitting up of the chocolate pus should not be considered convincing evidence of the continued presence of the abscess in the liver. In a number of cases post-mortem has shown no abscess.

DR. MACKENZIE, closing. In my experiments upon guinea-pigs, with the aid of Professor Benson, the thorax was injected with the liquid paraffin. At the end of five days there was no evidence that the petrolatum was setting up inflammation of the pleura or of absorption of the petrolatum. Two dogs were experimented upon; one died in the midst of operation; the second, because of faulty technic, showed at post-mortem extensive invasion with both pleurae involved.

At the meeting of this Association in Denver I was impressed with the figures reported by Dr. Murphy and I wondered why the profession of this country was so slow to adopt the points so well and conservatively explained at that time.

DR. MAYO, closing: Some one must see the early cases in order to open and drain them, and Dr. Murphy's method of injecting the cavity to stimulate repair had a good deal to recommend it. These conditions in children sometimes get well from one or two aspirations, which will cure pneumococcus empyema. It will be of advantage if some one will bring out what can be accomplished by preventing these cases from becoming chronic.

(*To be continued.*)

Book Reviews.

The Legend of Maillot. By EMILE LEGRAIN, M.D., of Algiers. Second edition. Paris: Maloine. 1914.

After describing the great epidemics of the armies of Northern Africa from the time of the Romans, the author devotes this polemic monograph to a refutation of the theories of Maillot in their interpretation and treatment. He considers that Maillot did not introduce quinine medication into Algeria, and confounded diverse maladies under the same diagnosis. Whatever the merits of his contention, the work is a useful contribution to the literature of medical history.

Infant Feeding. By CLIFFORD G. GRULEE, A.M., M.D., assistant professor of pediatrics at Rush Medical College; chief of pediatric staff, Cook County Hospital. Second edition, thoroughly revised. Octavo of 314 pages, illustrated. Philadelphia and London: W. B. Saunders Company. 1914.

The fact that a second edition of this book has been called for in two years shows that it has been well received by the medical public. The knowledge of the subject of infant feeding which has been acquired during the last two years has been incorporated in this edition. The general plan of the work is the same, however, and its merits and defects the same as in the past. It is well worth perusal by all who are interested in the subject of infant feeding, especially if they wish to become acquainted with the teaching of the German school of pediatrics.

Medical and Surgical Reports of the Episcopal Hospital. Volume II. Philadelphia: William J. Dorman. 1914.

This second volume of the Philadelphia Episcopal Hospital Reports records the work of that institution for the calendar year 1913. During this period 5642 patients were treated in the hospital and 31,656 in the out-patient dispensary. Three-fourths of the volume consists of a series of 44 papers by members of the staff on a variety of topics of clinical or scientific interest. The book is illustrated with 157 figures, many of which are full-page plates, and is a worthy contribution to medical literature by one of the large hospitals of the United States.

Causes and Cures of Crime. By THOMAS SPEED MOSBY. Illustrated. St. Louis: C. V. Mosby Company. 1913.

In spite of numerous split infinitives and a few expressions like "this phenomena," this book is really well written. It presents in a singularly attractive and original style the opinions of an expert criminologist about the etiology, prophylaxis, and therapeusis of crime.

For the cosmic factors of crime, the author hardly makes out more of a case than to instance the climatic and seasonal variations of crimes of violence (including suicide), and crimes against property. The social and individual factors, however, he presents in good detail. Prophylactic measures he divides into eugenics, asexualization, education, and social amelioration. With reference to "the feminine suffrage" he eloquently and picturesquely employs the adverse biologic argument, recently made familiar by Professor Sedgwick.

In the treatment of crime, Mr. Mosby believes that the theory of punishment should be protection of the community and reformation of the individual. The death penalty he considers more justifiable. Imprisonment should be regarded as a means of segregation, not of punishment. The reformatory should replace the penitentiary. Indeterminate sentence, probation, and parole he regards as measures of proved efficacy in the regeneration of criminals. The new penology, in this aspect becomes a department of social medicine.

For this relation to medicine, and for the author's refreshing and eloquent fearlessness of statement, the book deserves and attracts interested reading especially by physicians. It is marred by many typographical errors, and by the pictures of criminals, which, as they are not used for reference in the text, seem to serve no useful illustrative purpose.

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LATENT SYPHILIS.

SYPHILIS is no longer to be regarded as a local process, but as a systemic infection with the spirochæta pallida, which has already spread from the site of the initial lesion at the time of the development of the chancre and has become a general invasion of the body at the period of the secondary manifestations of the disease. The diagnosis is relatively easy during the early part of its course, but is increasingly difficult with the lapse of time after the primary and secondary stages have passed. It should be appreciated that there are atypical manifestations of late syphilis which may readily escape detection without resort to more searching investigation than is usually attempted.

The Wassermann test is as yet commonly applied only in the larger medical centres. Blood for the test can easily and safely be procured by venous puncture under the observance of proper technic and strict asepsis, but it is unlikely that performance of the test can ever be successfully carried out without adequate laboratory facilities and special training. It is fortunate that the long felt need of a State Laboratory for the performance of the Wassermann test is soon to be filled. A grant for this purpose has now been made by the Legislature and the laboratory will soon be in operation.

In the diagnosis of latent syphilis a Wassermann test on the blood may not be sufficient. In some cases, a positive blood test can be provoked by the administration of salvarsan. In cerebrospinal syphilis, complement fixation tests on the blood may be negative while the spinal fluid is positive. The suspicion of cerebrospinal syphilis may, therefore, need to be confirmed by lumbar puncture. In addition to the complement fixation test on the spinal fluid, a cell count, investigation of the fluid for globulin and Lange's colloidal gold test may be of assistance.

With the recognition of the number and variety of the late manifestations of syphilis should come an appreciation of the responsibility of the medical profession for their occurrence. Disabling syphilitic disturbances would be far less frequent if the disease were more efficiently treated earlier in its course.

AMERICAN RED CROSS PLANS AND PREPARATIONS.

DURING the past week, subscriptions to the American Red Cross relief fund for the European war have not come in as rapidly as had been hoped. On Aug. 27, Miss Mabel Boardman, the active head of the Red Cross Society, issued the following statement:—

"Up to the present time for the European war there is only about $100,000 in sight, and that includes $20,000 we expect to receive from the Newport fête. It will take every cent of this money to equip and send the first steamship to Europe with nurses, surgeons and medical supplies. Our idea has been to have the steamship return and take over a second staff, as it will encourage all to have help arrive when the first lot have become pretty tired with the strain.

"One might think it an easy thing to go out and buy 250,000 pieces of gauze and a like amount of common cotton for splints, absorbent cotton, 2000 stretchers and great quantities of chloroform, ether, ice bags and hypodermic needles. We have to telegraph all over the United States for them, as no one firm keeps such large amounts on hand. Other countries are probably trying to buy the same things here. I met a physician from the Berlin Red Cross Society last evening. He had just arrived from Germany and is probably here to see what he can buy. He said his wife and daughter are serving in a Berlin hospital.

"The average person reads of 10,000 soldiers wounded, as though it were happening in mediæval times. If a man is hurt in the hunting field he is taken immediately to a hospital, and is given the best attention. If there were 100 surgeons working over 10,000 wounded, giving only ten minutes to each, the last man would have to lie unattended for sixteen hours.

"It would be a great help if women here

would start sewing for the soldiers in hospitals by making nightshirts, pajamas and convalescent robes."

On account of the shortness of funds, an appeal has been made for the coöperation of various other bodies and organizations.

"It is believed that the plan to bring about a coöperative arrangement between the municipal government and the board of trade, chamber of commerce, merchants' association and local Red Cross organization in each of the principal cities of the United States will result in the next few days in a systematic and thorough canvassing for Red Cross European relief funds, and it is hoped that funds, which are desperately needed for the Red Cross relief expedition, will come in generously.

"Red Cross headquarters received a cablegram on August 28, from Nice, France, announcing that an American hospital ward, for the care of wounded soldiers, had been opened by American citizens there and thanking the American Red Cross for a recent financial contribution which made this ward possible.

"All subscriptions to this relief fund may be sent to help every suffering country, or if desired for any especial nationality, the subscriber may so designate the gift. The American Red Cross stands for perfect neutrality to alleviate all suffering."

As a matter of fact, the Newport fête on Aug. 28 netted the sum of $40,000 for the Red Cross fund, and since that time, subscriptions have come in more abundantly. On Sept. 2 the total Massachusetts fund amounted to $7,982.82, and the New York fund to $53,287.10.

On Aug. 31 it was announced that the American Red Cross had chartered the German steamship *Hamburg*, which was renamed the *Red Cross* and on Sept. 10 sailed from New York carrying the first relief expedition.

"The expedition consisted of 120 nurses and 30 surgeons. The nurses will be in charge of Miss Helen Scott Hay, a graduate nurse, who was chosen by Queen Elinora of Bulgaria to oversee the building of a hospital in that country. The whole party will be in charge of Major Robert Hugh Patterson. The ship will touch at Falmouth, where 24 nurses—two units—and six surgeons will be landed for England. At Rotterdam will be landed two units for Russia, two for Austria and two for Germany. The nurses for France will be left at a French port. Nurses for Servia were sent over on Sept. 8, in the Greek ship, the *Ioannina*. Holland, Greece and Italy have asked the American Red Cross if there will be nurses for them in case their countries become involved in the war, and Miss Boardman hopes that when the relief ship returns it can be fitted out again and despatched to Europe."

Of the surgeons aboard the *Red Cross*, only one is from Massachusetts, Dr. Howard W. Beal, of Worcester. Of the nurses, 11 are from Massachusetts, 11 from Ohio, and 12 from Illinois.

Meantime similar plans and preparations have been made and put into effect by the Red Cross Societies of other nations.

"The first British Red Cross detachment started for Belgium on August 16. It was sent at the request of the Belgian government, for general service with the allied troops and consisted of 10 surgeons, 10 dressers, and 20 nurses. The surgeons were carefully selected for the work. Some of the dressers have already had experience in the Balkan war. The nurses are fully trained hospital nurses of not less than three years' training. The members of the detachment took light equipment, and on arrival their services were placed at the disposal of the war authorities. This unit is establishing a hospital at the offices of the Sleeping Car Company at Brussels. Two of the surgeons have gone forward with the Belgian troops.

"Cable messages from Paris announce that the French government has placed at the disposal of the American Hospital, at Neuilly, the new buildings of the Lycée Pasteur, to be used during the war as an annex to be known as the Ambulance Hospital for the care of the sick and wounded of every nationality. It will be equipped and supported by Americans and served by American doctors and nurses, and will maintain about 1000 beds.

"It is the intention to raise $250,000 in the United States and an equal amount in France for the equipment and maintenance of the hospital."

The steady advance of the German armies towards Paris may, however, interfere with the plans and activities of this hospital at its present site. On Sept. 2 the seat of French government was removed to Bordeaux, Paris was placed in a state of siege, and all wounded troops were ordered removed from the city.

MEDICAL NOTES.

EFFICIENCY OF TUBERCULOSIS SANATORIA.—Methods by which tuberculosis sanatoria may be made more efficient through the employment of their "graduates" are discussed in a series of papers issued on Aug. 31 by The National Association for the Study and Prevention of Tuberculosis in its official organ, *The Journal of the Outdoor Life*.

The papers by Dr. Charles F. Bolduan, of the New York City Health Department; Dr. Sidney F. Goldstein, of the Free Synagogue, New York; and Dr. David R. Lyman, of the

Gaylord Farm Sanatorium of Wallingford, Connecticut, show that many tuberculosis sanatoria waste their efforts because they do not care for their patients properly after discharge. Dr. Goldstein found that in one sanatorium in New York, 52% of the work done was literally wasted. Dr. Bolduan's and Dr. Lyman's results showed some waste, but not nearly so large a percentage. The reason for these relapses is found both in the unsanitary home conditions to which the patient returns, and also in the industrial conditions under which he is forced to work.

Dr. Lyman says that the greatest present need in sanatorium treatment is early diagnosis, and that such early cases can usually return with safety and success to their former occupations after discharge from the sanatorium. For certain groups of city patients Dr. Bolduan and Dr. Goldstein favor working places where they can work at their trades under medical supervision and sanitary conditions.

Experiments of this character are now being considered in several cities. In Philadelphia, the Henry Phipps Institute has opened a small shop for some of its tuberculosis patients. In New York, the Joint Tuberculosis Committee will soon establish an open air clothing factory, and a similar experiment is also projected by the Joint Board of Sanitary Control of the Cloak and Suit Industry. The Delaware Tuberculosis Sanatorium is considering a hosiery mill for its patients. At Otisville, N. Y., in connection with New York City's Tuberculosis Sanatorium, an industrial colony is also being considered. A successful experiment in pottery making has been carried on for two years at the Arequipa Sanatorium in California.

Special Anesthesia Supplement.—Recent years have been marked by some important contributions to the theory and, especially to the practice of surgical anesthesia, but there has lacked what is now quite needed for the further scientific development of this alongside the other departments of surgery—a journalistic medium and editorial mouthpiece. The *American Journal of Surgery* will be expanded to meet this need. Beginning with the October issue and quarterly thereafter, this journal will publish a 32-page supplement devoted exclusively to anesthesia and analgesia. This supplement will be a complete journal within a journal, containing editorials, contributed articles and communications, abstracts, transactions of societies, and book reviews. The supplement has been adopted as the official organ of the American Association of Anesthetists and the Scottish Society of Anesthetists, and it will also publish the transactions of other like societies. The editor of this supplement will be Dr. F. Hoeffer McMechan, of Cincinnati, one of the founders of the American Association of Anesthetists and a charter member of the New York Society of Anesthetists. He will be assisted by a staff of well-known specialists in anesthesia.

A German Gift to Science.—It is announced that Professor Dr. Alexander König has presented to the University of Bonn a zoölogic museum and laboratory filled with collections valued at 1,000,000 marks.

BOSTON AND NEW ENGLAND.

Needs of the Boston Floating Hospital.—In the issue of the Journal for Aug. 27 we published an appeal by the Boston Floating Hospital for funds to enable the completion of this season of its work. On account of the inadequate response by the public to this appeal, the hospital has been obliged to close one of its wards. Further contributions are urgently needed, and should be sent to George C. Lee, 44 State St., Boston.

A Centenarian.—Mrs. Martin Curran, of Newburyport, Mass., died in that city on Sept. 1, following a fracture of the neck of the femur several weeks ago. She is said to have been born on May 1, 1814, in county Galway, Ireland, and after her marriage migrated to St. John, N. B., in 1841. She had lived in Newburyport since 1843. All of her five children are dead, and she has been a widow for the past 50 years. She is survived by only two grandchildren, both elderly spinsters.

Hospital Bequests.—The will of the late Francis B. Sears, of Boston, who died at Weston, Mass., on Aug. 26, was filed in the East Cambridge probate court on Sept. 2. It contains bequests of $500 each to the Boston Children's Hospital and the Boston Floating Hospital.

NEW YORK.

New Public School Buildings.—A number of new public school buildings will be opened this season which in their construction and equipment will embody all the latest ideas for buildings of this character. A special feature is the "anemic room," for pupils below the average in strength and physical development. This will be without artificial heat, but care will be taken to provide the children with the requisite extra clothing; and in connection with it is a special diet kitchen where suitable luncheons will be prepared.

Bequest.—The will of the late Jacob Langeloth, which was filed on August 30th in the Surrogate's Court, provides for the erection of a home to be known as the Valeria Recreation and Convalescents' Home, named for the testator's wife, Mrs. Valeria Langeloth.

Massachusetts Medical Society

RED CROSS SURGEONS.—Among the surgeons of the first American Red Cross relief expedition, Dr. Howard W. Beal of Worcester, Mass., and Dr. Robert W. Hinds of Buffalo, N. Y., are members of The Massachusetts Medical Society. Dr. Beal is an ex-surgeon of the United States army, having served two and one-half years in the Philippines. He is a member of the medical reserve corps of the army. Dr. Beal, in addition to relinquishing his private practice temporarily, also gives up his hospital work at the City and Memorial Hospitals.

APPOINTMENT OF DR. EDWARD P. WORTH.—Dr. Edward P. Worth of Edgartown, a member of The Massachusetts Medical Society, has been appointed by Governor Walsh medical examiner of Dukes County, third district, to fill a vacancy. Dr. Worth was already medical examiner in the first district of this county.

BERKSHIRE DISTRICT MEDICAL SOCIETY.

RESOLUTIONS ON THE DEATH OF J. F. A. ADAMS, M.D.

DR. JAMES FORSTER ALLEYNE ADAMS died at his home in Pittsfield, Mass., July 27 from a sudden and severe attack of cardiac dilatation. Dr. Adams had not been well for some months and had had attacks similar in character but not so intense as this last and fatal seizure. There had been unmistakable symptoms of a progressive arteriosclerosis for some time.

The Berkshire District Medical Society has lost one of its most valued and loyal members. Dr. Adams was, as so many of you remember, devoted to the interests of the society, and rarely missed being present at the regular meetings, taking part in the discussions, and keenly alive to the advancements made in our profession. He had held nearly, if not all, the offices in the Society, and at the time of his death was a councillor of The Massachusetts Medical Society and the supervising censor.

The distinguished office of president of The Massachusetts Medical Society could have been his at one time had his health permitted him to carry the burden of work that the position entails. In 1907 he delivered the annual discourse at the meeting of the State society, his subject being "The Segregation of Consumptives." The later years of Dr. Adams' life were devoted to the problem of the prevention and control of tuberculosis both in the state and locality. He was at one time the president of the board of trustees of the Rutland State Sanatorium, and when he died was the president of the Pittsfield Anti-Tuberculosis Association.

Personally, Dr. Adams was one of the most genial and lovable of men. He had a remarkably keen and active mind, witty, a lover of books, prose and poetry, fond of flowers and all the beauties of nature. He was devoted to his church, his home, and family. A loyal and true friend, a Christian gentleman, and always an earnest student and industrious worker in his chosen profession.

At a meeting of a medical society in a neighboring state a few years ago, a tribute was read in memory of a brother physician. We will quote from it, so applicable is it to the personality of Dr. Adams:

"He was a man of cultivated and refined tastes, fond of literature, of art, of study and travel. A high sense of duty and responsibility governed his conduct in public as well as in private relations. A man of broad sympathies and tender sensibility, he was ready at any time to sacrifice his own comfort and advantage for others, but in matters involving a principle he made no concessions. He was as staunch in morals as he was courteous in manners."

"He understood the value of mental recreation in preventing his mind from growing narrow in a slavish routine of work. General literature and travel were a solace to him, and his participation in public and local affairs, while it enhanced his worth as a citizen, made him all the more useful as a doctor. Unmarked by any great event, his life had been a noble one. It had earned for itself ample appreciation before it closed, and it ended in honor."

ALFRED T. WAKEFIELD, M.D.,
WALLACE E. BROWN, M.D.,
HENRY COLT, M.D.,
Committee on Resolutions.

Current Literature

MEDICAL RECORD.

AUGUST 8, 1914.

1. STOW, B. *Metchnikoff's Basic Principle,—Intestinal Antisepsis Through Biological Aids,—Attested by the Bacillus Bulgaricus.*
2. BROWN, S. H. *Acute Contagious Conjunctivitis. Preliminary Report of a Series of Cases Originating in a Public Swimming Pool.*
3. FRIEDMAN, H. M. *Aspects of Visual Acuity.*
4. FORREST, E. D. *The Physiology of Worry.*
5. *COUGHLIN, R. E. *The Medical Aspects of Athletics.*
6. FIFIELD, H. L. *Acute Suppurative Otitis Media.*
7. HAGEMANN, J. A. *A Rhinological Aspect of Some Mental Disturbances.*

5. Coughlin has made a study of the effects, immediate and remote, of athletics on health. Among other observations, he says that the heart of the trained athlete is better fitted than a normal heart to carry a person through a contest, but distinctly disadvantageous for normal human activities. The most common causes of death among athletes are

cardiac diseases, tuberculosis, typhoid fever, pneumonia, nephritis, in the order named. [L. D. C.]

August 15, 1914.

1. *Abbe, R. *The Present Estimate of the Value of Radium in Surgery.*
2. Sicard, M. H. *Trichinosis, with a Report of Cases.*
3. Zigler, M. *Report of a Case of Phlebitis of the Penis Simulating Edema Induratum, Complicating Acute Gonorrhea.*
4. Huntington, W. H. *Tonsillectomy, Its Indications and Choice of Operation.*
5. Hartshorn, W. M. *Bacillus Coli Infections in Infancy and Early Life.*
6. Cunningham, W. P. *Ulcus Cruris Inveteratus.*
7. Green, C. R. *The End of Life.*

1. Abbe discusses the value of radium in the treatment of neoplasms. From his experience and that of others he concludes that it has very real value in the surgery of malignant tumors. The exaggerated claims of enthusiasts should be disregarded but not more so than the ridicule of skeptics. [L. D. C.]

New York Medical Journal.

August 15, 1914.

1. Anders, J. M. *The Scope of the American Society for Physician's Study Travels.*
2. Cofer, L. E. *National Quarantine.*
3. Fischer, L. *The Value of Skimmed Milk and Its Dilutions in Fever.*
4. Frankland, W. A. *The Effects of Caffeine and Nicotine on the Activity of the Intestinal Musculature.*
5. Robin, A. *The Campaign Against Pulmonary Tuberculosis.*
6. Geraghty, J. T. *The Value of Renal Functional Tests to the Surgeon and the Limitations of These Tests.*
7. Buckmaster, F. *Pyloric and Duodenal Obstruction.*
8. Slade, C. B. *Further Development of the Usefulness of the Sanatorium.*
9. Horowitz, P. *The Treatment of Diabetes Mellitus with Bacillus Bulgaricus.*
10. Barnes, G. E. *A Sputum Trap for Lung Examinations.* [L. D. C.]

Berliner Klinische Wochenschrift.

No. 22. June 1, 1914.

to max rubner on his 60th birthday.

1. Trendelenburg, W. *Newer Methods and Results in the Study of the Physiology of the Brain.*
2. Lichwitz, L. *The Influence of Muscular Work on the Sugar- and Lactic Acid-Content of the Blood.*
3. *Loewy, A., and Placzek, S. *The Influence of High Altitude on the Psychic State of Aeronauts.*
4. Reuss, E. *Concerning Duodenal Feeding in Gastric Ulcer.*
5. Hirschfeld, H., and Weinert, A. *Clinical and Experimental Investigations into the Influence of the Spleen on the Erythroplastic Function of the Bone Marrow.*
6. Stern, L. *On the Mechanism of the Processes of Oxidation in the Animal Organism.*
7. *Karewski, F. *Experiences in the Treatment of Surgical Tuberculosis with Friedmann's Serum.*
8. *Wichmann, P. *Friedmann's Serum in the Treatment of Tuberculosis.*

3. The authors report their results in a series of experiments performed on subjects in an artificially rarefied atmosphere to test the effect of the latter on the subject's reaction time and ability to perform certain mental problems, compared with the results of the same experiments performed under normal conditions. They are led to think that the differences are very slight,—indeed practically negligible. It is true, however, as they note in their conclusions, that in experiments the vicissitudes of actual flying cannot be reproduced,—the constant strain and demand of one's attention, the rapid changes in altitude, the cold, etc.; and they conclude that actually there are many factors which really affect profoundly the mental processes of the aviator.

7. Karewski has for over six months treated a large number of cases of surgical tuberculosis with Friedmann's serum, and says that it is not of value as a therapeutic or prophylactic measure, and is not without danger itself.

8. Wichmann also is skeptical in regard to Friedmann's serum, and thinks that it has not yet proved itself to be of value either in prophylaxis or therapy. These two articles are noted simply because in a recent number of this journal several articles appeared praising the serum most highly. [R. H. M.]

No. 23. June 8, 1914.

1. König, H. *The Prognosis in Morphinism.*
2. *v. Hausemann, D. *The Changes in Normal Tissue and Tumors after Mesothorium and Radium Treatment.*
3. v. Tappeiner, Fr. H. *Duodenal Ulcer.*
4. *v. Czyhlarz, E. *"Anaemic Erysipelas."*
5. Neuwirth, K. *Some Observations on Intrauterine Forceps.*
6. Karewski, F. *Experiences in the Treatment of Surgical Tuberculosis with Friedmann's Serum.*
7. Meyer, R. *A Contribution on Clairvoyance, Premonitions and Thought-reading.*

2. This is an article describing how after treatment with a radio-active substance the tumor cells are killed and a thick hyaline substance is formed resembling scar-tissue or keloid. The same happens after the exposure of normal cells, though the changes are not so great. The author mentions the fact that the effect of the rays extends to a depth of only three or four centimeters, and that old tumor cells are killed much sooner than young and vigorous ones.

4. von Czyhlarz describes three personal cases which exactly resembled erysipelas of the face, save that the affected area was not reddened, but pale and anemic, like a nephritic edema. In each case the course of the disease, and the subjective and objective signs, with the above exception, were those of erysipelas, and he thinks that there is a definite condition to which he has given the name of anemic erysipelas. [R. H. M.]

Wiener Klinische Wochenschrift.

No. 15. April 9, 1914.

1. Lazarevic, V. *Operative Treatment of Breast Cancer, with End Results.*
2. Goldschmied, K. *Method of Preserving Continence after Operations for Cancer of the Rectum.*
3. Von Kahler, H. *Effect of Menstruation on the Sugar-Content of the Blood.*
4. Köhler, R., and Schindler, O. *Radium Therapy of Cancer of the Uterus.*
5. Pulawski, A. *A Case of Periodic Joint Swelling.*
6. Pfeschner, G. *Report on the Urological Department of the Surgical University Clinic in Vienna.*

No. 16. April 16, 1914.

1. Korczinski, L. *Sporadic "Heine-Medin Disease."*
2. *Spiegler, F. *Benzol in Leukemia.*
3. Busson, Kirschbaum, and Stanich. *Diplococcus Lanceolatus in Pemphigus.*

4. RETHI, L. *Intranasal Operation of Maxillary Sinus Disease: Its Advantages.*
5. HATIEGAN, J., AND DORI, A. *Symptomatology of Pellagra.*
6. LOEWY, O. *Treatment of Cholera with Hypertonic Saline Infusion, Tincture of Iodine, and Potassium Permanganate.*

2. The author reports a case and cites two others in which the leucocytes in myelogenous leukemia dropped to almost nothing and the patient died. The figures in the author's case are to 1400, then to 400. The figures of the two reported cases are from 988,000 to 1720, and from 56,000 to 5300, and then to 200. These cases emphasize the need of careful watching in the benzol treatment of leukemia. [F. S. K.]

BULLETTINO DELLE SCIENZE MEDICHE.

JULY, 1914.

1. *FRONTALI, G. *The Metabolism of Creatin-Creatinin in Fasting and after Total Thyroidectomy.*

1. From Albertoni's physiologic institute at the University of Bologna, Fontali presents an elaborate study of creatin-creatinin metabolism. From his experimental observations on ten dogs and two lambs, summarized in seven tables, he reaches the following conclusions:—

a. In fasting dogs, the elimination of creatin begins in from four to twelve days, and is maintained within restricted limits. The elimination of creatinin remains constant.

b. In thyroidectomized dogs, the elimination of creatin begins early, and always before they refuse food. Its quantity is notable. The creatinin, contrary to the case in inanition, goes on increasing.

c. The muscles of the normal dog contain about 3% of creatin. [R. M. G.]

Miscellany.

THE MEDICAL SCHOOLS OF NEW ENGLAND.

WE print herewith the data as to the medical schools of New England that were contained in the last annual report of the Council on Medical Education of The American Medical Association (*Jour. Amer. Med. Asso.*, August 22, 1914), with the idea that they will prove of interest to many of our readers.

MAINE.

Maine, population 742,371, has one medical school, situated in Brunswick and Portland, the latter having a population of 58,571.

Medical School of Maine.—The medical department of Bowdoin College. The first two years are given at Bowdoin College, Brunswick, the last two at Portland, building situated on Chadwick Street. Organized in 1820. The first class graduated in 1820. The faculty numbers 66. The course covers four years of eight months each. The total fees are $110 for each of the first three years and $135 for the fourth. The Dean is Dr. Addison S. Thayer, 10 Deering Street, Portland. The total number of students in 1913-14 was 67; graduates, 19. The ninety-fourth session begins October 15, 1914, and ends June 24, 1915.

NEW HAMPSHIRE.

New Hampshire, population 443,140, has one medical school, situated at Hanover, population 1,884.

Dartmouth Medical School.—Organized as New Hampshire Medical Institute in 1797. The first class graduated in 1798. It is under the control of the trustees of Dartmouth College. Clinical teaching was discontinued in 1914. The faculty is made of 19 professors and 7 instructors, a total of 26. Two years of collegiate work are required for admission. The course covers nine calendar months in each year, or eight months of actual teaching. Candidates for the B.S. degree in medicine in Dartmouth College may substitute the work of the first two years in medicine for that of the junior and senior years in the academic department. Candidates for the A.B degree may make a similar saving of one year. The fees for the two years in medicine are, respectively, $169.50 and $173.50. Dean Dr. John M. Gile; secretary, Colin C. Stewart. The next session opens September 24, 1914, and ends June 24, 1915.

VERMONT.

Vermont, population 355,956, has one medical school, situated at Burlington, a town of 20,468 people.

Students matriculating in and after the session of 1912-13 who desire to practice medicine in Vermont, must have obtained a preliminary training of at least one year of collegiate work in addition to a standard four-year high school education, this additional year's work to include college courses in physics, chemistry and biology.

University of Vermont College of Medicine, Pearl Street, College Park, Burlington. Organized with complete course in 1822. Classes graduated in 1823 to 1826, inclusive, when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. The faculty numbers 48. One year of college work in addition to a standard four-year high school education is required for admission. The course of study covers four years of nine months each. The total fees for each of the first three years are $145, and $175 for the fourth year. The Dean is Dr. H. C. Tinkham. The total registration for 1913-14 was 117; graduates, 39. The next session begins September 23, 1914, and ends June 23, 1915.

MASSACHUSETTS.

Massachusetts, population 3,366.416, has four medical schools: Medical School of Harvard University, Boston University School of Medicine, Tufts College Medical School, College of Physicians and Surgeons. They are all situated in Boston, a city of 670,585.

Medical School of Harvard University, 240 Longwood Avenue. Organized in 1782. The first class was graduated in 1788. It has a faculty of 58 professors and 149 associates, assist-

ants, etc., a total of 207. Candidates for admission must present either a recognized college degree with courses in inorganic and organic chemistry or credits for two years of work in a recognized college or scientific school, which must include courses in physics, inorganic and organic chemistry and biology. The session is four years of eight months each. The total fee for each is $225. The Dean is Dr. Edward H. Bradford. The total registration for 1913-14 was 305; graduates, 64. The one hundred and thirty-third session begins September 28, 1914, and ends June 24, 1915.

Boston University School of Medicine, 80 East Concord Street. Organized in 1873. In 1874 the New England Female Medical College, founded in 1848, was merged into it. The first class was graduated in 1874. One year of collegiate work is required for admission. The faculty includes 33 professors, 35 associates, etc., a total of 68. The course covers four years of eight months each. Total fees for each of the four years respectively, are $152, $147, $127, and $155. The Dean is Dr. John P. Sutherland. Total registration for 1913-14 was 113; graduates, 22. The forty-second session begins October 1, 1914, and ends June 2, 1915.

Tufts College Medical School, 416 Huntington Avenue. Organized in 1893 as the Medical Department of Tufts College. The first class was graduated in 1894. It has a faculty of 42 professors and 80 assistants, lecturers etc., a total of 122. One year of collegiate work is required for admission. The course covers four years of eight months each. The total fees are $155 each year. The Dean is Dr. Charles F. Painter. Total registration for 1913-14 was 311; graduates, 62. The twenty-first session begins September 30, 1914, and ends June 1, 1915.

College of Physicians and Surgeons, 517 Shawmut Avenue. Organized in 1880. The first class graduated in 1882. The college announcement gives the names of 228 "matriculants and applicants" for the session of 1913-14, which included both dental and medical students. Fairly reliable information, however, shows that the total attendance of medical students during 1913-14 was 110. There were 13 graduates. *This college has been reported not recognized by The Massachusetts Medical Society and by the licensing boards of thirty-one states.*

Rhode Island.

Rhode Island, population 542,610, has no medical school.

Connecticut.

Connecticut, with a population of 1,114,756 has one medical school, situated in the city of New Haven, population, 133,605.

Candidates for license to practice in Connecticut, who graduate in 1914 or thereafter are not eligible unless, prior to entering on the study of medicine they had completed, in addition to an accredited four-year high school education, at least nine months of collegiate work including college courses in physics, chemistry and general biology.

Yale Medical School, York and Chapel Streets. This is the department of medicine of Yale University. In 1810 a charter was granted for the establishment of this school, and in 1813 it was organized as the Medical Institution of Yale College. The first class was graduated in 1814. The faculty consists of 16 professors and 50 lecturers and assistants, a total of 66. The requirement for admission is two full years of collegiate work plus evidence of satisfactory preparation in physics, general inorganic chemistry and general biology. The course covers four years of nine months each. The fees for the four years, respectively, are approximately $223, $170, $153, and $163. The Dean is Dr. George Blumer. The total registration for 1913-14 was 49; graduates, 8. The one hundred and second session begins October 1, 1914, and ends June 23, 1915.

OPENING OF ST. ELIZABETH'S HOSPITAL.

The new St. Elizabeth's Hospital, Brighton, was formally opened on Monday, Aug. 31, and began to receive patients on Sept. 1.

"The structure is of the Italian style of architecture, rectangular in shape, with a frontage on Cambridge Street of 228 feet and with wings of 60-foot depth, partly enclosing a courtyard of green lawn and flower beds. The central building is set back 200 feet from the sidewalk and has an elevation of more than 60 feet. An important feature of the courtyard is the long colonnade of 30 white columns which support the broad roof of the arcade, under whose protection the convalescent patients receive out-door treatment.

"The building is three stories high and fireproof, being built entirely of cement, with cement facing and red-tiled terra cotta roof. It was designed by Edward T. Graham, a Boston architect. It has a capacity of 200 beds at the present time, but can accommodate many more as soon as new quarters are arranged for the 18 sisters who are staying there. There are 50 doctors on the staff and 40 nurses will be in attendance. The superintendent and physician-in-chief is Dr. John R. Slattery, to whose constant supervision and frequent suggestions, many of the model features of the hospital are due.

"Pure air is constantly taken in from the outside, directly underneath the radiators in every part of the building. As it arises and, gradually becoming cool, sinks, it is drawn by suction of fans in the attic through ventilators and led by pipes away from the building. This insures the freshest of air at all times for the patients.

"Hot water heating prevails, the three-pipe system circulating abundant heat to every corner of the hospital. The stairways, which are in the main constructed of granite and cement, are

exceedingly wide. The woodwork is a feature, the entire building being finished in seasoned North Carolina pine of a beautiful shade. The walls of the corridors and of the outside rooms are done in ivory, those of the inside rooms in silver-gray, and the woodwork in natural finish. The doors are of the automatic-interlocking sort.

"In the basement is a large kitchen, 22 x 34, with the most recent culinary implements and kitchen utensils. No coal is used, all the preparing being done with the aid of steam and gas. On the right is a large gas-boiler and gas range and on the left a long cutting table and a vegetable steamer. Flanking these are large coffee urns, soup kettles, a dish warmer, a cereal cooker, a steam roaster and receptacle for boiling water. Adjoining the kitchen is a scullery, with a modern electric dish washer.

"In the basement are also the house officers' dining room, the nurses' dining room and the sisters' dining room. Opposite the latter are three large refrigerator rooms connected with the service entrance by a heavy iron trolley. The first of these is used for meat, the second for vgetables and the third for dairy products. A temperature of 34 degrees is maintained constantly by ice manufactured in the hospital's own ice plant adjacent. It has a capacity of three tons of ice every 24 hours. The ammonia fumes liberated in the process are safely discharged a distance of 40 feet from the building. The laundry is as complete as an up-to-date workshop.

"For fire protection each floor has two standpipes with 200 feet of hose and a private alarm box. The main entrance coming from Washington street is of Tennessee marble and is lighted by two alabaster lamps, one in the hall and one in the lobby. Both were gifts to the institution.

"The lobby is 40 feet square, and a 14-foot corridor running each way from it is 225 feet long. The pharmacy is on the main floor facing the lobby, and on the left is the surgical out-door department of five rooms, two large operating and three small examination rooms. On the extreme left is the main operating room, and connecting with it on one side, is the sterilizing room and on the other the etherizing room. Nearby is an accident room and also a recovery room.

"In the east wing is the nose and throat department, consisting of one small operating room and two for examination. On the right of the wing is the nurse's lecture room, about 12 x 20, feet, and near it are one large and three small rooms of the out-door patient department.

"In the west wing is the superintendent's dining room and adjoining it is the house officers' dining room. Opposite these is a double air-tight fumigating room, and the house officers' bath rooms.

"The west wing on the second floor is devoted to the use of the nurses, of whom there are 40. Their recreating-room, 18 x 34, is one of the best rooms in the building. A diet-kitchen in each wing of each floor, where food is specially prepared and experiments made, indicates the thoroughness of the hospital's methods. The superintendent's office with bedroom and bath adjoining, the bookkeeper's office and the library are all on the second floor.

"In the east wing is the maternity department, with two wards of 15 beds each and one of 9. Patients can be wheeled out on the veranda of the courtyard through the French casement windows, all of which have roll-a-way screens. Two special infants' tubs have been placed in a large room of the maternity department and here 40 infants can be accommodated.

"The third floor contains wards of 12, 9 and 7 beds each as well as private rooms, which are in the rear. It has a gallery for 20 students, an operating room, a sacristy and a chapel. The west wing is devoted to the nuns for the time being. The third floor veranda extends a distance of 180 feet and has wings 55 feet in length.

"A department which deserves special mention is the x-ray in the east wing of the main floor. It has a suite of rooms on one side of the corridor, consisting of an office, a dark room, and a large operating room. Illuminating boxes for the demonstration of plates are ranged on two sides of the operating room and along one side of the office. The illuminating boxes are large enough to demonstrate a complete series of intestinal plates at one time. There is also in the office a stereoscopic illuminator for viewing plates, which is especially useful for locating foreign bodies, such as needles, bullets, etc.

"Filing cabinets of the latest type for plates and records have been installed. The dark room has the very latest devices, insuring perfection of development. The door need not be opened to pass plates back and forth, as there is a turntable in the wall, through which plates are sent, and it admits no light whatever. The equipment itself consists of the most recent and successful Roentgen apparatus, a Keleket 10-kilowat transformer, a vertical and a horizontal fluoroscope, and table for various kinds of plate work, stereoscopic localizing, etc. The vertical fluoroscope is for viewing the action and condition of chests, hearts, etc., while the horizontal one is for examining stomach, kidneys and bowels. Besides these, there is a complete set of intensifying screens, cones and other necessary apparatus.

"There is an ice plant of enormous capacity for the hospital. A balcony overlooks the courtyard, where there is a thriving vegetable garden and abundant space for flowers another summer. Every other window in the open or private wards on this side of the building is a door as well, from which patients can step into the sunshine which floods every corner of the place. The main kitchen and the ward serving rooms are complete in every particular; so also are the storerooms for linens, with ventilated shelves and other hygienic features."

Correspondence.

PAN-GERMANISM IN MEDICINE—TO WHAT WILL IT LEAD?

Boston, Sept. 1, 1914.

Mr. Editor: It is generally admitted that medical education in Europe, particularly in Germany, is superior to ours. This is due to the complete standardization of education, the close affiliation of schools with hospitals, and the laws relating to post-mortem material. Clinical teaching is admittedly their weakest branch. That this very weakness strikes at the root of what is best in medicine as an art, will be shown below.

We have much to be thankful for in the betterment of medical education in this country. The report of the Council on Medical Education shows gratifying progress. There has been an astonishing decrease in the poor medical schools in the country and a corresponding development of the "A plus" and "A" groups.

We still lead all countries in the number of physicians per capita of population. Our average is about one to every 650 persons. In Germany the ratio is one to every 1912 persons, but this contrast is not so great when we consider that the title "praktischer Arzt" is much more safeguarded than here. Over one-third the medical work in Germany is done by charlatans not registered as physicians. In this country a large number of them are so registered.

The phenomenal amount of charlatanism in Germany has received much comment and study. One explanation of it, quoted by the Carnegie Foundation Report on Medical Education in Europe, is that it is due to the compulsory adjustment required to fill the ranks depleted by the high standard of education which made such a great demand of time and money for the preparation of the physician. This is shown to be true in no degree, for there was formerly a much greater scarcity of physicians than now, at a time also when the general health was poorer. It is also shown that instead of being depleted the number of physicians has increased far more rapidly than the population. The true explanation is found in the inauguration of the "Kurierfreiheit" by which legislation anyone is allowed to dispense drugs and treat disease, the title "prakt. Arzt" only being safeguarded from assumption by unqualified persons. Previous to this legislation there were very few charlatans. Now the situation is assuming such tremendous proportions that it is resulting in a considerable financial loss to physicians, the income from proprietary remedies in Prussia alone amounting to over seven and a half million dollars.

Whether the legislation is wholly responsible for this change or whether another factor may not be considered as causal is somewhat doubtful. There are certain tendencies in the evolution of medicine as a pure science as it is developed in Germany which are contributing to the increase of charlatanism. These tendencies are worthy of analysis to us who are so rapidly Germanizing our methods, as a warning, so that we may escape like evils.

A medical school has two important duties, one to medical science, the other to the public; one encouraging and promoting medical education and scientific progress, the other supplying to the public well-trained practitioners. The latter function is really the greater, for out of every graduating class 90% are practitioners and less than 10% are scientists and of these probably only one or two are so eminently fitted for scientific work as ever to accomplish much. The conditions in Germany are reversed. There, there are ninety physicians dawdling with science to every ten doing practice. Of this 90, fully 75% are wasting their time as far as permanent results are concerned. There are thousands of investigators producing thousands of publications yearly, only a very few of which stand the test of time. The keen competition promotes such a desire for priority that the merest hints of new side-lights and theories are hastened into print, only to die ignominiously because of their shallow soil. The very strength of the teaching of theory and the weakness of clinical teaching in Germany produces a few scientists, a large number of pseudo-scientists and few good practitioners. The scientific side is over-developed, the human side greatly neglected. Any American will testify to this who has had practical experience with German physicians or hospitals. They do not know how to treat the individual. They recognize only the disease. The comfort of the patient or the recognition of his personality is not considered. The extremely slow and very imperfect development of trained nurses shows that these have not been thought of. The real poverty of the people and the paternalistic system of Krankenversicherung keep the wards of the general hospitals full. But they are cheerless and gloomy and the patients show extraordinary lack of care. Intercurrent infections in the wards are extremely common. Even in the splendid new institutions it is easy to see from the spirit manifested by the staff that the improved conditions were not for the comfort of the patients. In the finest equipped wards in Europe I have heard the Dozent on the morning rounds more than once say to a patient whose case did not interest him at the moment, "You had better go home as we can't use you here." The human side of medicine is undeveloped. Even in the manifold Anstalten and Kurorten, the physician rarely has a spontaneous interest in the personal equation, but generally, when present, it is the result of psychological study based on theory. These conditions are, I believe, a normal result of German medical standards and are real causes of alarm in copying them in this country.

The common people are uncritical and simple. When sick they want human interest more than scientific refinement and as long as they can get it they will pay for it. It matters little to them whether the human interest is prompted by Christian impulses or by commercial ones. This is a large factor in the strength of charlatanism in Germany and all over the world. Charlatans are enthusiastic, encouraging, interested, always offering new and promising cures to the discouraged invalid. The man of science is cold, non-committal, often discouraging, almost always temperamentally one-sided and impersonal. If human nature were scientifically trained, people would choose the scientist. But human nature is not and never will be scientific, so people will always prefer the less scientific and more personal type, often admirably embodied in the charlatan.

In our desire to encourage scientific progress and stimulate the scientific spirit for the benefit of future generations, the individual should not be lost sight of.

In many university centres, the well-trained physician who has an aptitude for practice is not only looked down upon, but he is being gradually debarred from clinical hospital positions where he is not only of immense value to the efficiency and morale of the clinic but where his rubbing shoulders with medical progress renders him of constantly increasing value to the community at large. These men are also invaluable in the teaching of medicine as they supply to the student what he cannot get from any other source, the practical treatment of the sick, the human element in medicine. He learns to treat the patient and not the disease. God forbid that we should lose this human touch in medicine as it is lost in Europe.

We have not reached it yet but unmistakable signs of its approach are evident in some quarters. The passing of one generation is leaving a big gap in this respect. The filling of responsible positions with young physicians well trained in the laboratory is giving a great impetus to medical progress. But in the rapid development of the spirit of research, the position of the old-time clinician is somewhat despised. I have heard it stated within a month that clinical medicine has nothing to offer the young man.

Original work, publications, no matter how trivial or unimportant or trashy, command a ready acceptance and form the stepping stones to fame for physicians who possess much theoretical and statistical knowledge, whose physical examinations are faultless scientific achievements but whose practical medicine ends abruptly at the word diagnosis. Their treatment is confined to the administration of the five or six known specifics and the barest outline of dietetic and hygienic principles.

Let not the spirit of research in our medical schools and hospitals overshadow the obligation to the public to furnish practitioners. Let us always bear in mind the fact that out of every class of one hundred in our schools less than five are fitted for original research; the other ninety-five should be fitted to practice, with a working knowledge of medicine and a training in scientific methods. Let us not cater to the five who will inevitably find their niche, and neglect the ninety-five who are to be sent out to educate the public in good medicine and to care for their souls as well as their bodies. The most powerful weapon with which to fight charlatanism is not the raising of medical education to German standards, thereby promoting research and discouraging the practitioner, but the development of our schools to produce well-trained practitioners who will know how to diagnos the disease and treat the patient. The elimination of the poor medical school is necessary. Better legislation and laws of registration are necessary, but the development of medicine as a pure science and stamped "made in Germany" is greatly to be deplored.

Very truly yours,

H. P. GREELEY, M.D.

THE STATE BOARD OF INSANITY AND TRUSTEES.

WORCESTER, Aug. 8, 1914.

Mr. Editor: An article on the new board of insanity in you issue of August 6 calls attention to "the notorious" want of harmony in the old board which made reorganization necessary. As one member of each faction has received an appointment to the new board, conspicuous improvement can scarcely be expected to follow the Governor's action.

My resignation as a member of the Board of Trustees of the Worcester State Hospital was handed to the Governor on Aug. 1 and I wish to call attention to the fact that it is the unpaid local boards who are to be burdened with excessive detail work, written reports, etc.; work which up to this time has been performed by the paid subordinates of the State Board; while to them remains no shadow of authority to control these several institutions.

Under these circumstances it seemed to me and I presume to such other trustees as have withdrawn from these positions that the Commonwealth was asking too much and giving too little. I enclose a copy of my letter to Governor Walsh.

Worcester, Mass., Aug. 1, 1914.

To his Excellency the Governor:

The provisions of Senate bill No. 615, recently passed by the Legislature and signed by you, so completely change the functions and duties of the Board of Trustees of the Worcester State Hospital that I find, after careful consideration, that it will be impossible for me longer to serve as Trustee and I therefore herewith regretfully hand you my resignation.

The detail work imposed upon the Trustees by sections B, C, and D, of this bill 615 will require an amount of time which I am unable to give to the work.

If I am not mistaken, a proper performance of the duties herein provided for would take practically all the time of certain trustees. With this added work is combined the practically entire removal of control from the hands of the local board, this control being placed in the new state board, so that the local board are simply to make suggestions which the central board may or may not heed, the trustees being at the same time held responsible by the public for anything that may happen, without power to prevent catastrophy or remedy conditions. There seems to me, therefore, neither honor nor utility in continuing to serve the Commonwealth which has through its General Court upset the practice of 80 years by a bill passed without a roll call, practically without debate, at the end of the session, with no opportunity offered those most interested in the institutions for the insane to express an opinion as to its merits.

Very respectfully,

SAMUEL B. WOODWARD, M.D.

GERMAN PHOTOGRAPHY OF THE LIVER AND SPLEEN.

BOSTON, Aug. 15, 1914.

Mr. Editor: The clipping from an Italian paper, attached hereto, gives the information that Dr. Rautenburg has informed the Medical Society of Berlin that he has discovered a method to photograph the liver and the spleen by means of the Roentgen-rays.

He has obtained by this means so-called contrast-pictures which put those organs (spleen and liver) in very clear relief.

With this picture one is able to distinguish the normal from the abnormal tissue, and, also, to detect the presence of tumors and functional abnormality.

It is believed that this new method will be very useful in diagnosing abdominal disease.

Yours very truly,

GAETANO PRAINO, M.D.

LA FOTOGRAFIA DEL FEGATO E DELLA MILZA.

Il dott. Rautenburg ha informato la Società medica di Berlino di avere scoperto un sistema per fotografare il fegato e la milza mediante i raggi Roentgen.

Egli è riuscito a ciò mediante le cosidette fotografie-contrasto, le quali mettono in rilievo chiarissimo quegli organi.

Con questa fotografia si possono distinguere le parti sane da quelle in cui si manifesta qualche disordine, e tissare la presenza di tumori ed i anormalità funzionali.

Si crede che questo nuovo sistoma sarà utilissimo per la diagnosi delle malattie addominali.

RECENT DEATHS.

DR. W. E. DILLINGHAM, of Mead, Colo., who was killed by lightning on Aug. 20, was born at New Bedford, Mass., in 1879. He was for a time a student at the Harvard Medical School, but received his degree of M.D. in 1903 from the Denver and Gross Medical College, Denver, Colo. He is survived by his widow and by one son.

DR. OWEN ST. CLAIR O'BRIEN, who died on Sept. 1 at Rockport, Mass., was born in Nova Scotia in 1833, and graduated from Bowdoin College in 1866. He served throughout the Civil War as a surgeon in a Maine cavalry regiment, and subsequently in the navy. After the war he practised his profession at Pemaquid, Me., and in 1884 removed to Rockport, where he became a member of the medical staff of the Haskins Hospital. He was twice married but leaves no living issue.

DR. LEVI D. SHEETS of Glen Ridge, N. J., died on August 25. He was born in Maryland in 1828, and was graduated from the medical department of the University of the City of New York in 1849. During the Civil War Dr. Sheets served as a surgeon in the army.

Massachusetts Medical Society

SYMPOSIUM ON THE DIAGNOSIS AND TREATMENT OF PULMONARY TUBERCULOSIS.*

MEETING OF THE SECTION OF TUBERCULOSIS, JUNE 9, 1914.

I. Treatment of Hemoptysis in Pulmonary Tuberculosis. By Newell B. Burns, M.D., North Reading State Sanatorium, North Wilmington, Massachusetts.

II. The Present Status of Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis. By
- *A.* Cleaveland Floyd, M.D., Boston.
- *B.* James A. Lyon, M.D., Rutland State Sanatorium, Rutland, Massachusetts.
- *C.* H. D. Chadwick, M.D., Westfield State Sanatorium, Westfield, Massachusetts.
- *D.* F. T. Lord, M.D., Boston.

III. The X-Ray as an Aid to the Diagnosis of Pulmonary Tuberculosis—papers presented by:
- *A.* P. Challis Bartlett, M.D., Boston, late Superintendent of the Rutland State Sanatorium.
- *B.* H. W. Van Allen, M.D., Springfield.
- *C.* Philip H. Cook, M.D., Worcester.

IV. Diagnosis and Treatment of Tuberculosis in Childhood—papers presented by:
- *A.* Walter C. Bailey, M.D., Boston.
- *B.* Walter J. Dodd, M.D., Boston.
- *C.* Richard M. Smith, M.D., Boston.

General Discussion.

I.

TREATMENT OF HEMOPTYSIS IN PULMONARY TUBERCULOSIS.

BY N. B. BURNS, M.D., NORTH READING, MASS.

THIS paper is intended to include briefly the essential facts pertaining to the treatment of pulmonary hemorrhage at the North Reading State Sanatorium, and the results that have been observed.

Although the treatment may vary in detail according to the stage of disease which the patient may have reached, or according to complications and individual peculiarities, there are, however, certain indications commonly present. These are for:—

(1) Absolute rest, the patient surrendering all effort to those in attendance.

(2) The immediate lowering of the blood-pressure.

(3) The determination of blood to parts of the body other than the lungs, this indication calling for—

(*a*) Application of cold to the thorax; and

(*b*) Purgation of the intestinal tract.

(4) The positive assurance to the patient that he is in no danger.

The dissipation of this important psychic element and the doing away with the panicky fear and demoralization which seizes upon the average patient will result in better coöperation in carrying out the prescribed orders for rest and so forth.

Applying these principles to an actual case, the following procedure would be in order:

The patient is placed in a semi-recumbent position, usually flat on his back, with curved basin at side of face for expectoration. Nitroglycerin 1-100 grain dose under the skin is immediately given from an emergency hypodermic unit. An ice bag is placed on the chest and cracked ice is given by mouth for a few minutes.

This should not be continued indefinitely after the initial excitement is passed, for the ice bag is likely to cause trouble if applied for more than an hour at a time.

In the meantime the physician quietly encourages the patient, telling him that very few patients ever die as a direct result of hemorrhage and that he will suffer no serious consequences provided he obeys his instructions implicitly. This advice is based upon the fact that only ten patients have died of hemorrhage at North Reading since the institution was opened in 1909. In those ten cases all was over in a very short period and too quickly for any treatment to have effect.

Morphin is given with great reluctance and only in hopelessly advanced cases, where the sole indication is to preclude all possible suffering. If this drug is used as routine there occurs a secondary stage of trouble as soon as the hypnotic effect wears away.

After heavy doses of morphin, the lung congestion seems intensified, while the blood-pressure remains undiminished or is even increased, and the effect of the nitroglycerin is neutralized. In addition to this there is increase in the constipation common to hemorrhage cases. We have occasionally found post-hemorrhagic pneumonias following morphin therapy and we have seen a patient nearly drowning in his own blood under this treatment.

When the hemorrhage is so extensive that the blood rushes into the bronchial passages of the well lung, causing dyspnea and cyanosis, it is best to turn the patient on his side with his head over the edge of the bed, allowing gravity to exert its influence in withholding the blood in the lung the worse diseased.

We wish to emphatically discourage the routine use of morphin in the usual case of hemoptysis. It seems far better to open the intestinal tract freely in such cases. We use magnesium sulphate in full doses, provided there are no positive contraindications, as extreme asthenia, enteritis, or any ulceration in the bowels. Troublesome sequelae common to other methods

* Papers read before The Massachusetts Medical Society, June 9, 1914.

of treatment are avoided and the patient comes out of the attack in brighter condition and with a clean gastro-intestinal tract ready to assimilate simple nourishment.

No solid food is to be given for some hours after the initial attack, but cold milk or cold bouillon can be taken in small amounts at regular intervals. A drachm of lime water is added to each eight ounces of milk to improve its digestibility and to add to the body's calcium content. Continued use of milk is tiresome to the patient and its constipating effect is marked. In talking over the matter of diet with patients having recovered from hemorrhage attacks, I find that cold bouillon, if properly made, cold gruel, and malted milk are the most popular of the liquid nourishments. At the end of eighteen hours, barring recurrence, or heavy streaking, soft solids may be given.

The matter of diet is very important in the after-treatment, for with an excess of food and improper kinds, a recurrence of hemorrhage is invited, whereas too much starving of the patient results in loss of weight and strength, and a longer period of convalescence. In the meantime, the patient is kept as quiet as possible. If an aggravating cough is present, small frequent doses of codein or heroin may be given, and with impunity so long as the bowels are kept open.

Sodium nitrite and calcium sulphide each in one grain doses may be administered to the patient at three to four-hour intervals for from twenty-four to forty-eight hours. Subsidence of streaking, as well as severe headache, call for discontinuance of sodium nitrite.

We usually give two doses of one ounce each of magnesium sulphate, one soon after the initial attack, and another on the second day. It is not best to continue this form of treatment beyond the two doses.

One week in bed with entire absence of streaked sputum is the requirement necessary before the patient is allowed up and about to any extent.

It must be borne in mind that constipation is the great obstacle in dealing with hemorrhage cases. Relief of this trouble shortens hemorrhage attacks and is a strong preventive measure when the latter are apparently impending, as may sometimes be evidenced by pain in chest at a particular point, streaked sputum, and a general feeling of malaise such as certain patients have learned to regard as usually prognosticating hemoptysis. Consequently, we have emphasized this need to certain patients coming to us with histories of hemorrhage, and they have not only confirmed our belief with statements of their own experience, but have also brought about an abatement of their hemoptysis. One remedy for chronic constipation in these cases particularly reliable for use in the long run is oatmeal gruel taken in the evening. Its laxative and altogether harmless effects are worthy of mention for use among tuberculous patients, especially with hemorrhage tendency.

For the past six months we have seen very few hemorrhages at North Reading State Sanatorium as compared with past years. This, too, in the face of a marked increase in number of bed cases treated. Ordinarily, hemorrhages in the spring months were quite frequent, but this season we seem to have escaped the usual number of such distressing complications. This happening may be due to the better coöperation on the part of the patients under the sanatorium-hospital class system, an outline of which was presented by Dr. Bailey before the recent meeting of the National Association at Washington.

Then again the preventive measures already spoken of have been effective, which in itself is commendatory of this form of treatment.

I have herein outlined only one simple method of treating hemoptysis, without reference to the use of astringents, styptics, and other medicaments mentioned in the usual text-book description.

DISCUSSION.

DR. JOHN B. HAWES, 2ND, Boston: I am glad to comment on this method of treating pulmonary hemorrhage which Dr. Burns has been carrying on at the North Reading State Sanatorium. At an institution of this kind there are opportunities for finding out the value of any given method of treatment which those of us who do not have our patients so fully under our personal supervision do not have. Therefore I feel that any method of treatment which comes from North Reading State Sanatorium, where it has been tried out so long and carefully is worthy of the most serious consideration.

I cannot feel, however, that morphin should be entirely discarded. There are two classes of cases which are subject to hemorrhage,—the first is the active case, running a high temperature and pulse, what we know as the progressive, active case of tuberculosis. There I agree entirely with Dr. Burns that the active catharsis is a very important thing.

There is another type of case with which I have come more into contact,—that is the fibroid case, where the patient is apparently active and well, without symptoms in the interval between hemorrhages, without fever, with a normal pulse, and going about his or her regular work when a hemorrhage occurs. In such a case as this there is really no lighting up of a tuberculous process in the lungs. I feel that in this type of case morphin does play a definite part and perhaps a major part in controlling not the hemorrhage itself but the disturbed mental attitude of the patient. I do not see why it is not perfectly possible to give small doses of morphin and yet to keep the intestinal tract open.

I think in this method of treatment as in others there must be modifications to suit the individual case, but I am sure that Drs. MacCorison and Burns have made a distinct step in advance in showing us the way in handling this most dis-

tressing of all symptoms in pulmonary tuberculosis.

Dr. F. P. McCarthy, formerly of Boston Consumptives' Hospital, Mattapan. I might say that our results at the Consumptives Hospital at Mattapan as to the number of deaths from hemorrhage according to the total number of deaths, correspond very closely to those of Dr. Burns. Out of 400 deaths which we had in two years during my régime, we had 7 deaths from hemorrhage.

There is one remedy that has not been mentioned here, which I think is of distinct value, namely, the use of fresh animal sera, preferably rabbit serum. I have had occasion to use this serum on several cases with apparently good results, and when we understand the pathology of pulmonary hemorrhage, when we appreciate what little value treatment has in the majority of severe cases, an agent that will tend to increase the coagulability of the blood should not be laid aside and eliminated in the treatment. The actual picture in the vast majority of severe hemorrhage cases is first the presence of a small or large cavity; a vessel running across this cavity is usually ruptured and the cavity is very often filled with blood. Nature herself in the vast majority of cases controls the hemorrhage by the formation of a blood clot within the cavity, and as a result the coagulability of the blood on the end of the ruptured vessel is caused by a pressure of this clot. Now any agent that will tend to increase the coagulability of the blood is indicated, and the use of fresh rabbit serum in 15 c.c. doses, repeated as often as 4- or even 3-hour intervals in severe cases of bleeding, I should strongly recommend. Rabbits can be kept in connection with an institution very readily, and more convenient, than one can obtain serum in private practice. Fresh rabbit serum could be kept constantly on the ice and used for this purpose.

Dr. G. M. Balboni, Boston: There is one thing that has not been mentioned in the treatment of pulmonary hemorrhage in this discussion, that is artificial pneumothorax. In cases where the hemorrhage is from one lung, if you are able to inject nitrogen into the pleural cavity of the bleeding lung the hemorrhage will be immediately controlled. I have done so in four cases. One, my first case, was a young farmer out in Arlington. He started with a brisk hemorrhage and continued to have brisk hemorrhages for two weeks. When I saw him he was going down hill fast. I was able to inject into the left pleural cavity of this patient at one sitting 1800 c.c. of nitrogen. The hemorrhage was completely controlled. Later I injected more nitrogen and he never had any more hemorrhages. The lung, four months later, completely re-expanded and it is now three years since that patient was injected and he is well. That was my first experience with artificial pneumothorax in pulmonary hemorrhage. I later had three other cases which were also unilateral cases, where it was not possible to control the hemorrhage by morphin and rest, and the other methods that the physicians had used. In these three cases the hemorrhage was completely controlled by nitrogen injection and no ill effect came from the extra work thrown upon the other lung. It is to be understood that if it is to be used you must have a free pleural cavity or one that is sufficiently free to compress the bleeding lung so as to stop the hemorrhage. Another point also is that you must be sure that the lung you are compressing is the one that the bleeding comes from. Also that there is no active disease in the other lung, otherwise a large amount of nitrogen injected into a pleural cavity may aggravate or start up a process on the non-compressed lung. If the non-compressed lung is healthy there is no danger.

Of course in doing this the patient is to be told what the object is and what he is to expect from it. Once you have commenced treating the lung you are not to stop by having stopped the bleeding, but you are to continue treating the lung for an indefinite period so as to bring about fibrosis. In these four cases my patients have had no ill effects. Of course the other side was fairly healthy.

We can say then that success in the treatment depends:—

1. On knowing from which lung the bleeding comes.

2. On a free pleural cavity or one that is sufficiently free to allow enough nitrogen to be introduced so as to control the bleeding, not more than 1000 c.c. of nitrogen will be necessary at one injection. Later more nitrogen may be injected, depending on the symptoms.

3. It is essential that the "other lung" be sound and that there be no cardiorenal disease.

With a perfect technic the dangers are practically nihil.

Dr. F. T. Lord, Boston: Concerning the use of morphia in the treatment of hemoptysis, it seems to me that it should be used with caution and only to meet certain indications. The danger of hemorrhage is largely due to extension by the effused blood of the tuberculous process into previously uninfected parts of the lung. Of 218 cases of hemoptysis occurring at the Massachusetts General Hospital and the Channing Home, death occurred in ten, and of these only three died as the immediate result of the bleeding, while the remaining seven died of apparent extension of the tuberculosis as a direct consequence of the hemorrhage. The use of morphia has both advantages and disadvantages. Cough may be necessary for the expulsion of blood which otherwise is retained in the air passages and leads to further infection. Morphia may be harmful in cases of this type. On the other hand, expulsive efforts with cough may dislodge a partially adherent thrombus and thus maintain or renew the bleeding. It seems to me, therefore, that morphia should be used only for the purpose of checking irritative and unproductive

cough or in rare instances to quiet extreme nervousness and we should appreciate that it may do more harm than good in certain cases.

DR. H. D. CHADWICK, Westfield State Sanatorium: My method of treating hemorrhage is somewhat different from that in vogue in the the other sanatoria in regard to the posture of the patient. Instead of having the patient recumbent I always sit him up the first thing. That is treatment that I have followed out for eight years. I can vouch for the greater comfort of the patient and I am sure that the hemorrhage is lessened in amount and will stop quicker than when the patient is kept lying down. It is difficult to raise blood when one is lying flat on one's back. It is much easier when one is sitting up. Logically, it seems to me that the proper position is to sit up with as many pillows as necessary behind the back, and thus keep the patient where he can expectorate the blood with the least effort as it comes into the throat. I use morphin only when the hemorrhage is profuse and continuous. I prefer heroin once in four hours to prevent unnecessary irritating cough.

II.

THE TREATMENT OF PHTHISIS BY PULMONARY COMPRESSION.

BY CLEAVELAND FLOYD, M.D., BOSTON.

DURING the past three years the rapid extension of the use of artificial pneumothorax as a therapeutic measure in the treatment of various pulmonary diseases has been very marked. The present status of this method in the treatment of phthisis is one of recognized value. Like so many other measures however, which have been used for the control of pulmonary tuberculosis, its continued favorable acceptance by phthisiologists depends upon three things: first, a rational method of procedure; second, care in the selection of cases to be treated; and third, correct interpretation of pulmonary changes which would warrant a suspension of the treatment in those cases favorably influenced by it. Most men, as is the case with many surgical procedures, in performing pulmonary compression gradually evolve a technic of their own. At the present time, however, there seems to be little difference of opinion in regard to the method of procedure in the production of artificial pneumothorax. While a few men still carry out the method of Brauer of making an open incision in the chest wall as a preliminary to their injection of nitrogen gas into the chest cavity, the accumulated experience of many other observers would seem to show this to be unnecessary.

Careful physical examination supplemented by x-ray examination will in the majority of instances correctly determine the condition of the pleural cavity. The insertion of the needle into the chest where the movement of the lung indicates freedom from adhesions, and the x-ray shows the possibility of its compression, will almost always be successful without attendant mishap or the failure to reach the pleural cavity. As has been well said, "most failures as well as complications arise subsequent to the initial injection," and it is very surprising that often the second inoculation is entirely unsuccessful in the same region where the first has been accomplished without difficulty. It is an accepted fact that a close study of the variations of the manometer is of prime importance in directing the inflow of nitrogen. This is true not only of determining where the point of the injection needles lies but also as to the amount of positive or negative pressure remaining in the chest cavity at the time of injection and its rise or fall depending upon increase of pleural tension or the giving away of the lung before the inflowing nitrogen. The manometer also is an accurate measure in millimetres of water or mercury of the pressure applied to the lung. In those cases where the nitrogen treatment has been used for some time, and the operator is thoroughly cognizant of the strength of pleural adhesions with which he is contending, or the unyieldingness of a partly consolidated lung, the amount of force used to drive in the nitrogen may be very considerable. Very few cases have occurred where the pleura has ruptured and the nitrogen has forced itself into the mediastinum, but frequently subcutaneous emphysema follows vigorous compression. In certain cases the manometer will show in different sections of the chest considerable variation in the amount of pleural tension, indicating definite division of the pleural cavity from pleural adhesions. When this is the case it may be necessary to introduce nitrogen into the chest at more than one point to get an adequate amount of pulmonary compression. The amount of nitrogen given and the interval of repetition of injections should be largely governed by the conditions in each individual case. In general, small amounts of nitrogen (300-500 cc.), given at a few days' interval until collapse of the lung is complete or until all symptoms have disappeared seems to be the best method. Entire collapse of the lung will be obtained in relatively few cases, especially if the process in the lung is of any standing. Furthermore, it is often necessary to collapse but a portion of the lung to drive more blood into the affected part and thus stop all activity on the part of the lesion. Where the required amount of collapse of the lung has been obtained, the interval of injection of nitrogen and the amount to be given should be wholly determined by two factors; namely, the persistence of symptoms, or their recurrence, and the tension under which the nitrogen remains in the chest. The return of cough and expectoration or the increase of temperature after its cessation demand an early injection of nitrogen. Where these symptoms persist in spite of vigorous compression of the lung the frequent and prolonged use of nitrogen

is important to get them under control. Many cases are not brought to a successful termination because the operator despairs too easily of obtaining results. This is especially the case where there is an extensive development of adhesions or a resistant lung is encountered. Where an interval of time between injections is chosen which allows the nitrogen that has been previously introduced into the chest cavity to become so far absorbed that it does not constantly exert positive pressure upon the lung as shown by the manometer, the length of time has been too long. At the close of each introduction of the gas into the chest, positive pressure should then be recorded except in the first few injections where the lung is rapidly receding.

Of prime importance in the successful use of pulmonary compression is the proper selection of patients for the treatment. This is especially true in cases of pulmonary tuberculosis. It cannot be too often emphasized that this therapeutic method may accomplish one of two things; first, prolonged relief of symptoms, or second, the arrest of the pathological process. In the latter case the strictly unilateral pulmonary lesion, free from adhesions is the only one where this can be anticipated. Cures will be secured in bilateral cases, but here the outlook is always one of doubt in the beginning. Where both lungs are active a nicety of judgment is required to terminate such cases successfully.

For the relief of symptoms the range of cases that can be so treated is limited only by the condition of the pleural cavity. The incipient case, which in the judgment of most men should be excluded from the group of cases that are suitable for artificial pneumothorax, has, nevertheless, where it has been thus treated, frequently shown rapid termination in recovery. Pleurisy with effusion complicating a moderately active lesion upon one side offers a good field for treatment. Cases of miliary tuberculosis have not as yet been treated in sufficiently large numbers to allow an adequate opinion to be formed as to the results that can be expected.

Active, rapidly advancing phthisis complicated by secondary infection is frequently unsuited for this method of treatment. The same is true of long standing fibroid phthisis accompanied by a weak heart. The collapse of cavities may be occasionally accomplished, but in most instances the effort is only partially successful. No case of pulmonary tuberculosis should be selected for treatment with artificial pneumothorax entirely upon evidence secured from the chest. Many a case which is a favorable one for complete cure, if judged alone from pulmonary signs may prove entirely unsuitable where the patient has a high-strung nervous temperament. Apprehension of and lack of confidence in this method will frequently prove to be the deciding factor against success in many cases.

With the cessation of active symptoms as the result of pulmonary compression, most observers depend upon pulmonary changes for guidance as to when to terminate the continuation of nitrogen. It is obvious that there will be many cases in which it will be found impossible to wholly stop the symptoms of phthisis and these must be treated systematically for a considerable period of time until the general physical condition is good and the damaged lung is restricted by the formation of adhesions. In the other series of cases, however, where after six or more injections temperature has disappeared, cough and expectoration have ceased, it is most important for the ultimate outcome of the case to know what method to pursue in regard to the further use of nitrogen. Where the x-ray shows a considerable degree of pulmonary collapse with a large quantity of nitrogen in the chest which is under positive pressure, it is best to continue this condition for a period of three months before allowing any expansion of the lung. This may mean several injections of nitrogen during this interval to hold the lung in a collapsed state. Where three months have elapsed without the return of any active symptoms and an examination of the chest during this time shows a disappearance of all moisture, it will then be possible to allow a gradual re-expansion of the lung. This should not be accomplished by withdrawing the nitrogen present, but by keeping a gradually decreasing amount of nitrogen in the chest, thus allowing the lung slowly to reoccupy the pleural cavity as far as pleural adhesions will allow. During the period of re-expansion of the lung it may at times be found necessary on account of the re-appearance of active symptoms to again carry the collapse of the lung to the extreme point which it formerly attained. Occasionally after a considerable interval in which there has been a disappearance of the artificial pneumothorax it may be found necessary in exceptional cases to resort again to this method of treatment on account of the lighting up of the process either in the treated lung or in the other side of the chest. New formation of adhesions may make this difficult or almost impossible and only energetic use of nitrogen under pressure will give results.

Following the arrest of tuberculosis as the result of artificial pneumothorax, examination of the lungs will show it frequently much limited in its capacity for expansion. Voice and respiratory sounds are often diminished in intensity and quality and resistance over the involved area to percussion may be considerably increased. The other lung will show compensatory hypertrophy occupying a large portion of the pleural cavity and having exaggerated breath sounds over its entire area, with full expansion of its borders. The position of the heart will depend entirely upon whether the previously established pneumothorax has been sufficiently absorbed to produce a condition of negative pressure in that side of the pleural cavity.

While at the present time artificial pneumothorax has become a well established therapeutic measure, its field of application has slowly nar-

rowed with its use. This is not only true on account of a relatively small number of cases that are really suitable for this method of treatment, but because it is a measure most adapted for patients having institutional care. It does not replace by any means those measures for increasing general bodily vigor such as fresh air, good food and rest, but it can supplement these in a limited number of cases.

It is a procedure which not only demands some skill in its application but most of all an intimate knowledge of phthisis and the pathological changes which it may bring about in the pleural cavity.

It is without doubt a real step in advance in physical therapeutics in the treatment of many pulmonary conditions, and as it is based upon sound clinical and pathological observations I believe it is destined to have a permanent place in the treatment of pulmonary tuberculosis.

III.

THE PRESENT STATUS OF ARTIFICIAL PNEUMOTHORAX THERAPY.

BY JAMES A. LYON, M.D., RUTLAND, MASS.,

Assistant Superintendent and Physician, Rutland State Sanatorium, Rutland, Mass.

IN August, 1911, a number of patients at the Rutland State Sanatorium were selected to test the value of artificial pneumothorax therapy as associate treatment in pulmonary tuberculosis. Since that time we have subjected 74 patients to this form of treatment, and the results obtained form a part of this paper.

Of the 74 cases treated, 4 were in the incipient stage of their pulmonary disease, 38 were moderately advanced, and 32 were in the far advanced stage. Of the above 4 incipient patients, 1 had bilateral disease, and 3 had unilateral involvement. In all 4 instances there was marked improvement following the treatment.

Of the 38 moderately advanced cases, 5 had unilateral disease, and in 33 it was bilateral. In the 5 instances where the disease was confined to one lung, 3 were benefited by the treatment, and 2, on account of extensive pleural adhesions, failed to show any signs of improvement. Twelve of the 33 patients, whose disease involved both lungs, showed satisfactory improvement, and 21 failed to respond favorably to the treatment.

On account of recrudescence in the uncollapsed lung, the treatment was discontinued in 7 of the above 21 cases; in 7 more it was also abandoned because of dense pleural adhesions. In 2, the reason for stopping it was the extreme nervousness following each treatment; in another, shock was the reason; and 1 was on account of the occurrence of a hemorrhage in the untreated lung. In another instance, we discontinued, the treatment because of an acute attack of appendicitis, in which case the appendix was removed, and following this, the patient rapidly declined. The treatment was discontinued in still another, because of uncomfortable symptoms which followed, and the remaining case died from what was undoubtedly a rupture of the visceral pleura.

There were 32 in the far advanced stage of their pulmonary disease, and of this number, 4 were suffering from unilateral involvement, and 28 had the disease in both lungs. Of the 4 unilateral cases, 1 suffered from a spontaneous pneumothorax, and the treatment was given in this instance to relieve the distressing symptoms present. On admission the patient was critically ill. His life was prolonged for a period of four months and the lung was kept in a collapsed condition by repeated introductions of nitrogen gas. Death was sudden, and was, in all probability, due to aortic syncope. The 3 cases remaining were unsuccessful, because of extensive pleural adhesions.

Three of the 28 patients suffering from bilateral disease were improved by the treatment, and 25 failed to improve. In the 25 instances where the treatment was unsuccessful, it failed in 9 on account of recrudescence in the uncollapsed lung. In 8 there were marked adhesions, preventing even a moderate collapse; 3 became too nervous to continue with the treatment, as they lost weight rapidly and suffered from dyspnea and insomnia. In 2 cases the treatment was abandoned because, on each occasion when we attempted to introduce even a small amount of gas, they suffered from extreme shock. Two patients refused to continue with the treatment because they became extremely nervous following it, and one died of acute cardiac dilatation and pulmonary edema.

You are all familiar with the alarming complications which frequently follow an extensive pulmonary hemorrhage,—the sudden rise of temperature, dyspnea, rapid pulse, the extension of infiltrated areas and the softening of lung tissue. Indeed, many of these patients seemed to have taken on a form of septic pneumonia and to have gone into a rapid or gradual decline. There were nine occasions on which the treatment was given to control these hemorrhages, and it was successfully carried out in each instance. Unfortunately, one of these patients developed a hemorrhage from the opposite lung and the treatment had to be discontinued.

Of the above-mentioned cases, four were suffering from pleurisy with effusion, and we removed the pleural exudate, replacing it with sterile nitrogen gas. On each occasion the treatment was successfully carried out, and we have maintained the collapsed condition of the lung by continued introductions of gas.

In general it may be said that 23, or 31%, of the 74 patients coming under our observation were benefited by this form of treatment, and that 51, or 69%, received no benefit from it. All the above-quoted cases failed to improve after several months' residence under the usual sanatorium treatment, and the prognosis in each instance was either questionable or unfavorable.

In those cases, therefore, where failure is recorded we have attributed it, not to the underlying principles on which the treatment is based, but rather to the miscarriage of one or more of those elusive elements which help to make the question of artificial pneumothorax therapy a far more complex and formidable study than is generally supposed, and into some details of which, we are only beginning to obtain an insight. We refer to the element of error in even the most rigid application of our present technic of sterilization, to the degree of temperature of the gas, to the rapidity with which it is introduced, and to the question of proper dosage. Also of vital importance is the proper selection of cases, and the reactive power of the individual treated.

Indeed, one of the earliest lessons which our experience teaches is the conviction that there should be no such thing as fixed numerical doses. Each individual is a problem in himself, and no attempt should be made to have a fixed rule for the amount of nitrogen gas introduced.

Spontaneous improvement, even in advanced tuberculosis, is by no means an unknown phenomenon, and the suggestive element in regular, repeated hypodermic injections, even of nothing but sterile water, is a force to be reckoned with. Against the value of the failure of similar improvement in untreated control cases may be urged the lack of identity in the clinical course of any two cases of phthisis, the variable and important element of individual immunity and individual resistance, and the possibility of coincidence, which is ever present.

When we state, therefore, that the apparent clinical results following the intelligent, persistent and discriminate application of artificial pneumothorax therapy in certain cases of pulmonary tuberculosis, are improvement in general health, gradual fall in the evening temperature, the return of appetite, increase in body weight, and a gradual lessening of cough and reduction of sputum, we do not mean to recommend the use of artificial pneumothorax therapy as a panacea or infallible remedy applicable to all cases.

Indeed, the results are often contradictory and disappointing, and, as we have previously indicated, there is still much to learn. Not only is the somewhat general dictum that "artificial pneumothorax therapy can do no harm even though it should fail to benefit," fallacious in the light of our experience, but we are convinced that just as definite and serious damage may result from its careless or ignorant administration as from tuberculin.

IV.

Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis.

By Henry D. Chadwick, M.D., Westfield, Mass.

My personal experience with pneumothorax began in August, 1912. Since then I have applied this method of treatment to 43 patients, 21 men and 22 women. Nine of these have had but from one to five treatments each, having been under treatment but a short time when it was discontinued for various reasons. On account of the short duration of treatment, they will not be included in this discussion. Of the 34 patients left for consideration, 3 were classified on admission as second stage, or moderately advanced, 31 as third stage, or advanced cases. Approximately 400 doses of nitrogen have been given. The average dose the first year of my work was 800 c.c. This past year it has been about 500 c.c. I have found that small doses administered more frequently cause no discomfort and are rarely followed by febrile reaction. The period between doses is about seven days until as complete a pneumothorax as possible is obtained. The interval then may be from two to four weeks. I am guided in this, somewhat, by the feelings and symptoms of the patients. They often say that they need another dose of gas because they are beginning to be wheezy, or that they cough or raise more, or feel less energetic.

The rapidity with which the gas is absorbed varies greatly with different patients, and for this reason the interval between doses must be worked out with each individual under treatment.

But 9 of the 34 cases were unilateral. The others had some inactive disease of the other lung. The right lung was compressed in 19 and the left lung in 15. In two cases both lungs were treated, at different intervals. The latter were bilateral cases in which renewed activity in the non-compressed lung made it advisable to change sides after an interval of several weeks, during which time the collapsed lung expanded. One of these cases, a colored man, was very much benefited by this procedure. He was very sick when we began this treatment and his restoration to even a fair degree of health was unexpected. He was discharged last October and when recently heard from was feeling quite well.

Results.

Twenty-two showed improvement of varying degree. Six were previously doing well, leaving 16 who were undoubtedly benefited by nitrogen treatment. Eight patients showed progressive

disease, and the condition of 4 others was stationary; 2 patients died after leaving the sanatorium. This is a small percentage when you consider that all but 3 were in the third stage of the disease, and that two-thirds of them have been under observation and treatment for more than a year.

WEIGHT.

Of the 12 who increased in weight, the largest gain was 21 pounds. The others varied from one to seventeen pounds. Of those who gained, 8 were women and 4 were men. Of the 22 who lost, 14 were men and 8 were women. The loss of weight in each instance was small, with the exception of one woman, who lost 21 pounds. She was losing steadily before treatment was commenced. Notwithstanding this loss of weight, she is feeling better and stronger and her temperature is lower. A small loss of weight during the first weeks of treatment is a frequent occurrence, but is usually soon regained.

COMPLICATIONS.

Two patients developed tuberculous pneumonia while under treatment. One of them had a small fresh focus of disease in her right lung and was running a temperature of from one to two degrees above normal for six weeks before we began treatment of her left lung, which was entirely involved. After five doses of gas she developed a tuberculous pneumonia on the right side, which ran a typical course. Her temperature subsided after four weeks and the gas treatment has been continued with gratifying results.

The other case developed tuberculous pneumonia immediately after the first injection of nitrogen. For the two weeks preceding this treatment he had symptoms of an active process in the lung, and it is quite probable that this pneumonia would have developed if the lung had not been compressed. After the acute symptoms had subsided, treatment was resumed without further difficulty.

Three doses were given to a patient with hemoptysis, but apparently it had no effect upon controlling the hemorrhages.

Emphysema about the point of puncture is not an infrequent occurrence when a dose causing considerable plus pressure is given. It causes very little discomfort and soon disappears. A two-inch strap of adhesive plaster placed over the puncture will usually prevent much gas escaping.

Only one instance of anything simulating pleuritic shock has been observed. This occurred in a highly nervous patient who had received two doses without untoward symptoms. When the needle was inserted for the third treatment and before any gas was allowed to enter, she suddenly relapsed into unconsciousness and showed the usual symptoms of shock. After a few minutes she recovered. No further attempt was made to continue the treatment.

Pleuritic shock can be avoided with careful local anesthesia with one per cent. solution of novocain, taking special care to use a needle long enough to penetrate the parietal pleura, so that the solution can be injected through its wall.

Effusion. Six patients developed pleuritic effusion while under treatment. This condition is often ushered in by a sudden rise of temperature. The fluid is usually clear serum but may later become cloudy. On culture it is found to be sterile. I am unable to see that these cases are any worse for this complication. On the contrary, the presence of fluid aids compression and the injections of gas, as a result of this, may be made at longer intervals.

CASES SUITABLE FOR TREATMENT.

The results obtained by this treatment depend upon whether the diseased area of the lung can be partially or wholly collapsed. When there are tough adhesions, a marked thickening of the pleura, or a fibroid lung, effective pneumothorax cannot be produced, and as the respiratory conditions will be very little changed a marked result cannot be expected. Whether suitable conditions exist, only a trial will determine, as some old standing cases are unexpectedly benefited.

A patient in any stage of disease, if a unilateral case, should have the benefit of an induced artificial pneumothorax if they do not show marked improvement under good sanatorium conditions in a reasonable period of time. Careful selections may be made from the bilateral cases who are not improving, if in one lung the disease is apparently inactive. The benefits frequently noted are lessened cough and sputum, lower temperature and slower pulse-rate. The patients often express themselves as feeling less tired and more energetic. They are able to sleep better because they cough less at night. Lessened absorption of toxines probably accounts for the improvement in their general condition.

I have not had experience in treating first-stage cases with artificial pneumothorax, as Murphy has recommended. Cases of that class, usually respond well to sanatorium treatment. If, however, a patient proved to be a progressive case, although it was at an early stage, I should advocate induced pneumothorax without much delay.

In my opinion it is a method of treatment of much value in carefully selected cases, but it should be given only to such patients as can be kept under close observation and under sanatorium conditions.

V.

Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis. Should the Method be Used?

By Frederick T. Lord, M.D., Boston.

I hesitate to discuss this subject for two reasons. In the first place I have had no personal experience with the method, and in the second place certain objections which I shall presently mention may seem to introduce a discordant note into the discussion.

In support of the method it may be assumed that immobilization of the affected lung is favorable to the arrest of a tuberculous process. It should be remembered, however, that the collapse of the affected lung in consequence of artificial pneumothorax must of necessity affect the more nearly normal parts of that lung owing to the more rigid character of the infiltrated regions and the frequency of overlying pleural adhesions. The effect of maintaining normal parts of the lung in a collapsed condition for long periods of time is an important consideration. Following the collapse of the lung in cases of pleurisy with effusion, extensive pleural adhesions and dense connective tissue may form on the surface and within the substance of the lung and prevent re-expansion. Such indurative changes are more pronounced the longer the lung is allowed to remain in a contracted and atelectatic condition and constitute an important argument for early removal of inflammatory and especially purulent pleural fluid. Similar changes in the pleura and lung have been observed as a complication of artificial pneumothorax. Graetz[1] demonstrated dense fibrous thickening of the pleura over the collapsed lung. Weiss[2] observed similar changes in the pleura in two cases at autopsy. Bruns[3] found thickening of the pulmonary pleura and an increase in the peribronchial and perivascular connective tissue after experimental pneumothorax in animals. Kaufmann's[4] findings are still further confirmatory. He found the lung incapable of re-expansion in consequence of such changes. It seems to me questionable whether the risk of materially diminishing or even abolishing the function of sound parts can be safely taken.

Some observers, notably Spengler,[5] have reported the favorable effect of spontaneous pneumothorax on existing pulmonary tuberculosis in certain cases and this has been used as an argument in favor of artificial pneumothorax as a therapeutic measure. My experience has been quite the contrary, however, and I have been very much impressed with the seriousness of pneumothorax as a complication of pulmonary tuberculosis. There have been 64 cases of certain or probable pulmonary tuberculosis with pneumothorax at the Massachusetts General Hospital and in these cases the unfavorable effect of pneumothorax has been a striking feature. Rapid extension of the tuberculous process may take place from the aspiration of infected material into previously uninvolved parts of the lung. Tuberculous or pyogenic infection of the pleura occurs in a very large proportion of the cases. The fever becomes more marked and the emaciation progresses more rapidly. The danger of pleural invasion is doubtless less serious in artificial than in spontaneous pneumothorax owing to the introduction of the gas into the pleura from without in the former and its entrance through an infected lung in the latter condition, but pleural effusion appears to be by no means an uncommon complication of artificial pneumothorax. The development of pleural effusion is estimated to complicate about half the cases in which artificial pneumothorax is performed. Weiss[6] was always able to demonstrate tubercle bacilli in the effusion by animal inoculation. Such an extension of the tuberculous process cannot, it seems to me, be regarded as desirable.

Bilateral infection with tubercule bacilli is almost constantly present in pulmonary tuberculosis and I cannot understand how, if immobilization is good for one lung over-work is good for the other. In addition there is the danger of the evacuation of the contents of tuberculous cavities under compression and the infection of nearby or remote parts of the lung. Sudden death from gas embolism cannot be ignored. Forlanini had two fatalities during a repetition of the injection and three fatalities were reported to Brauer by other operators, while one occurred in his own experience. Many isolated examples of a fatal termination are recorded in the literature.

Dr. Lyon has referred to the difficulty of estimating the value of the method when the normal variations in the course of pulmonary tuberculosis are taken into consideration. The efficiency of this method of treatment has not yet been tested by means of comparative statistics and for the present must be judged according to the impressions of those who have used it. In certain instances it appears to have accomplished good results while in others the effects have been disappointing, but on the whole the results do not appear to be highly promising.

The dangers appear to be considerable and sufficient to discourage support of the method unless results so favorable as to justify the risks can be demonstrated. I hope that my criticisms will be discussed in the remarks which follow.

REFERENCES.

[1] Graetz: Beitr. z. Klinik d. Tub., 1908, 10, p. 249.
[2] Weiss: *Ibid.*, 24, 1912, p. 333.
[3] Bruns: *Ibid.*, 1909, 12, p. 1.
[4] Kaufmann: *Ibid.*, 23, 1912, p. 57.
[5] Spengler: Beitr. z. klin. Chir., 1906, xliv, 68.
[6] Weiss: Beitr. z. Klinik d. Tub., 24, 1913, p. 333.

DISCUSSION.

DR. ISAAC GERBER, Boston: I wish to say a few words about a subject which has just been mentioned casually, that is the use of the x-ray in the control of pneumothorax treatment. In the first place it is useful in selecting the type of case to be treated. We know that the indication is largely that of unilateral cases. "Unilateral" is a word used in a very loose way. Clinically unilateral cases are often found not to be such when subjected to careful x-ray examination. X-ray examination before pneumothorax treatment will frequently reveal unsuspected active foci in the opposite lung which might exclude that particular treatment. Much of the difficulty in following out artificial pneumothorax and many of the dangers spoken of by Dr. Lord might have been entirely avoided if careful control of the roentgen ray had been exercised. No matter how expert a physician may be or how well acquainted with the physical signs of spontaneous pneumothorax, they are of little service to him in following along a case of artificial pneumothorax. These signs vary so from one day to another, in fact during the course of a single day, that very few definite conclusions can be drawn from physical diagnosis alone. In following along cases done by various men I have noticed that when there are any difficulties in regard to whether or not an injection should be made, or the size of the injection, they may repeatedly insert the needle with little result, when the entire situation will be cleared up with one glance at the fluoroscope. Besides this, the development of an early hydropneumothorax can be demonstrated by fluoroscopic examination in an upright position long before there are any physicial signs demonstrable at all.

I feel that one really has no right to practice artificial pneumothorax treatment unless he has the opportunity to apply the x-ray. The advantages to be derived from pneumothorax treatment are dependent upon carrying the treatment out completely; that means getting a complete lung collapse, maintaining this collapse for a long time, and later obtaining re-expansion. All those problems ought to be carefully considered. I do not believe any one is capable of guessing at these things and I believe no one is really justfied in carrying on pneumothorax treatment unless he has constant control by means of the x-ray.

DR. EDWARD O. OTIS, Boston: I would like to emphasize what Dr. Gerber has just said and also at the same time commend the admirable pneumothorax work which has been done at the various state sanatoria without the guidance of the x-ray, and to express the hope that the authorities will see the value and the extreme necessity of providing each one of these institutions with a proper x-ray apparatus. I do not believe that we can be sure that we are applying artificial pneumothorax to the best advantage without constant checking up of our work by means of the x-ray. Only yesterday I saw a case that is in the process of being treated by artificial pneumothorax. It seemed to me that the amount of gas at that time was quite insufficient, the case having been done without the information which the x-ray would give as to the completeness of the compression.

I would like to say one word in regard to what Dr. Lord has said. I quite appreciate the theoretical objections to artificial pneumothorax which Dr. Lord has mentioned but after all we have to submit to clinical experience, and I do believe that the mass of clinical experience already offered with regard to artificial pneumothorax in proper cases has proved its value. As one of the physicians in Forlanini's wards at Pavia told me in pointing to a case of advanced tuberculosis which had practically recovered under artificial pneumothorax—"here is a case that was otherwise doomed which has been saved by artificial pneumothorax." I believe there are many cases that have been arrested by means of artificial pneumothorax which would otherwise have died. It seems to me then it has established its place in the treatment of pulmonary tuberculosis. To what extent it shall be used—whether for example it is to be recommended in certain incipient cases is still a question which is under consideration. I do believe, however, that it should be tried in two classes of cases especially, one, the advanced case which is going on rapidly to destruction, and the other, the advanced case which will never get well but more slowly advancing towards a final fatal termination. In those two classes of cases, provided we have a sufficient amount of sound lung tissue in the other lung to keep up the proper aeration, artificial pneumothorax gives us another chance, and I think every one of us would desire it for patients under these conditions.

With regard to the hyper-distention or hypertrophy of the other lung to which Dr. Lord referred—it seems to me that this is one of the things that we hope may happen in cases of unilateral tuberculosis. We consider it a favorable result when we do obtain it. In this way we can maintain the general resistance and proper aeration while we are doing what we can for the arrest of the disease in the other lung.

DR. NATHANIEL K. WOOD, Boston: I believe very strongly in what Dr. Gerber has said. I believe that x-ray treatment is essential in the safe conduct of artificial pneumothorax. With x-ray treatment many of the dangers consequent upon this treatment may be avoided. I can speak of one or two instances where we may get into trouble without knowing it. I saw 500 cc. of gas given to a patient by a very careful man. All the indications showed that we were in the right place, that the gas was being given in the pleural cavity. Four days later I gave 500 cc. more, thinking I was giving it in the pleural cavity. The x-ray demonstrated no gas in the

pleural cavity. Without the x-ray examination I do not believe it would have been possible to convince ourselves in regard to this. Under the conditions which I saw it done, I feel very sure that we cannot definitely train ourselves to know where we are giving the gas without having something like the x-ray examination to prove that we have given it correctly.

I want to refer also, to what Dr. Otis has said. It is certainly true that facts cannot be refuted. When our facts do not agree with our theories, the things to give way are our theories and not the facts. I think that we get into one difficulty in our theorization of artificial pneumothorax by using the word "collapse." The lungs do not collapse under artificial pneumothorax; they are compressed. It is very definitely a matter of compression, very severe compression. To speak about it as collapse, as something suddenly falling together, is not so—the lung is forced together. Therefore, the diseased part of the lungs is subjected to sufficient pressure, as well as the normal portions of the lungs, to accomplish the results which are to be obtained.

There are three or four results to be obtained —the first is immobilization. Although there are two sides to the question of motion,—whether or not motion is an advantage, or quiet,—personally I am very strongly of the opinion that rest is a very necessary factor in the cure of many conditions.

The second result is a marked reduction of toxic matter. We have lungs which have a toxemia from tubercle bacilli and diseased lung tissue. The body can stand a pretty large amount. I do not know how much of these two toxins the body can stand. A person can eat and sleep and do his work until a certain degree is reached, and then he must seek help in our sanatoria. By artificial pneumothorax, by compressing these lungs, you squeeze out these toxins, and very quickly reduce the amount of toxemia to a point where the body can well cope with it. At the same time a third result is accomplished, namely, the material reduction of the moisture of the lungs. You, thereby, convert the lungs from a good media upon which to grow bacteria to a very poor media, because bacteria grow in moisture and heat. You make the lungs dry, and stop the growth of the bacteria.

I think these three points are absolutely rational data on which to base your estimation of this kind of treatment: the immobilization, the reduction of the toxemia, and the elimination of the lungs as good media on which tubercle bacilli may grow.

The fourth point, the increased activity of the opposite lung, is not the serious drawback to this treatment as it appears on first thought. That I explain by the fact, that having reduced the toxemia in the blood to a point where the body can well cope with it, the digestive organs begin to do their work; then the blood, instead of constantly becoming worse, and less able to nourish the stomach and bowels, less able to fight the toxemia, can nourish the stomach, the heart, and improve the entire mechanism of the body. As the food is digested better the blood becomes richer and richer. This enriched blood is carried in a greatly increased volume to the opposite lung and because of its increased fighting qualities can stamp out whatever activity is found there. It is a common thing in this treatment to have the uncompressed lung show marked improvement.

For these reasons I feel that artificial pneumothorax is a very important step in the treatment of tuberculosis. In those cases which I have treated, I feel very sure that the results could not have been obtained in any other way. I had one case last year which had been in bed three months. After starting the treatment the patient gradually became able to move around and is still living after being given up as an entirely hopeless case. In the light of such results in the treatment, I think our theories may well give way to the facts produced.

Dr. Cleaveland Floyd, Boston: Hemorrhage has been mentioned casually as being favorably influenced by artificial pneumothorax. The experience at the Bellevue Hospital of New York, in which a series of 30 cases were treated, show some very striking results.

The objection that sometimes hemorrhage occurs from the other side has been raised. I think that is a matter of the question of dosage. Where you can control at least temporarily a bad hemorrhage that you think comes from one side, and then get moisture appearing in the other with more bleeding, you have probably given too much nitrogen. It is then best to let out some and give a small amount on the other side. That is a matter of technic very largely, I have known of some cases which have been treated in this way with very marked results.

Dr. Lord very properly brings up the question of damaging the lung from compression. I think that is one point to be very carefully considered. Most of these lungs which are treated are badly damaged. I do not believe that any case that has not had a fair trial of sanatorium treatment should be subjected to artificial pneumothorax. But if your case in spite of this begins to go downhill, this is a method to take up.

What happens to the lung is that the disease, frequently, after re-expansion has taken place, advances more or less into the uninvolved portion. The other lung is protected; you do not see the cross-infection which is the common story where you do not handle these cases with compression. One lung is protected at the expense of a partial destruction or a fibrosis of the other lung, and the case goes along and does very well. We must remember that in most of these lungs the lesion is not definitely limited, a fibroid process above and good lung below. They are partly involved above, partly below. It is a compression of partly good lung below and partly involved lung above. It is not alto-

gether a compression of good lung substance but air cells which are capable of doing their work and a good many which are not. In some cases one small injection which would not be possible to compress a great extent of lung will immediately stop the temperature, cough, and expectoration.

If the operator is fortunate in securing compression over the active portion of the lesion this suppression of active symptoms immediately takes place.

VI.

THE X-RAY AS AN AID TO THE DIAGNOSIS OF PULMONARY TUBERCULOSIS.

BY P. CHALLIS BARTLETT, M.D., BOSTON.

THE diagnosis of pulmonary tuberculosis is not always difficult. It is unfortunately true that many patients do not seek advice until the tuberculous process is so far advanced that the diagnosis is only too evident.

There are other patients who for one reason or another seek advice when in the early stages of the disease.

The diagnosis here is not an easy one to make, but it is of the utmost importance to use every means at our disposal to make a diagnosis, before the process has extended to the point where tubercle bacilli are present in the sputum. In such instances also we must use all of the methods we have in order to make sure that we are dealing with an active case of tuberculosis, and not one due to infection by some other organism.

Instruments of precision and the so-called exact methods of diagnosis, have increased rapidly in the past few years and in doubtful cases we should use all these methods.

The use of the x-ray as a means of diagnosis has developed along with other methods and at present is widely used as an aid in the diagnosis of all kinds of pulmonary conditions. It is especially in the diagnosis of pulmonary tuberculosis, however, that this method has met with much favor, as an adjunct to the other methods of diagnosis and the x-ray enthusiast has made many, and at times what seem to be extravagant, claims for the x-ray as a means of diagnosis.

In the hands of an expert the x-ray adds to our list of diagnostic methods, but without the interpretation of an expert is apt to be misleading and unreliable.

The x-ray plate properly interpreted, backed by a complete history and clinical examination, frequently proves to be of real service in helping to reveal an early tuberculous process.

The plate alone, even when carefully studied, will sometimes present a picture not inconsistent with a tuberculous infection, and yet the case may never present any evidence of tuberculosis except what was found on the first plate.

We must remember that the x-ray can only see; it does not interpret what it sees.

On the examination of a large number of plates with the interpretations made by experts, and comparing these results with the clinical findings, the greatest differences seem to be in deciding between active and non-active lesions.

Only by combining the work of the roentgenologist and the internist can the best results be obtained.

There are two types of cases in which the x-ray is especially helpful in making a diagnosis—pulmonary emphysema and the tuberculosis of children. In cases of pulmonary emphysema, tuberculosis is not an infrequent complication, but here the diagnosis of tuberculosis is often difficult.

On the clinical examination of such patients we find a hyperresonance on percussion, and on auscultation, many loud squeaks and moist râles. These signs often obscure any others that may exist as the result of a tuberculous infiltration. In such instances the x-ray plate will often make clear the true condition by demonstrating the consolidated area.

In tuberculosis in children the x-ray is helpful and should be used in every doubtful case. In children the glands at the root of the lungs are most frequently the seat of the early lesions. The physical signs are apt to be indefinite. X-ray examinations, however, will reveal such enlarged glands. If in addition to such enlarged glands as shown by the x-ray, there are suggestive clinical signs and symptoms, we can safely make a diagnosis of tuberculosis. To briefly summarize, we can say:—

1. Many cases of tuberculosis come to a physician when the diagnosis of this disease is not difficult to make.

2. In making a diagnosis of tuberculosis in an early case, we need all of the help possible from every source.

3. The x-ray when used by an expert is a help in the diagnosis of early tuberculosis.

4. The x-ray examinations should be a part of the complete examination of the patient, but should not replace the ordinary well-known clinical methods of making a diagnosis.

5. There are several types of cases in which the x-ray may be especially helpful. Chief among such conditions are phthisis in cases of emphysema and bronchial gland tuberculosis in children.

VII.

THE X-RAY AS AN AID TO THE DIAGNOSIS OF PULMONARY TUBERCULOSIS.

BY H. W. VAN ALLEN, M.D., SPRINGFIELD, MASS.

THE early diagnosis of tuberculosis of the lungs is of immense interest to the medical profession, and of inestimable value to humanity at large. Any method of diagnosis that tends to bring the doubtful cases into the class of those actually diagnosed, either positively or nega-

tively, should receive the most careful attention.

The detection of tuberculosis in its earliest incipiency is the greatest factor not only in saving the individual but also in the safety of the public.

What is incipient tuberculosis? Merely a relative term. Many cases that pass the ordinary physician will be proved tubercular by the trained specialist. So in this short paper, which on account of the time allowance can do nothing more than state facts, leaving the proofs for more extensive writings, I hope to show you some of the advantages of the roentgen method in early diagnosis. The roentgen ray has made more new history for itself in the last few years than any other medical subject. In none of the various organs of the body have these recent improvements in roentgen technic a better field than the lungs, and in none has it been more neglected. I can think of a dozen leading roentgenologists who have done advanced original work on the diagnosis of alimentary conditions while I can only recall one who has done the same in lung diseases. There are several reasons for this apparent neglect: The family physician has a tendency to feel his way along by periodic examinations with the stethoscope, thereby losing the only valuable time for the patient. The specialist is quite satisfied with his own method and hesitates to change to another radically different. The roentgenologist does not push this method because it is, on account of the large plates involved, expensive, and no class of patients are less able to pay. The making of a positive diagnosis usually involves the making of two enemies: first, of the patient, as no one in its incipiency wishes to be told he has tuberculosis; and secondly, the medical man so often doubts our little shadows, especially when not confirmed by the stethoscope. In this stage recovery is so frequent that to follow the case up is of no value, and it never can be proved that the roentgenologist established an earlier diagnosis than was possible with the stethoscope.

Two facts stand out in an argument in favor of roentgen study of chest diseases. First, the roentgen ray passes through objects in exact inverse proportion to their density. In theory no deviation of density is too small to fail to record itself. In practice, in objects of medium degree of x-ray penetration the slightest amount of change can be detected. Secondly, no tubercular process occurs in the lung which does not change the density of the tissue. Place these facts against each other.

In the roentgen ray we have a method that shows the slightest change in density of semi-transparent objects. The chest is ideal for such examinations. In tuberculosis the density changes in the earliest stages. In theory all cases should be detectable. In practice few should be overlooked if proper skill and care are employed. It should be remembered that increased density can be detected about as easily at the root of the lung as at the apex, and I have found that a very large proportion of lesions that are diagnosed by the stethoscope can be shown by roentgen ray to be accompanied or preceded by disease at the base. Cole, who has made a large number of examinations, says, "I have never seen a tuberculous lesion of the parenchyma without a typical tuberculous infiltration around the root. With improved technic and more pathological radiography I think that it will be established that all tuberculous lesions begin at the root and extend to the parenchyma."

As to technic, two methods present themselves; they should not be rivals, but co-workers. Both the plate method and that with the fluoroscope are valuable, each having certain advantages not possessed by the other. No lung examination is complete without the use of both. Time will not allow me to enumerate the advantages beyond saying that the plate shows details of the lung structure which are entirely lost to the fluoroscope, while the fluoroscope gives us the motion of the inspected organs which is of the greatest value; also, the inflation and deflation show certain diseased portions that cannot be seen as well by the plate method. The character of penetration of the ray may also be changed at will to show various lesions in a fluoroscopic examination. On the other hand, these fluoroscopic shadows are always flat. In making plates great advantage can be gained by the stereoscopic method, which gives us a sense of the third dimension. In this way the chest becomes a veritable transparent box. The organs and structures being seen in their true relation, overlying structures do not preclude a study of those beneath. So let me again say, let there be no quarrel between the two methods of roentgen examination, and use both. And here might be a good place to emphasize another coöperative element that is not always carried out. The tendency is to pit the roentgen method of examination against the older methods. This is wrong; we are not here to do medical or diagnostic feats, but to cure disease, and the roentgenologists should have the full benefit of the history and physical examination, and the internist should have the plate demonstrated and the fluoroscopic examination explained by the roentgenologist. There should be a consultation, not a report from the roentgenologist to the internist. The roentgenological study of a chest is quite different from a pathological laboratory report, the latter being a definite report, while the former is open to many interpretations, the key to the correct one being in many cases the information possessed by the internist. Again I say, coöperation.

Let me say a word as to advanced technic, and only a word. Only a few years ago the writers on roentgenology of the chest were delighted because radiographs could be taken while even a patient with dyspnea could hold his breath. Now even without intensifying

screens we only expose a very small fraction of a second. Good plates have been made in a single electrical impulse from the ordinary alternating current, or 1-120 of a second. Think what this means.—to have absolute rest during the exposure, not even the jar of the heart being a factor.

The principal arguments against roentgen methods in chest diseases are: we see too much; we cannot distinguish recent tubercular from other processes. Neither of these arguments is true if care is observed. Experience teaches us to eliminate the unimportant. When one considers that the Germans say that 98% of all adults have had tuberculosis of the lungs and that 93% of children react to the cutaneous tuberculosis test,—if this is true we are not asked who has tuberculosis, but what is the extent, what the kind and location and whether nature will perfect a cure unaided or must assistance be given.

Can we distinguish recent tuberculosis from old healed lesions, from thickened pleura, from carcinoma, from pleurisy and empyema and other diseases which change the density of the lungs? If time permitted, I should like to go into details. With careful technic including stereoscopic plates and close attention by one skilled in roentgenology, accompanied by the cooperation of the internist, the percentage of error in diagnosis is very small, and as our experience grows will be still further reduced.

VIII.

X-Ray as an Aid in the Diagnosis of Pulmonary Tuberculosis.

By P. H. Cook, M.D., Worcester, Mass.

The x-ray may assist the internist in his management of the tubercular patient either by proving the presence or absence of the disease in a doubtful case, or, in one where diagnosis is already clear, by disclosing the extent and character of the involved areas. In these days of the successful crusade against the disease, when early detection is the watchward and one of the principal factors in ultimate cure, it is this phase which is naturally of greatest interest; yet the roentgen examination of advanced patients is frequently of great importance in prognosis.

At the hilus of the normal lung there appears on the x-ray plate a branching shadow, representing the bronchi, vessels, and glands in that region. The earliest sign of tuberculosis, especially in children, is frequently seen as an enlargement and diffusion of this normal shadow, representing involvement of the peribronchial glands. This sign can be found in many cases where the most searching clinical examination proves negative. Chronic bronchitis also produces changes in this shadow, but not like those of tuberculosis. At the apices, the other most frequent point of invasion, diagnosis rests on a difference in density, which may be slight, but on a good plate is unmistakable. Whether clinician or roentgenologist first discovers the affection at this point is largely a matter of the personal equation. Other foci show as dense areas mottling the surface of the normal lung shadow. Cavities appear as dark areas in the midst of the light portions representing consolidated lung; a cavity filled with pus may, however, be missed because the pus is of the same density as the affected lung and casts no contrasting shadow. Involved mediastinal glands show in oblique view, and are often of diagnostic importance in early cases.

As this audience is one of internists rather than roentgenologists, and as such more interested in clinical results than in the interpretation of plates, it has seemed best to devote most of my time to the report of a few cases, selected from a series studied at the Worcester City Hospital mostly from the out-patient clinic of the chairman of the section. As our department is not well equipped for fluoroscopic work, that part of the roentgen examination will intentionally be ignored. It is not intended to belittle the value of this method in many cases.

Case 1. Man of 25. Cough and pain in chest for three months past. Slight hemoptysis three weeks ago. Anorexia and weakness. No fever or night sweats. Some pain in chest. Best weight 145, now 142. T. 98.8. P. 100. Physical examination shows râles and amphoric breathing at right apex.

X-Ray Examination. Consolidation of right lung to third rib anteriorly, and of left apex. Diagnosis of tuberculosis confirmed by positive sputum one week later.

This case would undoubtedly have been diagnosed by ordinary methods. The ray, however, assisted by showing the involvement to be more extensive than was suspected.

Case 2. Negro man of 58. F. H. negative. Says he was never sick before. For past six months has had pain running from sternum through to back. Slight cough with expectoration. Some loss of weight. Dyspnea marked especially when going uphill. No fever, chills or night sweats. Voice very husky. Physical examination shows aortic second sound accentuated at apex and especially over aortic area. No increased area of dulness to percussion. No bruit or tracheal tug. Right lung shows harsh breathing over whole upper lobe. No dulness or râles. Examination of larynx negative but unsatisfactory from spasm. T. 98.4, P. 90.

X-Ray Examination shows marked enlargement of great vessels, with bulge to left. Diagnosis: Aneurism of aortic arch.

This case, while not tuberculosis, is included to show the value of the ray in clearing up an obscure diagnosis. A Wassermann test on this patient, done next day, proved positive.

Case 3. Girl of 12. Mother and one brother have tuberculosis. Under observation for several months early in 1913 following right-sided otitis media, being referred by medical side as chest case. At that time had severe cough, poor appetite and pain in left lung. Examination showed prolonged blowing expiration at right apex front and back. No temperature. P. 90. Sputum, negative.

Returned Nov., 1913, with similar symptoms following follicular tonsillitis.

X-Ray Examination entirely negative. Diagnosis: Bronchitis.

Case 4. Woman 26. F. H. negative. Pneumonia two months ago, felt poorly since and has had cough with expectoration. Streaked sputum occasionally. Appetite poor. Bowels constipated. Weak and anemic. Slight fever and occasional night sweats. Pain through abdomen. Slight dyspnea. Cta. regular. P. 84, T. 99. Physical examination shows bronchial breathing at right apex in front, few fine crackles at both bases posteriorly.

X-Ray Examination shows marked enlargement of hilus shadow. Diagnosis: Tuberculosis.

Case 5. Man of 35. Family and personal history negative except that one brother now has miliary tuberculosis.

Seven months ago had sharp pain in right chest, increased by respiration and diagnosed as pleurisy. This lasted four days, and soon after he began to have profuse expectoration of foul smelling greenish material, which has continued to the present. Persistent cough and loss of weight. Appetite good. Referred for x-ray examination by family physician with note simply "Physical signs contradictory." Repeated sputum examinations negative.

X-ray shows in upper part of right lung an oval area size of English walnut which is very dense; several smaller foci scattered over upper part of right lung; left apex shows slightly increased density.

Diagnosis: Pulmonary abscess; probable tuberculosis.

On the strength of these findings and the patient's apparently good general condition, drainage of the abscess was proposed by a surgical consultant; this advice was, however, not accepted by the patient for six weeks. At the end of this time he entered the hospital, and examination by Dr. Getchell disclosed a surprising change. The right lung presented slight dulness from the apex downward to the sixth rib behind and fifth in front, with coarse and fine moist râles over the entire area. At level of fourth interspace posteriorly an area of amphoric breathing two inches in diameter. Voice and breath sounds increased over entire area. In left lung slight dulness at apex posteriorly, with increase of voice and breath sounds. Another set of plates, taken immediately, showed marked involvement of the left apex, while the upper two-thirds of the right lung was nearly filled with dense foci, among which the abscess cavity, enlarged to nearly twice its former size, could be discerned. Operation was of course abandoned.

In this case the x-ray after first settling the diagnosis, became later the means of confirming the bad prognosis already worked out by the clinician.

Speaking generally, the findings of roentgenologist and clinician agree pretty closely; where there is a difference, it is usually the ray which shows the greater area involved. Central foci too small to give signs to the stethoscope will cast their shadows on the plate.

A word as to interpretation. The lack of perspective of the ordinary x-ray plate gives a first impression of disease more extensive than really exists, the shadows of all foci at whatever depth being thrown into one plane and giving the appearance of continuous density. Stereoscopic plates give a correct view but are expensive for large hospital clinics. All lung plates must be taken with careful attention to pose. For example, a slight difference in level of the two shoulders as the patient lies on the plate may produce a false appearance of density on the higher side.

In conclusion; success in this line of work depends, as in other branches of medicine, upon the hearty coöperation of roentgenologist and clinician. The findings of each should be carefully checked up by the other. The modern interrupterless equipments place the making of perfect instantaneous plates within the power of any intelligent man; but the most skilful of us are at times unable to interpret with certainty the shadows which we find thereon. Old foci, for example, are supposed to show sharply-defined shadows, while active lesions give a woolly appearance; in practice it is frequently hard to distinguish these. No reasonable man can doubt the accuracy of the method; the results attained by the individual worker will be directly proportional to his efforts to improve his interpretation and technic.

DISCUSSION.

Dr. Francis H. Williams, of Boston: *Mr. President:* It was not my intention to speak, but I thank you for your kind invitation to do so.

I am glad that so many physicians are now ready to admit that a complete examination of the chest includes an x-ray examination.

Let me make two suggestions, one is that a good way to overcome the antagonism which has been referred to between the roentgenologist and the internist is to combine the two in one man, that is so far as chest examinations are concerned. In the future, I believe the men interested in chest diseases will learn to make x-ray examinations themselves as a part of the usual physicial examination. I was much interested last summer and during a previous summer to see that some clinicians in France and Germany made their own x-ray examinations, and it is done here to some extent also.

The second suggestion relates to early diagnosis. For many years I have been examining physician in this region for Dr. Trudeau's Adirondack Sanitarium. One March a man brought his son to me to be examined for admission there. A daughter had died of pulmonary tuberculosis

the previous October. On inquiry I found that the man had seven children and suggested that he bring them and the other members of his family to see me for x-ray examination. He objected on account of the expense, and although I explained that it would cost him nothing, he did not bring them.

Judging from the experience of Dr. S. W. Ellsworth and my own, the probability is that properly-made x-ray examinations would have revealed early pulmonary tuberculosis in at least one of the group, in a stage that is easily overlooked by the usual physical examination. Such examinations I have called precautionary x-ray examinations. I believe they have a future and when their time arrives pulmonary tuberculosis will be less often overlooked, especially in those persons who are in an early stage of this disease.

DR. ISAAC GERBER, Boston: I want to repeat what some of the readers have said about the necessity of co-operation between the internist and the x-ray men. I believe, however, that this work should be independent work. The danger of work done by one man is that the person who does his own x-ray work, however skillful and conscientious he may be, is apt to be either an insufficient clinician or an insufficient roentgenologist. The combination of expertness in both is extremeley rare—even in the European clinics. The clinician who does his own x-ray work on the chest almost always reads into the roentgen examination what he believes to correspond with his physical findings. I have very rarely found that to be otherwise. That is to say the men practically make their diagnosis from history, constitutional and physical signs, and the later examination with the x-ray will usually agree. This, I believe, is not a safe state of affairs. The ideal course is to have a competent internal examination by a skillful internist and a competent x-ray examination by skillful roentgenologist and then an unbiased report of each with a consultation. From the consultation much can result. That ought not to be left out. But I believe the fundamental work should be done by two specialists in each line rather than by a combination in one person.

DR. EDWARD O. OTIS, Boston: I would like to emphasize what has first been said. I do not believe there are any large number of internists who would ever become skilled roentgenologists so as to do accurate and authoritative x-ray work; they do not have the time for it. One forenoon in Sahli's clinic in Berne I saw Sahli working with his expert roentgenologist—one was giving his side of the case and the other his. I saw the same thing with Bauer in Hamburg. I believe in the large majority of cases if we are going to take advantage of x-ray work in the diagnosis of tuberculosis we shall have to do it in connection with skilled x-ray men. Roentgenology has become so much of a specialty now, I do not think any general practitioner or any internist can succeed in obtaining so accurate information from his own x-ray work, although he must be able to intelligently interpret the radiograph the expert has taken; and together with him, work out the true disclosures of the x-ray picture.

IX.

DIAGNOSIS AND TREATMENT OF TUBERCULOSIS IN CHILDHOOD.

BY W. C. BAILEY, M.D., BOSTON.

THE question of childhood infection has assumed such importance in the tuberculosis question that it is absolutely necessary for every one connected with this work, and especially physicians, to appreciate the magnitude of the problem and to help to formulate some adequate fundamental scheme for its solution.

This theory that childhood infection is responsible for the majority of cases of pulmonary tuberculosis occurring in adults presupposes the acceptance of the theory of latent tuberculosis infection, and both these views were advanced by such men as Weigert, Harbitz and Petruschky at least ten years ago. Owing to indifference, ignorance, and the natural reluctance of the human mind to accept radical views, these theories have seemingly lain dormant, but in reality have steadily gained headway in spite of opposition until they stand today in a practically impregnable position.

In brief form, the postulate is made that of all the new cases of pulmonary tuberculosis occurring in adults or youths in a given year the great majority of them represent infections in childhood from some open case in the household or from milk, and that for every developed case there are three others who become infected, but in whom the infection was overcome by the resistant powers of the body. Furthermore, that children as a rule control this infection, either by reason of their glandular activity or on account of their moderately healthy lives, but that this resistance disappears under the strain of young adult life.

Theobald Smith has brought out pointedly the facts about the parasitism of the tubercle bacillus; how the bacillus and the body have in fact declared a truce, and further how the bacillus inspired into the lung of a child passes through the young, untrained tissue, is taken up by the lymph duct and passes to the gland in the mediastinal space, draining that area. Other observers state that tubercle bacilli ingested in milk pass into the lymph circulation and are deposited into the glands and then into the lungs. Evidence of this widespread infection is furnished by the von Pirquet test, negative results being obtained for the most part in infants under three months with a gradual increase of positive results as age increases and chances for infection multiply. Hess of New

York reports infection of a number of children in a hospital ward in a few weeks from a nurse with an active lung process. MacCorison and Burns brought out the fact of home infection in their study of "family clusters." More recently in the *Bulletin of the University of Minnesota* appears a report made by Herbert G. Lampson on "A Study on the Spread of Tuberculosis in Families." The problem in this study was stated as follows: Given a known center case of active pulmonary tuberculosis in a family, what proportion of the individuals in that family show evidence of infection with tubercle bacillus.

In 33 families in this class a physical examination was made of each member of the family, and in addition the von Pirquet test or the subcutaneous test was applied. Four families classed as containing latent center cases were studied and three families classed as containing healed center cases, and ten families classed as containing non-tuberculous center cases. As a control, five families containing no reported or suspected cases were examined. The conclusions drawn by the author are as follows:—

First, that the spread of tuberculous infection in families where open cases of tuberculosis exist is greater than it is generally understood to be. Sixty-seven per cent. of the individuals of these families, excluding the center cases, show evidence of tuberculous infection. In no case where there has been definite proven exposure of a family to an open case of tuberculosis, no matter what precautions have been taken, did the infection fail to spread. In at least ten cases investigated, the infection has spread to the limit of available material. Every member of these ten families shows evidence of tuberculous infection.

Second, that in families where no cases of tuberculosis have been found, no matter what the home life or living conditions were, the number of individuals showing evidence of tuberculous infection was small, namely 2½%.

Third, that in families where cases of latent tuberculosis exist, the spread of infection is not as great as in families where open cases of tuberculosis are found, 22% against 67%.

Fourth, that in families where healed cases of tuberculosis are present, the spread of infection is less than in families where open cases exist, 33% against 67%.

Fifth, that in families where no tuberculosis is found, the number of individuals showing evidence of infection is small (2½%) in comparison with the families in which open, latent, or healed tuberculosis exists.

No study of the milk supply was made as a part of this investigation. In view of the evidence from so many sources that it is very exceptional for a child to escape infection when exposed for any length of time, and in view of the fact that we have a new group of cases each year, numbering in this state alone from 5000 to 10,000, arising from these infections in childhood, we are forced to the conclusion that we can make no headway in the general problem until we control the child problem.

We come now to the question of diagnosis, and I cannot state too emphatically that we should distinguish very clearly between a diagnosis of infection and one of disease, and this must be done on broad lines, regarding tuberculosis as an endemic disease, an enemy of the race, rather than an isolated disease of the individual. My procedure would be as follows:—

To inquire very carefully as to the presence of an infecting case in the family, and if one is found, make a provisional diagnosis of infection. Then try the von Pirquet test and if that is positive make a physical examination for signs of intrathoracic or intra-abdominal tuberculosis for the purpose of finding out whether the case is one of infection only, or disease. If the well known signs of mediastinal gland infection are elicited and confusing factors eliminated without active disease in lung or abdomen, the facts should be carefully explained to the family, the case reported to proper authorities and the child given special hygienic care at an out-door school. If active disease is found, treat in sanatorium or special out-door school. In the event of a negative von Pirquet with a history of contact, keep the child on the "suspicious" list, place him in an out-door school if possible, and repeat von Pirquet test at appropriate intervals. If there is a negative history of contact and negative examination but a positive von Pirquet, the procedure should be the same as in the case cited above, always making a careful physical examination for the purpose of detecting the active case. I believe that the adoption of a scheme as here outlined in brief will show great results in fifteen years. A change in the board of health regulations is necessary so that a physician may report cases of tuberculous infection as distinguished from tuberculous disease needing sanatorium care, whether an open case or not. In the case where contact is proved but von Pirquet test is negative, the physical examination should be made in the same way and the von Pirquet test repeated several times. In any event the name of the child should be given to the health and school authorities as a suspicious case needing oversight.

X.

Roentgen Ray in Tuberculosis of Children.

By W. J. Dodd, M.D., Boston,

Roentgenologist of Massachusetts General Hospital.

The question is often asked, "Can a diagnosis of tuberculosis be made earlier by means of the Roentgen ray than by other methods?"

The answer we have always made is, that if a pathological lesion be present, the Roentgen

plate will always reveal it. But it must be clearly understood that because the roentgen picture reveals a lesion, it is not necessarily tuberculosis. We must realize that the Roentgen picture is a projection picture and "a record of density." Any lesion that will cause increased density of the glands or surrounding tissue will present a departure from the normal.

This being the case, we are compelled to consider all possible causes that will give rise to this departure from the normal.

We must consider the infectious diseases,—bronchitis, bronchiectasis, and also syphilis. Do any of these conditions present a picture which will enable the Roentgenologist to make a different diagnosis? Bronchitis and bronchiectasis oftentimes do; other conditions we believe do not, except miliary tuberculosis, which presents quite a characteristic picture.

St. Engel says, "Bronchial gland tuberculosis is undoubtedly a very important subject as it is often an isolated process and the only manifestation of the tuberculous lesion. In his valuable contribution reviewed by Michael, he gives a fine description of the anatomy and topography of the bronchial glands in children.

In the excellent review by Michael, many eminent authorities are quoted.

It is difficult to locate certain groups of glands that are obscured by the heart, large vessel and thymus. Special technique, oblique and lateral views, however, will oftentimes give considerable information.

Recently in the Roentgenological department of the Massachusetts General Hospital, a series of one hundred cases have been examined. These cases were referred from the children's department. A most careful examination has been made by Dr. R. M. Smith and every effort made to determine the presence of tuberculosis.

From the Roentgenological point of view, this is a most interesting and important series, as in all cases where there was clinical evidence of a lesion this has been confirmed by the Roentgen picture.

In several instances lesions were found that were not made evident by the clinical examination; eleven cases in all.

In only nine cases out of this series of one hundred was there any evidence of active tuberculosis, yet eighty-nine showed some pathological lesion in the Roentgen picture. The Roentgen report in the great majority of these cases was enlarged hilus and peribronchial glands.

(These cases will be published in detail by Dr. Smith.)

Certainly this series shows that other conditions beside tuberculosis will reveal evidence of enlarged hilus and bronchial glands, and emphasizes the great importance of a complete examination before a diagnosis of tuberculosis is made.

A diagnosis of tuberculosis should not be made until positive clinical evidence is obtained. As regards the Roentgen picture, is it fair to assume that tuberculosis (except miliary tuberculosis) will present a sufficiently different picture than other infections in children? The position of the glands involved are the same and we are not convinced that a differential diagnosis can be made, unless the glands be calcified.

This article is not meant to belittle the use of the Roentgen examination. This method is of the utmost importance and should be used far more frequently than it is. Definite information as to the presence of a lesion can always be obtained if present.

Repeated Roentgen examination at intervals of a month or less are advisable. By this means we frequently show that the lesion has cleared up. We should not expect such change if the lesion be tuberculous. We believe that the physician should be very careful before making a positive diagnosis of tuberculosis, owing to the fear and apprehension that such statements may give rise to.

XI.

TUBERCULOSIS IN CHILDREN.

BY RICHARD M. SMITH, M.D., BOSTON.

TUBERCULOSIS in children involves many questions relating to the general tuberculosis situation, but in the limits of a paper as brief as this, it will be necessary to disregard all phases of the subject, except those bearing directly on the problems peculiar to childhood. Tuberculous infection in children occurs with such great frequency that it demands the especial consideration of persons interested in tuberculosis and of those primarily concerned with child welfare. It is estimated that 9% of all children under one year of age, and that from 60 to 80% of all those under fifteen years of age are infected. The theory has been advanced that all tuberculosis among human beings is acquired in infancy and early childhood, and that tuberculosis in adult life is simply the lighting up of an old infection. This probably is an over-statement of fact, but the theory suggests the importance of studying this phase of the subject.

The mode of infection with tuberculosis at whatever age is a matter which has been discussed for many years. Whether insufflation or ingestion is the primary means of infection is of more theoretical than practical interest, so far as prevention or treatment of the disease is concerned. The source from which infection is acquired, however, is a matter of very vital consequence. Barring the rare cases of prenatal infection, tuberculosis in infancy arises as a result of direct exposure to tubercle bacilli. Various estimates have been made of the percentage of infection which is due to the bovine tubercle bacilli. Von Behring goes so far as to say that tuberculosis in infants is usually introduced in cow's milk and absorbed through the intes-

tines. Certainly 25% of the infections of children under five years of age are from this type of organism, *i.e.* one case of tuberculosis out of every four occurring in infancy or early childhood is acquired from tuberculosis in cows. The percentage of infection by this channel is great enough to make it extremely important that we should insist upon clean milk for infants. The necessity of securing milk which is free from tubercle bacilli has failed to arouse the interest among physicians which the frequency of tuberculous infection from this source demands. The least we can do is to insist that milk shall be from a tuberculin tested herd, or that it shall be pasteurized. There can be no middle ground in this matter.

Of much greater importance than the infection of infants from contaminated milk, is the infection which comes from exposure to persons ill with tuberculosis. Fishberg has found in New York City that out of 692 children who had been in contact with tuberculous individuals, 465, or 67.25%, gave evidence of having been infected. This emphasizes at once the importance of removing patients who have active tuberculosis from the home, where they are a source of danger to children. A considerable portion of the money spent for prevention of tuberculosis is most legitimately expended, it seems to me, in removing the active sources of infection from the community. By this means we may secure a constantly diminishing number of infected individuals. This is much more than caring for the incurables; it is the surest method of preventing the extension of infection.

Tuberculous infection in children is practically always glandular in type, and this glandular infection is primary, not secondary to the draining of a tuberculous focus elsewhere in the body. The glands may be situated either in the cervical, thoracic, or abdominal regions. The infection of the cervical glands is a condition quite distinct from the general problem. The infection in these glands usually comes through the tonsils, and has a remarkable tendency to remain localized in that portion of the body. Bone tuberculosis is another type of tuberculous infection common in children which is so definite in its manifestations and so rarely extends to other parts of the body that it need not be discussed further.

It is important at this point to make clear the distinction between tuberculous infection and tuberculous disease. Tuberculous infection occurs in many instances without symptoms sufficient to attract any attention, and then goes on unrecognized. It may give no signs on physical examination, but usually thoracic and abdominal gland tuberculosis is made evident by the local signs of enlarged glands. There may be chronic enlargement of the bronchial or mesenteric glands from infection with some other organism than the tubercle bacillus. It is necessary to have a positive von Pirquet reaction to make the diagnosis of tuberculosis. The von Pirquet reaction may be taken as a safe index to tuberculous infection. The instances in which a negative reaction occurs in the presence of a tuberculous infection are usually instances which can be explained according to well known facts.

Unless the tuberculous infection is active, it is not a source of immediate danger, either to the individual or to the community. A child with such an infection should be treated, not as a patient with active tuberculosis, but as an individual to be watched carefully, fed properly and put under good hygienic surroundings in order that the disease may not become active.

Tuberculous disease means an active tuberculosis. This condition in children starts as a glandular disease, but has a great tendency to extend beyond the confines of its original seat within the gland, and when such an extension occurs apparently there is little further tendency to localization. It becomes at once a generalized process, leading often to rapid death. After the age of ten years, tuberculosis assumes the characteristics of adult tuberculosis, but before that age the diagnosis must be made on different evidence. The symptoms are usually very indefinite. There is little or no cough and almost never any sputum. The temperature is frequently not greatly elevated, and not more elevated than occurs in infants and young children from a variety of causes. Night sweats do not usually occur, and if present may be due to many causes not tuberculous. The history is one of general malaise, slight fever, loss of weight, pallor or similar indefinite complaints. These symptoms are most often attributed to some disease of the gastro-intestinal tract. Physical examination in the early stage of the disease reveals nothing other than a child in poor condition with enlarged glands. The diagnosis of enlarged bronchial glands has been the subject of much discussion for many years, but there is no unanimity as to the physical signs of this condition. In general, it may be said that the two most dependable signs are the downward extension along the spine of the point where whispered bronchophony can be heard, *i.e.* D'Espine's sign, and the x-ray. Unless D'Espine's sign is positive down to the second thoracic vertebra, it is not a reliable sign of enlarged bronchial glands. The x-ray findings are of distinct value, and with rare exceptions coincide with the other sign. In favorable cases there is dullness at one side or the other, most often the right, of the vertebral column at the level of the lung roots about the fourth thoracic vertebra. In many instances also there is an enlargement of the superficial veins of the upper portion of the chest.

Enlargement of the abdominal glands may give no signs, but in some instances the glands may be felt on deep palpation.

When the disease extends beyond the glands into other parts of the body the physical signs become more definite. In the lungs they may be those of broncho-pneumonia and frequently

that diagnosis is made with no suspicion of tuberculosis. The diagnosis of meningitis and peritonitis need not be discussed here.

The general impression prevails that tuberculous disease in infants is always fatal. Schlossman says he knows of no infant who has been cured. Von Pirquet puts the mortality of children under one year of age as 90%. He says further that there is very little tendency to cure under four years of age. My own experience leads me to be somewhat more optimistic than these statements, but the fact remains that the great majority of infants with the disease die. As the age increases the prognosis becomes more favorable. This emphasizes the need of protecting infants from the sources of infection and the desirability of making the diagnosis in the early stage of the disease, when it is confined to the glands. When there is evidence of the extension of the process beyond the glands the prognosis is very grave.

The treatment of tuberculous disease in infancy and childhood is not radically different from the treatment of tuberculosis in adults. These patients require plenty of fresh air, rest and careful attention to the details of feeding. The greatest single factor in infantile tuberculosis work is the prevention of infection, which means clean milk and the adequate treatment of persons with open tuberculosis.

DISCUSSION.

DR. CONNOR: It is very interesting to hear the views of these different men. I believe most decidedly that we have got to discriminate carefully in speaking to the parents in regard to children being tuberculous, suspected of having tuberculosis. It is detrimental both to the children and to the welfare of the family. Oftentimes it has been done, bringing about a feeling of unhappiness and discontent. There is no question as to the fatal results with infants. I think Dr. Smith has been particularly fortunate in doing so well. I think he should be congratulated. I believe most decidedly that at such an age as that they are practically dead from the outset. The question of tuberculous glands in children 14 to 15 years of age is an entirely different matter. We do see them and they get well and rarely ever have any subsequent trouble so far as the lymphadenoma is concerned. The statement has been made and should be emphasized that treatment should begin at the time the child is born, and that the conditions of the home and the conditions of the people with whom the child comes in contact should be looked into. I do not believe that there is any doubt that by far the most of our tuberculosis begins in childhood. The figures of the different men that have looked it up vary a great deal according to the location in which they worked. Sahli finds only 5%. His work is done among the well-to-do. Hamburger finds 95% because he works among the very poorest class. Von Ruck reports 85% of children which were not considered tuberculous at all. Certain it is that at least two-thirds of the cases of tuberculosis arise before a child is 15 years of age.

Reports of Societies.

AMERICAN SURGICAL ASSOCIATION.

ANNUAL MEETING, HELD IN THE ASTOR HOTEL, NEW YORK CITY, APRIL 9, 10 AND 11, 1914.

The President, DR. WILLIAM J. MAYO, in the chair.

(Concluded from page 426.)

ARTHROPLASTY FOR INTRA-ARTICULAR BONY AND FIBROUS ANKYLOSIS OF TEMPOROMANDIBULAR ARTICULATIONS REPORT OF NINE CASES.

DR. JOHN B. MURPHY, Chicago: Ankylosis of the jaw may be divided into, (1) the intra-articular fibrous and osseous, and (2) the extra-articular cicatricial varieties. The most common type is the bony, and in this there is complete fixation of the jaw. When the ankylosis is fibrous there is some degree of motion of the jaw. The symptomatology is a flattening and deformity of the unaffected side, while the opposite side is full and round, a retraction of the chin with deviation toward the ankylosed side, and a slight sliding motion of the unaffected side on forced opening of the mouth. The muscles on the ankylosed side are more atrophied than those on the opposite side. The technic of the operation consists in the division of the mandible at its condyles, the removal of a third of an inch of the entire diameter, the interposition of the temporal fascia and fat flap, and closure of the wound. Then the separation of the teeth on the operated side by a block for two weeks and the institution of passive motion after the third week.

DISCUSSION.

PROF. LEXER, Jena: I believe that in ankylosis of the jaw the prognosis for arthroplasty is good. I have performed the operation similar to Murphy's, but undertook the interposition of free fat flaps. In the other joints I transplanted fat, fascia and joint cartilage. The most difficult is the knee joint, because it must be able to support the weight of the body without other assistance. For this reason I prefer here the free homoplastic joint transplant. Also other transplants lead to the same end, namely, fat in weight-bearing joints. The most important thing for the joint is good after-treatment of the case with well preserved musculature, retained fascia lata, sound patella, and the cure of the underlying cause.

PROF. JURASZ, Leipsic: In ankylosis of the knee-joint in the clinic in Leipsic we have of 23 cases of immobilization, 16 good results and 7 failures, the latter all belonging to the earlier period. We have tried fascia alone, free fascia with fat, and pedicle fascia with fat; the last material we consider the best and use it always, and the last cases have all been successful. We consider a good result a move-

ment of at least 50%, so that the patient can sit down and go upstairs. Amongst our patients have been officers of the army, who could take up their duty after operation. Care must be taken in the choice of patients, not people having no energy, which is required in the after-treatment. We have to prepare patients, giving them a good massage to reinforce the muscles, also we must not take patients who have ankylosis the result of an accident, who are claiming money, because these cases never give a good result. To gain entrance to the knee-joint we are using now the two lateral incisions. To prevent hematoma we put the knee-joint on a splint for the first two days and bandage tightly, and only from the third day begin with extension, but early we practice good massage of the muscles.

Dr. Edward Martin, Philadelphia: The patient mentioned by Dr. Murphy had run a stick in her cheek some fourteen years before, had a long suppuration as a result, and was operated upon. When I saw her there was a bony growth, a horn branching from the coronoid process to the greater wing of the sphenoid. The slight motion in the mouth was more accentuated on the good side, and the operation consisted in avoiding the facial nerve, especially in women, and chiselling across the bony spur; the result was quite satisfactory.

Dr. Murphy, closing: Passive motion should not be resorted to until the wound is healed. We put on extension immediately after operation. In hip cases it is put on before. In the jaw we place a plug between the two alveolar processes and maintain this until primary union takes place. Hematoma is one of the greatest and most difficult obstacles to a good result. We resort to aspiration as soon as it is recognized and continue that until the bleeding ceases and there is primary or secondary approximation without suppuration in the two surfaces of the wound.

CANCER OF THE TONGUE BASED UPON THE STUDY OF OVER 100 CASES.

Dr. Joseph C. Bloodgood, Baltimore: It has been demonstrated in this study that the failure to cure where cancer of the tongue is fully developed is due chiefly to the neglect to remove the muscles of the floor of the mouth below the cancer.

The high mortality after operations for cancer of the tongue is chiefly due to the removal of the floor of the mouth without removing at the same time a section of the lower jaw.

The investigation has also shown that if a lesion of the tongue is subjected to immediate operation within a few weeks after the onset of the lesion the chances of a permanent cure are best. In this stage it will usually be sufficient to remove the local lesion with a good margin of healthy tissue, and this removal should be accomplished with the electric cautery. The centre of the lesion should be preserved for microscopic study. While the chances are that the lesion will be found to be benign, should it prove to be cancer, the possibilities of cure are almost 100%. In the past surgeons have apparently performed too extensive operations upon the glands of the neck. This is theoretically incorrect, because cancer of the mouth infiltrates into the glands of the neck through the floor of the mouth. When the operation is performed in one stage, it is impossible to remove the tongue, the floor of the mouth, the glands, and then close the opening in the mouth, unless a section of the lower jaw is also removed. If the former operation is done thoroughly the mortality is almost 80% from primary or secondary pneumonia, or from late infection from the oral fistula. The author was first impressed with the facts when it was found that the first cured cases were either cancers originating in the floor of the mouth, or cancers of the tongue invading the floor of the mouth, in which it was absolutely necessary to resect portions of the lower jaw in order to remove the disease. The extent of the disease, therefore, forced the surgeon to the more radical and mutilating procedure and allowed him to perform removal *en bloc*. During the same period, earlier and more favorable cases were subjected to less extensive operations. When the floor of the mouth was not removed, local recurrence always followed, and when it was thoroughly removed the patients died from the operation. In November, 1910, the author for the first time, in a favorable early cancer of the tongue, removed the right half of the tongue, the right floor of the mouth, the right half of the jaw and the glands on the right side of the neck, all in one piece. The wound was closed by suturing the mucous membrane of the right cheek to the remaining half of the tongue. The patient was able to swallow at once after operation, and no recurrence followed. The microscopic study showed that the floor of the mouth was infiltrated, but the glands were not.

As the removal of the lower jaw, especially at the symphysis, is mutilating, the author has attempted to accomplish the same results in a different way. The glands of the neck are first removed, and after the operation, their connection with the floor of the mouth below the lesion is thoroughly burned with the cautery and the wound closed. Then the lesion in the tongue and floor of the mouth is attacked with the electric cautery. This is repeated two or more times until everything is destroyed down to the area of the first cauterization from below. The healed skin flap of the first operation forms the floor of the mouth and prevents an oral fistula. The first operation after this method was performed in April, 1912. The lesion was a cancer occupying the floor of the mouth between the tongue and the symphysis of the jaw. It was about the size of a silver dollar. Permanent cures have been accomplished in similar cases by *en bloc* dissection of the tongue, floor of the mouth, jaw and glands. The oldest case thus treated lived fifteen years, but the operation is very mutilating and recently a patient refused to submit to it. This led the author to attempt what he had had in mind for some years. Now, two years since the operation, there is no evidence of recurrence and no mutilation. Since then four other cases have received this treatment with, so far, apparent success.

The majority of cases of cancer of the tongue seek surgical aid at an unnecessarily late period. In every case the patient is warned—there is always something to be seen and felt in the tongue or floor of the mouth. If such a lesion is investigated at once, a local operation with the electric cautery should be sufficient; in a later stage removal of the glands and repeated cauterizations of the mouth lesions; in still later stages, resection of the jaw must be done. Recent experience seems to show that this operation should be done in stages: first, thorough removal of the glands with cauterization of the floor of the mouth from the neck wound; second, cauterization of the lesion within the mouth; third, removal of the lower jaw and cauterized area. Cases

observed to 1908, compared with those of the past five years, show the influence of education. The very early precancerous lesions have increased from 8 to 30%. The late and inoperable cases have decreased from 18 to 10%. The cures have increased from 21 to 50%.

In the 14 cases personally operated upon by these newer methods in the past five years, there has been no postoperative mortality, and so far but one patient is dead from recurrent carcinoma, and there is evidence of recurrence in only one case. Considering all the cases studied the postoperative mortality has been about 22%. The results in the 14 cases also demonstrate that the improved methods promise a much larger per cent. of permanent cures and a longer freedom from recurrence.

DISCUSSION.

DR. MORESTIN, Paris: The prognosis of cancer depends chiefly on the time of treatment and upon the methods employed. The complete extirpation of the menaced or invaded lymphatic channels and glands is absolutely necessary, as essential as the removal of the cancer, which should be done by cutting wide of the tumor mass. For instance, in the case of carcinoma of one side of the tongue, which is very common and quite typical, the part of the organ corresponding to the diseased section should be extirpated, as well as the floor of the mouth and all the subclavicular carotid and submaxillary glands and those glands lying below the hyoid bone. The carotid region should be carefully closed by sutures uniting its muscles,—the external wound should be completely closed, the bucco-submaxillary wound packed and food given only through the stomach tube until cicatrization of these wounds. The patient should be allowed to get up on the day of the operation or on the following day.

DR. CHARLES H. MAYO, Rochester: I was glad to hear Dr. Bloodgood speak of heat. Removal by the Paquelin cautery is not satisfactory, for this is too hot. The crusting that ensues from the boiling of the blood on the white-heated instrument is the best protection for the tissues, better than asepsis. The heat must be a direct heat, the electric heat, the actual cautery; we must have something that broils and does not cut tissue.

DR. BLOODGOOD, closing: We may express ourselves in regard to cancer, that in most regions where the disease comes we have conquered the technic; the question is simply one of conquering the disease.

THE FUNCTION OF THE GASTRO-ENTEROSTOMY OPENING IN CASES OF PERMEABLE PYLORUS.

PROF. HENRI HARTMANN, Paris: It is generally accepted that in the presence of a permeable pylorus, the gastro-jejunal opening is inclined to obliteration in consequence of its physiological uselessness, the chyme following the pylorus. These two affirmations seem to us mistaken. The gastro-jejunal stoma well lined by mucous membrane, without ulceration whatever, without any scar tissue, remains permeable forever. We have collected 44 cases of obliteration of the gastro-jejunal stoma: 37 cases of pyloric or subpyloric stenosis, 4 indisputable cases of peptic ulcer, only 3 cases of free pylorus. On the other hand, the persistence of the gastro-jejunal stoma, in the cases where its functions were useless, has been observed anatomically by Henck after three months, by Lebenen after 28 months, by Busch after six years; we ourselves have seen it after 4 years in the case of an ulcer of the lesser curvature. The functions of the gastro-jejunal stoma take place even when the pylorus has been found permeable. Our experiments on dogs have shown that, if the opening is situated on the cardiac part of the stomach, the chyme passes almost altogether through the pylorus; but this is not true if the opening has been made in the pyloric antrum. In this last case the gastric contents pass almost altogether through the stoma. These differences are explained by the fact that the stomach has to be divided physiologically in two parts, one cardiac part, a simple reservoir allowing the action of the secretions on the ingested food, another pyloric part, a motor thrusting the gastric contents into the intestines. The radiological examinations made on our patients with a permeable pylorus, who underwent gastro-enterostomy, confirms the results of our experiments on dogs. Briefly then, there is no more fear to be had of an anatomical obliteration of the gastro-jejunal stoma in the cases of a permeable pylorus than in any other case. These stomata are physiologically useful when they are established in the pyloric antrum in the neighborhood of the greater curvature.

DR. J. M. T. FINNEY, Baltimore: I always hesitate to discuss a paper on gastro-enterostomy because I am willing to admit prejudice to start with. My own feeling about the operation is that it is never the operation of choice, always the operation of necessity. Professor Hartmann's observations are in entire accord with my own. It is never my practice to close the pylorus in doing gastro-enterostomy. It has never seemed to be necessary but once or twice. The more I study the x-ray in connection with stomach cases, the less dependence do I place upon it. If it agrees with the clinical picture I accept it as corroborative evidence. The well-established idea that in the face of a closed pylorus the new opening will never close, is not true. A case came under my notice recently operated upon by Dr. Gerster, which statement is sufficient evidence that the operation was well done in the beginning. A posterior gastro-enterostomy had been done in the face of an obstructed pylorus by scar tissue. The man came under my care with symptoms of almost complete obstruction. I operated and found the pylorus absolutely obliterated. The mucous membrane was completely restored. There was a natural closure of the pylorus after the opening made by Dr. Gerster, which opening functioned for about five years. For four or five months the obstructive symptoms increased, and when I operated the new opening was not larger than a straw. This shows that it is possible for the new opening to close in the face of a closed pylorus.

DR. ARPAD G. GERSTER, New York: I wish to add one point regarding the interesting observation of Dr. Finney's, which he omitted but which I consider very important. The operation was done with the aid of the Murphy button, and the very observation given by Dr. Finney has been repeated by me in a number of other cases operated on ten years ago and again six or seven years ago, when the Murphy button was more frequently used. When these apertures were inadequate, and when a peptic ulcer developed, as Dr. Hartmann suggests, along the juncture of stomach and jejunum, the inadequate aperture closes more promptly and rapidly than where an ample stoma is established.

Dr. Fred B. Lund, Boston: In connection with Dr. Finney's remarks I wish to report a case of closure of the stomach. Dr. Weir did a gastro-enterostomy ten years ago on a patient, then aged 63; for ten years there was dilated stomach with visible peristalsis. Upon operation I found the stoma had closed to the size of a lead pencil. One-half of the intestinal button had gotten back into the stomach and stuck in the pylorus so that it was necessary to do a Finney operation, which had been most applicable in my hands, where gastroenterostomy has not been satisfactory. In another case, that of a woman upon whom I had done a gastro-enterostomy for extensive indurated ulcer of the lesser curvature four years previously, I found upon undertaking to remove a fibroid, the pylorus and gastro-enterostomy wound both open. This goes to confirm Professor Hartmann's observations.

Dr. John Bapst Blake, Boston: In Professor Hartmann's valuable paper he spoke of the paper by Cannon, in which I did the operative work on cats. In our conclusions we did not state that food would invariably pass out through the pylorus, but that the physiological tendency was that it would pass through the pylorus. We would, therefore, differ from the conclusions of Professor Hartmann, and say that the tendency is invariably to go through the pylorus if the pylorus is open. Our second observation agreed with Professor Hartmann's upon the inefficiency of a stoma placed in the cardiac end of the stomach.

EXTIRPATION OF THE SPLEEN FOR DISEASES OF THE BLOOD.

Dr. Ranzi, Vienna. About 20 extirpations of the spleen for diseases of the blood are reported, performed at the Surgical Clinic of Prof. v. Eiselsberg, Vienna. The indications for these operations made by Professor Eppinger were: —

Hemolytic icterus (3 cases.)

Pernicious anemia (5 cases).

Banti's disease and hypertrophic cirrhosis of liver (9 cases).

Thrombophlebitic forms (3 cases).

From all these cases four patients died after the operation (shock, ileus of duodenum, 2 pneumonia). The results in the other 16 cases were very satisfactory. The patients, formerly very weak and obliged to keep their beds, have regained their strength and weight and are again able to work, especially the cases of pernicious anemia. In pernicious anemia the extirpation is very easy; in other cases sometimes very difficult on account of the excessive adhesions and enlarged blood vessels. The operations were performed under local anesthesia.

DISCUSSION.

Dr. J. M. T. Finney: During the last year I have operated upon three of these cases,—two of the pernicious anemia type and one of the Banti type. All have made excellent recoveries, and one case presented the interesting anomaly of a double spleen. The oldest patient had been kept alive for a year by repeated transfusions. For about a year now she has had a perfectly normal blood picture and, so far as one can tell, she is absolutely well. This patient belonged to the pernicious type. The other two patients have been operated upon so recently that it is impossible to say what the results will be, but the immediate results have been most satisfactory in all three cases.

OUR EXPERIENCE UP TO DATE IN THE TREATMENT OF MALIGNANT TUMOR BY RADIUM IN THE CLINIC OF VON EISELSBERG, VIENNA.

Dr. Richard Sparman: Since July 1913, 52 cases of inoperable malignant growths have been treated with radium at the clinic of Professor v. Eiselsberg in Vienna. We had 225 mg. radium and 150 mg. mesothorium at our disposal divided in fifteen applicators. Malignant tumors have been exposed curatively or preventively, following not radical operations. Preventively used, it seemed to hasten the recurrence in nearly all our cases. There is not such a thing as elective effect, the tumor cell is not more easily destroyed because of the specific action of the radium itself, but being a degenerative cell it is more susceptible to any trauma. The histological changes in the tissues are not specific. The effect of the radium is only a local one. The hopes we placed in the radium as a new and successful means in the treatment of malignant tumors have not been realized.

DISCUSSION.

Dr. Robert Abbe, New York: I think it is borne out by our experience that carcinomatous tumors in the sense of the malignant carcinomatous nests of cells are destroyed by radium, not by a specific action, but through a necrotic action, or through a secondary anemia from dilatation of the vessels supplying the parts. You produce atrophy of the tissue if you give a judicious dose of radium. If you give too much of a dose, as von Eiselsberg has demonstrated, you produce a toxemia from absorption of the necrotic tissue. Upon sarcoma and other life-destroying tumors radium has a specific action. Take, for instance, a myeloid sarcoma, a tumor springing from the true myeloid tissue of the bones, that myeloid tissue will be driven back to a normal line of cell action by the simple application of radium. A jaw bone destroyed entirely by a neoplasm of pure myeloid structure will be reformed as bone resembling the same structure as the orginal bone. I have one such case now well aften ten years, in which you cannot see the difference in the two sides, except that one is a little thicker. This result has been repeated in ten or twelve cases of myeloid tumors. If this is not specific action there is no such thing as specific action. Not alone the myeloid sarcomas, but also the round cell sarcomas are favorably affected.

Dr. K. A. J. MacKenzie, Portland, Oregon: I would like to mention the value of a simple radium apparatus seen in Paris three years ago. It has a maximum strength of 5,000,000, which means that the uranium being the unit, it has 5,000,000 times the strength. I have used it in 18 cases, chiefly superficial cancers and in two or three cases of keloid, and in three or four cases of angioma in little children, telangiectases of the scalp. In all the cases the results have been truly remarkable. One patient treated for an epithelioma on the bridge of the nose received about 175 hours of exposure, but without any impression. Two months later she told me that this cancer had absolutely disappeared without leaving any scar. The same remarkable results have been obtained in angiomata and epulis. It must be remembered also that these results are obtained from the use of a relatively weak apparatus.

DR. JAMES E. MOORE, Minneapolis: A patient suffering from a well-established malignant growth of the breast refused operation and came to New York. An incision was made in the tumor direct and a radium tube applied after the x-ray had proved ineffectual. She became discouraged, returned to her home in Dakota and was referred to me by her home physician for operation. I did the radical operation on the breast, which had a large crater in it, foul smelling and gangrenous. A few months later I had a letter from the physician in New York asking for a report on the tumor. I have to report to him that beyond the immediate area where the sloughing had taken place there had been no change whatever in the growth. It was an adenocarcinoma just as if the radium had not been used. The patient is now living and well.

DR. SPARMAN, closing: We have also seen in one or the other case a very surprising effect by irradiation. We feel that it is now allowable, however, to draw any conclusions from single cases. We have seen definite results only in superficial processes. If we were sometimes able to destroy a deep tumor, a local ill effect, as well as a very bad influence on the general condition has been observed in some of the cases, and the final therapeutic results were very questionable indeed.

RESULTS OF TREATMENT OF CYSTIC DISEASE OF THE BREAST.

DR. ROBERT B. GREENOUGH, and (by invitation) DR. CHANNING C. SIMMONS, Boston.

The authors have given the following conclusions:

1. Of 83 cases of partial operation for cystic disease of the breast, 17, or 20%, were successful.

2. In 4 cases carcinoma occurred in the breast tissue left by the partial operation, 4.8%.

3. In 5 cases the disease recurred, only in the other breast, 5.9%.

4. In 8 cases the disease returned in the breast tissue left by the first partial operation, 9.6%.

5. The occurrence of carcinoma in cases of cystic disease, estimated at about 10% of cases, demands radical treatment in all but the mildest cases.

6. The operation of choice should remove all of the gland tissue of the affected side, and when the disease is bilateral, of both sides.

7. This can best be accomplished by subcutaneous amputation, leaving the nipple and areola, or by elliptical amputation.

8. Where grave doubt as to diagnosis is present, elliptical amputation is to be preferred.

9. Local excision of nodules in the breast, suspected of being malignant, should never be performed.

10. The operation of local excision or partial plastic resection should be restricted to the earliest and mildest types of cystic disease. In such cases plastic resection is to be preferred.

DISCUSSION.

DR. J. M. T. FINNEY: In my own experience in private practice, by far the most frequent condition for which I am consulted is cystic disease of the breast. This is not true in dispensary cases, where inflammatory diseases are more common. There is no doubt of this condition being an etiological factor in carcinoma. The disease is one of earlier life than we have usually considered. The usual symptom that brings the patient is pain in the breast. The disease is a protest against modern civilization, because I find that the class of women affected with this trouble is made up of that group of women who are married and childless; next to that, the women who are married, have one or two children, but have not nursed them; after that comes the unmarried women. The mothers of ten or twelve children, nursing them all, are exempt in my experience. The treatment is the serious question; the diagnosis is easy. If this is a disease which is followed by carcinoma in a large percentage of cases, are we not in just the same position as in relation to gastric ulcer, etc. If one operates at all, and the question must remain an open one, one should operate only by removing the entire gland.

DR. ALBERT J. OCHSNER, Chicago: In my own experience of three cases in which malignancy followed this condition out of not quite 100 cases,—in about 4%,—we find a condition in which, according to the law of probabilities, there will be a large proportion of carcinoma cases. Then by doing a partial removal, we change a carcinoma case in its most hopeful stage into a carcinoma case that does not promise very much. We have the development of carcinoma as a result, rather than upon the basis of long-standing irritation. This long-continued irritation seems to prepare the tissues, as Dr. Mayo said yesterday, for the carcinoma infection. Thus in many cases there is an acute irritation which gives this infection an active start. In these cases under my observation that acute irritation was furnished by the operation. In the first case of this kind which I observed while an assistant to Nicholas Senn, none of us had the slightest idea that there was any malignancy until the specimen was carefully sectioned, when we found an absolutely positive carcinoma so small that we would surely have missed it at an immediate examination. I think I can agree with all the conclusions of Dr. Greenough, but in particular I want to emphasize that no specimen for examination should ever be removed. In all my experience of carcinoma of the breast in which a specimen was removed for examination I have never encountered a case in which the carcinoma did not kill the patient.

DR. CHARLES H. MAYO, Rochester: I want to express our favorable opinion of the Warren operation which can be done without mutilation. If the operation is not a double one, and the patient worries over the loss of the breast, in our growing knowledge of the transplanting of fat, it is easy by rolling up a big pedicle of fat from the abdominal wall to build a new breast. We occasionally find cancer developing in the scars of lactation abscesses. When operating to remove simple tumors of the breast I always have a fear that the scar may later undergo malignancy. I believe that the Warren operation, if well understood by the laity, would permit women to come at an earlier period without fear of mutilation.

DR. C. B. G. DENANCREDE, Ann Arbor: I want to place myself on the side of those who would rather err on the side of radical work than on the side of conservatism. In my experience I am afraid of the partial operation; in a woman who has passed the child-bearing period, I rarely hesitate to advise a radical operation; and again and again, and again, when I have hesitated to give that advice, the microscope has demonstrated that I should not have hesitated. I do not believe the

majority of us can make these fine certain safe differential diagnoses in diseases of the breast.

Dr. N. B. Carson, St. Louis: In a considerable experience with these cases, I have yet to follow a case in which I did the partial operation in which the disease has not eventually returned, requiring complete operation. Regarding the uncertainty of these pathological examinations at the time of operation, I have a case similar to the one cited by Dr. Ochsner in which there was a small nodule only. In making the examination I thought I was dealing with a fibrocystic condition, when I discovered a little nodule, not bigger than a pea and as hard as a rock. I did the complete Halsted operation, for which I was very glad when the report came back of malignancy.

Dr. Greenough, closing: I feel that it is far safer to watch a case between 20 and 30 years of age than another between 30 and 40 years, or between 40 and 50. With the increasing age of the patient comes the demand for more radical operation.

BLEPHAROPLASTY BY A PRE-GRAFTED FLAP.

Dr. C. L. Gibson, New York: The older operations for plastic repair of the eye-lid were, for the most part, defective from exaggerated shrinkage and that the raw surface was made to lie in contact with the eye-ball. The author's method consists in preparing a flap which is lined with a skin graft entirely healed and provides against eventual shrinkage of the flap. The grafted skin which comes in contact with the eye-ball assumes the character of the mucous membrane and furnishes a free edge and movable eye-lid. The operation is done in two stages. The best flap is a modification of that devised by Fricke, the flap being taken from the skin above an external to the external canthus. At the first stage a horizontal incision, starting at the external canthus, is made corresponding to the length of the proposed flap. This incision is undermined so that a pouch is made into which the skin graft is tucked, raw edges in contact. This is allowed to heal in place, and in about ten days the second stage is completed by cutting away the diseased area of the eye-lid and transplanting the pre-grafted flap into the defect and suturing it accurately into place. The results of this operation physiologically and cosmetically have been most satisfactory. The operation is destined to compete favorably in the treatment of malignant growths of the eye-lid with the newer remedies, such as radium and x-ray which, however, lack a guarantee of permanent cure as ascertained by such radical operations.

DISCUSSION.

Dr. Samuel J. Mixter, Boston: The method proposed by Dr. Gibson has the advantage of giving a flap which will not adhere and will not roll in. It seems to me that this principle might also apply to large flaps transplanted from other parts of the body. In cases of destruction of the eyelids and in the cicatricial contractions after burns where it is necessary to use a large flap, I have found that one transferred from the abdominal wall worked beautifully carried by the wrist. This addition of grafting would add greatly to such a procedure.

UNCOMPLICATED TUBERCULOUS FOCI IN BONES AND THEIR TREATMENT.

Dr. Thomas W. Huntington, San Francisco: The author deals with cases in which the focus exists: (a) as an incipient lesion, but sufficiently advanced to cause symptoms; (b) as a lesion that has recurred after a period of quiescence. In neither case has it become the seat of mixed infection nor invaded the adjacent joint. Exception is taken to the conservatism of the orthopedist where the focus is accessible through an extra-capsular route. Attention is called to the too frequent and humiliating failures at the hands of men of great skill and experience and to the general surgeon is suggested the propriety of assuming jurisdiction in early cases. The term "latency" in this connection is regarded as a misnomer. An analogy is insisted upon between tuberculous foci and such a pathological group as gall-bladder disease, chronic appendicitis and renal lithiasis. The propriety of early operative treatment depends upon: (a) accurate diagnosis; (b) localization. In the acute fulminating cases delay is hazardous. Operative technic is fully set forth. Sixteen cases are reported; in no case was the result unsatisfactory. Special attention is called to three cases of hip-joint disease in which the average time of treatment was six months and which were well with good function after a lapse of eleven, ten and eight years respectively.

DISCUSSION.

Dr. Arthur W. Elting, Albany: For a number of years I have been able by the use of tuberculin to make a diagnosis in these cases in a very early stage when surgery is most hopeful. Another point is the exclusion of certain cases treated for tuberculosis when not tuberculous in character. I have recently had called to my attention a case treated for tuberculosis of the hip upon x-ray findings. The plates showed nothing conclusive to me of either tuberculosis or any other disease. The child was given the usual test with tuberculin up to 7 or 8 mgms., without any reaction. I had the case removed about six months ago and the child is still remaining perfectly well. That experience is typical of a considerable number of cases in which the diagnosis is incorrect and in which tuberculin is of great value.

Dr. Russell, Melbourne, Australia: I entered upon my early surgical treatment of hip disease in children with great hopefulness and considerable enthusiasm. But I found my enthusiasm waned and my hopes disappointed, and finally came to believe that the best results could be obtained by expectant treatment and rest. In my experience a focus that can be definitely recognized is in itself a late manifestation. That is the answer, it seems to me, to the suggestion of the efficacy of early operative interference.

Dr. Thomas W. Huntington, closing: As I said in my paper, I did not expect to put a pin-point on the focus. I believe the extra-articular approach to an area which has been infected is innocuous, and I believe it is perfectly innocuous to remove all of the intramedullary tissue, knowing that there is tuberculous infection in that area. It has been done and the period of treatment shortened from years to months. The patient's functional results have been altogether satisfactory, where they have been 60% unsatisfactory in the cases within my knowledge treated by the ordinary method. I believe the cleaning out of the point is the main feature. In a case called to my attention after four years of careful orthopedic treatment the head of the bone was cleaned out. The case was operated upon successfully and was entirely well at the

end of a year. In this particular case I believe the child's general health would have been enormously conserved by the early operation and the result as good if not better than that later obtained.

A REVIEW OF CASES OF FRACTURE OF THE PATELLA.

DR. W. BEECKMAN DELATOUR, Brooklyn: While a decade ago surgeons were divided concerning the necessity of open operation, today they are united, regarding the patella, upon early operation. Concerning the long bones opinion still differs. In 87 patients there was a total of 101 fractures. Three were simultaneous of both patellae and in one there was also a fracture of the cervical vertebra. Upon these cases there were 96 operations with no operative mortality, and in all, useful joints resulted; in four motion was somewhat limited. The operation consists in a curved transverse incision across the knee above the patella, suture of the tears in the lateral capsule, and across the front of the patella with chromic catgut. These were reinforced by a suture passed through the patella tendon above and then below in mattress fashion and then tied. The object of the suture is to relieve the transverse sutures of strain when there is contraction of the quadriceps muscle, especially when recovering from anaesthesia. Early passive motion is important. A posterior splint should be worn for at least 12 weeks. Operation was as a rule, done at the end of 48 hours. Results where the bone was broken in several fragments were as good as in the simple transverse cases.

DISCUSSION.

DR. JOHN J. BUCHANAN, Pittsburgh: My experience is limited to 35 cases, and since my first operation I have no recollection of any case of fracture of the patella coming under my care which was not opened and sutured. Within the last few years, according to the suggestion of Judd, I have given up drainage and now use the closed method entirely, and within the last ten years I have depended upon dry wiping of the joint without irrigation. The incision in nearly all cases has been transverse right across the line of fracture, because I think the possibility of refracture with the breaking through of the scar is very remote. This line of incision gives a better access to the bone itself and is of advantage in the matter of lateral expansion of the vasti which is of importance in closing. I have followed all my cases and so far as I know no patient has had an immovable joint. The best recommendation I can give to the operation is that I have been required in only one case to take out the wire.

DR. DELATOUR, closing: We make it an invariable rule to operate as soon as possible after the operation, usually at the end of 48 hours. There is no reason for waiting, and it is important to get the patient on the road to recovery as soon as possible.

FRONTAL SINUS SUPPURATION; THE ESTABLISHMENT OF PERMANENT NASAL DRAINAGE; THE CLOSURE OF EXTERNAL FISTULAE; EPIDERMIDIZATION OF SINUS.

DR. HOWARD A. LOTHROP, Boston: Intranasal treatment for frontal sinus suppuration should always be given a thorough trial before instituting more extensive operations. The results of external operation in obstinate cases are mainfested by many successes obtained by all methods and also by many failures. The problem presented is the healing of suppuration in a natural bone cavity surrounded entirely by rigid walls. No method that I know of takes full advantage of the anatomic possibilities. After a trial of two years the following technic is briefly suggested: A small opening is made in the frontal bone just above the upper extremity of the nasal process of the superior maxilla. The sinus is explored. The probe is passed through the ostium into the nose and left in this position while the anterior ethmoid cells are broken through with a small curette. Then, working from above, but chiefly from below, all the dense bone situated at the base of the nose is removed. This includes the interfrontal septum, the nasal spine, the nasal crest, the upper, thick ends of the nasal bones and nasal processes.

Book Reviews.

A Manual of Infantile Paralysis. With Modern Methods of Treatment, etc. By DR. HENRY W. FRAUENTHAL, surgeon and physician in chief, New York Hospital for Deformities and Joint Diseases; and DR. JACOLYN VAN VLIET MANNING, epidemiologist, Wisconsin, 1908, Epidemic Acute Poliomyelitis. Illustrated. Philadelphia: F. A. Davis Company. 1914.

While this book contains a mass of facts in relation to infantile paralysis, these are undigested and badly arranged. The books shows many evidences of entire lack of the critical faculty in the writers, and of haste in its preparation. It need detain no serious student of the question.

A Text-Book of Military Hygiene and Sanitation. By FRANK R. KEEFER, A.M., M.D. Illustrated. Philadelphia and London: W. B. Saunders Company. 1914.

At a time when, by reason of the great European War, general professional interest and attention are more than usually drawn to topics of military medicine and surgery, there is particular pertinence in this manual by an American expert. As lieutenant-colonel in the United States army medical corps and professor of military hygiene in the United States military academy at West Point, Dr. Keefer writes with recognized authority. In the chapter on venereal diseases he advocates the isolation of infected prostitutes, restoration of the army canteen, and so-called venereal prophylaxis. The chapter on physicial training is contributed by Captain H. J. Koehler, M.D., director of physical training at the West Point Academy. The book is well illustrated with 47 text-cuts and has an excellent glossary and index. It should prove of value not only to members of army medical corps, but to students and physicians in civil life.

THE BOSTON

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A MILK-BORNE EPIDEMIC OF SEPTIC SORE THROAT.

As in similar instances previously recorded, a useful lesson is to be drawn from a severe epidemic of non-diphtheritic septic sore throat, a report of which appears in the lastest issue of *Health News*, the monthly bulletin of the New York State Department of Health. The outbreak occurred the past summer in Rockville Centre, a village of 4250 inhabitants situated on Long Island, about six miles from the eastern boundary of New York City, and was clearly traceable to contaminated milk. During the first half of June over two hundred cases of the disease developed in this village, while among the 4500 inhabitants of Lynbrook and East Rockaway, which immediately adjoin it on the west, no cases were reported. It soon became apparent that the common element among the infected persons was their milk supply, for about 90 per cent. of the sick were found to have used milk from a single dairy in the adjacent farming hamlet of Oceanside. The conditions at this dairy were conducive to the spread of infection, as the owner had recently moved to the farm, the milk-house and barns were unfinished, and the facilities for washing the utensils and bottles were inadequate. The first case of which there is a record was that of the daughter of the proprietor and operator of the dairy, and this was followed by other cases there. The onset of the epidemic was insidious, for the existence of sore throats among the persons at the dairy was not reported to the health authorities, as required by the sanitary code, and the nature of the outbreak was not suspected by the local physicians until after a number of cases had developed in different parts of the village. On June 6 it became serious, and for the next nine days there was a daily average of twenty-five new cases. After the 14th very few persons were attacked, and the last case developed on the 30th.

The sickness was a severe form of sore throat, associated with marked general pain and prostration. In 62 per cent. of the cases in which the temperature was taken the fever ranged from 102° to 104°, and the glands of the neck were enlarged in all except the mild cases. Chills were definitely reported in 81 per cent. of all the cases; nausea in 69 per cent.; follicular tonsillitis in 40 per cent.; and enlarged cervical glands in 66 per cent. Complications, which were noted in mild as well as severe cases, occurred in 21 per cent. A severe form of acute articular rheumatism developed in seven cases; one patient suffered from appendicitis and peritonitis, and one had facial erysipelas. Two fatalities occurred—one due to recurrence of a previous heart trouble in a rheumatic case, and the other to a septic pneumonia. In most of the cases the attack came on with great suddenness. In about one-quarter of them it lasted four days, or less, in about one-half, from five to eight days, and in 10 per cent., over two weeks; while in several of the rheumatic cases the patients are still ill. In a bacteriological examination of throats made in twenty-five instances, all showed a marked preponderance of hemolyzing streptococci. Altogether, the records of 232 cases were obtained from the local physicians, and, as in other epidemics of the kind which have been reported, a preponderance of cases occurred in young adult females.

An investigation of the Oceanside dairy was made on June 15, when samples of milk were taken from each cow, and cultures from the throat of each person employed on the premises. A predominance of streptococci was found in the throats of the owner and of two of the milkmen. It was deemed advisable to remove four cows from the herd, and orders were given that no milk should leave the place unless it were pasteurized, or the persons whose throats showed symptoms of disease abstained from milking or handling milk. These orders were disobeyed, however, and on June 29 a guard was posted by direction of Health Commissioner Biggs to see that no products left the farm. On July 2 an

inspection of the dairy was made by Dr. H. D. Gill of the State Department of Agriculture, and six cows were condemned by the tuberculin test. Samples of milk from the remaining cows were taken, and found to be free from streptococci. The resumption of the sale of milk was made dependent, first, on a satisfactory bacteriological examination of the throats of those handling the milk; second, on written evidence of the healthfulness of the remaining cows, given by the State Department of Agriculture; and, third, on the certification by the family physician that every person who is to be engaged in producing or handling milk is free from all evidence of illness.

The report in the bulletin is made by Dr. Frank Overton, sanitary supervisor of Suffolk and Nassau Counties, Dr. Charles Krumwiede, assistant director of the research laboratory of the New York City Health Department, and Dr. A. D. Jaques, health officer of Rockville Centre, and they express the opinion that the experience of this epidemic leads to the conclusion that the following measures are of the utmost importance in every municipality:

1. The prompt reporting by practising physicians of all cases of sore throat and other infectious diseases among employees in dairies.

2. The exclusion from dairies of every person having an infectious disease, even if it appears to be only a common sore throat.

3. A prompt quarantine by the local health officer of every dairy the owner or manager of which fails to exclude helpers who are known to be infected.

4. The pasteurization of all milk supplies.

THE COUPON SYSTEM OF MEDICAL INSTRUCTION.

IN the issue of the *Monthly Announcement* of the Harvard Graduate School of Medicine for Sept. 15 appears an editorial calling the attention of the "local profession" to the special opportunities for medical instruction offered by the school through its "coupon system," a method designed especially to appeal to busy practitioners.

"From the beginning the Graduate School of Medicine has aimed to interest this local body of the profession, and to be of benefit to them and to their communities. We have organized a number of courses especially for the local profession. Frankly speaking, we have not had as great success with these courses as we hoped to have. . . . . .

"The coupon system is designed to enable physicians to attend single exercises, or parts of courses, with as little inconvenience as possible. The coupons are issued in books of twenty each, and may be obtained by applying to the Dean's office. The price of a coupon-book is fifteen dollars. Possessed of one of these books, a physician may attend any one of a large number of exercises by paying to the instructor the proper number of coupons. The *Monthly Announcement* gives each month a list of the exercises that may be attended in this manner, and the number of coupons to be paid for each exercise. All the weekly courses are included in this list, besides a large number of standard courses of general interest in a variety of subjects. The coupons will be received in payment for courses without limitation of time, and unused coupons may be redeemed for eighty per cent. of their value within a specified period. The length of this period is determined by the date of the end of the second term after the one in which the coupon-book is issued, thus varying from eight to twelve months. The charge for a single exercise, reckoned in coupons, is only a little greater than would be paid for the same exercise in a course ticket. It would be cheaper for a physician to pay by coupons than to lose several exercises on a course ticket. Furthermore, a coupon-book purchased with the intention of attending a certain course will be good for attendance in exercises in any course in the future, without further formality. The whole arrangement is planned to protect the physician from loss and to serve his convenience as far as possible. We are confident that many more will take advantage of this scheme when they understand its possibilities."

The range of instruction thus opened to practitioners is very wide, and one of which it is to be hoped that more advantage will be taken in future than has hitherto been the case. In fairness, it should be noted that the coupon system has been criticized as encouraging superficiality and as reducing post-graduate medical teaching to a commercial basis inconsistent with its dignity. Some instructors do not care to collect coupons at the beginning or end of each exercise, and some have refused to receive students for occasional exercises on the coupon method. Nevertheless, the system is one which seems likely to find favor and to increase in use. As a matter of fact, attendance at any school of instruction is likely to grow in proportion to the intrinsic merit of the instruction offered, and independent of advertising or special systems of any sort.

THE SPEEDING AMBULANCE.

In the language of the daily press, any sick or injured person is always "rushed to the nearest hospital." Unfortunately it is often an official ambulance that does the "rushing," sometimes with disastrous consequences to innocent and unsuspecting pedestrians, not always with benefit to the patient. Two recent instances in Boston illustrate the evil of the speeding ambulance.

A furiously-driven police ambulance, conveying a man not seriously injured to a hospital, knocked down a woman and her baby, fortunately without important damage to either. In the second case an automobile ambulance bringing a patient from an adjacent town, ran over a boy who later died in the hospital of a fractured skull. The chauffeur, who was pitched from his seat by the impact of collision, sustained a compound fracture of the elbow requiring amputation. Both these vehicles, at the time of accident, were breaking traffic regulations and exceeding the speed limit.

The speeding ambulance, with its clanging gong, is a barbarism, a sensational, though perhaps unconscious, play to the galleries, quite foreign to the spirit of the profession. Few surgical emergencies, in which there is any possibility of help from anyone not on the scene, require such breakneck haste. Few sick patients really suffer from delay of transportation; few would not be better for being moved more slowly and gently. Moreover, the rights and safety of the greater number should be regarded. Laws against overspeeding are rigorously and rightly enforced against physicians in the regular discharge of their duties: they should be equally enforced against ambulances. The ambulance is not a fire-engine and should not be suffered to behave as such.

MEDICAL NOTES.

Bubonic Plague in New Orleans.—Report from New Orleans, La., states that on Sept. 2 another human case of bubonic plague was discovered in that city, making a total of 24 since the outbreak of the present infection on June 27. There have been 78 rodent cases.

Three Living Western Centenarians.—Harriet Harper, of Atchison, Kas., is said to have been born in 1812.

Lydia A. Sharpless, of Whittin, Cal., is said to have been born on Sept. 6, 1810. She has 13 living grandchildren.

Mrs. John Waldron, of Mountain Home, Marion county, Ark., is said to have been born on Sept. 5, 1802, in Ohio county, Ky. She is the mother of 16 children and has a total of 723 descendents. She walks five miles daily and reads without glasses.

Prevalence of Pellagra in Italy.—An ararticle in a recent issue of *Il Policlinico* states that in 1881 there were 104,000 cases of pellagra in Italy, and in 1910 only 34,000. The disease is still endemic in 34 provinces of Italy and causes about 4000 deaths annually.

A Case of Indian Quintuplets.—The *Lancet* of Aug. 22 reports and vouches for a case of quintuplets, born to a Schanar woman of 25 at the Malagumuda Orphanage, Zuckalay, Travancore on June 23, 1914. The children were all females.

American Electro-Therapeutic Association.—The twenty-fourth annual meeting of the American Electro-Therapeutic Association was held in Battle Creek, Mich., on Tuesday, Wedneday and Thursday of this week, Sept. 15, 16, and 17, under the presidency of Dr. George E. Pfahler, of Philadelphia. The presidential address was on "Electro-thermic Coagulation and Deep Roentgen Therapy in the Treatment of Malignant Disease." Dr. Frank B. Granger, of Boston, vice-president of the Association, presented papers on "Direct Continuous Current, Including Electrolysis, Electro-chemical Surgery, and Ionization" and "The Use of the Condenser Discharge in Muscle Testing"; Dr. Loring T. Swaim, of Clifton Springs, N. Y., on "Treatment of Chronic Arthritis"; Dr. Fred H. Morse, of Boston, on "The Non-surgical Treatment of Intestinal Stasis"; and Dr. T. D. Crothers, of Hartford, Conn., on "Some New Potentialities Associated with Electric Energy."

Travel Study Club of American Physicians.—The Travel Study Club of American Physicians, which made a successful Study Tour of Europe last year, has completed the plans for its 1915 Study Tour to the A. M. A. meeting in San Francisco, Honolulu, Japan, The Philippines, China, with optional return via Siberia and Europe, was permitting, or via Canada. This being the first party of American physicians ever visiting the far east and the new possessions of the United States, a most cordial welcome can be expected by authorities and members of the medical profession. The Travel Study Club would like to make its enterprise as representative as possible and asks all those interested to communicate with the secretary, Dr. Richard Kovacs, 236 East 69 Street, New York.

European War Notes.—It is announced that on account of the war, the publication of the

1914 edition of the British pharmacopoeia has been indefinitely postponed.

All medical congresses, called to meet at European cities during the next year have also been postponed.

It is reported that Dr. Alexis Carrel, of the Rockefeller Institute for Medical Research, has been appointed medical director of the French military hospital at Lyons.

Report from Copenhagen on Sept. 4 states that both typhoid fever and Asiatic cholera have appeared in Berlin.

Report from Bremen on Sept. 4 states that the emigrant railroad station of the North German Lloyd Steamship Company, of that city, has been assigned to the Red Cross for hospital use.

Dr. William J. M. A. Maloney, of the Fordham University School of Medicine, New York, has accepted a commission as lieutenant in the British medical service, and will be attached to the surgeon-general's staff.

Report from Petrograd on Sept. 6 states that the Russian government has authorized the Red Cross Society to import drugs and surgical instruments free of duty during the war.

On Sept. 7, the total national subscriptions to the American Red Cross fund in the United States amounted to $142,000 of the $1,000,000 which it is desired to raise. On Sept 11 the total amount subscribed in Massachusetts was $17,347.35. Contributions of bandages and clothing are also requested.

On Sept. 8 there sailed, on the Greek liner *Ioannina,* a Red Cross unit which has been assigned to service with the Servian army. The nurses are in charge of Miss Mary E. Gladwin, formerly superintendent of nurses at the Woman's Hospital, New York, and later at the Cleveland City Hospital, who was in charge of the Red Cross nurses in Dayton, Ohio, at the time of the great flood there last year.

The sailing of the American relief ship *Red Cross,* which was announced in last week's issue of the JOURNAL as for Sept. 10, has been indefinitely postponed on account of a protest by the Allies. The unexpected objection of the representatives of Great Britain and France to the sailing of the *Red Cross* is on the ground that among her crew were many unnaturalized German seamen and stewards, some of whom were said to be German reservists. This action, however regrettable on account of the delay it caused, appears to have been reasonable, as otherwise complications might have arisen which would have seriously interfered with the proposed programme. It was held that the ship should be manned entirely by American citizens; for, it was pointed out, if she had sailed with Germans in her crew, it might have caused friction and the detention of all these men in either England or France as prisoners of war. The *Red Cross,* formerly the Hamburg-American liner *Hamburg,* is now painted all in white, with a broad red stripe extending the length of the vessel and large red crosses on her white smokefunnels. She carries 30 surgeons, 120 nurses, and an enormous amount of field hospital stores. The surgeons are in charge of Major Robert U. Patterson, of the U. S. Army Medical Corps, and the chief nurse is Miss Helen Scott Hay, who has had an unusually extended experience.

The *Red Cross* finally sailed on Sept. 13. It is announced that the 11 Massachusetts nurses have been assigned to duty in England.

BOSTON AND NEW ENGLAND.

HOSPITAL BEQUESTS.—The will of the late Eleazer D. Chamberlin, of Newton, Mass., who died at Concord, Mass., on Aug. 7, was filed on Sept. 5 in the East Cambridge probate court. It contains a bequest of $10,000 for the Boston Instructive District Nursing Association.

The will of the late Edward J. Walsh, of Boston, contains a bequest of $500 to the Boston Lake Shore Home at Sharon, Mass., and includes the Boston Children's Hospital among the residuary legatees.

THE CASES OF INFECTIOUS DISEASES reported to the Board of Health for the week ending Sept. 8, 1914, were as follows: Diphtheria 28, of which 2 were non-resident; scarlatina 12, of which 2 were non-resident; measles 18, of which 6 were non-resident; typhoid fever 16, of which 3 were non-resident; tuberculosis 28.

The death-rate for the week was 14.45.

NEW YORK.

ANTITYPHOID VACCINATION.—In an article on antityphoid vaccination in the *Monthly Bulletin* of the State Health Department Dr. W. H. Park, consulting bacteriologist, enumerates the following as among the persons who may be designated as particularly to be benefited by immunization: (1) Physicians, hospital internes, medical students, male and female nurses, and orderlies in hospitals; (2) members of families among whom there are cases of typhoid fever, or among whom typhoid carriers have been proved to exist, or those exposed to the disease or who expect to be brought in contact with it; (3) persons who expect to travel or settle in places which are habitual foci of typhoid; (4) those living in regions where typhoid is prevalent; (5) persons engaged in engineering or construction work necessitating living in camps; (6) vacationists, especially those visiting neighborhoods where the water and milk supply is not under competent sanitary control; (7) the members of all military or naval organizations.

BIRTH REGISTRATION.—In the annual report of Dr. G. W. Goler, health officer of the city of Rochester (population 235,000) an earnest plea is made for better birth registration, in view of the fact that a study of death certificates for infants under one year shows that over 7% of

births are unreported. A table of cases and deaths of diphtheria for eighteen years brings out the tendency of the disease to increase in cycles of about six years, and also shows that the case fatality varies inversely with the prevalence, as has been demonstrated to be true in typhoid fever and measles. In commenting on the fact that 88% of school children had carious teeth, reference is made to the dental hygiene practised among the ancient Egyptians. The crude death-rate for Rochester was 14.7 and the infant mortality rate (the lowest of any city in the state), 97—the admirable result of Dr. Goler's years of indefatigable effort.

Saratoga County Tuberculosis Hospital.—The buildings of the new Saratoga County Tuberculosis Hospital are now approaching completion. Dr. G. S. Towne, health officer of Saratoga Springs, has been elected president of the board of managers, and Dr. M. E. Leary, health officer of the town of Gates, and superintendent of the Monroe County Tuberculosis Hospital, has been engaged as consulting expert to advise the board concerning the equipment and administration of the institution.

Hospital Bequest.—By the will of the late Mrs. Emilie Huber of Brooklyn, N. Y., $25,000 each is left to St. Catharine's Hospital and the German Hospital, Brooklyn.

Mortality for Week Ending Sept. 5, 1914.—The mortality during the past week was considerably above that of the week previous, the death-rate jumping over one-half a point per 1000 of the population. Compared with the corresponding week of last year the most notable feature of the week's mortality was the large increase in deaths from tuberculosis, violence and from causes other than those generally styled prominent. The increased mortality from pulmonary tuberculosis was distributed among all the boroughs, each borough showing a considerable increase over that of last year. The cause of this increase was probably due to the high temperature on several days during the week hastening the deaths of many of the sufferers from this dreaded disease. There were 25 more deaths from violence, each borough showing an increase, the greatest increase being in the Borough of Brooklyn. Typhoid fever showed an increase of 13 deaths over the figures for the corresponding week of 1913.

Viewed from the point of age grouping the mortality of infants under one year was slightly higher. That of the age groups between five and sixty-five years being considerably higher, whilst that of the old people remained approximately the same.

The mortality for the first thirty-six weeks of this year was 14.05 per 1000 of the population as against a rate of 14.33 for the corresponding period in 1913, a decrease of .28 of a point.

It is hoped that this low mortality will continue during the remainder of the year. If it does it will mean a saving of 1563 lives compared with the number of deaths reported during the year 1913.

Abolishing Rabies.—Some weeks ago, owing to the prevalence of rabies in certain sections of the city, and recognizing the inadequacy of existing municipal ordinances bearing on the subject, the Committee on Infectious Diseases of the Advisory Council of the Department, recommended the adoption of an amendment to the Sanitary Code, requiring that all dogs which appear on public highways and in public parks or places, should be muzzled. The proposed ordinance was adopted at a meeting of the Board of Health, held on July 28, 1914.

In view of the drastic character of the new law, the department decided, in fairness to dog owners to give them ample time to adjust themselves to its requirements. Through the public press announcement was made that individuals would not be prosecuted for failure to comply with the muzzling ordinance until September 15.

Since the adoption of the muzzling ordinance, the department has been flooded with letters from interested citizens, an overwhelming majority of whom have commended the action of the Department, while a few, holding contrary views, have expressed themselves in opposition. Extracts from the letters received are here presented, showing the divergent views of citizens.

"Your recent order that all dogs, whether in leash or not, in the public streets, public buildings, apartment houses, etc., must be muzzled, is certainly a step in the right direction and worthy of the highest commendation by all fair-minded citizens of this great city."

"I write to thank you most cordially for the statement you have made in reference to the appalling dog nuisance. I have paid over to this city in cash, for taxes and assessments, more than $500,000. I refer to this fact merely to indicate that I am personally entitled to some consideration. On two occasions I have had my clothes torn by stray dogs, howling, snapping, and biting at me—both of these in upper Manhattan. I should hate to lose my life from the bite of a mad dog in a city which in so many ways, conditions, and regulations, leads all the great cities of the world."

"Of what use are dogs in the city? Perhaps of no more good than to be at least one true friend to mankind, and that is more than one can say of the majority of the human animal, male or female. There is more harm than good done by muzzling a dog and the only animal which should be muzzled or put on a leash is the animal called man."

"Surely an occasional rabid dog will not lead you to condemn the whole race any more than an occasional insane human leads us to ask what is the use of any of us."

These letters show the trend of popular thought on a subject to which the department of health has devoted serious attention. For a straightforward, scientific statement of the rabies situation in this city, the reader is referred to the June issue of the department's *Monthly Bulletin*.

Current Literature

NEW YORK MEDICAL JOURNAL.

AUGUST 22, 1914.

1. NOGUCHI, H. *Practical Application of the Luetin Test.*
2. *MCNEIL, A. *Present Status of the Complement Fixation Test in the Diagnosis of Gonorrheal Infections.*
3. FEDERN, P. *The Infantile Roots of Masochism.*
4. PRICE, G. E. *Clinical Types of Adiposis and Lipomatosis.*
5. JABLONS, B. *Medical and Bacteriological Experiences During the Late Balkan War.*
6. GOOD, R. H. *Removal of Two Nails from Bronchi of Child Two Years Old.*
7. NEUHOF, S. *Clinical Investigation of Gastric Neuroses with Vago-excitative Characteristics.*
8. FRIESNER, L., AND BRAUN, A. *The Functional Tests of the Static Labyrinth in Neurological Diagnosis.*
9. REHFUSS, M. E. *A Modified Gastroduodenal Tube.*

2. McNeil gives a report of results obtained with the complement fixation test for gonorrhea at the serological laboratory of the New York health department. The report is based on 5381 specimens of blood submitted for examination. These findings do not modify in any particular the conclusions published by the writer in 1912 which were in part as follows: A positive reaction denotes the presence or recent activity in the body of a focus of living gonococci. A negative reaction does not exclude gonococcus infection but is of considerable importance. A strong positive reaction is not to be expected earlier than the fourth week, and then only in very acute cases with some complication, and the reaction does not entirely disappear until seven or eight weeks after cure. A positive reaction is not obtained if the disease is limited to the anterior urethra. [L. D. C.]

AUGUST 29, 1914.

1. KAPLAN, D. M. *General Paresis.*
2. BISHOP, L. F. *Digitalis in Chronic Diseases of the Heart.*
3. ALLPORT, F. *Conservation of Vision.*
4. MOORE, J. W. *Surgical Treatment of Infantile Paralysis.*
5. MAYS, T. J. *Is the Consumptive Crusade Becoming a Burlesque?*
6. ROSENBAUM, G. *Röntgen Diagnosis in Fractures of the Cranium in Children.*
7. BOOKMAN, M. R. *Congenital Malformations of the Rectum and Anus.*
8. LANCASTER, W. B. *The Injurious Effects of Light on the Eyes.*
9. RUBIN, G. *Placental Blood for Transfusion.*
10. SHEAFF, P. A. *An Aid in the Use of the Allis Inhaler.*

[L. D. C.]

JOURNAL OF MEDICAL RESEARCH.

JULY, 1914.

1. MCNEIL AND TAYLOR. *Coccidioides Communis and Coccidioidal Granuloma.*
2. *FROTHINGHAM AND HALLIDAY. *The Effect of Quinine on Rabbits Inoculated with Rabies.*
3. *SLYE. *The Incidence and Inheritability of Spontaneous Tumors in Mice.*
4. WEIL. *Studies in Anaphylaxis.*
5. FROTHINGHAM, C., JR. *A Glomerular and Arterial Lesion Produced in Rabbits' Kidneys by Diphtheria Toxin.*
6. KLOTZ-LIPO. *Amyloid Degeneration.*
7. WESTON. *Serum Cholesterin and the Wassermann Reaction.*
8. KARSNER, AMIRAL AND BOCH. *A Study of the Influence of Splenectomy and of Certain Organs and Organ Extracts on the Hemopsonins of the Blood Serum.*
9. WHITE. *Some Experiments in Anaphylaxis with the Lipoids of the Tubercle Bacillus.*
10. *HENRICI. *The Staining of Yeasts by Gram's Method.*
11. SLYE, HOLMES AND WELLS. *The Primary Spontaneous Tumors of the Lungs in Mice.*
12. BROWN AND SMITH. *Notes on Two "Atoxic" Strains of Diphtheria Bacilli.*
13. *MCCLURE. *A Cholesterin-Heart Antigen Proposed by Walker and Swift.*
14. ANDERSON. *The Reaction of the Guinea-Pig to the Virus of Typhus Fever.*
15. BROWN, HEISE AND PETROFF. *An Attempt to Immunize Guinea-Pigs Against Tuberculosis by the Use of Graduated, Repeated Doses of Living Tubercle Bacilli.*
16. *LYALL. *On the Classification of the Streptococci.*
17. *LYALL. *Observations on Hemolysin Production by the Streptococci.*
18. SCHERN. *New Serum and Liver Substances as Levulose in Trypanosomiasis.*

2. Frothingham and Halliday were unable to show any curative effect from subcutaneous injections of quinine bisulphate or quinine and urea hydrochlorid in rabbits showing symptoms of rabies, following intracranial and intramuscular injection of Street virus. The quinine preparations produced in all instances local necrosis and sloughing.

3. Slye divides the life of the mouse into four stages; *i.e.* infancy, adolescence, prime or reproductive life and later life. The chief causes of death in the latter cycle are senile atrophy, chronic Bright's disease, obesity and cancer.

Cancer appears as a mode of growth and entirely separated from infection, which is rarely found in later life. Neoplastic growth, however, takes place at the point of overstrain, *i.e.* in the reproductive organs of the mated. Furthermore this point is exemplified by the frequency of cancer in the mammary glands most commonly used for suckling.

In several instances the growth was shown to remain stationary and relatively inactive during reproductive life, only to assume signs of malignancy after that period of life had passed. Striking series of inheritance were shown.

10. Henrici shows that yeast cells retain Gram's stain more firmly than do the common Gram-positive bacteria. Moreover the cytoplasm of the yeast cell presents, unlike bacteria, certain Gram-positive granules during the decolorizing process.

13. McClure has performed complement fixation reactions in parallel studies upon syphilitic and non-syphilitic sera by means of (1) cholesterin-heart and (2) syphilitic liver antigens. A higher percentage of positive findings in clinically non-syphilitic cases resulted from the use of the former. The errors resulting from the latter were explained by the presence of pyrexia and carcinoma. On the whole the readings

were found much more delicate from the cholesterin-heart antigen except in untreated cases of secondary, tertiary or latent syphilis. For the same reason the use of this method is unsatisfactory as a check to treatment, on account of the persistence of positive reactions after disappearance of the reaction from the syphilitic liver antigen, which appears to follow the course of clinical changes more closely. As a result McClure finds that the antigen, proposed by Walker and Swift, should be considered still in the experimental stage.

16. By means of new cultural methods Lyall has been able to show complete and partial hemolysis and absence of hemolysis in the various groups of streptococci. By this means, aided by the reactions of fermentation to inulin, salicin and raffinose, he has formed a constant and apparently reliable classification of streptococci. The true streptococci may be said (1) to be hemolytic—the group represented by streptococcus pyogenes—(2) to form methemoglobin—represented by streptococcus viridans and variants—or (3) to be indifferent. The latter group is made up of the streptococcus fecalis and other streptococci.

17. Lyall also presents a method for the quantitative determination of hemolysins. This property is closely associated with the bacterial body, insoluble, not an enzyme and thermolabile. An interesting note is that salvarsanized serum presents a markedly increased inhibitory power on the hemolytic action of streptococci. [L. H. S.]

ANNALS OF SURGERY.

AUGUST, 1914.

1. *De Page, A. *War Surgery.*
2. *Witzel, O. *Amputations.*
3. v. Kuzmik, P. *Amputation of the Hand.*
4. Binnie, J. F. *Amputations of the Leg.*
5. *Lexer, E. *Free Transplantation.*
6. *Ullman, E. *Tissue and Organ Transplantation.*
7. *Mayo, W. J. *Chronic Ulcers of the Stomach and Duodenum.*
8. *Hartmann, H., and Lecene, P. *Ulcer of the Stomach and of the Duodenum.*
9. de Quervain, F. *The Diagnosis of Gastric and Duodenal Ulcer.*

1. The president's address contains several practical suggestions to meet the awful suffering and mutilation of the modern battlefield: The instruction of the soldier in asepsis and antisepsis, materials for first-aid dressing carried by every soldier, performance of only precautionary measures on the field and at the stations at the front, the performance of operations judged indispensable at the hospitals of the second line where experienced surgeons should be placed, the appointment of civil consulting surgeons whose chief duty would be to oppose the performance of all operations of which they did not clearly see the urgency. De Page closes with an appeal for the abolition of shrapnels on the same ground as explosive bullets. (It is interesting at this time of war to note the selection of this title for presidential address four months ago and also that the president is a Belgian.)

2. Witzel after showing that the right to the judgment that a limb cannot be saved pre-supposes exceptional familiarity with surgical progress and after dwelling on the preparation of the patient for amputation, considers broad principles (hemostasis, anesthesia, sharp separation of tissues, avoidance of drainage wherever possible). One of the chief requisites for usefulness is that the stump be painless. Witzel then considers the treatment of the bone-end, pulling down and high section of nerves and early post-operative massage and exercises.

5. Lexer's comprehensive communication opens with general considerations regarding the various ways in which grafts may heal, the fate of auto-, homo-, and hetero-plastic grafts of various tissues, and technical requirements for success. He then discusses his experience and that of others in transplanting various tissues (skin and epidermis, mucous membrane, fat, muscle, nerve, vessel, tendons, fascia, periosteum, peritoneum, bone, cartilage, joints, total limb and organs). He prefers skin flaps to epidermal strips on the fingers and face. He has never used homoplastic skin transplantation in the human without some subsequent objection and doubts the usefulness of this method even with mutual immunization of donor and recipient. The field of usefulness of fat is great. Lexer considers free fat transplantation for the repair of dural defects with coexisting brain injury or pathological pia the method of choice. He emphasizes the importance of early mobilization in tendon transplants. He favors the preservation of periosteum and medulla in bone grafts.

6. Ullman's scholarly paper deals with transplantation of blood vessels, heart, thyroid, parathyroids, adrenals, hypophysis, ovaries, testicles, heterosexual transplantation, kidneys, spleen, pancreas, intestine (large intestine into stomach, stomach into small intestine, stomach into large intestine, small intestine into stomach, unpedunculated gastric flap into small intestine, small intestine into colon) and prostate. The paper is a record of his own experience and that of others in the transplantation of various organs into various situations, auto- homo- and heteroplastically, in animals and in the human in some instances. Briefly, some of the experiences in the human have been the use of veins for urethra, negative results in thyroid transplantation, homoplastic parathyroid transplantation without hope (Lanois), the prevention of castration atrophy, perpetuation of menses and even pregnancy and birth after ovary transplantation and four unsuccessful attempts at heteroplastic kidney transplantation usually into the arm.

7. Of the latest 1000 cases of gastric or duodenal ulcer at the Mayo clinic 73.8% were duodenal. In this same series about 75% of cases were male whether ulcer was gastric or duodenal. Mayo advocates gastrojejunostomy in addition to excision of ulcer. In performing gastrojejunostomy for duodenal ulcer the temporary pylorus-blocking sutures of Moynihan have been used. In cases without obstruction the methods of Wilms and Kolb have been successfully employed. At least 95% of all cases of gastric ulcer will be cured or greatly relieved by operation; 98% of the duodenal cases. A small number have been re-operated for recurrent ulcer. In each instance the lesion was gastrojejunal.

8. Hartmann and Lecene challenge the statement that duodenal ulcer is more frequent than gastric ulcer, finding in France, at least, only one of the former to eight or ten of the latter. They regard the "pyloric vein" as an untrustworthy landmark of the pylorus. They believe the symptoms pointed out by Moynihan as indicating duodenal ulcer are merely symptoms of pyloric spasm whether due to ulcer of stomach or duodenum or other cause. They place little confidence in pathologic reports based on extemporaneous frozen sections. They believe the frequency of development of cancer on ulcer has been exaggerated. They emphasize the importance of fluoroscopic examination. They consider surgical treatment of several complications (perforation, hemorrhage, cicatricial stenoses, perigastritis) and then of uncomplicated ulcers of stomach, near and distant from pylorus, and of duodenum. In dealing with fistulae from subphrenic abscess resulting from perforation of duodenal ulcer, they advocate gastroenterostomy with exclusion of pylorus. In dealing with similar lesions resulting from gastric perforation, resection or immediate suture or jejunostomy may be tried. Although they have not practiced pyloroplasty for cicatricial stenoses, they are not in favor of the operation. They perform simple gastrojejunostomy or associated with pylorectomy. They do not advocate pyloric exclusion of von Eiselsberg. They maintain that a gastro-intestinal orifice well covered with mucous membrane without cicatricial tissue cannot become obliterated

even if nothing passes through it. In their experience gastro-enterostomies performed in cases without stenosis or alimentary stasis have remained patent and functional. [T. W. H.]

THE LANCET.

AUGUST 8, 1914.

1. RYALL, C. *Cancer of the Uterus.*
2. *KIRTH, A. *The Nature of Peritoneal Adhesions.*
3. *LLEWELLYN, J. L., AND JONES, A. B. *Osteo-Arthritis of the Hip. Diagnosis in the Early Pre-Osteophytic Stages.*
4. *MCCONNEL, H. W. *The After-care of the Consumptive.*
5. HARPER, P. *Treatment of Yaws by Intravenous and Intramuscular Injections of Salvarsan and Neosalvarsan.*
6. *CARVER, A. E. *Pneumosan in the Treatment of Pulmonary Tuberculosis.*

2. Kirth discusses in a scholarly way the question of peritoneal adhesions, showing that many of these are of prenatal origin and part of a widespread biological process, affecting particularly the development of the human peritoneal cavity and that of animals nearly allied to man.

3. Llewellyn and Jones describe the early symptoms, subjective phenomena such as articular pain, local tenderness, referred pain in osteo-arthritis of the hip in its early stages. They discuss early signs such as alterations in gait and attitude, limitation of motion, etc. They urge early diagnosis and treatment.

4. McConnel states that the objectives of after-care of a consumptive are (1) to prevent relapse, (2) to combat fear of infection among others, (3) to look after the home and the family while the bread-winner is away and (4) to prevent development of the chronic loafer. He discusses the ways and means of obtaining these objects by means of local town and city forces and voluntary forces. The latter he particularly favors. He urges further development of after-care work.

6. Carver describes the effect of "pneumosan" in pulmonary tuberculosis. As he does not state what pneumosan is, or what it is supposed to do, the article is practically worthless. [J. B. H.]

AUGUST 15, 1914.

1. BATESON, W. *Heredity.*
2. RICHARDSON, C. W. *Congenital Atresia of the Post-Nasal Orifice.*
3. BANISTER, J. B. *Pregnancy Complicated by Severe Morbus Cordis: Two Cases Treated by Hysterectomy Under Spinal Anesthesia.*
4. HORNE, J. *Gun Deafness and Its Prevention.*

[J. B. H.]

BRITISH MEDICAL JOURNAL.

AUGUST 8, 1914.

BRITISH MEDICAL ASSOCIATION.

1. THOMSON, J. A. *Vis Medicatrix Naturae.*

SECTION ON MEDICAL SOCIOLOGY.

2. GORDON, J. *Introductory Remarks.*
3. *CHALMERS, A. K., ET AL. *Discussion on the Responsibility of the State in Connection with Venereal Disease.*
4. COLLIE, J. ET AL. *Discussion on State Medical Service v. A Panel System.*

2. Chalmers presents statistics from Glasgow showing the excellent results obtained in prompt and aggressive treatment on a large scale of ophthalmia neonatorum of gonococcal and non-gonococcal origin and also in cases in which syphilis was a factor. Pontoppidan describes in detail the methods used in Denmark. McIlroy urges that the state spend as much on venereal disease as on tuberculosis.

[J. B. H.]

AUGUST 15, 1914.

BRITISH MEDICAL ASSOCIATION.

SECTION ON MEDICAL SOCIOLOGY.

1. *MACKENZIE, W. L. ET AL. *Discussion on the Duty of the State Towards the Early Environment of the Child.*
2. SANDEMAN, C. ET AL. *Discussion on Medical Certification Other than Lunacy Acts.*
3. LERTEL, A. *The Serum Diagnosis of Pregnancy and of Cancer: A Critical Study of Abderhalden's Method.*

1. Mackenzie discusses ante-natal care of children, safeguarding the mother and child at birth, health visiting, infant clinics and milk depots, and "pre-school age" clinics. Galloway takes up the care of the child from the point of view of eye sight and defects in eye sight and their prevention, while Wallace discusses the subject from the dental point of view.

[J. B. H.]

WIENER KLINISCHE WOCHENSCHRIFT.

NO. 17. APRIL 23, 1914.

1. *FARABGER, H. *Experimental and Clinical Experience with Chronic Tobacco Poisoning.*
2. ENGLE, K., AND HOLITSCH, R. *Differential Diagnosis of Substernal Goiter.*
3. NEUGEBAUER, H. *Hereditary Syphilis and Disease of the Aorta.*
4. LORENZ, H. *Subdeltoid Hygroma.*
5. PRIESEL, A. *Varices in the Thoracic Duct.*
6. ADLER, A. *"Child Psychology."*

1. The author finds experimentally that nicotine is probably the sole substance responsible for the clinical symptoms caused in humans by tobacco smoking. He cites twenty-one cases in his experience showing tobacco-heart poisoning. The symptoms run from palpitation in the mild cases to myocardial insufficiency and death in the severe. The abuse of cigar smoking affects detrimentally the senses and memory; cigarettes irritate the nervous system. Further, certain gastro-intestinal symptoms depend on nicotine poisoning,—from loss of appetite to gastric ulcer. He believes that certain cases of myocardial weakness from tobacco do not have arteriosclerosis, though this is common in excessive smokers. [F. S. K.]

NO. 18. APRIL 30, 1914.

1. STERNBERG, C. *Further Study of the Wassermann Reaction.*
2. MEYER, K. *Method of Auscultation of Heart Through the Nose and Mouth.*
3. HUTTER, F. *Technic of Tonsillotomy and the Anatomy of this Region.*
4. DECHER, J. *Certain Post-operative Complication, after Gall-stones.*
5. *HOFSTÄTTER, R. *"Sexus Anceps."*
6. V. ALDOR, L. *The Chemistry of the Stomach with Gall-stones, and the Importance in Treatment.*

5. The author reports in detail with photographs a case of doubtful sex. [F. S. K.]

ANNALES DE L'INSTITUT PASTEUR.

VOL. XXVIII. No. 7. JULY, 1914.

1. PETTIT, A. *Action of Diphtheria Toxin Upon the Rat.*
2. OZAWA. *Morphological and Biological Study Upon the Trypanosome Pecaudi.*
3. FERNBACH, A., AND SCHOEN, M. *Some Products of the Decomposition of Dextrose in an Alkaline Medium.*
4. ROSENBLATT, M. AND MME. *Action of Acid Upon Alcoholic Fermentation.*
5. *CHAUSSÉ, P. *Can the Tubercle Bacilli Be Thrown Out in Moist Respiratory Particles?*
6. KIESEL, A. *The Influence of the Reaction of the Media Upon the Action of Inulase of Aspergillus Niger.*

5. Chaussé has carried on a series of experiments, chiefly with guinea-pigs as the animal for study, in order to see if the moist particles expelled from the mouth of a tuberculous patient are capable of producing infection in another without first drying and becoming pulverized. He controls his experiments apparently quite carefully with other experimental studies. His results are quite consistent.

In conclusion he feels that tuberculosis is passed from one person to another only by means of moist particles directly inhaled in very rare cases. The bronchial muco-pus acts as an agent of defense for the rest of the lung and digestive tube and also adjoining mucous membrane. Mucus in the saliva increases this protective property of rolling up the bacilli and helping in their expulsion. To emphasize the difficulty of infection by direct contamination with moist particles one should compare his results with the experiments in which dried bacilli were exposed to the animals. [C. F., Jr.]

REVUE DE MÉDECINE.

JULY, 1914.

1. *LABBÉ, M. *The Treatment of Diabetes by the "Dry Vegetable" Regimen.*
2. BENON, R. *Traumatic Shock of Asthenia.*
3. LE DAMANY, P. *Hepatic Edema.*
4. DOBROKHOTOW, M. *"Sciatique Radiculaire"—A Study of the Distribution of Segmental Sensibility of the Inferior Extremities.*

1. Labbé recommends a regimen of dry legumens as a substitute for the "oatmeal diet" and "milk cure" during the course of treatment of diabetes. The diet consists of dried legumens, butter, eggs and gluten bread. This diet is better digested and more palatable than the oatmeal and milk cures. It contains a high percentage of nitrogen, which appears to be more easily assimilated than that of cereals or milk. This treatment is of great value in cases of mild and moderately severe diabetes, but is of greatest importance in severe cases, preventing nitrogenous malnutrition and acidosis. It tends to reduce glycosuria and combat coma. The treatment generally lasts three to four days at intervals of ten days to two weeks; but may, if tolerated by the patient, be prolonged for two weeks or more. [L. H. S.]

THE SEI-I-KWAI MEDICAL JOURNAL.

AUGUST, 1914.

1. *TAKAKI, Y. *Some Facts of Acute Appendicitis.*
2. SEWAKI, H. *The Poison of Earthworms.*
3. OGA, F. *Epidemic Typhus in Yokohama in 1914.*

1. Takaki discusses post-operative complications, the condition of the field of operation, and the diagnosis of appendicitis. The principal conditions to be differentiated he considers are trauma, tuberculous peritonitis, pneumonia, cholecystitis, typhoid, and salpingitis. He believes the pulse-rate to be a valuable diagnostic sign. [R. M. G.]

Miscellany.

DR. HASKET DERBY.

A PERSONAL TRIBUTE.

WHEN DR. DERBY began practice in Boston, fifty-two years ago, specialties were so infrequent as to be singular, even questionable. The name oculist could not be attached to the usual affix of M.D. The eye was the only recognized single organ; and as we still hold, was influenced by the brain and the kidney The oculists in the community had been evolved from general practitioners.

Doctor Derby never practiced medicine. He was a pure specialist from his beginning; and being one of the earliest to divert his business from his family and home, he occupied an office in another street. This was novel and unusual.

Social connections and business tact combined to give his real merits an earlier recognition and success than usually befalls the young doctor. It was true that two and a half years of special study of the eye in Germany and Holland had given him unusual opportunity for completed knowledge. But he was successful from the beginning, soon had a good practice and income, and kept it for forty-eight years.

Dr. Derby was a man of very strong religious convictions; and he gave unquestioning faith to the assurances of his church. This influenced his professional character and practice. He was conscientious; his medical dicta were conservative, but unyielding. What he knew, he knew he knew; and there was no latitude allowed. The effect of positive statement to the patient is great; and the sufferer who accepts is happier and better off than he who doubts, questions or changes.

Dr. Derby was considerate of the poor, and gave long years of gratuitious hospital service; but he also was eminently just, and this made him firm in claiming his dues when the patient could afford them. He was a bold and earnest assailant of the abuse of medical charity. He often questioned the applicant for free treatment at the Eye and Ear Infirmary as to his means, and sometimes refused him as a free patient. This vast abuse, which impoverished the doctor, would be lessened were other practitioners as firm in claiming what they believed was right. No such inquisitional duty should ever be imposed on the hospital doctor, but it should be taken up by a special officer of each hospital.

The writer of this notice, being retired by age, and thinking himself in a position to judge im-

partially, wishes to call attention to the circumstance, that every doctor connected with a hospital makes his charity practice primary and his paying practice secondary. He gives up the fresh energy of his morning hours to his charity work, and has only the later and tired hours to give to those who pay him for his services and support him.

The subject of this sketch was a man of polished manners and genial conversation. He was a pleasant companion. He made warm friends and kept them. He had a cultivated taste for English literature, and he collected a fine library of such classics. He was familiar with German and French, and read both with ease. He was fond of nature, and developed the scenic features of Mt. Desert. There he was also instrumental in building a rural church, which he named Saint Sylvia. He paid scrupulous attention to bodily exercise, and was for years a regular attendant of a class in gymnastics. His exact habit of mind led him to keep and preserve copious notes of each one of his patients.

Dr. Derby was born in June, 1835, and died in August, 1914. He had entered upon his eightieth year. He led a serviceable life up to old age, and had little illness. About four years before his death, infirmities settled on him which obliged him to retire from practice.

Dr. Derby was graduated from Amherst College in 1855; he entered the Harvard Medical School and received the degree of M.D. in 1858. During the last year of his medical studies, he served as house surgeon of the Massachusetts General Hospital. He then at once sailed for Europe as ship's doctor of a sailing craft, and had a voyage of twenty-eight days.

He studied general medicine for eighteen months, and then took up the eye first in Vienna under von Arlt and Jaeger; then in Berlin under von Graefe; in London, Bowman and Critchett, Greenfield and Hutchinson; in Utrecht, Donders; and Paris under Dismares and Sichet. To these studies of the eye he devoted two years and a half.

While in Europe the Civil War broke out, and he wished to come home to enter the military service; but his parents wished him to complete his studies. When he returned, he volunteered and served under the Sanitary Commission at Fortress Munroe.

He settled in Boston in 1862. He was one of the surgeons of the Massachusetts Charitable Eye and Ear Infirmary for thirty years. He founded the Eye Department of the Carney Hospital in 1877, and retained his connection there thirty-seven years.

Dr. Derby was one of the founders and later chairman of the New England Ophthalmological Society. The American Ophthalmological Society was originated by Dr. Derby and Dr. Henry D. Noyes, of New York. Dr. Derby was later its president. He was many years a member of the Deutsche Ophthalmologische Gesellschaft.

Dr. Derby was a lecturer on the eye at the Harvard Medical School for a short period. Clinically, he taught for years in hospitals. He filled many public offices: for ten years a trustee of the Children's Institutions Department; he was one of the original board of visiting physicians of the Danvers Hospital for the Insane.

Dr. Derby went often to Europe, whence he brought home the newer ideas in his specialty and novelties in his armamentarium. He was especially fertile in employing new machinery.

In 1868, he was married to Sarah Mason, of Boston, who survives him. They had eight children, of whom six are living; namely, Eloise and Dr. George S., of Boston; S. Hasket, of San Francisco; Robert M. and Augustin, of New York; and Arthur L., of New Orleans.

DAVID W. CHEEVER.

APPOINTMENTS.

DR. WILLARD J. DENNO and CHARLES W. BERRY of New York have been appointed sanitary supervisors, and DR. WILLIAM T. POWER of New York, lecturer on diseases and disorders of the eye, in the State Department of Health.

DR. FRANKWOOD E. WILLIAMS, first assistant physician, Psychopathic Hospital, Boston, has been appointed executive secretary of the Massachusetts Society for Mental Hygiene.

RECENT DEATHS.

DR. GEORGE IVISON ROSS, a registered physician of Canton, Mass., died in that town, September 13, aged 67 years. After practising medicine at Canterbury, Conn., he removed in 1885 to Canton, where he had since practised. He is survived by two daughters and a sister.

BOOKS AND PAMPHLETS RECEIVED.

Medical Education and the Municipal Hospital, by August Schachner, M.D. Reprint.

A Manual of Practical Hygiene, by Charles Harrington, M.D. Lea & Febiger. 1914.

Diseases of the Skin, by Frank Crozer Knowles, M.D. Lea & Febiger. 1914.

Local Anesthesia, by Prof. Dr. Heinrich Braun. Lea & Febiger. 1914.

On the Classification of the Streptococci. Observations on Hemolysin Production by the Streptococci, by Harold W. Lyall. Reprint.

A Septic Sore Throat Epidemic in Cortland and Homer, N. Y., by Charles E. North, Benjamin White, and Oswald T. Avery. Reprint.

Some Experiments in Anaphylaxis with the Lipoids of the Tubercle Bacillus, by Benjamin White. Reprint.

The Clinics of John B. Murphy, M.D. February, 1914. W. B. Saunders Company.

The practice of Pediatrics, by Charles Gilmore Kerley. W. B. Saunders Company. 1914.

Medical Gynecology, by Samuel Wyllis Bandler, M.D. W. B. Saunders Co., 1914.

Conference on Modern Developments in Mental Nursing

IMPROVED NURSING FOR THE MENTALLY ILL.*

By Walter Channing, M.D., Brookline, Mass.,

Chairman Trustees, Boston State Hospital.

The discussion this afternoon covers a wide field. Let us hope that it will help in the solution of the problem of improved methods of nursing the mentally ill. Theories are, however, easy to promulgate, but innovations difficult to introduce into fixed systems.

I believe that, on the whole, patients in most state hospitals are being better cared for year by year. There are good training schools, well managed, which do much to improve the nursing service. But there are obstacles in the way which hamper the efforts of the hospital authorities toward further improvement. As a matter of fact, our hospitals are of necessity too parsimoniously managed, and from this cause largely result the criticisms which would-be reformers are so lavish with. While public opinion says on the one hand, "Your hospital is badly carried on", on the other hand, the legislature expects the hospital to sail as close to the wind as possible in its expenditures. The result is that a per capita cost is established, which is too small to supply food of a sufficiently good quality and does not allow for a big, well-paid nursing staff, and other necessary things. If the truth were known, it would be found that the state was getting its wards looked after very cheaply, considering the good quality of the care.

We must face the facts that a rapidly increasing business requires a steady increase of expenditure and that no business can be done on a first-class basis by furnishing only money enough to carry it on on a second-class basis. Yet we find many of our statesmen overcome by the size of the state tax and not able to realize that the number of dependents increases rapidly each year, and that first-rate care cannot be furnished on too niggardly appropriations. Of what use is it to blame the hospitals for the poor quality of nursing, if because of insufficient means they cannot employ nurses enough, and cannot pay wages which will attract and hold the desirable class?

In a recent paper on "The Better Training of Nurses in State Insane Hospitals" I have elaborated ideas of my own as to what can eventually be done in this direction, and have suggested that the first steps should be taken in the psychopathic departments of the hospitals where they exist, as they should, in connection with all state hospitals. This institution, acting on its own initiative, is already undertaking to put new methods into operation, which no doubt will be explained to us this afternoon. The board of trustees, of which I am a member, is in sympathy with any movement which may be for the benefit of the patients, and while satisfied that the training school at the main hospital is doing excellent work, believes that a course of training may be possible along somewhat different lines in this department.

It is well to consider methods, because even in the existing conditions, changes can be made which will be of great service, only I believe the means to accomplish the desired ends should be kept steadily in view. At all times, we should be ready to discuss and maintain our ideals, and I believe this meeting will help to clarify ideas which have been in the minds of many, but in a rather vague form.

THE TRAINING OF THE PSYCHOPATHIC NURSE.*

By M. Adelaide Nutting, New York,

Director, Department of Nursing and Health, Teachers College, Columbia University.

The subject upon which Dr. Southard has asked me to speak is the Training of the Psychopathic Nurse. I can see no point of view from which this subject may be approached that is not important, since it appears to be indisputable that every step forward in the development of better methods of diagnosis, of care and treatment and of scientific study of this class of diseases must, to be truly effective, be accompanied by corresponding developments in methods of nursing. Equally true does it appear to be that measures of prevention through education or other methods cannot be well initiated and properly carried out without the aid of suitably trained women.

The first and largest need is in those hospitals, public and private, in which the mentally sick are cared for. While much progress has been made in these institutions, there is still obvious need for a good deal of improvement in the character of the nursing; it is indeed urgent in some of them. Until quite recent years the care of sufferers from mental troubles was largely custodial in nature, the word "attendance" describing fairly correctly the character

* Psychopathic Hospital Contributions Number 44 (1914.10). This and a number of the contributions to follow (as well as one preceding contribution, viz., Number 37 (1914.3), "The Art of Companionship in Mental Nursing," by Dr. H. R. Stedman), formed a portion of the papers read in full or in abstract form at a conference on Modern Developments in Mental Nursing held at the Psychopathic Hospital, Boston, February 16, 1914. (*Bibliographical Note.* The previous contribution in this series, Number 43 (1914.9) was by Dr. W. B. Swift, "A New Voice Sign in Chorea," *Am. Jour. Diseases of Children*, June, 1914).

* Psychopathic Hospital Contributions Number 45 (1914.11), a paper read at a conference mentioned in footnote to Dr. Channing's paper on "Improved Nursing for the Mentally Ill." Contribution Number 44 (1914.10)

of much of the work done for such patients. And, so long as mental troubles were little understood, their causes all but unknown, the cure doubtful, the chief essential in their care seemed to be to insure watchful and kindly attendance and protection. Nursing, as we today understand it, was not recognized as necessary.

As we pass out of that stage of thought and begin to look upon mental disorders exactly as we look upon other forms of sickness with possibilities of improvement or cure, depending upon intelligent and skilful treatment, good nursing becomes at once an essential and indispensable factor in the situation. For the diagnostic and therapeutic methods of modern medicine and surgery cannot be properly applied to these patients without the coöperation of a competent nursing staff. The medical inspector for the New York State Commission in Lunacy, Dr. William L. Russell, says that "nothing has contributed more to the hospitalization of asylums than the establishment in them of training schools for nurses."

Miss Anne Goodrich, whose duties as inspector of training schools in the state of New York call her into the state hospitals for the insane, points out interestingly the difference in the care of patients in two types of institutions: the one in which the work is largely done by attendants, and the other in which it is done by student-nurses in training. She says the difference is marked, and it lies, not only or chiefly in greater external order, precision, cleanliness, but in that all-pervading, yet almost indescribable thing, known as tone or spirit. The outlook, the point of view of the student-nurse is usually wholly different from that of the attendant. In the one instance, the effort is to keep the patient clean, comfortable and contentedly occupied; in the other the interest is scientific as well as humane; it is concerned with the progress of the patient, with the effect of treatment, with those changes in attitude and behavior, which may be very fine, very subtle, yet very significant. Such conditions, upon which correct diagnosis and adjustments of treatment depend, are apt to elude any but the intelligently interested and closely observant student.

To those familiar with the dependence of physicians upon nurses in our great teaching hospitals, it will seem quite clear that wherever physicians are engaged in the serious study of mental disorders, in experiment and research, there will be needed to supplement their efforts the work of educated and carefully trained nurses. I do not, in fact, see how the proper study of insanity can take place, how physicians can carry through all the stages of experiment which appear to be indispensable to progress, without the constant use of those observations which hardly any one but the nurse, who lives with her patients in the wards, is in a position to make. Dr. Richard Cabot, who has done much to stimulate us to better effort, has more than once noted the fact that we are not yet in our general medical work making full use of the observations for which we are peculiarly dependent upon nurses. He says, "Especially in symptomatology and therapeutics, the nurse has a far better opportunity than the doctor to make discoveries, because she sees so much more than he does of the effects of treatment and of the details of symptoms from hour to hour."

The proper nursing of the mentally sick, however, important as it is, is not, I am inclined to think, the chief contribution which nurses may eventually make in this field of work. Now that we have revealed to us certain well-defined causes of insanity and others recognized, but as yet dimly defined, this whole work takes on a new aspect and a new life. To the knowledge that proper medical treatment and nursing of mental disorders ensures a larger hope of recovery, is added that knowledge of infinitely greater significance, that causes are known and can be dealt with, and thus measures for the prevention of insanity are taking a prominent place in medical thought and action of the day. Among these measures, education stands in the forefront. It is the clearest of duties to get into use speedily such knowledge on this subject as is available and usable by the ordinary man or woman, and to do this in as many ways and through as many agencies as can be accepted for the purpose. I have little hesitation in urging that nurses, and visiting and school nurses in particular, may be reckoned among the valuable agencies in getting before the people in a direct and simple way, some of this needed information and instruction; for nurses do enter freely into homes, are usually welcome visitors, and may, if they are able, penetrate deeply into the problems of home and family life.

Armed with more definite and wider knowledge of the causes of insanity, and given some specific training in the observation and care of patients with mental disorders, they could take advantage, such as they are not now able to take, of the opportunities which lie actually in their daily paths. It seems probable that a good many unrecognized or neglected patients might be found and placed under proper care, and it seems certain that the influences and environment of children in their homes, which are likely to culminate later in producing mental troubles, might be recognized and in some degree changed. From this standpoint alone, the teaching by nurses of the vast and far-reaching importance of childish habits may be among the most fruitful of their daily tasks. Nor should we exclude from this obligation the vast army of private nurses, who, going from household to household, may find exceptionally valuable opportunities for presenting in the plainest and simplest way some of the important facts relating to the production and to the prevention of insanity,—that chance for prevention which

exists according to Dr. Starr in about 35% of all cases.

Pathetically little can be done in any of these directions until we have found some way of giving a suitable place to this subject in the regular training schools in which our nurses are educated. If you ask me if some such instruction should form a part of the training of every nurse, I am obliged to answer "yes." I do believe that it should, first because I know of no way by which the nurse can ensure that she will not have to meet and care for mental disorders as a complication of ordinary diseases in the course of her regular work, and second because of the increased importance of mental disorders and the larger place they are taking in medical and public interest. Insanity appears to be increasing. Dr. Russell speaks of it as a "rising tide." Dr. Rosanoff says that it is increasing at a rate which is about two times as great as the rate of increase of the general population. Whether the real increase is as great as it seems, this much at any rate appears to be true, the actual number of patients with mental troubles to be cared for is increasing everywhere. This fact alone makes an undeniable appeal to nurses, which, through them should eventually react back upon our schools of nursing; for, if these schools are to meet the needs of the times, they must carefully study the expanding field in which nursing knowledge is to be applied, enlarging their curricula and adjusting their methods of instruction to include new conditions of disease, or better understanding of old ones. The recognition of insanity as a disease seems, therefore, to have brought a new obligation to training schools.

This important special branch of nursing should not be left out of consideration to be handled entirely independently of the general scheme of education for nurses. For such special training should at all times rest upon a basis of general training. It should be placed at a stage in the education of the nurse when she is well grounded in her preliminary sciences, and has sufficient command of nursing principles and methods to be able to supply them under new and peculiar conditions. For it must constantly be kept in mind that many mental troubles are based upon physical disorders, not infrequently of a grave nature; that the death-rate in insanity is high; that many mental troubles are constantly accompanied by bodily ailments and weaknesses. Every resource which the student-nurse has learned to apply in her medical and surgical nursing may be called into requisition here. The student, therefore, should have had a considerable training in general nursing before proceeding to this special branch, more difficult, more complex, baffling often even to the most intelligent efforts and study, and making in all instances a new and special demand upon faculties trained to comprehend in some degree the nature of these demands. Dr. Albert Ferris, president of the New York State Commission on Lunacy, very clearly shows what is needed. "Medical care," he says, "and nursing should be as complete as in the case of any other grave form of illness." "The tenderest nursing is essential from the start," since the earliest treatment is often the most important. He draws a charming picture of the conditions under which such nursing should be done, of the impressions and influences which should surround such patients as a part of their treatment,—an ideal psychopathic ward in fact.

In a few of our great teaching hospitals such departments have been established, and at the Albany, Bellevue, the Johns Hopkins Hospitals, students from the training schools are taking a period of training in mental work as a part of their regular course. I learn from Miss Taylor, the supervising nurse of the Phipps Psychiatric Clinic in Baltimore, that a good many of the students become so deeply interested in the work that they beg for longer training, and I presume this is true of the other institutions. This is, of course, precisely what is looked for and desired. It is from such students, those who have shown particular interest, aptitude and fitness, whose interest, in fact, impels them to seek further and more thorough preparation, that the special workers in this field of mental, or as it is here called, psychopathic nursing, will be drawn. It should rank as one of the higher branches of nursing.

While as yet the hospitals with psychopathic wards or departments are few, institutions for the care of mental diseases are many, and abundant opportunities could doubtless be secured in some of them for instruction and training. There should be little difficulty in arranging for the admission of student-nurses for a definite period, say three or four months, in their senior year, and it is to be hoped that a good many of our older and leading training schools will ultimately effect some such relationship.

Probably the best next step would be the provision of a few really satisfactory courses of post-graduate study and training in mental nursing; something which would reach and interest the large body of graduate nurses,—courses in the formation of which all the resources of the institutions offering them were called upon; the instruction worthy of serious consideration; the practical work kept within rational limits for a student body. To such a scheme of instruction a social service department might contribute a valuable part. It seems probable that a psychopathic hospital with a well-organized teaching plan could receive both students in training and graduate students. But, of course, to do either in any adequate way, it must look far beyond the problem of its own current needs and approach the matter as an educational branch of work, to be handled as such.

The great importance of the subject, both from the standpoint of the individual and of our

entire social system, is a sufficient reason for an urgent effort to bring more and better trained workers to its problems; and the unusual interest and enthusiasm of those nurses who are already at work in this field is an incentive and an encouragement to those who would follow.

A COMPARISON OF THE DRUGS USED IN GENERAL AND MENTAL HOSPITALS.*

BY DONALD GREGG, M.D., BOSTON,

Assistant Physician, Out-Patient Department, Psychopathic Hospital.

A GENERATION ago one of the best of Boston physicians wrote to the effect: "We doctors give medicine to our patients, a little to our friends, but we never take any ourselves." On this basis, the Psychopathic Hospital treats its patients,—in a more friendly way than do most general hospitals.

An examination of the requisition blanks of the Psychopathic Hospital shows that 70 different drugs have been ordered for the hospital during the past six months. The formulary of the Boston City Hospital shows 194 different drugs, and that of the Massachusetts General Hospital, 160 drugs. But the drugs ordered for a hospital dispensary, or the drugs named in a formulary, are a poor index of the medication acutally given.

In giving medicine, one or more of three objects is sought: First, to combat directly the processes causing a disease, or its resultant poison. Second, to assist the patient so that he is given strength and ability to resist the disease to best advantage. Third, to reassure the patient or his friends that something is being done for him in accordance with the idea that still lies deep-rooted in most human minds that for every disease there is some curative drug.

The medicines that act specifically against certain diseases, or resultant poisons, are few and far between,—quinine in malaria, arsenic and mercury in syphilis, antitoxin in diphtheria, etc. The medicines that assist the patient to overcome his disease are many, and include the vaccines and organic preparations of modern medicine, stimulants and depressants when properly used, and drugs that help eliminate poisons of all sorts. In the giving of these medicines, lies the widest field of activity and skill for doctor and nurse. The giving of drugs to reassure the patient, when rightly done, is one type of psychotherapy.

It is naturally to be expected that the drugs commonly used in general hospitals and mental hospitals differ. With the exception of syphilis, cretinism, and myxedema, there is rarely found in a mental hospital a disease that needs a specific medicine, and in many cases the mental abnormality is too great for drug psychotherapy to be useful.

In the use of drugs that help the patient to overcome his illness, there are many chances for investigation and research. The success of the treatment of delirium tremens at the Psychopathic Hospital with baths, packs, and elimination instead of stimulation, depressants and restraint, as commonly used in general hospitals, has already been demonstrated.

The following table was obtained from an examination of the order books of the six wards at the Psychopathic Hospital, in which 877 orders were written for treatment during the month of January, 1914:—

Average number of cases			95
Total orders			877
Baths	343	39%	86%
Packs	80	9%	
Eliminatives	330	38%	
Stimulants	51	6%	14%
Depressants	33	3.5%	
Miscellaneous	40	4.5%	

Of the 877 orders, 86% were for baths, packs, and elimination, while only 14% were for stimulants, depressants and other medications. Perhaps the most striking figure is that 33, or only 3½%, of the orders, were for depressant drugs. These orders include those for morphia, bromides, veronal, etc., and total only about one order a day for the 95 cases in the hospital. The next most striking figure is that of 343 baths,—most of them continuous baths,—and means that during the 31 days of the month, the 12 tubs used for prolonged baths were all in great demand.

The problems in medication at mental hospitals lie in refinement of the use of drugs for purposes of elimination, in decreasing autointoxication, and in rectifying pathological action of the internal secretions. In eliminating substances from the body, there is ample chance for skilful medication. There are cases needing mechanical relief by enemata, cases needing to have the fluids drained off by purges, and cases that are already desiccated and need more fluid, although still requiring relief from intestinal stasis. There are acute cases that may even need to be bled to reduce their fluids, or to have lumbar punctures done to lessen an excessive amount of cerebrospinal fluid. There are cases where autointoxication arises from infected teeth, or tonsils, or from misplaced and adherent intestines. There are cases where presumably the thyroid, thymus or pituitary glands, or the reproductive organs, are not functioning properly. In all these directions lie problems in medication for cases in mental hospitals.

General hospitals have many lessons to learn from mental hospitals, especially in the management of the deliria. Not the least of these lessons is that depressants, stimulants, and re-

* Psychopathic Hospital Contributions Number 46 (1914.12), a paper read at a Conference on Modern Developments in Mental Nursing, February 16, 1914.

straint lessen, whereas baths, packs, and elimination greatly increase a patient's chance for recovery. Workers in mental hospitals cannot but profit by a thorough knowledge of the best methods of medication in use at general hospitals, and workers in general hospitals can lose nothing, but gain much, by familiarity with the best methods in use at mental hospitals, for every patient needing treatment has the right to have his mental activities properly cared for at a general hospital, and his physical activities equally well attended to at a mental hospital.

REMARKS AT CONFERENCE ON MODERN DEVELOPMENTS IN MENTAL NURSING, FEBRUARY 16, 1914.*

By Charles William Eliot, LL.D., M.D. (Hon.), Cambridge, Mass.

I came here today because I wanted to learn about the next great piece of progressive work in developing nursing. I think it was Dr. Adler who referred just now to the fact that the professional training of nurses began only about forty or fifty years ago. I distinctly remember hearing one of the most eminent surgeons in Boston, when it was proposed to have a training school for nurses established at the Massachusetts General Hospital, declare with much warmth, that such a school would be a great injury to the medical profession and to society, that nurses ought not to be trained, that there ought not to be any such calling, and that he could not protest too strongly against the association of a training school for nurses with the Massachusetts General Hospital. That argumentation was possible for an able man only about forty-five years ago.

Here, in this state establishment, there is beginning a new departure in the training of nurses, which is to be a great advance for the profession of nursing, because mental nursing is much more difficult than any other kind of nursing. At the same time, the need of skilful mental nursing is urgent indeed, and will soon be generally recognized in this community. It offers a new calling for women, and for women who possess qualities which are rarer and higher than those necessary for the general hospital nurse. One of the qualities the mental nurse should possess in large measure,—indeed it is essential to her success,—is courage, courage of a different sort from that which most vigorous men exhibit. When it comes to dealing with excited or violent patients, women cannot rely on their own physical force or strength as men can. They have to rely on a personal influence which has mental and spiritual sources. They must possess the courage that is visibly associated with tenderness and bodily weakness, a kind of courage which, fortunately, is peculiarly fascinating to men. This was brought home to me very acutely while I was recovering in Kandy, Ceylon, from an operation for appendicitis. The attack had been a serious one, the wound was in the worst possible condition, and my strength was wholly gone. I never knew before what a physical thing courage is in man; but when I was so weak that I could neither stand nor sit up, I found out. There was in the hospital at the same time a young man of powerful physique, suffering from delirium tremens. One afternoon I was lying in a long wicker chair on the veranda of the hospital,—quite unable to get out of it,—when suddenly I saw this delirium tremens patient approaching me. He had his arms round the necks of his two Singhalese attendants, and he was pushing and dragging them along; he had broken out of his room, and they apparently had no control over him. The group came on rapidly, staggering and plunging from side to side. At one side of my chair my granddaughter was sitting, and on the other side my secretary, but they had their backs to the approaching trio. He came to the foot of my chair and, the two attendants being unable to prevent him, he reached forward and said, "I want to shake your hand." It was as much as I could do to accommodate him with that gesture. He then turned to my granddaughter and remarked, "Good evening, I think I have met you before." Possibly he had, for she often walked about the hospital. Then he turned to my secretary on the other side, who was a large, tall man, and suddenly took offence and looked dangerous. At that moment a little Danish nurse dashed out from a passage nearby, arrived in front of this man, and instantly tackled him with words only. She didn't touch him, only spoke to him; but her manner and what she said controlled him instantly. He turned, followed by her closely, went at once to his room and got into bed. This is the kind of woman that you want for mental nurse, and the community needs many of them. The mental nurse also needs alertness, keen powers of observation, incessant watchfulness, and inexhaustible patience, and withal capacity for pleasant companionship. These are fine moral qualities resting on firm foundations of health and cheerful vitality. It is a noble profession for which this hospital hopes to train women.

* Being Psychopathic Hospital Contributions Number 47 (1914.13) a paper read at a conference on Modern Developments in Mental Nursing, February 16, 1914.

Cases of infectious diseases reported to the Boston Board of Health for week ending Sept. 15, 1914: diphtheria, 29; scarlatina, 20, of which 2 are non-resident; typhoid fever, 18, of which 2 are non-resident; measles, 13, of which 3 are non-resident; tuberculosis, 42, of which 3 are non resident. Death rate for week, 12.43. Non-resident cases are included in total cases.

ANALYSIS OF RECOVERIES AT THE PSYCHOPATHIC HOSPITAL, BOSTON: I. ONE HUNDRED CASES, 1912-1913, CONSIDERED ESPECIALLY FROM THE STANDPOINT OF NURSING.*

BY E. E. SOUTHARD, M.D., BOSTON.

Director, Psychopathic Hospital, Boston; Pathologist Massachusetts Board of Insanity; Bullard Professor of Neuropathology, Harvard Medical School, Boston, Mass.

THERE is an old Greek saying that we can't be sure of a man's happiness until he dies. And it is certainly true that we can tell much more about most cases of mental disease after their courses are run,—and, if possible, a thorough autopsy has been conscientiously performed, in each case, with scrutiny both of the brain and of the organs of the trunk. Only then can what Kraepelin has termed the longitudinal section of the patient's disease be examined, with all or almost all the body's difficulties revealed or indicated.

So true is this that it sometimes seems to me an impertinence to draw sweeping conclusions from inspection of a brief period of any man's life, especially from the turbid conditions that inform and surround the mental patient's life. Particularly perplexing are the cases that recover, whether or no they succumb to further attacks. Particularly, too, those which eventual autopsy determines to have suffered no especial wasting or scarring, or other injury of the brain. Such cases appeared in the Danvers series which I have been working over since 1909 to the number of 235 in 1000. About one case in four, then, failed to yield to the brain examiner any signs of loss of brain tissue, such as would be almost sure to appear had the brain disease been destroying many cells for three months or so before death.

Curiously enough, accordingly, my interest in proving various brains normal (or their conditions in some sense *reversible*, so that the brains, if diseased, should return to normal) has led me to look with especial interest upon the recoveries which the Psychopathic Hospital has more or less to its credit. I use the latter phrase because I had such difficulty in dissuading some of our eager workers from using the term "cure" instead of the term "recovery." Naturally, as in medicine at large, the *vis medicatrix naturae* is often more in evidence than the *vis ipsius medici*.

I have, therefore, concluded to study our recoveries by hundreds until a sufficient basis is obtained for generalizations as to the various factors making for recovery. This first series is somewhat unfavorable for the purpose of generalizations about the major types of recoverable insanity, since, although our problem is only about one-ninth alcoholic, the quick recoveries from various forms of alcoholic mental disease made the alcoholic cases so rapidly outstrip the other recovered cases as to make the alcoholic cases quite dominate the picture.

The following transcripts from charts explanatory of the general scope of our work demonstrate the above statements:

PSYCHOPATHIC HOSPITAL.
BOSTON, 1913.

For all classes of mental patients *except* regular court commitments.
Of its admissions:
About one-sixth are not insane.
About one-fourth are voluntary.
About one-half avoid expense and "stigma" of court commitment during the year.

1912-3.

Alcoholic Psychoses form one-ninth of Cases admitted	(217-1829)	
Alcoholic psychoses	217	
Acute hallucinosis	116	
Delirium tremens	64	
Other forms	37	

1912-3.

All admissions		1523
Remaining in some institution	752	
Discharged	771	
Not recovered 340		392
Dead 52		
Not insane 250		379
Recovered 129		

1913.

All admissions		1523
Temporary care	978	
Seven days	584	
Chap. 395, Acts 1911		
Boston police	394	
Chap. 307, Acts 1910		
Voluntary	362	
Other legal forms	183	

In partial explanation of these tables and to permit a better understanding of the group of recoveries about to be listed, let me say that the Psychopathic Hospital is a hospital of 110 beds, which is planned to be operated at about 100 beds. It is a state institution,—an integral part of the Boston State Hospital. It was planned and constructed in such a way as to present itself to the public on an entirely different footing from that of the other state institutions. It is clear from some of the data presented in the above tables that the institution has begun to perform its differential task. For example, out of 1523 patients admitted during the last year, there were 362 which were admitted as *voluntary patients*. Moreover, out of these 1523 patients, there were 250 which we were able to discharge as *not insane*. The "not insane" group was composed not merely of voluntaries, but of various other types of admission. All of these "not insane" cases had had their mental

* Read at abstract at the conference on Modern Developments in Mental Nursing, held at the Psychopathic Hospital, February 16, 1914. Being Contributions from the Psychopathic Hospital, Boston, Mass., Number 48 (1914.14). *Bibliographical Note.* The previous contribution (1914.13) was by Charles W. Eliot, "Remarks at Conference on Modern Developments in Nursing," published in BOSTON MEDICAL AND SURGICAL JOURNAL, vol. CLXXI, p. 477.

problems to solve. Although these problems are very possibly not in all cases solved forever (many of the patients were of the psychoneurotic group), yet the hospital in so far may be considered to have fulfilled a portion of its new function. It is clear that such percentages of voluntary admissions and of cases which are later discharged as "not insane" are not the rule in existing types of state institutions for the insane, either in this state or in others.

Another feature which differentiates this institution from other state institutions is the very rapidly developing out-patient department, which is now receiving at the rate of over 800 new cases a year. To this department are discharged the recovered cases, and, although the department was not fully organized during the period from which the present series of 100 recoveries is drawn, yet it appears by the records that 53 of the 100 recoveries appeared at the out-patient department or were investigated by social workers connected with that department.

It may be added that the average stay of patients at the institution is but three or four weeks, although in cases of special diagnostic or therapeutic interest, there is no rule against keeping patients indefinitely, and a number have been kept for relatively long periods for observation and treatment.

With this brief and inadequate sketch of the present status of the Psychopathic Hospital problem, I will pass to a consideration of the first 100 recoveries, referring the interested reader to other official and semi-official publications concerning the Psychopathic Hospital's scope. The first 100 recoveries came within a period dating from the opening of the hospital, June 24, 1912, to about the middle of 1913.

AGE RATIO.

The average age of the group is 40. This demonstrates that our series does not include many cases of the group ordinarily thought recoverable, since many cases with attacks of manic-depressive insanity and of dementia precox should be recovered at far below the age of 40.

The average age of the 30 females was 36; that of the 70 males was 41.

DURATION RATIO.

The average duration of hospital stay in these cases was about 24 days. The duration of hospital stay in the case of women was about four weeks (27 days) on the average; of men, about three weeks (22 days).

The recoveries of the first hundred *persons* involved counting 108 recoveries of *cases*, since there were 7 instances of two recoveries in the same case and 1 instance of 3 recoveries in the same case.

SYPHILIS RATIO.

After routine Wassermann tests for syphilis had been established, 62 serum tests were performed in this group of 100 recovered cases, and of these 62, 9 were positive. The percentage (15%) is exactly the same as that for the total group of 1671 cases performed since our routine was established.

Following are cases in which the condition of the cerebrospinal fluid was of interest, especially in connection with the fact that these are "recovered" cases.

J. D., 1915, 12,010, M., 51, is a case interesting in that he was recovered from what was termed *delirium tremens* despite the fact that he had a positive Wassermann reaction in the spinal fluid, together with a small number of lymphocytes and albumin. The Wassermann reaction in the blood serum was very slightly positive, if at all positive. This may have been due to the alcoholism inasmuch as there appear to be cases in which the alcohol has diminished the Wassermann reaction. The pupils reacted very slightly, if at all, the knee-jerks were diminished and the ankle-jerks absent. There were various areas of anesthesia. Diagnoses of general paresis, delirium tremens, alcoholic hallucinosis and unclassified organic condition were considered. It is possible that this case should not figure as a recovery.

M. H., 11,233, F., 35, also recovered from alcoholic mental disease, regarded as alcoholic hallucinosis (alcohol denied) after twenty-six days' hospital stay, despite the fact that the cerebrospinal fluid gave a positive Wassermann reaction (serum negative, however). There were some peculiar features in the case which led to a provisional diagnosis of manic phase, manic depressive insanity. Possibly it is a case of syphilitic paranoia.

The patient consistently denied the use of intoxicants nor is there any proof that she drank alcohol. Her one brother is somewhat alcoholic. The illness began with depression and inactivity accounted for by her friends on the basis of the departure of a lover for Ireland. A few days later the patient was dizzy and refused to give her boarder breakfast, stated that she had lost her memory and began to hear bells ringing and people knocking. This phase was rapidly followed by a phase of excitement which was quieted at the hospital by the use of prolonged baths. It was a question whether orientation was wholly preserved on admission.

As to previous physical history, it is stated that patient had had stomach trouble and was troubled with headaches which patient stated were in the top of her head or sometimes in the temples. The physical examination showed the left pupil larger than the right, a slight tremor of lips, a slight systolic murmur at the apex, slightly irregular pulse, moderate edema of ankles. Patient was inclined to be peevish, somewhat resistive and pugnacious, rather slow in speech, sometimes refusing to answer and grimacing. She on this account produced somewhat the impression of being slightly feeble-minded. Mental tests by Binet and other methods demonstrated that patient was from this point of view hardly over eleven years old.

Her pugnacity was easily controllable, her mania was largely at night. She developed a fairly characteristic mania suggesting manic depressive insanity in the first four days after entrance but this

rather rapidly subsided in the course of a few days, and patient was discharged on six months' visit, twenty-six days after admission.

Further history is for the time being lacking. The patient was twice introduced into staff meetings for unclassified cases and the discussion developed suggestions as follows:

Unclassified mania; manic depressive insanity, manic phase; toxic delirium; dementia precox; bacterial infection of the brain; unclassified delirium; acute delirium; infectious psychosis; acute confusional insanity; psychopathic personality, modified by the use of alcohol; mentally deficient with atypical mental state. It was the writer's opinion that the case belonged in the manic depressive group.

As for syphilitic paranoia, or paranoid brain syphilis, Kraepelin in 1910 remarks that the group is very uncertain and almost unknown. Paranoid brain syphilis is a mental disease in which delusion formation and hallucinations are prominent, but physical disorders are not much in evidence. The onset of the disease is sometimes slow and insidious and sometimes tolerably sudden after various indefinite prodromata,—distraught conditions, irritability, excitement, occasionally after an attack of dizziness or a fainting spell. The patients become mistrustful, apprehensive, restless and deluded. Ideas of jealousy are very frequent, sometimes attended with great sexual excitement. Ideas of persecution are especially in evidence, accompanied by numerous auditory hallucinations, as well as others. The patients often have a distinct feeling of being ill; occasionally self-condemnatory ideas are uttered.

As a rule, patients remain quite clear, but there may be transient spells of unclearness. Mood variable, with a tendency to dulling and uncommunicativeness. Kraepelin remarks that it was particularly striking in a series of his cases that there was a sudden occurrence and equally sudden disappearance of extremely violent excitement, with or without external cause. These excitements were produced by a few words spoken, and immediately after the phase of excitement the patient would become friendly and accessible again, as if nothing had happened. Conduct as a rule quiet and orderly. Seizures are very common. Kraepelin enumerates a series of physical symptoms which occasionally occur and states that in about half of his cases there was a positive Wassermann reaction in the blood. But now and again all these signs were absent, although autopsy later showed the existence of syphilitic cortical disorder. Insomnia and headaches are frequent.

The course of the disease is characteristically very slow. The disorder may retreat completely into the background for long periods. Sometimes there is a condition of more or less pronounced mental weakness, with loss of judgment, senseless delusions, emotional dulling and loss of capacity to work. Kraepelin states that the relation of such phenomena to syphilis cannot be doubted on account of the autopsy findings and calls attention to the fact that similar pictures are observed in tabes.

Kraepelin thinks that most of the cases that belong to this group have previously been placed in the dementia precox or paranoid dementia groups. However, these cases lack the characteristic will disorder of those groups and lack the characteristic cleavage of personality which they would early show. As a rule, patients preserve their outward demeanor well and remain accessible and social. However, in far advanced cases catatonic phenomena are sometimes found.

Several of the patients belonging to this group of Kraepelin were regarded by him for some time as general paretics on account of slight physical signs pointing in this direction, and on account of the influencibility of their mood and action. However, the absence of speech and writing disorder, the absence of disorientation for time, and absence of all general weakness of the understanding tended to contraindicate the diagnosis of paresis.

DISORDER OF HEAT-REGULATION.

One way of ascertaining how much of a nursing problem these recoveries were is to consider how many cases showed either fever or decidedly low temperature. For assuredly all cases of seriously altered heat-regulation mean good nursing if life and health are to be maintained. Counting cases with 100° or more as showing fever and cases running less than 98° as hypothermic, we find at least 37 cases with either fever or hypothermia. Seven of the 37 had both of these signs at different times. Put another way, there were 23 cases of temperature 100° or above, and 21 with temperature below 98° at some time.

The older writers used to define insanity as chronic non-febrile disease affecting the mind. Whether the disorder of heat-regulation is incidental to the mental disease in the sense of being due to complications, or is in any way more fundamental in some cases, is for the present argument of no consequence. The necessity of good nursing in these cases is clear, and the advantage of general hospital standards in the nurses' attitude to the problem is likewise clear.

In connection with this problem of proper nursing in hospitals like the Psychopathic Hospital, I may be permitted to quote from a letter sent to the committee of superintendents dealing with the general aspects of the nursing problem for the insane:—

"My opinions are not, I find, as radical as you suggested (doubtless on general grounds) that they would be. I had thought my opinions would be found novel. They are not; since upon my recent trip to Washington, Baltimore and Philadelphia, I found that Dr. W. A. White of the Government Hospital, Drs. Winford Smith and Adolf Meyer of Johns Hopkins Hospital, and Dr. Owen Copp of the Pennsylvania Hospital for the Insane, are in gen-

eral accord with these opinions. In point of fact, Dr. Winford Smith, superintendent of Johns Hopkins Hospital, is endeavoring to secure exactly the same kind of thing in which I am now interested—viz., the development of a higher type of insane hospital nurse which we may call the psychopathic hospital type.

"I should be in general accord with those who believe in grading, or as developing a stratified nursing force, having at the bottom persons of a custodial type corresponding to the orderlies of general hospitals, and above them a stratum composed chiefly of women of a higher grade. I should of course encourage persons in the orderly or maid servant group to endeavor to rise to the higher or training school grade, but I should be inclined to give up the idea of putting 'round pegs in square holes' by insisting on persons of all grades of intelligence going through the same training school. This can but pull down the general average of the training school.

"As to the training school itself for state hospitals, I should advocate the inclusion of more features recalling those of general hospitals. I should like to have more insistence laid upon the part played by physicians in lecturing and giving practical demonstrations to nurses. In some general hospitals it has been the custom to pay physicians extra for their work in lecturing and demonstrating: this secures better work. In Massachusetts, however, this plan could not be adopted, but an increase of salary could be granted to persons desirous of spending extra time in this manner.

"Above the two grades just mentioned, I should like to see developed a higher grade of nurses for the insane. The new type of nurse might be termed briefly the psychopathic hospital type. The grade should be founded upon a course pursued subsequent to the general hospital course. The proper length of such a post-graduate nursing course is a matter of doubt but might provisionally be placed at six months. A certificate or diploma should be granted for this work.

"The salary for persons taking this course should naturally be low, perhaps merely enough to cover the cost of uniforms, etc., but the course should be so elaborate, well-conceived and attractive that there would be no difficulty in securing graduates of general hospitals to take the course. Indeed I should say that any course proposed to be of this type which should fail to secure an adequate supply of general hospital graduate nurses would have to be marked down as a failure.

"To develop this grade of nurse, it would be necessary to give the general hospital graduate nurses as good food and living conditions as they have been accustomed to in general hospitals. This would mean placing them in more special quarters and giving them more dignity than is at present accorded to nurses and attendants in most of our state hospitals for the insane.

"So much will suffice for an utterly inadequate sketch of what I shall try to develop at the Psychopathic Hospital in the near future. I do not believe that much money can be saved to an institution which should try to develop this plan, since the money saved upon salaries will undoubtedly have to be spent upon food, quarters and teaching materials.

"I gathered from Dr. White of the Government Hospital that he was of the opinion that such doubly-trained nurses, that is, nurses with general hospital training plus graduate psychopathic hospital training, would secure good places in private practice. At all events it is clear that these nurses would be better nurses even in general nursing practice than otherwise. But here as in many other proposals, 'the proof of the pudding is in the eating.' To make these general hospital nurses come to us, we must do more for them than in the past and we must not take them from a busy, energetic surgical or medical service to a routine composed of nothing but vigilance and hope to attract a constant stream. One of the troubles with our present system, as general hospital nurses see it, is that they find insane hospital work to consist largely of 'watchful waiting' instead of constructive treatment."

CHANGES IN DIAGNOSIS.

Changes in diagnosis occurred in six cases during a single period of observation:—

11,215	*Alcoholic hallucinosis*, to *delirium tremens*.
11,611	*Delirium tremens* to *alcoholic hallucinosis*.
938	*Alcoholic hallucinosis* to doubtful form of *alcoholic psychosis*.
1,075	*Delirium tremens* to *alcoholic hallucinosis*.
1,774	Same.
1,841	*Alcoholic hallucinosis* to *delirium tremens*.

Changes in diagnosis in persons recovering two or more times, that is, during two or more separate periods of observation which occurred in cases:—

11,007	F.	28	*Unclassified;* to 11,114, *alcoholic hallucinosis;* to 12,196, *dementia precox*.
11,753	M.	40	*Alcoholic hallucinosis;* to 11,882, *delirium tremens*.
11,603	M.	60	*Alcoholic hallucinosis;* to 11,170, either *unclassified* or *cerebral arteriosclerotic insanity* or *alcoholic hallucinosis*.
1,188	M.	35	*Alcoholic hallucinosis;* to 1,703, *unclassified*.
1,736	M.	43	*Unclassified;* to 1,831, *alcoholic delusional insanity*.

Recoveries in persons in the third decade of life (21 to 30 years) were as follows:

11,007, 11,114, 12,196	F.	29	(1) *unclassified*, 32 days; (2) *alcoholic hallucinosis*, 61 days; (3) *dementia precox*, 25 days.
11,316	M.	21	*Manic-depressive insanity*, 79 days.
11,069	F.	29	*Alcoholic hallucinosis*, 8 days.
11,056	M.	29	*Alcoholic hallucinosis*, 36 days.
11,255	F.	28	*Alcoholic hallucinosis*, 49 days.
10,991	F.	21	*Dementia precox, catatonic*, 91 days.
11,119, 11,207	F.	21	(1) *manic depressive insanity*, 30 days; (2) *manic depressive (manic phase)* 20 days.
911	F.	29	*Alcoholic hallucinosis*, 36 days.
946	M.	26	*Alcoholic psychosis*, 11 days.
958	M.	25	*Alcoholic psychosis*, 6 days.
969	F.	28	*Alcoholic hallucinosis*, 13 days.
1,022	M.	23	*Delirium tremens*, 16 days.
1,147	F.	24	*Alcoholic hallucinosis*, 30 days.
1,159	M.	27	*Alcoholic hallucinosis*, 27 days.
1,378	F.	24	*Alcoholic hallucinosis* (syphilis), 23 days.
1,425, 1,633	M.	26	(1) *dementia precox, catatonic episode*, 16 days; (2) *dementia precox* (discharged unrecovered), 4 days.
1,774	M.	28	*Delirium tremens*, 19 days.
11,940	M.	28	*Delirium tremens*, 7 days.

Recoveries in persons in the fourth decade of life (30 to 40 years) were as follows:

11,073	M.	33	*Alcoholic hallucinosis*, 23 days.
11,124	M.	40	*Alcoholic psychosis*, 15 days.
11,371	M.	39	*Alcoholic hallucinosis*, 18 days.
11,413	M.	40	*Delirium tremens*, 14 days.
11,233	F.	35	*Alcoholic hallucinosis*, 26 days.
11,753, 11,882	M.	40	(1) *alcoholic hallucinosis*, 14 days; (2) *delirium tremens*, 11 days.
10,920	F.	35	*Exhaustion psychosis*, 24 days.
11,067	M.	40	*Delirium tremens*, 9 days.
12,266	M.	38	*Alcoholic hallucinosis*, 4 days.
870	M.	40	*Delirium tremens*, 11 days.
878	F.	34	*Alcoholic hallucinosis*, 10 days.
900	M.	40	*Alcoholic hallucinosis*, 1 month.
916	M.	37	*Alcoholic hallucinosis*, 18 days.
907	F.	35	*Alcoholic hallucinosis*, 1 month, 5 days.
968	F.	36	*Alcoholic hallucinosis*, 21 days.
967	F.	35	*Delirium tremens*, 16 days.
1,008	M.	36	*Delirium tremens*, 11 days.
1,014	M.	30	*Delirium tremens*, 7 days.
1,068	F.	38	*Alcoholic hallucinosis*, 12 days.
1,060	M.	33	*Alcoholic hallucinosis*, 10 days.
1,000	M.	35	*Delirium tremens (epilepsy)*, 1 mon., 9 days.
1,188, 1,703	M.	35	*Alcoholic hallucinosis* or *classified*, (1) 18 days, (2) 4 days.
1,201	M.	31	*Delirium tremens*, 24 days.
1,278	M.	36	*Delirium tremens (epilepsy)*, 8 days.
1,391	F.	38	*Alcoholic hallucinosis*, 22 days.
1,483	M.	40	*Delirium tremens*, 7 days.
1,532	M.	35	*Delirium tremens*, 11 days.
1,546	M.	37	*Alcoholic hallucinosis*, 5 days.
1,657	M.	40	*Alcoholic hallucinosis*, 10 days.
1,668	M.	40	*Delirium tremens*, 10 days.
1,739	M.	39	*Alcoholic hallucinosis*, 11 days.
11,116 11,926	M.	39	*Alcoholic hallucinosis*, (1) 17 days, (2) 13 days.
11,891	M.	36	*Delirium tremens*, 2 months, 13 days.
11,989	F.	40	*Alcoholic psychosis*, 20 days.

Recoveries in persons in the fifth decade of life (41 to 50 years) were as follows:—

10,845	M.	42	*Alcoholic hallucinosis*, 4 months, 3 days.
11,215	M.	47	*Alcoholic hallucinosis*, altered to *delirium tremens*, 12 days.
10,758	M.	42	*Alcoholic hallucinosis*, 1 month, 15 days.
11,592	M.	47	*Unclassified (alcoholic hallucinosis?)*, 7 days.
11,434	M.	47	*Delirium tremens*, 2 months, 9 days.
11,557	F.	43	*Unclassified (depression)*, 18 days.
11,858	M.	43	*Delirium tremens*, 12 days.
11,597	F.	42	*Alcoholic hallucinosis*, 1 month, 23 days.
888	M.	47	*Intoxication*, 1 day.
970	F.	41	*Delirium tremens*, 10 days.
985	M.	44	*Alcoholic hallucinosis*, 13 days.
1,021	F.	41	*Alcoholic hallucinosis*, 23 days.
1,047	M.	44	*Alcoholic hallucinosis*, 7 days.
1,062	M.	48	*Delirium tremens*, 21 days.
1,075	M.	45	*Alcoholic hallucinosis*, 1 month, 7 days.
1,230	F.	44	*Alcoholic hallucinosis*, 16 days.
1,454	F.	43	*Delirium tremens*, 6 days.
1,510	M.	41	*Alcoholic hallucinosis*, 1 month, 14 days.
1,686	M.	45	*Delirium tremens*, 16 days.
1,719	M.	44	*Alcoholic hallucinosis*, 12 days.
1,736, 1831	M.	43	*Alcoholic delusional insanity*, (1) 16 days, (2) 7 days.
1,841	M.	43	*Delirium tremens*, 29 days.
11,804	M.	50	*Delirium tremens*, 1 month, 16 days.
11,998	M.	41	*Alcoholic hallucinosis*, 9 days.
12,026	M.	45	*Alcoholic hallucinosis*, 10 days.

All of these fifth decade cases were alcoholic.

Recoveries in persons over fifty years of age were as follows:—

10,857	F.	71	*Delirium*, 4 days.
11,611	M.	58	*Delirium tremens*, altered to *alcoholic hallucinosis*, 20 days.
11,176	M.	58	*Alcoholic hallucinosis*, 1 month, 23 days.
11,203	M.	52	*Delirium tremens (pneumonia)*, 15 days.
11,049	M.	54	*Manic-depressive insanity*, 28 days.
11,603, 11,770	M.	60	*Alcoholic hallucinosis*, 26 days; 11,770, either *unclassified* or *cerebral arteriosclerotic insanity* or *alcoholic hallucinosis*, 2 months, 2 days.
11,608	F.	63	*Delirium tremens*, 3 days.
12,274	M.	52	*Alcoholic hallucinosis*, 1 month.
915	M.	60	*Alcoholic psychosis*, 11 days.
956	M.	51	*Delirium tremens*, 29 days.
1,108	M.	52	*Delirium tremens*, 11 days.
1,190	M.	70	*Delirium tremens*, 16 days.
1,218	F.	52	*Alcoholic hallucinosis*, 6 days.
1,292	M.	51	*Delirium tremens*, 16 days.
1,191	M.	54	*Delirium tremens*, 1 month, 2 days.
1,555	M.	58	*Alcoholic hallucinosis*, 10 days.
12,010	M.	51	*Delirium tremens (general paresis?)*, 3 days.
12,004	M.	51	*Delirium tremens*, 13 days.

Thus, of these 18 recoveries in persons over fifty years of age, there were

Delirium tremens	9
Alcoholic hallucinosis, etc.	7
Delirium	1
Manic-depressive insanity	1

Recoveries outside the alcoholic group are as follows:

11,007, 11,114, 12,196, F. 28 possibly belongs in the alcoholic group, but was placed in her third attack in the dementia precox group.

10,857	F.	71	*Delirium*, 4 days.
11,316	M.	21	*Manic-depressive insanity*, 2 months, 19 days.
10,991	F.	21	*Dementia precox, catatonic*, 3 months, 1 day.
11,557	F.	43	*Unclassified (depressive)*, 18 days.
10,825	F.		*Unclassified*, 2 months, 15 days.
10,920	F.	35	*Exhaustion-psychosis*, 24 days.
10,884	F.	25	*Morphine hallucinosis*, 28 days.
11,207, 11,119	F.	21	*Manic-depressive insanity*, (1) 1 month, (2) 20 days.
11,049	M.	54	*Manic-depressive insanity*, 28 days.
1,425, 1,633	M.	26	*Dementia precox, catatonic*, 16 days; discharged in second attack unrecovered, 4 days.
1,448	F.		*Unclassified*, 13 days.

Future analyses may be made more thorough, and the elements of recovery may stand out more clearly in detail. Suffice it to say that a superficial analysis like the present amply proves several points.

First, the component of nursing cannot be omitted from these recoveries, brief as was the time of the hospital stay of the majority of cases. This is proved by the incidence of disorder of heat-regulation (fever, hypothermia) in at least 37% of the cases.

Secondly, the special value of nursing, and

particularly of hydrotherapy, stands out from the results of the treatment of alcoholic psychoses, which though they form only about one-ninth of our problem of first care, represent almost nine-tenths of our early therapeutic results.

Thirdly, the recoveries in the so-called "recoverable" forms of insanity take too long to be represented in any numbers in this first hundred of recoveries, and it may be suspected that the average hospital stay of three to four weeks is not sufficient for recoveries in groups like manic-depressive insanity.

Fourthly, the effect of psychotherapy as applied in the Psychopathic Hospital, is not a rapid effect.

Fifthly, the percentage of syphilis in the recovered cases is exactly that of the total intake of the hospital, so that this factor cannot be said to influence treatment unfavorably (two questionable syphilitic cases are more fully discussed and reference made to Kraepelin's analysis of allied conditions).

Sixthly, some index of the activities of our after-care service is afforded by the fact that nearly half of the patients either resorted voluntarily or (in some cases) were brought to the out-patient department at one or more periods subsequent to the discharge.

Seventhly, the need is apparent of nurses who shall build their psychopathic training on a sound basis of general hospital work (letter quoted, to the committee of superintendents dealing with the general aspects of the nursing problem for the insane).

IMPRESSIONS OF A GENERAL HOSPITAL NURSE BEGINNING WORK IN THE PSYCHOPATHIC HOSPITAL (BOSTON, MASSACHUSETTS).*

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I feel that I really have no right to a place on this program since I have been working in the Psychopathic Hospital less than three months. During this time, however, I have seen 500 cases of mental disease and of suspected mental disease,—a group which the physicians tell me is a very representative group. I wish to give a few impressions of the Psychopathic Hospital work from the point of view of a general nurse.

What struck me on coming to the Psychopathic Hospital was the fact that much less mere physical activity is demanded of the psychopathic hospital nurse but, on the contrary, much more in the way of endurance. A much larger number of nurses is necessary for a given number of psychopathic patients than for a given number of general hospital patients.

It would seem that one essential for a psychopathic hospital nurse is *vigilance*, so that emergencies like escapes, suicides, homicides, and the like, may be averted.

Of equal importance is *tact*. To illustrate: For many days a disturbed patient refused to eat her meals at the regular hours. It was discovered that the reason for this refusal was that the patient disliked the arrangement of the trays. When the nurse took the patient to the serving-room and permitted her to set her own tray with the same things in the same way, the patient became perfectly satisfied.

In addition to tact, the psychopathic nurse must possess *patience* to an almost unlimited degree. To illustrate: One evening recently a patient was admitted in a resistive and abusive condition. It took two nurses two hours to prepare the patient for bed, during which time the resistiveness and flow of abusive talk continued, but when the two nurses were going off duty the patient sat up in bed and said, "Good night, dears, I will see you in the morning."

Besides tact and patience, *sympathy* plays an important part in the success of the psychopathic hospital nurse. The patients themselves see this and tell each other about it. The embodiment of vigilance, tact, patience, sympathy and thorough conscientiousness in the discharge of duty would obviously be found only in the highest type of woman and in very exceptional men.

As a general hospital nurse I have been perhaps prejudiced in favor of the general hospital nurse's training as a basis for psychopathic hospital work and possibly for all those who wish to engage in the care of the insane. One reason for this is that the young women who go into general hospital training are as a general thing of the best, only picked candidates who have a certain amount of schooling being accepted as students. Again, a young woman going into the general hospital training school goes in at an impressionable age. She is under strict and almost military discipline for a period of three years, during which time patience and obedience are inculcated. The candidate for general hospital training goes voluntarily with a definite aim in view. She is stimulated by pride and her training beyond question develops character. The training is varied, and the nurse comes in contact with all kinds of individuals and emergencies.

The director, Dr. Southard, and the chief-of-staff, Dr. Adler, are insisting upon what they call the *constructive* type of psychopathic nurse, as opposed to the existing type (which may be called perhaps the *vigilance* type). It seems to me that the basis for securing the sort of "con-

* Being Contributions from the Psychopathic Hospital, Boston, Mass., Number 49 (1914.15). The paper was read at the Conference on Modern Developments in Mental Nursing at the Psychopathic Hospital, February 16, 1914. The Appendix was presented in July, 1914. *Bibliographical Note.* The previous contribution was by E. E. Southard (1914.14) entitled "Academic Research at the Psychopathic Hospital: I. One Hundred Cases, 1912-1913. Considered Especially from the Standpoint of Nursing," published in the Boston Medical and Surgical Journal, vol. CLXXI, p. 478.

structive" psychopathic nurse that Dr. Southard and Dr. Adler desire to develop, is the general hospital nurse's training. It is very likely that this general hospital training may need to be supplemented by post-graduate training. Of course it may be too much to ask that the custodians of all types of insane should be highly trained; but should not at least the head nurses of wards of insane hospitals and asylums of all types be general hospital graduates? The best characters that we meet among the nurses of insane hospitals who have *not* had general hospital training are persons who are by nature good nurses but who, for various reasons, have not been able to take the general hospital course. They would all have benefited by the general hospital course.

I have talked almost exclusively about the female nurse. The *male* nurse will surely have his place, as in the nursing world in general, if he can produce training equivalent to that of the female nurse. Even if we do not go into the question of the native endowments of the sexes for this work, it is clear that present conditions will not produce enough men of the proper nature and training. My work here with the most difficult types of patients has convinced me that there are hardly any emergencies on the male wards that cannot be met by resolute women, if faithful orderlies are at hand, but although there may never be enough male nurses of the proper nature and training, let us encourage the development of as many of them as possible.

APPENDIX.

Upon reviewing the work of the nursing service at the time of my going off duty in July, 1914, the director has requested that I sum up the work accomplished in the directions mentioned in my talk as above given and in the directions urged by Miss Nutting and the other speakers at the Nursing Conference of February 16, 1914. In this appendix I place certain things of interest in this connection.

In December, 1913, the nursing staff of the Psychopathic Hospital consisted of

Graduate nurses of state hospitals	10
Pupil nurses	9
Attendants—female	9
Attendants—male	25
Total	53

At the present time, there are:

Graduate nurses of general hospitals	9
Graduate nurses (taking post-graduate course)	1
Graduate nurses of state hospitals	2
Pupil nurses (at Boston City Hospital)	3
Attendants—female	16
Attendants,—male	20
Total	51
Total number on duty	48

In January, 1914, the nurses of custodial type at the Psychopathic Hospital were, as far as seemed advisable at that time, replaced by graduate nurses of general hospitals. The night supervisor of nurses (who visited only female wards) was given the added responsibility of the male wards. In that way, direct supervision of the treatment ordered by the physicians during the night was assured. The fact that 98 was the daily average number of patients in the hospital during the month of December, 1914, 31 of these being bed patients and 23 receiving drug treatment, shows that careful medical nursing supervision both day and night was necessary. Rules were made and put into effect forbidding attendants to administer any drugs or give any treatment except under the direction of the head nurse. Because of the special situation in the Psychopathic Hospital where there are few or no "chronic" patients who may act as "workers," the policy of employing maids to do the housework in the wards has been adopted so as to decrease the domestic duties of the nurses and give them more time for the medical side of nursing.

Although we are largely dependent upon the custodial or attendant type of nurse for the care of our patients, the nursing in all of the departments is carefully supervised by general hospital trained nurses. The following report of the general nursing for the month of June will convince one that there is need of highly trained women and of much special and more than "vigilance" nursing in a psychopathic hospital.

Total number of admissions for month of June	172
Total number of patients cared for (by days)	2686
Daily average number of patients	90
Number of bed patients cared for (by days)	590
Daily average patients (bed)	10
Special diets	3
Esophageal and nasal feeding	3
Enemata: cleansing, nutritive, medicinal	31
Catharsis	176
Catheterization	3
Surgical dressings	7
Medication	232
Urine specimens, 24-hour amounts	7
Baths:—	
Tub	510
Bed	148
Continuous	186

This amount of "constructive" nursing could not be performed by nurses and attendants whose time was distributed as under the old system. I will refer to an extract from the Director's First Annual Report (1912) of work at the Psychopathic Hospital, where he states (Fourth Annual Report of Trustees of Boston State Hospital, Public Document 84, page 35) that,

"Under the conditions prevailing at the Psychopathic Hospital (1912), a careful statistical study has shown a distribution of time spent by nurses and attendants as follows:

Average Time Spent by 25 Nurses and Attendants in a Week.

	Hours
Nursing duties	24
Domestic duties	23
Executive duties	12

"Thus for every hour spent in nursing another hour is spent in domestic work and a half hour in executive work. It is proposed by the employment of ward maids to raise the amount of nursing service per patient."

That "vigilance" nursing has not been neglected by the General Hospital nurses, the accident reports will amply prove. In fact, a really remarkable improvement has been registered.

The first class of the Psychopathic Hospital Training School for Postgraduates was formed on April 1, 1914. The course comprises demonstrations in hydrotherapy, clinical instruction in the wards, weekly lectures by members of the staff, weekly classes in psychopathic hospital methods by the superintendent of nurses, sixteen clinics in special work and sixteen days in the social service department, under the direction of Miss Jarrett, the chief. Besides the regular lectures there have been special lectures on the different branches of public health nursing, prenatal, district, milk and baby hygiene, store, school, and factory. Judging from the number of letters of inquiry regarding post-graduate work, scientific nursing of the mentally ill is beginning to attract graduate nurses of general hospitals.

Although little or no major surgery is at present done at the Psychopathic Hospital, there is a good deal of minor surgery, accidental and special work, as the operating room report for the month of June will show. The nursing service in that department has been greatly improved by the appointment of a graduate nurse specially trained in surgical technic.

Work done in the operating room during the month of June, 1914:—

Salvarsan	30
Lumbar puncture	53
Serum withdrawn for Wassermann test	170
Gynecological examinations	8
Incision of carbuncles	5
Laceration of face	1
Septic toe treated	1
Tetanic infection of thumb treated	1
Needle removed from breast	1
Colles fracture	1
Dressings	32

In April the occupational work was taken over by the nursing department, and although there remains much room for improvement in this work, a separate report will show that results have been not wholly unsatisfactory.

PELLAGRA AND ITS SYMPTOMS; THE IMPORTANCE OF MOUTH AND GASTRO-INTESTINAL LESIONS.*

By J. B. Macdonald, M.D., Hathorne, Mass.,

Assistant Superintendent, Danvers State Hospital.

[Danvers State Hospital Contribution, No. 51.]

Pellagra, the latest addition to the list of human ills in the United States, presents many features of special interest as well to the dentist as to the medical man specially interested in diseases of the mouth and digestive system. Prominent among the first manifestations of the disease are symptoms involving the alimentary tract; and the mouth, by reason of its ready access for observation and study, furnishes some of the most demonstrable evidences upon which to base a diagnosis. In the prodromal stage it happens not infrequently that the patient's chief complaints centre about the gastro-intestinal system. The earliest and most common of these often refer directly or indirectly to some mouth or throat condition. As pathognomonic signs of the fully developed disease, the mouth lesions are sufficiently characteristic to rank almost equal in importance with the skin eruption. It is quite conceivable that, in seeking relief from some of his troubles during the early stages of pellagra, the sufferer, in many instances, should elect to call upon his dentist before his physician.

To serve the turn of instruction, a discussion of any of its features involves a general consideration of this disease. To the average layman, its name conveys no meaning. Many even among our well-informed medical men have but a vague notion of its clinical characteristics. For this the reason is quite apparent. Until the present generation pellagra had scarcely appeared within the circle of the American physician's experience. On this side of the Atlantic it was practically unknown. Less than ten years ago few, indeed, would admit the possibility of the existence of pellagra in the United States. In our Southern states the men who reported the first cases known in our land were accused of diagnostic blundering. Since that time the rapid development of the disease in those and other sections had dispelled all doubts regarding its existence in the United States. Its prevalence has reached a point where professional and public concern expresses itself in government-appointed commissions for investigation and study, and in at least one state, in the building and equipping of a hospital specially for pellagrins. The time has come when pellagra commands the thoughtful attention of every one concerned in the health and welfare of our citizens.

Already in some parts of this country this

* Read at the annual meeting of the Essex County Dental Society, May 20, 1914.

disease presents a serious and portentous problem. An idea of the hold it has obtained in the short space of seven years since it was definitely recognized in Alabama and South Carolina, may be gained from the report of the United States Public Health Service, which places the number of deaths from pellagra in the United States in the years 1907 to 1911 at 6,205. From the same source we learn that, during these years, a total of 26,000 cases was reported by physicians and institutions in the Southern states alone.

Until 1910 New England seems to have been free from this disease. If it did exist, it seems to have escaped recognition. And its very obvious characteristics could hardly fail to excite attention under any condition except rare and scattered occurrence. But since 1910 every one of our New England states has reported cases of the disease. It cannot be said that, as yet, the situation as respects pellagra in this section is alarming; and there seems to be some basis founded upon the experience of other countries for a certain degree of faith in the immunity attributed to the geographic, climatic and social conditions under which we live. But where the etiology of a disease is unknown, little dependence is to be placed upon factors of precedence and analogy. That cases of the disease have occurred at all in New England is sufficient reason for concern. In view of the experience of other countries where pellagra prevails, its belated appearance furnishes no index of the extent to which it may prevail in the future. The fact that it was unknown here until three or four years ago argues as little for our security as did the promise of immunity based upon non-recognition of the disease prior to 1907 in those Southern and Central states where now its ravages are widespread. To those who have looked into the history of pellagra, the occurrence of sporadic cases is ominous of more



Symmetrical lesions of skin of elbows, and flexor surface of wrists ("the cuff"). Symmetrical patches of dry scaling skin on back. Skin about anus irritated and excoriated.



Contrast between affected and healthy skin, symmetrical erythema, pigmentation and areas of vesication of hands. Involvement of skin of the lips, chin, bridge of nose, and a band across forehead. Dry exfoliating erythema and pigmentation of neck—"the collar." (*Flashlight photograph.*)

serious conditions to follow. Its tendency is to occur for a variable period in scattered, sporadic form, generally followed by an endemic or epidemic course.

Since April, 1913, six cases of pellagra have come under observation in the Danvers State Hospital. With a single exception, each patient came with the disease from the community. There is every reason to believe that the mental condition leading to the commitment of these persons to the hospital depended largely upon this disease. None of these cases were recognized prior to commitment, a fact suggesting a suspicion that pellagra may be more common in the community than is generally supposed, and furnishing ground for the fear that the time may not be long when it will prevail more extensively. Treatment specially directed to this condition had not been instituted, in the stage when treatment offers any prospect of results, the trouble being unsuspected. Leaving aside the serious question of future possibilities, and viewing the matter solely from a therapeutic standpoint, this emphasizes the necessity of familiarizing ourselves with the characteristics of this disease, and the importance of recognition of its early symptoms.

The characteristics of pellagra are a peculiar, symmetrical skin eruption; gastro-intestinal disorders, involving the mouth, stomach and intestinal tract; general debility and emaciation; and various nervous and mental disorders. Though the skin eruption is the most obvious



A severe case of the "wet" form of pellagrous dermatitis. Extensive exfoliation with raw, bleeding surface and ulcerated patches on dorsa of hands, lesions of skin about mouth, bridge of nose, and forehead.

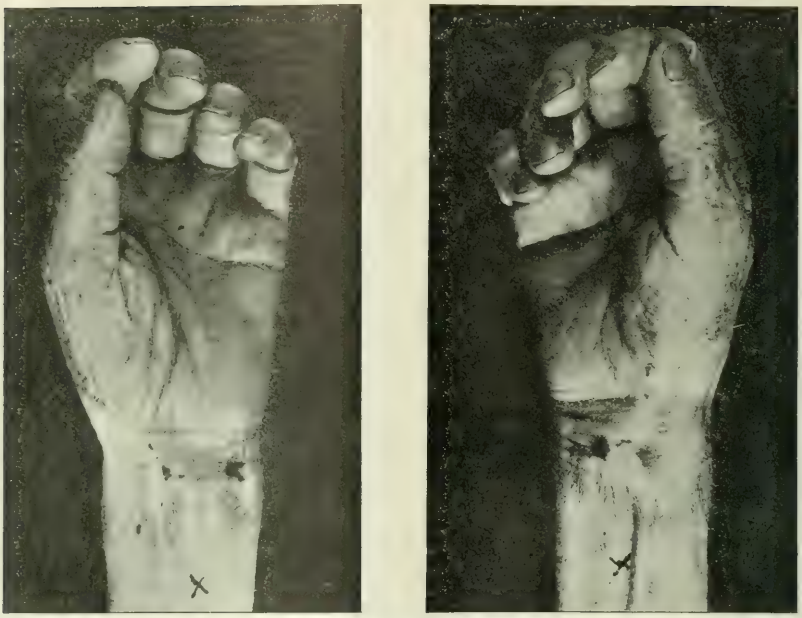
manifestation, the gastro-intestinal symptoms are almost equally important for diagnosis. In practically all cases, lesions of the mouth co-exist with the striking skin condition which has given the disease a name. The eruption is, however, the essential diagnostic feature. Only in relation to it are the symptoms referable to other parts of the system of significance. The order of appearance of symptoms and lesions is variable, and in many cases the disorders of the mouth and gastro-intestinal tract claim chief attention because of their severity; while in some cases the eruption of the skin may be so slight as to cause little interest or concern aside from its diagnostic import.

The disease has a prodromal or incubative stage extending over a variable period of months or years. As a rule the symptoms have their beginning in the spring months. During this early stage the patient generally suffers from indigestion, and spells of diarrhea. There is an ill-defined feeling of ill-being, gloomy forebodings that something is seriously wrong, nervousness, lack of ambition, and innumerable neurasthenic complaints. Peculiar sensations, fleeting aches and pains, colicky attacks, and neuralgias occur. Oftentimes the patient complains of weakness of the lower limbs, attacks of dizziness, and in the dark there is apt to be difficulty in walking, as a result of beginning anesthesia of the lower extremities. Dryness of the esophagus and difficulty of swallowing are not uncommon complaints. The appetite is capricious, certain articles of diet, usually tolerated, causing much discomfort. The sense of taste is often perverted, and the flow of saliva is increased. One of our patients was for a long time made miserable by a distressing sensation as of worms under her tongue, and attributed her profuse expectoration in part to her disgust. Significant among these early symptoms is a "burning feeling" in the mouth and stomach. These troubles the patient is apt to assign to strange and unusual causes. Quite commonly the symptoms are referred to certain foods or medicines taken, or to something about the teeth. One of our cases, in the early stage of the disease, after frequent attention by her dentist without relief, formed the idea that a bit of filling had lodged in her throat; consulted specialists, and insisted upon an x-ray examination. Another believed that the material used in filling her teeth had poisoned her mouth, and given rise to all her discomforts.

A careful investigation of the early histories often shows that these patients have been troubled with irritations and slight inflammations of the skin of the hands, perhaps regarded as nothing more than a sunburn or a mild eczema, and therefore exciting little remark. The disturbance of the digestive system, the occasional attacks of diarrhea, and the oral disorders occupy much greater attention. Upon these symptoms is laid the burden of the patient's complaints and "run-down" condition. Frequently the patients consult their dentists, attributing their uncomfortable oral sensations to disorders of the teeth, alveoli or gums. Not uncommonly it happens that their physicians, puzzled by their peculiar complaints, advise a



Lobar-like staining of affected skin in pellagrous dermatitis. Eleven o'clock attack. Left hand showing scars of elbow roughened, [illegible] brownish-colored skin of chin and lips. Confined to bed during two attacks.



Appearance of gauntlet on flexor surface of wrists. Well-marked line of deeper pigmentation (X) limiting upper border of lesions. Note symmetry of areas on radial sides of wrists where desquamation is completed, and duplication of vesicles and ulceration on other wrist. (Photo taken after death of patient.)

dental examination. No one but a most reckless guesser could venture a positive diagnosis at this stage; but while in the prodromal period and in the absence of skin lesions positive recognition is impossible, these early symptoms are sufficiently suggestive to excite suspicion of the disease.

As the disease develops, examination of the mouth shows an abnormally reddened mucous membrane, of a glazed, "cherry red" or pinkish appearance. Close inspection reveals in almost all cases aphthous spots on the tip of the tongue, behind the gums and about the fauces. The alveolar margin of the gums is usually distinctly inflamed, and pyorrhea is the rule where the teeth are in bad condition. When artificial teeth are worn, no matter how perfectly they may fit, the points of contact are nearly always sore and ulcerated. Salivation is profuse. The lips present the same reddened appearance as the mouth; generally the angles are slightly fissured and sore, and the skin at these points is roughened and scaly. In a more advanced stage the mucous membrane may be of a greyish appearance; vesicles and superficial ulcerations may form, finally ending in sloughing and complete denudation of the epithelium.

The appearance of the tongue is quite characteristic. Even at an early stage, there is some slight swelling. Where it touches the teeth areas of ulceration are usually found. The edges and tip are glazed and smooth and denuded of epithelium, the upper surface showing a greyish central coating, sooner or later resembling somewhat a false membrane. Later on the whole tongue loses its superficial epithelium; it has a decidedly red and bald appearance, soon becoming quite smooth and glazed. Except in rare cases there is great tenderness and soreness of the mouth; even protrusion of the tongue from the mouth is painful, and swallowing is difficult.

With these changes in the alimentary tract occurs the skin eruption, the distinctive sign of the disease. Usually it shows itself first as a bright red erythema upon the backs of the hands. In the beginning it closely resembles a dermatitis from sun-burn, with which it is often confused. Indeed, exposure to the sun seems to have a decided influence in bringing it forth. There is generally slight swelling of the parts affected. The patients complain of a burning feeling in these parts. In the course of a few days these areas show increased pigmentation, becoming of a darker, coppery color. The line separating the healthy from the affected skin is fairly well marked. The epidermis becomes thickened and rough. In the course of two or three weeks it begins to shrivel and desquamate. By this time its color is so dark as to form a marked



Marked hyper-pigmentation, dry, roughened scaly skin, fissures and pustules in webs of fingers.

contrast to the healthy skin, from which it is abruptly and distinctly demarcated. The hue of the affected parts is not unlike that of an old iodine stain of the skin. Fissures about the knuckles and in the webs of the fingers, which bleed easily, and vesicles and bullae, which may break and give rise to superficial ulcerations, occur. The stage of desquamation may persist for weeks, and when it is completed, the new skin is of a delicate pinkish appearance, with a fairly well-defined dusky, pigmented border.

The eruption is always symmetrical. When it appears on one part, the same condition is found duplicated upon the corresponding part on the opposite side of the body. Nearly always it begins upon the hands, generally about the knuckles, from which it extends downward to the terminal joints of the fingers, and upwards to or above the wrist joints. In all of our cases, the eruption appeared upon the anterior surface of the wrists, forming what is called the pellagrous "cuff." In most of our cases, it appeared upon the posterior surface of the elbows. In one case it extended around the neck, giving somewhat the semblance of a collar. Quite often the upper eyelids, bridge of the nose, and the skin about the mouth are affected. It may appear upon the knees, feet and legs, forehead and cheeks. In some cases it involves the skin more or less generally.

Diarrhea, mild or severe, with peculiarly offensive smelling stools, almost invariably occurs with the eruption. Colic, burning discomfort in the lower bowel, frequent attempts to expel the contents of the intestine, irritation and excoriations of the skin about the anal opening often accompany this condition. The patient rapidly emaciates. More or less marked mental and nervous disorders occur in all cases. Headaches, dizziness, aching pains, burning sensations, muscular spasms, seizures resembling epilepsy, impairment of the sense of touch, etc., are among some of the neurological symptoms more or less frequently noted. The mental condition is one of settled gloom and despondency. Irritability, unreasoning discontent, strange antipathies, forebodings of impending misfortunes, add to the burden of the patient's misery and trials. In many cases, insanity develops in the early stages of the disease.

The mental and neurological symptoms in pellagra present abundant evidence of a toxic origin. The cause of the disease is as yet unknown, but the serious disorders of the digestive tract suggest its connection with this system. While the changes in the skin are the most obvious and striking lesions of pellagra, I believe that, in many cases, some of the earliest manifestations may be observed in the mouth. In the cases which came under our observation, the oral conditions existed and developed coincidently with the skin lesions. The careful examiner should be able to detect changes in the delicate mucous membrane of the mouth in many cases as readily as those in the skin. In the skin and mucous membranes the lesions are similar and related. The initial erythema of the skin corresponds to the beginning glossitis and stomatitis. The denudation of epithelium of the tongue and mouth corresponds to the thickening and desquamation of the skin, and these processes occur about the same time. The disorders of sensation are usually first noticed, and are more severe, in the mouth and stomach. No one, however, can be sure of the diagnosis of pellagra without the characteristic erythema of the skin, nor is this symptom alone pathognomonic unless accompanied by mouth and gastro-intestinal disorders.

Clinical Department.

HYSTERECTOMY FOR HEMORRHAGE: THREE DIFFERENT INDICATIONS.

By H. B. Perry, M.D., Northampton, Mass.,

and

E. E. Thomas, M.D., Northampton, Mass.

The purpose of presenting these cases is to emphasize the value of uterine hemorrhage near the menopause as an indication for hysterectomy. In view of the recent decision of all the representative divisions of the medical profession to give the widest publicity to the early symptoms and operative treatment of cancer, especially of the uterus, we are pleased to note that one of these cases has probably been permanently benefited by an early operation for

noticeably increased bleeding from the uterus. But the other two cases also illustrate the value of removing the uterus promptly at or near the menopause, when curettage has proven futile, because in the one instance mere scraping the interior of the uterus cannot entirely control bleeding due to inflammation of the adnexa; and in the other, rendering patulous the partially closed mouths of sclerotic blood vessels with a sharp instrument must tend to increase, rather than control, subsequent hemorrhage.

The cases present the following histories:—

CASE 1. Mrs. Y., age 38, born in Ireland, housewife, has had three children, youngest age eight. Menstruation regular. After last confinement the puerperium was noticeable because patient was delayed in bed longer than usual, with fever, pelvic pain and foul lochia. Case referred by Dr. C., with profuse, irregular bleeding from the uterus. Complains of dull, dragging pain in pelvis, and copious bleeding at periods, which are increased in length; and induced hemorrhages after intercourse. Patient is well developed and nourished, chest examination negative, as is also abdominal. Vaginally, examination of the pelvis revealed the uterus fixed and immovable, conglomerate masses on either side, close to, and apparently attached to the uterus. On admission to Hospital, temperature was 99.8. A tentative diagnosis of pelvic inflammatory disease was made, and a laparotomy was performed. Examination of the pelvic contents, with patient in Trendelenburg position, showed the uterus in the median line, possibly slightly enlarged, with each tube and ovary involved in separate masses destroying their identity, and adherent to the intestines and uterus, the whole presenting a general picture of a low grade inflammation involving the entire adnexa with surrounding tissues. A hysterectomy seemed plausible, and after a careful digital and instrumental dissection of the various loops of gut, including the rectum from the pelvic tumor mass, a supravaginal amputation was performed together with a double salpingo-öophorectomy. Convalescence was uneventful; patient was up on the twelfth day, and home on the sixteenth. The specimen showed the usual condition of chronic inflammation and congestion. The uterine cavity was four inches long.

CASE 2. Mrs. T., age 48, born in Maine, housewife, has had two children, youngest age 20. Menstruation monthly, no recent cessations. After last confinement had a vigorous post-partum hemorrhage requiring intra-uterine manipulation by attending physician to control. Aside from that the previous history is entirely free from any serious illness or accident. First seen in consultation with Dr. S. at her home because of pernicious and depleting uterine hemorrhage. Present illness began about eighteen months ago; had rather active hemorrhage from uterus; bleeding continued periodically for a time with gradually lessened intervals until flowing became constant, increasing on exertion, fairly quiescent in bed. Curettage by family Dr. S. three weeks before consultation. Patient in bed and in apparently weak condition. The most noticeable feature of her appearance was the profound anemia, striking evidence of which was the peculiar "russet apple" color of the skin, and intense pallor of the conjunctivae and lips. Patient is well developed, poorly nourished, and looks older than the given age. Lungs negative; heart gives off a soft hemic murmur over apex; no tenderness over liver, no jaundice nor ascites; abdominal examination negative. Conjoined examination showed a relaxed vaginal outlet, uterus large, hard, regular in outline over fundus, and freely movable; no masses palpable, nor pelvic tenderness. Although patient was quite weak, the fact that she was flowing to no small degree after a recent curettage rendered a laparatomy advisable. Patient was accordingly brought to the Hospital in the ambulance. On admission her temperature was 100.2, pulse 136. She was observed for four days, given soft, nourishing diet, and on the fifth day was sent to the operating room with a temperature of 99 and pulse 116. Unnecessary handling and loss of time was dispensed with by placing patient immediately on operating table and anesthesia begun at once. A supra- vaginal hysterectomy was performed in practically 35 minutes, and was uneventful, except for the fact that both uterine arteries were very prominent, tortuous, and were raised in bas-relief along the sides of the uterus. A diagnosis of uterine fibrosis was made after gross examination of the specimen, which cut hard under the knife and gave other evidences of atheroma of the vessels. The cavity was five inches long; the endometrium was smooth and glossy. There were no signs of either previous or present infection. Convalescence was practically uneventful—the temperature reached 100 daily for the first three days only, and the pulse averaged regularly about 110—patient was up on the twelfth day, home on the sixteenth, and was discharged in good spirits and improved health with a temperature of 98 and pulse 90.

CASE 3. Mrs. C., age 42, born in New Hampshire, housewife, has had four children, youngest age 10. Menstruates regularly. Family history barren of any details relating to present condition. Previous history shows an independent infection by the tubercle bacillus early in life, not subsequent to either pneumonia or pleurisy, neither of which patient has had. The husband has been tuberculous but has an arrested type at the present time; and one child was recently operated upon for bone tuberculosis of the foot, Dr. Perry removing the os calcis, cuboid and portions of the scaphoid and tibia. Present trouble began four months ago with increased periodic bleeding which has now become a constant ooze—the loss of blood, however, was not sufficient to incapacitate her, and no alarm was felt, for the patient had become one of the great sorority of women who are nursing the fond delusion that it is no uncommon thing for a woman to bleed a great deal at the "change of life," whether they are healthy or ill.

Patient is a frail-looking little woman, fairly well nourished; the tops of both lungs show evidences of healed tuberculosis; heart examination is negative as is also that of the abdomen; has good appetite and feels first-rate. Vaginal examination shows a scarred cervix free from erosions; bimanually, the uterus was found to be in normal ante-position, large, soft and freely movable. No lateral masses palpable. A curettage was suggested, but patient was reluctant to go to the Hospital; after some persuasion, however, she agreed, but refused to submit to any cutting operation. A curettage was completed with one-half oz. of chloroform. The scrapings were very plentiful, similar to the con-

dition found in retained secundines after an incomplete abortion, and they resembled adenoid tissue as it occurs in the naso-pharynx. The following is the pathological report from Dr. W. T. Councilman, Boston:

I. *Material*: *Uterine scrapings.* The curettings show microscopically very marked glandular proliferation which may well be from a papilloma. There is, however, also marked proliferation of the glandular epithelium, in places bordering on the atypical. While this is not enough to warrant a diagnosis of carcinoma, it is a dangerous tumor and the patient would be much safer without it. We would be much interested in additional tissue from the case.

The patient was watched for a week, but the bleeding continued with rest in bed. After interpreting the findings of the above report to the husband and advising the complete removal of the uterus, including the cervix, consent was obtained and a pan-hysterectomy was done. No apparent involvement of any tissue outside the uterus could be found. The subsequent convalescence was not noteworthy. Dr. Councilman's final report is as follows:

II. *Material*: *Uterus and adnexa.* Specimen consists of a large, spongy uterus which is pale and soft. The cervix shows several catgut sutures from recent operation. The endometrium is extremely rough and irregular with several cavities extending into metrium. These cavities contain a thick, yellow, purulent material which also covers the surface of endometrium. The tubes are swollen, the walls thickened and soft and lumen contains also a thick, yellow pus. The ovaries are enlarged, contain multilocular cysts, some of which contain blood clots. The broad ligaments show several areas of hemorrhage.

Microscopical examination:—Carcinoma of uterus. Chronic salpingitis and öophoritis with hemorrhages into tissue.

To summarize, we would like to re-state for emphasis what every medical man knows, and what every woman should know, that cancer occurs most frequently in the uterus, develops most commonly near the menopause, its most prominent early symptom is abnormal bleeding, and that complete extermination of the growth is possible in any organ which can be removed before the rapidly growing condition spreads to the surrounding tissues. Failure to relieve or stop this lawless growth in the past, has been in a great measure due to either the tragic coyness of mature women to submit to a simple examination when the premonitory symptoms first present themselves, or they have suffered from the fatalistic idea that all kinds of unnatural bleeding must take place before menstruation ceases entirely, and they consequently accept the "change of life" as a period of necessary invalidism. If medical education succeeds in destroying that historical "bête noir" permanently, perhaps we will be able to save more of our best types of womanhood for the most delightful period of their lives.

It is worthy of note that in women who have borne children and who subsequently develop cancer of the uterus it usually appears first in the cervix, while in women who have never experienced a full term pregnancy, the disease more often attacks the fundus, Case 3 being an exception to these observations.

Even eliminating cancer, undue hemorrhage near the menopause should be thoroughly investigated and followed closely, because of the possibility of any one of these conditions, which demand a hysterectomy for absolute relief.

In disease of the adnexa the question often arises, and is pertinent, whether or not the uterus should be removed at the same time. We are firm in our belief, basing our opinion on the after-results of previous cases, closely followed and observed, that to leave a uterus after removing both tubes and ovaries would surely jeopardize that patient's future comfort and well-being; because a uterus that has been accompanied by diseased adnexa is of itself diseased and infected by the same pathological micro-organism, and it will ultimately become an inert foreign body, or will prove itself a focus from which arise infections that may become general; or the organ may, because of the irritation that must exist, become the seat of malignancy. The removal of the uterus adds but little to the danger and shock of the operation, and should, therefore, be included in the complete operation.

Reports of Societies.

AMERICAN GYNECOLOGICAL SOCIETY.

Thirty-ninth Annual Meeting, Held at Boston, May 19, 20 and 21, 1914.

The President, Dr. J. Whitridge Williams, of Baltimore, in the chair.

FORWARD FIXATION OF THE CERVIX AS A PREDISPOSING CAUSE OF SOME RETRODEVIATIONS OF THE UTERUS, AND AN OPERATION FOR ITS RELEASE.

Dr. Edward Reynolds, of Boston, stated that the supports of the uterus were largely muscular, with the exception of the forward attachments of the cervix. The shortness of the latter formed an essential element in the anteflexion of the cervix. Firm, forward fixation of the cervix while the fundus was comparatively movable, created a predisposition to the retro-deviations. The release of the forward fixation of the cervix as a preliminary to the performance of the standard operations for the retrodeviations added greatly to their percentage of success.

The author described in detail the operation he performed.

DISCUSSION.

Dr. Herman J. Boldt, of New York City, stated that for what was called anteflexion of the cervix by Dr. Reynolds, and he believed by all other writers, he had been accustomed to use the term retroversion

of the cervix, considering the direction of the cervix from the position of the external opening. It was a condition which was always congenital unless caused by pelvic inflammation.

Heretofore he had always looked upon the shortened, and not infrequently indurated condition of the sacro-uterine ligaments as being the main factor in causing this position of the cervix, and he had, on a number of occasions in the last twenty years, cut the shortened ligaments to overcome the backache of which many persons so afflicted complained, several times relieving this symptom by the surgical intervention.

That the holding forward of the fundus was due to the action of the round ligaments was, in his opinion, questionable in the greater number of such instances. These ligaments were not taut, except when the bladder and the rectum were full. The condition was usually an association of anteflexion of the body of the uterus with a retroversion of the cervix; and unless there be an atrophy of the anterior cervico-corporal junction, probably as a result of long standing of the condition, we would find the tissue at this junction unyielding; indurated, if we might call it so, since it was impossible to straighten it permanently by manual or mechanical means. Hence the mechanical dysmenorrhea of which many patients frequently complained. The usually present shortened anterior vaginal wall was part of the congenital malformation and was, of course, an additional factor in causing the retroversion of the cervix.

He had always regarded the shortened and thickened sacro-uterine ligaments to be a low-grade inflammatory process, a parametritis posterior. Furthermore, when the condition was of long standing and more or less atrophy had taken place in the interior part of the cervix at the flexion angle, due to long duration and not infrequently increased size of the body of the uterus, the organ could not straighten itself by any physiological factor brought to bear upon it. We might indeed see the uterus assume a position farther backward in the pelvis, thus constituting a retroposition; and then the intraabdominal pressure might cause a still more acute flexion angle.

Dr. Henry T. Byford, of Chicago, said he had usually regarded this condition of forward fixation of the cervix with retroversion of the uterus very much as the rest of the members. He had in many cases separated the bladder from the uterus quite extensively through a transverse incision and had drawn the parts together from the side to the median line, but he had not done exactly the same operation as that described by Dr. Reynolds. He had operated with the idea that when he drew the connective tissue from the sides of the cervix as far back as he could, he was drawing the tissues taut, getting support in front of the cervix which would hold it back more, making lateral support, drawing from the connective tissue around the sides of the cervix, and in that way replacing the cervix backward by the support of the connective tissue to the side of the cervix, instead of releasing the cervix merely from the traction of the anterior abdominal wall.

Dr. I. S. Stone, of Washinton, D.C., said that it seemed to him Dr. Reynolds' suggestion had been more or less covered in effect if we remembered the Mackenrodt fixation operation for retroversion. That is, denudation and separation from the anterior vaginal wall, dropping forward of the body of the uterus and fixing the anterior vaginal wall would answer the same purpose and overcome permanently the retroversion.

Dr. J. Wesley Bovee, of Washington, D. C., stated that about fifteen years ago he began doing this work. He received his inspiration and instruction from one of the editions of the work on gynecology by Dr. William H. Byford, in which he (Dr. Byford) stated that if the cervico-vaginal junction was less than two and one-quarter inches from the pubic arch, it was abnormally short and should be remedied. Taking his instruction from that, he devised procedures, working on the lower ligaments of the uterus. He studied the subject carefully and found we had another characteristic in certain anomalies of development to deal with, that is, an abnormally high attachment of the utero-sacral ligaments to the cervix and abnormally low attachment of the anterior wall of the vagina, so that he realized many of these cases needed to have the defects remedied, and he did this by severing the anterior wall from the cervix, attaching it to a higher point and severing the utero-sacral ligaments from the cervix and attaching it to the lower point, which changed the leverage of the anterior wall more from the junction of the cervix with the body, thus giving stronger posterior leverage on the posterior wall of the uterus. He did this procedure in two ways,—one very much after the plan mentioned by Dr. Reynolds, by detaching the anterior wall from the cervix and attaching it again higher, and the other by making a transverse incision and lengthening the anterior wall, except he added this modification: He did it with interrupted sutures, and he inserted a small amount of soft rubber on account of oozing into the opening between the cervix and the bladder, which was attached to a piece of gauze with suture, the gauze being placed in the vagina and the gauze, when removed, pulled the rubber drainage out. The utero-sacral ligament operation was beneficial in those cases in which there was traction of the utero-sacral ligaments from inflammation, such as Dr. Boldt called posterior parametritis.

Dr. James R. Goodall, of Montreal, stated that after listening to Dr. Reynolds' paper, it struck him that two classes of cases were being placed in one category, that the type of acute anteflexion of the uterus and the type of retroflexion were two distinct types which could not be considered as belonging to one class. For instance, if we took young girls who complained of severe dysmenorrhea, we would find associated conditions of the vagina and pelvis. Associated with an acute anteflexion of the uterus there was a short anterior lip of the cervix and a long posterior lip. This type of uterus, when removed from the body and held by the cervix, could not be undone. The anterior uterine wall was very fibrous in part and it was a type of uterus which in his experience, seldom, if ever, became retroverted or retroflexed. That type of girl was big, muscular, whose physical development had gone on to an advanced stage, but the pelvic organs had remained somewhat infantile. In the other type of cases in which retroversion and retroflexion took place, there was a lack of tone and a tendency to enteroptosis even before pregnancy had taken place, and with that type of uterus the fundus could be flopped about in a very few hours after death. In one type of case, with acute anteflexion, the cervix was drawn into the hollow of the sacrum; in the other type of case we did not get a long cervix such

as we expected to find in a case of acute anteflexion. These were absolutely two different types of cases, which should not come in the same class, for in the one class we had tautness of the utero-sacral ligaments, while in the other there was a laxity of everything and marked elongation of the utero-sacral ligaments.

Dr. Reynolds, in closing, and in reply to the remarks of Dr. Goodall, stated that there was a distinction between these two classes of retroverted and anteflexed uteri. Retroversion seldom occurred in the class in which the anterior wall at the angle of flexion was hard and firm, and when he began to work with Dudley's operation, he was doubtful whether the anteflexion could be corrected for any purpose in that class of cervix. Where we thought the cervix was the cause of the mechanical dysmenorrhea, release of the anterior fixation and posterior discission would straighten the uterus.

AN INTERNAL ALEXANDER OPERATION.

Dr. Henry T. Byford, of Chicago, considered the Alexander operation the most satisfactory for replaceable retroversion due to relaxation of the pelvic tissues. If lacerations about the vaginal entrance were present, they were also repaired. Operations upon the utero-sacral ligaments were not advocated in ordinary cases because, according to the experience of the author, these ligaments would gradually grow shorter after an Alexander operation, if a small-sized pessary was worn for a few months to protect them from over-stretching.

When a median abdominal incision had to be made for pelvic conditions the ligaments were shortened through the incision in such a way that they drew toward the internal inguinal ring as in the Alexander operation, and in such a way that the sutures were extraperitoneal. A fold was taken in each ligament and sutured. These folds were drawn through a peritoneal puncture near the internal ring and attached along the inner surface of the abdominal wall at this point, but extraperitoneally. This was easily accomplished by separating the peritoneum from the abdominal wall on either side as far as the internal ring.

THE EFFECT OF LAPAROTOMY UPON THE CIRCULATION.

Dr. W. D. Gatch, of Indianapolis, stated that the anatomical arrangement of the abdominal vessels presented three points of special significance: 1. The circulation through the abdominal viscera was through two sets of capillaries, separated by the portal vein and its radicles. This must slow down the rate of the circulation through the abdominal organs. It was well known that the pressure in the vessels of the liver was very low. 2. The veins of the abdomen had walls so thin that they were easily compressed by the slightest pressure upon them. 3. None of the abdominal veins had valves.

In a series of experiments carried out on dogs, he took simultaneous tracings of the intrathoracic pressure, of the intra-abdominal pressure, of the pressure in the inferior vena cava, and of the general blood pressure. The pressure in the vena cava was taken by thrusting a cannula up through an opening in the femoral vein. He raised the intra-abdominal pressure by injecting warm salt solution into the peritoneal cavity. The tracings showed that the intra-abdominal pressure and the pressure in the inferior vena cava were always equal and rose and fell together. When the intra-abdominal pressure was elevated until it was higher than the blood pressure, the circulation through the abdomen was abolished, the abdominal viscera being found bloodless at autopsy.

What was the explanation of these findings? Suppose that the intra-abdominal pressure be increased above the venous pressure, the veins would be compressed and no blood would flow through them until enough blood had been forced into them from the arteries to raise the intravenous pressure to the level of the intra-abdominal pressure.

Experiments had driven him to the conclusion that the chief and essential course which propelled the blood through the abdominal organs was the beat of the heart. The well known fact that pressure upon the abdomen increased the output from the inferior vena cava was not evidence against this view, because such increase was not maintained unless the circulation was greatly depressed. The absence of valves in the abdominal veins prevented any variations in intra-abdominal pressure due to movements of the abdominal walls from pumping the blood toward the thorax with any degree of efficiency, because as soon as the pressure was released there was a regurgitation. That the heart alone was capable of keeping up the abdominal circulation was proved by the experiment described.

The effect of anesthesia so deep as to abolish completely the tone of the abdominal wall was to promote the accumulation of blood in the abdomen and limbs, and in his opinion not uncommonly caused a failure of the circulation during and after operation. It was fortunate that laparotomy was nearly always performed with the patient either in the horizontal or in the Trendelenburg position, for if it were usually done with the patient deeply anesthetized and in the feet-down posture many more fatalities would occur. Operations both on animals and on man were much better borne under an anesthesia so light as to preserve the tone of the muscles. This was the reason why there was much less so-called shock under nitrous oxid oxygen anesthesia than under anesthsia due to more powerful agents.

SOME EXPERIMENTS DEFINING THE DANGERS OF ANESTHESIA.

Dr. Yandell Henderson, of New Haven, said the time was close at hand when in every well ordered and scientific operating room, where ether was used at all, instead of it being poured as a liquid over the patient's face and into his mouth, there would be a device, and it could be a very simple device, on a stand at the elbow of the anesthetist, or over in the corner, or possibly even down in the basement, in which the ether would be volatilized, and from which it would be conducted to the patient's nose and mouth as if it were merely an unusually strong variety of nitrous oxide. That this idea was rapidly gaining recognition and acceptance was evidenced by the insufflation method of Meltzer, the simple and accurate device of the speaker's colleague, Dr. J. M. Flint, and most recently by the anesthetometer of Connell. It was at once a simpler, safer and more scientific procedure to administer the gas which we called ether vapor than it was to handle liquid ether.

Insufficient breathing was an extremely common consequence of etherization. It added its evil influences of a more or less prolonged period of insufficient oxygen supply to the other conditions lowering the patient's vitality. It was clear that the

logical procedure to prevent this was some method of administering ether vapor such as Dr. Gatch showed to be so advantageous as nitrous oxide and also some method of administering a sufficient amount of CO_2 in the air breathed after the anesthesia was ended to stimulate respiration to a more rapid elimination of the ether with which the body was saturated, and to prevent apnea or subnormal breathing, anoxemia and cyanosis.

NERVE BLOCKING.

DR. M. L. HARRIS, of Chicago, stated that while experiments showed that novocain was only about one-seventh as toxic as cocain, it should not be forgotten that serious and even fatal results might follow an overdose. The amount of novocain that could be injected without producing toxic symptoms varied considerably and depended largely upon the rapidity of absorption. If a plain watery solution was used and injected in the region where absorption was rapid 0.3 gm. to 0.4 gm. might produce symptoms, but if the solution be one which absorbed slowly 0.5 gm.-1.0 gm. might be used without danger. The more rapid the absorption, the less marked the anesthesia, for it required a certain length of time for the drug to act. The addition of adrenalin to the solution materially increased the degree and duration of the anesthesia. Hoffmann had found that the addition of 1-4 of one per cent. to 1 per cent. of potassium sulphate also materially increased the duration of the anesthesia, and that he was able to produce anesthesia with a much weaker solution.

The speaker had found in his own work that by the addition of calcium chlorid in varying strengths, the anesthesia might be prolonged for two or three hours without difficulty, and that a weaker solution might be used than without the calcium chlorid. The formula which he was using at present and which had given him the best results was novocain, one-fourth to one per cent.; calcium chlorid, one-fourth to one-half of one per cent.; chlorbutanol, eight-tenths of one per cent. in distilled water, to which were added four to five drops of the 1-1000 adrenalin solution to 30 c.c. of the mixture. It was very essential that the mixture be properly prepared, and the method he used was the following: The distilled water was sterilized by boiling. The novocain was then added and the boiling continued not to exceed two or three minutes, as prolonged boiling spoiled cocain. When this had cooled down to below 150° F., 1.0 gr. of chlorbutanol was added to every 100 c.c. of the novocain solution. Water dissolved only about eight-tenths of one per cent. of chlorbutanol, but one per cent. was added merely as an easy way of insuring a saturated solution. The undissolved part simply settled at the bottom. A two to four per cent. solution of calcium chlorid in distilled water was made and sterilized, and then the chlorbutanol added the same as to the novocain solution. The solutions were kept separately and mixed just before using. In this way the percentage of the ingredients might be quickly varied to suit the particular case. The adrenalin should never be added until just before using, as it was very unstaple and soon spoiled if left standing in the solution, which was indicated by the solution gradually turning a reddish color. The adrenalin solution should be comparatively fresh, and if it had turned reddish in color it should not be used. The chlorbutanol was added because it had distinct anesthetizing properties of its own, and being soluble in lipoids increased the anesthetizing effect of the novocain.

As to the advantages of nerve blocking, it was less dangerous. It would be admitted that practically all substances used for this purpose were more or less toxic, but the degree of toxicity was comparatively well known, and as the substances were injected locally to affect nerve trunks and not used generally to affect nerve centers, it was easier to guard against an overdose. The method was devoid of dangerous and unpleasant complications which so frequently followed the use of general anesthesia or anesthetics, particularly ether and chloroform.

In his experience the great majority of patients preferred being conscious, and looked upon the loss of consciousness as one of the greatest drawbacks to an operation. The psychic elements in these cases had been greatly overestimated. The horror of an operation was based on: first, the fear of pain; second, the loss of consciousness; and, third, apprehension as to the outcome.

He had done under nerve blocking 234 operations on 217 patients, and in his paper he presented a list of cases showing the wide applicability of the method. The number of failures was six, and the number of deaths was seven.

SPINAL ANESTHESIA IN GYNECOLOGY.

DR. GEORGE GELLHORN, of St. Louis, pointed out that the severity of an operation stood in direct proportion to the amount of ether inhaled. The popular ether drop method was not as safe a procedure as would appear from existing statistics. The latter were incomplete in regard to the number of fatalities and did not take into consideration late complications which might either lead to death or seriously interfere with convalescence. There should not be any routine method, but the needs of the individual cases must govern the choice of the mode of anesthesia. In gynecological work, spinal anesthesia offered particular advantages and showed most impressive results.

The mortality rate from spinal anesthesia could not be determined by statistics. These were unreliable. The majority of deaths occurred during the experimental stages of the method. The anesthetic itself seemed to have nothing to do with the mortality. Stovain, tropococain, and novocain were more or less equivalent. His experience was limited to the last named drug. The safety of spinal anesthesia depended upon first its accurate technic, and the strictest observance of even the minutest detail was of paramount importance. Reports of deaths, therefore, must contain all details of the technic employed before they could be admitted to serious consideration. It had been proved in thousands of cases that by painstaking technic, not only death but collapse and other alarming complications of earlier days could successfully be avoided. Contrary to popular prejudice, there was no psychic trauma connected with spinal anesthesia. Nausea and vomiting during the operation were reduced to a minimum or altogether absent. The abdominal walls were fully relaxed, and the intestines remained quietly within the peritoneal cavity. Therefore, all operative manipulations were rendered easier, and the brusque handling of the viscera was obviated. All this tended to lessen the operative shock, and as nerve impulses did not

touch the brain, spinal anesthesia was the ideal measure of anoci-association.

In a certain small percentage analgesia was incomplete, then a few whiffs of ether sufficed to render the operation painless.

In a list of 127 abdominal and 42 vaginal operations he showed that every kind of gynecological operation, not including those on the kidney, could be performed under spinal anesthesia. There had been no death from this method. In all, four patients died, two of these from sepsis after radical operations for cancer of the cervix.

The post-operative care of spinal cases was strikingly easy. The usual post-operative symptoms appeared in greatly mitigated form, or were altogether absent. Patients who had had personal experience with ether and spinal anesthesia declared themselves in favor of the latter. An annoying and comparatively frequent by-effect was headache, which, however, yielded spontaneously or to bromides, and constituted no danger to the patient. Other by-effects, such as backache, paresthesias, and temporary paralysis, seemed to have become less frequent with improvements in technic, and it was the consensus of all observers that lasting ill effects were conspicuously absent. Spinal anesthesia markedly lessened the blood pressure and should therefore be used with caution in cases of pronounced hypertension. Acetonuria occurred after spinal anesthesia, as well as after inhalation narcosis, but exerted no deleterious effect upon the patient; it disappeared spontaneously about five days after operation.

Spinal anesthesia enabled us to operate with safety on patients in whom ether would be contraindicated. It was thus chiefly applicable in cases where the seriousness of the affection, the magnitude of the operation, or coexisting complications (cardiac and pulmonary lesions, nephritis, diabetes, hyperthyroidism, advanced age, debility) constituted a particular risk. Minor operations should be reserved for ether narcosis. Spinal anesthesia was contraindicated in kyphoscoliosis and other marked anomalies of the spinal column, diseases of the central nervous system, profound shock, or marked hypotension from other causes; sepsis, and fevers of unknown origin; furthermore, in neuropathic individuals and where there was a strong prejudice against the method. Suppurations and eruptions near the desired site of injection forbade the use of spinal anesthesia until aseptic conditions could be established.

DISCUSSION.

Dr. Freeman Allen, of Boston, said that while he was not an ardent advocate of spinal anesthesia in certain cases, yet as a professional anesthetist he felt called upon to defend ether. He felt that a great deal of the condemnation that ether had been receiving lately was due to the fact that surgeons and patients had been the victims of unskillful administration of ether. He thought that surgeons were much too apt to put up with administrations of ether by persons who were comparatively unskillful and then to blame ether anesthesia in general. If he were a surgeon and lived in a community where the services of a really skilled anesthetist were not obtainable, he should certainly use spinal anesthesia very largely, if not exclusively. He agreed with Dr. Gellhorn that there was no psychic shock whatever when a patient had been properly prepared for spinal anesthesia and was properly handled during the same.

Dr. John O. Polak, of Brooklyn, had had two cases of very prompt and aggravated shock coming on from the immediate use of the Fowler position after abdominal operations for general peritonitis where a stab wound incision was made and drainage instituted. It had been their custom to have these patients placed in a horizontal position or moderate Trendelenburg position for the first few hours. They got those two cases up in the Fowler position and in coming out of the anesthesia both were in the most severe shock as the result of it, and only by change of posture was the shock relieved.

In regard to spinal anesthesia, during the last two years they had used it in a number of cardiac cases, cases of tuberculosis, diabetes, and in those in which they had to do obstetrical or gynecological operations. In those extremely severe cardiac cases that complicated pregnancy the use of spinal anesthesia had brought to them a new era of obstetric surgery.

Dr. Seth C. Gordon, of Portland, Me., had given ether and chloroform for over 50 years, and had never seen but one death from chloroform. He had never seen but one death which in his opinion was traceable to ether. He believed that the main trouble had been in the administration of those two anesthetics, and that the more experience we had and the more we adopted modern methods, as for instance, the drop method of ether, we had something that was certain in any case where we were obliged to resort to a surgical operation.

Dr. M. L. Harris, of Chicago, found under nerve blocking there had been no deaths, so it was perfectly safe from that standpoint. He had had occasion to operate on a number of patients who had undergone previous operations under general anesthesia, and without a single exception the patients had expressed themselves as infinitely preferring nerve blocking and would never think of taking a general anesthetic again. Until we found some way of limiting spinal anesthesia to a distinct level or to a certain part of the cord, he thought peripheral anesthesia or nerve blocking might have certain advantages over intraspinal anesthesia.

Dr. George Gellhorn, of St. Louis, said he had never done anything but gynecological operations under spinal anesthesia, but was certain that in operations upon the extremities nerve blocking would be the method of anesthesia of the future.

(To be continued.)

Book Reviews.

The Question of Abortion. By Edward Huntington Williams, M.D. New York: The Goodhue Company. 1914.

Three of the five papers composing this book are the result of an investigation undertaken for the *Medical Record*, and were originally published in that periodical in 1913 and 1914. One is reprinted from the *Survey* of April 18, 1914.

The last is quoted from a hitherto unpublished address delivered by the author's brother, Dr. Henry Smith Williams, at the National Conference on Race Betterment held on Jan. 10, 1914, in Battle Creek, Mich.

The author regards the drug-habit menace largely as a result of unwise restrictions placed on the liquor traffic. He comments on the fallacies of so-called temperance instruction in our public schools and its evil results; criticizes the supposed effect of liquor legislation in reducing insanity; and points out that it is by no means proved that parental alcoholic indulgence is the source of mental defect in offspring. Indeed the researches of the Galton laboratory for national eugenics tend to indicate the opposite. By way of remedy for the acknowledged evils of alcoholic intemperance, he considers prohibition a demonstrated failure. The ultimate solution of the problem of the world's steadily increasing alcohol consumption he believes to be fourfold: first, rational treatment of the dipsomaniac; second, protection of the adolescent; third, control of the saloon; and fourth, the provision of substitutes for the saloon in the form of public gymnasia and men's clubs. Finally, he significantly points out that the modern increase of drunkards, like that of the insane, is probably in considerable part due to the misguided efforts of a science and philanthropy which are "saving the weaklings of our generation who hitherto would have been ruthlessly removed by disease." As Professor Bateson has recently said: "The whole force of modern science and legislation has hitherto been exercised in the preservation of the defective strains in our midst." Thus the question of alcohol becomes ultimately and essentially one of eugenics.

Whether one agrees in whole, in part, or not at all with the author's conclusions, his monographic collection of essays deserves serious consideration, particularly since it offers, what has long been lacking from the dispassionate opponents of prohibition, a definite substitute plan of action. The book is a thoughtful and scholarly contribution to the study of one of the great problems of the age.

Medical Characters in Chinese Writing. By DR. LUCIEN-GRAUX, Laureate of the Institute, member of the Paris Medical Society, director of the Paris Medical Gazette. Illustrated. Paris: A. Maloine. 1914.

This French monograph is an expert work on medical sinology by a physician and Oriental scholar of international reputation. The greater part of it is concerned with the interpretation of 270 Chinese characters, representing the names of diseases. It is, therefore, essentially an encyclopedia of Chinese nosology.

Chinese writing, like that of all primitive languages, is at bottom hieroglyphic. Ideas are presented by picture symbols, originally descriptive, later becoming figurative and metaphoric. Whereas modern Occidental literatures, however, have substituted for this ideographic method a system of phonetic alphabets, the Chinese has retained its symbolic notation, with the result that the language consists of many thousands of signs representing ideas, words, phrases, and relations.

This infinite complexity, nevertheless, is not so hopeless as it might appear. To facilitate their comprehension, the Chinese characters are grouped into a series of 214 families or categories of related ideas, each designated by a radical or key, indicating the type of idea designated. Thus key 104, denoting the ideas relating to sickness is a graphic sign, *ní*, representing a man in bed. Each name of a disease begins with this key and continues with further signs indicating the nature of the illness. Thus the words *ní chān*, meaning hernia, are represented by the radical *ní* followed by the symbol *chān* for *mountain*, indicating the swelling or elevation formed by a hernia on the surface of the body.

In this manner, the author proceeds to analyze and interpret a number of Chinese medical characters pertaining to disease. By way of appendix he adds a translation of a very ancient Chinese opinion on medicine, a table of Chinese prescriptions and diagnostic signs, a similar interpretation of a number of Chinese anatomic terms, a bibliography of European works on Chinese and Annamite medicine, and of Chinese medical works. The work is one of extreme interest and value not only to students of Chinese but to physicians and others concerned with the history of comparative medicine.

Acute Poliomyelitis. By DR. IVAN WICKMAN of Stockholm. Authorized English translation by DR. WM. J. A. M. MALONEY, F.R.S., ed. Illustrated. New York: The Journal of Nervous and Mental Disease Publishing Company. 1913.

This monograph is No. 16 of the Nervous and Mental Disease Series, and is a most worthy addition to those well known publications. Wickman's investigations of poliomyelitis make anything he may write of the utmost value, and this translation into English of his important study will extend still further the scope of his influence. The monograph gives a concise description of what we at present know regarding the disease. Whether the conclusions reached regarding methods of dissemination will be finally accepted must remain for the present undetermined. An excellent bibliography concludes this well translated pamphlet.

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TUBERCULOSIS AMONG IMMIGRANTS.

THE question of disease prevention is one of constantly increasing importance, but only by public education can any kind of rapid progress be made. Personal selfishness is still a most important factor to be borne in mind, yet although this selfishness may be condemned, it may also be used to advantage in teaching certain people that the danger to themselves lessens as they are protected from infection. Self-preservation still continues to be one of the first laws of nature.

Occasionally some writer calls attention to tuberculosis cases among the aliens that have had a short residence in this country with sometimes the opinion that our immigration inspection is too lax. This may or may not be true, hence let us look at both sides. We must not forget the story of the clever insane patient who once told an interested listener that the reason and only reason for his being confined in the asylum was because the majority ruled. Personally he was normal but could not make the court and doctors believe it.

This country has been noted for its liberality, and when the law excluding tubercular immigrants was passed it was decided that this act applied to only those suffering from a tubercular process that could be demonstrated by the microscope; in other words the tubercle bacilli must be present and demonstrated. All other types have the right to appeal and may be landed. This narrows the matter down to tuberculosis of the lungs, genital tract, and intestinal forms. How many of these may not show a positive slide in the most expert hands is a problem, but it is safe to say a great many. Of course, there is still one loophole,—to be fair to the immigrant would it be right mandatorily to refuse him admission on signs alone? Theoretically it might; practically it might be abused to such an extent as to impede progress for years to come.

When one reads in the Surgeon-General's report of the public health service for the year 1913 that only 38 cases of tuberculosis were certified at Ellis Island, N. Y., and seven at Boston, one must remember that these were all that could be legally certified. At Boston, for example, in one year about 576 were certified for some disease of the chest, glands or joints that may be and most likely was associated with tuberculosis, and over 1000 were given, or as classified, held for further physical examination and later passed because no actual lesion could be found within a reasonable time.

As our population is steadily increasing, also the congested sections of town and city becoming more so, we are hearing more and more on the subject; its relation to the immigrant is going to be of more importance than ever. The reason we did not hear much about it in the past, however, was not wholly due to slums, poor hygienic surroundings, mode of living, etc., because these conditions existed long before the days of present immigration in large numbers. The immigrant came and later had his tuberculosis. The fact is that tuberculosis was not common among arriving immigrants, at least in demonstrable form. Persons suffering from the disease to any appreciable extent were not likely to undergo the hardship of the journey, and if they did they would probably be rejected by the steamship or sailing vessel surgeon. Marked tubercular cases are not popular on shipboard, for, as a rule, the sea voyage does not improve them and seamen have decided aversion to deaths on a ship. Many of our immigrants come from sections of Europe where tuberculosis in the past has been uncommon.

At present and in the future, tuberculosis is going to play a very important part in the examination of immigrants. Many aliens have contracted the disease in this country, returned home to visit or die, with the result of starting a new focus in their home district. This condition is recognized and the result is that many are held that afterward have to be passed because the evidence is not conclusive. When we consider that a large number of our immigrants come

from the farm or the village, a goodly portion, let us say, of poor or frail physique, settle in our slums or markedly congested sections, live and work in decidedly unsanitary surroundings, is it any wonder that they soon show tubercular symptoms? Another point of interest is: what is the average duration of time from the entrance of infection until the patient seeks relief or the physician can find demonstrable lesions? How can we say in a given case how many months the patient has been infected? The history in many cases is so worthless that it cannot be considered.

It is the opinion of experienced medical inspectors that we have in the past exported more tuberculosis than we have imported, but at present and in the future the applicant at the gates will have to be watched with utmost care. There are medical men in the immigration service who have given considerable time and study to this matter for some years. Among other things, they have learned that from certain sections of the world the newcomer is not so likely to be infected as the alien who has had a previous residence in this country. Today, however, the disease is common pretty much the world over, city and country; the general type of immigrant is not as a whole of the highest physical type; the present war in Europe will also help swell the tide of poor physiques, and we can expect to see a gradual rise in the number of certificates for demonstrable tuberculosis. The war may lessen the number of immigrants but it will not lessen the work of our medical examiners, but will give them more chance to pick out the defectives; for, as a rule, when the tide of immigration falls off, the percentage of certificates increases.

PROGRESS OF WAR RELIEF WORK, AT HOME AND ABROAD.

SINCE the sailing of the *Red Cross* on Sept. 13, active work in the raising of funds and the organization of a second relief expedition has been continued in this country. Another general appeal has been issued by the American Red Cross Association for money and materials. The following supplies are particularly needed:

"Red Cross convalescent robes, night robes and pajamas, all neck sizes, 16, 17 and 18; sheets, 50 x 86 inches; pillow cases, 17½ x 29; rubber sheets, size 54 inches wide; hand towels, bath towels, handkerchiefs, sponges for bath, socks, ward slippers, hair brushes and combs, bed sacks of heavy ticking and pillow sacks."

The American Red Cross has already purchased about $153,000 worth of surgical and hospital supplies.

"The supplies already bought, a large quantity of which went on the *Red Cross*, include the following: 3500 bales of absorbent and bleached cotton, 389,000 yards of gauze, 15,000 pounds of bandages, a large quantity of tincture of iodine, about 2000 gallons of morphine and ether; large quantities of adhesive plaster, surgical rubber gloves, hyperdermic syringes, rubber ice caps, ligatures for sewing wounds, and surgical instruments, and 10,000 stretchers."

As a result of the cutting off of German sources of supply, the cost of many drugs has been greatly increased. Citric acid, the citrates, castor oil, homatropine, potassium salts, and all coal-tar products have already risen in price, and will go still higher as the supply on hand becomes exhausted. Report from Washington, D. C., on Sept. 9 states that the Department of Justice is to investigate the cost of drugs and prevent unscrupulous chemists from taking advantage of the public by raising prices unnecessarily.

The shortage of many drugs is even more keenly felt in England than in the United States. A recent issue of the *Medical Press and Circular* makes interesting editorial comment on the probable effect of cutting off the world's supply of "606," which is exclusively made in Germany.

"It will be interesting to note what effect the sudden shortage in the supply of salvarsan and neo-salvarsan have upon the health statistics of the army. Both forms of "606" are made exclusively in Germany by German firms by processes the secret of which is carefully guarded. In the course of time it will be no doubt possible for the English chemists to produce salvarsan synthetically, but at the best they could hardly hope to achieve so difficult a task without many months of arduous investigation and experiment. Meanwhile war with Germany means a famine of salvarsan and neo-salvarsan, that is to say, after the available stock on hand in the United Kingdom is exhausted. It would be difficult to furnish a more striking illustration of the far-reaching effects of war than that afforded by the spectacle of syphilis wreaking its dread ravages upon a populace depleted of the marvellous specific remedy evolved by the genius of the great German scientist, Professor Ehrlich."

Meantime, activities in Red Cross relief work are rapidly progressing in the several Euro-

pean countries. In London, over $30,000 have already been raised by resident Americans to equip a surgical hospital and ambulance ship. The hospital, of 200 beds, has been established at Paignton, Devonshire. In France, the American hospital at Neuilly is in active operation.

"When the war broke out the American colony in Paris took over the unfinished building of the Lycée Pasteur and transformed it into this hospital, which well deserves the name of model hospital. The wards are clean and airy, and the operating room is fitted with the most modern appliances. There are x-ray rooms, bandaging rooms and model kitchens. There are 200 beds and a devoted staff of nurses and orderlies.

"The corps sends its own ambulances, mounted on automobiles, to search for the wounded, night and day. The authorities are refraining from sending the slightly wounded to this corps, as the hospital is equipped for the handling of severe cases to the best advantage.

"Fifteen surgeons are on duty and twenty more are ready when their services are required. They are mostly Americans, resident in Paris. There are forty trained nurses, supplemented by an earnest band of American men and women. The American ambulance corps in Paris established a high record in the last war, and that of the present time promises to be equal to it."

"The medical staff of the hospital has been recruited in Paris except that one surgeon is from Vienna. It is composed of Drs. Du Bouchet and Blake, general superintendents, assisted by Drs. Magnin, Bromer, Conkling, Cros, Davenport, Hayes, Jaugeas, Koenig, Lyon, Turner and Braithwaite.

Among the women staff are: Chief nurse, Miss Devereaux; chief operating nurse, Miss Doane; Mrs. Vanderbilt, Mrs. Monroe and Mrs. Morris, daughters of a former American consul general at Paris."

On Sept. 14 the hospital was visited by General Gallieni, the military governor of Paris, and Mr. Herrick, the United States ambassador to France. In New York, over $40,000 have already been raised for the maintenance of this hospital, and it is hoped to construct an annex with a capacity of 1,000 beds.

On Sept. 15, the American Red Cross received a letter from Mrs. Franz Jung at Munich, Germany, describing the relief work being done there by herself and Dr. Jung, a Washington physician, to whom on Aug. 20 the Red Cross cabled $500 to assist in starting their enterprise. The letter, dated Aug. 23, is in part as follows:

"Ever since the outbreak of this frightful war Dr. Jung and I have organized a class of relief workers under the American Red Cross. Our object is to turn one of the hotels or large pensions into a lazaret for the wounded soldiers. The class consisting of American men and women will have to pass an examination before the German Red Cross authorities, and then they receive a diploma entitling them to assist in the nursing of the wounded. We hope to have a lazaret of at least sixty beds and have the American Red Cross help us financially. . . . . Now it occurred to me that by organizing a lazaret here in or near Munich, where a very large percentage of the wounded will be brought, this American money would not quite lose its identity, as it were, if we called it "Das Amerikanische Kreuz Lazaret," and if we had the Stars and Stripes float over it, side by side with the Red Cross flag. Dr. Jung and I have spent several hours daily for two weeks straightening out all the details with the War Department here and the authorities of the German Red Cross. The kindness and courtesy we have met on all sides showed that the proposed lazaret meets with the approval not only of those in power but with the people."

It is more than gratifying to find the American Red Cross relief work active not only in the United States but at the hands of American citizens in England, France, and Germany as well. Nor is the field of Red Cross work limited to Europe. Report from Pekin on Sept. 14 states that the Chinese Red Cross has sent a unit of 25 men to the scene of military operations at Kiaochau. This is the first time that an Oriental Red Cross organization has served among Caucasians.

MOVING PICTURES.

To any observing person that has visited moving picture shows a marked impression is felt of their popularity and we may agree that it is no passing fad but a form of amusement that has come to stay. The legitimate moving picture show should be encouraged for it has valuable possibilities. It is a cheap form of entertainment, can take us on a journey through the most beautiful places in the world or show in detail how we are fed and clothed from raw material to finished product. As a teacher of preventive medicine in popular form, even by aid of the sensational melodrama, it may give a lesson that would be remembered in no other way.

From the early days of the biograph and dissolving views a steady improvement has been noticed, but there is a danger still existing that at least to a certain extent can be diminished. The great physicial danger today is the effect on

the eyes of the patron. At best the rapidly-changing views cause one's eyes to tire quickly and when for any reason the film is out of focus or speeded up to make time that the next performance may not be delayed, the strain thrown on the eyes becomes serious. Experience has taught the regular attendant not to sit too close to the stage if he wishes to enjoy comfort, and to turn his eyes from a series of blurred images Some regulation should be made and enforced to prevent the speeding of films, films should be focused before the play begins, and reasonable distance should be established between the screen and the seats.

MEDICAL NOTES.

AWARD TO DR. VINCENT.—It is announced that the Paris Academy of Sciences has awarded to Dr. H. Vincent a prize of 3000 francs for his work on typhoid fever.

TRANSMISSION OF POLIOMYELITIS.—In the monthly bulletin of the Massachusetts State Board of Health for July, 1914, is published the report of a series of experiments by Dr. Carl Ten Broeck "to determine whether paralyzed domestic animals, and those associated with cases of infantile paralysis, may transmit this disease." An introductory note by Dr. Theobald Smith sketches the history of spontaneous paralytic diseases of animals having strong resemblances to infantile poliomyelitis. Inoculation experiments upon monkeys were performed with material from paralyzed dogs, cattle, swine, fowls, horses, cats, and from rats and flies associated with human poliomyelitis cases. "In no case did the monkeys inoculated from any of these animals show any signs of a paralysis or symptoms which would indicate that they were infected with poliomyelitis. In the spinal cords of those that died, no perivascular infiltration with lymphocytes was found, nor was there a degeneration of the cells of the anterior horns."

BOSTON AND NEW ENGLAND.

FLOATING HOSPITAL GRADUATION.—The graduating exercises of the Boston Floating Hospital were held at the Stuart Club on Tuesday evening, Sept. 15. The principal address was made by Dr. Henry I. Bowditch, and diplomas were awarded to 51 nurses and 8 house-officers.

NEEDS OF MILK AND BABY HYGIENE ASSOCIATION.—The Boston Milk and Baby Hygiene Association has recently issued an appeal to the public for $8000 to enable the continuance of its work this fall.

"The association is just entering its fall season with 1611 babies under its care, an increase of over 200 over the number under supervision at this time a year ago. There is every indication that the milk stations conducted as baby health centres will be nearly as crowded during the fall and winter as they were during the summer, when four additional nurses were added to the regular staff.

"The progress made since the forming of this association five years ago is remarkable. In 1909 the infant mortality rate of Boston was 133 infant deaths per 1000 births, for 1913 it had been reduced to 111 deaths per 1000. As one point less means twenty fewer deaths, the 1913 rate shows a saving of 440 babies' lives annually over the 1909 rate. This shows of what value this work has been. In 1909 the association had six stations for the distribution of pure milk and a staff of six graduate nurses; now it conducts twelve stations and employs from thirteen to seventeen graduate nurses. Throughout 1909 it cared for 738 babies, in 1913 for 3421 and this year the total will be about 4000.

"This work for public health has no income from invested funds nor any municipal or state grant. Having no endowment, all its funds must be raised by public subscription. Receipts for the last three months have fallen off. If this continues the trustees will be compelled to consider the closing of some of its milk stations, with the consequent withdrawal of medical and nursing help from hundreds of babies and mothers. Just when the professional efficiency of the work is at its highest point, and so many women are learning the value of preventive medicine and hygiene, it would be particularly unfortunate to take a backward step."

HEALTH DAY IN THE BOSTON PUBLIC SCHOOLS.—The following letter has been sent by the School Committee to the physicians and dentists of Boston:

"Health Day is observed annually in the Boston public schools on the first Friday in October. This day offers a special opportunity to impress upon a large proportion of our community the importance and the value of good health.

"In each school the teachers and pupils are to be assembled on Friday, October 2, 1914, for special exercises in the observance of Health Day. In many school districts, meetings of parents and teachers can be arranged for an evening program on the same topic. The lessons in hygiene and in preventive medicine presented to pupils and parents at meetings of this kind reach far beyond the limits of the class-room and of the home; they become the working rule of a large section of the city's population and find ready application often in the workshop, in industrial life, and in recreation. It is most important that the lessons taught should be in accordance with the best teachings in modern medicine. This calls for the active co-operation of physicians and dentists whose daily life is in

close touch with the consequences of the failure of individuals to observe the simple truths of preventive medicine.

"The superintendent of schools, Dr. Franklin B. Dyer, has authorized the director of school hygiene to invite the physicians and dentists of Boston to coöperate in making Health Day this year an occasion for special emphasis on the unnecessary waste of health, efficiency, and often of life itself by causes preventable and avoidable. The plan is to have a physician or a dentist, or both, give a short talk on some simple health topic, *e.g.* sunshine, good ventilation, adequate sleep, proper food, care of the teeth, and personal hygiene, and to point out how these agencies may be used effectively for bettering the health and living of the people. Physicians and dentists who desire to assist in this undertaking are requested to notify Dr. Thomas F. Harrington, director of school hygiene, Boston, stating the time of day most convenient for each to address teachers and pupils or parents of a specified school, so that definite arrangements may be made with each physician or dentist volunteering."

NEW YORK.

August Mortality Statistics.—The weekly reports of the City Health Department show that the mortality in the city during the month of August represented an annual death-rate of 12.12, as against 11.88 in July and 12.72 in August, 1913. Among the diseases in which there was an augmented fatality were the following: The weekly average of deaths from whooping-cough increased from 6.5 in July to 8 in August; the weekly average from acute bronchitis, from 6.25 to 8.25; from cancer, from 82.25 to 87; from diarrheal diseases under 5 years, from 163.5 to 213.5; and from Bright's disease and acute nephritis, from 87.25 to 94.5. Among the diseases in which there was a diminished mortality were the following: The weekly average of deaths from typhoid fever declined from 7.5 to 6.5; from measles, from 7 to 5.75; from diphtheria and croup, from 26.25 to 13.5; from broncho-pneumonia, from 59.5 to 33.5; from tuberculous meningitis, from 15.75 to 14.5; from apoplexy and softening of the brain, from 22.5 to 20.5; from organic heart diseases, from 163.5 to 159.75; and from cirrhosis of the liver, from 11.75 to 10.75. This year the height of the infant mortality came later than usual, the weekly average of deaths from diarrheals under 5 years being 213.5, as against 194.5 in August, 1913. A gratifying decrease is to be noted in the mortality from diphtheria and croup, the death-rate from which, as compared with the July rate, was reduced practically one-half.

Tuberculosis Statistics.—The tuberculosis figures just given out by the health department for the second quarter of 1914 are not particularly encouraging. While they show little variation from those of the corresponding quarter of 1913, there is a slight increase in the number of new cases reported and in the total number of cases registered; the latter class showing an increase of about 3500. As was to be expected, by reason of the increased hospital facilities, a larger number of admissions to hospitals are shown.

Deaths from Mercurial Poisoning.— Coroner's physician Charles F. Pabst of Brooklyn reports that the records of the coroner's offices of the five boroughs from June 1 to September 1 show a steady and encouraging decrease in the deaths from mercuric chloride, as a result of the enactment of the ordinance prohibiting the sale of the drug without a physician's prescription. Of the nine deaths due to this cause in the period mentioned, eight were suicides and only one accidental. It is expected that the number of fatalities will be still less in the next three months, for when the regulation took effect many persons had a supply of bichloride in their homes, and when this stock is exhausted the danger will be lessened. Dr. Pabst expresses the opinion that the satisfactory result of this ordinance in New York will prompt many states to take action, and states that bills embodying similar regulations will be introduced at the next sessions of the legislatures of Massachusetts, New Jersey, and Illinois. Mercuric chloride tablets must now be made in a distinctive shape and color, and it is almost impossible for anyone to take them by mistake.

Mortality for Week Ending September 12, 1914.—There were 1266 deaths and a death-rate of 11.27 reported during the past week, as against 1134 deaths and a rate of 11.30 for the corresponding week of 1913, an increase in the absolute number of deaths of 32, but a decrease in the rate of .23 of a point per 1000 of the population, which is equivalent to a decrease of 25 deaths.

The most noteworthy decreases in the individual causes of death were scarlet fever—not a death was reported from this cause during the week, a rather unusual happening—diphtheria and croup, whooping cough, lobar- and bronchopneumonia. Those causes showing material increases were typhoid fever, diarrheal diseases, organic heart disease, pulmonary tuberculosis, Bright's disease of the kidneys and deaths from violence.

Viewed from the point of age grouping, the mortality of infants under one year of age showed a decrease of 47 deaths, between one and four years there was an increased mortality of 41 deaths, between five and sixty-five years an increase of 19 deaths, and over sixty five years of age an increase of 3 deaths.

The death-rate for the first thirty-seven weeks of 1914 was 13.73 per 1000 of the population against a rate of 14.25 for the corresponding

period in 1913, a decrease of a little over one-half a point.

A CENTENARIAN.—Alfred King, who died on Sept. 16 at Ledyard, near Auburn, Cayuga county, is said to have been born in 1813 in England.

FOURTH OF JULY FATALITIES.—By way of preparing for Fourth of July accidents, hospitals, supply stations, and health department branch offices were, in accordance with annual custom, provided with tetanus antitoxin to be employed as a preventive measure in cases of gunshot and firework injuries, and the department reports that from June 28 to July 15 a total of 124 prophylactic injections with the antitoxin thus supplied were made in the different boroughs of the city. From the police department it is learned that the number of Fourth of July accidents reported was 200—almost exactly the same as last year, when there were 202.

Massachusetts Medical Society

FRANKLIN DISTRICT MEDICAL SOCIETY.—A joint meeting of the Franklin District Medical Society, the Windham County Medical Society of Vermont, and the Cheshire County Medical Society of New Hampshire was held at the Hotel Northfield, East Northfield, Mass., September 8, 1914. There was a morning session at 10.30 o'clock and an afternoon session at 2.00 o'clock. Dr. J. E. Urquhart, of Ashfield, Mass., president of the Franklin District Society, presided, and Dr. H. G. Stetson, secretary of the Franklin District, acted as secretary. Papers were read according to the following program, and they were much appreciated by the forty physicians present:

MORNING SESSION.

"Osteomyelitis, Cardinal Points," Dr. Charles H. Goodrich, Brooklyn, N. Y. "The Physician's Responsibility in Protecting Infants from Disease," Dr. Richard M. Smith, Boston. "Gall Stones," with specimens, Dr. Fred B. Lund, Boston.

AFTERNOON SESSION.

"Certain Aspects of Pulmonary Disease," Dr. Frederick T. Lord, Boston. "The Practical Value of Bone Grafts in Surgery," Dr. Charles F. Painter, Boston. "A Localized Subacute Form of Broncho-Pneumonia," with x-ray plates, Dr. Ralph C. Larrabee, Boston.

The discussion was participated in by Dr. P. W. Goldsbury of Warwick, Dr. C. L. Mines of Bellows Falls, Vt., Dr. J. H. Blodgett, of the same place, and Dr. N. P. Wood of Northfield.

Current Literature

MEDICAL RECORD.

AUGUST 22, 1914.

1. GIBSON, C. L. *The Low-Table Position and Other Aids to Performing Suprapubic Prostatectomy.*
2. YEOMANS, F. C. *Coccygodynia—A New Method of Treatment by Injections of Alcohol.*
3. BROWNING, C. C. *Report of Four Cases of What Appeared to be Tuberculous Meningitis with Apparent Permanent Arrestment.*
4. *BLINDER, J. *Syphilis of the Lungs Simulating Pulmonary Tuberculosis.*
5. CRAMPTON, C. W. *Prevention of School-room Disease and Dust.*
6. SEXTON, L. *Observation of Malarial Fever.*
7. MAYS, T. J. *State Prevention and Pulmonary Consumption.*
8. KRAUSE, J. T. *The Necessity for Parental Coöperation in the Examination of Mental Defectives.*

4. Blinder reports a case of pulmonary syphilis which presented all the cardinal symptoms of phthisis except hemoptysis. No tubercle bacilli could be found in the sputum and the Wassermann test was positive.

AUGUST 29, 1914.

1. EPPINGER, H., AND GUTMAN, J. *Intestinal Intoxication.*
2. PETERS, A. W. *The Sterilization of Mental Defectives, Considered from the Physiological Standpoint.*
3. BLATTERS, S. R. *A Plea for the More Rational Use of Vaccines.*
4. BRYANT, W. S. *Note on the Use of Radium in Treatment of Diseases of the Ear.*
5. LOWERY, J. R. *Pellagra.*
6. LAPAT, W. *A Plea for More Care in the Treatment of Follicular Tonsillitis.*
7. PARK, F. E. *Two Cases of Treatment by Radium Emanation.*

[L. D. C.]

SEPTEMBER 5, 1914.

1. *STILLMAN, E. G. *The Immediate Results of Salvarsan Treatment of Syphilis, as Judged by the Wassermann Reaction, Using a Cholesterin-Fortified Antigen.*
2. DUNCAN, C. H. *Autoimmunization in Respiratory Infections.*
3. NEWTON, R. C. *A Sketch of the Origin of Auscultation and Percussion, and of the State of Clinical Medicine in the Time of Auenbrugger and Laennec.*
4. GREELEY, H. *Public Health Education.*
5. WIGHTMAN, H. W. *The Useful Surgeon.*
6. DEADERICK, W. H. *Herpes Zoster and Malaria.*
7. CRAIG, C. B. *Cerebral Syphilis in the Secondary Stage.*
8. MACHT, D. I. *Detection of Gelatin in Ice Cream.*

1. Stillman finds that when a cholesterin-fortified antigen is used, the Wassermann reaction in early syphilis treated with salvarsan may be changed from a strong positive (3+) to a negative. Old cases show little or no improvement, serologically speaking.

NEW YORK MEDICAL JOURNAL.

SEPTEMBER 5, 1914.

1. KEYES, E. L., JR. *Carbolic Instillation in the Treatment of Bladder Tuberculosis.*

2. Stern, A. *Compulsion Neurosis.*
3. Horan, M. J. *Abdominal Incisions.*
4. Keller, H. *Diagnostic Aids in Diseases of the Bones and Joints.*
5. Frankel, J. *A New Instrument for Intravenous Injections.*
6. Duncan, C. H. *Autolactotherapy.*
7. Lubman, M. *The Tonsil from a Surgical Point of View.*
8. Chowdry, B. K. *Congenital Absence of Uterus and Annexa.*
9. Corbus, B. C. *A Second Infection with Spirochaeta Pallida.*

The Journal of the American Medical Association.

August 8, 1914.

1. *Eastman, J. R. *Experimental and Clinical Studies of Colon Stasis.*
2. Bonfield, C. L. *The Condition of a Few Patients Two Years after Ileosigmoidostomy.*
3. *Mayo, W. J. *Resection of the First Portion of the Large Intestine and the Resulting Effect on Its Function.*
4. Reed, C. A. L. *The Redundant Sigmoid.*
5. *White, C. H. *A Statistical Study of Syphilis. The Relation of Its Symptoms to Subsequent Tabes Dorsalis or General Paralysis.*
6. Hazen, H. H. *Syphilis in the American Negro.*
7. *Nichols, H. J. *Observations of the Pathology of Syphilis.*
8. Page, J. R. *Hemorrhage from the Superior Petrosal Sinus as a Complication in Operations on the Lateral Sinus.*
9. Hatcher, R. A., and Eggleston, C. *Studies on the Absorption of Drugs.*
10. Whiting, A. D. *The Local Preparation of Patients for Operation.*
11. *Roth, G. B. *Pituitary Extract. An Examination of Some Commercial Preparations Made from the Posterior Lobe of the Pituitary Body.*
12. Coates, G. M. *A Case of Myiasis Aurium Accompanying the Radical Mastoid Operation.*
13. Blosser, R. *Harmful Effect of Certain Sugar-Cane Products. A Preliminary Report.*
14. Singer, J. J. *A New Simple Stethoscope.*
15. Hayes, W. M. *Table Attachment for Doing Surgery on Face, Throat and Neck.*
16. Rhodes, R. L. *An Operation for Shortening the Scrotum.*

1. Eastman advocates the union of the caput-coli to the upper rectum instead of ileosigmoidostomy as being a more safe and satisfactory drainage procedure when short-circuiting of the large intestine is desirable.

3. Mayo finds that resection of the first portion of the large intestine has a favorable effect on conditions of intestinal toxemia and constipation, and although he had no mortality in his series he warns against the hasty adoption of so severe an operation as this as a routine.

5. White makes the following deductions from a study of 1694 cases of syphilis:

Hereditary syphilis does not tend to show itself cutaneously at birth. Men seem more liable to develop leukoplakia, central symptoms, mucous plaques, alopecia, iritis and pain, while women are more prone to early and later skin manifestations, pharyngitis, condylomata and headache. Tabes attacks men and women in the ratio of six to one. In 45 per cent. of the cases of tabetics syphilis was acknowledged or found actively present (Wassermann test not included). Tabes developed in 11 per cent. within 5 years from the date of infection, and 61 per cent. within 15 years. Of 500 tabetics only about 3 per cent. had ever manifested any late cutaneous lesions. Pain was the most frequent early symptom of tabes and the legs were the first part of the body to evince the disease. General paresis occurred in men and women in the ratio of ten to one. The youngest paretic was 16 years old and the oldest 76. Of 178 paretics only 1 per cent. had ever suffered from late cutaneous syphilis.

7. Nicholas is led to believe that in syphilis the spirochetes localize during the early septicemia and probably not in the later stages. Certain strains probably localize in especial organs and remain as individual strains. An active lesion in one part of the body tends to inhibit the development of potential lesions in other parts of the body.

11. Roth finds a wide variation in the activity of commercial pituitary extracts.

[E. H. R.]

Surgery, Gynecology and Obstetrics.

August, 1914.

1. *Sherman, H. M. *Fractures Near Joints.* Sherman, H. M., and Tait, D. *Fractures Into Joints.*
2. *McKenty, F. E. *Tumors of the Neck.*
3. Tage-Hansen, C. *A Case of Common Ileocolic Mensentery with Torsion.*
4. *Macklem, G. E. *Tuberculosis of the Kidney; with Especial Reference to Its Diagnosis.*
5. Kümmell, H. *Operative Treatment of Aneurysm of the Aorta.*
6. Doederlein, T. J. *Dysmenorrhea Essentialis.*
7. Tarnowsky, G. de. *Calcified Fibroma Uteri Compressing the Sigmoid Colon.*
8. *Fay, O. J. *Traumatic Parosteal Bone and Callus Formation.*
9. Freiberg, A. H. *Infraction of the Second Metatarsal Bone.*
10. Neuhof, H., and Oppenheimer, E. D. *Congenital Contractures of the Fingers; with the Report of a Case of the Familial Type.*
11. Behan, R. J. *Modern War Surgery.*
12. Macdonald, L. T. *Contractured Psoas Parvus Tendons; Their Insignificance and Clinical Relationship to Lesions of the Right Iliac Region.*
13. Taussig, F. J. *Sarcoma of the Round Ligament of the Uterus.*
14. Heyd, C. G. *A Procedure for the Repair of Accidental Injuries to the Rectum.*
15. Carrel, A. *On the Technic of Intrathoracic Operations.*
16. Law, A. A. *Avulsion of the Scalp.*
17. Jackson, R. H. *Anterior Choledoicjunostomy; with Report of a Case.*
18. Thornton, W. *A New Method of Circumcision.*
19. Satterlee, H. S., and Hooker, R. S. *The Further Development of an Apparatus for the Transfusion of Blood.*
20. Madill, D. G., and Allan, R. M. *The Use of Pituitary Extract in Labor.*
21. Foster, G. S. *The Axillary Sup.*

1. Sherman and Tait from an interesting series of experiments conclude that the trans-articular method is the only practical method which gives perfect access to certain joint fractures and permits accurate reposition of the fragments. They feel that they have established the safety of the procedure and the lack of interference with normal motion even when intra-articular plates and screws—properly countersunk—are used. Such foreign structures are soon covered by a thin layer of fibrous tissue and remain embedded. This work has all been done on dogs and cats and has so far not been applied to human cases, but the authors state they would not hesitate to use it in proper cases.

2. McKenty's paper is a very thorough embryological study of the bronchiogenic and thyroglossal origin of neck tumors.

4. Macklem's paper brings out the following conclusions: Ureteral catheterization is uncalled for when the tuberculous lesions about the mouth of the ureter are typically suspicious. Ureteral catheters demand more scrupulous care in cleaning than is ordinarily used. If both kidneys are involved a nephrectomy on one should not be performed unless there is present at least one-third of total normal renal tissue to remain. Vesical and urethral tuberculous infection is always secondary to the renal condition. Care should be exercised in diagnosing nephrolithiasis and movable kidney, as a colic similar to that occurring in these conditions may arise from the masses of debris which pass through an infected and narrowed ureter. Interstitial nephritis and tuberculosis resemble each other closely in the early stages and may easily be confounded. Tuberculosis occurs in the kidney as frequently as in all other genito-urinary organs put together. Tubercle bacilli are usually not found in the average urine until the appearance of pus.

8. Fay publishes an extremely interesting and suggestive paper on this subject but it is too long for adequate abstraction.

[E. H. R.]

SEPTEMBER, 1914.

1. *PHEMISTER, D. B. *The Fate of Transplanted Bone and Regenerative Power of Its Various Constituents.*
2. KÜMMELL, H. *Intravenous Ether Anesthesia.*
3. SCHMIEGELOW, E. *The Results of Operation (Laryngofissure) for Intrinsic Cancer of the Larynx.*
4. ARMSTRONG, G. *Typhoid Perforation.*
5. JELLETT, H. *The Suture of the Levator Ani Muscle in Perinorrhaphy Operations.*
6. MAYO, C. H. *Hyperthyroidism: Primary and Late Results of Operation.*
7. *GRAHAM, E. A. *The Origin and Nature of Foetal Movements.*
8. KEYES, A. B. *Mastitis Lactantis: Etiology, Behavior, Treatment and Sequelae.*
9. VERBRYCKE, J. R., JR., *Chronic Perforation of Peptic Ulcer; Report of Four Cases.*
10. *SPEED, K. *Observations of Inguinal Lipomata Based on 154 Herniotomies.*
11. SCHUBERT, G. *Concerning the Formation of a New Vagina in the Case of Congenital Vaginal Malformation.*
12. JORDAN, A. C. *Some of the Results of Neglected Chronic Intestinal Stasis.*
13. HENDERSON, Y. *Recent Experiments Defining the Dangers of Anesthesia.*
14. THOMAS, B. A., IVY, R. H., AND BIRDSALL, J. C. *Observations on the Gonococcus Complement-Fixation Test Employing Specific and Non-Specific Antigens.*
15. WATKINS, T. J. *Notes on Vesico-Uterine Transposition.*
16. GEORGE, A. W., AND GERBER, I. *The Röntgen Diagnosis of Duodenal Ulcer. A Comparison of the Direct and Indirect Methods.*
17. MACAUSLAND, W. R. *The Open Method in the Reduction of Fractures.*
18. HYMAN, A., AND JACHES, L. *The Röntgenographic Diagnosis of Prostatic Enlargement by Means of Air Inflation of the Bladder.*
19. STRAUSS, D. C. *Woven Catgut Splints for the Open Treatment of Fractures.*
20. NOVAK, E. *The Surgical Treatment of Complete Prolapse of the Uterus.*
21. DOWMAN, JR., C. E. *Hemostasis, with Special Reference to Its Employment in Surgery of the Brain.*
22. TYLER, G. T. *A Two-Eyed Aneurysm Needle.*
23. BUTT, A. P., AND ARKIN, A. *Malignant Disease of the Retained Testicle, with Report of a Case.*

1. Phemister's excellent piece of work shows that osteogenesis in bone repair occurs from the inner layer of periosteum, from the endosteum and to a much less extent from bone-cells and fibrous contents of the haversian canals. Viability of cells is in proportion to ability to get nutrition. The view of Barth and Murphy that there is no osteogenesis from any portion of a transplant, substitution occurring entirely by an ingrowth of new bone from the fragment end, he believes he has proved incorrect. The article is worth reading.

7. Graham from experimental evidence suggests that the various active movements of the foetus experienced by many pregnant women in the latter part of pregnancy are expressions of a more or less severe, but usually transient asphyxia of the foetus.

10. Speed found 73 lipomata in 154 herniotomies or 47.4 per cent. [E. H. R.]

THE LANCET.

AUGUST 22, 1914.

1. BATERSON, W. *Heredity in Man.*
2. *MCINTOSH, J., FILDES, P., AND RADCLIFFE, J. A. D. *The Diagnostic Value of the Complement Fixation Reaction in Tuberculosis. Part I. In General Hospital Practice. Part. II. In Sanatorium Practice.*
3. *COBNER, E. M. *Sepsis in the Recognition and Non-recognition of Syphilis.*
4. DAVIS, E. D. *The Importance of a Very Thorough Examination in Cases of Foreign Body Alleged to Have Been Swallowed or Inhaled.*
5. WYARD, S. A *Case of Congenital Atresia of the Bile-Ducts.*

2. McIntosh and Fildes, after discussing the general inadequacy and unreliability of the various tuberculin tests as diagnostic agents in tuberculosis, presenting statistics in this regard, describe their method of performing the complement-fixation reaction in this disease and give their results. In 85 pathologically positive cases of tuberculosis, of cases of phthisis, 76.7 per cent. gave a positive test, 80 per cent. of cases of surgical tuberculosis were positive and 37.5 per cent. of tuberculous gland cases positive. Of the "clinically certain" cases, of phthisis and pleurisy 55.5 per cent. were positive, and 71.4 per cent. of the surgical ceses; of 74 "tentative" cases, 18 per cent. were positive, while of 87 "control" cases all were negative except 2 of leprosy and 1 of Addison's disease. They believe this test to be of greater value than the skin test in that it is largely in cases of active tuberculosis only that the complement fixation test is positive but that it can never reach the value of the Wassermann test.

Radcliffe takes up this test in sanatorium practice and concludes that it is of "considerable value."

3. Corner is of the opinion that many of the features of syphilis in all its stages that are now taught in our schools as characteristic of the disease are due to the added factor of sepsis and that clean or "aseptic" cases may and often do escape notice. (This point of view is interesting but would require further confirmation.—J. B. H.)

[J. B. H.]

AUGUST 29, 1914.

THE STUDENT'S GUIDE.

(No original articles in this number.)

THE INDIAN MEDICAL GAZETTE.

AUGUST, 1914.

1. *MILNE, C. *The B. N. A.*
2. YOUNG, W. MCC. *Segregation and Kala-Azar.*

3. Newman, E. A. R. *The Operation of Election for the Radical Cure of Inguinal Hernia.*
4. Hehir, P. *Prevention of Malaria in the Troops of Our Indian Empire.*
5. Brachio, J. J. A. *Treatment of Cholera by the Intra-peritoneal Injection of Iodine.*
6. Beodribb, C. *Some Cases of Intestinal Obstruction.*
7. Bedell, P. S. *Case of Suspected Addison's Disease Aggravated by Ascarides Lumbricoides and Hysteria.*
8. Foulkes, T. H. *A New Pedicle Suture.*
9. Chowdry, B. K. *Case of Absence of Uterus.*

1. Milne, commenting on the fallacies of the Basler Nomenclatura Anatomica, concludes that "names should be our obedient slaves, and not our masters; certain it is they have overwhelmed the anatomists, to our confusion." [R. M. G.]

British Medical Journal.

August 22, 1914.

BRITISH MEDICAL ASSOCIATION.
SECTION OF SURGERY.

1. *Gray, H. M. W., et al. *Discussion on the Evolution of the Shockless Operation (Anoci-Association.)*

SECTION OF NAVAL AND MILITARY MEDICINE AND SURGERY.

2. Hewett, D. W. *The Treatment of Wounded in Naval Warfare.*

SECTION OF OPHTHALMOLOGY.

3. Parsons, J. H., et al. *Discussion on the Hygiene of Reading and Near Vision.*
4. Ramsay, A. M. *The Teaching of Ophthalmology.*
5. Sahli, H. *Opium and Omnopon.*
6. Smith, H. L., and Stewart, T. G. *A Case of Disseminated Sclerosis Treated by Inoculation.*

1. Gray, discussing the prevention of shock, urges that the operation be performed as soon as the decision to operate is made. Useless delay in the matter is a potent cause of shock. Instruments must be sharp, and as little handling of tissues as possible should be done. As to the choice of an anesthetic, he favors ether by the open method. Chloroform he says is fast becoming obsolete. He urges a local anesthetic in every case where it is feasible and describes his technic and shows results in a large series of cases in which by blocking the abdominal parietal nerves by local anesthetics the pulse-rate went down instead of up after operation. [J. B. H.]

August 29, 1914.

BRITISH MEDICAL ASSOCIATION.
SECTION OF NAVAL AND MILITARY MEDICINE AND SURGERY.

1. Webb-Johnson, C. *Common Ailments in Camp: Their Significance and Prevention.*
2. Page, C. M. *Gangrene in War.*

SECTION OF OPHTHALMOLOGY.

3. Edridge-Green, F. N. *An Analysis of the Results of the New Sight Tests of the Board of Trade.*
4. Griffith, A. H. *A Case of Late Infection Following Elliot's Operation.*
5. *Harmon, N. B. *The Causes of Blindness in Eleven Hundred Children; with Special Reference to the Influence of Venereal Disease.*
6. Wilson, J. A. *The Factor of Heredity in Myopia.*
7. Maddox, E. E. *The Choice of a Cataract Operation.*

5. Harmon analyzes 1100 cases of blindness and presents in tabular form the causes of this condition. Of these 1100 children, the cause of blindness in 24 per cent. was ophthalmia neonatorum, and in 31.2 per cent. congenital syphilis. The cause of the increased proportion of these cases, due to syphilis during recent years, is due to a certain extent to increased knowledge of the disease and newer methods of diagnosis. [J. B. H.]

Wiener Klinische Wochenschrift.

No. 19. May 7, 1914.

1. Schmiedl, H. *Experimental Investigation of the Question of the Mechanical Origin of Arterio-Sclerosis.*
2. Heinz, W. *Local Difference in Temperature in Phthisis.*
3. Pulanski, A. *Treatment of Leukemia with Röntgen-rays and Benzol.*
4. *Saphira, J. *Treatment of Chronic Leg Ulcer with Radium.*
5. Moczulski, J. *Clinical Experience with the Intravenous Use of Ten Per Cent. Salt Solution to Assist Lung Hemorrhage.*

4. The author reports 21 cases of chronic leg ulcer treated with radium emanations. Ten were cured; six were helped markedly, and five were not benefited. [F. S. K.]

No. 20. May 14. 1914.

1. Karplus, L. *Experiments in the Brain Action in Epileptic Attacks.*
2. Rothberger, C., and Winterberg, H. *Pathogenesis of "Flimmerarythmie."*
3. Sachs, O. *Qualitative Estimation of Potential Formaldehyde in Different Kinds of Hexamethylenamine.*
4. *Melihjanz, O. *The Clinical Significance of Quantitative Estimation of Albumen in Sputum.*
5. v. Schbötter, H. *Heliotherapy at the Sea-shore.*

4. The author summarizes ten cases of pneumonia. He draws from these the same conclusions as from his previous reported cases, namely: the later it comes and the later it goes the worse the prognosis. The amount is in proportion to the severity of the disease. Much long persistence suggests phthisis. [F. S. K.]

No. 21. May 21, 1914.

1. Braun, L. *Angina Pectoris.*
2. Schultz, E., and Kreuzfuchs, H. *Case of Rumination with X-ray Findings of Intermittent Hour-Glass Stomach.*
3. Ruppert, L. *A Fracture by Tearing Off of the Anterior Superior Iliac Spine.*
4. Schulhof, F. *The Treatment of Epilepsy with "Sedobrols."*
5. Ceipeh, L. *The Diet in the Alpine District of "Bezirk Innsbruck Umgebung."*
6. Jerusalem, M. *Heliotherapy in Austria.*
7. Friedlander, F. *Discussion of the Friedman Treatment of Tuberculosis.*

No. 22. May 28, 1914.

1. Schiff, A. *Experiments with Transient Albuminuria in the Human.*
2. March, R. *Experience in the Treatment of Myoma of the Uterus.*
3. Lorenz, H. *The Operative Treatment of Habitual Luxation of the Patella.*

4. MELOVANOVIĆ, M. *Leiomyomata of the Œsophagus and Cardia.*
5. *GROSZ, S. Hexamethylentetramine Reaction.*

5. The author's test: Add to the urine enough 10 per cent. acetic or hydrochloric acid to five-fourths or four-thirds the total, then add, a drop at a time, a saturated aqueous solution of mercuric chloride. A fine-grained sediment is positive.

[F. S. K.]

No. 23, JUNE 4, 1914.

1. ARZT, L., AND KERL, W. *Experimental Rabbit-Syphilis.*
2. FASCHINGBAUER, H. *Hemorrhagic Diathesis in Tuberculosis.*
3. GOTZL, A. *"Tuberculomuzin."*
4. KUTSCHERA, A. *Skin-Tuberculin Treatment.*
5. FRANKFURTER, O. *The Question of Mixed Infection in Phthisis and Treatment.*
6. CSEPAI, K. *The Abderhalden Dialyzation Method in Diagnosis.*

Miscellany.

STATUS OF MEDICAL EDUCATION IN THE UNITED STATES.

IN the issue of the JOURNAL for Sept. 10 we published the data as to the medical schools of New England from the recent report of the council on medical education of the American Medical Association. The following summary by Benjamin Baker in the issue of the Boston *Transcript* for Aug. 26, presents further interesting data of the work of this committee and of the present status of medical schools throughout the United States.

"Since June 30 of last year six medical colleges have either suspended or disappeared by merger with other institutions. Since 1904, when there were 160 medical colleges, eighty-five have ceased to exist, forty-nine being closed by merger and thirty-five going out of existence altogether. The largest numbers closing in single years were ten in 1907, when the council published its first classification of medical colleges; thirteen in 1910, when the second classification was prepared, and fourteen in 1913, when the third classification came out. Of the schools which became extinct, all but three were in Class C, the lowest grade of the council's classification. On the other hand, 93 per cent. of the schools which disappeared by merger were in classes A and B. This represents the general fact, namely, that in the course of the campaign for better medical education, the defective schools, which nevertheless tried to do good work, improved their work by merger with other institutions; while the cheap, money-making schools mostly gave up the struggle.

"There were at the end of last June, excluding pre-medical, special and graduate students, 16,502 medical students in the country. This is a decrease of 513 from last year; a decrease of 1910 from the year 1912, and a decrease of 11,640 below 1904, when the highest number of students, 28,142, was enrolled.

"The total number of graduates last year was 3594, which was a decrease of 387 from last year, 889 below 1912 and 2153 fewer than in 1904, when the largest number, 5747, were graduated. The percentage of decrease in both students and graduates during the past decade is nearly twice as high for the homoeopathic and eclectic schools as for the so-called 'regular' schools.

"Women students of medicine decreased 9 from last year. Last June the number of women students was 631, or 498 fewer than in 1904. Somewhat over 21 per cent. of the women students were in the two women's schools (in Philadelphia and New York), while the remainder were in the 54 co-educational colleges.

"Sixty-eight colleges of the present total 101 are in classes 'A plus,' and 'A,' of the council's classification. 'Class A plus' includes 'acceptable medical colleges,' and class A includes 'colleges also acceptable which could make certain improvements.' These two classes, constituting 63 per cent. of the whole number, enrolled 74.7 per cent. of the students, and turned out 73 per cent. of the graduates. Class B, 'colleges needing general improvements to be made acceptable,' of which there are twenty giving a complete four years' course (18.5 per cent.), have 17.2 per cent. of the students and turn out 20 per cent. of the graduates. The twenty schools in class C—'colleges needing general improvements to be made acceptable,'—have only 8.1 per cent. of the students and 7 per cent. of the graduates. These figures show that the better schools are doing a proportion of the work that is greater than their number indicates.

Of the class C schools, the prospects are decidedly unpromising. The state licensing boards of thirty-two states practically refuse to recognize any of them as giving a reasonable medical education. Of the twenty in this lowest class, Massachusetts has one, California three and Missouri five.

"Interesting and significant is the showing made by the medical schools which are integral parts of the state universities of twenty-eight states. Twenty of these state medical schools give the full four years' course and the degree of M.D., while eight schools give only the first two years of the medical course. In fifteen states no other medical school exists, the state having entire responsibility for medical education. This will be the case in Alabama in 1915, when an independent school now existing will confine itself to graduate instruction.

"Only four of these state schools get as low as class B, and this rating is not surprising when it is seen that these four are in Arkansas, Oklahoma, South Carolina and West Virginia. It is significant that in these states the state medical school is the only one. Nine other lone state

schools, however, are rated class A, and two are class A plus. Of the whole number, thirteen are class A, and eleven are class a plus.

"Thirty-four medical schools now require as a minimum for entrance two or more years to work in a college of liberal arts, in addition to a four-year high school course. Fifty others require, in addition to a four-year high school course, one year of college work in physics, chemistry, biology, and one modern foreign language. Five of these fifty colleges will require two years of such collegiate work of all students admitted for the sessions of 1915-16. This recent movement toward increased entrance requirements has been powerfully accelerated by the licensing boards of twenty states, which now require a minimum of one year, and in seven of these twenty states two years of college work in preparation.

"Service for one year as an interne or hospital officer, following the four years spent in the medical school, is now a requirement for the doctor's degree in three medical schools—those of the State University of Minnesota, Leland Stanford, Jr., California, and Rush Medical College, Chicago. In addition, along the same line, the Pennsylvania State Licensing Board requires that candidates to be eligible to practise in that state must have served at least one year as an interne in an approved hospital. Requirements for entrance, for graduation, and for license to practise are tightening up all over the country; and it is evident that in another decade the adequately educated physician will be the accepted standard, and probably pretty near the numerical majority.

"Seventy medical colleges have now established graduate courses in public health. The course is for one year, except at the universities of Michigan, Minnesota and Wisconsin, where it is two years; Wisconsin, however, gives a diploma in public health for one year's work. The seven colleges, in the order of establishment of the courses are: University of Pennsylvania, Harvard Medical, University of Michigan, University of Wisconsin, Detroit College of Medicine and Surgery, Bellevue Hospital Medical School. Tulane University, and University of Minnesota.

"Further mergers of existing medical schools are urged both on grounds of efficiency and economy. Figures are given which show that many of the best schools show a deficiency of cost per pupil from two to three times the amount of the annual tuition fee at the highest figure, or from $500 to $2744. It is pointed out that Chicago has 8 medical schools, New York 7, Philadelphia 6, Boston 4, San Francisco 4, St. Louis 4, Baltimore 3, Los Angeles 3, Washington 3, Dallas 2, Omaha 2. From a study of the situation in these cities it is held to be plain that mergers in each of them should be resorted to to gain funds and especially students for adequately using the best plants, and the most valuable instructors."

MEDICAL BOOKS OF THE FIFTEENTH CENTURY.

In his presidential address before the London Bibliographical Society last January, reported in the *British Medical Journal* of Jan. 24, Sir William Osler, taking as a subject "The Earliest Printed Medical Books," spoke particularly of the physicians, schools, and works of the fifteenth century.

"The fifteenth century possessed in medicine and science no outstanding name, and was marked by no observation or discovery of the first rank. There were then three great centres of medical study—Montpellier, Paris, and the northern Italian universities. Montpellier had reached its zenith, Paris was rapidly rising, and the schools of North Italy were well organized. Medicine was taught at Oxford and Cambridge, but they had not medical faculties as had the old Continental universities. Arabic medicine was supreme. In a work of the period written by Ferrari the name of Avicenna appeared 3,100 times, that of Rhazes 1,280 times, that of Galen 1,160 times, and that of Hippocrates 140 times. The printed medical works before 1480 to which he referred numbered 182, and represented 67 authors. Of these, 6 were classical, 8 Arabic, 23 mediaeval, and 30 belonged to the fifteenth century. The first piece of medical printing was a short Maintz calendar published in 1457; it was based on the belief that certain phases of the moon and conjunctions of the planets were favorable to bleeding. It was very dangerous to bleed a young man during a young moon, or an old man during an old moon. The monks were bled five times a year for three days running. Astrology died hard, and as late as 1707 a treatise on astrology was submitted to the Paris University, but after consideration refused. Among the early classical books was the *Historia* of Pliny, who was far more outspoken than Molière or Mr. Bernard Shaw in his criticism of the medical profession. Seven editions of it in all were printed up to 1730. There were no editions of Galen or Hippocrates, but two commentaries on their works. Aristotle was more fortunate, and the *De animalibus* of 1476 was a superbly produced book. In 1478 an edition of the works of the botanist Dioscorides was printed. A famous sixth-century codex of this was in existence, and his book was still read and used by collectors in Asia Minor. There was Celsus, too, the only classical medical writer to survive in the modern examination room. He deserved to survive for his shrewd observation and common sense.

"The domination of Arabic thought was seen in the fact that there were seven Arabic authors with twenty-one editions on the list. Among them were Avicenna, more venerated probably on account of his composition, his lucid diction, and his logical sequence than for the value of his

material; Rhazes, still quoted for his description of small-pox, whose great work, printed in 1486, was the most ponderous of the incunabula, and perhaps the weightiest book known; and Averroes, represented only by a commentator. Despite the Arabic-Greek controversy that raged between Paris and Montpellier, the canon of Avicenna held its own until the seventeenth century. The Arabs contributed nothing to medicine or anatomy, but their heavy hand is still seen in the *British Pharmacopœia*.

"The first printed book on surgery belonged to the period of the Salernitian School, and it and one other were the only surgical books in the collection. There were the works, too, of the commentators, conciliators, and aggregators. One of the aggregators' compilations was the original and the best of all those dictionaries of treatment called for by doctors who liked to work on penny-in-the-slot lines. There was a larger number of remedies for every symptom in it than in any other book of the sort, and its author was one of the best clock-makers of the day. For some diseases there were five printed columns of the names of medicines. There was the book of Albertus Magnus, whose long life was a triumph of accomplishment. Except for Dioscorides, he was the one great botanist after Theophrastus down to modern times. Michale Scot was another of the mediæval authors represented, and in the section of his book referring to generation he had many outspoken words as to the choice of a wife. With his views on dreams and their interpretations based on a consideration of the dreamers' complexions, the school of Freud would probably be in sympathy. It was the practice of the time for patients to write out their symptoms and for the professors to write consultations on them which were really essays, and this custom was long kept up by the Italian professors. In the great Lancisi library in Rome there was a long shelf entirely filled with a collection of the 'consultations' of the famous anatomist Malpighi, and the library possessed almost as many examples of Lancisi.

"Anatomy was not taught and, indeed, had not been taught by the Greeks other than those of the Alexandrian school, and Aristotle and Hippocrates had never seen the human heart, though the former was a good comparative anatomist. The first anatomical treatise was printed in 1478; it had been written in 1326. It was dominated by Arabic influence and inexact, differing strikingly from the descriptions of Galen, which could be used today, with few alterations, in a high school.

"The first monograph on diseases of children appeared in 1472; a monograph on the diseases of the eye was published in 1474, a book on diseases in 1477, and in 1472 a volume with a eugenic title and full of excellent common sense. It was reprinted five times before 1480."

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING SEPT. 12, 1914.

September 4, Asst. Surgeon J. H. Harris, commissioned from July 10, 1914.

Asst. Surgeon J. H. Michael, commissioned from August 8, 1914.

September 10, Surgeon Jacob Stepp, ordered to the Naval Dispensary, Washington, D. C.

Surgeon Karl Ohnesorg, detached from *Tennessee* and ordered to duty as assistant to the Naval Attache, Berlin, Germany.

NOTICES.

Home Missionary Needed.

A small hill town in New Hampshire needs a doctor. A considerable surrounding country district is also in need of good medical service. There is a hospital in a larger town a few miles away. A considerable summer colony would welcome him. If he collected $2500 he would do well and might run the danger of being considered a "rich man." Living should be inexpensive.

College Physician Wanted.

Small men's college in New Hampshire wants a physician, some teaching, and regular physical examinations. Salary $1000.

For details apply to

Dr. A. B. Emmons, 2d,
Director for Appointments for Medical Alumni,
Harvard Medical School, Boston.

RECENT DEATHS.

Dr. William L. Dudley, of Nashville, Tenn., who died recently in Illinois, was born in 1859. He graduated in 1880 from the University of Cincinnati, and in 1866 became professor of chemistry at Vanderbilt University, where he was subsequently dean of the medical department.

Dr. H. Seymour Houghton, of New York, died at his country home at Monmouth Beach, N. J., on September 11, aged 52 years. He was graduated from Bellevue Hospital Medical College in 1886, and afterwards served as interne at Bellevue Hospital. In 1909 he was president of the Medical Society of the County of New York and at the time of his death was physician to the Home for Old Men and Aged Couples.

Dr. Matthew S. Borden, of New York, and three other persons were killed near Ocean City, N. J., on September 9, when the automobile the doctor was driving was struck by a railway train. Dr. Borden was a son of the late M. C. D. Borden, the wealthy manufactuarer of Fall River, Mass., and was graduated from Bellevue Hospital Medical College, New York, in 1898.

Dr. Cornelius Van Etten, who had practised for forty years at Rhinebeck, Dutchess County, N. Y., died on September 10. He was graduated from the medical department of the University of Pennsylvania in 1873.

BOOKS AND PAMPHLETS RECEIVED.

Asphyxia Neonatorum and Its Sequelae, by W. P. Manton, M.D. Reprint.

Report of Experiments to Test the Toxicity of Mother's Milk after Administration of Acetanilide, by Beatrice A. Stevenson, M.D. Reprint.

Drinking Fountains on Fire Hydrants, by Donald B. Armstrong, M.D. Reprint.

Public Health Values, a New Modern Sanitary Fallacies, by Donald B. Armstrong, M.D. Reprint.

Public Comfort Stations: Their Economy and Sanitation, by Donald B. Armstrong, M.D. Reprint.

Focal Symptoms in General Paralysis, by C. Macfie Campbell, M.D. G. E. Eskert & Co.

Address.

DEMAND AND SUPPLY AS RELATED TO NURSES AND NURSING.

By Fred T. Murphy, M.D., St. Louis,

Professor of Surgery, Washington University Medical School.

In order to consider this problem of the education of nurses intelligently, we must analyze two factors,—first, the demands made upon the nursing profession, and second, the means of meeting these demands. Under the latter heading, we shall have to consider educational as well as physical means, or it might be put, method and material.

The great demand of today is, as in ages past, and as it always will be, the demand of service. We are prone to consider nursing as beginning at Kaiserwerth with good Pastor Fliedner in 1836. That was only the beginning of our conception of the modern trained nurse. Fabiola and Flacilla, fine Roman matrons of the fourth century, A.D., and numberless devoted Sisters, had served, in so far as they were able, the sick; and doubtless Deborah, Rebecca's nurse, who "died and was buried beneath Bethel under an oak," attended her mistress with care and tenderness.

We do well to emphasize this demand of service. It has been with the profession of nursing as with the medical profession, perhaps the greatest factor in preserving the highest ideals, for to render service to the sick is the first essential of both professions. Service, however, is too often interpreted to mean only manual care and sacrifice of self. Both are necessary, to be sure, but we must remember that the development of science has altered materially the possibilities of service. War and religion, the earlier compelling forces, offered and required primarily a manual type of service. Science demands in addition, mental training. Walter Reed served humanity in a much more effective manner by his experiments with yellow fever than dear old Dr. McLaren in his care of the Highland folk; yet Reed sat by no bedside in the attitude of Watt's physician, with whom many of you are familiar.

So it is with nurses, and their possibilities. The requirements of their service can no longer be considered as simply manual. It is far from my intention to decry the need for kindly and sympathetic manual service: in fact, you will remember that service—to serve the sick—was given as the first essential of nursing; but I would emphasize that there are other ways of helping the sick: that modern development has built upon the great fundamental principle and has opened up new avenues of activity for the nurse, no less essential than personal care. Not long since, to become a nurse meant actual bedside care in private or individual work, or the rare teaching or administrative position. Today, while the demand for actual nursing service is perhaps greater than ever before, the possibility of work in other fields has developed in a most remarkable way. As representing these new possibilities, in fact they are demands made upon the nurse by an insistent public, may be mentioned specialized work in the administration of institutions, work in the technical supervision of laboratories, work as assistants and supervisors in operating rooms, work as anesthetists, work as administrators of milk stations and public charities, school nursing, house visiting, social service work in general, and so I might go on almost indefinitely.

In short, besides requiring of the nurse a high degree of technical skill and intelligence in the actual care of patients and as assistant of the doctor, she is being asked to give material and efficient assistance in every health and social problem. This does not mean that every nurse would be qualified or equipped to undertake the special work, any more than it can be assumed that every medical student will become a specialist. To most of you, as to most of us, general work will be the more attractive, and with nurses, as with doctors, general practice, if I may use the term, will and should be the goal than which there is none other more noble or more essential. But to hold that the demands made upon the nurse of today contemplate only manual training, or if combined with mental training, mental training of a very superficial character, is to fail to appreciate what nurses are doing, and what the public and doctors are asking them to do.

To follow our general scheme, let us now consider the means of meeting these demands. First, the physical means. Hanley, in those wonderful verses in which he paints hospital life in the old Edinburgh Infirmary, gives us the picture of the staff nurse, old style,

"With her broad Scots tongue, that flatters, scolds, defies:
The thick Scots' wit that fells you like a mace."

but hastens to add,

"Patients and students hold her very dear;
They say the chief himself is half afraid of her."

And in contrast paints the staff nurse, new style, as one

"Kindly and calm, patrician to the last,
Who knows that she has exceedingly pretty hands.
And speaks Latin with a right accentuation."

—different types distinctly, but both essentially fine; both women who have labored long that they might better be able to render service to the sick. So today we see the widest possible

* Read at the Convention of the National League of Nursing Education, St. Louis, April 24, 1914.

variations, influenced by community or sectional feeling, by the demands and possibilities of service, representatives from every self-respecting, hard-working stratum of society,—a physical material which has perhaps been lessened by inherent weakness in the method of training, by limitations in the possibilities of service, but so long as there be women, there must always be a large number who will feel more than any other call, this call to nurse. It is an inherent feminine trait. To repress it is possible; to obliterate it, impossible. The physical supply, then, may be said to depend upon not only the demand but the possibility of service and the method of training.

Remarkable as has been the development of systematic trained nursing since the pioneer work at Kaiserwerth and that immediately following in England under your patron saint, Florence Nightingale, we are agreed, I think, that the conditions controlling the education of a nurse have not been and are not uniformly ideal. With certain exceptions, of which none is more striking than the school at Waltham, training schools for nurses have been developed as an integral part of the service of great hospitals, even though many of the older schools were in the beginning governed by a separate board of managers and distinct from the hospitals. Grafted on the purely commercial side of hospital life, the training of the nurse assumed of necessity a commercial aspect. She has been, and is too frequently looked upon as an asset of the hospital rather than an intelligent student serving in the work of the hospital in order to further the hospital's development as well as her own. Don't take it that I would imply that the sole idea in the minds of the governing boards of most of our institutions has been to take service and give nothing in return; for I believe that this idea is unjustly overemphasized today. The hospital had to give that which is essential in the training of the nurse,—that is, patients and facilities,—and if they tended too much to take what they could get in service and give too little in return by way of actual training with other than practical work, it should be looked upon as a whole as an error in method rather than a selfish desire to get something for nothing.

Be that as it may, however, the training of the nurse has been, and still is, in my opinion, in too many quarters, looked upon as distinctly manual, and the training school as a part of the hospital service, rather than a department interested primarily in the education—technical though it may be—of its pupils. The mental development, if considered at all, has occupied a secondary position. Now neither extreme can be looked upon, perhaps, as desirable. A nurse with an extensive theoretical training without practical experience and tact, compares unfavorably with her co-worker who has had this experience and has tact. In the best hospitals, the tendency to balance better these elements of training is evidenced by the increasing number of schools which are really giving sound preliminary and theoretical training, or have affiliated with some educational institution which is prepared to give this work, and also by the addition to training school staffs of paid instructors; but too generally still, the nurse is trained because she can give the hospital something and not because the hospital has something which it wants to give the nurse.

This idea might be further developed by referring to the abuses which have sprung up in the small specialized hospitals, quite unable to offer clinical advantages which are adequate as well as failing wholly in offering theoretical training, where requirements of admission—in fact, requirements of service, except manual detail—were quite overlooked. If these defects have existed in the past, if they are preventing today too generally the preparation of the nurse to meet the demands of the profession, what solution may be offered? It is always easier to offer destructive criticisms than to offer a simple and practical way out. In considering a solution, we must, I believe, draw the line sharply between that which is possible and that which is ideal. Local conditions may prevent absolutely any attempt to develop what seems to me to be the ideal condition. Consider first that which is possible,—the readjustment of existing opportunities. In order to do this, the scope of the demands upon the nurse must be appreciated and the existing, well established schools so modify their curricula and practical training as to meet these demands. Just such meetings as these are necessary to crystallize in the minds of the nurses themselves the needs for these changes,—to educate the nursing body to appreciate the full possibility of today, and while emphasizing these possibilities, to emphasize again, as always, that theoretical training, valuable as it may be, can never take the place of capable, tactful service, in which self is subjugated and the needs of the patient or of the situation made the sole consideration, for trained nursing has been done many a grievous wrong by failure to place service above self.

A demonstration of the needs and the formulation of a solution may be considered to be the first step, the step to be taken by the nurses themselves. The next step is to further educate boards of control so that they will feel a responsibility as to what they give in return for indispensable service; to educate men to appreciate the fact that the demands of today require a manual and theoretical training quite comparable, except in degree, to that of the doctor. To consider next what I would term the ideal development, I know that I am here treading upon delicate ground. Tradition and precedent are not to be pushed aside lightly, for experience is a grand teacher. As I see the essentials for this

development, they are, so far as the form of organization is concerned, an entity for the training school independent of direct hospital control; direction by an existing educational institution or by individuals in sympathy with and able to provide facilities for the education of the nurse as well as for purely technical training; opportunities for hospital service under conditions that will assume the broadest and most exacting and practical training; opportunities for training outside of the hospital in the fields of public health, home visiting, and social service.

Educators are agreed that the successful development of any scheme of organization is dependent in large measures upon the abilities of the teachers; so with the plan proposed. There must needs be combined administrative and technical ability of the highest type, as well as ideals and visions which consider not only the needs of today and tomorrow, but of the future. You know, I am sure, of the development of the training school in certain of our western institutions, than which none is more interesting than that at the University of Minnesota, but it would be more vital, perhaps, if I tell you of the way we have attempted to solve this problem for ourselves here in Washington University, rather than to view and discuss developments elsewhere.

As isolated units, suitable for use in the education of the nurse, we have the medical school, hospitals and dispensaries, the university, the training school, and the social service department,—rather an unusual equipment, to be sure. If we fail to make use of it, the fault will be ours and yours, for the material is mouldable to any degree by intelligent and insistent effort. I include you as a party in responsibility, because we must look to you, as representatives of the profession, for advice and support.

As the first step towards this new organization, we have placed the immediate control of the training school for nurses and the social service department under the hospital committee, which is composed of the heads of the clinical departments, the professor of pathology representing the laboratory subjects, and the hospital superintendent. This hospital committee is answerable to the executive faculty of the medical school, which, as any other university unit, is under the direction of the trustees of the university; that is, we have made the training school and the social service department independent units under university control, thus assuring protection from a too intensive consideration of service, regardless of the return and direction by an institution primarily interested in education.

By this arrangement, we have been able to supply adequate instruction by trained men and women, and laboratory work in the preparatory course which is given in the laboratories of the medical school by the staffs of the various departments. The instruction in the nurses' home and in the hospital is given by trained nurse instructors. The department of English of the University has given various general lectures, and will, beginning with the fall term of this year, give two hours a week of systematic class work.

Two scholarships for post-graduate work have been made available, beginning with the present June class. A curriculum has been inaugurated which provides on an eight hour day basis for a six months' preparatory period devoted to instruction in the fundamental subjects, a year of elementary ward work and instruction, a year in advanced hospital work and instruction, and a six months' period for special elective training in hospital administration, special technical training, or social service work.

Our own hospital provides clinical training in medicine, surgery, and obstetrics, and the St. Louis Children's Hospital affords opportunities for nursing in all types of children's and infants' diseases. This hospital pays the university for service rendered. On moving to our new buildings, the Barnes Hospital replaces the present University Hospital. This may require certain internal adjustments, but we believe that the fundamental ideas of control and development will in no way be altered.

Until recently, our departments of training school for nurses and social service have been separate units under the immediate direction of individual heads, though both were under the direction of the same committee. On April 15, Miss Stimson was made head of the department of nursing and social service. We believe that the combination of these two departments, each to be administered by a distinct and adequate staff, will increase the efficiency of each, and make possible a development which is limited only by the opportunities of our community and our ability to meet these opportunities. Let me make it quite clear that we are not trying to combine the technical training of the nurse and the social service worker. We recognize fully that the demands of each service may require a wholly different preparation, but we are convinced that a certain amount of social service work may require elements of nursing, and that much of the nursing work might be better done if to the technical training were added the elements of the social service work. We want to supplement the one with the other wherever that may be desirable, without in any way subordinating either. We recognize that, owing to physical difficulties incident to our present location, it has not been possible to carry out in every detail all that we might have wished. For these omissions we can only express regret.

Now as to the hopes for the future. If the fundamental idea is accepted that the training of the nurse is as essentially a mental as a manual problem, then this training, just as training in any other educational line, can be best fur-

thered as a department of a university. This we definitely plan to accomplish. Up to the present, limitation in the number of applicants, with a sufficiently extensive preliminary training to admit them on the same educational level as the university students, has prevented this. The university, however, stands ready to establish a department of health and nursing just as soon as we can conscientiously advise them that the work is here to do. With the organization of such a department, a diploma from this department, whether it represents the intensive instruction in the specialized training of the nurse or along the lines of social service, will carry with it the same distinction as a university degree given in other departments.

On such a basis, the training of the nurse immediately becomes a profession. Such a training is not alone applicable and desirable for those who expect to do this as life's work, but it should offer, beyond the mere technical side, a training equal to that of the university or college as a preparation for that greatest of all duties and pleasures—homemaking.

I believe that we have in no sense seen a glorified vision of the possibilities of this development in the training of women. The demands of the day require it; the available material, we believe, will justify it. Surely, satisfying this fundamental principle of supply and demand, the result cannot but be an advance.

Original Articles.

X-RAY EVIDENCE IN EARLY AND LATENT CANCER OF THE STOMACH.*

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MEDICAL literature is filled with accurate descriptions and beautiful x-ray pictures of late cancer, but we all know that many cases of early cancer and many cases of latent cancer have escaped detection by former clinical methods. The present study was made to find out how far the x-ray is helping to discover these early and latent cases. The early symptoms and chemical changes due to gastric cancer are often vague. We hoped to find that the early anatomical changes in the stomach wall, which could be detected by the x-ray, would prove to be more definite and characteristic.

The patients are recent ones, in order to make the most of recent improvements in x-ray technic. They were carefully studied by other methods of diagnosis.

The diagnosis of cancer was verified by operation, autopsy, or an unmistakable course. Most cases in which cancer was ruled out have been followed to operation, or for six months or more after examination, to verify the diagnosis as far as possible.

The material for this study consists of 114 hospital and private cases, examined within a year and a half by clinical and x-ray methods in which cancer of the stomach was suspected or found. In 40 cases cancer was ultimately proved and in 66 ultimately ruled out, 8 remain doubtful at present. Thirty-three cases of cancer are excluded from this paper as being well developed, leaving 81 early, latent or suspected cases. These 81 cases were classed at the end of our clinical and x-ray examination, as follows: 1 (or 2) early, 6 latent, 62 ruled out, 12 (or 11) doubtful. In all cases a complete physical examination was made, usually including tests of secretion and motility of the stomach, and an examination of the feces and gastric contents for blood. With the x-ray both fluoroscope and plates were used, immediately after a bismuth meal and at six and twenty-four hour intervals.

In 33 cases of proved cancer, the diagnosis was definitely made by the well-known signs and symptoms and the x-ray examination was merely confirmatory. The remaining group of 7 cases of proved cancer, though small, is very interesting and represents either early or latent cancer. Many cases of cancer are called latent in general practice because no thorough examination of the stomach is made. When examination is made they are readily discovered. There is another group which are truly latent, the cases which remain hidden or very doubtful even after careful clinical examination of the stomach and which may be first demonstrated clearly by the x-ray.

The per cent. of these doubtful and difficult cases is rather high in this series as they are the ones which were most frequently seen in consultation and most frequently chosen for x-ray examination at the hospital.

Technical Evidence. The direct demonstration of the cancer itself is of far more value than indirect evidence, such as motility and residue.

The most important evidence is a constant defect in the outline of the stomach on filling it with bismuth. In the very earliest cases this is due to a slight local thickening with disturbed peristalsis, and hard or impossible to recognize as cancer. In later cases the defect is irregular in outline and of any size, and looks like a jagged bite out of the stomach shadow. It may be annular at the pylorus and extending upward, making the stomach funnel shaped with a long narrow canal. The shadow may have a worm-eaten appearance. There is usually rigidity of the wall and local absence of peristalsis.

* Read at the twenty-fifth annual meeting of the Association of American Physicians, Atlantic City, May 12-13, 1914.

Cirrhus growth may thicken the wall without projecting into it, making a "leather-bottle" stomach with little or no peristalsis and high position in the abdomen.

The stomach usually empties rapidly in the latent cases. This is usually due to the relaxed pylorus found with low secretion, or occasionally to a rigid open pylorus, involved in cancer.

If the pylorus is obstructed the stomach empties slowly. Such cases may be confused with ulcer or adhesions about the pylorus. In some small cancers at the pylorus which cause early obstruction, the obstruction may be marked and the deformity slight.

The malignant degeneration of an old ulcer may present great difficulty in diagnosis. Slight or marked irregularity in outline favors cancer, but is not distinctive. To put this more in detail, we may say, that the chronic ulcer is often definite, the transition stage from ulcer to cancer usually indefinite and impossible to diagnose, the later cancerous stage usually definite and characteristic.

At the cardia the character of the shadow frequently does not distinguish cancer from other causes of obstruction. We may say in general that the technical evidence of cancer is *absolutely characteristic* in only part of the cases. In the majority, it must be judged in connection with other clinical data.

Early Cancer. The word "early" in this connection must include very small cancers. It is practically impossible to tell the "age" of many cancers of the stomach.

For early diagnosis of cancer, we must see the patient early.

What brings the patient for examination? His symptoms. We shall not see him till he develops some. These early symptoms and signs of cancer are often vague. The important question is: Are the early anatomical changes in gastric cancer, discoverable by x-ray, more definite and characteristic?

We have tried to avoid delay in examinations and have used the x-ray in all suspicious cases in hopes of discovering the anatomical signs of early cancer.

This faithful search for early cancer in a large number of suspected cases has given little result. The earlier the cancer the less clear the picture with the x-ray as with other methods, until a point is reached where the evidence is very doubtful indeed. In primary cancer the small area of induration in the earliest cases may be in no wise characteristic, and in cancer developing on ulcer the transition stage may be very difficult or impossible to diagnose by the x-ray.

In short, while anatomical changes in the stomach wall, discoverable by the x-ray, accompany the early clinical symptoms, the anatomical changes themselves are not always definite and characteristic of cancer.

We have, however, one proved case with a possible second (both examined by Dr. A. W. George):—

A man of 50 years had mild attacks of epigastric distress and vomiting for several years. Physical examination was practically negative. Gastric secretion was normal. No blood was found in gastric contents or feces. There was slight 12-hour gastric stasis. A diagnosis of doubtful chronic ulcer was made. A diagnosis of cancer was made after x-ray examination on the basis of a very small annular defect at the pylorus, showing slight but definite irregularity, and resection urged. The surgical diagnosis at operation was chronic inflammatory tissue, but resection was done. The pathologist's report on gross examination was the same, but cancer was found on microscopical examination. We must give the radiologist the credit of making the correct diagnosis, and if such results are confirmed by a later series of cases they will prove of great value. We do not feel sure, however, that such x-ray evidence will always distinguish cancer from ulcer.

The second case, age 50, had several years before, severe distress and vomiting of several months' duration, some mild but continuous symptoms since. Physical examination showed nothing abnormal. There was normal gastric secretion, no stasis and no evidence of bleeding. A diagnosis of very questionable old ulcer was made.

X-ray examination showed a slight defect at the pylorus, very slightly irregular, normal motility. A diagnosis of probable early cancer was made. At operation a slight induration was felt at the pylorus, but the surgeon did not feel justified in operating upon the stomach. It is *possible* that in this case also the x-ray may precede the surgical diagnosis of cancer. It is also possible that the diagnosis after the x-ray is an error. Time will tell. Such early diagnosis, if experience justifies it, is brilliant and important. Further data is needed before passing an opinion.

One more case should be mentioned in this connection. A man of 54 with short history of distress and vomiting and loss of weight, showing poor gastric secretion, some stasis, and occult blood in the feces; in short, a "well-developed" case clinically was shown by x-ray examination to be relatively "early" to have a stomach wall almost entirely intact and a very small cancer at the pylorus, and proved an ideal case for operation. The x-ray examination did valuable service in urging the operation.

We may briefly summarize our experience in searching for early cancer as follows:—

One of the greatest difficulties has been in *getting the patient early.* The first examination when positive has usually discovered well-developed, not early cancer. Our x-ray evidence of early cancer is very scanty, but we believe the method will occasionally aid in its discovery and should be given a trial in every suspected case. The better the x-ray technic and the more thoroughly the case is studied, the better the chance for an early diagnosis. Well marked cancers are easily found with fluoroscopic examination and a few routine plates. This is not true of early cases.

Dr. Cole* has recently stated that gastric cancer at any stage of development may be detected with as great a degree of accuracy as bone fractures. We cannot believe this is true, regardless of the number of plates taken. Neither do we believe that at present a positive or negative diagnosis after x-ray examination is as accurate in early cancer as an exploratory laparotomy, or can replace it. On the other hand, patients of cancer age with few symptoms will consent to an x-ray examination readily when they would refuse an exploration.

The x-ray will occasionally show in an evident case with definite symptoms and signs, that the cancer is small and mobile and ideal for operation. This is almost as important as early diagnosis.

Latent Cancer. Cancer of the stomach may remain latent or hidden because no careful search is made for it. It is quite common nowadays for the radiologists to discover a large cancer in a stomach which has *never been examined before* by any method. These are not latent in a strict sense; they are found when looked for. On the other hand, there is a small group of cases which remain hidden or very doubtful after thorough clinical examination. These are latent in the strict sense in which we use the word in this paper.

We have been impressed with the size and extent of some of these latent cancers in comparison with the vagueness of gastric symptoms, the prompt emptying of the stomach, and sometimes the lack of significant bleeding, and also the ease with which they were discovered by the x-ray.

In our six latent cases, the diagnosis was verified by operation. The patients were all of middle age or beyond; the symptoms were either vague and apparently due to age, arteriosclerosis or syphilis, or pointed to the bowel or gall-bladder, when actually the stomach was involved. In other cases the diagnosis of ulcer was made, and in others gastric catarrh or achylia. Prompt emptying of the stomach was the rule. The gastric secretion was either within normal limits, or if low, was attributed to functional disturbance, age or catarrh. Blood was either absent (in one or two cases) or not considered significant of cancer, being laid to slight abrasion of the stomach by the tube, to piles, ulcer, syphilis, etc. No tumor was felt.

We will consider the types of latent cancer of the stomach more in detail.

Case Called Senile or Functional. We have one example of this class where the vague symptoms and loss of weight seem to be well explained by the process of growing old, and the absence of gastric stasis (where the pylorus is not involved), and the lack of significant bleeding wake little suspicion of cancer. Low gastric secretion is considered functional and due to increasing age. The presence of some other lesion like interstitial change in the kidney, is doubly misleading and seems to account for the symptoms. The cancer was readily discovered and located with the aid of the x-ray on the lesser curvature, not obstructing the pylorus.

Case Called Catarrh of the Stomach. When chronic gastric catarrh is present, even though the patient is carefully studied and followed for years, the final development of cancer may come so quietly as to escape observation. The gastric secretion has long been so low that cancer does not lower it. There may be no 12-hour stasis. The blood test may not be significant. In this case the passage of a stomach tube had often provoked a tiny streak of blood and the patient had piles.

Case Called Syphilis. The presence of syphilis shown by skin or bone changes and a strong Wassermann reaction may seem to explain all symptoms of a general kind, loss of appetite and moderate loss of weight, dull pains and distress and even gastro-intestinal symptoms. Even the presence of blood in feces or gastric contents may be explained by syphilitic ulceration of the gastro-intestinal tract, and thus the evidences of cancer may be confused and overshadowed by the presence of the serious disease, syphilis, which is recognized.

The x-ray evidence in this case was definite and clear, but sometimes it is not. Syphilis sometimes resembles cancer too closely to be distinguished.

After x-ray examination we have two such syphilitic patients, both of cancer age, classed among the "doubtful cases." (One proved to have cancer also, the other was diagnosed as syphilis at operation and subsequent history for a year confirms it.)

Cases Called Ulcer. Patients with a history of chronic recurrent ulcer, extending perhaps over many years, may readily develop cancer without important symptoms which call attention to the change. The weakness, pain, loss of weight, vomiting or blood may all be laid to ulcer. Full or high gastric secretion helps to conceal the cancer. The bismuth defects in these cases were irregular, bitten out and typical of cancer, and in one case surprisingly large.

The x-ray usually helps the diagnosis between cancer and ulcer, and in advanced cases will clearly distinguish. In a large number of the cancer cases, however, it will *not* differentiate between old ulcer and the malignant degeneration of old ulcer (see doubtful cases). Cole* in a recent paper makes no attempt to distinguish by the x-ray between chronic ulcer and cancer, and groups them together as "surgical cases."

Case Called Cancer of Other Organs. The patient's symptoms may point strongly to the bowel, or gall-bladder or other abdominal organ,

* The Positive and Negative Diagnosis of Gastric Cancer by Means of Serial Roentgenography. L. G. Cole, *N. Y. Med. Jour.*, Feb. 14, 1914.

and if at the same time the gastric functions are well preserved, even an advanced cancer of the stomach may be overlooked, and a diagnosis made of cancer of the bowel or gall-bladder. This is far less serious than overlooking cancer altogether, for such cases are likely to be explored, but the vagueness of the clinical diagnosis contrasted sharply with the definite diagnosis of cancer of the stomach made at once after x-ray examination.

In looking over these latent cases, it is important to note the position of the cancer. Most have been in the *median* part of the stomach, where they are hard to recognize clinically. No tumor is felt because the cancer is behind the ribs, the wide lumen is not obstructed. We have found that in most cancers in this region, even the large ones, the stomach empties more rapidly than normal. The x-ray evidence has not only helped in discovering these latent cancers, it has also located them definitely and has shown their size and extent. It has given valuable evidence about operability in many cases (though we should often hesitate to decide this question on x-ray evidence alone). On the other hand, the value of the diagnosis to the patient is limited by the fact that almost all the latent cancers discovered were large and inoperable.

We have discovered no latent cancers of the *cardia* in this series. The diagnosis has either been clear before x-ray examination, or else has been doubtful after it. The early diagnosis of cancer of the cardia has less value at present than in cancer lower down, owing to the great difficulties of radical operation on the cardia.

Suspicious Cases. X-ray evidence has proved very valuable in ruling out cancer in a long list of suspicious cases, 63 in number. These include people of cancer age with various combinations of one or more suspicious symptoms, such as loss of weight and strength, anemia, epigastric pain or distress, vomiting, blood in vomitus or feces, epigastric tumor, poor gastric secretion, gastric stasis, and in which the final diagnoses were as follows: Senility, arteriosclerosis, gastric neuroses, achylia, gastric catarrh, pernicious anemia, cirrhosis of the liver, cyst of the liver, gastric ulcer, syphilis, tumor of kidney, and other abdominal tumors, cardiospasm, chronic appendix, intestinal stasis, adhesions of gall bladder to pylorus, tabes. Most of these patients were faithfully followed to operation or autopsy or for six or more months after examination to verify the diagnosis as far as possible. This has been our hardest task, but the results have been striking. Up to this time in no case in this group where a normal picture of the stomach was found, has cancer been proved.

We have discovered very few *early* cases and yet the method proved a great help in ruling out cancer. How explain this paradox? How can we rule out early cancer if we are not sure of detecting it? We believe the explanation is that the majority of patients did not come for examination in the very early or "incubation" period of cancer. Either a fairly developed cancer was present and readily found, or the symptoms were not due to cancer and it was easily ruled out. When patients who have had symptoms a long time come for examination and we find a normal picture of the stomach, we can definitely rule out cancer as the source of symptoms, and free the patient from uneasiness and constant observation.

Doubtful Cases. The following cases illustrate the limitations in x-ray evidence:—

In a moderate number of cases (12) the diagnosis remained doubtful after all examination. These were mostly elderly people, all but two were aged 55 to 68. In order of their frequency they were classed as follows: 6 ulcer or cancer, 2 syphilis of stomach or cancer; 2 organic stricture of cardia, nature not determined, probably cancer in 1 at least; 1 doubtful early cancer of stomach already referred to; 1 adhesions or cancer. All these cases had some defect or deformity of the stomach, 3 large, 5 moderate, and 4 small. Obstruction of the cardia was present in 2 cases and obstruction of the pylorus was moderate in 8, slight in 2, absent in 2. An absolute diagnosis between indurated ulcer and malignant degeneration of old ulcer is quite often impossible. Half the doubtful cases were of this type. Gastric secretion was practically normal; food stasis and blood were present.

Cases of syphilis sometimes resemble cancer too closely to be distinguished. Our two patients had triple positive Wassermann reactions and good-sized, irregular tumors in the median part of the stomach. Gastric secretion was very low and no stasis occurred. One at operation was considered syphilis of the stomach, the other cancer.

Cancer of the cardia is difficult in many cases to positively diagnose or rule out. The cardia is less accessible than the pylorus, cannot be manipulated, changes in peristalsis noted, etc., and the contour of the lesion is less clear than at the pylorus. Our two strictures proved to be, one cancer, one benign.

In one man of 55, it was impossible from history, examination, or x-ray, to decide between gall-bladder adhesions and early cancer. There was previous history of colic and jaundice, the gastric secretions were a little below normal, there was slight gastric stasis and no blood in gastric contents or feces. A small defect was found, involving pylorus and duodenum. Operation refused.

The doubtful early case of cancer has already been discussed.

Mistakes. The following four cases illustrate errors in x-ray and other evidence. The diagnosis made *before* x-ray examination was cancer in three cases (two of stomach, one of gall-bladder) and in one chronic duodenal ulcer. The chief mistake lay in our anxiety to make as early a diagnosis of cancer as possible.

Three of the patients were elderly, 51 to 57 years of age; their symptoms and loss of weight were marked. Secretion was lowered in two; blood was found in one, in feces and gastric contents. There was no gastric stasis. In short, we suspected cancer and overstepped the mark in our anxiety to make an early diagnosis. In three cases after x-ray examination slight defects and irregularities in outline were interpreted as *early cancer*, two primary, one on an ulcer base, while in all three cancer was definitely ruled out, in two by operation (finding one ulcer and one stomach with a few adhesions, evidently due to a healed ulcer), and in the third case, in which operation was refused, by practically complete recovery and good health ten months later. In the fourth case the error in diagnosis after x-ray examination was less important, but less easily explained. It consisted in diagnosing a tumor, external to the stomach, adherent and indenting and deforming it, when it actually was a cancer of the stomach itself. The patient was a man of 30 with pain and "constriction" in the epigastrium for a year, vomiting, no blood seen, loss of fifteen pounds. There was slight twelve-hour stasis and high normal secretion. Blood was found intermittently in the stomach contents. An indefinite mass occasionally felt in the epigastrium. The clinical diagnosis was cancer of the stomach. X-ray examination showed an hour-glass deformity, and a diagnosis was made of tumor in the region of the spleen, deforming the stomach by indentation and spasm. The man's age and full gastric secretion may have biased the radiologist in his diagnosis. Exploration showed an inoperable irregular tumor the size of a baseball, in the middle of the greater curvature, adherent posteriorly and extending as far as the spleen.

We have not thus far found a single case in our series in which cancer has been proved after being ruled out by our clinical and x-ray examination.

Our errors have been of commission not omission. The cases diagnosed cancer, which were not cancer, were partly the result of a desire to make a definite diagnosis in as many cases as possible. The moral is to recognize the limitations of x-ray evidence. This is the only way to avoid mistakes; in some cases the diagnosis must be left doubtful.

The mistakes we have been able to find are few; some may have escaped us in spite of careful search.

Dr. Richard C. Cabot* in a recent paper found 72% of correct diagnoses in a series of cases of gastric cancer studied at the Massachusetts General Hospital. These cases dated back nearly twenty years. During that time the clinical study of the stomach has become more complete and accurate. Functions are carefully tested and occult blood regularly looked for. It is interesting to compare with these older figures the correct diagnosis made in 34 operated cases in our series: before x-ray examination 83%, after x-ray examination 89%. (The balance of 17% and 12%, respectively, represent cases remaining doubtful after all examinations and errors in diagnosis.) Modern clinical methods have helped much, and now the x-ray takes us another step forward to better diagnosis of gastric cancer.

* Common Diagnostic Errors. *Jour. of Med. Soc. of New Jersey*, 1912.

SUMMARY.

In the very large majority of cases of cancer of the stomach at the time when they have presented themselves for our examination and if the stomach is thoroughly examined for secretion, motility, and bleeding by the usual clinical tests, the x-ray evidence has merely confirmed the diagnosis already made. These more or less typical cases we shall pass over as they are outside the scope of this paper.

Our x-ray evidence of *early* cancer of the stomach is very scanty; anatomical changes in the wall appear at the time of the early symptoms, but the early anatomical changes are hard to recognize; the earlier the cancer, the less clear the evidence.

The small areas of induration in early primary cases are often not characteristic and the transition stage in cancer developing on ulcer is very difficult or impossible to distinguish from ulcer. The difficulties may be realized when we say that we have been more often wrong than right in our efforts to diagnose early cancer with the help of the x-ray.

Very rarely (in one or possibly two cases), in this series an *early* diagnosis has been made. We believe the very small number of these early cases is due in part to the limitations of the method, and in part to the lack of sufficiently early examination.

The most important technical evidence is an irregular defect, with rigid stomach wall. The better the technic, the better the chance for early diagnosis. A few routine plates and fluoroscope examinations may not be enough. It has recently been said that by using a large number of plates, gastric cancer at any stage of development may be as accurately detected as a bone fracture, and also that x-ray diagnosis, whether positive or negative, is as accurate in gastric cancer as a laparotomy. We do not agree to either statement.

Early examination is necessary for early diagnosis. In order to find *early* cancer, patients must be examined more early and often than is now the rule. The *ideal* seems to be early examination of every patient of cancer age who has digestive disturbance.

While our x-ray evidence of *early* cancer is very scanty, we believe the method will occasionally aid in its detection, and should be given a trial in every suspected case.

It is well recognized that a small group of cancers, probably not over 10%, remain latent even when well developed. This group increases in size if the patients are carelessly examined, and shrinks if modern clinical methods are faithfully used. In this small group of latent cases x-ray evidence has been valuable in making

a clear, definite diagnosis when other signs were doubtful. This has most frequently occurred with cancers in the *median* part of the stomach, in which the stomach emptied rapidly. The most common latent cases were cancers developing on an old ulcer, or anacid cases called senile, catarrh or achylia, or patients with syphilis. We must admit that the value of the diagnosis to the patients was limited by the fact that all our latent cases were well developed when discovered, and resection was only possible in one instance.

X-ray evidence has been valuable in helping to rule out cancer in a long list of suspicious cases. In no case where a *normal picture* of the stomach was found, has cancer been proved to exist. In our whole group of cases we may say that either *no cancer* or *well developed cancer* was usually found. We believe this occurred because most cases did not come for examination in the "incubation" period.

X-ray evidence has its limitations. After all examinations a doubtful group remained, about twice as large as the group of latent cases discovered. These were cases of disease at the cardia or where the diagnosis lay between cancer and ulcer or syphilis.

A few mistakes were made in our anxiety to make an early diagnosis in suspicious cases; we overstepped the mark three times and diagnosed cancer where it was absent. We must recognize the limitations of the method and occasionally leave the diagnosis doubtful and have the patient explored.

In spite of these limitations and errors the x-ray evidence had distinctly improved our diagnosis. In 34 operated cases, the correct diagnosis before x-ray examination was 83%, after x-ray 89%. It is almost needless to say that we have studied the x-ray findings in connection with the other clinical data and have not attempted to build a diagnosis on x-ray data alone. This addition of the x-ray method to our other examinations gives an accuracy and completeness to our diagnosis impossible with either alone.

In addition to aiding in diagnosis, the x-ray evidence has definitely located the cancer, shown its size and extent, and helped decide about operability. It may show that a cancer with marked symptoms is small and mobile and ideal for operation.

In short, the x-ray evidence has been a help in discovering and localizing latent cancer and an equal help in ruling out cancer. Our known mistakes have been few, and the group of doubtful cases rather small, and it seems reasonable to expect that with better technic and greater experience, less mistakes will occur and less cases remain doubtful, and with more early and frequent x-ray examination of patients of cancer age, that early diagnosis will be more frequently made, and latent cases discovered earlier, so that radical operation will be possible.

TRAUMATIC ENDOCARDITIS.

By S. G. Webber, M.D., Brookline, Mass.

The situation of the heart between the sternum and the spine, exposes it to severe injuries from blows on the chest, especially in the young, whose chest walls are very yielding. The heart is compressed between the sternum and the vertebrae.

The severer lesions caused by external violence, as rupture of heart or pericardium, rupture or tearing of valves, give rise to symptoms which are recognized very soon or immediately after the accident and are generally fatal at once or after a comparatively short time. They are easily diagnosed, and reports of many such cases are found in medical literature.

Less severe injuries may give rise to slight lacerations of the cardiac muscles or to ecchymoses into its substance or just beneath the endocardium which cause only temporary inconvenience, the symptoms thus produced soon disappearing. These slighter injuries may, however, give rise to changes in the valves which develop slowly and can be recognized only after the lapse of a longer or shorter time. These slight injuries have often been overlooked or entirely ignored as causes of valvular disease, the cardiac changes being ascribed to other causes.

Several cases have been reported in which the early cardiac symptoms have been absent or of short duration and have seemed insignificant. After an interval of apparently restored health, valvular changes have developed, with their usual consequences.

M. L. Rembaud[1] says that in certain cases traumatism can be the true determining cause of a cardiac affection.

In cases of endocarditis, vegetative hemorrhages; in chronic cases, cicatrices and valvular scleroses are found, also hypertrophy of the heart.

Immediate signs of endo-myopericarditis may be wanting, yet there is generally precordial pain, dyspnea, palpitation. Then at the end of some days, sometimes months and more, the usual symptoms of pericarditis, of a myocarditis, or of an endocarditis are developed,—mitral 12 times, aortic 7 times.

The course of pericarditis is generally rather acute. Myocarditis has a chronic course, and often ends in death several years after the injury. Endocarditis may be acute and cause death in some days. Generally it is chronic from the beginning, and the injured, who has been able to return to his work, complains some time after of symptoms of cardiac insufficiency; examination shows valvular lesion.

Richard Bernstein[2] collected and analyzed 126 cases. He found that the cardiac symptoms appeared immediately after the accident in 85 cases, 67.6%; after an interval of one month, 22 cases, 17.5%; after interval of one year, 6

cases, 4.7%; after interval of more than one year, 9 cases, 7.1%; time not mentioned, 4 cases, 3.1%.

Bernstein reports two cases. One was a man fifty years old, who fell backwards down stairs. For eight days he passed bloody urine in varying quantities. After five weeks he had pain in the cardiac region,—dyspnea. Eight months after there was diastolic murmur at the base. At night attacks of angina pectoris. Aortic insufficiency.

Another case he reports is that of a laborer twenty years old, who fell from a tree, landing on his neck and feet. No other accident. He had attacks of sense of pressure and suffocation. There was insufficiency of the aortic valve.

A laborer, fifty-seven years old, fell upon his chest. No external injury. Cardiac symptoms were at once noticed. Six years later there was aortic stenosis.

E. Barié[3] reports several cases, two of which are as follows:—

Case 16. A man 44 years of age was hit in the precordial region. After a short time he was able to resume work. Not until after two years did he begin to feel the first functional trouble, epigastralgia, palpitation, slight sensation of suffocation. Fourteen years after the accident there was considerable hypertrophy of the left side; a strong shock was felt at the moment of systole. A diastolic murmur was heard at the base; a double murmur was heard in the crural arteries.

His Case 17 was that of a man who leaped from a wall twelve feet high, fell, striking the ground with his chest. No appreciable alteration of his health for four years; then he began to expectorate blood. There was insufficiency of the aortic valve eleven years after the accident.

A. Herzfeld[4] reports a case in which the cardiac symptoms were present immediately after the accident. At the close of his paper he says: "Traumatic endocarditis frequently develops slowly and insidiously, so that we may speak of a latent period or a period of incubation. The patient may suffer little during this period, and, therefore, does not seek advice until new complications arise. In this way it may happen that a traumatic endocarditis, although of longer standing, may not be detected until some time after the injury. The latent period, or period of incubation, may last weeks, months or even years."

Dr. Ritter[5] reports a case of injury by a severe blow on the chest with fracture of the sternum. No elevation of temperature nor increase in frequency of pulse. After five weeks he left the hospital, nothing abnormal in heart or lungs. Four months and a half later there was a presystolic murmur, clearest at pit of the stomach. Stenosis of mitral valve.

Ulrich Luckinger[6] reports a case where the patient fell from a load of hay. There was no evidence of fracture of rib or sternum nor injury of any thoracic organs. Subjective symptoms were absent. Until the fourth day all went well, then there was palpitation, difficult breathing; there was increased cardiac impulse, a small weak pulse, systolic and diastolic murmur at apex, and pericardial friction. There was also friction of the pleura. Here was myocarditis, pericarditis and pleurisy, beginning three or four days after the injury. He thinks the endocardium was primarily affected, the inflammation extending to the pericardium and pleura.

J. C. Wilson[7] of Philadelphia reports a case where for four months no cardiac symptoms showed after a fall. A man, aet. 36, known to have had no heart disease previously to the accident, received a violent blow on the chest. There was no fracture of ribs; there was abundant hemoptysis. In two or three days he recovered from the immediate effects of the accident. Four months later he had inconstant pain just before attack of blood spitting, a more or less constant sense of weight in lower part of the left posterior lateral region of the chest, no dyspnea, no palpitation, respiratory murmur was normal, no râles. Pulse small, regular, 80-86. Temperature 98. Blood pressure: systolic, 125; diastolic, 80. There was a loud presystolic murmur and thrill in the mitral area and to right. No sign of aneurysm nor of pericarditis. Urine normal.

Heidenhain[8] reports the case of a sailor who worked on a dredger. In the middle of May he was struck by the winch when something broke in weighing the anchor. He received a severe blow in the breast. He had severe pain in the breast and was not able to engage in severe labor, but continued to work. By the end of June he had to give up work. In November there was enlargement of the heart, a strong systolic murmur and a slight diastolic murmur. The diagnosis was stenosis and slight insufficiency of the aortic valve, insufficiency and slight stenosis of the mitral. The mitral insufficiency is probably a relative; the stenosis of the mitral is so insignificant that clinically it is entirely in the background. The aortic stenosis is much the more important. Marked dilatation and hypertrophy of the left, slight of the right ventricle.

Barney Yeo[9] reports a case where a man fell down a flight of nine stone steps. He took no notice of the accident at the time, but three weeks after a loud murmur had developed. After two years and a half he died. At autopsy his heart was found greatly hypertrophied; the right anterior and posterior segments of the aortic valve were separated from the wall of the aorta for a distance of a quarter of an inch.

Ernst Romberg[10]: "The significance of accidents remains somewhat uncertain in the apparently largest number of cases in which the patients suffer a contusion of the chest wall, a severe shaking up of the whole body, and gradually a chronic heart disease is developed. The discomforts or affections begin oftentimes not immediately after the accident but some days or some weeks later. They appear first when the patient has imagined himself somewhat better. Sometimes there comes at first only subjective discomforts of the heart, strong palpitation. The objective examination of the heart gives at first no abnormal condition. One is inclined to refer the symptom to traumatic neurasthenia or hysteria. Then appear, gradually, coming ever more strongly to notice, the signs of valvular affection,—very often in these cases a mitral or

aortic stenosis or the symptoms of a chronic insufficiency. It may be months before the symptoms come to a complete development, and the further course differs in no way from the ordinary affections of this nature."

If one can follow the development of the cardiac affection from the accident, a clearly accidental coincidence of the beginning of the heart disease is scarcely to be accepted, and it is to be noted as most probable that the traumatism, the contusion, the concussion is answerable for the development of the cardiac affection.

C. Nelaton[11] states that small tears may occur involving only the free border of one of the sigmoid segments. These borders become thickened, rough, calcareous, and leave slight fissures between, rendering the valves insufficient. There exist constantly around the ruptures, vegetations and roughness, which may extend to the mitral and cause insufficiency there. The cardiac muscles, often healthy, may be diseased.

The following case is of interest as being one in which there were slight cardiac symptoms immediately after the accident, which disappeared, and for a time, not determined by the history, the patient was free from any prominent cardiac symptoms. After an interval, not determined by the history, there were symptoms due to commencing valvular disease. He could not run so long as before the accident, could not do heavy work. Three and a half years after the accident serious cardiac lesions were found.

At no time in his life, either before or after the accident, did he have any affection which could give rise to valvular disease. He never had any illness; rheumatism, any eruptic or other fever, never syphilis nor gonorrhea, never any other accident.

J. G. Aet. 16, a well developed, rather large and strong boy, was riding about 9 p.m. in a wagon with his brother, on Dec. 24, 1908. The streets were icy and snowy. They were on the electric car track in East Boston, near the Chelsea bridge, going towards Chelsea. A car struck the rear of their wagon, lifted it, turned it over and around, clear of the other track, throwing the horse down. J. G. was thrown across the street; a man passing found him lying with the left side of his chest on the curb stone, his right chest projecting over the gutter. He was picked up, taken to the Relief Hospital in East Boston, arm bandaged and later was sent home. He was unconscious for about half an hour. He was scratched and bruised on the left side, dirt was ground into left arm and leg, black and blue on the upper part of his left arm and shoulder. His head, shoulder and back pained him; he could not lie on his left side; he had dizzy and fainting spells often, —during the first week three or four times a day; these continued for six weeks. At first the pain was so severe he was faint and had cold sweats. His breathing was smothered-like for five or six weeks; he seemed to choke up in his back and chest in the region of his heart. When he had hard spells of breathing his face would flush,—become dark red. He did not spit blood.

He could give only an imperfect account of his own conditon. Most of the preceding was obtained from his mother.

About ten days after the accident he was taken to the Massachusetts General Hospital. An x-ray of his left shoulder showed a separation of the upper epiphyses of the humerus.

I saw him Feb. 9, 1909. Then he complained mostly of his back and left arm. His head was pretty well. Once in a while he had pain at the back and on the left side, then he was dizzy. When he lay on his left side at night there was pain in the middle of his upper arm and his left hand went to sleep; there was some difficulty in using his left hand. He complained chiefly of his back and that he could not carry weight on account of pain there.

On examination it was found that the motion of the left arm was restricted at the shoulder; there was tenderness above the left clavicle over the nerves of the cervical plexus and somewhat in the axilla. There was no tenderness over the nerves in the arm. The sixth to the eighth dorsal spinous processes were somewhat tender and stooping forward caused pain there. Heart sounds and area of dullness were normal.

He was not seen again until Sept. 5, 1912. He was then working at teaming. He was a tall, fleshy strong-looking man. He could not lift heavy weights alone. If he tried he had pain across lower dorsal region. He could run only about half as long as before the accident; if he continued running he got out of breath. He could not do as heavy work.

There was a strong systolic souffle over the whole cardiac region, loudest at the edge of the sternum opposite the fourth rib; a very slight souffle at beginning of diastole. The impulse was felt at the seventh intercostal space about half an inch to right of the left nipple; the dullness extended to half an inch to left of the left nipple. He had been walking some distance just before I saw him. After sitting quietly for some time the sounds were much lower, but on exercising they became louder and the pulse went from 78 to 114. There was a very slight edema of the legs. When the murmur was loudest it could be heard at times over the left carotid.

When he had to work hard he said he was out of breath much more than before the accident, and the work made his heart beat more.

Since I first saw him in 1909 he had had no illness. Urine was acid, sp. gr. 1022, no casts, some epithelial cells, some urate crystals.

He sat habitually with his left hand on the upper part of his thigh, his arm raised at his side and a little forward, forearm nearly perpendicular.

I saw him on Jan. 9 and 19, 1913, on June 10, 1913, and once or twice since. On June 10 I saw him with Dr. W. H. Robey. The opportunity to examine the heart then was in some respects better. I found then that the murmurs were clearest over the aorta and the mitral, and much less distinct between these two points.

An explanation of the development of endocarditis some time after an injury may be found in those cases of injury causing early death from lesions other than cardiac where at the autopsy slight lesions of endocardium or myocardium were found to have been the origin of commencing inflammatory changes.

J. Riedinger[12] mentions as one of the lighter

affections small ecchymoses within the heart. He says little notice has been taken of the hemorrhages, but they deserve notice since they may not be absorbed and may cause changes in the valves similar in appearance and effect to valvular changes from other causes. They can occur without severe immediate disturbance.

He reports the case of a woman 54 years old, who fell from the third story into the street. Died three days after. Fracture of lumbar vertebrae, of occiput. On the aortic valve was a thin exudation. The valve and its vicinity were infiltrated and colored by the blood. On the mitral the insertion points of the cordae tendiniae were considerably swollen. Under the endocardium were many small hemorrhages. Small collections of blood in the valves. In the endocardium were separate spots of inflammatory infiltration.

J. L. Casper[13] reports the following case:—

A bag of corn fell on a man, aet. 66. Fracture of right thigh, which was amputated. Complete transverse fracture of third dorsal vertebra. He died eight days after the injury. On right side of pericardium an ecchymosis size of a half crown and in left wall of heart itself running from the auricle to the ventricle an ecchymotic stain two inches long and a quarter of an inch wide. Here, therefore, there had been a true and most singular concussion of the heart.

These slight superficial lesions may become the seat of valvular changes giving rise to stenosis or insufficiency, the symptoms not becoming evident for several weeks or months after apparent recovery.

J. G., having never been ill, having had no previous accident, was thrown with considerable violence from his wagon, striking on the curbstone with his left side. Immediately after he had symptoms indicating irregular or imperfect action of his heart. About seven weeks later the heart, on examination, did not show the slightest indication of any valvular affection. After an interval not determined by the history signs of a cardiac affection developed; there was an inability to run as well as before the accident, and inability to do as hard work without getting out of breath and having unusual acceleration of the heart's action. When these were first noticed was not learned though they had been present some time before he was seen in 1912, at which time there was well marked valvular disease, the aortic and mitral valves both being affected.

There was a slight injury to the heart by the accident; the earlier symptoms were of only moderate duration. Later endocarditis developed, but compensation was sufficient so that he could meet all the ordinary demands of life. The valvular lesions when first recognized in 1912 must have been in existence many months. It is not unreasonable to believe that the changes began immediately after the accident and progressed steadily to the stage when I first noticed the murmurs.

It is very unlikely that there was rupture of any of the valvular structures or of any of the cordae tendiniae. There was an endocarditis due to the injury of the heart on Dec. 24, 1908, and the changes in the valves were due to that.

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INTRASPINOUS USE OF SALVARSANIZED SERUM.

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WITH the administration of mercury, iodides, and salvarsan intravenously, most cases of cerebrospinal lues and of tabes dorsalis can be relieved of many of the clinical signs and symptoms, but the changes occurring in the cerebrospinal fluid are evidences of active syphilis of the central nervous system, and no treatment can be considered adequate which does not result in the permanent disappearance of these abnormalities.

For this reason Swift and Ellis have developed a method whereby salvarsan can be directly introduced into the cerebrospinal canal, and thus aid in the eradication of the spirochaetae from the central nervous system.

The technic is as follows: "One hour after the intravenous injection of salvarsan, 40 cc. of blood is withdrawn directly into bottle-shaped centrifuge tubes, allowed to coagulate, after which it is centrifugalized. The following day 12 cc. of serum is pipetted off and diluted with 18 cc. of normal saline. This 40% serum is then heated at 56 C. for one-half hour. After lumbar puncture, the cerebrospinal fluid is withdrawn until the pressure is reduced to 30 mm. cerebrospinal fluid pressure. The barrel of a 20 cc. Luer syringe (which has a capacity of about 30 cc.) is connected to the needle by means of a rubber tube about 40 cm. long. The tubing is then allowed to fill with cerebrospinal fluid so that no air will be injected. The serum is then poured into the syringe and allowed to flow slowly into the subarachnoid space by means of gravity. At times it is necessary to

insert the plunger of the syringe to inject the last 5 cc. of fluid. It is important that the larger part of the serum should be injected by gravity and if the rubber tubing is not more than 40 cm. long the pressure cannot be higher than 400 mm.

"Usually the serum flows in easily under even a lower pressure. By the gravity method the danger of suddenly increasing the intraspinous pressure to the danger point, such as might occur with rapid injection with a syringe, is avoided. Frequently there is a certain amount of pain in the legs, commencing a few hours after the injection. The pain is more often noticed in tabetics, than in patients with cerebrospinal syphilis. It can usually be controlled by means of phenacetin and codein. Occasionally morphin is required."

Swift and Ellis,[1 & 2] treated five cases of tabes dorsalis and one case of cerebrospinal lues with salvarsan intravenously and intraspinously with excellent results. In order to rule out the effect of salvarsan intravenously, two cases of tabes and one of cerebrospinal lues were given salvarsanized serum intraspinously without any other form of treatment. Marked improvement was obtained.

Myerson[3] obtained improvement clinically and in the biological characters of the spinal fluids in four of seven cases of paresis.

Hough[4] reported six cases of tabes and paresis in which improvement occurred symptomatically and in the character of the spinal fluids in all but one case of paresis.

McCaskey[5] noted symptomatic improvement in seven cases of luetic involvement of the central nervous system.

Cutting and Mack[6] treated six cases of paresis with intraspinous injections. The mental symptoms were improved in only one case, but improvement was noted in the fluids of five cases.

A significant report is that of Ayer's.[7] Eighteen cases were treated with salvarsan intravenously and with the salvarsanized serum intraspinously. These cases were mostly chosen because refractory to other forms of treatment. Of eight cases of tabes, four were improved in every respect. The four cases either unimproved or but slightly improved were either of twenty years' duration or suffering with advanced optic atrophy. Five cases of cerebrospinal lues also showed marked improvement clinically and in the findings in the fluids. The four cases of paresis showed little or no improvement symptomatically but all showed a diminution in the pleocytosis which, however, relapsed after cessation of treatment. These cases were observed over a period of not less than thirteen months.

Twelve cases of syphilitic disease of the central nervous system have received intraspinous treatment during the last year in the University Hospital. Of this number nine have been observed long enough to allow an opinion of the efficacy of the treatment to be formed.

These cases have received the usual routine treatment of salvarsan intravenously and mercurial inunctions with the addition of the intraspinous injections of salvarsanized serum.

CEREBROSPINAL LUES.

Case 1. No. 1394. Mrs. A. S. Female, age 39, Admitted Feb. 26, 1914. No history of infection. Symptoms: dizziness, occipital headaches, urgency of urination. Speech slow. Somewhat melancholy. Some impairment of memory. Pupils unequal and react sluggishly to light and accommodation. Right grip weak. Legs strong but there is some ataxia and stiffness of gait. Right sided Babinski and rectus clonus.

Date.	Wa. R. Blood.	Cell Count per Cmm.	Proteid Content.	Wa. R. Fluid.	"606."	Salvar. Serum.
Mar. 26	--	40	--	+++-0.2 cc.		
Mar. 31	++				0.5 g.	
Apr. 2		40	+	+++-0.2 cc.		14½ cc.
Apr. 7					0.5 g.	
Apr. 8		21	+	+++-0.2 cc.		12 cc.
Apr. 14	++	23	-	0.5 cc.		14 cc.

Result of Treatment. April 17, headaches, dizziness, urinary symptoms lost. Speech and gait much improved.

Case 2. No. 1312. Mr. S. Male, age 60. Admitted Feb. 3, 1914. No history of lues. Patient was in the University Hospital for a week in December, 1912, and January, 1913, at which times he received mercurial inunctions. Under this form of treatment there had been much improvement of subjective symptoms and to a less extent of the objective at the time of the last admission. No change had occurred in the Wassermann reaction in the fluid but it had become negative in the blood. The characters of the fluid had not changed.

Symptoms on Last Admission. Dizziness, Argyll-Robertson pupils, Rombergism, gait spastic and ataxic.

Date.	Wa. R. Blood.	Cell Count per Cmm.	Proteid Content.	Wa. R. Fluid.	"606."	Salvar. Serum.
Feb. 4	0.	240	+++	++++0.1 cc.		
Feb. 6					0.5 g.	
Feb. 8		251	+++	++++0.1 cc.		10 cc.
Feb. 12	0.					
Feb. 14					0.5 g.	
Feb. 15		70	+++	++++0.1 cc.		10 cc.
Feb. 21	0.	51	+++	+++0.2 cc.		10 cc.

Result of Treatment. Dizziness lost. Gait markedly improved.

Case 3. No. 1404. Mr. T. T. Male, age 37. Admitted March 30, 1914. Infection with lues fourteen years ago.

Symptoms. Headache, dizziness, retention of urine. Speech garrulous. Grip, right 55, left 70. Muscular power right leg, 60%. Back muscles markedly weak. Gait hemiplegic. Left testicle enlarged.

Date.	Wa. R. Blood.	Cell Count per Cmm.	Proteid Content.	Wa. R. Fluid.	"606."	Salvar. Serum.
Mar. 31	++	43	+++	++++0.4 cc.		
Apr. 1					0.6 g.	
Apr. 8					0.6 g.	
Apr. 9	++	12	?	+0.5 cc.		14 cc.
Apr. 15					0.6 g.	
Apr. 16	++	9	+	0.		14 cc.
Apr. 23		20	+	0.		14 cc.
May 2		40	+	0.		

Result of Treatment. May 3. Garrulous speech, headache, dizziness, lost. Urinary retention lost. Legs strong, ataxia lost, gait good and power regained in muscles of back. Grip, right 60, left 80. Testicle much reduced in size.

CASE 4. No. 1359. Mr. M. Male, age 43. Admitted March 6, 1914. No history of lues.

Symptoms. Headache, nervousness, dizziness and weakness. Slight hesitancy in speech with occasional incoherence. Argyll-Robertson pupils.

Date.	Wa. R. Blood.	Cell Count per Cmm.	Proteid Content.	Wa. R Fluid.	"606."	Salvar. Serum.
Mar. 6	0.	120	++	++++0.05 cc.		
Mar. 9					0.5 g.	
Mar. 11		105	+	++++0.05 cc.		14 cc.
Mar. 16		74	+	++++0.05 cc.	0.5 g.	
Mar. 18						14 cc.
Mar. 19	0.					
Mar. 27		40	-	+++0.05 cc.		

Result of Treatment. Loss of headache and of the hesitancy and incoherence in speech. Dizziness and weakness were less marked, but these symptoms may have been due in part to the presence of an aortic insufficiency.

The patient was again admitted July 18, 1914. His condition was the same as when he left the hospital in March. Two examinations of the cerebrospinal fluid gave cell counts of 76 per cubic millimeter and one plus reactions for abnormal proteid content. The Wassermann reaction was negative in the serum, but strongly positive in 0.1 c.c. of the two fluids.

TABES DORSALIS.

CASE 1. No. 1151. Mrs. L. K. Female, age 55. Admitted Oct. 30, 1913. No history of lues.

Symptoms. Gastric crises, ptosis of left eyelid, Argyll-Robertson pupils.

Date.	Wa. R. Blood.	Cell Count per Cmm.	Proteid Content.	Wa. R. Fluid.	"606."	Salvar. Serum.
Oct. 30	0.					
Oct. 31		54	0.	0. 0.5 cc.	0.5 g.	
Nov. 7	0.					
Nov. 11		34	0.	0. 0.5 cc.	0.5 g.	10 cc.
Nov. 19	0.					
Dec. 11	0.	20	0.	0. 0.5 cc.		

Result of Treatment. December 23. Free from gastric crises.

CASE 2. No. 1516. Mr. C. H. Male, age 51. Admitted June 30, 1914. No history of lues. Patient was in the University Hospital for three weeks in December, 1913. At this time the symptoms were dizziness, difficulty in walking, and lightning pains in the legs. The Wassermann was strongly positive in the cerebrospinal fluid; there was a pleocytosis but no increase in the proteid content. Under treatment of mercurial inunctions and salvarsan there occurred improvement in the subjective symptoms and to a less extent in the objective.

Symptoms on Last Admission. Dizziness, generalized lightning pains and gastric crises, difficulty in walking, ataxic gait, palpitation and dyspnea on exertion. Argyll-Robertson pupils, absence of kneejerks, Rombergism, fundi normal.

Date.	Wa. R. Blood.	Cell Count per Cmm.	Proteid Content.	Wa. R. Fluid.	"606."	Salvar. Serum.
June 5	0.	60	0.	0. 0.5 cc.		
June 9					0.5 g.	
June 10	0.	54	0.	0. 0.5 cc.		14 cc.
June 16					0.05 g.	
June 17	0.	58	+	+ 0.5 cc.		12 cc.
June 22					0.05 g.	
June 23	0.	67	+	0. 0.5 cc.		12 cc.
June 25	0.					
July 13		30	0.	0.0.5 cc.		

Result of Treatment. Dizziness, lightning pains and gastric crises lost. No more palpitation or dyspnea. Less difficulty in walking.

TABO-PARESIS.

CASE 1. No. 1432. Mr. H. H. Male, age 39. Admitted April 15, 1914. No history of a primary lesion, but secondary manifestations occurred one year ago.

Symptoms. Lightning pains in legs, urgency of urination, dysarthria, Argyll-Robertson pupils, marked ataxia of gait, Romberg.

Date.	Wa. R. Blood.	Cell Count per Cmm.	Proteid Content.	Wa. R. Fluid.	"606."	Salvar. Serum.
Apr. 16		7	+	++++0.05 cc.		
Apr. 18	++				0.6 g.	
Apr. 19		25	+	++++0.05 cc.		15 cc.
Apr. 24	++				0.6 g.	
Apr. 25		12	+	++++0.05 cc.		15 cc.
Apr. 30	+++				0.6 g.	
May 1		7	+	+++0.05 cc.		15 cc.
May 9	++	19	+	++++0.05 cc.		

Result of Treatment. Speech improved. Lightning pain disappeared, but the ataxia, Rombergism, and incontinence of urine remained unchanged.

PARESIS.

CASE 1. No. 1185. Mr. R. Male, age 53. Admitted Nov. 19, 1913. No history of lues.

Symptoms. Headache, dizziness, insomnia, melancholic and irritable, at times disoriented, marked ataxia of legs, but gait not ataxic, Rombergism, Gordon and Chaddock on the right, fundi negative.

Date.	Wa. R. Blood.	Cell Count per Cmm.	Proteid Content.	Wa. R. Fluid.	"606."	Salvar. Serum.
Nov. 19	0.	294	+	0. 0.5 cc.	0.6 g.	
Nov. 22		127	+	0. 0.5 cc.		12 cc.
Nov. 25					0.5 g.	
Dec. 3					0.5 g.	
Dec. 5	0.	260	+	0. 0.5 cc.		10 cc.

Result of Treatment. No improvement. The patient grew progressively worse.

CASE 2. No. 1071. Mr. S. Male, age 49. Admitted Sept. 2, 1913. Luetic infection twenty-five years ago.

Symptoms. Headache, dizziness, speech slow and indistinct, comprehension slow, habits untidy, at times irritable, Argyll-Robertson pupils, slight ataxia of legs and arms, double Babinski.

Date.	Wa. R. Blood.	Cell Count per Cmm.	Proteid Content.	Wa. R. Fluid.	"606."	Salvar. Serum.
Sept. 3		20	+			
Sept. 4	0.				0.5 g.	
Sept. 10					0.5 g.	
Sept. 19	0.				0.5 g.	
Sept. 23		18	0.	0. 0.5 cc.		10 cc.
Oct. 11	0.	22	++	0. 0.5 cc.		10 cc.
Oct. 22				++0.5 cc.		
Nov. 14	0.	28	+	0. 0.5 cc.		10 cc.
Dec. 13	0.	5	0.	0. 0.5 cc.		
Jan. 9	0.	5	0.	0. 0.5 cc.		

Result of Treatment. Headache and dizziness lost. Marked improvement in speech and mentality. Ataxia lost and gait good. Babinski lost on the right.

In four cases of cerebrospinal lues under treatment with intravenous injections of salvarsan, mercurial inunctions, and the intraspinous use of salvarsanized serum, there has been observed improvement in the subjective and objective symptoms. With this improvement there has occurred a diminution in the cell count, the proteid content, and the strength of the Wassermann reaction in the cerebrospinal fluid. The Wassermann in the blood remained unaffected up to the time of leaving the hospital.

Two cases of tabes were relieved of subjective symptoms and the number of cells in the cerebrospinal fluid reduced.

A case of tabo-paresis showed no change in the laboratory findings and only slight improvement symptomatically.

One case of paresis showed marked improvement in the symptoms and the laboratory findings. The Wassermann reaction became negative in the cerebrospinal fluid.

One case of paresis showed no improvement in either the symptoms or the laboratory findings but grew progressively worse.

The results in cerebrospinal lues and tabes in the small series of cases studied in this hospital and those collected from the literature are encouraging not only as regards cessation of symptoms but also in the laboratory findings in the cerebrospinal fluids.

The results in paresis are either discouraging or problematical. The most marked improvement has occurred in the laboratory findings and in these there has been a relapse in those cases followed for several months.[7] The improvement in mentality so far recorded may be but the result of remissions to which the disease is prone, even in the absence of treatment. But the fact that improvement may occur, even if only apparent, warrants the use of the intraspinous treatment in a disease otherwise hopeless.

In this hospital the intraspinous treatment is a routine measure in those cases of syphilis of the central nervous system which show evidences of meningeal involvement.

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A REPORT OF THE CASES OF LUNG ABSCESS AT THE MASSACHUSETTS GENERAL HOSPITAL CLINIC.*

By Charles L. Scudder, M.D., Boston.

Surgeon to the Massachusetts General Hospital, Boston; Associate in Surgery, Harvard University Medical School.

In the year 1906 Dr. F. T. Lord published a paper upon Abscess of the Lung, based upon a study of the cases operated upon at the Massachusetts General Hospital. He reported six cases of an acute type and five cases of a chronic type,—a total of eleven cases, with four deaths, two cases relieved with a sinus, one case relieved without a sinus, and four cases cured four years, five years, eight years, and twelve years following operation.

In view of the very great interest in the surgery of the lung today it occurred to me that a report from this same clinic of the cases of abscess of the lung operated upon since 1906 might be of some interest and value. I, therefore, in this paper report the details of sixteen cases of lung abscess treated by operation.

All of these cases of lung abscess have been observed by the medical service at the hospital, as well as by the roentgenological and bacteriological departments.

I suppose that very few cases of diseases of the lung have been more thoroughly and painstakingly studied in this clinic than those recorded in the present series. There was a total of sixteen cases. Fourteen of these abscesses were in men, two were in women. The ages extended from seventeen years to fifty-four years. Fourteen of the operations were done in two stages, two of the operations were done in one stage. Ether was employed in all cases as the anesthetic. There were five deaths in the series. Three of the cases thus far followed were unimproved, and eight have been at least relieved, and some permanently cured.

The variety of etiological factors which may be present in abscess of the lung is well illustrated in this series of cases. The largest number was caused by the influenza bacillus associated with a broncho-pneumonia. There were several embolic cases, several cases of subdiaphragmatic origin, and one case of actinomycosis.

The following facts seem to me apparent from a study of this group:—

1. The bronchiectatic process should be attacked by the surgeon while it is limited to one lobe of a lung. A very decided attempt should be made to determine as early as possible the diagnosis of bronchiectasis. Surgery may be able then by the excision of a single lobe to cure such a condition.

* Read at the annual meeting of the American Surgical Association, New York, April, 1914.

2. There was one case of actinomycosis in which the diagnosis was made by Dr. William H. Smith in conjunction with Dr. James H. Wright, after painstaking study. This case of actinomycosis was cured by surgical operation. It suggests that actinomycosis of the lung must be recognized in its initial stage and vigorously attacked by surgery, for only in this way is there a great likelihood of curing this very fatal disease.

3. Attention is attracted to lung abscess following tonsillectomy. There have been several cases in my experience. There is one case in this series which followed operation upon the nasal septum. The inhalation of foreign material may have been the starting point in this case. The employment of intratracheal anesthesia with gauze packing of the pharynx may be wise in these cases.

4. From certain cases in this series it is suggested that the surgeon should be alert to the occurrence of lung abscess associated with embolism following ordinary surgical operations. A patient suddenly suffering severe pain in the chest following surgical operation associated with a rise in temperature and pulmonary signs should be very carefully studied lest such signs may mean the beginning of pulmonary abscess. Early operative interference upon the lung in such cases may not only preclude the possibility of the extension of a pulmonary lesion, but may save the life of the individual.

5. An increasing number of intra-abdominal infections are associated directly with an infection through the diaphragm of the diaphragmatic pleura, and then of the lung with pulmonary abscess. These cases of sub-diaphragmatic origin must be attacked early to prevent subsequent damage intrathoracically.

6. The x-ray is of great value in the diagnosis of lung abscess. The thorough roentgenological examination necessitates fluoroscopic observations, stereoscopic plates, and both anterior and posterior views. If there is reason to suspect fluid in the chest, the examination should be made in the upright, as well as in the horizontal position. The exact position of the heart, the position and excursion of the diaphragm, and the clearness of the costo-diaphragmatic angle, are facts which help in the interpretation of the x-ray plates.

The recognition of the presence or absence of tuberculosis, of a diffuse or bilateral bronchiectasis, of syphilis of the lung, will assist in the interpretation of the plates. Centrally seated abscesses, almost impossible of determination by ordinary physical signs, may be accurately localized by the x-ray.

The x-ray is of assistance in the interpretation of physical signs in cases of suspected lung abscess and bronchiectasis, and may be of assistance in the exact localization of the abscess.

7. Finally, I believe that this total series of 27 cases demonstrates the efficacy of surgical measures in the treatment of abscess of the lung. There were nine deaths, eighteen recoveries, and eleven cases were practically well without cough or sputum.

CASES OF ABSCESS OF THE LUNG SINCE 1906.

Reported by Dr. C. L. Scudder from the Massachusetts General Hospital Clinic.

No.	Cause.	Duration.	Seat.	Operation.	Surgeon.	Immediate Result.	Remote Result.
1	Pneumo.	8 days	Rt. base	1 stage	C. L. S.	D	Abscesses of liver and lungs.
2	Post-op.	3 wks.	Rt. base	2 stages	W. W.	R	Cured—six mos.
3	Pleurisy	1 mo.	Lt. base	2 stages	S. R.	R	Left hospital in good condition.
4	Duod. ulcer	1 mo.	Rt. base	1 stage	C. L. S.	R	Local empyema (through bronchus)
5	Actinomycosis	7 wks.	Lt. base	2 stages	C. L. S.	R	Left hospital in good condition.
6	Pneumo.	2 mos.	Lt. base	2 stages	F. C.	D	No relief at any time.
					C. C. S.		
7	Pneumo.	2 mos.	Rt. base	2 stages	C. L. S.	D	Post-op. empyema. Septicemia.
8	Pneumo.	4 mos.	Rt. base and liver	3 opns.	F. C.	D	Abscesses lung, liver and brain.
					F. B. H.		
9	Unknown	6 mos.	Lt. base	2 stages	C. A. P.	R	Unimproved.
10	Pleurisy	9 mos.	Rt. base	3 opns.	C. L. S.	D	Abscess lung. Mucous colitis.
11	Pneumo.	11 mos.	Lt. base	2 stages	W. W.	R	Cured—one year.
12	Unknown	1 yr.	Rt. apex	2 stages	C. L. S.	R	Left hospital in good condition.
13	Pneumo.	1 yr.	Lt. base	2 stages	S. R.	R	Cured—one year.
14	Pleurisy	3 yrs.	Lt. base	2 stages	C. L. S.	R	Left hospital slightly relieved.
15	Duod. ulcer	4 yrs.	Rt. base	2 stages	C. L. S.	R	Cured—six months.
16	Pneumo.	6 yrs.	Lt. base	2 stages	C. L. S.	R	Unimproved.

OBSERVATIONS ON THE BEHAVIOR OF NEOSALVARSAN.

By W. J. McGurn, M.D., Boston.

Before entering into a general discussion of this subject, it is well to recall that ample proof has been furnished that severe illness and death sometimes follow close upon the intravenous administration of salvarsan and its derivative neosalvarsan. While it appears that autopsy offers conclusive evidence that death in many cases was due to some external agent introduced at the time of injection, it remains to be proven

whether either of these agents, unmodified and in perfect solution, may result in a fatality.

Anyone with even a limited experience with neosalvarsan is, of course, familiar with Ehrlich's warning that solutions of neosalvarsan should not be warmed, and to be safe the temperature must be kept below 70° F. Also, that immediate injection after its preparation is imperative. To the average mind the question promptly arises: Why then is it not dangerous to subject the solution to a temperature of 98.6° F. by introducing it into the blood stream? The answer most often given is a speculative one based upon theory rather than observation. The truth of the matter, however, is that neosalvarsan is unaffected by a very wide range of temperature when the drug, or its solutions, is not in contiguity with free or loosely combined oxygen.

This deduction was obtained after observing the behavior of two hundred specimens of the drug, subjected to various experimental tests, the results of which seem to be conclusive.

The chemical change taking place in solutions of neosalvarsan is due to the process of oxidization, the rapidity of which depends upon the area of surface exposure; and to the temperature of the air to which it is exposed rather than upon the temperature of the solution itself. Solutions of neosalvarsan prepared from ampuls that have been subjected for several hours to a temperature of 100° F. do not differ from those not so treated.

Oxidization always begins at the top of the solution where it is in contact with air. The first evidence of this process is seen in a whitish opaque zone overlying the transparent solution, which is not readily detected until the zone of opacity assumes the depth of one-eighth to one-fourth inch, unless the surface of the solution is elevated to the visual level and inspection made by transmitted light. Even then slight agitation of the mixture will obscure the presence of oxidization products, so that we are dealing at once with a mixture of unknown toxicity instead of a solution of neosalvarsan.

Specimen tubes of fresh prepared solution placed on ice oxidize more slowly than do similar tubes placed in hot water, but the difference in time of decomposition is not so great as might with reason be expected; while reverse results are obtained when the exposed surface of the iced solution is subjected to a draught of warm air, and that of the warm solution treated with a current of air chilled to 50° F. This experiment tends to indicate that a low room temperature is of even greater importance to the safe handling of neosalvarsan than is a low temperature of the solution itself.

When solutions of neosalvarsan are prepared in shallow receptacles of great surface area, oxidization progresses rapidly and the process is usually well advanced in three to five minutes; while containers of small surface exposure permit of much slower deterioration of the content, decomposition being further retarded, *but not prevented,* by maintaining the room temperature at or below 65° F., also by keeping the solution closely covered.

Test tubes of small diameter, when filled with solution and tightly corked, usually show degenerative changes in about one hour, which change becomes complete in from one day to one week. An air bubble of pin-head size is capable and certain of bringing about a complete chemical change within a few days; while tubes sealed hermetically, after the complete expulsion of air, keep indefinitely even when subjected to a temperature of 200° F.

To insure a permanent solution, however, it is necessary to exclude not only direct sunlight, but diffused daylight as well. Specimens so prepared and exposed to sunlight do not give evidence of physical or chemical changes for a period of from three to ten weeks, and when subjected to diffused light only, they remain in solution a much longer time, usually for three or four months.

Comparative tests show that saline solution prepared with our metropolitan tap water boiled, cooled and filtered through a fine porcelain tube is not inferior to fresh distilled water for intravenous administration of neosalvarsan.

Solutions prepared by using 8 cc. of a 0.4% salt solution to each 0.1 gm. of neosalvarsan are equally safe and hold up much better than those diluted to a greater volume of the saline, while concentrated solutions offer even a higher degree of stability. Neosalvarsan when diluted further than advised by the Ehrlich laboratory is likely to become suddenly suspended and a faint opacity appear throughout the liquid.

There can be no doubt that neosalvarsan is prepared and sealed with very accurate precautionary measures, but the assumption would be too great to suppose that thousands of these ampuls could be dispensed from any laboratory and each present exact uniformity of conduct when subjected to various thermal, chemical and clinical observations.

While most ampuls of neosalvarsan are exactly similar in their behavior when exposed to air, it is also true that occasionally one is encountered which for an unknown cause appears higher in color, dissolves with some difficulty and oxidizes much more rapidly than others. Occasionally I have found an ampul where extensive oxidization of the neosalvarsan took place within ten minutes after being dissolved, while with other ampuls but slight evidence of deterioration could be detected at a period of two hours after the solution was prepared. In fact such a variation of conduct was observed by me where every environment remained the same throughout the day, so far as could be determined.

Oxidization of neosalvarsan when exposed is not hastened by the presence in the air of such chemical substances as alcohol, ether, chloro-

form, carbolic acid or illuminating gas, while exposure to an atmosphere where liquid oxygen has recently been used, will cause sudden and complete precipitation of the drug. Minute traces of mercuric bichloride or wood alcohol are rapid in their destructive action upon neosalvarsan, while one drop of hydrogen peroxide is capable of sending it down with a proverbial thud, ammonia presenting another form of incompatibility.

Careful examination by transmitted light would indicate that neosalvarsan when dissolved in 0.4% chemically pure sodium chlorid solution fulfills every requirement of a "*perfect chemical solution.*" This belief is disproven, however, by passing the mixture through a white porcelain filter capable of negotiating the complete ampul content to the time of three minutes. Solutions so tested invariably leave a residue, the presence of which is brought out very clearly by adding one or two drops of peroxide hydrogen, or by swabbing the exterior surface of the filter with liquid oxygen. The amount of the residue is increased by delaying filtration and by diluting beyond 8 cc. of NaCl solution to each 0.1 gram of neo. When clinically employed the porcelain filter is capable of preventing any insoluble or oxidized portion of the drug from entering the vein and is always a safeguard against an impure filtrate.

After a fairly extensive experience with neosalvarsan I am convinced that when accurately handled it is both safe and dependable; that in preparing and administering this agent a cool room with perfect illumination is of equal importance with strict asepsis; that the beginning of oxidization of neosalvarsan is simultaneous with its exposure to air; that "immediate injection" should be interpreted as forbidding a delay of more than ten minutes from the time of opening the ampul until the injection is completed, which time can easily be reduced by half; also, that the use of therapeutic agents containing ammonium carbonate or mercury should be withheld or suspended for a period of forty-eight hours preceding and for several days following the intravenous administration of either new or old salvarsan.

Clinical Department.

SYPHILITIC MULTIPLE SCLEROSIS DIAGNOSED CLINICALLY IN SPITE OF NEGATIVE LABORATORY TESTS.

BY TOM A. WILLIAMS, M.B., C.M., EDIN., WASHINGTON, D. C.,

Neurologist to Epiphany Dispensary, Corresponding Member, Paris Neurologic Society.

A WOMAN aged thirty-nine was sent to me from New York state because of what had been diagnosed by several neurologists as multiple sclerosis. Her physician wrote asking if I could suggest some treatment or perhaps modify the diagnosis.

The patient declared that she had been intensely nervous since the birth of her boy eight years ago; since two and one-half years this had consisted of palpitation and a feeling of dread, great unsteadiness of the hands, voice and gait. In addition there was marked incontinence of urine and extreme obstipation with occasional incontinence. She was dizzy when tired, and the eyes were blurred.

Examination showed great exaggeration of the tendon reflexes, but no corresponding diminution of the cutaneous reflexes, and the great toes did not extend upon stroking the sole of the foot nor by other stimuli used to provoke that reflex. But that there was some interference with the pyramidal system was shown by absence of reflex flexion of the toes, all of them remaining immobile to the stimuli of reflectivity.

The absence of the sign of Babinski in a patient whose illness was of such gravity and duration made me suspect that insular sclerosis might not be present after all; and on proceeding to the examination of the eyes, my doubts received further support; for no nystagmus occurred even during rapid intentional movements; and the optic papilla showed no atrophy, although slightly pale. The absence of three signs of such importance compelled me to contradict the previous diagnosis, in spite of the presence of intention tremor, scanning speech, impaired diadocokinesis, a slight *moria*, such as often occurs in insular sclerosis, and a diminution of vibration sense in the legs.

But it is pretty well known to neurologists that the symptoms of insular sclerosis may be simulated, even to a greater degree than was shown by this patient, when there is a diffuse chronic inflammation of the nervous system produced by the treponema pallidum. This I suspected to be the condition of this patient.

Accordingly lumbar puncture was done on February 13, when 30 c.c. of fluid very rapidly came, and Dr. Nichols reported that there were 7 lymphocytes per c.m. This slight lymphocytosis still left us in doubt, for an increase in cells has been reported in cases of insular sclerosis.

However, I put the case to the patient, who decided to permit the experiment. So I injected a full dose of salvarsan into a vein on February 22. This rendered her almost helpless for about two days. Then she began to handle herself much better, and on the 28th she also felt much better and the motility still further improved. The reflexes and sensibility were as before, but the intention tremor had greatly diminished.

So on March 7 the spinal fluid was again examined, and a luetin test was begun by Dr. C. A. Simpson. The cells had diminished to 5 c.m. This puncture caused great pain, headache and nausea. After this cleared up, salvarsan was again given on March 15. Within 24 hours her legs gave way twice, but a great improvement again followed in walk and speech. The intention tremor disappeared, and her sleep became restful. The Wassermann reaction remained negative as before; but a papule rapidly formed where luetin had been injected, and when I saw her five days after the salvarsan, a broken pustule was present which Dr. Simpson pronounced a luetin reaction.

The following letter was sent to her doctor, who expressed his pleasure thereat in stating that the case had baffled several neurologists:—

"Mrs. B— is returning, after receiving salvarsan twice and appearing much improved. I think we may say the diagnosis is positive now, for the reaction to luetin, which Dr. C. A. Simpson declares to be pathognomonic, declared itself after the second injection of salvarsan, although it had been quiescent more than a week before that. This, in connection with the puerperal history, the lymphocytosis of the spinal fluid and the absence of some of the most characteristic signs which might be expected in true insular sclerosis, decides me. I recommend that you continue treatment by salvarsan and mercury for some months; although I do not believe that full restoration of function will occur now, as there must be considerable destruction of nervous tissue. I have not named the diagnosis to the patient. Please accept my thanks for sending me a problem of such interest and for the pleasure of having been able to afford some benefit."

COMMENTARY.

The low lymphocyte count in the presence of such severe symptoms and the relative poverty of radicular signs indicate that the pathological process causing the symptoms is within the central nervous system in the main, and not merely an involvement of the roots by an extension from the meninges into their coverings of syphilitic lepto-meningitis, as is the case in tabes dorsalis. There are, in all probability, foci of ill-nourished, if not necrotic tissue, scattered throughout the central nervous system, perhaps as a result of endarterial proliferation, which may have led in some cases to obliteration. In proportion as this is incomplete and the tissue elements have not perished, there will be restoration of function, as tissue activity is resumed upon the removal of exudate from arterial wall or connective tissue, by the destruction of its cause, the treponema pallidum, by salvarsan or mercury.

In the presence of lesions of this character the signs may lack all systematization, as in this case.

In insular sclerosis, it is rare that the midbrain or the pyramidal tract escapes when the process is at all extensive. The absence of nystagmus and of extensor response of the toes immediately made me suspicious of this diagnosis. The experimental therapeutics confirmed my doubts; but unless the luetin reaction be regarded as pathognomonic, only an examination post mortem can give absolute proof; and in some cases even this has failed to distinguish between disseminated sclerosis of the usual type and that sometimes believed to occur as the result of syphilis. It must not be forgotten that post-mortem appearances are after all merely the results of the reaction of the body to insult, and that these results both resemble one another and vary so much that few of them are pathognomonic for any particular invasion. For instance, even plasma cells, so characteristic in paresis, merely denote chronicity, and may occur under many conditions quite irrespective of syphilis.

Again, during life the reactions of the body to the particular noxa are by no means uniform; otherwise we should not find the Wassermann reaction absent in nearly 40% of tabetics, and we should not find it present as a reaction to the organism of leprosy.

In conclusion, it cannot be too often insisted upon that the absence of the reactions which are detected by the usual laboratory tests for syphilis, is by no means conclusive of the absence of that disease: the failure to find them merely indicates that, at that particular moment, the patient is not reacting strongly enough in that particular way. The results of previous reactions, as manifested by present clinical signs, furnishes a basis for a diagnosis in every way as potent, and no more lacking in that objectivity which it is the fashion to claim preëminently for certain methods conducted in the clinical laboratory. A moment's reflection shows the fallaciousness of this claim; indeed, a non-reacting pupil, an absent knee-jerk, a positive great toe sign, are no less objective than blood cell count and diazo reaction, or an Abderhalden test; furthermore, these latter are much richer in liability to false interpretations, as well as errors in observation than are clinical signs in the hands of an experienced neurologist.

Reports of Societies.

AMERICAN GYNECOLOGICAL SOCIETY.

Thirty-ninth Annual Meeting, Held at Boston, May 19, 20 and 21, 1914.

The President, Dr. J. Whitridge Williams, of Baltimore, in the chair.

(*Continued from page 495.*)

ULTIMATE RESULTS FROM SURGICAL INTERVENTION IN SIMPLE CASES OF CHOLELITHIASIS AND CASES IN WHICH GALL-STONES WERE FOUND COINCIDENT WITH SOME OTHER OPERATION.

Dr. John G. Clark, of Philadelphia, stated that in his review of 160 cases of cholelithiasis he emphasized the fact that modern surgery had entirely recast the clinical history of cases of cholelithiasis, and that in the newer interpretation symptoms which were formerly considered as essential for the establishment of a diagnosis of cholelithiasis were now looked upon as terminal rather than initial indications of biliary defects.

In one group he had included cases in which there was an operation for cholelithiasis without any associated gynecological conditions. In the second group were found all of the cases in which the gall-stones were discovered in association with gynecological or other abdominal operations. In only 14 per cent. of his series of 160 cases had he

failed to secure accurate notes as to the outcome. In this list, no case had been included which had been operated upon under nine months. It was to the ultimate recovery that he had particularly directed his attention in this study of cases.

In all cases where here was nausea after 24 hours, he attached a saline reservoir to the drainage tube and under one foot of hydraulic pressure permitted the fluid to drop slowly into the gall-bladder. Great care was observed to avoid the slightest excess of pressure which might induce a rupture about the point of insertion of the tube in the gall-bladder. The drainage in this series had usually been maintained for ten days. This rule was an arbitrary one and in some cases the length of the drainage period might be extended. Within the last two years he had turned toward cholecystectomy in a greater proportion of cases, for experience had shown that if the wall of the gall-bladder was thick and indurated, or if it was dilated and very thin, or if, on inspection of the interior of the organ, the mucosa was eroded or showed a strawberry mottling, he performed cholecystectomy.

Occasionally he had closed the gall-bladder without drainage after the removal of uncomplicated gall-stones, but he preferred to use a simple drain for fear of the rupture of the gall-bladder and escape of bile into the peritoneal cavity was thus avoided.

From this series of cases he concluded that (1) simple drainage was sufficient in all cases of cholelithiasis where there was no symptom attributable to their presence. (2) When the gall-bladder was thickened, greatly dilated, or was the seat of the so-called strawberry change as described by Moynihan cholecystectomy was preferable.

So-called gastralgia, indigestion and dyspepsia he would place in heavy type and let it stand out so boldly that it would serve as a target to be immediately demolished.

In gynecological cases with coincident symptoms in the upper abdomen, the gall-bladder was by far more frequently the seat of disease than any other organ. In a vastly larger series of gynecological cases, gastric or duodenal ulcers, or cancer of the stomach, has been so infrequently found as to be almost negligible.

In estimating the immediate and remote results of these combined operations he had arranged his cases under three separate headings: First, simple gall-bladder cases, in which the surgical treatment was directed to the relief of cholelithiasis; second, the cases in which some pelvic operation was performed and gall-stones, not producing symptoms, were discovered, and, third, gynecological cases in which there were unmistakable symptoms of associated gall-bladder disturbance.

So far as immediate mortality was concerned, the first group consisting of 51 cases was attended by 6.1 per cent. immediate mortality, the second by 4.3 per cent., and in the third there was no fatality.

Of six fatalities in his series of cases, four of the cases died from destructive results of advanced cholelithiasis. In only two could death be attributed to any defect in operative technic. In one there was a leakage with the formation of a subphrenic abscess; in the other a peritonitis. These two deaths might have been avoidable. In none of the combined operations where there were no symptoms attributable to gall-stones was there a fatality.

DISCUSSION.

DR. REUBEN PETERSON, of Ann Arbor, found in about one thousand abdominal sections that there were gall-stones present in about 12 to 14 per cent. This included his own private cases as well as the University Hospital cases. He had adopted the one operation of simply removing the gall-stones and draining. He had not removed the gall-bladder in any case. He had found quite a percentage of cases where he did not think it was advisable to perform any operation on the gall-bladder. He had found an unusually large proportion of cases of cancer that had gall-stones. In the pus cases he had refrained from operating on the gall-bladder.

DR. PHILANDER A. HARRIS, of Paterson, N. J., had not often removed gall-stones from patients when operating upon them for gynecological troubles. He did not think he had removed the gall-stones in more than half a dozen cases. He did not believe he had found gallstones in more than four or five per cent. of the cases he had palpated through the abdominal incision, so that his experience did not correspond with that of Dr. Peterson. He had removed the gall-bladder in at least 70 per cent. of the cases on which he had operated, something less than 200. Removal of the gall-bladder was good practice.

THE NEW EFFICIENCY SYSTEMS AND THEIR BEARING ON GYNECOLOGICAL DIAGNOSIS.

DR. ROBERT L. DICKINSON, of Brooklyn, said that many of the methods of Taylor's "Scientific Management" of factories were adaptable to office, dispensary and hospital group diagnosis.

He gave an outline suggesting how responsibilities might be recast and grouped by function: how all processes might be standardized, then reduced to writing, instruction carried on, and then constant inspection to check up every one's results, while studies of time and waste motion in the operating room and ward were undertaken. Attention was drawn to the need of systematic study of fatigue among nurses, as had been done in other occupations. Reference was made to cöoperative methods, as instanced in the Associated Out-Patient Clinics of New York; of the Hospital Efficiency Committee of the Philadelphia County Medical Society, representing 55 hospitals; of the great new Mayo building just opened, and in associations of groups in cities.

Some examples of printed forms were submitted, such as a full preliminary history to be made out by the patient herself, and also printed directions to gynecological and pregnant patients.

HOSPITAL EFFICIENCY WITH PARTICULAR REFERENCE TO PRODUCT RATHER THAN EXPENDITURE.

DR. E. A. CODMAN, of Boston, stated that at present trustees of hospitals gave attention to the efficiency of their institutions in expenditures, but they had made little or no effort to find whether the treatment of the patients which was given by the medical and surgical staffs was good or bad. It had been taken for granted that the public preferred to be treated by a physician or surgeon who had a great reputation, even if he was hurried or careless, than by an individual of lesser reputation who could afford the time and pains necessary to obtain a good result in the treatment of disease which afflicted the patient. Hospitals in which promotion was made by a seniority system could not

help tending to the inevitable practice of allowing the more capable surgeons to do the easier and more brilliant cases, while the more tedious and difficult and grave cases might be referred to the younger men whose private reputations made little demand upon their time. There seemed to be some ground for the contention that it would be better to have a young surgeon do a large number of easy operations so that when he was older his experience might benefit the more difficult cases which fortunately were much fewer in number.

Dr. Codman pointed out the value of the "End Result System" and said it tended to bring this change about.

A CRITICAL REVIEW OF FIVE HUNDRED PUBLISHED AND UNPUBLISHED CASES OF ABDOMINAL CESAREAN SECTION FOR ECLAMPSIA.

Dr. Reuben Peterson, Ann Arbor, read a paper on this subject in which he presented the following summary and conclusions:

1. Since the 500 cases of abdominal Cesarean represent the work of 259 operators they are a very fair index to the present status of the operation as a method of treating antepartum eclampsia.

2. Since the results of operative obstetrics, especially abdominal section, are far better at the present time than formerly, the value of the operation as a method of treatment of eclampsia can only be judged by grouping the cases chronologically.

3. Between 1903 and 1913 there were 283 cases of eclampsia treated by our abdominal Cesarean section with 73 deaths or a maternal mortality of 25.79 per cent. Up to 1908 there were 198 cases with 95 deaths or a mortality of 47.97 per cent. Hence the maternal mortality in the five year period has been reduced nearly one-half.

4. Hence the old figures of a 40 or 50% maternal mortality from abdominal Cesarean section for eclampsia are incorrect and should no longer be quoted.

5. The mortality percentage quoted above (25.79) can be considerably lowered by care in technic and by not making use of the suprapubic route when there is great probability that the woman has been infected from below.

6. Nearly one-fifth of the entire series, 91 operations, were performed by thirteen men having five or more cases to their credit, with 17 deaths, or a maternal mortality of 18.68%.

7. Deducting 15 cases where the proportion of moribund and septic patients was very high, the remaining 76 cases with 10 deaths give a maternal mortality of 13.15%.

8. Although an eclamptic may die after a single or survive after many convulsions, the latter must be utilized as an indication of the degree of eclamptic poisoning until we have a better method of estimating the patient's condition.

9. Emptying of the uterus either spontaneously or by artificial means, while it puts a stop to the further elaboration of toxins from the fetus, the placenta, or both, may not be sufficient to prevent further convulsions or in certain cases death of the mother from intoxication.

10. In the present series convulsions were caused after abdominal Cesarean section in 251 out of 457 cases, or in 54.92%. These statistics agree with those made up from those obtained from thousands of cases of eclampsia showing that convulsions cease after emptying of the uterus, either spontaneously or artificially, in from 52 to 62% of the cases.

11. Even when the convulsions cease after delivery a certain proportion of the patients die. In 146 cases where the convulsions ceased after abdominal Cesarean section during the five-year period (1908-1913) there were 41 deaths, or a maternal mortality of 19.8%.

12. While the above percentage of patients died after emptying the uterus by abdominal Cesarean section after cessation of the convulsions the mortality is much less than where the convulsions continue, since in 130 of such cases there were 41 deaths, or a maternal mortality of 31.53%.

13. The operative treatment of eclampsia has never been given a fair trial. To do this the uterus should be emptied quickly, as soon as possible after the onset of the first convulsion, not emptied after all kinds of medicinal treatment have been tried and failed.

14. In the present series there were 25 deaths after 124 operations performed after one to five convulsions, or a maternal mortality of 20.32%.

15. The best results in the operative treatment of eclampsia are bound to follow immediate emptying of the uterus in cases where the woman has not been infected by frequent vaginal examinations or attempts at delivery from below. This is shown by the following:—

16. In 60 of the 124 cases where the operations were performed after from one to five convulsions, where no or only one or two vaginal examinations had been made and where no attempts were made to deliver from below, there were only 9 deaths, or a maternal mortality of 15%.

17. The increase in mortality due to delay is shown by a mortality of 30.33% where the operations were performed after the sixth convulsion. This is 10% higher than after quick delivery and 5% higher than the total mortality resulting during the same period (1908-1913).

18. In 60 cases where the convulsions ceased after operations performed after from one to five convulsions there were 8 deaths, or a maternal mortality of 13.33%. The mortality is twice as high (26.92%) after operations performed under the same conditions except that the convulsions continued.

19. When the abdominal Cesarean sections were performed after more than five convulsions there was a resulting mortality of 26.31%, where there was a cessation of the convulsions, and 36.36% where they continued.

20. The average number of convulsions in 386 cases of eclampsia in the abdominal Cesarean series was 9 where the cases were not grouped. The average was 10 up to 1908 and 8 from 1908-1913.

21. Twins occurred 31 times in 500 cases of abdominal Cesarean section for eclampsia, or in 4.02% of the cases. This is over three times as frequent as are twins in normal cases.

22. Excluding premature children and counting as living all children who survived one hour after delivery there were 9 deaths from 1908 to 1913 where 248 children were delivered by abdominal Cesarean section, or a fetal mortality of 3.62%. Under the same conditions fetal mortality was 10.89%, if children dying the first three days after delivery were counted among the deaths. Even estimating the fetal mortality by this method it is much better than by any other method of treating eclampsia.

23. The fetus as well as the mother is affected by eclamptic poison. The greater the number of the eclamptic convulsions before delivery the greater the fetal mortality. Hence for the sake of the fetus the uterus should be emptied as soon as possible after the first convulsion. If other factors in the case call for abdominal Cesarean section the chances of the fetus will be much better than if another method of delivery be employed.

24. In 474 cases of eclampsia in the present series, 83.75% were primiparae and 16.17% multiparae. The relatively larger proportion of primiparae was due to the fact that primiparous conditions, such as undilated and rigid cervix and rigidity of the soft parts more often called for the abdominal operation than for other methods of delivery.

25. The maternal mortality is higher after abdominal Cesarean section in multiparous women than in the case with primiparous eclamptics. In the present series in 225 primiparae the maternal mortality was 24.44 %, while in 48 multiparae the mortality was 27.08%.

26. The fetal as well as the maternal mortality is higher in multiparae after abdominal Cesarean section. This is probably due to the greater degree of intoxication among the multiparae, since in both primiparae and multiparae the children, because of the nature of the operation employed, escape the traumatisms of labor. The greater intoxication among the multiparae is probably due to their being on the average older than the primiparae, the average of the former in 77 cases being 32.6 years, while the average age of the latter in 397 cases was 24.6 years.

27. The maternal mortality in eclampsia after abdominal Cesarean section steadily increases with the age of the patients, it being 23.63% between the ages of 16 and 20, and 31.11% between the ages of 31 and 35.

28. The number of eclamptic cases in the present series steadily increased from the fifth month of gestation up to full term, also the farther advanced the pregnancy the lower the maternal mortality.

29. Unless the aseptic technic employed in attempts to deliver from below be known, abdominal Cesarean section is contraindicated, so great are the dangers of fatal peritonitis when the patient is infected.

30. The high death-rate of abdominal Cesarean section after operative procedures is shown by the fact that there were 10 deaths in 29 such cases, or a maternal mortality of 34.48%. This 9% increase in mortality over the total mortality (25.79%) during the same period was undoubtedly due to sepsis, shock and delay in emptying the uterus.

31. The mortality is distinctly higher after abdominal Cesarean section in eclampsia if vaginal examinations have been made prior to the operations. The danger increases directly with the number of examinations made and the lack of asepsis employed.

32. Any obstetric condition which makes delivery by the natural passages prolonged and difficult may be an indication for abdominal Cesarean section in eclampsia. If delivery be decided upon, the uterus should be emptied by the method which will perform the work the quickest and with the least trauma and shock to mother and child. However, it must be borne in mind that there is more danger of sepsis when the peritoneal cavity is opened.

33. With the present state of our knowledge of this operation for eclampsia it cannot be denied that older and more tried methods of emptying the uterus in eclampsia give better results in eclamptics with normal pelves and soft parts, hence should not be lightly discarded in favor of the more brilliant and more easily performed abdominal operation.

(To be continued.)

Book Reviews.

Surgical Experiences in South Africa. 1899-1900. Being Mainly a Clinical Study of the Nature and Effects of Injuries Produced by Bullets of Small Calibre. By GEORGE HENRY MAKINS, C.B., F.R.C.S., senior surgeon to St. Thomas's Hospital, London; vice-president of the Royal College of Surgeons of England; late joint lecturer on surgery in the medical school of St. Thomas's Hospital; member of the court of examiners of the Royal College of Surgeons of England; and one of the consulting surgeons to the South African Field Force. Second edition. London: Henry Frowde, Oxford University Press; Hodder and Stoughton, Warwick Square, E. C. 1913.

The first edition of this book appeared in 1901. It was dedicated to Surgeon-General W. D. Wilson and members of the Royal Army Medical Corps employed in South Africa, one of whom was G. H. Makins himself. The author had originally intended to send a series of articles to the *British Medical Journal*, but later decided to enlarge them considerably and publish them together. Illustrative cases have been introduced in support of various statements made in the text, and only those have been chosen from his notes which were under his own observation for a considerable time. Mr. Makins has studied the results of small calibre gunshot wounds and does not consider other surgical problems connected with war. Makins does not seem to believe that very many cases of gunshot wounds of the abdomen have recovered without operation. He admits that it does take place, but feels that the number of such cases has been exaggerated. In the non-operative treatment he insists upon absolute starvation, and as little disturbance of the patient as possible; strychnine for shock; feeding is commenced at the end of twenty-four to thirty-six hours. Morphine may be of value in doubtful cases. The author, however, believes that when conditions permit of the performance of formal laparotomy, many cases

with severe injuries to the small intestines should be operated upon; though many will inevitably die under this treatment, some will be saved which would have died without operation.

The Surgery of the Stomach. A Handbook of Diagnosis and Treatment. By Herbert J. Paterson, M.A., M.C., M.B. (Cantab.), F.R.C.S., London. New and revised edition. With plates. New York: William Wood and Company. 1914.

The author explains that an extensive revision of his work is not called for, but that he has endeavored to profit by criticisms of the reviewers of the first edition. The chapter on the physiology of gastro-jejunostomy has been rewritten and a series of thirty x-ray plates added, photographed for use stereoscopically and reproduced in pairs. These and other minor changes increase the worth of an already valuable book. The author also presents a very interesting chapter on Appendicular Gastralgia, in which he endeavors to collate and systematize the knowledge of this interesting condition, in which a slightly chronic appendix causes gastric symptoms. In conclusion, he says, "No operation should be performed on the stomach, except when a definite organic lesion of the stomach or duodenum exists. Gastro-jejunostomy will not cure appendicitis. In all operations for supposed gastric or duodenal ulcer, the condition of the appendix should be investigated carefully." It is a pleasure to again recommend this excellent volume.

Effects of Volcanic Action in the Production of Diseases and Atmospheric Vicissitudes. By H. J. Johnston-Lavis, M.D., D.Ch., M.R.C.S., Eng., L.S.A., Lond., F.G.S. London: John Bale, Sons, and Danielsson, Ltd. 1914.

This monograph, which won the triennial Parkin prize of the Royal College of Physicians of Edinburgh, is an essay "on the effects of volcanic action in the production of epidemic diseases in the animal and in the vegetable creation, and in the production of hurricanes and abnormal atmospheric vicissitudes." Starting with the laudable motto that "science is the art of using common sense," the author, after a brief sketch of the physics and chemistry of eruption, and a discussion of some of its physical effects on human being and animals, examines a number of cases of its supposed relationship to epidemic diseases of man, animals, and plants, and comes to the rather obvious conclusion that this relation can be only indirect. Nor does he consider that any meteorologic phenomena of great importance can be attributed to eruptions. As an expert vulcanologist, he may properly expect his results to be accepted without question, though it should seem that they were so self-evident to the enlightened mind as hardly to require demonstration.

Letters to a Doctor and Others. By a Lover of Truth and Justice. Printed for Private Circulation. London: Wyman and Sons. 1914.

This volume consists of one 60-page letter to a physician, signed "Verb. Serp."; one of 18 pages, also to a physician, signed "A Lover of Truth and Justice"; one brief letter to a friend, signed "Sympathy"; and two brief, unsigned, non-epistolary essays, entitled "Chaos of Opinions" and "Suicides and Inquests." The author was prevented from writing an intended last chapter on "Head Injuries, Shock, and Sunstroke." The whole is by way of a lay polemic against the medical profession, or certain members of it, for their treatment of neurasthenia by suggestion, which the author terms "a horrible system of meddling interference." He considers the use of sanatogen or adalin the best method of treating insomnia. Apparently the work is one chiefly of symptomatic interest.

Atmospheric Air in Relation to Tuberculosis. By Guy Hinsdale, A.M., M.D., Hot Springs, Virginia. Published by the Smithsonian Institution, 1914.

This volume of 135 pages is one of the two prize-winning essays among the 100 entered in competition under the terms of the Hodgkins Fund of the Smithsonian Institution. There are 93 most excellent plates. These plates alone give this treatise distinct value and make it a noteworthy contribution to the literature on tuberculosis. The title, "Atmospheric Air in Relation to Tuberculosis," is a misleading one. The book consists of a most excellent description of the treatment of all forms and phases of pulmonary and non-pulmonary tuberculosis. It will prove of great value to every physician in looking up the climate of any resort to which he is considering sending some patient. It impresses the physician by its vivid description of Rollier's heliotherapy, with the wonderful results which can be obtained and are being obtained with this simple, inexpensive method of treatment. It discusses the relative values of high and low altitudes and moist and dry climates. The section devoted to open air schools and fresh air rooms is the latest word on this subject. Not only to physicians, but to nurses and to the general public will the little volume be of great service. It is to be hoped that it will be easily accessible to every one.

Dr. Hinsdale is to be congratulated upon the completion of such a high grade piece of work as this.

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THE MINISTER AND THE DOCTOR.

ON a large island off the coast of Maine a minister of the gospel is, at the present time, serving the inhabitants successfully in the dual capacity of adviser of the spirit and healer of the ills of the flesh. This union of the two professions has been a common practice among the missionaries in Eastern countries for a very long time. During the early days of the settlement of America the only physicians we had were the clergymen, who were versed also in medical lore. Such was Charles Chauncy, the second president of Harvard College, and such was Thomas Thacher, minister of the Old South Church in Boston. There are those who consider that today the holders of these combined offices are more highly trained in theology than in medicine, and the query has arisen in the minds of many whether in these days of specialties time serves for the acquirement of sufficient knowledge of both medicine and theology to make one individual proficient in the practice of both.

A recent experience in our midst along this line—the Emmanuel Movement—is not reassuring. The overworked clergyman found that twenty-four hours was too short a day in which to unravel the complicated interwoven threads of ill health of the many neurasthenic patients who consulted him, and his clerical duties suffered in consequence. Any physician who has had experience with nervous and mental disease knows that the element of time is an important factor in the treatment of these cases, and that each patient must receive exhaustive individual study. To the unprejudiced observer the physician trained in this particular field would seem to be the person best fitted to care for such sick. That the neurologist does not reach all the difficulties of the case is too often patent to both patient and relatives. Can he get help from the clergyman, and how? The healer's personality is so frequently the determining factor in effecting a cure, that to divide the care of a given patient with another may dissipate any beneficial influence the doctor may have. And this raises the question whether the practice of medicine is susceptible of any but individualistic treatment. The sending of a patient from specialist to specialist sometimes leaves the sufferer adrift so that when a squall comes up he knows not what to do. If his nautical sense tells him to lower his sail and toss out the anchor, he may ride out a stiff blow in safety. Now and then he fetches up on the rocks of skepticism, but all too often he is treated by an over-zealous specialist for ailments which are of no real account.

The clergyman, be he a man of sense and tact, and one who has had a long-standing knowledge of the patient, should be able to advise the physician intelligently in the conduct of the case. One can hear the family physician say to his medical consultant, "I have tried everything I can think of." But has he sought the assistance of the patient's spiritual adviser? Generally he has not.

In matters of public health no good reason has been advanced why there should not be some co-operation between the ministerial and the medical professions. Medical men are becoming more united every day. By means of national and state associations a very large proportion of the physicians of the country have come together and are crystallizing their ideas on the larger questions. In the case of the ministry the same tendency can be traced, but it has not got as far as with the doctors. The separate sects into which the Christian church is divided are no longer at loggerheads. Pulpits are exchanged by Baptist and Congregationalist. In one of the larger cities of Massachusetts thirty out of a total of forty churches are members of the Federation of Churches, to further social problems. The federation is supported by mutual subscriptions of one-tenth of one per cent. of the annual expenses of the constituent churches. In this city good work has been done in opposing intemperance, in promoting play-

grounds, in the vice campaign, and plans are being made to obtain better housing conditions for the poor.

Apparently conditions vary in different parts of our state, and this spirit of harmony among those of different religious faiths is unevenly distributed. Social problems in a given city can be studied best by both physician and clergyman working together. Thus the facts may be gathered, and, having the facts the succeeding steps of deciding what may be done and how it may be done follow in order.

The physician has been in the way of learning more about health problems than his clerical brother, from being brought into contact with them in his daily routine of duties, but he has been treating always individual cases. The minister has been considering the broad questions as applied to all of his parishioners, without too much accurate information often as to the mode of life of the individual. Surely the two should be brought together. The doctor should look at questions of health widely and from an idealistic standpoint and the clergyman should learn more of the materialistic facts. It must be apparent to even the most rigid dogmatist that however much men differ in their theological tenets, they are all agreed as to the need of controlling contagious and venereal disease, of securing proper sanitation, pure milk, pure food and drugs, and proper housing conditions for the poor.

How much easier to put the right sort of laws on the statute books when the influence of a united clergy can be joined with that of a united medical profession. We do not live in Utopia, to be sure, but is not the time ripe for coöperation of the two professions in solving public health problems, made possible by the Federation of Churches and the Massachusetts Medical Society? Let a committee from the federation meet a committee from the state society, discuss the entire situation and work out a plan of joint action.

PROGRESS OF RELIEF FOR THE EUROPEAN WAR.

The American relief ship, *Red Cross*, which sailed from New York on Sept. 13, docked safely, on Sept. 24, at Falmouth, England, where the units designated for British service were landed, and where Rear Admiral Aaron Ward went aboard to assume command of the expedition. On Sept. 30, the *Red Cross* sailed again for Brest, France.

"The French unit of the British Red Cross Society landed at Cherbourg, and has made its way northwards to get into touch with the British base. It is composed of twenty hospital-trained nurses, ten surgeons, and ten dressers. Lord Brassey has been kind enough to place his famous yacht, the *Sunbeam*, at the disposal of the society for any service, at home or abroad."

On Sept. 22 the American Red Cross issued the following appeal to the churches of the United States:—

"Our President has, by proclamation, designated Sunday, Oct. 4, as a day of prayer for peace. It has been suggested in many quarters that on this Sunday a collection be taken up in every church to relieve suffering in the war-ravaged countries of Europe. The Red Cross, which is charged with the special duty of aiding the sick and wounded in time of war, respectfully urges that opportunity be given in each church to every person who so desires to make a contribution to be given to the American Red Cross, which is impartially aiding every country in a spirit of common humanity, and which recognizes no distinction of race nationality. However, every contributor who desires to designate any particular fund or country to which his or her contribution shall be applied, may do so, and such request will be respected."

On Sept. 24 the New York Red Cross had received a total of $163,630.70, and the total American fund amounted to nearly $325,000. It is estimated that $15,000 a month will be required hereafter to maintain the first relief expedition already sent. The total of the Massachusetts fund on Sept. 24 was $23,040.33. In New York also the sum of $56,862.94 has been raised for the American Ambulance Hospital at Neuilly (Paris). It is reported that 250 wounded soldiers of all nations are now being cared for at this institution. In Chicago, $50,000 have been subscribed and cabled to the German and Austro-Hungarian Red Cross Associations. Funds are also being raised in American cities to relieve and care for Belgian and Alsatian non-combatants. In New York a national committee of mercy has been organized to undertake the relief of widows and orphans left destitute by the war.

The French correspondent of the *British Medical Journal*, writing from Paris under date of August 28, describes in part as follows the medical status of the city at that time.

"Medical progress in Paris is almost at a standstill. The societies have ceased to meet, except formally, and of lectures and discussions there are none. Such medical journals as still appear are greatly reduced in size and are entirely devoted to medico-military subjects. All medical men of serviceable age and physical fitness have been called to the colors, and hosts of students have been requisitioned. Many hospitals and laboratories have been almost denuded of their staffs, and it has been necessary in some of the important laboratories to call for voluntary assistance. Each hospital has a large proportion of its beds in readiness for wounded soldiers, and a great number of schools and private houses have been equipped as temporary hospitals. Staffs of medical men have allocated to them certain districts, the temporary hospitals in these districts coming under their care. The Americans resident in Paris have formed a Red Cross Society, and the response to their appeal for subscriptions has been excellent. Besides several houses, they have taken a large wing in the new Lycée Pasteur, and in the latter there are already 200 beds in readiness to receive patients. The British residents are also working strenuously, and although not yet officially under the Red Cross, the British Hospital, which is admirably equipped for the reception of cases requiring operative treatment, has received many generous offers. A great drawback to the emergency hospitals in Paris is the lack of trained nurses, the profession of nursing in France not being cultivated to the same degree as in England.

"The authorities have issued placards advising the people to be vaccinated against smallpox. This is done gratuitously in the different mairies. Up to the present no cases of smallpox have been reported. Professor Vincent's antityphoid vaccine is being extensively used both among civilians and in the army. The vaccine used here is polyvalent, the differing strains of the bacillus being obtained from France, Morocco and Tunis. Owing to the rapidity of the mobilization, very few soldiers at present on active service have been fully vaccinated against typhoid. Some have received two injections, the first of ¾ c.c., and the second of 1½ c.c. It is considered that these two injections give an appreciable immunity to the disease. The efficacy of Vincent's polyvalent vaccine is well demonstrated by the fact that in the garrison of Avignon from 1892 to 1912 there were 1263 cases of typhoid, necessitating 44,133 days of treatment. In 1913 the garrison was vaccinated, and not a single case was reported during that year."

Under date of Sept. 2 the Swiss correspondent of the *Lancet* writes from Zürich:—

"The sudden command of the Federal government called the complete Swiss army to arms in the first days of August. The rapidity of the mobilization was astonishing, as some 300,000 soldiers were under arms within two days and distributed all over the country and on all the frontiers in five or six days. Now the Landsturm, comprising men over 45, is slowly being dismissed. Owing to the clemency of the weather and the good sanitary arrangements only 44 deaths have been reported among the troops during August. Five of these were due to sunstroke, five to delirium tremens, six to suicide following mental derangement, and 13 to accidents. Two succumbed to typhoid fever, and the rest of the deaths followed various illnesses. The whole of the army was vaccinated or revaccinated. As regards infective diseases, 7 cases of scarlet fever and 11 of typhoid fever have been announced. The typhoid fever cases were placed in the hospital and measures taken to prevent any epidemic spread of the disease. Anti-typhoid inoculation is general."

Report from Vienna on Sept. 23 states that 9 cases of Asiatic cholera have already occurred among Hungarian troops in Galicia. It is sincerely to be hoped that the various army medical services may by their efficiency prevent the outbreak of serious epidemic infections among any of the troops.

AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY.

The fifth annual meeting of the American Association for Study and Prevention of Infant Mortality is to be held in Boston from Nov. 12 to 14, 1914, under the presidency of Dr. J. Whitridge Williams, professor of obstetrics at the Johns Hopkins Medical School, Baltimore. Dr. Milton J. Rosenau, of Boston, professor of preventive medicine and hygiene in the Harvard Medical School, is first vice-president of the association, and Dr. Hugh Cabot, of Boston, is chairman of the local committee of arrangements.

The first general session will be held on Thursday afternoon, Nov. 12, at the Harvard Medical School, in conjunction with the Massachusetts State Conference of Charities. It will be devoted to two symposia, one on nursing and social work, especially pregnancy care, the other on pediatrics, vital and social statistics. A preliminary committee report on institution mortality and morbidity will be presented. The presidential address will be given at the evening session on this day.

In the afternoon of Nov. 13 there will be a session on obstetrics at the Copley-Plaza Hotel,

with three papers on the central theme of "a plea for increased and improved maternity hospital service." On Saturday morning, Nov. 14, a session on public school education for prevention of infant mortality will be held at the Copley-Plaza, with the special topic of continuation schools and classes.

"The American Association for Study and Prevention of Infant Mortality is one of the results of the conference on Prevention of Infant Mortality, held by the American Academy of Medicine at New Haven, Nov. 9-10, 1909. The association was organized at the close of that meeting, and in January, 1910, an office was opened in Baltimore, from which the work has since been directed.

"The objects of the Association are:

"1. To study the causes of infant mortality; to awaken an interest in the possibility of reducing the present unnecessary waste of infant life, and to formulate plans for preventive work.

"2. To act as a central clearing-house for the collection and dissemination of information regarding infant mortality and the work being done to prevent it.

"The work of the association is carried on—

"(*a*) By propaganda through the central office.

"(*b*) By investigation and by special work carried on by standing and special committees.

"(*c*) Through an annual meeting and the publication of annual transactions.

"(*d*) Through a traveling exhibit.

"The association believes that the present excessive death-rate among babies can be cut down at least one-half. It realizes that the first step in any campaign of prevention is the creation of a healthy, enlightened public sentiment. It asks everyone to help in awakening this interest by becoming a member and by interesting others in the movement.

"Organizations as well as individuals are eligible for membership. Affiliated membership is open to any society that is either interested in or that is engaged in some phase of baby-saving activity. The enrollment in this class includes departments of health, infant welfare societies, nurses' organizations, state and local women's clubs, departments of home economics, etc. Through its affiliated membership the association is in touch with organized baby-saving work that is being carried on in sixty cities in thirty states.

"Individual membership is classed as active, contributing, sustaining or life, according to the amount of dues paid. Through its individual members the association is in touch with the men and women in every community who are taking the lead in activities for social betterment."

Among the affiliated organizations which will be represented at the meeting and from which reports will be presented, may be mentioned the women's clubs of Newton Center, Concord, Lawrence, Winchester, Needham, Melrose, Haverhill, the Roxburghe Club, the Women's City Club of Boston, the Women's Municipal League, the Fathers and Mothers' Club, the Women's Educational and Industrial Union, and the Springfield Boys' Club. Delegates will also be sent from the Boston children's institutions department, the Boston Board of Health, the Massachusetts Homeopathic Hospital, the Mt. Sinai Hospital, the Milk Fund, the Infants' Hospital, the Anti-Tuberculosis Association, the Massachusetts Society for the Prevention of Cruelty to Children, the Church Home, the State Board of Charity, the United Improvement Association, Dorchester House, Hebrew Industrial School, the Boston Lying-in Hospital, the Federated Jewish Charities, the Boston Society for the Care of Girls, the New Bedford Children's Aid Society, the Society for Helping Destitute Mothers and Infants, and the Springfield Baby Feeding Association.

A NATIONAL DEPARTMENT OF PUBLIC HEALTH.

The proposition to establish a national department of health under the United States federal government, with a secretary who shall be a member of the president's cabinet, has for several years been advocated before the public by physicians and other enlightened men of affairs. The Owen bill, which sought to embody this project in legislation, was, however, twice defeated in the national congress by interests which opposed the so-called "doctors' trust." At the annual meeting of the American Medical Association in Atlantic City, N. J., on June 30, 1914, active interest in the subject was renewed, and the following list of 15 reasons was adopted as indicating the purposes of such an organization and the need for its establishment:—

"1. To stop the spread of typhoid fever through drinking the sewage-polluted water of the interstate streams.

"2. To enforce adequate quarantine regulations in order to keep plague and foreign diseases out of the country.

"3. To supervise interstate common carriers to protect the public health.

"4. To have a central organization of such dignity and importance that departments of

health of states and cities will seek coöperation and will pay heed to its advice.

"5. To influence health authorities, state and municipal, to enact reform legislation in relation to health matters.

"6. To act as a clearing house for health regulations and to codify such regulations.

"7. To draw up a model scheme of sanitary legislation for the assistance of state and municipal officers.

"8. To establish the chief causes of preventable diseases and unnecessary ill health.

"9. To study conditions and causes of disease occurring in different parts of the United States.

"10. To correlate and assist investigations conducted in biological and pathological laboratories.

"11. To consolidate and coördinate the many separate government bureaus now engaged in health work.

"12. To effect economies in these bureaus.

"13. To publish and distribute throughout the country bulletins in relation to human health.

"14. To apply our existing knowledge of hygiene to our living conditions.

"15. To reduce the death-rate."

In his address in discussion of this subject, Dr. Thomas D. Coleman, professor of the principles and practise of medicine in the University of Georgia, spoke in part as follows:—

"Charon's passage money,—the death toll,—is exacted largely by preventable diseases. Smallpox, cholera, and yellow fever have been banished as scourges from civilized communities, and by whom? The men whose private interests might have been fostered by the continuance of these epidemics that carried off thousands and tens of thousands.

"I do not wish here to be understood as decrying the value of municipal, county and state boards of health. So long as a city or county can control its health problems, the state does not essay to interfere; but when they, through inability, wilfulness or ignorance, lose such control, then the state reserves the right to interfere, or, if you please, assist and direct. This must of necessity be the province of a national department of health. State laws being at variance and legislators under one sort of influence or another, it is well to have sanitary laws enacted, which can be enforced, irrespective of state and territorial lines."

In the September issue of the *Southern Medical Journal* is an editorial commenting similarly on this subject, and urging the appropriateness and desirability of developing the present United States Public Health Service into such a department, enlarging and coördinating its work, and appointing as its first secretary, Dr. William C. Gorgas, surgeon-general of the United States Army, who by his achievement at the Panama Canal Zone has shown himself the foremost sanitarian in America. Whether or no Dr. Gorgas would accept such an appointment, there can be no question of his eminent qualifications for it. That such a department should be created, probably all regular physicians are agreed, and its establishment awaits only the overcoming of ignorant or prejudiced opposition.

MEDICAL NOTES.

Bubonic Plague in New Orleans.—Report from New Orleans, La., states that 2 new human cases of bubonic plague were discovered in that city on Sept. 22, making a total of 28 since the outbreak of the infection on June 27. One of these new cases has died; the other will probably recover.

Johns Hopkins Semi-Centennial.—The fiftieth anniversary of the Johns Hopkins Medical School, Baltimore, is to be celebrated in that city next week, and on Oct. 7 the new James Buchanan Brady Urologic Institute is to be dedicated.

"In connection with this dedication, a dinner will be given its donor. Dr. Winford H. Smith, superintendent of Johns Hopkins Hospital, will preside at the dedicatory exercises. President-elect F. J. Goodnow of Johns Hopkins University and Dr. Hugh H. Young, through whom the funds for the institute were offered to Johns Hopkins, will be among the speakers.

"The celebration will open Monday, Oct. 5, which will be known as Nurses' Day. All the graduates of Johns Hopkins Training School for Nurses have been invited. There will be a commemorative meeting at which Dr. William H. Welch will preside. Sir William Osler, Dr. Henry M. Hurd and Miss M. A. Nutting, former superintendent of the nurses' training school, will speak. There will be a garden party following the meeting on the hospital lawn. At night the nurses and the Johns Hopkins Hospital Alumni will hold banquets. For the next three days there will be clinics, reunions and other celebrations, the jubilee being brought to a close Thursday, Oct. 8."

London Death-Rates in July.—Statistics recently published show that the total death-rate of London for July, 1914, was only 11.3 per 1000 inhabitants living. Among the several districts and boroughs, the highest rate was 18.8 in Shoreditch, an east end slum, and the lowest was 7.1, in the central city.

Denison Memorial Building.—It is announced that the new Henry S. Denison memo-

rial building for medical research at the University of Colorado is now ready for use. Its laboratories will be devoted to investigation in bacteriology, pathology, physiology, chemistry and clinical methods.

A Practitioner at Ancient Sardis.—In a recent issue, the *Lancet* comments editorially as follows on the discovery of an ancient physician's memorial at Sardis.

"We have on many occasions written of the medical personalities of ancient Greece and Rome, concerning whom archaelogical research has come upon some details. We may particularly refer to the case of Menophantos, the public or municipal physician of Amphissa, near to Delphi, and to that of Aurelius Heron and Aurelius Didymus, public physicians of Oxyrrhynchus. Another name has now to be added to these prosopographia of medical men in classical times. It is that of a practitioner at Sardis, in Asia Minor, whose memorial has been found by United States explorers when excavating upon the site of that ancient Lydian and Roman city. The inscription reads as follows: 'Artemas a physician (*ἰατρός*) built this tomb for himself, and for Melitene his wife, and for his heirs; he is living.' The title of 'iatros' may suggest that Artemas also was a public physician. Such medical officers were very frequently employed by the Greek cities of Asia Minor, and in inscriptions their official epithet, such as *δημόσιος* or *δημοσιεύψν*, was commonly omitted. The usual number in office in a town varied from five to ten. The nearest date assignable to this new text is the first century B.C."

BOSTON AND NEW ENGLAND.

Pellagra in New Hampshire.—Report from Concord, N. H., states that on Sept. 17 there were two deaths from pellagra at the New Hampshire State Hospital in that city, making a total of five fatal cases of the disease since July 1 among inmates of this institution.

A Seafaring Centenarian.—Captain Joseph S. Byxbee, who died on Sept. 10 at South Norwalk, Conn., is said to have been born in 1811. He followed the sea for over 80 years of his life, and had been a skipper since 1850.

Hospital Bequests.—The will of the late Henry R. Dalton, recently filed in the Suffolk registry of probate, contains a bequest of $1000 to the Massachusetts General Hospital.

The will of the late J. B. F. Thomas, of Boston, recently filed in the Suffolk registry of probate, contains a bequest of $3000 to the Vincent Memorial Hospital.

Report of Faulkner Hospital.—The recently published tenth annual report of the Faulkner Hospital, Jamaica Plain, Mass., records the work and progress of that institution for the year ended May 1, 1914. During this period 513 patients were treated in the hospital, of whom 39 were cases of childbirth. Six nurses were graduated from the training school.

Cases of Infectious Diseases reported to the Boston Board of Health for the week ending Sept. 22, 1914: Diphtheria, 39, of which 5 were non-residents; scarlatina, 39, of which 4 were non-residents; typhoid fever, 18, of which 2 were non-residents; measles, 11, of which 1 was non-resident; tuberculosis, 57, of which 2 were non-residents. Death-rate for the week, 16.74.

NEW YORK.

Twilight Sleep.—On Sept. 17, Dr. A. J. Rongy of New York read a paper before the American Association of Obstetricians and Gynecologists, at its annual meeting in Buffalo, on "Twilight Sleep," the scopolamine-morphine method of abolishing pain and memory in labor cases. This is the first authoritative statement on the subject which has been made before a representative medical body since this treatment received its present impetus in this country, and the speaker, having related the history of its development during the past twelve years, gave a detailed report of some 125 cases recently observed at the Jewish Maternity and Lebanon Hospitals in New York, where the method was introduced by Dr. K. Schlossingk, who for two years was an assistant to Kronig and Gauss at the Frauenklinik, Freiburg. The cases, he said, had been divided into three groups, with the following results: 1, 104 cases, or 83.2%, in which there was complete analgesia and amnesia. 2, 9 cases, or 7.2%, in which there was analgesia without amnesia. 3, 12 cases, or 9.6%, in which the treatment failed to produce the desired results. The average time that the patients were under the influence of the drugs was about six and one-half hours. The number of infants which cried spontaneously was 102, or 81.6%, and there were 4 cases, or 3.2%, of asphyxiated children. The total infant mortality was 3, or 2.4%. One of the deaths was in a premature infant with spina bifida; the second child died from melena neonatorum, and the third from subdural hemorrhage. Among Dr. Rongy's conclusions were the following: Standard solutions are absolutely essential for the success of this treatment. No routine method should be adopted; each patient should be individualized. Facilities should be such that the patient is not unduly disturbed. A physician or nurse should be in constant attendance. This form of treatment does not affect the first stage of labor, though under it the second stage is somewhat prolonged. It does not in any way interfere with any other measures which may be deemed necessary for the termination of labor. To condemn or advocate a given therapeutic method without a thorough personal investigation is truly unscientific, and

not in accordance with the tenets of progressive American medicine.

State Sanitary Officers.—At the fourteenth annual conference of state sanitary officers, which was recently held at Saratoga Springs, Commissioner Biggs of the State Department of Health formulated a plan by which it is estimated that at least 25,000 lives may be saved in the state in the next five years. This looks to the organization, throughout the state, of county sanitary leagues with a wider scope than the anti-tuberculous leagues now in operation, in which professional and lay interests will work together, by conference and active efforts, in promoting the general health Some 700 health officers and other physicians were in attendance at the Saratoga conference, and the sentiment in favor of the proposed plan was unanimous. In commenting on the project Prof. C. E. A. Winslow, director of the Division of Publicity and Education in the State Health Department, remarked: "The efforts of health workers will now be directed toward making the people realize that the work is an important constructive force for the betterment of public health and sanitation, rather than an official force of repression to keep them from endangering the health of others. This health work will enlist the coöperation of the citizen. It will do things for him, instead of merely keeping him from doing things. The new plan will be vastly different from the old 'smelling out' campaign for the suppression of nuisances and the performance of the old quarantine officer, armed with a gun and a tin badge."

New York University.—New York University offers courses of collegiate grade, leading to the baccalaureate degrees of B.A. and B.S., to graduates of recognized medical schools and colleges. Holders of recognized medical degrees are admitted with advanced standing to the sophomore class and, upon the completion of three years of study, will be recommended for the baccalaureate degree. Practically all the courses of instruction are given at Washington Square College, of the university, which is centrally located and much more accessible than the main university buildings in the Borough of the Bronx, and they are offered in the late afternoon and on Saturdays, so that practising physicians may attend without serious inconvenience or sacrifice. Certain evening courses of collegiate grade offered at the Washington Square College and elsewhere by the Extramural Division may also be taken for credit. Courses in the University Summer School are accepted for credit when they are substantially equivalent to those offered by the Washington Square College during the winter. The course of study leading to the degree is especially planned to meet the needs of mature students. While certain fundamental courses are required, the greater portion of the work is elective; thus making it possible for students to take courses which will best meet their individual needs. Those who do not desire to take all the work required for the degree may enter as special students. Courses of collegiate character in biology, chemistry, physics, etc., it is thought, should prove specially attractive and profitable to such students.

Free Public Markets.—Borough President Marks has made public reports from the Department of Health, showing that the four free markets recently opened in Manhattan, at which household supplies are to be had at lower prices than those asked at the ordinary markets and shops, are in good condition, both as to sanitation and the quality of the good sold. At first there were some violations of the department's regulations, but these were not made public as it was feared that this might have a deterring effect on the patrons of the markets, and the abuses have been quietly remedied.

Mortality for Week Ending September 19, 1914.—The mortality for the week just passed was typical of the low mortality prevalent in this city during the months of September and October. The rate was quite low, twelve persons dying out of every one thousand residents in the city. The most noteworthy items of the week's mortality was the considerable increase in the number of deaths reported from diphtheria, diarrheal diseases and violent deaths, as compared with the corresponding week in 1913. Each of the boroughs, with the exception of the smallest borough, Richmond, showed an increase in the number of deaths reported from diphtheria and croup. Diarrheal diseases of infants was considerably above that of the corresponding week in 1913, the most prominent factor being the unfavorable meteorological conditions, the thermometer ranging considerably above the average for this week. The increase in the deaths from violence was due to an increase among the accidental deaths, homicidal deaths and suicidal deaths. For every one person that committed suicide during the week ending Sept. 20, 1913, there were two who took their lives during the past week.

The number of deaths from organic diseases of the heart and kidneys was slightly, while that from respiratory diseases was considerably below that of last year Notwithstanding the increased mortality from some of the causes above mentioned, the number of absolute deaths was 29, and that of relative deaths 82 below the figures of last year.

Viewed from the point of the age groups, the mortality of children under five years of age was approximately the same, whilst that of persons over five years was considerably below the mortality for the corresponding week in 1913.

The death-rate for the first thirty-eight weeks of this year was 13.94 per 1000 as compared

with a rate of 14.20 for the corresponding period of 1913.

The mortality for the last quarter of the year, as a rule, is considerably lower than that of the other quarters, and the probabilities are strongly in favor of a death-rate for the year considerably below 14 per 1000.

Current Literature

Medical Record.

September 12, 1914.

1. Mallory, W. J. *The Physiology of Gastric Motility.*
2. *Williams, C. M. *The Present Stage in the Treatment of Syphilis.*
3. Bell, G. H. *Report of a Case of Tuberculosis of the Sclera of Probable Primary Origin.*
4. Nascher, I. L. *The Neglect of the Aged.*
5. Davis, M. M., Jr. *A Medical Bugbear: Dispensary Abuse.*
6. Montgomery, D. W. *Syphilophobia.*

2. Williams discusses the present status of syphilis therapy. Early claims for salvarsan were exaggerated, but the drug is very valuable. Every case should have both salvarsan and mercury. Neosalvarsan has the great advantage over salvarsan that it can be given in much more concentrated solution. Mercury is best given intramuscularly, as the salicylate dissolves in liquid albolene. Treatment should be given in courses of from four to seven weeks with intervals of six weeks, until symptoms disappear or the Wassermann becomes negative. The iodides are still valuable in late syphilis. [L. D. C.]

New York Medical Journal.

September 12, 1914.

1. Fishberg, M. *Tuberculization and Immunization.*
2. Kellogg, J. H. *The Paraffin Treatment of Constipation.*
3. Knapp, M. I. *Newer Teachings Concerning Diseases of the Gastro-intestinal Tract.*
4. Cumston, C. G. *The Indications of Gastric Ulcer and Its Surgical Treatment.*
5. Saphir, J. F. *Appendicostomy in a Case of Chronic Ulcerative Coloproctitis.*
6. Jones, J. P. *A Clinical Study of the Renal Functional Activity by Means of Phenolsulphonephthalein.*
7. *Marcus, H. *A Case of Sciatica Entirely Cured in Three Weeks' Treatment.*
8. Greeley, H. *Systematized Education of the Public in Health Matters.*
9. Loomis, M. M. *The Contributions Which Women Have Made to Medical Literature.*

7. Marcus reports an intractable case of sciatica completely relieved by two injections (one week apart) of 16 minims each of a solution made up as follows: antipyrin 3iiss, cocaine muriate gr. iiss, water 3iiss. [L. D. C.]

The Journal of the American Medical Association.

August 15, 1914.

1. Ophüls, W. *Anatomic Structure and Function.*
2. Keene, F. E., and Pancoat, H. K. *The Present Status of Pyelography.*
3. Bartlett, W. *A Report of Twenty-Seven Unilateral Exclusions of the Pyloric Region, with Special Reference to Operative Technic.*
4. Petery, A. K. *A Microcephalic Idiot with Malformation of Brain.*
5. Goldspohn, A. *Fundamental Intrapelvic Perineorrhaphy.*
6. Stierly, E. *Enucleation with Transplantation of Fat into the Orbit.*
7. Howle, P. W. *Report of a Case Simulating Elephantiasis.*
8. Redfield, W. *Infection of Nasal Cavity from Diseased Tooth Root. Specimen Showing Pathway of Infection Through the Maxillary Sinus.*
9. Corbus, B. C. *Cerebrospinal Examinations in "Cured" Syphilis. Cases in Which the Biologic Method as a Control Has Been Used.*
10. Fordyce, J. A. *The Treatment of Syphilis of the Nervous System.*
11. Baeslach, F. N. *The Sero-Enzyme Test for Syphilis.*
12. Kingsbury, J., and Becht, P. E. *The Intravenous Administration of Mercury in Syphilis.*
13. Theobald, S. *The Etiology of Phlyctenular Ophthalmia. Is Tuberculosis Really as Important a Factor in the Causation of This Disease as is Now Commonly Taught?*
14. Zentmayer, W. *A Study of the Effect on Heterophona of the Correction of Anatropia, with a Consideration of Some Associated Conditions.*
15. Neuhof, S. *Functional Heart Block in Pneumonia.*
16. Miller, D. J. M. *The Toxicity of Camphor (Camphorated Oil).*
17. Porcher, W. P. *Rapid, Painless, Bloodless Method for Removing the Inferior Turbinate.*

August 22, 1914.

1. *Novak, E. *The Pathologic Physiology of Uterine Bleeding.*
2. *Kelly, H. A., and Burnam, C. F. *Radium in the Treatment of Uterine Hemorrhage and Fibroid Tumors.*
3. Pfahler, G. E. *Roentgenotherapy in Uterine Hemorrhage.*
4. Weiss, L. *An Unusual Case of Bromoderma of the Leg.*
5. Foster, M. H. *Favus and Ringworm of the Nails.*
6. Clarke, W. C., and Bancroft, F. W. *A Course in Surgical Technic.*
7. Pritchett, H. S. *The Medical School and the State.*
8. Henriques, A., and Ambrose, L. *Instruction in Roentgenology.*
9. Ferrell, J. A. *Public Health Work as a Career.*
10. Frankenberger, C. *The Value of the Medical College Library to the Student.*
11. Gross, L. *Foreign Bodies in the Bladder.*

1. Novak believes that aside from anatomic causes, such as cancer, fibroids, etc., uterine hemorrhage may often be due to fundamental disturbances, such as those of the nervous system or the internal secretions, involving derangement of the chain of ductless glands, of which the ovary, of course, is the most common. These fundamental causes are especially effective at puberty and at the time of the menopause.

2. Kelly and Burnam are extremely enthusiastic over the intrauterine use of radium in the treatment of uterine hemorrhage, especially that due to polyps or fibroids. They have treated very successfully four groups: 1. Adult women with marked metrorrhagia, with no disease of the pelvic organs except a slight enlargement of the uterus. 2. Cases of hemorrhage in young girls. 3. Polypoid growths or polypoid endometritis. 4. Fibroids. They use the word marvelous to indicate the degree of success of this treatment. [E. H. R.]

August 29, 1914.

1. *Bastedo, W. A. *The Medical Treatment of Chronic Intestinal Stasis.*
2. Jackson, E. *International Standard for Testing Vision and Standardizing Other Visual Tests.*
3. Duane, A. *Convergence Insufficiency.*
4. Schamberg, J. F., Ringer, A. I., Raiziss, G. W., and Kolmer, J. A. *Summary of Research Studies in Psoriasis.*
5. Mackee, G. M., and Wise, F. *White-Spot Disease.*
6. *Simpson, F. E. *Radium. Its Use and Limitations in Skin Diseases.*
7. Holding, A. F. *The Relative Value of Radium in Dermatology.*
8. *Newcomet, W. S. *Radium and the Roentgen Rays in Radiotherapy. Their Uses and Limitations.*
9. *Johnston, G. C. *The Place of the Roentgen Ray in Therapeutics.*
10. Fisher, C. *Epithelioma of the Lids.*
11. *MacLaren, A. *A Study of Three Hundred Cases of Appendicitis, with Special Reference to Pelvic Complications.*
12. *Moore, J. E. *Has the Last Word Been Spoken Concerning Appendicitis?*
13. McLean, A. *Thrombosis and Embolism. Their Significance and Consequences in Abdominal and Pelvic Surgery.*
14. Dickinson, R. L. *Standardization of Surgery. An Attack on the Problem.*
15. Karpas, M. J. *Kraepelin's Conception of Paraphrenia.*
16. *Beebe, S. P. *The Relation of Pathologic Conditions in the Nose and Throat to the Origin and Treatment of Hyperthyroidism.*
17. Robinson, G. W. *The Use of Celluloid Splints in the Treatment of Diseases of the Nervous System.*
18. Underwood, H. L. *Anaphylaxis Following Skin-Grafting for Burns.*

1. Bastedo spends some space in his article describing the use of liquid paraffin (petrolatum liquidum) as a laxative in chronic intestinal stasis, and speaks highly of its advantages.

6, 7, 8, 9. This symposium on the use of radium and the roentgen ray, particularly in dermatology, places radium as of greatest value, preceding the roentgen ray. Simpson has found it of especial value in angiomata. Both forms of radiation should be tried, for often if one ray is lacking in effect the other will be powerful.

11. MacLaren pleads the frequent employment of rectal examinations after the operation for perforated appendix. He is an advocate of early rectal drainage.

12. Moore pleads for the leaving in of some appendices in order to save the patient. There are about 5% of cases in which it is not safe to break down nature's adhesions and try to remove the appendix. It is safer to be content with drainage only.

16. Beebe believes that chronically enlarged tonsils and adenoids with low grade infection and allied conditions are potent factors in producing hyperthyroidism. [E. H. R.]

September 5, 1914.

1. Kinke, E. G. *A Few Points of Practical Importance in Obstetrics, Gynecology and Abdominal Surgery.*
2. Mendel, L. B. *Newer Points of View Regarding the Part Played by Different Food Substances in Nutrition.*
3. Folin, O. *Intermediary Protein Metabolism.*
4. Lusk, G. *The Specific Dynamic Action of the Foodstuffs.*
5. DuBois, E. F. *The Total Energy Requirement in Disease as Determined by Calorimetric Observations.*
6. Ruth, C. E. *Common Errors in Gall-Tract Surgery.*
7. Ziegler, S. L. *Trefoil or Stellate Keratectomy for Anterior Staphyloma.*
8. Woods, C. S. *Immunity in Measles.*
9. Primrose, A. *Retroperitoneal Hernia Due to an Aberrant Middle Colic Artery.*
10. Walker, C. B. *Further Observations on the Hemiopic Pupillary Reaction Obtained with a New Clinical Instrument.*
11. Smith, H. E. *Safe and Speedy Extraction of the Immature Cataractous Lens Following Preliminary Capsulotomy.*
12. Park, W. H., and Zingher, A. *Active Immunization in Diphtheria and Treatment by Toxin-Antitoxin.*
13. Woody, S. S. *The Use of Antitoxin in Diphtheria.*
14. Blair, V. P. *Treatment of Unlocalized Intracranial Injuries by Drainage Through a Subtemporal Approach.*
15. Johnson, G. T., Breaks, L. Z., and Knoefel, F. *The Treatment of Tabetic Optic Atrophy with Intraspinal Injections of Salvarsanized Serum. A Preliminary Report.*
16. *Waller, C. C. *Appendiceal Inflation.*

16. Waller reports an extremely interesting case in which the appendix became suddenly greatly inflated while the patient, only partly etherized, was straining. The effort to reduce the inflation when the patient became relaxed was not entirely successful and was due to the presence of a No. 6 bird shot found at the base of the appendix on removal. The author believes that many cases in which there is intense suffering before operation, and in which a practically normal appendix is found at operation, are cases in which a fecal concretion was present and has later been expelled. [E. H. R.]

Deutsches Archiv für Klinische Medizin.

Band 116. Heft 1 and 2. July 17, 1914.

1. *Monakow, P. *Essay on the Knowledge of Renal Disease. Mixed Forms.*
2. Hertz, R., and Ehrlich, M. *Effect of Small Doses of Tolnylenediamine on the Blood, with Remarks about the Origin of Experimental Hyperglobulia.*
3. Liebeck, R. *The Analysis of Very Small Amounts of Nitrogen in Organic Material.*
4. Weiser, E. *Presystolic Murmurs with Auricular Flutter.*
5. Lehndorf, A. *The Question of the Suction Action of the Heart.*
6. Kalser, W., and Löwy, J. *Variations of Serum Concentration in Scarlet Fever.*
7. Tanji, Z. *Experiments on the Relation of Ammonia and Total Nitrogen in the Urine with Different Diets, Especially with Rice Diet.*
8. Goebel, F. *Meningitis and Sepsis in the Newborn by the Proteus Organism, with Remarks about Proteus Bacillus as a Cause of Disease in Man.*
9. Lichtwitz, L., and Stromeyer, F. *Investigation of Renal Function in Diabetes Insipidus.*
10. Wallerstein, E. *Investigation on the Relation of Total Metabolism to Albuminous Metabolism in Carcinomatosis.*

1. Monakow in this report takes up the study of what he calls mixed forms of nephritis. By this he means those cases in which there is a disturbance in both the elimination of sodium chloride and nitrogen. In the cases with disturbance only in the sodium chloride elimination the uremic symptoms are wanting, the blood pressure is low and there is a tendency towards edema. The marked edema only occurs with injury to the peripheral vessels. With increase of

salt to the diet the body weight increases and the urine amount falls. In these cases urea acts as a diuretic and as one of the best ones. This form of nephritis is due to lesions of the tubules and only occurs in the acute form. The tubules are able to regenerate and healing takes place. If the injury to the tubules continues then certain of the glomeruli are destroyed, and the mixed form with disturbance of the elimination of nitrogen as well as salt occurs.

Other cases of renal disease occur in which the nitrogen elimination is at fault. In these cases, if the circulation is all right, the salt elimination is normal. The tissues act as a reservoir for the nitrogen, and so the blood nitrogen does not increase in all cases. Excess of saturation in the tissues or sudden increase in albuminous destruction in the body causes the blood nitrogen to rise. Acute cases such as the above, in which the glomeruli are chiefly at fault, may get well. Usually, however, the tubules are more or less injured and then disturbance with the salt excretion also occurs.

He also has studied cases of high pressure without evidence of renal disease except slight albuminuria and other cases with considerable albumen in the water without other evidence of impaired renal function. Further study will be necessary to see if there are subdivisions in the so-called mixed forms of nephritis.

He has not been successful in finding appreciable differences in the codine and milk sugar excretions in the different forms of renal involvement. He also does not feel that the hypersensitiveness of the renal vessels can be told by these special substances, as Schlayer believes.

The excretion of phenolphthalein if low is indicative of renal disease. Many cases of renal disease show a normal phthalein elimination,—50% in two hours is his lower level of normal. An elimination of more of the dye in the second hour than the first he does not consider of pathological significance.

[C. F., Jr.]

Wiener Klinische Wochenschrift.

No. 24. June 11, 1914.

1. Sluka, E., and Speck, B. *The Use of Albumen Milk in the Home and in the Hospital.*
2. *Kirschbaum, P., and Kohler, R. *The Differentiation of Bacteria by Means of Abderhalden's Dialyzation Method.*
3. Ullmann, K. *Experiments on the Action of Arsenic on the Organs.*
4. Baum, O., and Henenheiser, G. *Chemotherapeutic Research with Salvarsan.*
5. Neugebauer, H. *Secondary Syphilis and Stomach Changes.*
6. Ungár, J. *A Case of Luminal Poisoning.*

2. The authors conclude that the differentiation of bacteria by means of Abderhalden's dialyzation method is not practical. [F. S. K.]

No. 25. June 18, 1914.

1. v. Fürth, O. *Lactic Acid in the Urine and Its Connection with Carbohydrate Metabolism.*
2. Frank, O., and v. Jagic, N. *The Treatment of Phthisis by Pneumothorax.*
3. Constansoff, S., and Mansiloff, E. *Action of Digestive Ferments on Fish Poison.*
4. Shenk, F. *The Ferments in Antitoxins.*
5. Vogel, R. *Pathogenesis of Ilius.*
6. Strassberg, M. *Treatment of Gonorrheal Vulvo-Vaginitis in Children.*

No. 26. June 25, 1914.

1. Kraus, R. *New Experience with Filtrable Viruses.*
2. Kelling, G. *Blood-serum Tests for Carcinoma in a New and Simple Method.*
3. Spat, W. *The Question of the Source of Antibodies in Syphilitic Spinal Fluid.*
4. *Bichler, H. *X-ray Cancer.*
5. *Woronytsch, N. *The Question of Menstrual Enlargement of the Thyroid.*
6. Berliner, M. *A Case of Hysterical Monoplegia.*

4. The author reports on four cases of x-ray cancer. Cases 1, 2 and 3 were in workers, case four was in a patient. Two of the workers had syphilis. None of the cases were fatal, under treatment of amputation. The interval between first signs and development was long,—8, 14, 15, and 18 years respectively.

5. The author measured the thyroid in 53 patients with various diseases 700 times during menstrual periods. The method was with an elastic band placed about the neck over the vertebra prominens. He could demonstrate no thyroid enlargement during periods. [F. S. K.]

Obituary.

ARCHIBALD THOMPSON DAVISON, M.D.

Dr. Archibald Thompson Davison died at his home in Cambridge, September 19, 1914, aged 70 years. He was born in Nova Scotia, was a graduate of the Harvard Medical School in the class of 1871, practised in South Boston for many years, and removed to Dorchester about 1895. Here he practised until 1912, when he gave up active practice and took a residence in Cambridge. Dr. Davison was a member of the Boston School Committee and president of the Colonial Club while living in Dorchester. He was a Fellow of the Massachusetts Medical Society, a Mason and an Odd Fellow. He is survived by his widow and four children, one of whom is Dr. Arthur H. Davison of Dorchester.

MORRIS LONGSTRETH, M.D.

Dr. Morris Longstreth, of Cambridge, Mass., died at Barcelona, Spain, Sept. 19, 1914, aged 68 years. He was a graduate of Harvard College in the class of 1866 and of Haverford College, Pennsylvania, in 1869, receiving the degree of M.D. from the University of Pennsylvania in 1869, and from the Jefferson Medical College in 1876. He was professor of pathology in the Jefferson Medical College for many years and practised in Philadelphia, with a summer practice in Bar Harbor, Me. He was a member of the Association of American Physicians, of the Pathological Society of Philadelphia and of the American Medical Association.

Dr. Longstreth had been traveling abroad for his health. His wife died in Barcelona last month.

Miscellany.

THE DECREASING GERMAN BIRTH-RATE.

IN the issue of the JOURNAL for Aug. 20 (Vol. clxxi, p. 325) we published an item on "foreign birth-rates and the European war," in which we commented on the fact that "the Germans have already, especially in the larger cities, begun to feel and show the debilitating and deteriorative effects of modern civilization." This aspect of comparative racial decline is further analyzed in the following consideration by A. Allemann of "the decreasing birth-rate of the German empire," in the issue of *Science* for Sept. 11:—

"During the thirty years following the war with France the population of Germany increased enormously while the population of France remained almost stationary. But at the begining of the new century the birth-rate in Germany began to decline and is still declining at a rapid rate. In an article in No. 18 of the *Münchener Medizinische Wochenschrift* Dr. von Gruber gives some remarkable facts about the decreasing birth-rate in Germany, which are the more interesting as the same causes are underlying a decreasing birth-rate in certain classes and certain regions of the United States.

"Von Gruber shows that while the number of marriages in Germany remained about the same (80 per 10,000 inhabitants) the birth-rate sank from 370 in 1900 to 310 in 1910. This decrease is especially marked in the cities and industrial regions. In Berlin the number of births per 10,000 inhabitants decreased from 149 in 1876 to 93 in 1912. But not only the cities; the country districts, too, show a gradual decrease in the birth-rate. Especially is this noticeable in the districts adjoining large cities. In general this decrease is more marked in regions with a predominantly Protestant population, and with regard to politics, in those election districts which send regularly a socialistic member to the Reichstag.

"Considering the causes of this general decline of the birth-rate, von Gruber thinks that it is principally due to prevention of conception. He recognizes the fact, however, that this decrease is to some extent unintentional. Many of the best families die out though children are ardently desired. The causes of this phenomenon are not fully known, but alcoholism and the venereal diseases are probably the principal underlying causes.

"Of special significance is the insufficient increase of the birth-rate among the intellectual classes. For the safety, progress and prosperity of any nation a sufficient number of persons who are leaders of the people is necessary. Without her great statesmen and generals, her leaders in commerce and industry, in the arts and sciences, the enormous development of modern Germany would have been impossible. Both Greece and Rome perished from a steadily decreasing birth-rate of the ruling race, and it is a remarkable fact that during the decline of the Roman Empire no great statesmen and generals, no great thinkers, artists and scientists, appeared. It was a period of complete stagnation. The same is true of the declining periods of Greek history.

"In view of the more difficult living conditions of modern times von Gruber recognizes the right of the parents to limit the number of their children, but this limitation should not be carried so far as to endanger the safety of the state. The desire for wealth and luxury, the movement of woman's emancipation, the disappearance of a deep religious sentiment are the most destructive agencies in modern society. The destructive effects of the abandonment of old orthodox beliefs is shown by the fate of the Jewish race. Under the faithful observation of the Mosaic law the Jews maintained the strength and vigor of their race through thousands of years in the face of all opposition and persecution, but in modern times the Jews, at least so far as Germany is concerned, are threatened with extinction. They have abandoned their ancient faith, they hold the most advanced views on life, their writers are the most fanatic agitators for the overthrow of marriage and the established order of sexual relations. The chase after money, the thirst for power and pleasure, has blinded them to the fact that they are facing extinction through race suicide. These conditions are especially marked among the Jews of Berlin. From 1875 to 1910 the Jews of Berlin increased 100%, but the number of Jewish births decreased during the same period 11%. In 1905 the number of births per 1,000 Jewish women in the child-bearing age was only 56.8. At present their natality is only 14 per 1,000. Still less is the natality among the Jews of Bohemia and Moravia, where, according to recent statistics, it sank to 12.9 per 1,000,—the lowest birth-rate known among any race. This enormous decrease of births among the Jews shows that the phenomenon is not due to poverty and indigence, for the Berlin Jews are among the best situated people of that city.

"A reasonable increase in population is absolutely necessary for any people to maintain its position among the nations. If the two-children system should be carried out generally, von Gruber finds that the descendants of one million people would after 100 years only amount to 347,000 souls.

"To counteract the modern tendency to race suicide, von Gruber proposes: (1) Improvement of the economic condition of families with many children by proper laws. (2) Limitation of the economic advantages of childlessness. (3) Suppression of those agencies which, for pecuniary gains, spread the vice of race suicide. He takes an energetic stand against those modern 're-

formers' who would loosen the marriage ties. He considers the modern monogamous marriage the only basis of healthy sexual relations. Freedom in marriage would become 'free love' and end in general sterility. He condemns the claim of the law committee of the Federation of German Women, who maintain that 'as a free person woman is the mistress over her own body and may destroy a germ which, in its initial stage, is an inseparable part of her own body.' The ideal of woman's emancipation has never been more nearly approached than in Imperial Rome, where sterility was a general phenomenon.

"It is nothing but just that the state bear a part of the expenses of parents with a numerous family. Parents who have three or more normal and healthy children under fourteen years should be paid a monthly contribution, and if they have raised three or more children they should receive an old age pension when they have reached the age of sixty years. Besides these economic advantages von Gruber would give a father of three or more children a plural vote at all elections proportional to the number of his children. A large portion of the sums expended in the assistance of families with many children could be procured by a tax on the incomes of bachelors and parents with few or no children. Von Gruber proposes severe laws against the 'propaganda for the two-children system,' as well as severe penalties on criminal abortion and on the advertisement and sale of drugs and other means for the prevention of conception."

THE COUPON SYSTEM OF MEDICAL INSTRUCTION.

BOSTON, September 19, 1914.

Mr. Editor: In the issue of September 17, the JOURNAL was kind enough to comment upon a certain phase of instruction at the Harvard Graduate School of Medicine, in an editorial entitled "The Coupon System of Medical Instruction." Permit me first to express my appreciation of the friendly spirit of co-operation shown by the JOURNAL, in thus helping to make known some of the opportunities which the Graduate School offers to the local profession. This appreciation is not lessened in the least by the fact that you call attention to criticisms which have been made in connection with this plan of instruction. Since, however, the JOURNAL has mentioned these criticisms, I hope you will grant me a little space to discuss them, for it seems to me that these criticisms arise from an imperfect understanding of conditions.

You say: "In fairness, it should be noted that the coupon system has been criticized as encouraging superficiality and as reducing post graduate medical teaching to a commercial basis inconsistent with its dignity."

Does it encourage superficiality? Such was not the intention of the Graduate School in inaugurating this system. Coupon holders are admitted to only about one-third of the courses. They are not admitted to systematic courses, in which the opportunity to profit by an exercise is dependent upon the previous exercises of the course. In the courses that are open to coupon holders the individual exercise is exactly the same, whether the student pays for it by a course ticket or by coupon tickets. The individual exercise is superficial or otherwise as the instructor makes it, —according to its intrinsic worth, not according to the way it is paid for. The argument then reduces itself to this, that one or a few exercises give a student less knowledge than does a complete course. To this we must all agree.

Unfortunately, however, the large majority of physicians cannot spare enough time from their professional duties to take complete courses. The Graduate School was confronted with this problem,—should it limit its opportunities to those who could take complete courses, or should it try also to help those who could spare less time. It decided on the latter plan. "Half a loaf is better than no bread." Consequently, it was the custom, long before the Graduate School was organized, to offer special rates for half courses, or for parts of courses. We have now gone a step farther and admit to single exercises,—on the principle that even a slice of bread is acceptable to a hungry man, if he cannot get more. The system of payment by coupons is merely the most practicable way that could be devised to make this plan workable.

The Graduate School recognizes frankly that this is not an ideal system. It would encourage all to take a more thorough course of instruction, if they can. It desires, however, to help those who can spare only a little time for further study; it aims to reach those who might otherwise get no instruction at all; and it hopes that many of these persons will find the exercises so interesting that they will seek more extensive courses. It believes that the plan on the whole will tend to diminish and not to increase superficial or incomplete knowledge on the part of the medical profession. Above all the School is especially interested in helping the profession and the public in our own section of the country. We wish to do all we can for our neighbors.

Does this plan tend to reduce graduate medical teaching to "a commercial basis inconsistent with its dignity?" Much depends on the interpretation given to the word "commercial."

Unfortunately the Graduate School was necessarily placed on a business basis,—that is, it must be self-supporting. Harvard University had no funds that could be spared for this department of teaching; the Graduate School has no endowment, and it is dependent upon the fees received from students. In this sense the School must for the present be on a commercial basis, and such loss of dignity as comes from this fact, if there really is any, must be endured.

But the school is not on a commercial basis in the sense that it seeks to make money, directly or indirectly, for itself or for its teachers. It aims to give as thorough instruction as is given by the Harvard Medical School, although the latter has large endowments. For this it charges very moderate fees, wishing only to pay its expenses and to give the instructors reasonable remuneration. Under the circumstances the fact that a fee is charged does not place the teaching on a commercial basis, in the bad sense of the word. The instructors are so poorly paid for their work that they must be acquitted of any commercialism, and it must be plain that they are actuated chiefly by a sense of duty and a desire to be of service to the profession.

The school and its methods are "commercial," therefore, only in the sense that the school must be self-supporting. We are unfortunately obliged to use business-like methods in collecting fees. The system of payment by coupons is only a variation of these methods. It makes it unnecessary for the student to make a special arrangement with the dean's office whenever he wishes to attend a single exercise. It makes a little extra trouble for the instructor. Some instructors have felt at first that the collection of coupons was disagreeable, yet, when they have understood the problem, they have willingly agreed to do this for the convenience of the students. If this method is properly understood, I think it does not in

any way lower the dignity of graduate instruction. I should as soon think that a physician loses his professional dignity if he accepts cash payment for a single visit to a patient.

I welcome the opportunity to make this explanation, not only about coupons but about the general attitude of the school in charging for instruction. No right-minded physician will object to business-like methods. The school cannot supervise attendance in its many scattered clinics, except through its instructors. In justice to those who pay, we must see that others do not have the same privileges without payment. Physicians will make this duty of the instructors less disagreeable, if they have a ticket or coupons to present before entering a clinic, and if they offer them to the instructors at a convenient time.

H. D. ARNOLD, M.D.,
Dean of the Graduate School of Medicine.

A COMPLICATION OF TYPHOID IMMUNIZATION.

BOSTON, Sept. 22, 1914.

Mr. Editor: Recently I inoculated a man in the left arm with typhoid prophylactic. On the day following the inoculation, he complained of severe pain along the right sciatic nerve, and he had a temperature of 101°. He informed me that he had suffered with sciatica a year before.

The pain had greatly subsided by the tenth day, but he refused a second inoculation. The effect of the typhoid prophylactic in this case is in accord with the observations already made, namely, that the use of typhoid prophylactic may cause a recurrence of latent diseases.

Yours very truly,

GAETANO PRAINO, M.D.

MASSACHUSETTS MEDICAL SOCIETY.

NOTICE TO COUNCILORS.

A stated meeting of the Council of the Massachusetts Medical Society will be held in John Ware Hall, Boston Medical Library, Wednesday, October 7, 1914, at 12 noon.

WALTER L. BURRAGE, *Secretary*...

SOCIETY NOTICES.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.—The Fall Meeting will be held in Sprague Hall, Medical Library, Boston, on Wednesday, October 7, 1814, at two o'clock.

The following papers and addresses will be read and discussed:—

1. The Work of the Medical Examiner and the District Attorney and Their Relations to Each Other. Hon. Albert F. Barker, District Attorney, Southeastern District.

2. The Murder of George E. Marsh. Joseph G. Pinkham, M.D., Medical Examiner, of Lynn.

3. Presentation of Cases. Prof. Timothy Leary, Medical Examiner, of Boston.

OLIVER H. HOWE, M.D., *Recording Secretary.*
Cohasset, September 28, 1914.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING SEPT. 19, 1914.

Sept. 11, Surgeon C. E. Riggs, Naval Training Station, Norfolk, Va.

P. A. Surgeon G. A. Riker, detached, Bureau Medicine and Surgery, Navy Department, Washington, D. C., to *Texas.*

P. A. Surgeon A. B. Hayward, from *Colorado* to Naval Station Samoa.

Sept. 12, Surgeon A. J. Geiger, to Receiving Ship, Puget Sound.

P. A. Surgeon C. B. Munger, from Receiving Ship, Puget Sound, to Naval Hospital, Mare Island, Cal.

P. A. Surgeon C. B. Camerer, from Mare Island Hospital to Mare Island, Navy Yard.

Asst. Surgeon H. A. Tribou, from *Nebraska* to *Petrel.*

Asst. Surgeon J. C. Parham, from Naval Station, Samoa, to *St. Louis.*

Asst. Surgeon C. H. Dragoo, from *Petrel* to *Nebraska.*

Sept. 16, P. A. Surgeon N. T. McLean, from *New Orleans* to Naval Hospital, Mare Island, Cal.

Asst. Surgeon W. A. Brams, commissioned from Aug. 15, 1914.

Sept. 17, Surgeon H. D. Wilson, to Washington, D. C., for examination for promotion.

The following Assistant Surgeons M.R.C., have been ordered to the Naval Medical Schools, Washington, D. C.

William McKinney, W. E. Lawhead, R. A. Torrence, A. E. Man, F. H. Bowman, W. W. Wickersham, N. M. McClelland, C. S. O'Brien, W. H. Michael, C. F. Glenn, C. H. Weaver, J. H. Harris, J. A. Omer, J. T. Boone, A. R. Barrow, C. I. Wood, J. M. Quinn, A. L. Bass, W. A. Stoops, and C. E. Faulkner.

APPOINTMENTS.

JEFFERSON MEDICAL COLLEGE.—*Raymond H. Miller, B.S.*, and *J. O. Halverson, M.S.*, have been appointed instructors in physiologic chemistry.

RECENT DEATHS.

DR. BENJAMIN CLARENCE SENTON, a graduate of the Harvard Medical School in 1871, died at his residence, 58 Waverley Street, Roxbury, Sept. 1, 1914, of heart disease. He had not been in practice. At one time he was captain in the New York National Guard.

DR. J. H. BELL, who died recently in Liverpool, was born at Montreal in 1864. He received the degree of M.D. from McGill University, and since 1898 had served as a surgeon of the White Star Line.

DR. EUGENE B. CUSHING, who died on Sept. 21 in Lynn, Mass., was born at Burke, Vt., in 1846. He received the degree of M.D. from the Philadelphia Hahnemann College in 1871, and since that time had practised his profession in Lynn. He is survived by his widow.

DR. PITTS EDWIN HOWES, who died recently at Dorchester, Mass., was a graduate of the Cincinnati Eclectic Medical Institute in 1881. He was a member of the National, Massachusetts, and Boston Eclectic Medical Societies.

DR. JAMES KOSSUTH KING, of Watkins, N. Y., died on Sept. 20. He was born in Troy, N. Y., in 1849, and was graduated from Ann Arbor University and from the College of Physicians and Surgeons, New York, in 1877. After pursuing special studies at Vienna, Berlin, London and Edinburgh, he was appointed assistant master of the Rotunda Hospital, Dublin, in 1888. Later, he became one of the medical staff at the Clifton Springs Sanitarium, and in 1890 was instrumental in organizing the Glen Springs Sanitarium at Watkins, of which institution he was medical director for twenty years. At the time of his death he was consulting physician. Among the societies of which Dr. King was a member was the Royal Obstetrical Society of England.

DR. STANLEY FORBES DUNCAN, a graduate of the Tufts College Medical School in 1912, died at Quincy, Mass., Sept. 23, of Hodgkin's Disease.

Original Articles.

REPORT OF AN EPIDEMIC OF PARATYPHOID FEVER AT THE BOSTON STATE HOSPITAL, MASSACHUSETTS, 1910.

I. Epidemiological Features of an Outbreak of Paratyphoid Fever (Bacillus Paratyphosus Alpha).* By Myrtelle M. Canavan, M.D., Assistant Pathologist, State Board of Insanity, formerly Pathologist at Boston State Hospital.
II. Clinical Features of an Outbreak of Paratyphoid Fever. By Mary E. Gill-Noble, M.D., Assistant Physician, Boston State Hospital.
III. Notes on the Blood Cell Picture in Paratyphoid Fever and after Vaccination with Bacillus Typhosus. By Myrtelle M. Canavan, M.D.
IV. Note on the Relation of Paratyphoid Fever to Antityphoid Vaccination. Myrtelle M. Canavan, M.D.
V. Conclusions from Work on the Paratyphoid Epidemic at the Boston State Hospital, 1910. By E. E. Southard, M.D., Pathologist to the State Board of Insanity; Director, Psychopathic Department, Boston State Hospital; Bullard Professor of Neuropathology, Harvard Medical School.

I.

Epidemiological Features of an Outbreak of Paratyphoid Fever (Bacillus Paratyphosus Alpha).*

By Myrtelle M. Canavan, M.D., Boston.

INTRODUCTION.

This paper, together with four articles to follow, constitutes a report of work done with an epidemic of about 30 cases of a mild form of paratyphoid fever which occurred at the Boston State Hospital, between Oct. 19 and Dec. 1, 1910. There were no deaths. The epidemic was confined largely to employees, although a few patients were also affected.

The present report discusses certain general features of the epidemic, the possible foci of origin and distribution of the disease (with remarks on plumbing and food-storage), methods of prophylaxis and treatment, laboratory methods employed for differentiation of the organisms and some facts of clinical pathology.

The outbreak of paratyphoid fever, ushered in by 12 cases of illness (fever, aches, malaise), in October, 1910, was not recognized as such at once, or even as belonging to the typhoidal group of diseases. There had not been within ten years any similar outbreak. The disease was mild. Many cases gave such mild symptoms that they had to be excluded from the category of true disease of any sort. Sixteen further cases occurred in November and two more in December.

Before presenting charts illustrating certain features of the epidemic, a brief description of the hospital and of certain epidemiological factors will be presented.

DESCRIPTION OF HOSPITAL.

The Boston State Hospital, Dorchester Centre, Massachusetts, lies upon a triangular plot of land containing 232 acres, unevenly divided by Morton Street, east of which lies the older women's department, with seven buildings closely grouped, with a population of approximately the following in 1910: 475 patients, 80 nurses, 34 employees, 5 medical officers, which, with 24 non-resident employees, make up a total of 618 persons. The officers are lodged in various parts of the buildings. The resident employees have a separate eating place.

It is necessary to speak of the men's department, because, although the epidemic was largely in the women's department, there is a warrantable suspicion that the source of the epidemic may have been in the men's department. In point of fact, between 30 and 40 male patients go during the day to the women's department to work in various capacities, and they have their midday meal in the chapel dining-room of the women's department, returning at night to their respective wards in the male department.

The following table shows how far the epidemic was confined to the women's department:

Women's department, men ill	5
Women ill	23
Men's department, men ill	2
Women ill	0

With two exceptions, then, the epidemic was confined to the women's department.

The first indication of a disease of a typhoidal nature was obtained by the discovery of a positive Widal reaction in a female patient, No. 8276, assisting in the serving-room of the nurses' quarters. From the blood of this patient actively motile organisms were recovered. One of the male patients, No. 6227, who was an assistant in the preparation of food and had for one of his duties the turning of the meat machine, was found to have fever (101°); from this patient a Bacillus paratyphosus alpha was cultivated from the blood. Upon the discovery of these facts concerning the two patients just mentioned, the patients were removed from the kitchen and dining room and a variety of precautions were observed (Pasteurization of milk, washing of dishes in formaldehyde solution, disinfection of toilet rooms and floors, and systematic observation of temperature in patients and employees. The chef (Case L) later fell sick.

Six months after the epidemic, organisms of the Colon group and the Paratyphoid group were isolated from chopped meat which had been

* This and the four following papers represent Contributions of the State Board of Insanity, Numbers 26-30 (1914.6-1914.10). The papers were presented in substance at the meeting of the Boston Society of Medical Sciences held at the Psychopathic Hospital, April 28, 1914. A preliminary report had been made at the April, 1911, meeting of the Assistant Physicians' Association of the State hospitals of Massachusetts, at the Boston State Hospital, *Bibliographical Note.*—The previous contribution was by E. E. Southard, entitled "On the Topographical Distribution of Cortex Lesions and Anomalies in Dementia Precox, with Some Account of Their Functional Significance." No. 1914.5 [to be published in the *American Journal of Insanity*, October, 1914].)

sent to the pathological laboratory for the purpose of making culture media. Thus stated, without cultural facts, it may be thought that the epidemic can be ascribed to infection of meat. The distribution of the bacilli in meat or other food in the women's department may well have been effected by the male patient, No. 6227. It is possible also, of course, that the patient himself obtained the disease from previously infected meat.

Although, as just stated, it is probable that the source of the epidemic was infected meat, it was necessary in working up the data of the epidemic to consider various other sources of infection and methods of spread. The first in order is perhaps the plumbing. The water supply is from the Metropolitan system mains, and connection with the city sewage is maintained. There had been overflowing of toilets in certain basements and near the kitchen at times. No definite source of infection could be attributed to these toilets. They were immediately overhauled and set in good order.

In the past, numerous epidemics of various descriptions in various parts of the world have been attributed to conditions in the ground water. There had been a general overturning of earth at the hospital for the erection of a new laundry building and for the construction of a large ditch. Investigation could not reveal any connection between these operations and the epidemic.

The ice pond required consideration. This pond is between one-half and one acre in extent somewhat below the level of Harvard and Austin streets. Manure has an opportunity to infect the pond, and ice is regularly cut from the pond to store in the ice-house and in a similar structure near the kitchen at the main department, from which supplies are daily given out. The use of this ice was restricted immediately after the first cases appeared, and bacteriological examination was made of random samples by Dr. B. L. Arms and Miss E. Marion Wade of the City Board of Health. They reported these samples to be negative for the typhoid group. It is less probable that the ice from the ice pond was the start of this epidemic than that the maintenance of infection of meat in the refrigerator, infected otherwise, should be responsible.

As for garbage and rubbish, they are handled under proper conditions by feeding to animals and by burning of dry materials.

Climatic conditions had to be considered. Dust from dumping ground for the town of Dorchester, adjacent to the hospital, as well as from ditching operations and laundry building excavation, laying open the earth about a stagnant pond containing an overflow of laundry water, was in evidence, and the wind during October blew in the proper direction to secure the blowing of this dust to the kitchen from the different sources.

It was also noted on all sides that flies lasted longer in the autumn of 1910 than usual; screening is for the most part adequate except for the main kitchen. There is no direct evidence connecting the flies with the source or spread of the epidemic, however.

With respect to extra-mural infection, it must be remembered that at this time practically every nurse and employee had returned from a two-weeks' vacation and that the mobility of nursing and employees' population is habitually extreme.

As for carriers, the fact that the chief engineer had been a victim of so-called typhoid fever in 1871-72 and still had certain symptoms of an abdominal origin had to be considered. This patient, however, was a victim of paratyphoid fever in this epidemic. The Widal reaction for bacillus typhosus in this patient was negative, nor were organisms of the colon typhoid group grown from urine, feces or blood.

These investigations seem to leave as the best hypotheses for the origin and spread of this epidemic the statement made above concerning the infection of female patient 8276 followed by the infection of a male patient (6027) who had to handle the meat. The chef and the baker later fell sick, whereupon the epidemic was established.

The subsequent bacteriological examination of meat from the refrigerators seems to point to the possibility of persistent infection of this meat, although of course it is possible that more recently purchased meat might have been infected. It seems that meat is not, as a rule, preserved in the refrigerators for a period as long as six months. It is, therefore, probable that infection in the refrigerators, if it persisted, was local.

Below is given the autopsy protocol of Case 9586, which died some years after the epidemic, on the 26th of April, 1913. The protocol is presented because of the rarity of autopsy protocols in paratyphoid fever. The only indication of lesion in the body which can be safely or with probability attributed to the paratyphoid fever is a thickening of the ileum, but neither the jejunum nor the colon showed any gross signs. The gall-bladder failed to yield paratyphoid bacilli, as did also various other loci tested.

The organisms found were: heart's blood, micrococcus jongii; gall-bladder, streptococcus septicus; lumbar lymph nodes, bacillus coli communis.

Case No. 9586. Autopsy No. 1913-26. April 26. 1913. Head, trunk and cord: M. M. Canavan. H.P.M. 6. Age, 38 years.

Body of an obese white woman 138 c.m. in length. Skin over trunk waxen white in color, over face and neck deeply blue red, which turns white on pressure to quickly return to blue on release of it; over the forearm occur small petechial red spots, and over the entire right leg and foot blue-red epidermis is seen, which separates from the corium, revealing a somewhat mottled subcutaneous shadow.

Both legs and abdomen and back muscles show

marked pitting on pressure. There is a small decubitus over sacrum. No palpable lymph nodes. The hands are disproportionately small. Pupils, 0.6 c.m. in diameter and central and equal. The ophthalmoscopic examination at this time shows both nerve heads of dim outline; the vessels emerging from the right fundus are irregular in appearance and only here and there are visible; the veins from the left fundus are brilliant and wider than their fellows or the normal. Abdomen distended.

Ventral Section. Panniculus edematous and pale yellow in color. Measures 0.6 c.m. Muscles pale red in color. Peritoneal cavity contains much fluid, pale yellow. The intestines float in a great collection of this fluid. Spleen adherent to diaphragm. Appendix bound down, 6 c.m. in length. Ovaries and tubes adherent to the rectum and each other. No mesenteric lymph nodes palpable. Liver 8 c.m., stomach 18 c.m. below ensiform. Diaphragm arches to 4th rib on the right, 5th rib on left.

Thorax. Mammary vessels sclerosed. Pleuric cavities filled with fluid. Pericardial sac tense from great excess of contained fluid.

Heart. Distended. Weight, 415 grams. Epicardium scant of fat. Coronaries not notable. A patch of fibrin adheres to the apex of the heart. The heart muscle is red with grey streaks fairly firm. At the apex the wall is very thin. The endocardium is grey but no vegetations or thickenings occur; the free edges of the mitral slightly curled under, and the uncut valve admits four fingers. Measurements: T.V., 10.0 c.m. M.V., 12.0 c.m. P.V., 7.0 c.m. A.V., 7.0 c.m. L.V., 0.4-1-3 c.m. R.V., 0.3-1.0 c.m. All four chambers contain large quantities of cruor clot. Arch of aorta free from sclerosis.

Lungs. Combined weight, 631 grams. Nothing of note except two small infarcts measuring 2 c.m. each in the base of each lung. Peribronchial lymph nodes not remarkable.

Organs of the Neck. Thyroid congested.

Aorta. Thin and elastic throughout. The right lumbar lymph nodes (draining right leg area) are edematous and large. Sacral lymph-nodes (under bifurcation aorta) not notable.

Abdomen. Spleen,—weight (with attached piece of diaphragm), 280 grams. 12 x 8 x 4 c.m. in measurement. Capsule thickened over superior surface and the hilus is adherent to stomach wall. Section shows much congestion; pulp firm, trabeculae not notable, malpighian bodies not numerous.

Adrenals. Very firm; otherwise not notable.

Kidneys. Weight, 340 grams. Perirenal fat edematous. Capsule of left not thickened nor adherent, right kidney capsule is adherent and thick. Cortex of left measures 0.8 c.m., of right, 0.4 c.m.-0.6 c.m. Left kidney drips blood on section, no cysts; the right contains less blood, cysts occur. Pelves negative.

Liver. Weight, 1530 grams. Edges blunt. Color deep purple blue. Section shows marked mottling from venous engorgement. Gall bladder distended. Contains no stones but is filled with grumous black fluid. The wall of the gall-bladder is thick (resisted knife); no puriform content.

Pancreas. Pink; otherwise nothing of note.

Gastro-Intestinal Tract. Stomach dilated, no rugae. The gastric mucosa everywhere seat of petechial hemorrhages and free hemorrhage is shown in mucus. Pylorus small. The duodenum and jejunum show congestion. The ileum is fairly free from congestion, but shows a slight thickening. No indication of ulceration, old or new. Colon free except for injection. (Paratyphoid in November, 1910).

Genito-Urinary Tract. Bladder injected. Vagina, short and grey; cervix blue, os patent with clear tenacious fluid exuding from it. Uterine body firm; contains two white fibromyomata, encroaching on the cavity of the uterus. Fallopian tubes tortuous and distended, ending about ovaries, to which and the rectum they are attached. Section of the right ovary shows fibrous change; of the left, many corpora lutea, no corpus hemorrhagicum.

Head. Hair fine, brown and fairly abundant. Scalp firm, considerable blood escapes on cutting it. Periosteum not remarkable. Skull thick, though plentifully supplied with diploe. Frontal, 0.4 c.m.-1.3 c.m.; temporal, 0.4 c.m.-0.8 c.m.; occipital, 0.7 c.m. An irregular endostosis of inner table of frontal bone has locally absorbed the dura mater. Pacchionian granulations in eight areas pierce the inner table of the skull, occasionally almost perforating the outer table. The dura is otherwise slightly thickened and the pia slightly over the vertex. There is a subpial hemorrhage over the right prefrontal pole and the depression of the pituitary body contains blood. The consistence of the cerebrum is unequal, the right parietal slightly softened. Considerable hemorrhage free at the base of brain. Vessels not sclerosed. The pons is minutely honeycombed with vacuoles (arteriosclerotic?). Olivary bodies firm. Convolutions show nothing of note. Optic nerve sheaths show considerable swelling near bulb, otherwise nothing of note. Ears free. The Gasserian ganglions and pituitary negative. Cord slightly soft and shows slight subdural hemorrhage over left lower cervical region. Brain weight, 1120 grams.

Anatomical Diagnoses. Cause of death and acute lesions: Cardiac; pulmonary infarctions; subpial and subcutaneous hemorrhages, acute fibrinous pericarditis; hemorrhagic gastroenteritis; sacral decubitus; mitral insufficiency; dilatation and hypertrophy of heart; chronic interstitial myocarditis; chronic passive congestion of liver, stomach, and intestines; general anasarca; interstitial nephritis; internal mammary arteriosclerosis; chronic perisplenitis, chronic pericholecystitis; chronic ileitis (slight thickening); gastroptosis; lumbar lymphnoditis; chronic fibrous oöphoritis and salpingitis; fibromyomata of uterus; calvarium thick, frontal endostosis; excessive arachnoidal villi; adherent dura; chronic fibrous leptomeningitis (vertex, slight); right parietal region of brain soft; spinal cord slightly soft (6 hours post-mortem); hydrops nervi optici.

Cultures from gall-bladder, retroperitoneal lymph nodes, heart's blood, negative for organisms of colon-typhoid group.

Microscopic examination of the ileum showed that the gross thickening was due largely, if not entirely, to edema of the mucosa. No convincing evidence of chronic changes was found (some hyperlymphocytosis?).

II.

Clinical Features of an Outbreak of Paratyphoid Fever.

By Mary E. Gill-Noble, M.D., Boston.

The clinical course of the disease in the series of cases here presented was so irregular, and the

symptoms so varied in the different individuals, that we have thought best to append a table in which each case can be followed separately and the frequency of occurrence of certain symptoms seen at a glance.

The cases are listed in the order of their occurrence, the letters of the alphabet referring to nurses and other employees, while the patients are listed under their case record numbers.

No. 8276 is a female patient who was employed in the serving-room connected with the nurses dining-room and who was suspected of being the original focus of the epidemic, although she had absolutely no clinical symptoms at any time.

No. 6227 was a male patient employed in preparing meat and other food in the main kitchen.

Cases U and Y had had one and three inoculations, respectively, of typhoid vaccine.

It will be seen by reference to the table that the classical symptoms of typhoid, with the exception of epistaxis, were conspicuously absent. Several of the cases were so atypical or presented such a negative picture that they would not have caused any suspicion of a typhoid-like disease if they had not occurred during an epidemic.

The second nurse to be taken ill, however, Case B., was the one who presented throughout the most striking resemblance to true typhoid. For this reason blood was immediately tested (City Board of Health) for Widal reactions. All cases were handled as possibly typhoid, with precautions as to isolation, disinfection, diet, and treatment.

For eleven days all the reports from the Widal reactions were negative, as were the blood cultures taken from the ear.

Case B developed such marked chills, with high fever and profuse sweating, occurring on the third, fifth, and ninth days of her illness, that repeated examinations were made for a malarial organism. Also during this time four of the cases had mild sore throat, and one a severe bronchitis, which in the absence of positive typhoid evidence suggested epidemic influenza.

It will be noted that the leucocyte counts, which in most cases were taken more than once, were not diagnostic, being too high for a leucopenia, except in Case B, which was 2400.

On Oct. 30, eleven days after the first case was taken ill, two positive Widals were returned from the Board of Health, and immediately six cases were sent to the Boston City Hospital, since our own accommodations for infectious cases were very limited. Four were sent later, making ten in all.

Seventeen cases altogether were taken care of in the Boston State Hospital. Two men employees who lived outside were cared for in their homes by outside physicians.

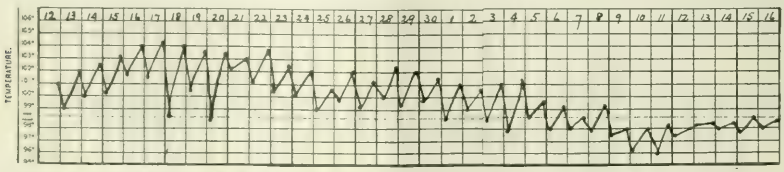
No organisms of the colon-typhoid group were cultivated from the blood from the ear in 25 cases, until Dec. 3, 1910, fifty-five days after the beginning of the epidemic, when a B. paratyphosus (alpha) was obtained from No. 6227 and an allied organism from No. 8276 and Case J.

Nov. 11, four blood cultures were taken from the arm of the cases M, S, U, and No. 9586, and all of these yielded the organism closely resembling B. paratyphosus (alpha).

General Symptoms.

The onset in most cases was rather sudden, the prodromal symptoms seldom dating back more than a week from the day of discovery, and sometimes only a few days. Late in the epidemic, when it became a routine measure to take a daily evening temperature of all employees, several cases were discovered to have a slight rise to 99-100° without other symptoms. These were isolated and proved to be mild cases of the prevailing disease. A few of the severe cases had a more gradual onset and more marked symptoms. The duration varied from eleven days (Case P, in which fairly representative symptoms were present) to five weeks. Two had a relapse and were in bed nine weeks, and another ran a continuous temperature for eight weeks and was in bed ten weeks with a long, slow convalescence following. This case recovered after a post-convalescent depression and returned to active service to die two years later of advanced tubercular involvement of the peritoneum.

The clinical charts followed no special law, there being almost as many types as there were cases. Only one showed the gradual steplike ascent peculiar to typhoid (Case V—chart reproduced). In several the evening temperature preserved the usual typhoid outline with deep remissions to or below normal either during the whole disease or throughout the first week. Others hovered around normal from the beginning, and two or three started in with the highest temperature the first two days, followed by a gradual and progressive descent to normal. The pulse was relatively slow, averaging from 70-



Case V. Temperature curve at the beginning suggestive of typhoid, but later dropping to normal, and then following a variable course.

108. The temperature and pulse given on the chart represents the highest point reached, and was usually observed only once or twice during the course of the disease.

The highest temperature of the twenty-four hours was usually registered between 10 p.m. and 2 a.m. The tendency in all cases was for the temperature to return to normal by lysis, but in several there was a sudden drop to or below normal, followed by an exacerbation to 101° or 102°, and then a more gradual and progressive descent. The condition of the patient at the time of this remission was suggestive of a crisis and a very noticeable improvement dated from that time.

Symptoms of the first week: Quite marked chills were noticed during the onset by many patients, and several had repeated chills during the first week. Those of Case B, already referred to, were very severe and unusual. Sweating was also quite a common symptom, requiring for relief a sponge bath and change of bed clothes.

Headache was the most constant, and persisted in some cases more than a week, but in the majority disappeared the third or fourth, day, returning a few days longer with the evening fever.

Four had tenderness and rigidity of the posterior muscles of the neck. Cases B and M* complained bitterly of this, the latter obtaining no relief until the end of the second week.

There was very little insomnia. It was the rule for the patients to sleep well and to need very little attention at night.

Slight stupor was noticed in five cases, and mental dullness was present in the majority while the headache lasted; but even then they were remarkably bright and serene in the morning.

Two had slight difficulty in hearing for a day or two.

Twelve had markedly dilated pupils, sluggish in their reaction to light.

There was no delirium among those observed by us, with the exception of Case M, who wandered a little in her conversation one afternoon. Case B was somewhat delirious several days at the Boston City Hospital.

Pain in the back and limbs was general and was a striking feature, being more suggestive of the pain of influenza and tonsillitis than of typhoid.

Epistaxis occurred in nearly half the cases, but in some did not appear until the end of the week.

Sore throat existed in ten cases as a diffuse redness of the whole pharynx and fauces. Throat cultures were taken in all and were negative for the Klebs-Loeffler bacillus.

Bronchitis of a mild form occurred in six cases and was pronounced in one.

Rose spots were not found in any of the twenty-one cases we observed. Eruptions occurred in five cases, three being a diffuse papular eruption appearing in one crop and disappearing altogether in less than forty-eight hours, and the other two were an erythema of the face and neck, lasting about the same period.

The tongue as a rule showed white creamy coat, which persisted until the fever subsided and cleared gradually, beginning at the edges. Five had a brown furred tongue, but there were no fissures. There was very little tendency to the collection of sordes.

The spleen was enlarged to percussion in about one-third of the cases. It was palpable in only three observed by us.

Nausea and vomiting occurred in two cases during the first week and in one was persistent and troublesome for several days.

Diarrhea of the pea soup variety was observed for a day or two in four cases, and one patient had a slight attack several days before coming under observation.

Constipation prevailed and in two cases was so obstinate and troublesome as to cause some apprehension, repeated enemata and cathartics having very little effect.

The second week of the disease was an extremely comfortable period for the majority of these patients. Mentally they were noticeably bright and cheerful; the constipation was under control; they were hungry and chafed at their restricted diet and enforced stay in bed. They felt so well that it was difficult to convince them of the wisdom of the recumbent position.

During this week five cases recovered, having been in bed altogether less than fourteen days, and of those who continued to run a temperature there was very little to note except an exhaustion out of all proportion to their symptoms and the severity of the fever.

A few had more severe symptoms.

Abdominal pain: It will be seen by the chart that only five cases had any abdominal pain whatever; one of these was very slight and another only complained for a few hours. Case M suffered extremely from the pain caused by enemata and cathartics, but was perfectly comfortable after her bowels had moved. She had stupes applied on one occasion.

Three had some flatulence which, however, was easily relieved.

Several others complained of tenderness of the abdomen on being moved or handled.

Five suffered from retention of urine on several occasions, which, however, yielded to hot applications.

Two had a sudden attack of cardiac pain with syncope in the second week. One of these was subject to neuralgic pain in this region. A third had pain and distress in the precordium throughout the first two weeks, but during a relapse of several weeks he was absolutely free from it.

During the third week only three cases had pronounced symptoms, and it was this group which appeared more like typhoid. The re-

* For Case M, see Appendix.

	Occupation.	Date of Onset.	Dur. of Prodrom.	Dur. of Illness.	Leucocyte Count.	Agglutination: B. Typh.	Agglutination: Para	Agglutination: B. S. H.	Highest Temp.	Highest Pulse.	Epistaxis.	Sore Throat.	Bronchitis.
A.	Nurse	Oct. 19	1 wk.	9 wks.	7,200	+			103°	120	+	+	+
B.	Nurse	24	2 wks.	5 wks.	2,400	+			103	130	+	+	+
C.	Nurse	25	1 wk.	4 wks.	7,600				102	100	+		
D.	Nurse	26	2 wks.	4 wks.	8,000				104	128	+		
E.	Nurse	27	2 wks.	5 wks.	8,200				104	130			+
F.	Nurse	27	2 wks.	5 wks.	6,400				103.6				
G.	Nurse	27	1 wk.	4 wks.	4,800				103				
H.	Porter	29	1 wk.	8 wks.	6,700				104	120		+	
I.	Asst. Cook	31	1 wk.	3 wks.	4,200				104	120		+	
J.	Nurse	31	1 wk.	3 wks.	7,200			+	103		+	+	
K.	Porter	Nov. 1	3 d.		5,400				101	115		+	
L.	Cook	2	1 wk.	6 wks.	6,000				103.3		+		
No. 9586	Patient	2	1 wk.	5 wks.	7,000			+	104	138			
M.	Nurse	2	4 d.	7 wks.	6,000	+	+	+	104.4	120			
N.	Engineer	3	1 d.	6 wks.	4,200				104				
O.	Nurse	4	3 d.	12 d.	10,800 6,400				101	110		+	
P.	Nurse	5	5 d.	11 d.	5,000				101	104		+	
No. 6227	Patient	5	?	5 wks.	5,400		+				+		
Q.	Laundress	7	1 wk.	3 wks.	7,200				103.4	100	+	+	
R.	Nurse	8	1 wk.	9 d.	3,800				100.6	110			
S.	Nurse	8	2 wks.	6 wks.	7,600			+	103.8	118	+		
T.	Nurse	8	1 wk.	13 d.	6,800				103	118			
U.	Nurse	8	2 wks.	16 d.	5,800			+	103	120	+		
V.	Nurse	11	3 d.	4 wks.	5,200				104	130	+		
W.	Nurse	13	1 wk.	13 d.	3,200				102	108		+	
No. 8652	Patient	14	1 wk.	5 wks.	11,200 7,200	+	+		101.5	100	+		+
X.	Baker	17	1 wk.	4 wks.	4,800				102.8	115			
Y.	Nurse	30	2 wks.	10 wks.	5,200				101.8	108	+		+
No. 7779	Patient	Jan. 28	3 d.	4 wks.	10,200				102	108			
No. 8276	Patient							+	No clinical symptoms.				

mainder continued to run a somewhat irregular temperature with very little else of importance.

There were no instances of perforation or of hemorrhage. It is interesting to note that the menstrual function, so often disturbed in typhoid, was only suspended in one case, though rendered irregular in one or two more. Three cases following an attack of nausea and vomiting and some abdominal pain, had a relapse. In two of these the relapse was much more serious than the original attack. Case A was one of these, and up to this time, the twenty-ninth day, her only symptoms had been headache, slight constipation and moderate fever.

The last nurse to be taken ill ran a temperature for eight weeks, reaching 102° at night for six weeks of that time. The patient had no other symptoms except epistaxis, slight headache and constipation and was considered a very mild case, but on attempting to sit up she showed marked exhaustion, had several attacks of syncope, and was in a condition of mental depression for several weeks. She is completely recovered and on duty after a month's vacation.

COMPLICATIONS.

Were not severe. One patient, No. 9586, had lobar pneumonia; one, No. 6227, a very severe acute parenchymatous nephritis.

SEQUELAE.

With one or two exceptions all complained of stiffness of the knee and ankle joints after getting up, and one nurse after going home walked too far the first day and had an acute swelling of one ankle, which was painful and troublesome. Several of the nurses who were ill still complain at the date of writing of an unusual tendency to fatigue, and shortness of breath on going up and down stairs.

TREATMENT.

Sponge baths were given once in three hours whenever the temperature rose above 102.5.° It was found very early that tepid baths were just as effectual in reducing the temperature as cold ones and were not dreaded by the patients.* Intestinal and urinary antiseptics were used to some extent. Enemata e. o. d. and sometimes cathartics for the relief of constipation. Very few hypnotics were needed. Aspirin was used somewhat for the headache. They were kept on a diet of liquids and milk, malted milk, beef tea, oyster and other broths, with occasional soft solids, such as cream toast, jellies, simple puddings, etc., and bread and potato with gravy for the milder cases.

The usual disinfection of bed clothing and

* Stimulants were employed in about half the cases, especially those who were ill longer than three weeks.

Chills.	Sweating.	Rash.	Coated Tongue.	Nausea and Vomiting.	Abd. Pain.	Abd. Tenderness.	Tympanites.	Diarrhea.	Constipation.	Enlarged Spleen.	Headache.	Stupor.	Delirium.	Dil. Pupils.	Deafness.	Stiff Neck.	Pain in Back.	Urine, Retention of	Pracord. Pain.	Stiff Joints.
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excreta was practised rigidly from the start. Urine and feces were examined bacteriologically in many cases, with uniformly negative results.

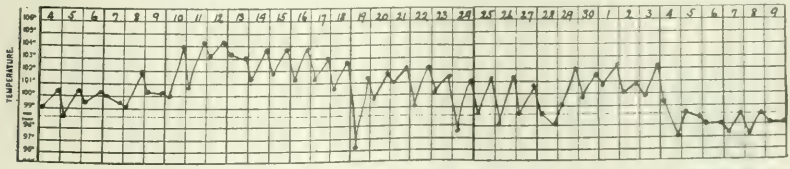
APPENDIX.

CASE M. Nurse, age 21. This was the most severe although not of the greatest duration of the cases remaining in the Boston State Hospital throughout her illness. She is reported in detail because it might have been more easily mistaken for true typhoid than any other under our immediate observation, and yet she was one of the two whose blood specimens gave a positive paratyphoid as well as typhoid reaction at the Board of Health Laboratory, and she was also one of the five to have blood cultures taken from the arm in which was found the motile bacillus which Dr. Richards has described.

She was taken ill Nov. 2, 1910 about the middle of the epidemic, after only four days of feeling below par, and was on duty until ordered to bed because of high temperature. Her leucocyte count taken the second day of the disease, was 6,000. Her clinical chart is one of the four here reproduced.

During the first five days the prominent symptoms were chilliness, afternoon headache accompanying the rise of temperature, constipation, and pain and rigidity of the neck, chiefly of the left side. No epistaxis, no eruption. Her mental state was remarkably bright and clear. She slept six to eight hours a night and awoke so much refreshed in the morning that she would not believe that she had contracted the prevalent disease, and repeatedly asked if she could go on duty.

After the fifth day her temperature began to be higher in the morning, and from this time on she appeared very ill. She was troubled continually with the most obstinate constipation and suffered considerable discomfort from the necessary enemata and cathartics, but this always subsided when the bowels were relieved. On the eleventh day there



CASE M. Temperature curve in the most severe case paratyphoid fever. Note irregularity. Note characteristic drop to subnormal, 16th day (this drop occurs, as a rule, a little earlier, from 10th to 14th day). The pulse also drops at the same time. Subjective symptoms are most severe when the temperature and pulse drop. Case M also showed a species of recrudescence 10 days after the drop in temperature followed 6 days later by a second drop in temperature, but this second drop had no subsequent reaction [illegible] temperature.

was some distention and turpentine stupes were applied. This was the only time that any treatment for abdominal pain was necessary.

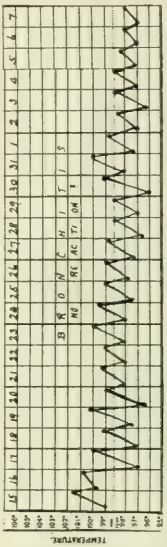
At the end of the second week she had lost much weight and showed marked exhaustion, appearing listless and depressed. She was still suffering from headache and the pain in her neck, of which she almost constantly complained. At this time she suffered on several occasions from urinary retention and obtained relief from hot applications.

On the fifteenth day she was delirious for a few hours. Her temperature was reaching 104° in the evening, she was having sponge baths every three hours, stimulants and salt solution by the Murphy drip and there was considerable anxiety concerning her condition. On the seventeenth day her temperature dropped suddenly to 96.2°, and although it rose to 102.8° in the evening throughout the two weeks following, this drop marked a change for the better. The only event of importance during the fourth week was an attack of syncope following an attempt to sit up on the bed pan; she rallied quickly. On the third day of her normal evening temperature, the thirty-fourth of her illness, she sat up fifteen minutes. From this time on until her discharge from isolation two weeks later, she made a progressive and uneventful recovery. The only sequelae were a slight stiffness of the knees and ankle joints for a week and dyspnea on exertion.

CASE 8652. This case is presented in contrast to Case M. as running a mild course, although showing a positive agglutination test for bacillus typhosus and atypical for bacillus paratyphosus alpha.

The patient was admitted for the third time Sept. 26, 1907, the mental diagnosis being dementia precox, paranoid form. Nothing in the early history of the case is of importance. During her illness, as is frequently observed in similar mental states, she was quiet and coöperative, contrasting with active persecutory ideas to which she usually reacted.

The onset was at the end of the epidemic and after a week's irregular eating. There were no other prodromes, the first symptoms being nausea and vomiting in the morning, and slight nosebleed at night, with a temperature of 102.6°. For the first time, she complained of headache and general malaise. The following morning she had another slight nosebleed. On the third day of the disease, a diffuse papular eruption appeared over the abdomen, thorax, back, arms and thighs. There were about 125 in number,—diffuse red, fading the following day, and disappearing entirely at the end of three days, with no reappearance. The temperature during the entire course of weeks went to 100° or above only twice, ranging from 96.8° to 98.8°; the pulse-rate was correspondingly low, averaging 65. At no time was it dicrotic. Her respirations did not vary greatly, being about 20, and although during the second week she had a pronounced bronchitis, it did not change either the temperature, pulse or respirations. There were no abdominal symptoms, excepting constipation, which was easily controlled without producing diarrhea. The spleen was not enlarged. The most constant condition was white, coated tongue, which persisted well through convalescence. The blood showed leucocyte count of 11200 upon the second day, and at that time an agglutination test of a 1 to 50 dilution for bacillus-typhosus, and for bacillus paratyphosus alpha an atypical reaction. On the fourth, the leucocyte count was 7200 and the serum agglutinated bacillus typhosus was atypical for bacillus paratyphosus alpha. On the 25th day, the diet was gradually increased; she was up on the 35th day and placed on house diet.



CASE 8652 (patient). Evening rise. Temperature over 100° but twice. Intercurrent (?) bronchitis failed to affect temperature.

III.

NOTES ON THE BLOOD CELL PICTURE IN PARATYPHOID FEVER AND AFTER VACCINATION WITH BACILLUS TYPHOSUS.

BY MYRTELLE M. CANAVAN, M.D., BOSTON.

That there are specific infectious diseases which even at their height produce no hyperleucocytosis, differentiating them broadly from (*a*) certain other infections, and from (*b*) certain inflammations which demand surgical intervention, is accepted: Those which at their height do not send the leucocytes above their normal limits are: malaria, measles, typhoid fever, tuberculosis (uncomplicated), influenza, mumps, to which may be added bacillary dysentery[1] and paratyphoid fever.

If one could rule out in a given case malaria, tuberculosis, measles, influenza, mumps and bacillary dysentery, and were facing a differential diagnosis between typhoid and paratyphoid fever, the present work shows that the total count of leucocytes would be distinctly helpful. In typhoid fever a hypoleucocytosis (below 2000-4000 per cu. m.m.) is significant, combined with absence of eosinophiles. In this series of sixteen cases of paratyphoid fever the leucocytes were rarely below 4000 per cu. m.m. and the eosinophiles (found in differential counting of not less than 1000 cells) were present in a percentage of 0.31% (average of five cases in

[1] M. M. Canavan: Blood Cell Picture in Bacillary Dysentery, BOSTON MED. AND SURG. JOUR., Vol. clxi, No. 20, p. 62, Nov. 11, 1909.

which the paratyphoid organism was recovered by blood cultures) and 0.8% in an average of eleven cases without culture (clinically certain epidemic cases).

AVERAGING THE CASES BY DAYS:

The first day showed...0.3 % eosinophiles (2 cases)
The second day showed.1.78% eosinophiles (4 cases)
The third day showed...0.29% eosinophiles (3 cases)
The fourth day showed.0.6 % eosinophiles (3 cases)
The six to tenth day showed .....0.52% eosinophiles (3 cases)
The 20th to 30th day showed .....0.6 % eosinophiles (2 cases)

It can be seen readily that the findings of the third day in this series most closely simulate typhoid hypo-eosinophilia. At the same time the leucocyte count rarely falls below 4000 (3800 in one instance on the third day, 3200 in one instance on the fourth day, these being in fact the only exceptions to the "over-4000" rule).

But, although paratyphoid fever does not show the characteristic typhoid hypoleucocytosis, paratyphoid fever cannot be said to produce hyperleucocytosis, since the counts never ranged over 8000. The leucocytes in paratyphoid fever in the present epidemic are consequently well within the normal range.

A chart shows the basis of these statements:—

The chart shows the negative findings in other forms of cells. As a single procedure the leucocyte counting gives a suggestive lead in prognosis and diagnosis.

At the suggestion of Dr. Southard an attempt was made to count the leucocytes before and after antityphoid inoculations to see if an experimental cell picture resembling the changes in the disease of typhoid fever could be so produced. Too few cases were carried through enough counts to be conclusive, but there was an indication in one case (S. W. C.) in that the leucocytes rose from mid-normal (6600) to higher normal (8000) in two hours after the first inoculation, and in fifteen hours to 10,000 with a drop in eosinophiles from 0.78% before inoculation to 0.72% two hours later, and 0.30% in fifteen,—imitating typhoid somewhat in the first days of the invasion (Table I).

In another case (S. E. V.) the leucocytes rose from 8400 per cu. c.m. to 9500 in two hours after the inoculation and were 8600 fourteen hours later; eosinophiles were also in evidence.

In another (M. E. G.) there was a rise after the first inoculation from 3600 to 4200 in twenty-four hours; eosinophiles also seen.

The fourth case (H. M. N.) presented a slight rise from 4400 per cu. m.m. to 6400 in four hours after inoculation, 3400 after eighteen hours, with an actual increase in eosinophiles from 2.4 to 3.9 (Table II).

The fifth case (M.C.) presented a slight rise in leucocytes from 5800 before inoculation to 7200 two hours after, with return to pre-inocu-

BLOOD-CELL PICTURE IN PARATYPHOID FEVER.

Case	Day	Leucocytes	Poly.		S. L.		L. L.		Trans.		Eosin.		Mast.	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Q.	1st	7200	980	69.68	212	21.20	58	5.05	41	3.70	2	0.10	2	0.10
H.	1st	5000	430	43.47	385	38.12	109	11.02	57	5.7	6	0.6	2	0.2
E.	1st	6400	500	49.65	315	31.34	60	5.97	75	7.46	55	5.4	:	:
J.	5th	8000	700	63.56	253	22.96	80	7.2	48	4.3	2	0.18	:	:
*Q27	5th	5400	318	57.49	145	26.11	50	9.0	41	7.4	:	:	:	:
*M.	5th	7000	800	66.21	285	23.72	85	7.05	30	2.4	:	:	5	0.4
R.	5th	5800	1000	76.57	208	15.77	64	4.87	32	2.5	:	:	2	0.1
O.	5th	6400	700	61.77	265	23.47	89	7.84	70	6.17	5	0.70	1	0.09
*K.	5th	7600	1000	65.2	395	21.21	138	9.04	66	4.34	3	.19 +	3	0.19 +
V.	6th	5200	600	58.3	270	26.2	90	8.7	63	6.1	1	0.09	5	0.48
W.	6th	8200	900	72.2 +	402	31.6	161	12.7	92	7.2	3	.2	13	1.0
Y.	6th	5200	600	53.6 +	345	28.1	100	8.9	85	7.6	11	0.9	7	0.6
*S62	6th	7200	3900	55.	1621	22.52	960	13.34	547	7.1	12	0.1	36	0.5
9	6th	6200	500	44.63	270	24.15	150	13.41	191	16.10	7	0.60	6	0.50
*Q27	8th		793	69.99	179	14.09	57	5.02	98	8.6	6	0.5	:	:
X.	10th	4800	740	64.3	180	16.5	95	8.7	108	09.94	:	:	4	0.30
U.	10th	5800	740	60.13	302	25.60	92	7.90	54	4.60	14	1.20	2	0.10
A.	20th	7200	453	54.38 +	261	31.3 +	82	9.80 +	36	4.30 +	:	:	1	0.10 +

* Motile bacillus recovered from the blood.
† 1709 cells counted.

DIFFERENTIAL COUNT OF LEUCOCYTES.

lation number of 5800 per cu.m.m. in four hours, and an excursion of eosinophiles from 0.30-1.30-1.10% for the same number of counts (Table III).

All five cases presented, then, a slight oscillation upward in numbers of leucocytes after the first inoculation, but only one (S. W. C.) showed a tendency to disappearance of eosinophiles. The number of leucocytes differentially counted was high,—1000-5000 in each case.

TABLE I.—S. W. C.

Nov. 13, 1910, 7 P.M.
Before inoculation.

Leucocytes	6600
Polynuclears	62.80%
Small lymphocytes	22.05%
Large lymphocytes	4.40%
Transitionals	0.00%
Eosinophiles	0.78%

Inoculated with 0.12 cc. emulsion of typhoid bacilli killed at 53°, injected sub-cutaneously at insertion of left deltoid muscle.

Two hours later (after first inoculation).

Leucocytes	8000
Polynuclears	54.30%
Small lymphocytes	28.50%
Large lymphocytes	9.00%
Transitionals	7.20%
Eosinophiles	0.72%

Arm painful.

Nov. 14, 1910. 9.45 A.M.

Leucocytes	10,000
Polynuclears	81.00%
Small lymphocytes	7.50%
Large lymphocytes	5.40%
Transitionals	5.40%
Eosinophiles	0.30%

Dec. 4, 1910—Widal atypical.

TABLE II.—H. M. N.

Before inoculation:

Leucocytes	4400
Polynuclears	64.2%
Small lymphocytes	21.0%
Large lymphocytes	4.8%
Transitionals	6.7%
Eosinophiles	2.4%

Nov. 12, 1910, 5 P.M. 0.12 cc. emulsion of typhoid bacilli killed at 53°, injected sub-cutaneously at insertion of left deltoid muscle.

Four hours after inoculation:

Leucocytes	6400
Polynuclears	61.07%
Small lymphocytes	16.60%
Large lymphocytes	9.00%
Transitionals	7.60%
Eosinophiles	4.10%

11 A.M., Nov. 13, 1910. Arm painful.

Leucocytes	3400
Polynuclears	43.9 %
Small lymphocytes	37.8 %
Large lymphocytes	11.6 %
Transitionals	3.0 %
Eosinophiles	3.9 %

5 P.M. Nov. 17, 1910. Inoculated with 0.25 cc. 6 hours later, temperature 101°.
Headache lasting until 4 P.M. on the 18th.

Polynuclears	67.24%
Small lymphocytes	16.04%
Large lymphocytes	3.70%
Transitionals	10.30%
Eosinophiles	3.80%

Nov. 22, 1910.
Inoculated with 0.5 cc. emulsion.
(Widal atypical.)

Polynuclears	4893.%
Small lymphocytes	28.73%
Large lymphocytes	12.40%
Transitionals	10.30%
Eosinophiles	3.26%
Mast cells	0.50%

Nov. 27, 1910. 4.30 P.M.
Widal atypical.

Polynuclears	41.50%
Small lymphocytes	33.98%
Large lymphocytes	16.44%
Transitionals	4.29%
Eosinophiles	2.30%
Mast cells	1.80%

Inoculated with 0.75 cc. emulsion of typhoid bacilli.

Nov. 28, 1910.
Headache vertex and occiput.
Dec. 7, 1910. Widal positive (dilution 1-50).

TABLE III.—M. M. C.

Before inoculation—10 A.M., Nov. 7, 1910.

Leucocytes	5800
Polynuclears	51.68%
Small lymphocytes	37.12%
Large lymphocytes	6.29%
Transitionals	3.40%
Eosinophiles	1.30%
Mast cells	0.90%
	99.89%

Inoculated 6 P.M. with 012 cc. emulsion of typhoid bacilli killed at 53°, injected sub-cutaneously at insertion of left deltoid muscle.
8 P.M.

Leucocytes	7200

2 A.M. Chill.
Nov. 8, 8 A.M.

Leucocytes	5800
Polynuclears	64.78%
Small lymphocytes	23.15%
Large lymphocytes	5.90%
Transitionals	3.24%
Eosinophiles	1.10%
Mast cells	1.00%
	99.17%

Marked malaise.

Nov. 12, 1910. 8.30 A.M.

Leucocytes	4200
Polynuclears	41.34%
Small lymphocytes	43.38%
Large lymphocytes	7.63%
Transitionals	3.05%
Eosinophiles	2.50%
Mast cells	2.03%
	99.48%

Inoculated with 0.25 cc. emulsion.
Chilly 8 P.M.

Nov. 12, 1910, 9.30 P.M.

Leucocytes	6200
Polynuclears	50.68%
Small lymphocytes	42.20%
Large lymphocytes	3.17%
Transitionals	1.90%
Eosinophiles	1.20%
Mast cells	0.80%
	99.95%

Nov. 13, 1910. 12.30 A.M.—2. AM.
Chills.
11 A.M.

Polynuclears	62.78%
Small lymphocytes	26.90%
Large lymphocytes	2.06%
Transitionals	6.18%
Eosinophiles	1.61%
Mast cells	0.40%
	99.93%

Nov. 17, 1910. 11.30 A.M.

Leucocytes	6400
Polynuclears	42.67%
Small lymphocytes	45.26%
Large lymphocytes	4.80%
Transitionals	4.08%
Eosinophiles	2.04%
Mast cells	1.10%
	99.94%

Inoculated with 0.5 cc. emulsion.

Nov. 22, 1910.

Polynuclears	50.21%
Small lymphocytes	38.39%
Large lymphocytes	5.60%
Transitionals	4.40%
Eosinophiles	0.60%
Mast cells	0.70%
	99.90%

Widal atypical.
Dec. 7, Widal positive (dilution 1-50).

CONCLUSIONS.

1. Leucocyte counts may prove of some service in differentiating paratyphoid from typhoid fever, since counts show that the paratyphoid blood picture remains within the normal range (*a*) without tendency to hypoleucocytosis at any stage of the disease, and (*b*) without loss or drop in eosinophiles.

2. In interpreting this result it must be remembered that the epidemic from which these data were derived was one of mild paratyphoid fever (Bacillus paratyphosus, alpha type).

3. The blood cell picture after antityphoid vaccination remains within the normal range, with tendency to slight initial rise in leucocytes (one instance only of a slight drop in eosinophiles).

IV.

Note on the Relation of Paratyphoid Fever to Antityphoid Vaccination.

By Myrtelle M. Canavan, M.D., Boston,

During the Boston State Hospital epidemic of paratyphoid fever (1910), the hospital administration instituted all precautions suggested by the Boston Board of Health, as well as various other precautions, to stop the spread of the disease. No attempt was made to inoculate patients, since but few had been attacked; but antityphoid vaccination was offered the 143 resident and non-resident physicians, nurses and employees, of whom 61 received one or more inoculations, and 50 received the prescribed four inoculations (5-day intervals,—25, ,50, 75, 100 millions bacilli, prepared by Dr. Leslie H. Spooner of the Massachusetts Board of Health).

Of the 50 inoculated, no one contracted typhoid; and but one contracted paratyphoid fever. This one, a nurse (A. P.), fell ill six months after the epidemic was over, and from the blood Bacillus paratyphosus, alpha type, was recovered, the disease running a three weeks' course and terminating in complete recovery. In this case the antibodies produced by B. typhosus were obviously not effective against B. paratyphosus, alpha.

Of the eleven persons who received partial vaccination (from one to three inoculations), one was reported (three inoculations) to have had a typhoid-like disease (possibly paratyphoid; data lacking) three weeks after leaving the hospital; Case U (one inoculation) contracted paratyphoid (fever on evening of vaccination) and the organism (alpha type) was recovered from the blood; Case Y was ill ten weeks with a continuous fever, no culture taken. This patient died in July, 1912, of tuberculous peritonitis, and should probably be regarded as a case of unrecognized tuberculosis.

Of the 82 uninoculated physicians, nurses and employees, 12 were sick before the vaccination was started. Of the remaining 70 (unvaccinated), 18, or 26%, became sick (in the epidemic).

In this connection, I may refer to the work of Firth,[1] of the Royal Army Medical Corps in India. Firth found that the influence of antienteric inoculation against infection with paratyphoid fever was apparently nil. At any rate, of 104 cases of paratyphoid fever in 1911, it appears that 97 had been inoculated against typhoid fever and 7 not inoculated. They naturally suggest a bivalent emulsion.

1. Of 50 antityphoid vaccines exposed to paratyphoid fever in dining-rooms and otherwise, prior to and during an epidemic (Boston State Hospital, 1910), one case contracted paratyphoid fever six months after the epidemic (B. paratyphosus, alpha).

2. Of 11 antityphoid (incomplete) vaccines, one showed first symptoms of fever on evening of inoculation (disease already incubating: B. paratyphosus, alpha): one may have had paratyphoid fever (data lacking): one had symptoms, presumably tuberculous.

3. Of 70 persons not subjected to antityphoid vaccination, but equally (or rather less) exposed to paratyphoid fever with the 50 vaccines, 18 or 26%) contracted paratyphoid fever (epidemic cases, four with positive bloods, the only cases in fact from whom blood cultures were taken among the 18).

4. Possibly these findings indicate a degree of "crossed" protection (typhoid vaccine against paratyphoid fever): but this is not absolute, and consequently paratyphoid vaccination is indicated in appropriate circumstances.

[1] Firth: Jour. Roy. Army Med. Corps, No. 19, p. 157, 1912.

V.

Conclusions from Work on the Paratyphoid Epidemic at the Boston State Hospital, 1910.

By E. E. Southard, M.D., Boston,

As pathologist to the Danvers State Hospital, 1906-9, and later as pathologist to the State Board of Insanity, I have had repeated occasion to supervise or give advice in epidemics. The work in some of our Massachusetts state hospitals for the insane in connection with these epidemics has often threatened to put an end to all other forms of scientific laboratory, as well as clinical, activity. Yet I have always held that the scientific laboratories of the state hospitals should be built around what may be termed a hygienic nucleus, and that after all our first duty as physicians in these hospitals is a duty to medicine at large and our second duty that to our specialty, mental disease, as such.

I may quote from my reports as pathologist to the State Board of Insanity of 1909 and 1910 in this connection as follows: —

"With respect to laboratories, the experience of our own as well as that of the general hospitals demonstrates that the most effective and lasting upgrowth of scientific spirit means building up the laboratory about a hygienic nucleus.

"In the first place, our patients require, for humanitarian and economic reasons, the best hygienic care,—care which nowadays indispensably calls for laboratory devices. By the routine performance of laboratory tests, which answer questions relating to the individual patient, and react on all the patients of an institution, the laboratory staff acquires the confidence of the ward staff, and the problems of each become the problems of the other. Thus, during the supervision of epidemiological work at Danvers Hospital, on bacillary dysentery, I noticed a progressive drawing-together of the laboratory and ward staffs. Besides the epidemiological results, which depend largely on recording what had hitherto remained unrecorded, the institutions actually obtained increased knowledge of their patients. During epidemic or endemic conditions, it was formerly the case that a tremendous amount of work with individual patients was done (though little recorded), and that psychiatric work was reduced to the barest necessities. Nowadays, with the foresight obtained from proper coördination, and the results of laboratory tests, even a diphtheria epidemic may not signify the stoppage of all efforts to classify patients accurately, and to accord to appropriate patients their individualized treatment. Moreover, the laboratory apparatus and recording facilities sufficient for hygienic work and the ordinary tests of general medicine make, with relatively inexpensive additions, an effective laboratory for psychiatric work." (*Report of 1909.*)

"The hygiene of State hospitals for the insane bids fair to be a subject of the greatest importance in the progress of public health work in general. Though not obvious at first sight, it is true that no other conditions are so favorable for the exact study of epidemics in man as the conditions of (*a*) regimen, (*b*) surveillance, (*c*) variety of life, (*d*) most important of all, presence of laboratories and laboratory workers found in modern State hospitals. Elsewhere it has always been possible for hospitals to secure special government workers or some local enthusiasts to work with precision in these epidemics; but neither the origin nor the subsidence, and especially not the interepidemic conditions, have been studied so well as in Massachusetts, whose State hospital laboratories have been constructed about a hygienic nucleus. In the sense that the first apparatus installed has been apparatus of equal service in hygiene and in psychiatry, and the pathologists have been imbued with the salutary modern idea that no sharp lines separate psychiatry from the rest of medicine and hygiene. Therefore, although a certain amount of energy has been spent by our pathologists on hygienic problems, I have felt the energy well spent, and have encouraged the ideal of the hygienic utility and advantages of our hospitals." (*Report of 1910.*)

One advantage of writing out the conclusions of a piece of work in which one had so little immediate personal share is that one can duly praise the endeavors of the actual workers. Especially is the work of Dr. Mary Gill-Noble, then Dr. Gill, to be praised for its fidelity and insight, the latter rendered doubtless keener by her previous prolonged and confining work with a diphtheria epidemic in the same hospital. In the rush of clinical work, one so often hears the worker say, "Why, doctor, we are so busy doing work that we have no time to record it," that the scientific attitude of actually recording clinical findings under epidemic conditions in hospitals chronically undermanned is deserving of great praise.

As for the laboratory side, the previous experience of Dr. E. T. F. Richards and Myrtelle M. Canavan in the Danvers dysentery epidemic stood them in good stead on the present occasion, and I need only point out, what is not always understood by those not directly in the work, how difficult it is to carry on special researches on top of regularly established routine. There were six medical workers in connection with the scientific side of the Danvers dysentery epidemic of 1908: here there were but three (or four, if the writer be counted), a quota far fewer than any hygienic commission would choose for such a purpose. At the risk of elaborating the obvious, I wish to point out that, in decades to come, our successors will wonder at our niggardliness in the comparatively inexpensive matter of research both in hygiene and in psychiatry. One reason for working overtime now is to lay a basis for adequate state support of these research matters in future. Yet I suppose there are many administrators of hospitals, even in the most highly civilized portions of our country, who would smile a superior smile at the idea of employing one or two additional skilled workers in epidemiology at the first appearance of an epidemic in a state hospital. "Why, doctor, what is our laboratory for, if not to meet and handle just such conditions as those of an epidemic? Why hire additional

workers? Simply let the ordinary routine go for a time!"

I can the more safely indulge in these mild platitudes because, after all, in the present epidemic perhaps not much was sacrificed to the Procrustean ideal of not raising the per capita cost. And the epidemic happened to be of no great proportions. In future, however, it seems to me that either the hospital itself or the state board of insanity should be empowered under epidemic conditions freely to call in additional skilled and technical aid, or, if this is not feasible, that reasonable expenses of such scientific epidemiology should not be frowned upon if they appear in the form of a deficit from the annual appropriation.

GENERAL CONCLUSIONS.

Etiology. The microörganism of the epidemic, according to Richards' findings, is undoubtedly Bacillus paratyphosus (agreement in general features with known bacilli; differentiation from Bacillus typhosus and Bacillus coli communis by growth on carbohydrate media).

The type is very probably alpha or acidumfaciens (behavior in litmus milk, agglutination reactions). This fact is of interest since it conforms to the general rule that the alpha type is more frequent in this country than the beta or alkalifaciens type. But it is curious that it is the beta type which is ordinarily supposed to be the "meat-poisoning" organism, whereas here we are apparently dealing with a "meat-poisoning" epidemic due to the alpha type.

Epidemiology. Circumstantial evidence seems to point to the immediate origin of the outbreak from a male patient who had been a kitchen-assistant occupied with preparing meat, developed fever, and yielded what was eventually determined to be Bacillus paratyphosus in his blood.

At the same time a woman patient developed fever, a Widal reaction (typhosus), and actively motile organisms in her blood. This patient helped to serve food.

Appropriate sterilizing measures were carried out in the kitchen and serving-room, but cases continued to develop during the succeeding month.

A question which must remain unanswered is the method by which the first patient became infected. He had been slightly ill for several days before becoming febrile, but, being hypochondriacal, he secured little attention for his complaints. Whether he infected the meat (some of which six months later showed Bacillus typhosus) or was infected by it cannot be safely asserted. The absence of other similar cases before the epidemic might point to some extramural source (*e.g.* new attendant, or nurse returned from vacation, or infected meat); but, on the other hand, if the organism persisted in the ice-box for six months, there were no further cases of disease which could be assigned to the organism, except one nurse who had a moderately severe attack (B. paratyphosus alpha in blood) in June, 1910.

The season in which the outbreak developed is a little later than that in which the majority of typhoid fever patients are admitted to hospital, but the epidemic ceased with the advent of colder weather (December). The previous season had been hot and dry, and the groundwater was low—conditions thought to favor the development of typhoid fever.

In this small epidemic, 23 women and 7 men were affected, thus reversing the figures for the development of typhoid fever, in which males far outnumber females.

The fact that patients were largely spared may perhaps be due to the greater age of patients, *i.e.* if conditions in paratyphoid fever resemble those in typhoid fever, in which there is a very decided drop in the incidence after forty years of age.

Dust, flies, ice (from local ice-pond), plumbing, refrigerators, were considered as factors in the outbreak. Beyond noting several features in this old plant which require alteration, the writers were not able to incriminate any of these conditions as the factor in the outbreak.. Possibly infected meat was the source.

It appears most instructive to compare the findings of this epidemic of paratyphoid fever with those of typhoid fever. The results may be presented in parallel columns with some comments.

Typhoid Fever. (T. McCrae, 1913)	Paratyphoid Fever. (Data of this epidemic, Gill-Noble.)
Onset most frequently 1 with headache (1117 in 1500 cases)	Same.
2. Anorexia (825)	Not marked, as a rule disappearing in second week.
3. Diarrhea (516)	4 cases in 30.
4. Abdominal pain (443)	5 (2 of these slight) in 30 cases.
5. General malaise (436)	Not severe.
6. Vomiting (404)	2 cases in first week.
7. Cough (393)	Mild bronchitis in 5 cases, (severe in 1)
8 and 9. Chilly sensations (392) and chills (334)	15 of 30 cases showed chills.
10. Epistaxis (323)	13 of 30 cases, but often not initial.
11. Fever (285)	Frequent, low.
12. Nausea (255)	2 cases (combined with vomiting).
13. Constipation (249)	Persistent in 2 cases.
14. Backache (215)	General (suggesting influenza or tonsillitis).
15. Sweating (207)	Common (20 cases in first week).

The onset of symptoms in this epidemic accordingly presented a few minor differences from that pictured by McCrae in the left hand column above. The onset symptoms, merging in some instances into symptoms of the first week, appear statistically in the order: headache (29), backache (27), sweating (20), chills or chilly

sensations (15), epistaxis (13). As for initial fever, the later experience with routine temperature-taking in all "contacts" seems to show that initial fever was practically constant. Anorexia, diarrhea, abdominal pain, general malaise, vomiting, were not so frequent in this paratyphoid epidemic as in McCrae's combined Johns Hopkins figures for typhoid fever. The figures for the remainder of the fifteen major onset symptoms of typhoid fever listed above are too small for effective correlation.

McCrae mentions, for typhoid fever, six special modes of onset, of which the second (pulmonary) is perhaps the only one illustrated in the paratyphoid epidemic (bronchitis in five cases). One patient had lobar pneumonia.

TYPHOID FEVER. (T. McCrae.)	PARATYPHOID FEVER. (Data of this epidemic, Gill-Noble.)
Symptoms of second week more severe.	5 of 30 cases recovered completely in second week; in others only symptom, disproportionate exhaustion.
Early general appearance frequently characteristic.	Negative or not characteristic.
Fever constant, 1118 in 1500 reached 104°	Same. 8 in 30 reached 104° (only one reached 104.4°).
Chills not infrequent.	Same.
Skin: rose-spots (80%)	No rose-spots in 21 cases specially examined, but eruptions in 5 cases (3 papular).
Sweating not common at onset and rare in course.	Sweating in two-thirds of all cases.
Diarrhea in course (17.4%)	Diarrhea (16.6%).
Constipation in course (51%)	Constipation (76.6%).
Abdominal pain (44%)	Abdominal pain (16.6%).
Hemorrhage (7%)	Hemorrhage (0).
Perforation (true % not yet established—2-3%)	Perforation (0).
Spleen felt (71.6%)	Spleen enlarged (33%) but palpated in 3 cases only.
Bronchitis "almost a specific symptom."	Bronchitis (16.6%).
Lobar pneumonia (1.5%)	Lobar pneumonia 1 case in 30.
Bronchopneumonia (1.2%) London fever hospitals.	Absent.
Pulse "less than would be expected from fever."	Pulse averaged 70-108.
Heart not characteristic.	Precordial pain, 3 cases (2 with syncope in second week).
"Nervous" symptoms of some sort almost universal.	Headache, 29 cases; stupor, 6 cases; delirium, 3 cases; dilated pupils, 12 cases.
Deafness without discoverable lesion comparatively frequent.	Deafness 2 cases.
Retention of urine common at onset.	Retention (16.6%).
Acute nephritis hardly 1% (Curschmann)	1 case (insane).
Menstruation as a rule ceases.	Suspended in 1 case.
Arthritis rare.	Stiff joints (19 cases in 30).
Duration 29.4 days of fever, 49 days from onset to discharge.	Duration 11 to 35 days.

The laboratory findings may be grouped as follows:—

TYPHOID FEVER. (T. McCrae, 1913.)	PARATYPHOID FEVER. (Richards and Canavan).
Bacilluria, probably 20-25%.	Not found in cases examined.
Comparatively few bacilli in stools.	No *paratyphosus* found.
Bacillemia 75%. (Coleman and Buxton).	Bacillemia, 100%, of cases examined (7), 2 as early as third day, 2 on ninth day.
Widal reaction almost always present at some stage, rarely before seventh or eighth day).	Widal reaction (*Bacillus typhosus*) positive, 4 cases in 30 (one of the 4 yielded *bacillus paratyphosus*), suggesting "group-reaction."
Leucopenia, to some extent progressive with the severity and duration of the disease.	Bacilli clumped by immune sera (*paratyphosus alpha;* less marked, *paratyphosus beta;* not *typhosus.*
In case there is suspicion of paratyphoid fever, blood cultures necessary or tests with patient's serum against his own bacilli.	Tendency to leucopenia, hardly of diagnostic value, except as excluding some forms of sepsis.

GENERAL CONCLUSIONS.

The epidemic of mild paratyphoid fever at Boston State Hospital in 1910 seems beyond question due to Bacillus paratyphosus, alpha (findings of Richards)[1].

Apparently the source of the epidemic was infected meat or else a patient with paratyphoid infection may have spread the epidemic through meat. The clinical features of the epidemic of greatest interest are presented in the above parallel columns. Mention may be here made of the fact that initial fever was practically constant. Anorexia, diarrhea, abdominal pain, general malaise and vomiting were not so frequent in this paratyphoid epidemic as they usually are in typhoid fever. Of special modes of onset which might be confusing in diagnosis, bronchitis may be mentioned. In the course of the disease stiff joints occurred in 19 of 30 cases of paratyphoid fever, whereas in typhoid fever, arthritis is rare. Four of the patients suffered from muscle pains in the back of the neck. Malaria was suspected in one case from the nature of the acute symptoms.

A case is presented which died some years after the epidemic and showed thickening of the ileum, possibly representative of former intestinal disease, but whose cultures, including that of the gall bladder, failed to show bacillus paratyphosus.

The clinical picture shows points of interest in the temperature curves. A case will occa-

[1] E. T. F. Richards: Bacteriology of Epidemic of Paratyphoid Fever. Journal Lancet, St. Paul, 1913.

sionally have a beginning temperature suggestive of typhoid fever, but this is not the rule. The intercurrent bronchitis fails to affect the temperature reaction, so that it may possibly be supposed that it is a portion of the disease rather than a truly intercurrent phenomenon. But it must be remembered that insane patients show some differences in fever reactions to various infections from the reactions shown by sane persons.

Eight cases in 30 showed a peculiar drop of temperature to subnormal in the second or third week,—as a rule, between the tenth and fourteenth day. This temperature drop is accompanied by a drop in the pulse and by an access of the most severe subjective symptoms felt at any time in the disease.

The blood cell pictures show that there is no hypoleucocytosis or loss or drop in eosinophiles in paratyphoid fever (of the type here described), since the counts remain within the normal range; this point may be of some value in differentiation of paratyphoid fever from typhoid fever.

It was incidentally learned that the blood cell picture after antityphoid vaccination also failed to show hypoleucocytosis, but instead tends to show a slight initial rise in leucocytes.

The antityphoid fever vaccinations carried out early in the epidemic as a possible protective measure, gave the opportunity for a few observations on the relation of paratyphoid fever to antityphoid vaccinations, and it would appear that there may be a moderate degree of crossed protection (typhoid vaccine against paratyphoid fever) since non-vaccinated persons were far more subject to paratyphoid fever than were persons vaccinated against typhoid. The rule was, however, not absolute.

Medical Progress.

PROGRESS IN OTOLOGY.

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and

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INTRODUCTORY.

In general the recent otological literature dwells mostly on internal ear conditions. With methods of examination perfected and placed in a practicable form the internal ear has been brought within the observation of the average examiner and a flood of data on these cases with a consequent advance in our knowledge has been the result. Barany has still further elaborated his labyrinthine tests; Neuman, Alexander, Urbantschitsch, Kerrison have perfected the technic; these, Lake, Milligan, Richards, have added to our operative skill; while Siebenmann, Manasse, Politzer, Shambaugh, have continued their researches in the microscopic anatomy and pathology. The Wassermann and Noguchi tests and the use of salvarsan have extended our means for diagnosis and treatment. Keeping pace with this advance have been efforts in the difficult field of meningitis and brain abscess. Haynes has elaborated a new operative avenue for the draining of the meninges while he and Kopetsky present their findings in spinal fluid analysis which promise to aid us toward earlier diagnosis. In mastoid surgery, Leidler, Schüller, Birkett, Lange, Brown, and many others have pointed out how much can be gained by radiography, and Mosher offers his transilluminating method for a more ready diagnosis; while Cheattle and Randall have carried further their researches into the anatomical variations of the temporal bone. Of particular importance in office work are Yankhauer's speculum and eustachian instruments and Holmes' pharyngoscope. The bacteriology of otitis infections has been more carefully investigated and the more discriminate use of vaccines encouraged. On the whole progress has been more along efficiency in the application and use of our present knowledge and a more thorough gleaning of the wheat from the chaff. To make the review more systematic in its scope and more useful to the reader, an arbitrary assortment of the subjects under the main anatomical divisions has been followed. References are appended for him who would go more into detail than space here permits.

EXTERNAL EAR.

Anesthesia. — Skillern (Boston Med. and Surg. Jour., October, 1913, p. 503) offers a method for local anesthesia in furunculosis of the external canal. He infiltrates Jacobson's nerve by injecting 2% novocaine and 1-3000 adrenalin immediately in front of and at the level of the tragus. Complete operative anesthesia is thus induced which has the advantage of continuing on for some time. A longer anesthesia can be obtained from quinine-urea or alcohol infiltration.

W. Albrecht (*Archiv.* 85, 3, p. 198) makes use of an electrical instrument with polar attachment for anesthetizing the drum. A solution of 20% cocaine, adrenalin, and saline, is dropped into the canal and the instrument is brought against the membrana tympani. The electrolytic action of 1.5 to 2 m. a. for three to four minutes induces the cocain to penetrate through the superficial epithelium in acute suppurative cases, while a little longer time is needed for the chronic.

Atresia.—Dalmar of Posen (*Archiv von Ohrenheilkunde,* Band 84, Heft 2) reports a successful operation on a bilateral atresia of the bony canal and microtia in a child of three. A radical mastoid excenteration revealed a tympanic cavity 12 mm. in, with no membrana tym-

pani. Thiersch grafts hastened healing and "normal hearing" resulted.

Othematoma.—Urbantschitsch (*Archiv von Ohrenheilkunde*, Band 84, Heft 1) aspirates the fluid of a hematoma, injects 0.5 of the tincture of iodine—massages one to two minutes and then aspirates the iodine, repeating after a few days; 75% of his cases were cured in four to five days.

Bacteriology.—Priestly (*Jour. Laryngology*, 27, 4) made cultures from the external canals of 18 normal persons and recovered a diphtheroid organism in 15.

Aurophones.—Barth (*Archiv*, 84, 3) reports a series of cases where mechanical electrical instruments were tried to improve chronic deafness. His findings are of interest and are worth reading.

MIDDLE EAR.

Anatomy.—Little has been done on the anatomy of the middle ear alone. Cavanaugh (*Annals*, Sept., 1913, p. 699) has contributed the results of his investigations. He negatives the general opinion that the infant membrana tympani is more horizontal than the adult. He considers that this impression is gained from the difference in the situation of the canal, in the baby and in the adult. In the former the bony canal has but partly developed, the auricle is placed relatively higher on the skull, and the drum is at an acuter angle to the axis of this canal than to that of an adult.

Secretory Otitis.—For chronic catarrhal processes in the middle ear one school champions vibratory massage, the artificial induction of hyperemia, and allied methods, appliances being used both through the external canal and by the eustachian tube; while the other school lays more stress on the establishment of the best conditions in the naso-pharynx and in the general metabolism.

For atrophied membranae tympanorum and relaxed ossicular ligaments Heath (London) proposed frequent blistering by means of graded strengths of a tincture cantharidis solution. The end sought was a drum-head much thickened by scar tissue and an accompanying stiffening of the ossicular chain. This was pretty universally tried but with questionable results and the enthusiasm for it has waned.

In eustachian tube treatment, Yankhauer has perfected a series of bougies and applicators which with the aid of his catheter serve to make methods of treatment here more satisfactory.

His naso-pharyngeal speculum has filled a definite need in working about the eustachian tube but has been largely supplanted by the more delicate indirect method with Holmes' endoscope. This latter instrument which has very materially increased our armamentarium in the diagnosis and treatment of posterior nares and eustachian tube conditions is mentioned universally with enthusiasm, and promises to increasingly aid us as we become familiar with its use.

SUPPURATIVE OTITIS.

Tympanum.—In general otologists are syringing suppurative middle ears less than formerly and relying on dry wicking and frequent wiping. Spira Krakou (*Jour. Laryng.*, August, 1910, p. 414) recommended the judicious use of Bier's stasis in selected cases. He gains this by a constricting collar about the neck and a suction apparatus over the mastoid. But at the same meeting, Fleischmann (Budapest), Schwartze, Hollinger, and Wanner (Munich) all spoke against its use.

Vaccines.

Dr. Nagle (*Jour. Laryng.*, December, 1910, p. 659) reports the best success with vaccines of any writer. She gives a description of her bacteriological technic and of the method of administration. The results of treatment in 40 cases are given. In six the discharge had been present for several months, and 34 had a history of from one to forty years. All had resisted the usual forms of treatment. Local cleanliness alone was carried on in addition to the vaccine therapy. The results show only one case failing to be cured of the discharge though some required 21 months for an ultimate cure. The usual forms of infection were found. Stock vaccines had proved unsatisfactory. Eight took part in the discussion but none reported such good results.

Ossiculectomy.—Two English surgeons advocate ossiculectomy in selected cases of chronic otitis media. Macleod Yearsley (*Jour. Laryng.*, Oct., 1910, p. 523) concluded in his article reporting seventy operations over a period of fifteen years that—

1. Ossiculectomy offered in selected cases at least 30% of cures and 42% of improvements.
2. The operation should include careful removal of the attic wall, especially in its posterior part.
3. The annulus tympanicus should be curetted to prevent the possibility of a false membrane forming.
4. The operation was a useful alternative measure to the radical mastoid method, especially as it in no way militated against the success of the latter should the simpler method fail. His later results showed a higher percentage of cures on account of perfected technic. In no instance was there a facial paralysis or a dislocation of the stages. The division of the tendon of the stapedius a few days after operation aided the hearing.

In the discussion of the paper, only one supported the writer, the others having abandoned the operation for the radical mastoid excenteration.

The second writer, Hunter F. Tod (*Lancet*, Sept. 3, 1910) reports on 120 operations. His results were still better: 52% cured and 30% improved. He argues in favor of the operation because: (1) it avoids the radical operation; (2)

it improves the hearing in a large number of cases, and (3) it is easier for the patient.

Eustachian Tube Curettement.—Over against this method, Yankhauer presents his operation for curettement of the eustachian tube on the basis that the shutting away of the naso-pharynx removes the constant source of re-infection in a chronic otitis media. Different writers report varying degrees of success. McCullagh (N. Y.) reported some very favorable results and failure in others. Yankhauer (Transactions of International Otol. Congress, 1913) reported a majority of cures. Lougee (at American Medical Asso. Meeting, 1914) reported a series of carefully-conducted cases at the Massachusetts Charitable Eye and Ear Infirmary with but few cures.

MASTOID.

Anatomy.—Randall and Cheattle (Transactions International Congress, 1912) have carried forward their studies on the anatomy of the mastoid and temporal bone. They point out that a relatively infrequent but none the less present, dissimilarity in the measurements between one temporal bone and its fellow, make it unreliable to presume that surgical landmarks are the same in both ears. W. S. Syme of Glasgow (*Jour. of Laryng.*, June, 1912, p. 308) reports anatomical peculiarities found in 1050 skulls.

Transillumination.—Mosher's transillumination apparatus (*The Laryngoscope*, Jan., 1912) and radiography, have offered means for decided advance as helpful aids to anatomical variations and to diagnosis. The transillumination apparatus when inserted tightly into the external auditory canal reveals by relative density and by comparison with the other side, whether an inflammatory exudate is present in the mastoid, or whether we have a pneumatic or diploetic or sclerosed type of mastoid. The simplicity of this method and the portability of the instrument, make it a valuable daily aid to the surgeon in determining the progress of a mastoid involvement.

Radiography.—Though more elaborate and correspondingly less ready of easy application, the x-ray shows still more to the examiner. The most exhaustive work on this subject we find is an Arbeit by Rudolph Leidler and Arthur Schüller (p. 173, *Archiv*, 82, 3 and 4) dealing with "the anatomy of the human temporal bone as shown in the x-ray." Some very good illustrations and plates accompany this article. They glean a surprising amount of information from the pictures. "The mastoid process can really be accurately interpreted by the x-ray. We can know concerning its form, whether long or short, broad or narrow; its structure, whether pneumatic or diploetic; the size and situation of the cells, and of their extension into the squamous or pyramidal portion." The external and internal auditory meatus, the tympanic bone, the pyramid, the canals, the vestibule, and the cochlea, are all frequently discernible. The location of the lateral sinus, the jugular bulb, and emissary vein, can generally be demonstrated.

Other investigators do not find as much, but they show many important landmarks. Lothrop (Boston Med. and Surg. Jour., March 5, 1914, p. 343) relies upon the x-ray for aid in demonstrating the early congestive stage of mastoiditis, the frank purulent stage, the vascular partly broken down mastoid, and sometimes an extradural abscess. Two of his plates showed the Fallopian canal. He could not demonstrate a thrombosed lateral sinus. Dixon (*Annals of Otol.*, Sept., 1913, p. 369) was able to diagnose one. He advises a skiagraph in every acute suppurative otitis media.

Iglauer and Lange of Cleveland are perhaps the leaders in this country. Brown, George, Liebman have done much work in Boston. Law (*Annals*, Sept., 1913, p. 635) recommended more than one plate for the accurate localization of the lateral sinus. Birkett, a pioneer in this work (*Annals*, Sept, 1913, p. 656) refers to the anatomical and clinical value of the x-ray. "We can tell when the mastoid process has become involved in acute inflammatory or purulent infection, by a distinct blurring or veiling of the cells. Should the disease have existed for some time, leading to destruction of the cells, this is often indicated by distinctly enlarged cavities." One case showed a thrombosed lateral sinus. The pus in and around the thrombus probably brought this out in the picture. Though operative interference almost invariably confirms his radiogram readings, he recommends the x-ray as "a nice adjunct" in diagnosis, and more reliance to be placed on clinical findings. Stewart (*Annals*, Sept., 1913, p. 677) makes use of the x-ray in children and advises both antero-posterior and lateral views. He finds :

1. That we frequently have distinct and well-formed pneumatic cells as early as at two years.
2. That there is a wide variance in the character location and extent of the mastoid cells under 10 years.
3. That given six children of any age, say five years, no two will have mastoids alike.
4. That the generally accepted view that the cells are of the same character on both sides is not true in all cases (15% showed considerable variance). His technic and eight stereopticon plates follow.

Bacteriology.—The taking of cultures at the time of operation on the mastoid has resulted in considerable information on the bacteriology of such infections. The literature gives several tables and discusses at particular length the streptococcus mucosus. Albert of Göttingen (*Archiv*, 85, 4) quotes the results of a series of 110 cases; 100 of these showed a streptococcus infection 73 of which showed a mixed infection and 18 showed a streptococcus mucosus (con-

cerning which infection he remarks that though it runs an insidious course, he does not ascribe to it the malignancy that other authors do) O. Alberti (*Archiv*, 92, p. 111) gives the results of the bacteriological findings in 286 cases of acute mastoiditis. The leading percentages in his table are:

Streptococcus longus	57.9
Pneumococcus	9.5
Strepto. mucosus	3.85
Staphylo. albus	3.15
Influenza B.	2.45
Staph. aureus	1.75
Tubercle B.	1.05
Bact. coli	.07
Sterile	13.34

The remaining were chiefly mixed forms. He draws attention to the fact that the virulence of the organism and not its variety determines the severity of the infection.

George S. Dixon (*Annals*, June, 1913, p. 303) gives the results of 5495 smears taken at the New York Eye and Ear Infirmary during the past eleven years. He found the streptococcus predominating, 24.8%; next came pneumococcus 12.2%; then staphylococcus 4.8% and 26.6% of a general mixed type (needing a radical mastoid operation). He speaks of the streptococcus mucosus as the most insidious organism the otologist has to deal with, not because of any initial virulence, but because the symptoms become lessened and lull the surgeon into a false sense of security, to flare up at last and prove fatal. In these cases Dixon finds the radiogram of service as it tells him, whether the process is still active or has quieted down, whether an operation is needed or it is safe to wait.

In ten fatal cases of mastoiditis complicated with meningitis Logan Turner (*Jour. of Laryng.*, Feb., 1911) reports eight showing streptococcus pyogenes, one showing pneumococcus, and one due to an unnamed diplococcus. His frequent finding of B. proteus in cholesteatomatous cases suggests to him a connection here.

Streptococcus Mucosus.—Much space is devoted to the streptococcus mucosus infection. Some authorities (Albert, *Archiv*, 85, 4) find that though this form of infection runs an insidious course, it does not yield the extreme conditions that is credited to it, while others (Bryant, Annals, June, 1913, p. 482) operate on a mucosus otitis at the first evidence of mastoiditis. Among the first to draw attention to the dangers of this form of infection were Neumann and Ruttin (*Archiv*, 79, 1 and 2; *Laryng.*, Nov., 1910, p. 612) who described the course of events as follows: The tympanic inflammation subsides or passes into a state of suspension as early as the first or second week, leaving behind, however, considerable disturbance of hearing and continual tinnitus. The membrane appears as it does in moist catarrh, dull, lustreless, "humid" red in color; the details though still recognizable have lost their sharpness, and the light reflex is badly defined. There is no pain or at most only a little tenderness on pressure over the mastoid. If paracentesis is performed a mucous or muco-purulent secretion is liberated. These obscure symptoms persist unchanged until the advancing destruction of bone attracts attention, either by threatening the life or by leading to the formation of mastoid abscess. During the stage of the middle-ear inflammation the symptoms may be so trivial as to escape notice entirely and the first event may be the sudden appearance of some intra-cranial complication.

W. Zemann of Vienna (*Archiv*, Band 92, Heft 1 u. 2, p. 74) reports 21 cases of streptococcus mucosus infection of the mastoid, and adds to the above testimony: (1) mucosus suppuration is relatively frequent; (2) the course of a mucosus otitis is typical in about 50% of cases:—a long prodromal period with insignificant symptoms and characteristic appearance of the middle-ear, a tardy onset of the suppuration or a complete cessation of the same, with almost no rise in temperature and sudden manifestation of the complications, (though frequently the infection resembles much that of the influenza bacillus and cannot be differentiated from an ordinary otitis.); (3) extension of the mucosus infection to the mastoid and endocranium is very frequent. The pathological picture of the mastoid is typical:—several broken down foci separated from one another by more or less sound bone, these foci growing together and uniting in advanced cases. Very often the disease process is primarily localized in the mucous membrane of the mastoid cells. (4) Perisinuous abscess is the most frequent of the endocranial complications, in over half the cases. (5) The tendency for the mastoid-osteitis to progress through the cortex to the outside is very slight. Much more often it breaks into the cranial cavity. (6) Bacterial examination is important. (7) Any post-operative rise in temperature means a fresh pus-pocket and calls for further operative interference. (8) Convalescence is very protracted and takes an average of 62 days. (9) The prognosis is favorable if the pus foci are promptly drained.

Of other forms of infections the tubercular bacillus is discussed by Goerke of Breslau (*Archiv*, 91, 4). He finds tuberculous meningitis to be the rarest of the cerebral complications of otitis but more frequent than has been appreciated until lately. The channel of entrance has been shown by experimental research and clinical evidence to be very rarely by way of the labyrinth or Fallopian canal, and generally by the eustachian tube to the carotid canal and thus into the meninges. Siebenmann in discussion of this paper referred to pathological investigations he has been making on all autopsy material with especial reference to tubercular infections.

He is now preparing a report on 91 cases of tuberculosis and makes a résumé of them here. An acute inception was found in 50 mastoid processes. In children the fungoid form was frequent, in adults the necrotic. In one-third of these cases there was labyrinthine involvement, four-fifths of them were operated on, one-tenth of the cases had post-operative facial paralysis, one-fourth died during treatment, one-fourth were discharged improved of which four died later. Of these but one died of miliary tuberculosis.

In vaccine therapy, out of five cases of meningitis and four of sinus thrombosis, Logan (*Jour. Laryng.,* June, 1912, p. 22) reports two cases distinctly improved and finally cured by the repeated use of vaccines.

Operative Methods—In mastoid operative work a few helpful details are brought out. Reik of Baltimore (Transactions of International Otol. Soc. Boston, 1912) adheres to his principal of the blood-clot operation and primary suture following a simple mastoid operation. For those who do not desire so radical a measure he recommends secondary closure about a week after the operation. The authors can bear testimony to the efficacy of this procedure in selected cases. Barany (*Archiv,* 84, 1) reports two successful cases of primary union, while Politzer reminds us that there are many failures and recommends his modification of filling the cavity with melted vaseline before closing it.

In the summer of 1912 Heath demonstrated his operation at the Massachusetts Charitable Eye and Ear Infirmary before the members of the International Congress. A noteworthy point he raised was very early operative interference, not to avoid danger to life but to minimize injury to hearing. Mosher (*Trans. Am. Otol. Soc.,* 1913) reports the post-operative course of these cases. Even making allowance for the fact that the operator could not continue to care for these cases, the results as found in this report would seem to discredit this operation as performed by its inventor. Richards (*Annals of Otol.,* Sept., 1913, p. 675) suggests this or some similar operation for a chronic otitis media in children where a radical mastoid operation would not be justifiable.

In radical mastoid work, Welty (*Archiv,* 85, 1 and 2, p. 27) describes his method for skin-grafting. He grafts on the fourth day, using three grafts. Of 18 cases four healed in three weeks, 10 in four weeks, four in six weeks. The hearing was improved in 14. Welty also recommends primary grafting as giving still better hearing, though not quite as sure to take. Hammond (*Annals of Otol.,* Sept., 1913, p. 652) finds that skin grafting hastens convalescence but does not give a better end-result.

To hasten healing after the radical mastoid operation, scarlet red has proved efficacious in the hands of Dembinski (*Archiv,* 84, 1) and Grossman of Berlin (*Archiv,* 84, 1) and Ross (*Jour. of Laryng.,* Mar., 1913). Different forms of rays have been useful in hastening healing. Urbantschitsch (*Archiv,* 91, 4) used radium rays and emanations on tubercular forms; and Beck of Vienna secured rapid healing in two refractory cases by the use of the sun's rays.

ENDO-CRANIAL COMPLICATIONS.

Much advance has been made in this field. Leading in brain surgery is Cushing of Boston, who has done so much to advance the technic of endo-cranial surgery. In a study of brain topography, it is suggested that otologists might be of real aid as they come in contact with many cases where the brain is exposed. Ethyl chloride could be used on these exposed areas as a temporary local anesthetic. Systematic effort and plotting in this might enable us to considerably increase our total knowledge concerning brain foci.

Sinus Thrombosis.

Gustav Bondy (*Archiv,* 85, 3, p. 216) reports three cases as clinical evidence that a suppurative process can pass through a healthy sinus wall. In each case the sinus was exposed and appeared healthy and there had been no evidence of thrombosis. Later, symptoms developed and the sinus was opened and found thrombosed. The author points out that this is, however, so rare a termination as not to influence the operator in exposing the sinus if such seems indicated. The reader is referred to a most scientific research by Haymann (*Archiv,* 83, 1 and 2, p. 1) who reports elaborate experimental work on animals for the purpose of determining this point. By various methods of injection of the infection and by laying on the sinus wall infected tampons, also by puncturing, by pressure, and by incision, he tried to discover the means which most surely led to a thrombosis. The infected tampon resulted in a thrombosis the most often. This was laid on the healthy, uninjured sinus wall. The conclusion is that infection can and does enter through a healthy wall or dura.

As to ligation of the internal jugular, Stenger of Königsberg (*Archiv,* 84, 2, p. 135) claims that a distinction should be made between acute and chronic mastoid cases. He cites his experience in 32 acute cases where 23 jugulars were tied, of which 19 recovered and four died, and nine were not tied and all recovered. Of 33 chronic otitis cases developing sinus thrombosis all were tied and only 18 recovered.

Meningitis.

Of particular note in the discussion of meningitis is the carefully prepared paper from Mygrind's clinic (Blegvad, *Archiv,* 83, 3 and 4, p. 247) discussing pachymeningitis. The author finds but 43 cases reported, but 27 of which shed any light on the disease. These he reviews carefully, dwelling at length on the etiology and

pathology and symptoms. Under diagnosis he finds it very difficult to differentiate between this form and leptomeningitis and brain abscess. Early operative interference is indicated as only in these are cures reported though he does not doubt that many undiagnosed cases have gone on to recovery without such interference.

Streit of Königsburg (*Archiv*, 84, 2) tried to induce experimental meningitis in dogs and cats. He reports that the greater the involvement of the dura, the more pronounced were the cerebral symptoms.

Sir V. Horsley (*Jour. Laryng.*, 27, 4, p. 205) discusses meningitis and mastoiditis and considers it criminal not to relieve brain pressure if there is an optic neuritis. "All cases of otitis media with optic neuritis ought to have a free operation done on the mastoid, and if the neuritis does not clear in a short time, the subdural space should be opened by a separate operation above."

Of particular interest in the diagnosis and treatment of meningitis are the operation devised by Haynes (*Laryngoscope*, June, 1912, *Jour. Laryng.*, March, 1913, p. 162), and Kopetsky's researches on spinal fluid analysis. The effort is made to discover by the diminution of the carbohydrates in the fluid, and an increase in the solid content, more especially that of proteins, with a changed cell count, evidence of meningitis earlier than our methods have permitted us to recognize it. At this early stage, Haynes recommends drainage of the meninges through the fourth ventricle by an entrance through the occipital bone in the mid-line where he enlarges the foramen magnum, incises the dura, and inserts drainage to the ventricle. Theoretically the operation promised a very material advance, and a few successful cases have been reported. Dench (*Laryngoscope*, Sept., 13) gives voice to the general conservative opinion in his review of three cases which were selected by him as favorable cases for this operation. All developed frank meningeal symptoms and ultimately died. He concludes that though theoretically the operation is ideal in effecting drainage here, it is a question whether it will offer the means desired for controlling this practically hopeless complication in otitic surgery.

And now Kopetsky has read a paper (Amer. Medical meeting, 1914, and Triological meeting, 1914) stating his conclusion that this operation does not yield the results hoped for and that he has given it up. With this evidence against it the operation will not longer be accredited; but it must none the less stand as a splendid and logical effort toward the control of otitic meningitis.

Ewing W. Day (*Laryngoscope*, Nov., 1913) reports eight cases unsuccessfully operated by this method and gives the post-mortem findings. He concludes that drainage of the cisterna magna hinders the development of a diffuse meningitis over the hemispheres, prevents the accumulation of inflammatory exudate in the subdural spaces, but appears to have no effect upon the accumulation of pus in the pia-arachnoid and does not influence the progress of the infection at the base of the brain. The accumulation of pus here was present in all of the post-mortems.

In a discussion before the Royal Society of Medicine, Milligan (*Jour. Laryng.*, Jan., 1913) takes up the condition and reactions of the spinal fluid in meningitis. Under normal circumstances the fluid is under 20 to 30 mm. pressure, has an alkaline reaction, and a specific gravity of 1005 to 1008. A bacterial invasion of the fluid lessens the alkalinity or changes it to acid, a useful bedside test as to the progress of the disease. Attention is drawn to the presence of a cerebral anemia as a result of increased intra-cranial tension. This tension should be relieved by spinal puncture. This factor the author feels is not enough appreciated as being frequently a determining one in the course of the disease. He has found a slight cutting off of the upper tone scale in the good ear to be a frequent occurrence which he accounts for by this same increase in tension and in the brain anemia.

J. Stoddard Barr reported an interesting experiment before the Otol. Section of the British Med. Asso. in October, 1910. By means of a lumbar puncture needle in situ and another into the lateral ventricle through a trephine opening above and behind the left ear, he irrigated a carbol-fuchsin solution through the meningeal tissues in a child, post-mortem. He used pressure gained by holding the solution supply two inches above the head. Examination of the brain afterwards revealed the stained fluid not only in the third and fourth ventricles and the subarachnoid space and cerebro-medullary cistern, but it passed forward into the inter-peduculated cistern, upwards along the sylvian fissures over the anterior ends of the temporosphenoidal lobes, and even along the vaginal sheath of the optic nerves. The question arising would be as to whether living tissues would permit of so extensive and free an irrigation under so little pressure.

INTERNAL EAR.

The Cochlea.—Hearing in Infants.—Constantin of Marseilles (*Jour. Laryng.*, July, 1912, p. 1) and Kutwirth of Prague (*Archiv*, 84, 3, p. 206) report conclusions concerning the amount of hearing present in the normal infant. The former quotes Kölbreuter: that the child cannot distinguish as deep sounds as the adult, and Rudolphi: that the newborn has a very obtuse auditory sense, the cavities being filled at first with an organized mucous tissue which persists some weeks after birth. Kölbreuter (using Körner's "cricri") claimed that the newborn child reacted during the first 24 hours of life, and

that 74% only acted at the end of from 2 to 14 days.

But Kutwirt does not support these views. He examined 229 babies, 61 of whom were between one-half and ten hours old. After ruling out all those who were sick or who offered any possibility of inaccuracy in the findings, there were still left 111 children between the ages of one-half hour and ten weeks. The test used was made by striking a fork with a percussion hammer; 70% reacted to the test, whether awake or asleep, by showing restlessness, winking, contracting of the forehead, etc.; 48.6% of those under 24 hours old responded to the stroking of the c^1 fork and 23.3% to that of the c^2 fork. Though such tests of necessity cannot be absolute in their accuracy, the author concludes that hearing is at least as early developed as is the sight.

Occupation Deafness.—Joehne (*Archiv*, 84, 2) made tests on the entire officers' corps in a regiment of foot artillery at Strassburg. He conducted the tests several months after the last gun-firing practice of the year, that the hearing might have a chance to recover from the transitory ill-effect of the firing. 61 were so tested with results as follows: 19 showed normal hearing,—in 3 the gun practice had evidently nothing to do with the deafness,—in the remaining 39 there was a pure involvement of the cochlear nerve, unilateral in 20, bilateral in 19. Anatomically this would be a chronic degenerative neuritis. Clinically, there was damage to the perception of c^4 and c^5 without impairment of the upper tone range. Rarely an involvement of tones by octaves was present.

Otosclerosis.—A great deal has been written on the subject of otosclerosis and with the reporting of individual cases and theories together with the scientific investigation being done by a great many, particularly in Europe, we find ourselves still in the dark as to the etiology and treatment but much more conversant with the pathology. Froeschels gives "a review of recent literature" on the subject (*Zentralblatt f. Ohrenheilkunde*, Mar., 1911). Since then Politzer, Siebenmann and Manasse have contributed much to our scientific knowledge while Alexander, Denker, Hammerschlag, Bruehl, Habermann, abroad and many here, have discussed the clinical phases of the disease. In the etiology there are two main schools, the one holding that the disease is primary in the bony labyrinth, while the other claims that the middle ear plays at least a part in the pathology. In the latter group Habermann is perhaps the leader while such men as Bezold, Scheibe, Politzer, Brühl, Siebenmann, and Manasse support the former theory, and Katz, Toynbee and Schülling consider the condition to be a toxic arthritis of the stapedo-vestibular articulation. Treatment is based on according to what is considered the underlying cause in the disease's progress. A few individual references may be noted though we find ourselves forced to acknowledge that the description of this condition given nine years ago embraces the most of our clinical knowledge of the disease at the present day, and interestingly enough, Valsalva recognized the ossification of the ligumentum annulare as a cause of deafness as early as the eighteenth century.

Boucour (*Archiv*, 85, 1 and 2) working in Alexander's clinic points out that it is difficult to differentiate the middle ear from the internal ear as the original seat of otosclerosis because so many cases undoubtedly have their origin in the middle ear. Ferreri (*Archiv*, 84, p. 126) considers that otosclerosis may begin in embryonic life and suggests that treatment be based on the different causative possibilities: anti-luetic if the Wassermann reaction is positive,—anti-arthritic if there is a gouty diathesis,—diatetic if there is a glycosuria,—and by innoculation with cultures gained from the bones of rachitic children if it is rachitic in nature (in this last he reports some success and wishes to carry his investigation further).

Alt (*Archiv*, 84, 3, p. 188), in contradiction to Passow's position, claims traumatism never produces otosclerosis or aggravates the typical form. He examined 100 cases of occupation deafness in men from the blacksmith and analagous noisy trades. Vestibular symptoms were almost never found—the cochlea alone being involved. Politzer on the other hand, grants that a severe shock to the labyrinth may hasten the development of otosclerosis. Urbantschitsch thinks an injury can aggravate but not cause otosclerosis.

Brühl (*Jour. Laryng.*, June, 1911, p. 294) thinks that otosclerosis is analagous to the hereditary trait in some of the formation of osteomata, and calls attention to the fact that the relative position of the tensor tympani muscle as it passes in front of the oval window over the arciform fasciculus, and the greater motility of the anterior part of the footplate of the stapes, are factors present in all ears and hence could not be considered causes in otosclerosis.

For internal medication: Politzer recommends small doses of potassium iodide: Siebenmann uses phosphorus: and Denker (*Annals* March, 1913, p. 1) tells of success with phytin (a form of phosphorus).

(To be continued.)

Cases of Infectious Diseases reported to the Boston Board of Health for the week ending Sept. 29, 1914: Diphtheria, 48, of which 2 were non-residents; scarlatina, 34, of which 3 were non-residents; typhoid fever 14; measles, 9, of which 1 was non-resident; tuberculosis, 29, of which 1 was non-resident. The death-rate of the reported deaths for the week was 15.21.

Reports of Societies.

AMERICAN GYNECOLOGICAL SOCIETY.

THIRTY-NINTH ANNUAL MEETING, HELD AT BOSTON, MAY 19, 20 AND 21, 1914.

The President, DR. J. WHITRIDGE WILLIAMS, of Baltimore, in the chair.

(Concluded from page 510.)

GENERAL PRINCIPLES OF THE MECHANICS INVOLVED IN THE CAUSE AND SURGICAL RELIEF OF DOWNWARD AND BACKWARD DISPLACEMENT OF THE UTERUS.

DR. GEORGE H. NOBLE, of Atlanta, Georgia, spoke of the measurements of intra-abdominal pressure in the abdomen and vagina of normal subjects and compared the same with the tests made in cases of cystocele, rectocele and procidentia. He spoke of the anatomy, arrangements and comparison of uterine supports and the effect of force upon them, and the results of relaxation, whether due to mechanical force or inflammatory disease. He referred to the resistance offered by the pelvic organs and the pelvic floor to the force originating in the abdomen, its decrease and absolute loss following lesions of the pelvic floor. No single set of ligaments was sufficient to support the uterus, and no single operation would meet the indication of surgical repair in all cases. He described the operations suitable to various lesions and conditions.

THE CLINICAL RESULTS IN THE TREATMENT OF PROCIDENTIA OF THE UTERUS BY THE INTERPOSITION OPERATION.

DR. THOMAS J. WATKINS, of Chicago, drew the following conclusions: 1. Vesico-uterine transposition should be made before much protrusion through the vaginal orifice resulted, as the prolapse rapidly increased after this took place; the more the prolapse, the greater the dangers of recurrences following the operation. 2. Vesico-uterine transposition cured cystocele, the most important pathological feature. 3. An occasional recurrence of the uterine prolapse would occur, except in cases where the vaginal canal could be practically obliterated. This recurrence, however, was not serious, as it could be easily remedied. 4. The operative technic should be adapted to each individual case.

A STUDY OF THE END RESULTS OF INTERPOSITION OF THE UTERUS.

DR. JOHN OSBORN POLAK, of Brooklyn, New York, said that the normal supports of the uterus might be enumerated as follows: 1. The uterine ligaments, especially the utero-pelvic and utero-sacral, which maintained the cervix in its normal position. 2. The pelvic floor and pelvic fascia, which made the pelvic diaphragm. 3. The supporting action of the adjacent pelvic organs. 4. The action of the intra-abdominal pressure. And, finally, the axial relation of the uterus to the vagina.

He drew the following conclusions:—

1. That interposition should be limited to women at or past the menopause, with a relatively small uterus, and that when the procedure was elected in those still menstruating, sterilization by tubal ligation should be done at the time of the operation.

2. The cases of prolapse in which sliding took place in the postpubic cleavage plane, were not corrected by this procedure.

3. That the morbidity was wholly due to technical defects, namely, improper preparation, imperfect hemostasis, vesical injury, etc.

4. That in anteverting the uterus the anterior wall of the uterus should rest on the fascial plate just behind the pubis, the fundus should not be brought under the arch, as excessive anterior displacement not only favored recurrence, but anteflexed the uterus and interfered with drainage.

5. That the curettings from uteri about to be transposed should always be examined, as degeneration might occur, and hysterectomy was easy after this operation.

A FURTHER DEVELOPMENT OF AN ORIGINAL TECHNIC FOR SEPARATELY UNITING THE FIVE STRUCTURES INJURED IN LACERATIONS OF THE PELVIC FLOOR.

DR. BARTON COOKE HIRST, Philadelphia, said that for a number of years in his clinic in the University Hospital of Philadelphia, he had had the recently delivered women placed upon an operating table in the dorsal gynecological position and anesthetized. This had been done in different series of patients on every day of the puerperium up to the seventh. As a result of this study, embracing hundreds of patients, it was possible to state the following facts in regard to lacerations of the pelvic floor: The pelvic fascia over the levator ani muscle showed a split running parallel with the descending ramus of the pubis; the levator ani was torn loose from its attachment to the pubis and ischium, the injury began close to the bone and ran downward and inward toward the mid line of the posterior vaginal sulcus; the fascia between the levator and the deep transversus perinei showed a triangular split with the apex above.

This deep transversus perinei was torn apart in the middle line and the two halves were retracted so that there was a gap between the ends of an inch or more; the junctions of the two halves of the superficial transversus perinei and of the bulbocavernosis muscles were torn apart if the perineal body was injured, as was commonly the case in laceration of the perineum.

These facts being established, and it was only necessary to look at a sufficient number of recently delivered women to establish them, the rest of the problem was easy of solution. Such a denudation of the injured region must be made in secondary operations as to expose the component and anatomical parts, and then these component structures should be united separately at the site of the injury and restored to their original condition. But in either case the levator ani must be exposed by cutting through the pelvic fascia, under which it lay. There the belly of the muscle was attached to the portion arising from the pelvic bones; the deep transversus was brought out of its cavity, in which it had retracted, and was united in the middle line; the pelvic fascia between the levator and the deep transversus was united, and finally the perineal body was repaired.

For convenience of illustration the sutures were represented as interrupted, but as a matter of fact, the buried continuous tier catgut was used for the levator and the fascia; buried interrupted for the deep transversus and perineal body. The skin of the perineum was finally united over the catgut sutures by Michel's clamps.

PRESIDENT'S ADDRESS: HAS THE AMERICAN GYNECOLOGICAL SOCIETY DONE ITS PART IN THE ADVANCEMENT OF OBSTETRICAL KNOWLEDGE?

Dr. J. Whitridge Williams, Baltimore, stated that in the conversion of Cesarean section from the most dangerous operation in surgery to one whose results were so good, it was in imminent danger of being abused by "knife-loving" obstetricians, and by surgeons who knew nothing of the resources of obsterics. The early accounts of tardy operations for the removal of a dead child from an exhausted and infected woman stood in marked contrast to the first elective operation performed by Lusk in 1887, but particularly to the long series of successful operations which were afterwards reported by many of the members.

One of the most interesting phases of obstetrical history was afforded by the 51 papers upon extrauterine pregnancy. In these one could trace the evolution of a pathological curiosity into a condition of everyday occurrence.

For purposes of analysis he classified the 346 obstetrical papers into 32 groups and presented them in tabular form.

One of the most important factors in the lack of productivity was to be found in the system of medical education. Until recently university ideals were entirely lacking in the medical schools, and even now in many institutions affiliated with universities the connection was purely nominal.

How many obstetrical departments were provided with proper accommodations for a sufficient number of patients for the instruction of students, with adequately paid and enthusiastic assistants, or with suitably equipped laboratories for research work, not to mention a salary for the director in any way commensurate for the ability and efforts necessary to supervise the work in anything like an ideal manner? Real university departments were just beginning to be organized in some other branches of medicine, but he knew of none in gynecology or obstetrics.

From extensive investigation he knew that in most of the schools obstetrics was the least well cared-for department, and must ordinarily be content with what was not wanted by others, while the professor was frequently regarded by his colleagues as being engaged in an almost unworthy pursuit. No doubt some professors were poorly trained and fulfilled their obligations lightly, but he knew many who took them seriously and who felt depressed whenever they considered the status of their department and their inability to do better work. So long as such conditions existed it was scarcely conceivable that many professors would be scientifically productive or would often be able to induce promising young men to devote themselves seriously to this branch of medicine, for the few men in this country who were really doing their duty, did so with great personal sacrifices and against odds with which they should not have to contend.

A third reason for the low state of American obstetrics was that this was the only country in the civilized world in which obstetrics and gynecology were sharply divided.

While it was debatable whether a union of gynecology and obstetrics was feasible for those engaged in private practice, or would materially improve the matter in most medical schools at at present organized, there was no doubt in his mind that the professorial chairs in the university medical schools need to be filled by broadly trained scientific men, who were prepared to give their time to their duty.

THE CLINICAL MANIFESTATIONS OF DISEASE OF THE GLANDS OF INTERNAL SECRETION IN GYNECOLOGICAL AND OBSTETRICAL PATIENTS.

Dr. Robert Tilden Frank, of New York, gave a summary review of the influence of the individual glands of internal secretion (exclusive of the ovary) on (*a*) the anatomy of the genital organs, (*b*) the function of the genital organs, and (*c*) the secondary sex characters.

He pointed out the differences of effect ascribable to the interaction of the various glands, the effects ascribable to the ovary, etc.

IODIN AS A STERILIZING AGENT IN SUPRAVAGINAL HYSTERECTOMY, WITH REMARKS UPON MORBIDITY.

Dr. I. S. Stone, Washington, D. C., said he would not deal with the nearly perfect results of skin sterilization, but the application of iodin and alcohol to the vagina and uterine mucosa had been productive of results which appeared to approach the ideal. The patient was brought to the operating table after the proper examinations had been made which showed her condition to be satisfactory for operation. She was placed in the lithotomy position, and a 25% (1.75 iodin) diluted alcoholic tincture of iodin was applied over the genitals and introitus vaginae. The catheter was used immediately after this, and a perineal retractor introduced into the vagina and a volsellum used with which to grasp the cervix. The cervix was dilated to admit the conical nozzle of a two-ounce glass syringe. An ounce of the same 25% alcohol solution was then slowly injected into the cavity of the uterus. The fluid was not allowed to remain as low nor was great force used. After the injection the cervical canal should be again gently dilated to make sure of the discharge of the excess of the solution. Every part of the vagina was exposed, and the assistant who made this application to it made this feature of the technic an important one. The operation was preceded by a second application of iodin to the skin over the abdomen, the first having been made before the anesthetic was given. After this the operation was proceeded with as usual, and a final application of the iodin alcohol was made to the stump before closing the flaps if there was the slightest intimation that infectious matter had been handled, such as in an appendix, pus tube, etc. Finally, the iodin solution was applied over the closed abdominal incision before the usual gauze dressings were applied.

COMPLETE STERILIZATION OF THE SKIN BY IODIN.

Dr. J. Wesley Bovee, of Washington, D.C., related that in ten instances between May 9 and June 17, 1913, scrapings were made from skin prepared by the alcoholic solution of iodin (31.2%) and then subjected to thorough scrubbing with a strong solution of hyposulphite of soda until the iodin color was gone, the patients being anesthetized at the time for operation. The technic and findings were as follows. The following four specimens were used in the tests in each of the ten cases. 1. A small amount of the solution of hyposulphite of soda was put in a bouillon tube as a control. 2. Skin scrapings two minutes after the application of the second coat of iodin were put in some bouillon in

tubes. 3, Same as 2, except scrapings were made five minutes after second painting. 4, Skin scrapings from the same field after thorough washing, scrubbing and decolorizing by the sterile hyposulphite solution.

At the end of five days' incubation for the 40 specimens from the ten patients showed absolutely no growth.

In attempting to determine whether perfect sterilization of the skin could be produced by the painting with iodin, the following technic was used in preparing the specimens for the bacteriologist. The skin was lightly painted twice (the patient being anesthetized for operation) with the iodin preparation and a strip of skin four inches by one-half to one inch was cut from the median line of the abdomen two minutes after the last coat was applied. This strip was at once dropped into a container in which was one quart of normal salt solution. Some of the same solution was previously put into a bouillon tube as a check. The tube and large container were taken to the laboratory and turned over to Dr. Briggs. In case No. 1 the iodin was of 10% strength, but in all of the other 11 it was the same as he had used for four years in surgical operations, 31.2%. The interim between the coats varied from 16 to 92 minutes and the number of experiments was 12. In the last five a vigorous culture of bacillus subtilis was rubbed into the skin, to be removed 13 to 18 hours before its removal, and the area covered with a sterile dressing until the first coat of iodin was applied. These specimens were all transported a mile and not particularly well wrapped, which might in a measure account for the contamination of the control solution in three cases.

This report showed that the salt solution containing the skin pieces was not inhibitory to bacterial growth; that the skin was sterile in practically every case, the few instances of growth being reasonably attributed to contamination, and that the bacillus subtilis was killed. The spores of this latter species were known to be remarkably resistant, being able to withstand a 1-1000 solution of mercuric chlorid for periods up to one hour. This notable resistance prompted their employment in this series of experiments. He had not been convinced that a 10% alcoholic preparation of iodin would not destroy these spores in from 2 to five minutes, even when painted on the skin. He was inclined to believe the extent of the germicidal power of the iodin depended more than a little on the manner of its application as well as upon the strength of the solution used. If the coating be made at first thick, before a thin one is allowed to dry, penetration should be deeper or the deep penetration more perfect. If a thin coating was made the skin recesses might be but partly filled, and when evaporation of the iodin had occurred a thin, impermeable barrier of iodin was left. Whether this layer was free iodin or an albuminoid he was not prepared to state at this time. He expected later to determine whether a preparation of iodin stronger than used in this work would destroy the spores of the bacillus subtilis in the skin recesses.

THE BEHAVIOR OF THE ABDOMINAL CUTANEOUS REFLEXES IN ACUTE CONDITIONS WITHIN THE ABDOMEN AND PELVIS.

DR. RICHARD R. SMITH, of Grand Rapids, Michigan, said the behavior of this reflex had been noted in 175 cases in which diseased processes existed within the abdomen. The greater part of them were acute. The results had been compared with the findings at the operation which followed. This reflex and its behavior had been a test frequently used by neurologists, and attention had been called to it in local conditions within the abdomen by several writers. The reflex was obtained by stroking the skin of the abdomen, which normally produced an almost simultaneous contraction of the rectus and oblique muscles on the corresponding side. It was common to distinguish four reflexes,—two above and two below. The reflex was very constant in healthy young people, though uncertain in very young infants and in old people or those with very relaxed or very obese abdominal walls,—exceptions which might be definitely borne in mind. In the acute inflammatory diseases within the abdomen it was common to find this reflex involved to a greater or less extent, and the test might be made use of in the diagnosis and in estimating the extent of this lesion.

He had found that in 75 cases of acute appendicitis the reflexes were more or less involved in 65. It was sometimes involved where rigidity was absent. The reflex was commonly impaired over the seat of the lesion when circumscribed, and in more extensive processes the other reflexes were also impaired. It was commonly, though not uniformly, involved in ectopic pregnancy cases. Its normal presence in cases of bowel obstruction would help to eliminate any acute infectious condition, and in the subacute infections of the pelvis he found the lower reflex almost uniformly absent. He believed that, although the test had a certain limited view, it might be of distinct advantage to the surgeon, and it was well worth his careful study.

Book Reviews.

Saunders' Question Compends. Essentials of Nervous Diseases and Insanity. By JOHN C. SHAW, M.D., late clinical professor of diseases of the mind and nervous system, Long Island College Hospital. Fifth edition, thoroughly revised by LOUIS CASAMAJOR, M.D., chief of clinic, New York Neurological Institute. 12mo., 187 pages, illustrated. Philadelphia and London: W. B. Saunders Company. 1913.

The frequent editions of these question compends show they meet a demand, however one may regard its legitimacy. This little manual contains a surprising amount of information, and a fairly careful review has shown a high degree of accuracy in statements and views. The chief failures are due to the brevity and the plan of the book, which is practically a condensation of the larger text-book descriptions of the various nervous and mental diseases.

Nasal Accessory Sinuses. Development and Anatomy of the Nasal Accessory Sinuses in Man. Based on 290 lateral nasal walls, showing the

various stages and types of development from the sixtieth day of fetal life to advanced maturity. By Warren B. Davis, M.D., Corinna Borden Keen, Research Fellow, Jefferson Medical College, Philadelphia. Octavo of 172 pages, with 57 original illustrations. Philadelphia and London: W. B. Saunders Company. 1914.

This is a monograph embodying careful anatomical work based on the study of 26 embryos and fetuses and 101 post-natal heads, most of them of infants and children. It is illustrated by 57 excellent drawings which bring out clearly all important points. Using these freely to explain the text, the author describes the development of the accessory sinuses, in a manner which is easy to follow and which covers the subject thoroughly without being tedious. He frequently points out details in which he coincides or differs from other authorities, but the conclusions are derived from his own work. The book is a valuable one for any man who has any reason for being interested in the academic or the practical aspect of the nasal accessory sinuses.

Beriberi. By Edward B. Vedder, A.M., M.D., Captain Medical Corps, U. S. Army, etc. The Cartwright Prize of the Alumni of the College of Physicians and Surgeons, Medical Department of Columbia University, for 1913. Illustrated. New York: William Wood and Company, New York. 1913.

The author of this monograph, published by permission of the Surgeon-General of the United States Army, was a member of the Army Board for the Study of Tropical Diseases as they exist in the Philippines, from December, 1910, to April, 1913. The book comprises the results of clinical and experimental study of the disease beriberi, as observed particularly in the Philippines. It is, perhaps, the most valuable résume of our knowledge of this disease, which has long eluded investigation, particularly on its etiological side. In general, it is an admirable critical review of the entire subject from the most modern clinical and laboratory standpoint. One of the most valuable portions of the book is, naturally, that which discusses rice and its preparation, and the chapters on the etiology, with the general conclusion that avian (polyneuritis) is the same disease as human beriberi, inasmuch as the condition is not confined to birds and man, but may be produced by a polished rice diet in a number of other animals; and, secondly, that beriberi is caused by a too exclusive diet of polished rice, or by any other diet lacking in the vitamines necessary for normal metabolism, particularly of the nervous system. The various types of the disease, as for example, infantile beriberi, ship beriberi, and epidermic dropsy, are discussed in detail. The book is admirably illustrated and concludes with an extensive, though not absolutely complete, bibliography, and an appendix summarizing historical and experimental facts. The volume brings our knowledge of this increasingly important disease up to the year 1913, and settles the main points of its etiology and dissemination.

Local Anesthesia. By Dr. Arthur Schlesinger, Berlin. Translated by F. S. Arnold, B.A., M.B., B.Ch. Oxon. Illustrated. New York: Rebman Company. 1914.

Krohn's English translation of Hirschel's excellent German "Text-Book of Local Anesthesia" was reviewed in the issue of the Journal for Aug. 20, 1914 (Vol. clxxi, p. 317). Arnold's version of Schlesinger's work presents to English readers a smaller handbook concerned rather with technic than with anatomic details. It is illustrated with 22 text cuts and should prove useful as a convenient manual for practitioners.

Mental Diseases. A Text-Book of Psychiatry for Medical Students and Practitioners. By R. H. Cole, M.D. (London), M.R.C.P., Physician for Mental Diseases to St. Mary's Hospital, etc. pp. 343. University of London Press: Hodder and Stoughton. 1913.

The scope of this work is limited to the delineation of the salient features of our knowledge of psychiatry and the author's own experience and practice is modestly sacrificed to the treatment of the subject from a general standpoint. There are few original points of view to interest the psychiatrist, but the work will undoubtedly prove to be an excellent syllabus for students who attend the author's classes. It has a distinct flavor of the old school of psychiatry. "Secondary Dementia," for example, is given a separate chapter in which various psychoses are so labelled and thus robbed of their proper title for no other reason than a modification of the symptoms of the original disease, a confusional, manic-depressive or other psychosis, thereby losing its identity and becoming "secondary dementia." One might with equal reason drop the name general paresis when terminal dementia appears in the course of that disease. Dementia precox is well sketched as to symptoms and varieties, but hardly enough stress is laid upon its tendency to progress by the way of attacks or episodes with remissions, an important point in prognosis. The latest developments in the psychology and pathology of mental disease receive due attention. There are good chapters on the legal relations of mental disease and treatment and the book is well illustrated.

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THE NEW MASSACHUSETTS COMMISSIONER OF HEALTH.

THE action of Governor Walsh in appointing to the new position of Massachusetts Commissioner of Health Dr. Allan J. McLaughlin, Surgeon, United States Public Health Service, calls forth praise from all who are in touch with the needs of the State at the present time. The Governor met ninety physicians representing the Massachusetts Medical Society, the Massachusetts Homeopathic Medical Society and the Massachusetts Eclectic Medical Society, at the Boston Medical Library, May 15, 1914, and announced then his intention of appointing as commissioner the best expert in health matters he could get, provided the proposed bill reorganizing the state board of health was indorsed by the profession and became a law. At this time it was thought that Surgeon Victor G. Heiser of the Public Health Service, stationed in the Philippines, would be available. He, however, preferred to take the lucrative position offered by the Rockefeller Institute for Medical Research, which would carry him back to Manila for the completion of work already begun, while Dr. McLaughlin, who was offered this same position, declined it and was willing to assume charge of our health problems in Massachusetts.

The State is under a debt of gratitude both to the Governor and to the public spirited gentlemen who assisted him in getting the government to grant Dr. McLaughlin a five years' leave of absence from the Public Health Service that he might serve us. We shall expect our State health department, when it has been completed by the forthcoming appointment of an advisory council of six members, to enter on a course which will add still other laurels to those obtained by the original Massachusetts State Board of Health.

Dr. McLaughlin, whose home is in Washington, D. C., is forty-two years old, is a native of London, Ontario, and was educated in the London Collegiate Institute. He moved to Detroit and became a registered pharmacist in that city in 1892. Taking up the study of medicine he was graduated from the Detroit College of Medicine and Surgery (Class A College, M.A. rating) in 1896. After practising medicine for three years in Michigan he studied for four months at the New York Polyclinic and in 1900 was commissioned assistant surgeon in the United States Marine Hospital Service in New York City, being assigned for two years to the barge office and Ellis Island stations. In May, 1902, Dr. McLaughlin was ordered to the government laboratory of hygiene at Washington. From there he went to take charge of a medical ward in the Marine Hospital in New York City. In 1903, being commissioned a passed assistant surgeon, he was ordered to Naples and then to Hamburg and Berlin to study cholera. Next he studied the plague in Trieste in the year 1906. In 1908 he was appointed assistant professor of hygiene and public health in the Philippine Medical School. During his stay in the Philippines, in addition to routine work, such as suppression of cholera, vaccination, problems of leprosy and the sanitation of Manila, Dr. McLaughlin was responsible for the following special pieces of work which have had distinct influence on health conditions: Development of the sanitary barrio; a better understanding of the significance of the bacillus-carrier in the spread of cholera; demonstration of the influence of beriberi on infant mortality; demonstration that acute meningitis credited with 4,000 deaths in ten years, was a rare disease and that most of these alleged meningitis deaths were due to beriberi, cholera and other diseases; special laboratory work on cholera, and transfusion experiments in the treatment of Asiatic cholera. He remained in the Philippines until the end of 1910, when he re-

turned to the laboratory of hygiene at Washington, having special charge of an investigation of sewage pollution of interstate and international waters with special reference to the spread of typhoid fever.

In this work Dr. McLaughlin has been engaged up to the present time, having contributed several important papers to the medical press on the topics which he has been studying. His present rank in the Public Health Service is surgeon, being outranked only by the surgeon general and by the fifteen assistant surgeon generals.

THE DIFFERENCE BETWEEN SUGGESTION AND PERSUASION IN PSYCHOTHERAPY.

The object of this editorial is not to discuss the relative merits and advisability of application of the procedures here briefly described, but merely to point out their essential qualities and their main points of difference. In general, psychotherapeutic methods are divided into three classes,—direct suggestion, persuasion, and highly elaborated psychoanalysis, the latter of which it is not our purpose to discuss at this time. It is important, in practice, to understand the differences which exist between suggestion and so-called persuasion.

Suggestion has been defined as the uncritical acceptance of an idea and its realization in action. In other words, by direct suggestion we pretend to introduce into the consciousness of the subject certain new ideas or to destroy old or existing ideas; and this, without the patient's consent or judgment. Direct suggestion, whether given in the waking state or while in the hypnotic state, is addressed to the subconsciousness of the individual, to the psychological automatism. The patient is placed in a condition of receptivity, either in the waking state, with or without any efforts at stage setting, the ticking of a metronome, crystal gazing or what not, or in the hypnotic state. The patient is not supposed to discuss anything, but, on the other hand, must, without reasoning and without any psychic reaction on his part, accept the suggestions which are directly offered him. These suggestions are chiefly put in the form of affirmations, since efforts at argumentation or demonstration would arouse the reasoning powers and excite a reaction. These affirmations are best put in the form of short sentences, the physician offering new ideas or ideas opposing the symptoms or ideas which the patient may present. The entire procedure is generally surrounded with an atmosphere of symbolism, artificiality and mystery. Auto-suggestion no doubt usually plays a prominent rôle in the results obtained.

Persuasion, on the other hand, is quite a different matter. By means of persuasion new ideas are introduced with the consent of the subject, and if, as a result of the treatment, the patient improves and gradually recovers, he does so after reflection and with more or less full knowledge of the cause. Contrary to the method by which suggestion may work, when we come to persuasion there is, as Dejerine and Gauckler (The Psychoneuroses and their Treatment by Psychotherapy, p. 283) have put it, "no more stage setting, no more drawn curtains, no more closed shutters—nothing which would be calculated to impress the patient." Here we maintain the natural conversational attitude, the old familiar manner of talking things over confidentially and fully, in which the physician must exert his good, sound common sense and his knowledge of human nature, and the patient must be willing to be frank and confidential. By persuasion we attempt to explain to the patient the true reasons for his present condition and for the various symptoms which he presents. It further endeavors to establish the patient's confidence in himself and to strengthen his self-control. An appreciation of the method by which he became ill and of the cause for his symptoms must be given to the patient so that he understands and believes. An appeal is made to his reason and will, but the patient is asked to believe what is told him concerning the genesis and evolution of his condition, concerning his mental and moral deficiencies, not as articles of blind faith but as a result of reflection and understanding.

From the above statement of these two methods so widely employed in psychotherapy, it may be noted that suggestion tends to restrict the personality; it does not treat man as an intelligent, rational, mature, thinking, self-willed human being; it does not show him that he is a free human being, responsible, powerful, independent, self-sufficient. Suggestion tends rather to make the patient dependent, and its curative results are comparatively temporary, with a tendency toward relapse. Persuasion, on the other hand, permits the personality to develop, gives

an opportunity for the exhibition of will and independent action, for the development of self-confidence, for the means of getting well through one's own efforts, and for an actual cure. If the patient has been treated wisely and efficiently by persuasion, once cured, he may be trusted to care for himself with a feeling of safety, of confidence in his own powers and an assurance of greater self-sufficiency. Both of these methods find their field of application. Persuasion is, of course, always the more desirable procedure. But there are certain patients with whom this method cannot be used, and suggestion should be employed. The physician should, however, use these methods only with a thorough understanding of the manner in which they produce their respective results.

PROGRESS OF RELIEF ACTIVITIES IN THE EUROPEAN WAR.

The American hospital relief ship, *Red Cross*, which sailed on Sept. 30 from Falmouth, England, arrived on Oct. 1 at Pauillac, France, where the units detailed for service in that country were landed. Thence the ship sailed for Rotterdam, where she arrived on Oct. 6 and landed the German and Austrian contingents, together with 40 tons of medical and surgical supplies for Belgium. The Russian unit of the American Red Cross reached London from Falmouth on Sept. 30, and on Oct. 2 left by train for Dundee, Scotland, whence it embarked for Bergen, Sweden, aboard the *Balder*. From Stockholm it will proceed by rail to Petrograd. Of the two units which remained in England, one, under Dr. Howard Beal, of Worcester, Mass., has been assigned to the American Woman's Hospital near Torquay, Devonshire; the other, under Dr. Robert W. Hinds, of Buffalo, N. Y., to the Royal Military Hospital at Netley, near Southampton, Hampshire. The Servian unit under Dr. Edward W. Ryan, which sailed from New York aboard the Greek ship *Ioannina* on Sept. 9 reached the Piraeus, Athens, on Oct. 2 on its way to Nish.

On Sept. 25, the American Red Cross issued at Washington, D. C., the following statement of its receipts and expenditures to date in fitting out the first relief expedition.

"Transportation of 171 surgeons and nurses from their homes to New York, by sea to Europe, by land from ports of debarkation to destinations in England, France, Germany, Austria, Russia and Servia, outfits of uniforms and personal equipment, subsistence, salaries for six months and return to the United States; also transportation by sea and land of 35 carloads of hospital and surgical supplies, $200,000.

"Purchase of hospital and surgical equipment and supplies, $40,000.

"Special funds given for transmission to specified European Red Cross societies and other especially indicated purposes, $40,000.

"Approximate total of expenditures already made and obligations incurred, $280,000.

"Total receipts to date for war relief fund about $332,000.

"It is apparent the American Red Cross will be able to accomplish little more than already undertaken unless a large amount of additional contributions are received."

On Oct. 2 the Massachusetts Red Cross Fund reached a total of $24,815.18, and the New York fund a total of $184,830. The fund for the American Ambulance Hospital, at Neuilly (Paris) amounted on that date to $58,986. On Sept. 30 seven young volunteer American surgeons sailed from New York aboard the *Adriatic* for field service as members of the Neuilly Hospital Corps. American women resident in London have presented the British government with six motor ambulances for use on the continent. Report from Madrid on Sept. 27 states that the Spanish government has offered accommodation for 30,000 wounded soldiers of all nations.

"The Hungarian Red Cross Society, whose aim has always been to keep itself in constant readiness to take the field, issued shortly before war broke out a circular in which it was stated that in the event of war Hungary would probably find herself responsible for 100,000 wounded and 250,000 sick soldiers, many of whom would be Hungarian subjects. The circular further stated that it had been estimated that, in addition to those of the military nurses, the services of some 7,000 civilian nurses would be required to meet this sudden demand; and since the number exceeded the total number of trained nurses throughout the whole of Hungary, it was obvious that it could not be recruited from the ranks of the nursing profession alone. Even when the country was at war the work in the general hospitals would have to be carried on as usual, and if, as was quite likely, an epidemic broke out, would become considerably heavier; it was therefore a matter of necessity to obtain the assistance and coöperation of all women who were willing to offer their services as nurses in time of war. The response to this appeal was both prompt and gratifying. In almost every town in Hungary courses of lec-

tures were at once organized, and held in the wards of the local hospitals, and at the conclusion of each course the candidates were examined in the presence of a delegate of the Red Cross Society and other civil and military authorities."

The outbreak of Asiatic cholera in Hungary is fraught with the most serious medical possibilities of any event since the beginning of the war. Report from Budapest states that 15 new cases were discovered in that city on Sept. 28. Unless this outbreak can be immediately controlled, there is grave liability of its spread to all armies in the field, and, through neutral shipping, to foreign ports in non-combatant countries. In New York on Sept. 29 the following precautionary measures were taken:—

"In a special order to boarding officers, Dr. Joseph O'Connell, health officer of the port of New York, instructed them to make the most rigid examinations of all vessels, passengers, and crews coming from ports on the Adriatic Sea east of the Italian boundary, on the Ionian Sea, the Aegean Sea, the Mediterranean east of Italy and the Black Sea. Dr. O'Connell was advised by cable that similar precautions against those ports had been taken by the Italian Government."

The Boston Health Commissioners issued on Sept. 30 the following statement of their similar provisions:—

"In Boston the Health Department has all the facilities for the examination, treatment and care at Gallups Island of all immigrants that may come from cholera-infected ports. This was shown about three years ago, when immigrants from Southern Europe were detained in numbers as high as 1200, examined, housed and fed until result of examination was known by our laboratory."

"So thorough and expeditious was this work that the department earned the praise of the steamship companies, the Italian Government, and the United States Public Health Service. Consequently, Boston seems well prepared to do this work again, and there need be little fear of the entrance at this port of anybody suffering with this disease."

CONTINUOUS SERVICES AT THE BOSTON CITY HOSPITAL.

The Boston City Hospital, after a certain amount of experimenting in connection with the surgical services and the gynecological service, has finally adopted the principle of continuous services throughout the institution. This unquestionably marks a step in progress. Following the example of teaching hospitals in other cities, the Massachusetts General Hospital within a few years, has adopted the principle of continuous services and the two Brigham Hospitals recently opened in this city have likewise adopted a similar principle of medical management. The organization of the medical services at the City Hospital will be precisely the same as that at the Massachusetts General Hospital, namely, a chief of service on duty throughout the year, two physicians each with six months service and various subordinates with terms of service not strictly determined by the hospital rules. Owing to the large number of patients, the three medical services into which the hospital has previously been divided, will be regrouped into four services. Of these services, the fourth will be a continuous teaching service for the Harvard Medical School, and Tufts Medical School has the privilege of taking over one of the other three services on the same basis if it so desires. Apart from the better supervision of patients, the continuous service plan affords decidedly increased facilities for teaching. It is proposed, so far as the Harvard Medical School is concerned, that, throughout the year students be assigned to the service for a period of two months as clinical clerks. They will work in the wards from nine until five daily, under the supervision of an instructor in the department of medicine. The hospital is to be congratulated upon taking this action. Experience seems definitely to have shown that more efficient work, both for the patients and in medical teaching, may be accomplished by a system which concentrates responsibility upon one person, rather than dividing it among several, as happened under the old system of divided services.

THE TELEPHONE.

It is a self-evident fact that the telephone has come to be a necessity and particularly to physicians. It is also true that not infrequently its very usefulness becomes a source of extreme annoyance through what appears to be, and at times is, bad service on the part of the company. Like many complicated affairs, it is clear that a considerable misunderstanding exists on the part of the telephone company as to the absolute importance of prompt, courteous and wholly efficient service and, on the other hand, that persons using the telephone are peculiarly prone to criticize, and often with insufficient knowledge of

the facts and of the difficulties to be met. Such misunderstandings should be minimized and, to this end, it is desirable that visits be made by physicians and others interested to telephone exchanges in order that some more definite idea of the actual working of the telephone system may be acquired. To this end the telephone company for the benefit of all concerned, has set October sixteenth as a special day when physicians will be welcomed at the Back Bay exchange, which is said to be the largest in this country and is also the exchange perhaps most used by physicians, for the purpose of inspecting the system employed, in the hope that a better understanding may be secured between the company and its subscribers. We urge our readers to make use of this opportunity for their own instruction and also for the purpose of suggesting such criticisms as may lead to an improvement of the general service.

MEDICAL NOTES.

Anti-Tuberculosis Fall Campaign.—Four Sectional Conferences on tuberculosis will be held in various parts of the country during the months of October and November under the direction of The National Association for the Study and Prevention of Tuberculosis, according to an announcement from the headquarters of that organization today.

These Conferences, designed to stimulate the war against tuberculosis in the sections which they serve, will be held in St. Louis, Mo., on October 6, 7, and 8; in Philadelphia, Pa., on October 16; in Bangor, Me., on October 22nd; and in Atlanta, Ga., during the last week in November. Prominent anti-tuberculosis workers from all parts of the country will address the various conferences. Among the principal subjects to be discussed at all the conferences are the Red Cross Seal campaign, the advantages of local hospitals for the care of consumptives, the home treatment of the tuberculous, and legislative problems.

In the official announcement relative to these conferences, Dr. Charles J. Hatfield, executive secretary of the National Association says: "These four conferences are in fact the mobilization of those who are engaged in the war against tuberculosis for the coming fall and winter campaign which we are planning to wage against this disease. In almost every state of the Union, active movements against tuberculosis will be forwarded during the next six months. We hope at these conferences to discuss ways and means and to secure the support and enthusiasm which will enable us to attack our individual problems more successfully than we could do otherwise."

Bequest to a Medical School.—The will of the late Liberty E. Holden contains a legacy of nearly $1,000,000 to the Medical School of Western Reserve University, to be known as the Albert Fairchild Holden Foundation.

Typhoid Incidence in August.—During the month of August, 1914, there were 57 cases of typhoid fever in the District of Columbia, 265 in Kansas, 49 in Louisiana, 293 in Maryland, exclusive of Baltimore, 284 in Michigan, 328 in Minnesota, 179 in New Jersey, 231 in South Carolina, 821 in Virginia, and 43 in Wisconsin.

Association of Military Surgeons.—The twenty-third annual meeting of the Association of Military Surgeons of the United States was held at Cincinnati, Ohio, from Sept. 29 to Oct. 1. Dr. Jefferson R. Keane was elected president for the ensuing year.

Imperial Cancer Research Fund.—The recently published twelfth annual report of the British Imperial Cancer Research Fund records the work and progress under this foundation for the year ended June 30, 1914. During this period investigations have been conducted into spontaneous animal tumors, heredity, the constancy and variability of tumor-cells, sarcoma, development, resistance, and specific properties of tumor cells. A considerable portion of the document is devoted to a special report by the director, Dr. E. F. Bashford, on cancer areas and cancer houses.

Bubonic Plague in Sicily.—Report from Catania, Sicily, on Sept. 25 states that seven deaths from bubonic plague have recently occurred in that city.

Poliomyelitis in August.—During the month of August, 1914, 12 cases of poliomyelitis were reported in Virginia, 7 in Michigan, and 3 in Wisconsin.

Scultetus on Gunshot Wounds.—At the present time the following translation of a passage from Scultetus's *Armamentarium Chirurgici*, written in 1672, is of special interest as illustrating the seventeenth century method of treating gunshot wounds:—

"In the year 1634 Johannes Philippus Schmid, captain of the watch at Ulme, was wounded with a bullet through the shoulder in the battel near Nordingen; and coming to Ulme fell into the hands of an unskilful chyrurgion, who kept open the orifices of the wound, not with tents but with a seton passed through, which caused so great a pain that a gangrene followed upon the inflammation; to whom coming by chance, I presently removed the seton and applied a cataplasm made of the meal of mallows and rose-water, and keeping his belly open with a lenitive glyster, for revulsion sake,

I took away seven ounces of blood from his left arm, which was bilious and serous; and the next day the gangrene amending, the patient took a potion to purge choler, which gave him ten stools. The ingredients of the potion were syrup of roses, extract of rhubarb, diacarthamum, magistery of tartar, and 'burrage water.' The slough separated, and the wound healed. The wonderful efficacy of this cataplasm, the patient being recovered, thinks he can never enough commend, and ascribeth to it the sole preservation of his arm."

BOSTON AND NEW ENGLAND.

Typhoid Fever in Mansfield.—Report from Mansfield, Mass., on Sept. 27 states that over 15 cases of typhoid fever have occurred recently in that town. The source of the infection has not been determined.

Poliomyelitis in Vermont.—Report from Burlington, Vt., on Sept. 26, states that since Aug. 15 there have been 37 cases of poliomyelitis in that city, 40 in the neighboring town of Barton, and scattering cases in other localities, making a total of 140 throughout the state. In 1913 there were 47 cases and in 1912 only 13.

Milk and Baby Hygiene Association.—Of the sum of $8000 asked to enable the continuance of the fall work of the Boston Milk and Baby Hygiene Association, $4217.21 have thus far been subscribed. Further contributions are urgently desired.

Child Study in Manchester.—The city of Manchester, N. H., has been selected by the Children's Bureau of the United States Department of Labor, for intensive study into the conditions of child life.

Boston Infirmary Department.—The recently published seventeenth annual report of the Boston Infirmary Department records the work of that organization for the year ended Jan. 31, 1914. During this period, 1452 new inmates were received at the Long Island Hospital and 57 at the Charlestown Almshouse. Fifteen nurses were graduated from the hospital training-school. In view of the projected transfer of the Charlestown institution to Long Island, few repairs have been made to the former buildings. At Long Island, however, considerable new construction is in progress or already completed. In his special report, the secretary of the visiting medical staff writes of this progress as follows:—

"Since the writing of our last report, additions to the hospital buildings, which were then in contemplation, have been begun, and when completed, the added facilities long needed will unquestionably result in more adequate service. As in all public institutions, the tendency at Long Island has been for the demand to outstrip the supply, with the result that for many years there has been overcrowding with consequent disadvantage to the patients. This will no doubt at least temporarily be rectified when the new buildings are in operation, and the hospital, now with a long and creditable past, may be expected to accomplish still more definite results in the future. With the natural growth of the city and the increasing tendency on the part of the people to seek hospital treatment, the institution will doubtless need further additions in the future, but the experience gained by the building at present going on will serve to render future problems less difficult of solution than the present expansion has been."

NEW YORK.

The Trauma of Peace.—The Public Service Commission reports that during the year ending June 30, 1914, there was a decrease of over 72% in passengers killed on steam railroads in New York State, as compared with the preceding year. The decrease in passengers injured was 46%. Unfortunately, the commission says, no figures are available as to the number of passengers carried within the state, these reports being made for entire rail systems within and without the state, but the fact that but fourteen persons met death, of all the vast numbers which must have been carried during the year, speaks well for the safety of railroad travel in the state. Casualties among railroad employees also show a gratifying decrease, but their number is still very large: 196 were killed and 3,022 injured, as against 250 killed and 3,760 injured during the preceding year. The only class of railroad fatalities showing an increase is that among trespassers, and a very large proportion of these fatalities was at grade crossings. Of trespassers, 348 were killed, as against 393 the year before. There was a decrease of 14.9%, however, in the injured.

Two Centenarians.—Micajah Weiss, believed to be the oldest man in New York State, and perhaps in the country, died at his home at Beaver Brook, Sullivan County, on Sept. 24, at the alleged age of 114 years. He is said to have been born in 1800 at Dancing Creek, Pa. He served in the army during the Civil War, and is stated to have been, at the time of his death, the oldest veteran on the pension list.

Mortality for Week Ending September 26, 1914.—The mortality during the week just closed was a shade below that of the preceding week, the most noteworthy cause of the slight decrease being a considerable drop in the mortality from diarrheal diseases of children under five years of age. A comparison with the mortality of the corresponding week of 1913 shows a large decrease in the mortality of infants under

one year of age and also between the ages one and five. On the other hand, the mortality at all age groups over twenty-five years was considerably above the figures of 1913. The mortality from the infectious diseases of childhood was on the whole considerably below, while that from the organic heart and kidney diseases and pulmonary tuberculosis, causes affecting adults and old people was considerably above that of the corresponding week in 1913.

There was only one death charged up against whooping cough during the past week, as against eleven for the corresponding week in 1913. Organic diseases of the heart, pulmonary tuberculosis, Bright's disease and nephritis, diseases which affect adult life and old age showed an increase of 51 deaths. The number of deaths reported from violence was 114, an increase of 34. This increase was distributed among the accidents, homicides and suicides. The homicides showed an increase from three deaths in the week of Sept. 27, 1913, to fourteen deaths during the past week; suicides almost doubled in number, while accidental deaths increased twenty per cent.

The death-rate for the entire year from the first of January to date was 13.90 per 1000 of the population as compared with a rate of 14.15 for the corresponding period in 1913, a decrease of .25 of a point.

TRAVEL STUDY CLUB.—The Travel Study Club of American Physicians, which made a successful Study Tour of Europe last year, has completed the plans for its 1915 Study Tour to the A. M. A. meeting in San Francisco, Honolulu, Japan, the Philippines, China, with optional return via Siberia and Europe (war permitting) or via Canada. This being the first party of American physicians ever visiting the Far East and the new possessions of the United States, a most cordial welcome can be expected by authorities and members of the medical profession. Dr. Richard Kovacs, secretary-treasurer, 236 East 69th street, New York.

HEALTH DEPARTMENT APPROPRIATION.—While the aggregate of the appropriations asked for in the city budget for 1915 is smaller than for any year since 1910, increased amounts will be required for some of the departments. One of these is the health department, which has applied for a considerable increase, to provide for additional medical inspectors and nurses for the public school work, surgeons and dentists for the department's clinics, inspectors for children in charitable institutions, and food and sanitary inspectors. The Bureau of Child Hygiene has asked for an increase for the purpose of establishing a number of additional infants' milk stations needed in the different boroughs.

FIREPROOF CLOTHING FOR CHILDREN.—On a single day, recently, Dr. Charles F. Pabst, coroner's physician, Brooklyn, was called in no less than five cases of children, in different localities, who died as a result of burns from bonfires or from playing with matches. Dr. Pabst suggests that parents fireproof the cowboy and Indian suits so much in vogue, the fringes of which are constant sources of danger from fire; and also fireproof lace curtains and other hangings liable to be ignited by children playing with matches at home. This, he says can be done by a very simple, cheap and efficient method: The articles to be rendered fireproof are to be dipped in a solution of a pound of ammonium phosphate (costing perhaps 25 cents) in a gallon of water, and the solution is entirely harmless as regards both the child and material washed.

Current Literature

MEDICAL RECORD.

SEPTEMBER 19, 1914.

1. *HERTOGHE, E. *Thyroid Insufficiency.*
2. RICKETTS, B. M. *Intratracheal Insufflation.*
3. USSHER, C. D. *An Epidemic of Typhus Fever in Van, Turkey.*
4. DABNEY, V. *Diabetes Mellitus Following Interval Operations of Bilateral Mastoidectomy and Unilateral Exenteration of Ethmoid, Sphenoid and Maxillary Sinuses.*
5. KAHN, A. *A Modification of the Crile Cannula.*

1. Hertoghe writes a very interesting paper on thyroid deficiency, illustrated with many photographs. Thyroid secretion, he says, is necessary to the building up and dismantling of the tissues. All infections, especially rheumatic, luetic and tuberculous, affect the vitality of the thyroid gland and may produce varying degrees of myxedema in addition to their specific lesions. A course of treatment with thyroid extract will sometimes relieve to a surprising extent such symptoms as alopecia, biliary disturbances, vertigo, migraine, myalgia, constipation, nocturnal incontinence. Thyroid treatment is necessarily slow. The writer recommends the administration of thyroidin in 5-grain doses. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

SEPTEMBER 19, 1914.

1. *VEGAS, M. H. *Hemophilia and Hemophiliac Arthritis.*
2. ELSNER, H. L. *Pains Anomalously Distributed in Cardiovascular Disease.*
3. HOLDING, A. F. *The Treatment of Cancer by Electrical Methods.*
4. FOSTER, G. S. *An Interesting Case of Hermaphroditism.*
5. PENROSE, C. A. *Efficiency and the Quality of Life.*
6. FISHBERG, M. *Tuberculization and Immunization.*
7. BRAM, I. *The Treatment of Sunstroke and Heat Prostration.*
8. GUTHRIE, J. A. *Dust.*
9. BURNHAM, A. C. *Pulmonary Tuberculosis Complicating Operation for Appendicitis.*
10. ROSENBLOOM, J., AND GARDNER, W. E. *Tyrosin Crystals in the Urine of a Normal Pregnant Woman.*

1. Vegas discusses hemophilia and hemophiliac arthritis. He believes that surgical operations can safely be performed on bleeders if several subcutaneous injections of fresh rabbit serum are given beforehand. He cites a case from his clinic in Buenos Aires—that of a boy, seven years old, who was completely cured of an hemorrhagic arthritis after four months serum treatment. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

SEPTEMBER 12, 1914.

1. *BILLINGS, F. *Focal Infection: Its Broader Application in the Etiology of General Disease.*
2. *ROSENOW, E. C. *The Newer Bacteriology of Various Infections as Determined by Special Methods.*
3. *REHFUSS, M. E., BERGEIM, O., AND HAWK, P. H. *Gastro-Intestinal Studies. II. The Fractional Study of Gastric Digestion, with a Description of Normal and Pathologic Curves.*
4. TYSON, H. H., AND SCHOENBERG, M. J. *Experimental Researches in Methyl Alcohol Inhalation.*
5. HENSON, G. E. *A Study of the Arneth Formula.*
6. CLARK, W. L. *The Desiccation Treatment of Congenital and New Growths of the Skin and Mucous Membranes.*
7. BARKER, L. F. *The Diet in Typhoid Fever.*
8. COLEMAN, W. *The Effects of Food on Metabolism in Typhoid Fever.*
9. WILLIAMS, G. H. *The Psychosis Occurring During the Course of Pernicious Anemia.*
10. WILDER, R. M. *The Bacteriology of Typhus Fever.*
11. ALLEN, F. M. *Studies Concerning Diabetes.*
12. AUSTIN, J. H., AND MILLER, T. G. *The Influence of Sweat Baths on the Non-Protein Nitrogen Content of the Blood in Nephritics.*
13. CHACE, A. F., AND FINE, M. S. *The Use of Atophan and Radium Emanation in the Treatment of Gout and the Arthritides.*

1. Billings makes a strong plea for the location and removal of focal areas of infection in the treatment of all chronic systemic diseases and even in certain cases of thyroiditis, pancreatitis, peptic and duodenal ulcers. He believes this is a much neglected but extremely important part of our attack on these conditions.

2. Rosenow describes his method of obtaining cultures from tissues and states that by this method cultures of many different forms of bacteria may be obtained which were sterile when the older methods were tried.

3. These workers in a very interesting article show how a stomach tube of special construction can be left in for four hours, and samples of digestion at different stages be drawn off at will and studied. They have constructed curves illustrating normal and pathologic digestion and show the inaccuracy of the older method of doing gastric analyses, when only one specimen was taken during the digestion cycle. [E. H. R.]

SEPTEMBER 19, 1914.

1. *WILLSON, R. N. *The Heart in the Pneumonias.*
2. DAVIS, J. S. *The Use of Small Deep Skin Grafts.*
3. THOMSON, C. *Intrinsic Cancer of the Larynx. Complete Excision Apparently Effected by Endolaryngeal Operation.*
4. SWEITZER, S. E. *Sarcoid of Boeck.*
5. *HEAD, G. D. *Neurasthenia and Tuberculosis (Concealed).*
6. *HEYN, L. G. *Intrarectal Administration of Sodium Salicylate in Acute Rheumatic Fever with Satisfactory Results.*
7. HESS, A. F. *The Use of a Series of Vaccines in the Prophylaxis and Treatment of an Epidemic of Pertussis.*
8. STONE, W. J. *A Note on the Preparation of Bacterial Vaccines.*
9. MCGRATH, B. F. *Cancer of the Prostate.*
10. THOMAS, T. T. *A Common Mechanism for Most Injuries of the Shoulder Region, Supported by the Results of Treatment, Including Forty-Nine Operations.*
11. DIXON, S. G. *A Substitute for Potassium Permanganate to Liberate Formaldehyd Gas from a Water Solution.*
12. DAY, J. L. *Foreign Bodies in Stomach. Report of an Unusual Case.*
13. PARKER, C. A. *Fracture of the Femur into an Actively Tuberculous Knee-Joint, with Healing of the Fracture.*
14. DERMODY, L. A., AND MCMARTIN, C. *A Case of Sporotrichosis.*
15. MOTT, W. W. *Report of a Case of Cerebral Hemorrhage.*

1. Willson has made a careful microscopic study of the heart muscle in cases of fatal pneumonia and finds evidence of toxic influence in every case, evidenced by diffuse myocarditis, cloudy swelling and often fragmentation of muscle fibers. Such hearts invariably show some degree of pericarditis, but rarely of fresh endocarditis. The author thinks the systolic blood-pressure furnishes a very unreliable prognostic index, and the effort should be made to avoid cardiac depressants, such as nitroglycerin and alcohol.

5. Head, in a paper well illustrated by cases seems to demonstrate that many cases of so-called neurasthenia are in reality a chronic concealed tuberculous toxemia exhibiting neurasthenic symptoms.

6. Heyn advocates the intrarectal administration of the salicylates in doses of 24 grams in 24 hours in cases of acute articular conditions. The rectum is tolerant of the drug, and any excess can be easily washed out, so as to prevent absorption. [E. H. R.]

SEPTEMBER 26, 1914.

1. *ANDREWS, E. W. *Chondrectomy or Operative Treatment of Bronchial Asthma.*
2. *CORNER, E. M. *The Surgery of the Knee-Joint.*
3. SALANT, W. *The Pharmacology of Sodium Tartrate.*
4. DRAPER, J. W. *Studies in Intestinal Obstruction, with a Report of Feeding Heterologous Jejunal and Iliac Cells to a Human Being.*
5. *LUND, F. B. *Roysing's Operation for Congenital Cystic Kidney.*
6. *NIER, J. F., GARRISON, P. E., AND MACNEAL, W. J. *Further Studies of the Thompson-McFadden Pellagra Commission. A Summary of the Second Progress Report.*
7. *LAVINDER, C. H., FRANCIS, E., GRIMM, R. M. AND LORENZ, W. F. *Attempts to Transmit Pellagra to Monkeys.*
8. VOEGTLIN, C. *The Treatment of Pellagra.*
9. WEBB, G. B., AND GILBERT, G. B. *Immunity in Tuberculosis. Further Experiments.*
10. KAUFMANN, J. *Lymphocytosis as a Sign of Constitutional Derangement in Chronic Diseases of the Digestive Tract.*
11. MILLER, J. L. *The Specific Action of Salicylates in Acute Articular Rheumatism.*
12. MAHONEY, J. J. *Artificial Pneumothorax and Pregnancy.*
13. EINHORN, M. *Intestinal Stasis.*

1. Andrews describes the technic of the operation of chondrectomy for the relief of bronchial asthma and states that in the type of barrel-shaped rigid chest, with little or no expansion, this gives instantaneous relief and can be done painlessly under local anesthesia.

2. Corner advocates the median longitudinal splitting of the patella through a corresponding longitudinal incision in the skin in exploratory operations on the knee joint. His article on this joint is of practical interest.

5. Lund's paper is a very thorough review of the subject of congenital cystic kidney and a description of Rovsing's puncture operation, which generally causes death or gives great relief.

6. This report states that no definite connection between occupation and the occurrence of pellagra has been found although the high morbidity in women and children points to the home as the place in which the disease is usually contracted. Evidence of close association with a pre-existing case was disclosed in more than 80%. No relation to the dietary in 50,000 people living in six endemic foci of the disease could be found. New cases originated almost exclusively in a home in which a pre-existing pellagrin was living. The disease has spread most rapidly in districts where unsanitary methods of sewage disposal have been in use. Additional evidence has been obtained to support the view that flies of the genus simulium have nothing to do with pellagra. There is no evidence of inheritance of pellagra. The immediate results of hygienic and dietetic treatment in adults have been good, but after returning to former conditions of living most of the cases have recurred.

7. These authors advance no definite conclusions from their work. [E. H. R.]

JOURNAL OF INFECTIOUS DISEASES.

JULY 1, 1914.

1. *FRANCIS. *An Attempt to Transmit Poliomyelitis by the Bite of the Lyperosia Irritans.*
2. *KOLMER AND BROWN. *Complement-Fixation in Gonococcus Infections.*
3. HORTON. *A Simple Method of Cultivating Bacilli, Preferring Conditions of Partial Anerobiosis.*
4. BEHRENS. *An Attenuated Culture of Trypanosoma Brucei.*
5. *HOPKINS AND LANG. *Classification of Pathogenic Streptococci by Fermentation Reactions.*
6. *DICK AND HENRY. *Anerobic Cultures in Scarlet Fever.*
7. ROGERS, WILLIAMS AND EVANS. *The Classification of Bacteria of the Colon Type Found in Bovine Feces.*
8. GURD. *The Toxins of Intestinal Obstruction.*
9. THEO. *Experiments on the Variability of the Fermentative Reaction of Bacteria, Especially the Streptococci.*
10. CAPPS AND DAVIS. *The Relationship of Septic Sore Throat to Infected Milk.*
11. DAVIS AND CAPPS. *Experimental Bovine Mastitis Produced with Hemolytic Streptococci of Human Origin.*
12. RAHE. *An Investigation into the Fermentative Activities of the Aciduric Bacteria.*
13. WEIL AND MCMEANS. *Purpura Associated with Bacillus Mucosus in the Blood.*
14. *MANHEIMER. *Studies on the Sanitation of Swimming Pools.*
15. *CUMMINGS. *The Quinine Treatment of Rabies.*
16. *KLIGLER. *Studies on the Classification of the Colon Group.*
17. HOLMAN. *A Method of Making Carbohydrate Serum Broth of Constant Composition for Use in the Study of Streptococci.*
18. *MOORE. *The Action of Vaccines and of Concentrated Antistreptococcus Serum in Experimental Streptococcal Arthritis.*
19. HOLMAN. *The Use of Decolorized Acid Fuchsin as an Acid Indicator in Carbohydrate Fermentation Tests, with Some Remarks on Acid Production by Bacteria.*

1. Francis was unable in eight attempts to transmit poliomyelitis through the medium of the Lyperosia Irritans, a fly commonly found upon cattle in the South. The experiments were conducted in a similar way to those performed by Rosenau and Brues upon Stomoxys calcitrans, but negative results followed every exposure of Macacus rhesus monkeys to these supposedly infected flies.

2. The gonococcus complement-fixation reaction, while not so clearly defined, nor so reliable as that of syphilis, is of value as a diagnostic measure in pelvic inflammations, arthritides of doubtful origin, and as a control to late treatment of chronic urethritis. A polyvalent saline suspension is best used in connection with the anti-human hemolytic system.

The study of anti-gonococcus and anti-meningococcus sera shows a much more striking "group" reaction than exists with the micrococcus catarrhalis or any other organism.

5. By means of fermentation reactions, Hopkins and Lang divide the streptococci into two chief divisions—the .pathogenic and saprophytic streptococci The former are characterized by fermentation of lactose and salicin. Into the latter group fall four salivary types, the fecal group and the equine group. The amount of acid production is of little value in classification. The hemolytic action is, however, of service, since it is found that the highly pathogenic strains are usually strongly hemolytic.

6. Dick and Henry, studying the bacterial content of the blood in scarlet fever, obtained positive findings by means of anerobic cultures in 20 of the 24 cases investigated. Nine types of organism are described. The association of various organisms in blood culture with those found in the throat and urine leads to the conclusion that during the acute stage of scarlatinal angina organisms enter the blood stream in considerable number.

14. Manheimer has investigated the sanitary conditions of the swimming pools of New York City. The Collegiate and Association pools were found to be generally in good condition. Such was not the case, however, with the public pools and the free floating baths. The sanitation of the latter was so poor that their abolition was advised.

Recommendations for the improvement of public baths include better construction, filtration and change of water, disinfection and improved administration of establishments.

15. Cummings was unable to demonstrate that quinine showed the least protective power against extremely small doses of rabies virus. Assuming that the amount of virus in infected man is probably far greater, he concludes that the use of this drug will be of no practical value.

16. By means of carbohydrate fermentative reactions Kligler has divided the colon group of bacteria into divisions, all of which are represented by well-known bacilli. The classification is submitted as tentative, since the number of organisms studied is relatively small.

19. In no instance could Moore demonstrate a prophylactic or curative action of concentrated antistreptococcus serum toward experimental streptococcal arthritis. Prophylactic injections of homologous streptococcus vaccine, on the other hand, either prevented any such pathological process, or attenuated the course of the disease and decreased the frequency of complications. This immunity, which is evidently dependent on the production of opsonins, was of long duration. [L. H. S.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 28. JULY 9, 1914.

1. WELTMANN, O. *The Importance of Blood Dust Clinically.*
2. *BOLTEN, G. *The Value and Treatment of So-Called True Epilepsy.*
3. NEUGEBAUER, H. *Vagotomy.*
4. KELLING, G. *Roentgenoscopy of the Stomach.*
5. GOLDSCHMIDT, W. *Treatment of Gas Bacillus Infection.*
6. PAUL, E. *Short Communication on Case Histories of Foreign Bodies in the Air Passage.*

2. The author limits "true epilepsy" to those cases in which there is no demonstrable cause. He concludes that these are due to autointoxication from defective ferment processes in the intestine and defective functioning of the thyroid and parathyroid glands. He treats his cases by supplying the active principles of these glands. He cites cures of many cases without detail. [F. S. K.]

No. 29. JULY 16, 1914.

1. ARZT, L., AND KERL, W. *Communication Regarding Spirochete Findings in Rabbits.*
2. SZEL, P. *Alimentary Glycosuria in Basedow's Disease.*
3. SAPHIR, J. *Abortive Treatment of Syphilis.*
4. BARSONY, T. *Diagnosis of Post-operative Ulcer after Intestinal Anastomosis.*
5. FELDNER, J. *Severe Phthisis under "Tuberculomuzin Weleminsky."*
6. MELIKJANZ, O. *The Results of Abderhalden's Dialysis Tests with Animal and Human Lung Tissue.*

No. 30. JULY 23, 1914.

1. SAVAS, C. *Cholera Inoculation in Greece.*
2. BIACH, P., KERL, W., AND KAHLER, H. *Changes in Spinal Fluid after Neosalvarsan.*
3. SCHWARZMANN, J. *Diastolic Blood-Pressure in the Diagnosis of Disease of the Aorta.*
4. HENZELMANN, A. *The Stimulation of the Phrenic Nerve by the Faradic Current and the X-ray Appearances During This.*
5. *CECIKAS, I. *The Influence of Nephritis on Procreation.*

5. The author believes nephritis is a cause of relative sterility. Only eight of his twenty-eight married women with nephritis had healthy children. Five patients never became pregnant and the rest aborted. [F. S. K.]

Miscellany.

ORCADIAN OBSTETRIC CUSTOMS.

IN the January number of *Old Lore Miscellany of Orkney*, quoted in the issue of the *British Medical Journal* for May 9, 1914, is an article by Mr. John Firth on Orcadian obstetric customs, actually observed within the memory of persons still living.

"The chief care of an Orcadian mother and her attendants at such a time seems to have been to preserve the newborn baby from the unwelcome attentions of 'peerie-folk' or fairies, who were always on the lookout for a human child to kidnap or bewitch. To frighten them away, therefore, the mother kept beside her in the bed a Bible and a knife, the fairies of Orkney being apparently as much alarmed at the sight of these objects as the 'Good People' of the Border were said to be by the homely blue bonnet when it reposed on the bed of a lying-in woman. To 'make assurance double sure,' however, relays of neighbors were called in for several nights to rock the cradle and shield its occupant from the nocturnal attacks of its mischievous enemies. A careful father, moreover, would ensure his child's future prosperity by arranging for its first drink to be taken off silver; and many were the expedients resorted to in poor homes, the most usual being to place a silver coin (frequently borrowed for the occasion) in the horn spoon, which served as the baby's pap-boat. Orcadian children must have been a hardy race, for in those days the first nourishment administered to the newly-born infant was a teaspoonful of toddy, and not infrequently both mother and nurses were anything but sober at the time of his birth. The nursing, therefore, both of mother and child, must have been of the most primitive description, and 'this combined with the fact that it was but seldom that a doctor or a trained accoucheuse was called, clearly shows that the successful result of such incompetent obstetrics may be pertinently described as 'the survival of the fittest.' "

Correspondence.

MOVING PICTURES AND THE EYES.

BOSTON, Sept. 26, 1914.

Mr. Editor: It should interest the editor of the article upon "Moving Pictures" in the JOURNAL for Sept. 24, to know that "eye-strain," as such never exists in normal eyes. If the refractive errors are first corrected with suitable lenses and any "asthenopia" still present relieved by removing reflex inhibitory effects upon the ciliary muscles through nasal diseases there can be no danger to eyes from the kinematograph. It may also interest the editor to know that the optical defects of the machine are also being "treated" mechanically here in this city. Later it is proposed to add acoustical effects by which the same source of illumination will supply light and sound through the films.

EDMUND D. SPEAR, M.D.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING SEPT. 26, 1914.

Sept. 22. Surgeon R. E. Hoyt, from *Illinois* to *Wisconsin*.

P. A. Surgeon T. W. Raison, from *Maine* to Naval Hospital, Great Lakes, Ill.

Asst. Surgeon W. A. Brams, to Naval Medical School, Washington, D. C.

Asst. Surgeon C. P. Depping, to Naval Medical School, Washington, D. C.

Asst. Surgeon R. L. Natkemper, to Naval Medical School, Washington, D. C.

Asst. Surgeon Arthur Freeman, to Naval Medical School, Washington, D. C.

Asst. Surgeon E. L. Matthews, to Naval Medical School, Washington, D. C.

Asst. Surgeon A. C. Thompson, to Naval Medical School, Washington, D. C.

Asst. Surgeon F. L. Conklin, to Naval Medical School, Washington, D. C.

P. A. Surgeon W. L. Angwin, from *West Virginia* to Asiatic Station.

P. A. Surgeon J. E. Gill, from *Tonapah* to home and wait orders.

P. A. Surgeon W. H. Halsey, from *Montana* to *Tonapah*.

P. A. Surgeon J. G. Ziegler, to *Georgia*.

Sept. 23, Asst. Surgeon R. M. Little, M.R.C., detached Marine Expeditionary Force, Atlantic Fleet, to home.

Asst. Surgeon Talmadge Wilson, M.R.C., to Naval Medical School, Washington, D. C.

Sept. 25, Surgeon J. P. Traynor, from *Dolphin* to Navy Recruiting Station, Boston, Mass.

P. A. Surgeon D. H. Noble, from *Ohio* to *Dolphin*.

NOTICES.

THE HARVEY SOCIETY.—The first lecture of the series will be given at the New York Academy of Medicine, 17 West 43d Street, on Saturday evening, Oct. 10, at 8.30 P.M., by Prof. Frederick P. Gay, of the University of California. Subject: "Experimental Studies on Methods of Anti-Typhoid Immunization."

MASSACHUSETTS GENERAL HOSPITAL.—ETHER DAY ADDRESS.—Members of the medical profession are invited to attend the Ether Day address by Dr. John M. T. Finney. Subject: "The Significance of Pain," on Oct. 16, 1914, at 4.00 P.M., to be held in the lower out-patient amphitheatre on Fruit Street, Massachusetts General Hospital.

THE AMERICAN SOCIAL HYGIENE ASSOCIATION and THE SOCIETY OF SANITARY AND MORAL PROPHYLAXIS will hold a conference in New York City, October 9 and 10, 1914. Charles W. Eliot, LL.D., president, The American Social Hygiene Association; Edward L. Keyes, Jr., M.D., president, The Society of Sanitary and Moral Prophylaxis.

APPOINTMENTS.

UNIVERSITY OF ILLINOIS.—*Dr. Daniel A. K. Steele* has been appointed senior dean and head of the department of surgery in the college of medicine of the University of Illinois; *D. Charles Spencer Williamson*, professor of medicine and head of the department; *Dr. Charles Summer Bacon*, professor of obstetrics and head of the department of obstetrics and gynecology; *Dr. Julius Hays Hess*, associate professor of pediatrics and head of the division of pediatrics; *Dr. Norval Pierce*, professor of otology; *Dr. Joseph C. Beck*, associate professor of laryngology and rhinology and head of the division; *Dr. Oscar Eugene Nadeau*, instructor in surgical pathology; *Dr. A. O. Shoklee*, associate professor of pharmacology; *Dr. Roy L. Moodie*, instructor in anatomy, and *Dr. C. S. Smith*, instructor in physiological chemistry.

UNIVERSITY OF SHEFFIELD.—*Dr. J. B. Leathes, F.R.S.*, professor of pathologic chemistry in the University of Toronto, has been appointed to the chair of physiology at the University of Sheffield.

WASHINGTON UNIVERSITY MEDICAL SCHOOL. *Dr. Ernest Sachs*, formerly associate in surgery, has been appointed associate professor of surgery in the same institution.

RECENT DEATHS.

DR. JOHN LANSON ADAMS, who died on Sept. 25 in New York City, was born at Westport, Conn., on Aug. 9, 1860. He graduated from Yale College in 1883, and in 1886 received the degree of M.D. from the New York College of Physicians and Surgeons. After studying abroad he became a practitioner of opthalmology and otology. He was president of the West Side German Dispensary, and director of St. Bartholomew's clinic. He is survived by his widow, by one son, and by two brothers, likewise physicians.

DR. JAMES BATCHELDER BELL, who died on Sept. 26 in Boston, was born at Monson, Me., in 1838. He received the degree of M.D. in 1859 from the Hahnemann Medical School of Philadelphia. After studying abroad, he settled in the practise of his profession at Boston, and in 1885 became a surgeon to the Massachusetts Homeopathic Hospital, a position which he continued to hold until 1912. He was a member of the International Hahnemannian Society, the American Institute of Homeopathy, the Massachusetts Homeopathic Medical Society, the Massachusetts Surgical and Gynecological Society, and the Boston Homeopathic Medical Society. He is survived by one daughter and one son.

DR. SOLON MARKS, who died on Sept. 29 at Milwaukee, Wis., was born in 1827. He served throughout the Civil War as surgeon of the Tenth Wisconsin, and as brigade and division surgeon in the Fourteenth Army Corps. He was a founder of the American Medical Association.

DR. PHILIP MOONEY, one of the leading physicians of Gloucester, Mass., died at his home in that city Sept. 27, of heart disease, aged 50 years. He was born in Lowell, Mass., was a graduate of the University of Vermont, College of Medicine, in 1882, and had practised in Gloucester since 1884, when he joined The Massachusetts Medical Society. He was a member of the Cape Ann Medical Society and a charter member of St. Ann's Court, M.C.O.F. He is survived by a widow.

DR. ROBERT WHITE, who died on Sept. 27 at Cambridge, Mass., was born in Ireland in 1823. After receiving the degree of M.B. from the University of Glasgow, he became a licentiate at the Apothocaries' Hall, Dublin, and in 1844 a member of the Royal College of Surgeons of England. Migrating to the United States, he settled at Boston, where he continued in the practise of his profession until 1909. He had been a Fellow of The Massachusetts Medical Society since 1846. He is survived by his widow and by three children.

DR. JOHN MCGAW WOODBURY, a retired physician of New York, died at his country residence at Southampton, Long Island, on Sept. 23. He was born in New York in 1855 and, after graduation from Bellevue Hospital Medical College in 1881, spent some time in study abroad. During the Spanish-American War he served as division surgeon, with the rank of major. After the annexation of Porto Rico he was made medical director of Ponce, the second city in importance of the island. Here his admirable work in sanitation attracted so much attention that the U. S. Government sent him abroad to study the sanitary arrangements of the German army in field operations. Later he returned to civil life, and on account of his special qualifications for the post, Mayor Low appointed him commissioner of street cleaning. He was continued in this office by Mayor McClellan, and served in it until near the close of the latter's second term.

DR. JAMES NEIL, of New York, who was associated for many years with two of America's most illustrious surgeons, first with Valentine Mott and later with Marion Sims, died on Sept. 28, from pneumonia. Dr. Neil was graduated from the medical department of the University of the City of New York in 1850, and from 1862 to 1868 he was a U. S. pension surgeon.

A ROENTGENOLOGICAL CONSIDERATION OF THE RELATION OF INDIVIDUAL TYPE TO INTESTINAL STASIS.

Five Plates.

Dr. PERCY BROWN.


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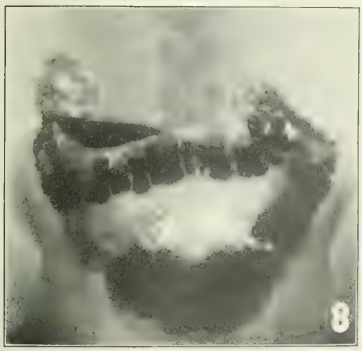

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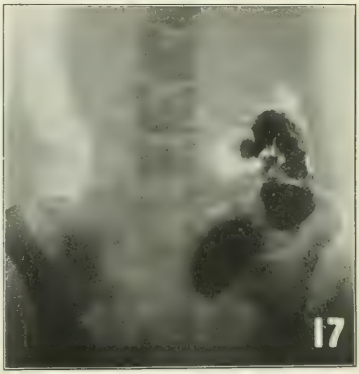

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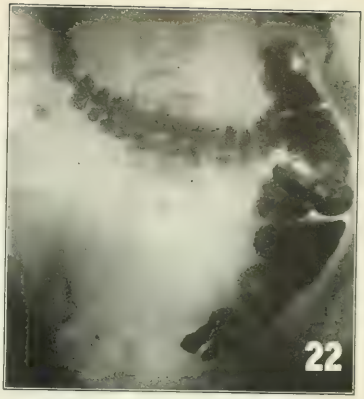

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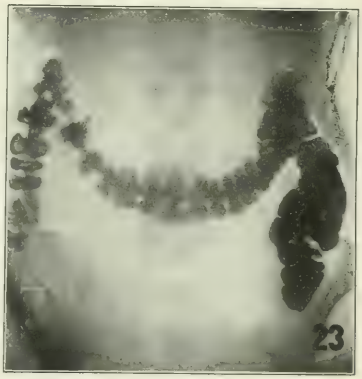

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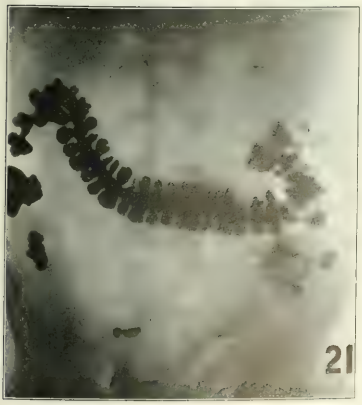

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Original Articles.

A ROENTGENOLOGICAL CONSIDERATION OF THE RELATION OF INDIVIDUAL TYPE TO INTESTINAL STASIS.*

By Percy Brown, M.D., Boston.

Roentgenologist to the Infants' Hospital; Late Roentgenologist to the Children's Hospital; Consulting Roentgenologist to Carney and St. Elizabeth's Hospitals, etc.

To venture forth, through the mediumship of a descriptive communication, into the vastity of such a question as that of ileal stasis can hardly be considered, at the present day, to be entering upon ground untrodden, since the would-be investigator is destined to come upon the imprints of innumerable feet, some deep, as might be expected, others shallow. It is the enduring hope, however, of any subsequent explorer that he may, by chance, discover some corner as yet untrodden or that he may investigate some small stream tributary to the greater one described and charted by others. Even if he were not thus so fortunate, may it not be his mission to extol the importance of the smaller tributary as it adds its volume to the onflowing of scientific enlightenment?

Thus to trace more deeply the course of such a contributory stream, upon the broad map of our understanding, it is the writer's hope. It has been given him, perhaps, to outline with freshened pen its devious boundaries, already firmly drawn.

To speak more concretely, one may doubt if the discovery of a great river has created in the world geographic an enthusiasm more profound than that which has been stimulated in the realms of medicine by our growing intimacy with the pathology of the alimentary tract. This is made possible, in great measure, by our equally growing familiarity with the diagnostic possibilities of x-rays. From the days of Cannon's classical observations upon the alimentary function in cats, our progress has been without hesitation or pause. Many have been the contributions to our rapidly-developing conception of things alimentary, and workers in the roentgen field have been the proud bearers of the guiding torches. Among those who have lighted our way most radiantly, some are here today, and by his association with them upon the deliberative records of this society the writer at once becomes doubly honored.

Intestinal stasis! Casual consideration of its mere definition will give but little idea of all it embraces. To recall to one's memory the instances where patients have presented proven intestinal stasis is but to create the mental picture of a small army of individuals who are the victims of nearly every variety of subjective symptoms. This multiplicity of symptoms is far in excess of the relatively small group forming the classical complex of chronic constipation. The developments of our increased knowledge prompt us now to include, as manifestations of intestinal stasis, the periodical hunger pains and epigastric pressure-points of tenderness which we were wont to associate with duodenal ulcer and which we now know may not be ascribed to ulcer—in the strict sense of its floridity. We must also include in the gamut of such manifestations the pain of the familiar gall-stone attack. It were better, perhaps, in the light of present understanding to designate such distress as a "gall-bladder attack" rather than a gall-stone attack, or else to adhere solely to the term "biliary colic." We must include epigastric or abdominal pain due to jejunal constrictions, or inhibitions of like nature. We must not forget the ileal stases with or without their prevalvular kinks. We must not neglect to include the swelling and the tenderness of the perityphilitides. Intestinal static influences must embrace as well the neighborhood symptoms of the chronic appendices, to say nothing of the not impossible periappendicular manifestations after the removal of the appendix.

Distal to the ileocolonic valve, intestinal stasis comes into its own, so to speak, and it manifests itself in the cecum, as has been said, in the ascending colon, and by influencing the relation between these two, as well as along the colonic path, with especial reference to the two flexures, concerning which more will be said; thence onward,—the distal rectum, only, forming the limitation of possibility for its mischief-making proclivities.

So much for the anatomical opportunities offered for the production of stasis, which may be classed as immediate,—its primary foci, so to speak. Is it to be wondered that many and diverse are the symptoms which may arise locally, to say nothing of the element of pain which may be referred from the primary point? The function of this paper is to deal, however, not with the question of referred pain but with that of transferred mischief—engendered and sustained by intestinal aberrations producing stasis. Such mischief, however, though secondary to the causative factor, is made up of pathological entities.

The term "chronic rheumatism" is not merely that form described in the text books under this appellation as the sequel of the subacute mono- or polyarticular type which is described in turn as the sequel of the long-recognized acute rheumatic fever. "Chronic rheumatism," as a term, is here employed in its broadest, most ill-defined and popular sense. The term may embrace, with equal pertinence, the muscular type, the infectious articular type, both single and multiple, the manifestations often classed as rheumatoid arthritis, as osteo-arthritis and as

* Read, in part, before the Section in Medicine of the Massachusetts Medical Society, at the Annual Meeting of the American Medical Association, St. Johns, July 8, 1914.

chronic gout, under the all-embracing term of "arthritis deformans."

To single out "chronic rheumatism," so called, as occupying an interrelational position with intestinal stasis, is merely to select one of a long series comprising the sequelae of prolonged infectious or chemical absorption or intoxication resulting from such alimentary delay. It was here selected, as being important, in spite of the fact that the subject is far from being a new one, first, because articular mischief is of such common occurrence as to come almost daily under the observation of all; second, because articular change, if tangible and evident, will provoke prompt complaint from the patient, especially from those of the female sex; and third, the length of this paper will permit of a consideration of but one of the great group of functional perversions secondary to aberrations of metabolism.

It is now generally recognized that either the tonsils or the teeth may equally well act as an *atrium* for the entrance of bacterially noxious material, thereby destined for systemic absorption. The gastro-intestinal tract, however, much more often comes under the observation of the roentgenologist and, therefore he, like any especially-trained investigator, is compelled and impelled to employ his own view-point and his deductions therefrom. The writer, consequently, realizes the limitation of his field of vision as he gazes at the situation through his own relatively small aperture, but reiterates his desire to deal with a clinical question as broadly as he may, although surrounded by clinicians who have balanced this matter, as between diagnostic cause and therapeutic effect, with the utmost nicety.

So much for explanatory preamble.

The possibility of secondary joint infections as well as deposits of a chemical nature following chronic intoxication or autointoxication from tonsils, teeth or alimentary tract is now well recognized in every medical community. This general recognition has been stimulated by the literary contributions of various authors working from the view-point of the dentist, the rhinologist or the orthopedist. Infections from the alimentary tract, involving the joints as depositories, deserve and demand especial recognition on account of the fact that their etiology has been so thoroughly recognized through the agency of roentgen rays. Basing their clinical deductions upon the roentgen evidence afforded them, a group of practitioners, especially Goldthwait of Boston, have not only demonstrated the co-relation between alimentary (especially intestinal) stasis and certain non-tuberculous joint-manifestations, but they have been able to recognize certain types of joint-aberration as arising from infection and others from chemical influences. Of this, the literature of the last few years contains much. To mention, also, those who have demonstrated, from the standpoint of the roentgenologist, the manifold possibilities of delayed intestinal digestion is but to name the foremost roentgenologists of the day. The literature upon this aspect of the subject is, likewise, anything but meagre. By even a cursory perusal of this mass of published work a horde of questions arise in one's mind. For example: Why are some individuals constantly constipated, although as to age, temperament, physique and activities they are diametrically at variance with the general conception of the picture of constipation? Why, in some instances, does it seem that non-tuberculous joint-disease may be hereditary, so called, and in others not? Why, as Codman asks, is it that some patients, who are obviously not distended, complain of distress from gas? Why do offspring of the same family present the same general subjective manifestations of constipation, although their environment and their detail of living has been different for years? These questions are by no means all that surge into the contemplative mind and their answers must be sought.

Therefore, today, the writer ventures to suggest, at least in so far as the arthritic cases are concerned, a deeper search into the possible causation thereof. Through the continued good offices of x-rays we daily recognize the congenital veils and Jacksonian membranes, the Lane's kinks, and pericecal adhesions, but is the nomenclature, after all, a clear one? When we say a membrane or band is congenital, can we eliminate the co-existence of an acquired post-inflammatory adhesion? Our true classification, the writer feels must go behind and back of our roentgen appearances, and his impression has been strengthened by many suggestions made by Goldthwait, with whom the writer has had the good fortune to go over a considerable series of cases.

In the *Johns Hopkins Hospital Bulletin* for November, 1912, R. B. Bean, associate professor of anatomy in Tulane University, New Orleans, presented the records of some striking observations made by him with reference to human morphology based upon his studies when in residence in the Philippines, as well as upon some comparative studies as between the white and black races in New Orleans. He arrives at a most ingenious ontological nomenclature. He has been able to classify man's form into subdivisions based upon the two fundamental embryonic tissues, epithelium and mesothelium. He finds that each form is most susceptible to affections of those organs which are developed from its respective embryonic tissue. That form arising from epithelial embryonic tissue is most susceptible to affections of the lungs, nervous system and alimentary tract; the one springing from the mesothelial, he finds is more susceptible to affections of the circulatory system and kidneys, therefore, one he terms the epitheliopath and the other, the mesotheliopath. By certain physical characteristics, namely, the ear, the

physiognomy and the stature, he is enabled further to class the epitheliopath as the hyper-onto-morph and the mesotheliopath as the meso-onto-morph. The hyper-onto-morph, which is the form interesting to us today, he found to be either tall and slender, or small and delicate, with broad forehead and small chin, eyes wide open and close together,—in short, the fundamental European form. In this epithelial type, or hyper-onto-morph, he found the intestine to be short, twelve to fifteen feet, while in the mesothelial type it was long, twenty to twenty-five feet. He often amazes his students, at a dissection, by predicting the length of the intestine by means of the conformity of the external ear. Into an explanation of this classification it has thus been necessary to enter here as a basis for a possible theory as to the causation of so much alimentary disturbance in a certain well-known type of patient. All practitioners know the type: the lean and tall, or the small and delicate nervous and high strung, often very active in habit, but many types possessing a sort of purposeless activity, unstable, querulous, oftentimes irritable; many, possibly, with a muddy skin tending toward sallowness. This corresponds to that which Sir Frederick Treves has called the carnivorous type of human conformation and habitus, as opposed to the larger, more flabby, more sluggish, more peaceable of mind and less nervously developed type, which he calls the herbivorous type. Even the clinical history, in the human carnivora, so to speak, is characterized with relation to their alimentary aberration. Oftentimes the deficiency has been observed from youth, and almost invariably we hear that it has been existing for a long time and possibly, the patient may say, since the days of childhood. Is it not possible, that, in this type we may find an abiding place for chronic gastro-intestinal aberration which can be based clearly upon a congenital hypothesis? This "carnivorous" type corresponds closely with the *hyper-onto-morph* of Bean's classification, in other words, the type susceptible to affections of structures which are highly developed from epithelial embryonic tissue, namely, the lungs, the nervous system and the alimentary tract and the type in which an anomalous length of intestine has been so constantly found by him.

Goldthwait's attention has been drawn to this type of individual; the carnivorous type, if you please, or the hyper-onto-morph or the epitheliopath, by the statural or structural characteristics it presents and through which it naturally appeals to the orthopedist. He has been able to recognize the type through its faulty position, round shoulders, its lack of poise, its contracted chest, prominent scapulae and relatively protuberant abdomen. Family habits of carriage or occupational resistance to proper poise may, of course, be found in individuals varying widely in weight and general physical attributes, but this complex of clinical postural defects is sufficiently constant in relation to many of those classified formerly as "neurotics," as to be striking indeed. It will be seen on consideration that the "neurotic"type, so called, conforms accurately with one subdivision of Bean's classification as well as that type of individual presenting that which Goldthwait calls the congenital type of visceral ptosis, which he is able to trace back through early life. The faulty attitude and posture, often combined with rapid growth, become sooner or later associated with poor digestion, characterized by fickle appetite, foul breath preceding attacks of vomiting, as well as intestinal flatus and colic. That there is an embryonic basis for this type of individual Goldthwait believes. Only on this ground can we give reason for the gastro-intestinal appearances which we often see in young children. Many children, he declares, are born embryonically too soon, while the stomach is as yet incompletely differentiated from its tubular embryonic form and the colon not yet mesenterically adherent to the posterior abdominal wall in its ascending and descending portions. Thus the colon offers, in extrauterine life, insufficient support to a stomach in itself lacking in sufficient embryonic development. Only when the child begins to assume the erect posture do the results of this developmental arrest begin to assert themselves. Arbuthnot Lane's classical contribution upon the formation of developmental adhesions give dependable support to this very question. It has remained for the roentgenologist to illustrate, through his daily observations, the practical application of this hypothesis. Conditions which can be directly traceable, it is believed, to the congenital type of visceral ptosis have been described in the published reports of the foremost observers. Those way stations in the alimentary tract which have been of the greatest interest to roentgen workers are within areas of co-relationship between movable and fixed points. For instance, the relation of the stomach to its cardiac and pylorie fixed points, the relation of the terminal ileum to the relatively fixed point of the cecum, the relation of the colonic flexures to their posterior mural fixed points, the relation of the transverse colon to the fixed points of the colonic flexures, and so on. In certain cases (and after a moment's thought it will occur to many that such cases are often seen in the human "carnivora") x-rays, as well as auscultation and percussion will reveal the long hanging bag of the so-called ectatic stomach. The writer has come to speak of this as the "inverted goose-neck" stomach and its conformity will at once arise in the memory of all those who have observed it with any frequency. At the lowest point of this stomach, the stagnant food lies in the form of a residue of greater or lesser extent. We are wont to speak of the walls of such a stomach as atonic. Atonic they undoubtedly are, but the atony is often seen to be out of proportion to a lack of tone elsewhere in the individual. Is it

unreasonable to assume that this elongated viscus may thus be susceptible to ectatic influences on account of a lack of embryonal development? In other words, that it has not advanced to a sufficient degree beyond its fundamental tubular form? What roentgenologist has not unexpectedly come upon the existence of such viscera!

Around and just distal to the pyloric orifice we come upon a region of even greater moment, in which the congenital influence is just as important, if not more so. The duodenum is another fixed point and will not give way to the influences of dragging and gravity without assuming great distortion of its normal contour. If there is pull and drag there is usually an inhibition of blood supply which in turn sets up a local anemia, in time, possibly, gangrene and then a process of ulceration. Why, indeed, should not duodenal ulcer be common? Again, distortion of the duodenum by pull and drag produces defects of emptying as they do defects of filling,—another chance for the absorption of bacteria! Moynihan has said that it is now generally accepted that gall-stones are caused by infection. Gregory Cole writes that the indirect roentgenological evidence of gall-stone is really more valuable than the direct evidence. He believes that the deformity of the duodenal cap (the first portion) "and the pars pylorica . . . are stronger roentgenological indications for surgical procedure than the presence of calculus in the gall-bladder." Of course this is so, and unless the cholecystic and pericholecystic conditions thus indicated are recognized, the patient is not going to get well! Cole goes on to say that "it is immaterial whether the infection is due to gall-stones, typhoid or some unknown cause, or whether it has been of sufficiently long standing to allow the formation of gall-stones." The writer stands here today as the champion of the "unknown cause," which indeed may have its incipiency *in utero!* He believes that acute cholecystitis is relatively, of itself, rare and that to classify it as an acute exacerbation of a chronic cholecystitis is infinitely more correct. Thus can we wonder at the occurrence of adhesions? Can we marvel when we see, as we do, the evidence of such adhesional influences in young people? Moreover, such influences in old or young are far-reaching. Cole considers the adhesional effect of gall-bladder disease upon the hepatic flexure as important. The writer thoroughly agrees and believes, as he will endeavor to show, that, so influenced, the hepatic flexure offers even greater opportunities for bacterial growth and absorption.

The ileocolic region offers the next great center for delayed traffic and here the individual's alimentary powers not only have to contend with a movable point dragging or twisting upon another which is relatively fixed, but also the situation is here made more favorable for septic absorption by certain *normal* motor manifestations. The discovery of anastalsis in certain lower animals by Cannon and Case's verification of the occurrence of antiperistalsis in man, not only in the proximal but in the distal colon, offers a check to prompt elimination from viscera influenced by postural or adhesional drag. If the ileocolic valve is incompetent, as Case and others found in the proportion of one to six, the situation becomes all the worse.

It is the occurrence of developmental variations in the length of the colonic mesentery or, as has been said, an arrest in embryonal progress tending to the normal disposition of the mesentery which is of so much importance in this congenital type. The question of atony need not enter primarily into the matter nor the question of adhesional influences until after birth or until the erect posture is assumed by the growing individual. Here arises again the phenomenon of perverted relationship between fixed and relatively movable points, in this instance at the right and left flexures. Two normal conditions are to be met with in the bowel which tend to emphasize the bad effects of increased angulation. Such aberrations near the hepatic flexure are accentuated by the effect of the physiological tonic constriction ring in the transverse colon just to the right of the median line, described by Cannon in cats and by Case in man. On the opposite side, the anatomically high placement of the splenic flexure marks a steep grade of ascent thereto from a transverse colon, which may be but loosely supported by a long mesentery. It is not hard to appreciate the effect on the flexural bowel by such drag and pull. Blood supply is deficient and anemia and possible gangrene ensue. Nervous stimuli are deficient and perfect haustralation is lost. The mucosa is broken down and to its ulcerated surface fecal masses adhere, setting up undue putrefaction and absorption of the products thereof. The writer believes that there is a chance for much study, in a way roentgenological, of the colonic flexures, not merely as mere angulations, but as receptacles or reservoirs, if you please, for content-stagnation, with its manifest effect. Quimby of New York has considered well the matter of colonic angulation, although he discusses the matter of mechanical inhibition to its function as a phylogenetic manifestation rather than an entogenetic one. The writer feels that the presence of putrefactive masses and gas within the flexures constitutes a handicap to its proper physiologic filling and haustralation and that we can recognize and describe roentgenological flexural filling defects as well as those presented, for instance, in the duodenum. The situation is a bit more complicated, to be sure, but the possibility promises much in the way of diagnostic refinement.

To revert to the peripheral joint-manifestations of auto-absorption, with which this paper deals, it must not be assumed that intestinal auto-intoxication produces joint lesions alone or that other sources of infection do not share with the hollow viscera the questionable honor of

creating joint manifestations. Again, to speak concretely, it may be but accidental, in our above described congenital type, that the *joints* show secondary change at all; the symptoms may be far more diffuse, corresponding generally to those of the chronically constipated. Conversely, the picture of congenital stasis may present as well suspicious teeth and tonsils. The pharyngeal and cervical glandular manifestations have been a classically described symptom of Still's multiple infectious arthritis in the young.

It has been found that certain types of arthritic pathology, of which, possibly the so-called hypertrophic form may be taken as an example, are, apparently, engendered by an interference with the normal intestinal chemistry by which bacterial reproduction is controlled. May it not be an open question, as Goldthwait says, as to whether or not those joint changes, which we have previously ascribed to metabolic deficiency, may be classified in the same general gamut; in other words, may not our so-called metabolic aberration be merely the middle ground between our mechanical and supportive alimentary defects as a cause and our joint manifestations as a result?

A table which I shall presently take the liberty of showing represents a comparison, with reference to their cardinal signs and symptoms, as set forth in the writings of four standard observers, between certain chronic intestinal conditions of a physiological inhibitory nature and a certain so-called "constitutional disease" presenting joint manifestations. It is not asserted that the contents of this table are conclusive or even striking, but to the writer they are at least suggestive of the possible existence of a common source for many instances of all these afflictions just as all European peoples can trace their origin to the Aryan race. Deep consideration of this hypothesis will at least convince one of the futility of attempting to control, in the hope of success, the progress of these cases by local therapeusis. It is a question indeed as to whether or not the originator of the term "constitutional disease" "builded better than he knew," since he must have failed to appreciate a morphological basis for such manifestations.

What is the full significance of the congenital predisposition to systemic infection as it occurs to the mind of the general practitioner? How can he best apply his influence to the betterment of such conditions? The whole matter should be for him a part of that great problem we are facing today—preventive medicine. It is the general practitioner to whom we look for true picket-duty in the great conflict against disease by means of the accoutrements of prevention with which we are seeking constantly to arm ourselves, and the peripheral sensory nerves of any army are the outposts thereof. It is the general practitioner who is destined to first scent the hostile smoke and who must always combat the initial attack. Properly to pursue his picket-duty, he must be constantly on the alert to recognize among those with whom he comes daily in contact and in whom disease is merely waiting for the chance to assert itself, a type, a point of vantage, as it were, in which our common enemy seeks to gain a foothold. Such a foothold may be in the little child who, by virtue of congenital circumstance is about to offer this vantage ground. From this possession, the influences hostile to health can be wrested only by the upbringing of that child in such a manner that from year to year the situation becomes more and more untenable for the enemy. The mode of attack is a matter without the province of this paper to discuss, but the writer will say that there must be formed immediately a triumvirate for prevention, which shall be made up, first, of the general practitioner; second, of the roentgenologist; and third, of the surgeon, the orthopedist or the general therapeutist, as the case may demand. The function of this triumvirate is obvious and the duties of each member are clear and well-defined enough. Its chief task, however, shall be to recognize a type, or status, a diathesis, if you please, which heretofore has too often failed of recognition. To this status, or type, the writer ventures to give the name of *abdominal viscerosis*, and a full recognition of the existence of such a status will be justified in full by the number of abdominal viscerotics which can be treated properly only through a clear sensibility of the true nature of their predisposition.

	Chronic Rheumatism (Strict Sense)	Arthritis Deformans	Gout.	Gall-Stone.	Constipation.	Visceroptosis (Glénard) Type 2	Visceroptosis (Glénard) Type 1
Age	Past middle life	30—50	30—50	Over 40	Age of lessened activity	No bearing	
Sex	Male	Female	Male	Female	Female	Women	Usually female
Habitus	Slothful	No especial bearing	Slothful	Lack of exercise (Strümpell)	Slothful	No bearing	Active
Hereditary influence	Rare in youth	Hereditary	Hereditary	"Has been observed in the newborn" (Strümpell)	Hereditary congenital	No bearing	Young

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DESCRIPTION OF PLATES.

The process of reproduction reverses the right and left aspect in these illustrations.)

PLATE 1 represents a portion of the intestinal tract in a child of nine in whom a most pronounced degree of constipation has persisted ever since birth. The bowels from early infancy have failed to move normally and have been assisted with the usual routine of mild laxatives and soap suppositories. Within the last several months a train of symptoms has slowly arisen which demanded professional attention. The child complains of headaches, is undersized, is called nervous and easily cries. The breath is foul and there is periodically a series of unaccountable vomitations. The case has been presented as one of weak digestive powers and has been generally accepted as such. This plate illustrates the situation at a *six-hour* interval, post cartum. Much advancement has been made in spite of the evident aberrations in the course of the large gut. In other words, the subjective manifestations seem to rise from the colonic abnormality rather than any difficulty affecting other portions of the intestinal tract. The general course of the large intestine at this time is shown merely to offer the suggestion of a general mesocolon evidently congenitally aberrant. This case lacks the multiplicity of visual evidence which can be presented by others, but it is shown on account of the often unexpected disposition of the large intestine in the young.

PLATE 2. The same case at nine hours.

PLATE 3 represents the case of a young person of eight who was apparently much below this age in point of development and, to whose physician, two cardinal objective symptoms were presented. On the one hand, an extremely foul breath, and on the other, a clubbing of the finger tips. Beyond this there was nothing presented of great moment except a degree of constipation which the young parents thought to be inevitable in a child of this age, associating, for some unknown reason, a condition of constipation with childhood. The Röntgenological evidence of the distribution of food in the intestine at a twenty-four-hour interval, post cartum, presents distinctly the type of condition described by Goldthwait and Jackson, namely, "delayed tone" to the extent that there exists in this case at the hepatic flexure, or thereabouts, a degree of extraneous material which is believed to be the direct result of local putrefaction. It is this material which is most visually to be recognized as gas in overabundance which the writer believes accounts for many cases of so-called "filling-defect" at the flexures. The delay in the ileum is also seen. The mass-movement in the distal transverse colon is irregular and actually slow. This child has not been treated except by means of abdominal external support and general attention to hygiene. She has distinctly improved, the foul breath having totally disappeared.

PLATE 4. represents the case of a boy of seven in whom the chief objective symptom was an intermittent diarrhœa, the attacks of which were severe and profound. Subjectively much pain persisted, not only in conjunction with the diarrheal attacks, but also during the interim between them. This pain was referred especially to the right iliac fossa, but was also felt upon the left side. The original diagnosis was that of an appendix with recurrent attacks.

The record here shown is one in which the exposure to x-rays was made at a six-hour interval, post cartum. There is a degree of residue within the ileum which perhaps is not unreasonable at this hour in a child of this age. The colon is seen to be distended. Its haustralation is irregular, with the presence of much gas, which greatly distends the lumen of the colon. The course of this gas indicated to the observer that, possibly, there might be a congenital aberration in the length of the mesocolon with reference, possibly, to the mesocolon of the transverse section as well as in the immediate region of the descending colon.

On operation it was found that the transverse mesocolon was unduly short whereas the mesentery acting as a support for the descending colon was of undue length in comparison. The child presented generally the type of so-called congenital abdominal "visceroptosis" although its growth had not, up to the time of the examination, been very rapid. Constant headache and gastro-intestinal attacks, however, suggested the Röntgen examination.

PLATES 5 and 6. These were made from a series in two cases representing two sisters and illustrating similar counterpart cases which are often seen in members of the same family. These girls, at the time of examination, were respectively twenty-four and eighteen years of age. The first case presented no gastric symptoms whatever, but a marked and increasing constipation for the last four years. More or less ileocecal discomfort, but no attacks which have been clinically diagnosticated as due to an appendix nor has she been operated on for an appendicitis. She has had no especial headache nor periods of mental or nervous depression.

The abnormality seen by x-rays, at a six-hour interval, post cartum, is one chiefly of an aberration in relation between the right half of the transverse colon and the ileocolonic structures. Since the history of constipation began she had suddenly a severe pain in the right knee which is persistent, although no other joints present any undue manifestation. The knee is swollen and is limited as to normal motion, but is not unduly hot or tender. The patient wonders whether or not this knee may be due to dancing and it would not give her concern except for its persistency.

The other case presented in many details the same picture as that of her sister, who was previously examined by the writer about four years before. Subjective symptoms in this case, however, were much more severe than in the other. Constipation was marked and was attended with more subjective manifestations than were to be noticed in the case last described. The interrelation between the proximal colon and the right half of the transverse colon is characteristic and subjective. For this condition, which was believed to be of an adhesional nature, she was operated and a series of broad bands were freed. The sister first described has been put upon a course of allobene and at last reports was doing fairly well.

These two cases illustrate to the writer's mind the likelihood of similar manifestations appearing in the same family and the occurrence of a marked condition in either mother or one child of a family, should, he believes, put the practitioner on his guard for such manifestations in others. These two girls could not be said to be pursuing a dissimilar mode of life. They were the children of fairly wealthy parents and, it is presumed, were under the same family influences. These two cases, therefore, are perhaps not so distinctly exemplary of congenital influences as are the following:

PLATES 7, 8, 9, 10, 11. These are records of two sisters who, although having great physical similarity, nevertheless, have for some years pursued devious habits of living. At a six-hour interval, post cartum, (7) one will see that although the ileum should be by no means empty normally, nevertheless, the proximal ileum in this case presents a more copious distribution of food than should be seen even at this interval. At a nine-hour interval, (8) a great deal is to be gathered in the way of diagnostic information. The stomach still contains a marked residue which is consistent with its pronounced ectatic form in the early exposures, not shown here. The transverse colon is low in position; its hepatic angle is accentuated. Evidence of ileal stasis is to be seen. The appendix is, apparently, by virtue of its position, involved in the general adhesional process. At twenty-four hours, (9) the engorgement of the cecum and all of the colon proximal to the hepatic flexure is to be noted. But erratic and sporadic mass-movements have, apparently, taken place distal to the hepatic flexure.

The other case presents very much the same situation. The plate shown is that of a nine-hour interval, post cartum, (10). The stomach in this case contains an appreciable residue which, to the writer's mind, as in the other case, is due not only to the degree of ectasis present, but also to peridoudenal or peripyloric inhibitory adhesional influences. There is ileal stasis, although the interval is but nine hours, post cartum. At twenty-eight hours, (11) the cecum is seen to be engorged, the influence to which end is, possibly, located around its distal portion. Much gas is contained at the right flexure and the relation between ascending and right transverse colon is clear enough.

The two cases illustrate well, as examples, the carnivorous type of being. These girls are lean, almost, in the case of one, emaciated, pinched features, extremely active sensorium, sallow, swarthy skins and, as a whole, distinctly of the type we have been in the habit of calling "neurotic." One, however, lives in the apparent quietude of home life with opportunities for regular eating and habits of excretion. The other works as an operative

in a manufacturing establishment. She is obliged to eat somewhat irregularly, or rather to eat insufficiently during hurried opportunities. A strong suggestion of family tendency toward alimentary visceroptosis is offered here.

PLATES 12, 13, 14, 15, 16, 17 represent a series of six intervals made from a larger series, in a case which is interesting, as exemplifying, it is believed, a certain type of intestinal stasis. The appearance herein shown, while less demonstrative than many records of other observers will, it is believed, be familiar at once to the Röentgenologist just as the symptoms presented by the individual will be familiar to the clinician. This patient, a woman of thirty-five, has been annoyed by a manifestation of constipation through the influence of which she has gone without motions for days. This affection has been existent for many years. She is unable to move her bowels without the assistance of artificial means which, of course, has gradually lost its effect. Much headache, much muscular stiffness—she becomes very despondent at frequent intervals — gives no history of definite rheumatism, but is much annoyed by neuralgia, particularly of the facial type. Considerable abdominal soreness and tenderness on pressure.

The Röentgenological findings, as presented by these plates, are extremely interesting. At an interval eight hours after the meal (12) the ileum is found to be normally empty—the cecum engorged, as well as the ascending colon below a level corresponding to the iliac crest. Above this level there seems to be an effort toward advancement into the right flexure proper. From twenty-three hours, post cartum, (13) to thirty-two hours, (14, 15, 16, 17) this advancement has subsided and the entire mass of food is packed into the cecum and ascending colon below the above mentioned level. It is believed that here we have one of those situations wherein anastalsis, being in the ascendency, is acting as an inimical influence to the passage of food and resulting in an engorgement of the cecum. There is presented little evidence of advancement, but there is suggested the existence of an inhibitory entity, possibly of an adhesional nature, which is shown beautifully at a twenty-seven hour interval (16). At a thirty-two-hour interval, post-cartum, (17) again there seems to be an effort at advancement over the right flexure. The constriction-band at this moment seems to have caused a distinct separation between the distal and proximal masses of content. This case, I believe, shows well as an example of those instances where normal peristalsis, interferred with pathologically, is unable to overcome the influence of antiperistalsis and whose antiperistalsis, though primarily normal, becomes here secondarily abnormal.

PLATES 18 AND 19. These are also indicative of conditions found in cases similar to those already described. At a six-hour interval (18) gastric residue exists. A strong suggestion of the reduplication of the large bowel is seen and this suggestion is converted into a certainty when the record made at twenty-four hours (19) is presented. Here the flexure is filled with the effects of content-decomposition in a "filling-defect" made inevitable by the presence of these influences. A suggestion of a possible constriction-band is offered in the distal cecum. The case was one which can be clinically listed as that of an abdominal visceroptic of a marked type.

PLATES 20 AND 21. These present the case of a gentleman who is virtually a cripple from arthritic manifestations of which he has been the victim for years, although this early life was free from such influences. He presents at nine hours, post-cartum, (20) a comparatively good arrangement of the large bowel, with the exception of the presence of much decomposition at the area of greatest apparent stagnation. His cecum is, to a great extent engorged, although the ileocolic valve is sufficient as to function.

PLATES 22 AND 23. These are a part of a series in a lady of fifty who presented, to the writer's mind, the evidence of extra- and periduodenal adhesional influences strongly affecting the contour of that portion of the intestine as described by Gregory Cole. She has presented for years the history of gall-stone attacks. It is likewise believed, as shown by these records, that the hepatic flexure is also involved within the adhesional influence and, consequently, gives rise to the usual symptoms of back-pressure proximal to it which are seen before you. A comparison with the flexure at the splenic angle will show you the apparent comparative freedom of this structure.

PLATES 24 AND 25. These plates illustrate a case of distinct "hyperontomorph." The woman presented, besides the usual symptoms met with in patients of this stamp, a general painful condition which was diagnosticated as muscular rheumatism. The condition, as here seen, is simply a repetition of records which have already been described above. Especially to be noted is the relation of the position of the mid-portion of the transverse colon to the flexural fixed point on the splenic side.

PLATES 26 AND 27. These illustrations present the general peri appendicular picture in a case which was returned primarily as one of chronic appendicitis. The position of the filled appendix will be seen, but its stereoscopic portrayal naturally clears a true appreciation of its relationship to the cecum. The crowding caused by the tortuous and distant transverse colon is, for a certain distance, beginning at the splenic angle will show you the apparent comparative freedom of this structure.

PLATE 28 is presented as illustrating, in large part, abdominal visceroptosis of congenital origin. The symptoms are largely those of constipation in a young individual, intermixed with diarrhœa. Subjective symptoms were especially manifest, extending over a considerable period of time. It presents a ptosis by which the hepatic portion of the transverse colon sinks well into the area usual to pelvis. The right and left flexures are acutely angulated and the history suggests that there may be here a distinct elongation in the length of the mesocolon. It is but one of many examples which constantly come to the attention of the Röntgenologist and which are more often testing the acuteness and keenness of the general practitioner

A FURTHER STUDY OF CANCER.*

BY SEELYE W. LITTLE, M.D., ROCHESTER, N. Y.

FURTHER experience confirms the general truth of the writer's views, expressed in "A Study of Cancer," (BOSTON MEDICAL AND SURGICAL JOURNAL, Jan. 15, 1914.)

Without again going over the argument, the main points in the theory are as follows:

(1.) Cancer a disease of disordered nutrition.

(2.) The probable origin of the growth is in a highly specialized cell or cells which for some reason or other (possibly always trauma) have undergone a retrograde metamorphosis to the point where the power of reproduction, common originally to all cells but lost in these highly specialized cells, has reappeared.

(3.) This reproduction of such reverted cells is caused by a relative hypo-function of certain ductless glands.

(4.) To produce cancer, such hypo-function must be primarily in a ductless gland derived from the same blastodermic layer as are the cells from which the cancer originates. For example, cancer of the breast implies hypo-function of some ductless gland or glands derived from the ectoderm,—the breast epithelium being ectodermic in origin.

(5.) In some vital manner, sugar metabolism and calcium metabolism are involved in the disordered nutrition resulting in cancer.

(6.) The ductless glands at fault in each case have some vital relation to sugar metabolism or calcium metabolism or both. As bearing on the last two points it has been shown that cancer patients in general have a hyperglycæmia, though rarely a glycosuria. Diabetes and cancer are rarely present together. Cancer patients, like tuberculosis patients, have in general also a poor calcium metabolism, the "precancerous" condition resembling in many respects the "pre tuberculous" condition.

Whether the theory be true or not, it seemed not only fair but obligatory to act as though it were indeed true in inoperable cases unless and until something more promising appeared. Two methods of attack suggested themselves. First, to use sugar or calcium or both medicinally on the ground that the hyperglycæmia is an effort of nature to cure and that the failure of lime metabolism might be helped by lime administration. Second, to supply the theoretically failing ductless gland secretion if possible.

With regard to lime, we have done very little because of our ignorance. The writer has collected a mass of material on lime metabolism and the relations to it of the ductless glands but is not prepared to venture any opinion in that direction.

The sugar metabolism literature is bewildering. It furnishes, however, a number of sug-

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gestively salient facts for our purpose. Cancer patients have hyperglycæmia, but rarely glycosuria. As a class, they prefer carbohydrate food to any other. The ductless glands theoretically at fault have vital relations to sugar metabolism as well as to cell reproduction and cell differentiation. We found in too many cases to be coincidental a history of glycosuria, then a total disappearance of glycosuria with the development of cancer. Every case of coincident cancer and glycosuria or of glycosuria followed by cancer, where we could verify the facts by autopsy or otherwise showed that the pancreas was involved. The relation of the islands of Langerhans to diabetes is generally accepted. Grant this theory and failure of the islands results in diabetes or in cancer or in both, depending on various other factors. According to the theory, if such failure of the islands results in cancer, the cancer must be in endodermic tissues, the islands being of endodermic origin. So we have always found it in the few authentic autopsies made. In diabetes there is plenty of sugar in the blood but the tissue cells cannot use it and it is passed off in the urine. In cancer there is also an excess of sugar (the same kind of sugar) in the blood with no abnormal escape of sugar. Therefore the sugar is used somehow. We assumed this to indicate a demand for sugar and we fed sugar freely to some hopeless cancer patients with occasionally an apparent cure. A curious statement made by a woman who had worked on an Indian reservation served to put the writer in his place as a discoverer. This woman, hearing that a certain man had cancer, said, "Why don't you treat him as the Indians do and he will get well. Just give him all the sorghum you can get into him."

As to the other therapeutic point of attack, the giving of ductless gland extracts, we have now settled down to three as essential, one each for ectodermic, for mesodermic and for endodermic cancer. We have reached this conclusion from the known facts, from experimental clinical work, from autopsy findings and by a process of exclusion. For ectodermic cancer, pituitary extract. With our present knowledge we use the extract of the whole gland. For mesodermic cancer, *cortex* of the suprarenal and for endodermic cancer, islands of Langerhans. There was no available preparation either of suprarenal cortex or of the islands. In the case of the islands the technical difficulties seem insurmountable. Nevertheless I must record my gratitude to the G. W. Carnrick Co., for making an extract of pancreas containing an unknown amount of the islands but necessarily also of everything else in the pancreas except the enzymes and the coagulable proteids. This preparation I have used in endodermic cancer but I can claim no cures from its use though it certainly has some effect, because the patients live much longer and retain their weight much better than similar patients not so treated. Also at least two of them repeatedly and rapidly lost ground when they ran out of the medicine. Personally I am convinced that if we had a reliable preparation of whatever it is that the islands of Langerhans produce and a suitable method of administration, we could cure diabetes and—let us say—control endodermic cancer. Lacking all this I shall use in these cases the Carnrick preparation as long as they will make it for me. Perhaps we should obtain a more active extract if the tails alone of the pancreas were used, as it has been shown that in the tails of the pancreas the islands of Langerhans are much more numerous than elsewhere.

The same company also furnished me with a dry extract of suprarenal cortex which certainly is active, though I am not yet prepared to report upon its definite value in these cases, not having had sufficient experience. Even the dosage is unknown. We go cautiously for fear of unknown but possible bad effects. But the preparation is surely valuable, not necessarily in mesodermic cancer alone, but quite possibly in certain other nutritional disturbances. There is strong evidence to show that Addison's disease is not at all due to failure of adrenalin, which comes from the suprarenal medulla, but to failure of the cortex. Also the writer has some very suggestive data showing a connection between suprarenal cortex and sarcoma. Three such cases showed marked brown patches of skin for example. These three cases comprise all that have been studied with the cortex in mind.

In the former paper the argument pointed to failure of the generative gland internal secretion or to failure of the suprarenal cortex secretion as the crux of mesodermic cancer. We had no preparation of the cortex and the one case in which testes extract was used (reported in *Clifton Medical Bulletin*) promptly died. There was no particular reason for using the testes extract except that we had no cortex. In fact we were not very enthusiastic about using generative gland extract in these cases, because if those glands are at fault we ought to have a very high percentage of cancer cases among eunuchs, a condition which, so far as I can learn, does not obtain.

In any hopeless case of mesodermic cancer I should strongly urge the use of a reliable preparation of suprarenal cortex.

As to pituitary extract, our evidence so far as the few cases go is conclusive. I will not say that any cases are cured, but absolute evidence is at hand to show that under the administration of pituitary substance pathologically proven ectodermic cancer has disappeared. Whether it will return I cannot say, nor can I say how long the treatment must be kept up, if at all, after the cancer has gone. Experience alone can settle these points. But the fact of disappearance remains, giving great hope that with suitable preparations of suprarenal cortex, of islands of Langerhans, and possibly some others, we may work like wonders with cancer of mesodermic

and of endodermic origin. Meanwhile in inoperable cases I strongly urge the use of such preparations as we have. The Carnrick Company wisely has not put them on the market, but has been most patient and accommodating to the writer in trying to meet the requirements and would doubtless exhibit to other physicians a like courtesy.

In this paper I shall confine myself so far as case reports go to ectodermic cancer. If the points seem well taken there, it is a fair inference that we are working in the right direction on the other far more dangerous and more numerous cancers, cancer of mesodermic and of endodermic origin.

But before briefly presenting a few case histories, let me urge most strongly the matter of autopsies and present a little more confirmatory evidence. If a patient dies of cancer, secure an autopsy if possible. Get a small piece of the original growth itself and also a part of every ductless gland possible. If the cancer is ectodermic get the pituitary; if mesodermic, get the suprarenals; if endodermic, get a part of the tail of the pancreas. Get these certainly and others if possible. If such specimens in 50% alcohol are then sent to the writer, he will be only too glad to have them examined by a competent pathologist.

A large number of such autopsy findings would be of the utmost value either to confirm or to discredit the theory. The writer has been able to find very little in the literature as to the autopsy findings in regard to the ductless glands in patients dying from cancer. What little there is, is at least encouraging. Rupert Ferrant (*London Lancet*, March 7, 1914) reports that in 31 cases dying of sarcoma or carcinoma, the thyroid shows nothing attributable to the growths. This is negative evidence, but consoling at least, because according to the theory the thyroid is not especially at fault.

Case 4, reported in previous paper, a cancer of skin, showed on autopsy a decidedly small and abnormal pituitary body. This is positive evidence, but it is only one swallow.

M. Hirtz reports in *La Semaine Medicale* the case of a man who in 1902 presented all signs of Addison's disease and who apparently recovered under treatment by suprarenal extract. He died in 1913 from cancer of the stomach. Autopsy showed merely a small cicatricial nodule in left suprarenal, presumably all that was left of his Addison's disease. Pancreas apparently not examined.

In the only three cases of endodermic cancer in the past year in which the writer has been able to secure an autopsy, the pancreas has been plainly abnormal. Two of the cases were cancer of the stomach and one cancer of the liver. In the stomach cases the microscope showed carcinoma also of the head of the pancreas. No islands of Langerhans were observable, but the sections were from the head of the pancreas, where the islands are normally of infrequent occurrence. In the liver case the pancreas was about half its normal size, but in gross appearance otherwise normal. Specimens from the tail of this pancreas have not yet been sectioned.

Cancer "families" are easily understandable if our theory is correct, because family "unbalance" in ductless gland function certainly exists and the table would indicate that it is in just such families that cancer very frequently occurs.

Dr. C. M. Moullin *London Lancet*, March 21, 1914 shows that every cell originally has the power of reproduction but that, as differentiation and specialization progress, many cells lose that power. Moullin argues that if for any reason the highly specialized function is stopped, the cell being alive, the reproductive power returns and we have a tumor. This is exactly in line with the author's theoretical "idler" cells described in the previous communication.

The *London Lancet*, May 16, 1914, in speaking of the Abderhalden reaction in cancer, says that probably this reaction is good only when the preparation is made from a cancer derived from a location similar to the suspected cancer.

The following table is compiled from the case histories known to the writer to be authentic. This table is designed merely to show the instability of ductless gland function in general in the family and personal history of cancer patients. It seems to be very significant, the more so since careful personal and family histories have been taken in these cases. It is truly astonishing to find how suspiciously frequently various abnormalities in ductless gland function occur in the person and in the relatives of cancer patients. Diabetes, goitre, Addison's disease, and nutritional disturbances of the skin are particularly frequent, very much too frequent to be explained by coincidence.

The theoretically assumed "idler" cells discussed in the former communication received an unexpectedly early and authoritative indorsement in the Boston Medical and Surgical Journal of Jan. 8, 1914. Dr. Joseph C. Bloodgood of Baltimore writes in that issue of "Cancer of the Lower Lip" and describes microscopical findings in smoker's burn. The conditions which the writer hazarded as a possibility are there beautifully proven, at least for the cancers in question. Dr. Bloodgood's article appeared in the issue just before the writer's, and furnishes a strong link in the chain. It must be remembered, however, that the actual process of beginning cancer from such shut-in cells has never been observed.

A few years ago a considerable degree of hope was raised because certain authentic cases of cancer of the breast were reported cured by removal of the ovaries. It is clear that very few of these "cures" were really so. Further experience was disappointing, because, though often a favorable change took place in the growth after ovariotomy, subsequently things

usually went from bad to worse. This method of treatment therefore is now practically discarded. But in view of our present knowledge, and particularly if our theory is correct, the results are understandable.

CANCER OF	PERSONAL HISTORY.	FAMILY HISTORY.
Sigmoid	Arterio sclerosis for years. Diabetes in Fall, 1913, disappearing in January, 1914. Died of cancer in April.	A daughter knows has Addison's disease.
Tongue	Hair and teeth very poor.	One brother, a "bleeder," bled to death.
Breast	Teeth decaying badly of late and hair thinning.	Not obtainable.
Breast	Ichthyosis for years.	Grandmother died of cancer. Son has obscure nutritional disturbance of skin. Grandson had melena.
Upper Jaw	Teeth and hair very poor during time growth was present.	Not obtainable.
Tongue	Teeth bad. Hair very thin.	Negative.
Uterus	Hair thin. Teeth poor. Moderate goitre.	Sister, goitre. Father, goitre.
Stomach and Pancreas	Glycosuria before the cancer, none since.	Negative.
Breast	Teeth always troublesome. Hair getting thin.	On mother's side, large, tall people with fine heads of hair.
Breast	Hair thinning past year.	Grandmother, cancer; sister, cancer; aunt, "tumor."
Rectum	Diabetes 10 years ago and until trouble began in rectum.	Negative.
Skin	Teeth and hair bad lately.	Cousin, sarcoma. Family of tall people — many over six feet.
Pancreas	Hair thin and white early in life.	Father died. Addison's disease; sister, goitre (operation); sister, uterine fibroid (operation).

Remember that the internal secretions of the ovary and of the pituitary body are normally in a condition of balance as it were. When the ovary is resting, as during pregnancy, the pituitary enlarges, a sign of functional activity. When the ovary ceases work permanently, as after the menopause or after ovariotomy, the pituitary is still normally active because it has work to do. Now in the case of cancer of the breast theoretically due to hypopituitarism, remove the ovaries and at once the hypo-pituitarism is relatively less and the cancer of the breast is thereby improved. The hypo condition rarely may be entirely overcome and the rare "cures" result. But in general the hypo condition must as time goes on necessarily prevail because all organs fail as age advances and we should expect the pituitary to fail faster than other organs in these breast cancers, because according to the theory the pituitary must have been below normal for the cancer to start at all.

Another experience is that of an Italian surgeon who more recently has reported apparently authentic cures of various cancers by the administration of extract of the entire human fetus. Again, this according to our thesis, is perfectly possible though clumsy and repugnant. We know that certain of the ductless glands are proportionately very active in fetal life. It is quite possible, therefore, that in certain cancer cases, extract of entire fetus would contain a relatively high percentage of just the internal secretion needed to supplement the failing internal secretion of the patient.

CASE 1. Female, age 34, single. Family history unimportant. Personal history: not fond of sweets, but always a vegetable eater, and especially so after trouble started in breast. Teeth decaying very rapidly in past two years. Had a fine head of hair, but recently has been losing it. Skin dry.

In August, 1912, had complete breast operation for cancer. Late in September, 1913, "lumps" appeared in line of incision and glandular enlargements felt in axilla. In October, 1913, when first seen by writer the recurrence was very marked and the patient was weak, had lost much weight and was bedridden. She was delirious most of the time. The case being judged hopeless, she was fed as much sugar as possible in the shape of cane sugar, grape juice, honey, etc.

Late in October the patient had gained in weight and in strength and was clear mentally. She walked out of doors with a nurse. She was then put upon pituitary extract. She gained in every way, the "lumps" disappearing and the glandular enlargement being very much less. This was in January, 1914.

The writer did not hear of her again until in May, 1914, when her physician said she had recently died of acute bronchitis. No autopsy. It is quite possible there was a metastasis in the lung, though her physician thinks not.

CASE 2. Female, age 54, widow. Family history: three deaths from tuberculosis. Grandmother, cancer. Personal history: ichthyosis for years,—hair and teeth excellent for her years. Always in good health.

Twenty years ago hurt right breast and lump size of bean appeared but remained quiescent until September, 1913, when it began to grow rapidly. First seen by writer March 26, 1914. The growth

was the size of a hen's egg, movable and the breast felt everywhere firmer than the other. Axillary glands palpably enlarged.

April 4, Dr. Hastings made a complete operation. Dr. Casey, the pathologist, pronounced it not carcinoma! We must accept his authority, while feeling unconvinced and relieved that the "lump" is not there.

Patient put upon pituitary extract. Subsequent history will be awaited with interest.

Case 3. Female, age 49, single. Family history: Insanity marked. On mother's side very many tall people with fine heads of hair. Personal history: teeth always troublesome. Patient a large woman with luxuriant hair. In January, 1913, patient consulted writer for menorrhagia. She was regular but flowed profusely for 10 to 14 days. After reasonable trial of ergot, stypticin, adrenalin, etc., with no effect at all, a curettement was done. Dr. Casey reported negatively as to carcinoma. Menorrhagia ceased for a few months and then began as bad as before. Then she was put upon extract of pituitary on the theoretical ground that possibly here was a patient with a family history of moderate hyperpituitarism (many individuals being very tall, large people) that in her case the hyper had changed to hypo; that the balance between ovary and pituitary was therefore destroyed; and that when the menopause should be taking place the pituitary was not equal to its work and the ovary therefore, had full sway. The extract was used only at the time of the excessive flow and with good results. This was in the fall of 1913. We seemed to be getting control of the menorrhagia and were calmly awaiting the menopause when the patient in June, 1914, called my attention to her breasts which were beginning to hurt. To my dismay I found in the right breast a firm mass as large as a goose egg, in the left breast an only slightly smaller mass and axillary gland involvement on both sides. Careful questioning then made it plain that the lumps had been there certainly three or four years but had begun to grow only in the past year.

Operation being impossible at the time, she was put upon 10 two grain tablets of an extract of the entire gland daily. Several results followed. The monthly flowing ceased entirely except for the barest show in July. The pain ceased. The lumps are palpably smaller. Strength decidedly increased.

Several courses are now open. We may operate soon or wait a little in hopes of still further shrinkage. We may even go on with the medication if progress seems to warrant it. At all events the case is of the greatest theoretical interest.

Case 4. Female, age 34, married. Family history: grandmother, cancer; sister, cancer; aunt, "tumor." Personal history (March, 1914) Hair thinning since 1913. Has a slight enlargement of thyroid. Lump in right breast for two months. Probably much longer but patient thinks not. Not tender, freely movable. Weight 129 pounds.

Advised immediate operation which was declined because of unfortunate results (attributed by her to operation) in other members of her family.

Patient given eight grains pituitary extract daily gradually increasing to 16 grains.

There has been a steady shrinkage of the growth with increase in strength, of weight (now 134), an improvement in color and a filling out of breasts from the flabby former condition. The mass now (Aug. first) is scarcely palpable and is soft and ill defined instead of hard with clearly marked outlines. Hair has ceased falling out.

In this case also the writer is in a quandary as just what course he ought to follow.

Case 5. Male, age 62, married. Family history: many very tall individuals, one cousin is six feet five inches tall. Personal history: six feet one inch tall, very poor teeth and thin hair. For many years has had a small warty lump size of a pea on side of neck. In June, 1913, this lump began to grow. Consulted the writer Nov. 27, 1913. The patient presented an irregular ragged looking ulcer with indurated edges three-fourths inch in greatest diameter, on right side of neck. This was covered by a crust of pus and dry blood.

Operation though strongly urged, absolutely declined.

He was given pituitary extract eight grains daily increasing gradually to 20 grains.

Steady shrinkage of the ulcer with healing at the edges. July 1, 1914, the ulcer was entirely healed but covered with tissue looking like scar tissue and not like ordinary skin epithelium.

I am inclined to cease urging operation on this man unless something untoward occurs, meanwhile keeping close watch of him.

GUNSHOT AND BAYONNETTE WOUNDS OF THE STOMACH.*

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A bayonnette wound is in all respects similar to any form of stab wound, but the lesions produced by the Lebel bayonnette present certain special characters which should be taken into consideration. The Lebel bayonnette has four sharp longitudinal projections, separated by four corresponding grooves, and its effects have been studied by Sieur in an article which appeared in 1900 in the *Archives de Med. et Pharmacie Militaires.*

He found that the wounds produced in the stomach and intestine were rounded, with irregular and slightly contused borders. In the experiments which Sieur undertook on dogs, he found that after the bayonnette had been withdrawn the borders of the wound came back in contact with each other, causing complete occlusion of the perforation, through which it was difficult to cause the exit of the gastric contents. On the other hand, when the arm remained in place, the grooves formed true gutters, along which the gastric fluid escaped and accumulated in the peritoneal cavity. Sieur is of the opinion that this bayonnette acts by retracting the tissues, rather than by their section or laceration.

*A paper compiled from lecture notes of The Surgery of War.

and this applies to the muscular fibres in particular. A soldier who was wounded by this bayonnette in the epigastric region and who died from a wound of the aorta, showed at autopsy that, although the stomach was full of food and completely transpierced, no gastric contents were found in the abdominal cavity. A young girl who was wounded in the epigastric region by a Lebel bayonnette presented distinct symptoms of gastric perforation but recovered without operation.

Referring now to the most important part of the subject, that of gunshot wounds, it may be said that today the armies of all civilized countries employ a pointed projectile of small calibre, animated by a very great penetrating force. The modern projectile is elongated in shape and of an average calibre of seven millimeters; its length is equivalent to four times its calibre, and it weighs about fifteen grams. The nucleus is composed of an amalgam of lead and antimony, which forms a very hard mass, and is covered at the apex at all events, and usually also on its entire surface excepting the base, with an envelope of hard metal. Of the new German S bullet, the new French D bullet, and other types now being studied in Switzerland and elsewhere, we shall, unfortunately, have an overabundant demonstration of their respective values soon.

The lesions differ according to the distance at which the arm has been fired. Beyond 300 meters, these projectiles produce simple perforations which are small and circular, the bullet entering the tissues like a gimlet, spreading them apart, with the result that the borders of the wound may close together, producing an almost complete occlusion. The opening of the exit of the projectile is generally somewhat larger than that of entrance. When the firing distance is less than 300 meters the lesions vary according to the state of plenitude of the stomach. When the organ is empty the wounds present the same characters as those just enumerated and the resulting disturbances will be slight, but the same cannot be said when the stomach is distended with food, and the result is a genuine bursting of the viscus. Such lesions have been produced experimentally by Delorme and reported in volume two of his work entitled *Traité de chirurgie de guerre*. He states that under these circumstances, besides the entrance perforation, which has the diameter of the projectile, and the exit-perforation considerably larger, the viscus presents large tears and extensive rents.

Gunshot wounds of the stomach are very frequently accompanied with wounds of the neighboring viscera. When the shot is fired at a moderate distance the projectile generally transpierces the subject, passing through the pleura, lung, liver, spleen, pancreas, kidney, or even the pericardium and heart. The minimum of damage is met with when the projectile enters in the area of Labbé's triangle, an area in which the stomach is in direct relation with the anterior abdominal parietes, but even here the organs situated behind the stomach (kidney, pancreas) will probably be involved. In other instances the track of the projectile in the tissues is much longer, when the bullet follows the axis of the body. This is met with frequently in soldiers who were in the recumbent position at the moment they were shot, and under these circumstances the lesions are multiple and varied. In one case the point of entrance was in the anal region, while the point of exit was found in the left sixth intercostal space in the mammillary line. The bullet lacerated the hypogastric vein, perforated the small intestine several times, likewise the colon and mesentery, and also went through the stomach.

Such cases are of no clinical interest, however, because death occurs before any help can be offered, and although such lesions are frequent on the battlefield, there are fortunate instances in which the stomach alone is involved, or at least represents the principal lesion. It is just these cases that we shall more particularly consider when speaking of the operative treatment, when this can be resorted to with the slightest chance of success, as we shall see.

Let me now revert for a moment to what I may term the *area of gastric vulnerability*, and which corresponds to the projection of the stomach on the abdominal wall. Over the anterior abdominal wall this area has an oval shape with its axis almost vertical, or perhaps it would be better to say slightly inclined from left to right and from above downwards, whose greater extremity occupies the left hypochondrium, while the lesser is situated to the right of the middle line corresponding to the pylorus. Its upper limit is represented by a curved line with its concavity parallel to that of the diaphragm, whose uppermost point is at the level of the left fifth rib in the mammillary line. This point undergoes slight oscillations with the respiratory movements.

The lower limits vary. When the gastric cavity is empty they correspond to a transverse line passing at the point of union of the ninth and tenth rib on each side. When the stomach is distended it becomes displaced downwards, and since opinions differ as to this point I will merely say that the most declivous point of the full stomach will be found in the neighborhood of the umbilicus.

The left lateral limit in the state of complete distention becomes confounded with the limits of the hypochondrium. Usually it attains a vertical line, passing slightly to the outer aspect of the nipple. The right extremity corresponds to the pylorus, which is also subject to variations, but which in its mean situation is found behind the eighth rib, this point corresponding to the external border of the rectus.

Over the posterior abdominal wall the projection of the stomach affects a shape similar to the precedent. The culminating point of its upper curved limit is at the level of the eighth rib in the left scapulary line. In the middle

line, its upper limit corresponding to the lesser curvature, obliquely crosses the spine from left to right and from above downwards, extending from the left side of the tenth thoracic to the right side of the first lumbar vertebra. When the stomach is distended the lower limit reaches about to the spinous apophysis of the second lumbar vertebra.

Let it not be understood that a wound whose orifice of penetration is located outside the limits of the area here given may not involve the stomach. With fire-arms this can perfectly well happen, but in this case involvement of the stomach is rather the exception.

Gunshot wounds are the most frequent of any in battle, lesions from the bayonnette are the exception. Usually the damage done by the projectile within the abdomen is so extensive that death results at once. Logically, it may well be argued that a laparotomy is indicated to control the dangers of intra-abdominal hemorrhage, and above all, the effusion of the gastric and intestinal contents. This is what the majority of surgeons thought who were called into action in the South African War, and everything had been prepared for the treatment of abdominal wounds by immediate laparotomy. But the results of this practice quickly showed that the mortality of the operated cases was greater than of those patients treated by temporization, and the conclusion of all the great amount of matter that has been written on the subject is that a great number of those thus wounded die before they are removed from the field, that among those removed a number die from peritonitis, but that quite a large proportion recover without operation, and that almost all submitted to laparotomy die. Consequently, at the present time opinion is unanimous that abstention is proper, and this is undoubtedly the correct view in the vast majority of cases, since the time required in carrying out these operations is pure loss and could be far more usefully employed in other injuries.

The results were quite the same in the Russo-Japanese war, and it is sufficient to read the article by the Russian surgeon Wreden, published in *The Military Surgeon*, March, 1907, in order to become convinced. In his paper on abdominal wounds in the same war, published in the 84th volume of "Langenbeck's Archiv," Bornhaupt gives statistics of 182 cases treated. All the cases were brought in late to this surgeon and he obtained a cure in 78% of those treated by conservative surgery, while 50% of the operated cases died, but it must be said that the majority of these presented peritonitis at the time of operation.

Peritonitis is the only late indication for operating, and in these cases the operative act should be reduced to the minimum. Simple incision to let out the pus and drain the peritoneal cavity, without searching for the gastric lesions, which, unlike wounds of the intestine, have a much more favorable evolution. However, the existence of lesions of the neighboring viscera may create special indications, such as hernia of the intestine and, above all, intra-abdominal hemorrhage. What has been said of gunshot injuries to the stomach applies quite as well to lesions from the bayonnette, whose resulting wounds generally have a favorable evolution.

The conservative treatment consists in absolute rest and, if possible, the subject should not be mobilized. This latter is the first condition of conservative treatment. Morphine and opium are to be administered and an absolute diet maintained for the first few days, which should be continued just so long as there is any doubt about cicatrization of the gastric perforation. Usually, feeding by mouth can be prudently commenced by the fourth day, but it may have to be postponed for a week or so. During this time rectal feeding is exclusively employed, along with the subcutaneous administration of physiological salt solution.

There are those cases which will die from internal hemorrhage, as I have already said, if not immediately operated on, and this is the only indication for surgical interference in abdominal wounds on the battle-field. But since a laparotomy is undertaken for the control of the loss of blood, after this has been accomplished, it is better, perhaps, to do a complete piece of work since the abdomen is opened, and close gastric or intestinal perforations when present. For this reason, and in order to give a clear idea of the operative technic of gunshot and stab wounds of the stomach, I desire to go into the surgical treatment at some length, although the indications are very restricted in the surgery of war, as I have endeavored to show in what has been said.

Given a case presenting the classic symptoms of intra-abdominal hemorrhage, and supposing that the patient can be transported in sufficient time to the field hospital, the proper incision to be selected is in the middle line in gunshot wounds, because by this a much better exploration can be made and the lesions found. The lesions which cause the hemorrhage may be so serious that even splenectomy or nephrectomy may be required, but wounds of the pancreas or liver can be sutured. Therefore begin at once to examine for the sources of bleeding in the left hepatic lobe, pancreas, spleen and kidneys, because gunshot wounds of these viscera are detected by the flow of blood. When this has been found and the proper treatment applied, one can next proceed to explore the small intestine for perforations, never forgetting the duodenum. Then the stomach is next examined, and I wish to impress upon you the importance of never neglecting the examination of the posterior gastric wall as well.

In bayonnette wounds the exploration of the abdominal viscera need not be quite so complete, because multiple lesions from this cause are infrequent, but nevertheless, the arm may enter

deeply and involve deep-seated structures, such as the splenic or renal vein. Examination of the small intestine need not be resorted to, as multiple perforations from stab wounds are practically unknown. When the hemorrhage has been controlled and the gastric perforation found, you will proceed to deal with it. It is needless for me to go into the technic of thoracotomy in wounds in which the bullet enters through the thorax into the abdomen as it is too formidable an operation to be done in a field hospital and therefore I shall not refer to it.

Gunshot wounds of the stomach usually penetrate both walls of the organ, and median laparotomy is the proper incision. Of the other incisions I shall say nothing because, although they certainly may be of advantage in some few cases in civil practice, they have none in the surgery of war. By the median incision the left hepatic lobe, stomach, spleen and pancreas, likewise the kidneys and intestine, can be thoroughly explored. But in bayonnette wounds median laparotomy is to be done only when the wound is in the neighborhood of the linea alba, otherwise the incision should be made at the point of abdominal perforation, since one has not to search for multiple lesions. When perforation of the posterior gastric wall occurs it is generally seated directly or nearly opposite the anterior perforation, so that it can more readily be discovered by posterior exploration. The intestine is rarely involved and in the few cases where this has been the case the transverse colon has been the organ injured. In cases where the wound is situated in the left flank I believe that the abdominal incision made parallel with the costal border is to be preferred, as it gives an easier access to the hypochondrium and subphrenic region. Should more space be required during the operation a median incision can be advantageously added.

The exploration of the anterior surface of the stomach is usually easy, excepting in the region of the cardia. The gastric perforation usually comes into view when the abdomen is opened, but when it is very small, as is sometimes the case, it must be searched for with much attention. Occasionally, it is seen in the form of an ecchymosis, which must be closely examined in order to discover the perforation. Sometimes it is hidden by a blood-clot, or it may be concealed in a gastric fold. In order to expose the perforation in the latter case, the gastrocolic ligament is incised, and by introducing the hand behind the stomach the anterior surface is unfolded and the perforation brought to light which would otherwise escape attention.

As I have said, the projectile generally perforates both gastric walls and the orifice of exit is usually seated in the posterior wall. In bayonnette wounds the anterior perforation is usually the only one, but it must be recalled that perforation of the posterior wall occurs in about 10% of these injuries. Therefore, the surgeon must not omit exploration of the posterior wall in these cases. Extragastric exploration is a necessary step in the interference in both gunshot and stab wounds, and this is done through the gastrocolic omentum, but when the perforation is near the lesser curvature it is, perhaps, better to go through the gastrohepatic omentum. By this latter route it is easier to suture a wound of the pancreas. An incision in the transverse mesocolon may sometimes be preferred. But these are not methods of choice, because by the former the access is difficult and does not allow one to explore the entire posterior gastric wall, while in the latter, if the opening is at all large and this is necessary, there is danger of injuring the vessels of the mesocolon. It is also better to avoid working in the lower part of the abdomen, necessitated by this technic, particularly when the case is one of stab wound which does not require examination of the small intestine. Therefore, incision of the gastrocolic omentum will be the method of choice, and with a large opening it is sufficient for all operative work, and involving several of its vessels will not compromise the vitality of the great omentum.

When the perforation is in the middle or lower portion of the stomach it can readily be seen and closed through a relatively small opening made in the ligament with hemostats, but the same does not apply when the perforation is seated high up on the posterior wall near the cardia. To accomplish a good suture here, the stomach must be turned upwards in order to expose its posterior aspect thoroughly. The costal borders hinder the operation and it is for this reason that several types of resection of the costal cartilages have been described, but I do not hesitate to say that by median laparotomy, perforations situated high up can be sutured, on the condition that the opening in the gastrocolic omentum is sufficiently large.

It is well to make it extend from the pylorus to the left angle of the colon, and thus one can quickly explore the posterior aspect and carry out a careful cleaning of the retrogastric space. Gangrene of the greater curvature need not be feared if the opening is made two centimeters from the stomach, so as to avoid the gastro-omental arteries.

In some special cases extragastric exploration will be insufficient, in which case gastrotomy is to be resorted to, but before doing this a cushion should be placed under the lumbar region, which may render the examination easier and the endogastric procedure may not be required. However, should this be deemed necessary, the incision in the anterior gastric wall should be horizontal, at least three inches long, and made at equal distance from the curvatures. Introducing the hand behind the stomach, the posterior wall is made to protrude through the gastric incision. The mucosa is wiped with compresses, after which the surface is examined. One may thus discover an ecchy-

mosis or a perforation which would otherwise have been overlooked.

This technic, which in gastric ulcer is rather simple, is less so in traumatic perforation, because in the former the gastric cavity is apt to be empty, while very frequently the stomach is full at the time the gunshot injury is received. This being the case, the contents must be removed through the incision, with all due care not to let any of it escape into the peritoneal cavity. Very few surgeons have resorted to endogastric exploration in gunshot wounds, and when it has been done, the incision in the anterior wall has been timidly made, with the result that the posterior perforation has been overlooked. In the case of President McKinley, the anterior perforation was simply enlarged and the gastric cavity explored with the finger, and the posterior perforation was only discovered by a direct examination of the posterior wall.

It is true that simple inspection of the outside of the stomach wall may fail to reveal a perforation, and this has happened in several cases, but it is uncommon if the operative technic that I have advised is followed. Always remember that the perforation in the posterior wall may be in the duodenum.

There is one lesion that may require gastrotomy for its discovery. I refer to contusion of the posterior gastric wall from the projectile. This lesion is uncommon, but it is often the cause of hemorrhage and ulceration. It is also indicated when external exploration does not reveal any lesion sufficient to explain the symptomatology, when, for example, there is free hematemesis due to contusion of the stomach without perforation of the organ. This has been observed in practice. As can readily be seen, the endogastric exploration has a limited field of usefulness but occasionally it may be required.

The closure of the perforations is the same in gunshot wounds as in any perforation of the gastrointestinal canal. When there is much contusion of the borders an economical resection of the exuberant mucosa is indicated. When the opening is at the pylorus or cardiac end of the stomach the sutures should be placed perpendicularly to the axis of the portion involved, in order to prevent stricture. If the loss of tissue is considerable, it is better to suture the perforation to the skin in order to save time. When there is a simple abrasion of the outer coat of the stomach it should be buried under a peritoneal suture in order to avoid future complications.

Free drainage of the abdomen is absolutely necessary, no matter how small the perforation, and should be established in those regions where liquid is most prone to accumulate, the left hypochondrium for perforation of the greater tuberosity, the space comprised between the liver and stomach in perforation of the anterior gastric surface and lesser curvature.

For posterior gastric perforation the retrogastric area must be drained with care, the best manner being through a lumbar incision. It can be done, however, through an incision in the gastrocolic ligament. Packing the retrogastric space may be necessary for controlling slight bleeding from a sutured pancreatic perforation. Absolute quiet is essential for the first few days, and feeding by mouth can usually be begun on the fourth day, but should vomiting occur it must be stopped at once and not again attempted for several days.

In closing let me say that I have only dealt with the operative treatment of gunshot perforations of the stomach as met with in the field hospital, and allow me to again impress upon you the fact that these should never be treated surgically unless laparotomy is indicated for intra-abdominal hemorrhage, as more lives will be saved under the circumstances by a careful conservative treatment.

SEVERAL PRACTICAL FEATURES ASSOCIATED WITH THE MANAGEMENT AND TREATMENT OF OBSCURE ARTHRITIS.

By H. W. Marshall, M.D., Boston.

It seems a fair statement to make that a large proportion of the obscure arthritic cases are treated now only a little better than they were twenty years ago. This does not signify, however, that no progress has been made in the understanding of these troubles, but only that a number of obstacles still block the way very often to successful treatment.

It is true that hundreds of new remedies have been proposed in the last twenty years, and that data relating to chronic joint disease has accumulated enormously in this period. It is also true that many of the new therapeutic agents relieve patients who previously have resisted other measures. Bacterial vaccines illustrate such a comparatively new treatment that has benefited many persons. Vaccines used enthusiastically and exclusively upon all cases, however, also undoubtedly have lessened the chances of recovery among other patients when the latter have happened to possess arthritis of unsuitable types.

If one looks through the entire list of measures which have been suggested, it will be seen that each has its successes and failures, and that proportions of good and poor results do not differ very greatly when any single specific treatment is used in routine manner. Dentists, nose and throat specialists, genito-urinary physicians, dietitians, medical internists, physical therapeutists, surgeons and orthopedists each can recount instances in which their respective special treatments have led to prompt relief of joint conditions that previously were considered obscure; also each can tell, if they will, of

many patients who have *not* been helped in the slightest degree by special treatment.

The noteworthy fact about the present situation is that many practitioners and patients still are in search of specific new remedies, and that they still avoid as far as possible the more difficult understanding of joint diseases in their broad conceptions.

After the writer has been engaged in the study of joint problems for a number of years and has tried to point out the value of comparative studies and of systematizations of the data which have already accumulated, naturally some quite decided impressions of the present situation have been gained. Among the numbers of practitioners who have commented upon the writer's papers the usual remark has been that the articles are too vague. Friendly suggestions almost invariably have been to "find some *definite* new method of value that can be applied in practice so that patients will understand that something really is being done for them."

This attitude of mind among physicians, due primarily to demands of patients for novelties and for easily appreciated, easily applied remedies, it seems is one of the serious obstacles now that limits progress. If one examines the numbers of treatments which have been proposed for rheumatic, gouty and arthritic conditions it is not difficult to see that many are very nearly duplicates of others, and that all varieties are represented which are likely to be needed for much better results than are being attained now if greater skill were being shown.

With new forms the advantages gained in one way are largely lost through disadvantages in other directions.

Removal of this obstacle, therefore, depends upon convincing patients and practitioners that only by understanding and application of correct general principles will relief be brought to many cases. Great enthusiasm exhibited over any special method, although it is enough to influence patients to try the remedy; or the alluring qualities of some other cures which appeal to the fancy of patients sufficiently to induce a trial, will not take the place of rational conceptions and comprehensive management.

A second obstacle to progress consists in carelessly assuming that no mistakes will be made, provided all the data and remedies which are needed are at hand. This attitude disregards the fact that any single important defect or omission in treatment, at times can transform even the most brilliant result into a dismal failure. One illustration will suffice to make this statement more clear.

Patients suffering with obscure arthritis frequently are admitted to large general hospitals where their cases are studied exhaustively and where accurate diagnoses are made. Then not infrequently these patients are sent back to their homes because there is no room for them in such hospitals for long periods, when other more urgent cases are seeking admission. The result is they return to the same conditions they previously lived in. These latter are poorly understood generally and often mean inadequate care.

Under these circumstances the time and energy devoted to patients in large institutions is largely wasted as far as the patients individually are concerned. Their money has been spent, their troubles are not relieved and their confidence and hope after such experiences is lost. These errors in management are directly responsible for the ultimate failures; and unfavorable results might be avoided in some instances by having patients stay at home where their cases can be studied in the environment which they must continue in. Sometimes it is possible for the specialist in this latter manner to find simple defects in personal hygiene which have been overlooked and which, when corrected, permit a return to health. The opportunity is presented at least in such a plan of discussing the situation with the local doctor upon whom much depends in the end, and the patients are left in hopeful mood in situations that can be maintained indefinitely, also in positions to receive more intelligent additional suggestions, if necessary, from time to time from a distance.

This illustration is an important one, for besides serving as an example how mismanagement in a single respect may be responsible for failures; one due to lack of skillful application of known facts and not to lack of knowledge of new principles, it raises the question of best management.

All chronic cases cannot be treated in large institutions because a sufficient number of the latter to house all persons would be far too costly; therefore the study of possibilities of home treatments is likely to be one of the important lines of progress in the future.

With the intention of finding out possibilities and limitations of greater coöperation between institutions, special workers, and local physicians the writer has approached general practitioners to secure their views. They universally believe that chronic cases should be treated by themselves; and this attitude is the determining factor in the present state of affairs, namely, that the large bulk of all cases actually are treated by family doctors until patients are relieved or become dissatisfied, or until their local physicians become dissatisfied with the progress made for one or another reason.

They have the following comments to make about institutional treatments and consultants, and since they control the situation, these opinions must be listened to attentively although some relate to economical features as well as to strictly medical ones.

Certain physicians say, "We have not had very satisfactory results when we have sent our cases to hospitals and sanatoria. A few patients come back relieved, but a great many are not

improved and some are made worse; consequently, with these uncertainties it seems to us that we are justified in treating them ourselves as long as the patients are satisfied. Furthermore, we have our successes as well as the large hospitals, and generally we can collect near home all the facts that are needed."

Others remark of consultants who are called to patients' homes, "They do not tell us much that we did not know before and they charge our patients large fees, so that the result in this instance is unsatisfactory also both to the patients and to ourselves."

Why shouldn't these undoubted difficulties between practitioners and special workers be examined and understood thoroughly as well as search made exhaustively for new remedies if progress in treatment is to be made?

And isn't the negative side of the problem of learning to avoid defects and difficulties which prevent greater coöperation as important now, or perhaps more likely to increase numbers of patients relieved, than additional positive work in discovering so-called new cures?

Some difficulties the writer has personally encountered among physicians and patients in New England, will be pointed out and can be introduced conveniently under topics of single consultations; consultation fees; divided responsibilities for management of patients; and peculiarities of human nature.

Single consultations have proven unsatisfactory very frequently because patients' needs vary from time to time. In this way therapeutic measures suggested as appropriate at one time become causes of aggravation of trouble if continued too long in protracted cases. However, single consultations can be said truthfully to be better than none; and occasionally they lead to very good results. They are favorably looked upon by most of the physicians because the latter do not care to have consultants meddle further with their own managements.

The writer has succeeded in getting some doctors, nevertheless, to permit him to see patients again at intervals, and to make repeated suggestions from time to time. Where circumstances have permitted this method it has proven more efficient and satisfactory, and it has certain advantages also to be mentioned under the next topic of fees.

The large fees which are asked for single consultations may be considered as proper ones if they are looked upon from consultants' standpoints, but they do not satisfy patients nor family physicians because they are not followed usually by great benefits.

Consultants in acute surgical troubles can charge comparatively larger sums for single visits, for the reason that the matter is quickly settled satisfactorily through a single decision; but with chronic diseases a number of decisions have to be made at intervals throughout the course of the sickness; and therefore, the total fee, covering all consultations needed to restore the individual's health, logically ought to be approximately the amount of the single satisfactory fee customary for acute diseases.

The consultant in chronic disease must give much more time and thought to his patients for the same remuneration than the consultant in acute ones; and this is one defect which special workers have to realize and to correct by themselves.

Upon the other hand, general practitioners must share, for improved results, the direction with the men whom they called in for advice, as otherwise the person who is called is obliged for self maintenance to collect a reasonably large sum the first time, although it may be more than the opinion is really worth to the patient.

Divided responsibilities mean additional trouble usually to the local physician and anyone naturally prefers to direct his own cases alone. Some doctors have had the disagreeable experience of having consultants assume entire control unasked; and others say they do not like to be assistants simply to specialists who do not know many important details as well as they do themselves.

This group of difficulties also primarily rests with consultants to rectify. They have to recognize that with each chronic case unusual consideration for patients' and physicians' ideas is demanded. Diagnoses and prescriptions cannot be handed out in the quick, confident way possible in less complicated situations; and patients, family doctors and specialists must be ready to work together and be agreed at the outset upon the plan of procedure; and then there is no doubt with harmonious coöperation that results are much better for double control of the case, with the long-ranged, broad view point of the consultant combined with the more intimate knowledge of daily details possessed by the local physician.

Peculiarities of human nature play an especially important rôle with chronic diseases, and should be held accountable for many successes and failures in treatment instead of the existence or lack of suitable remedies which sometimes erroneously are considered responsible for all results.

Frequently there are seen impatient or uneducated patients rapidly turning from one to another method without giving any one a fair trial, and thus becoming victims of their own temperaments. Then there is a class of physicians who are satisfied when they keep their patients contented by catering to their whims rather than to their real needs. Also there is the important group who are compelled from lack of time to treat patients empirically without attempting to learn the general principles involved.

Physicians and patients alike, regardless of circumstances existing, are always ready to assert at any time, however, that they will gladly try a new and really efficient method; but notwithstanding these declarations, impatience,

anxieties, indifference and lack of time will continue to interfere with successes. Obscurities and failures in all these instances should not be put down to lack of general advancement in understanding nor to lack of appropriate therapeutic measures.

There is a second large division into which patients and physicians group themselves; and these show greater perseverance and understanding, also greater appreciation for rational principles of treatment. These adhere to scientific management although results in the past do not seem at a glance to have differed very much from purely empirical ones. General practitioners of this group cast their lot in with institutions and specialists who are laboring to advance medical science and the practice of medicine, slow although such progress must be; and upon these physicians reliance must be placed to a very important extent for coöperation.

When human natures are considered and the fact that one important mistake in directing treatments will frequently prevent success, it should be apparent to everyone that understanding and therapeutic agents should not be held accountable for failures too exclusively.

These facts should suggest, too, that laboratory studies alone, although of great value, have very definite limitations; and the importance of considering all practical sides of the situation ought to be perfectly obvious; particularly it seems the many commonplace mistakes which are responsible for a large proportion of failures deserve discussion and prominence occasionally.

One more mistake prevailing widely among the better classes of patients and even with the best general practitioners will be mentioned. When, in any given instance with them, progress is not being made as it should be, attention is diverted to the search for some new *kind* of treatment, and *quantitative* defects are forgotten. Although remedies in use may be more appropriate in reality than new ones being looked for, the fact that their use for too long or too short periods of time, or with too long or too short intervals between times of administration, or in too small or too large dosages may be responsible for failures, is passed over and not appreciated by a surprising number of individuals, both patients and physicians.

The writer has found in consultations with other doctors that suggestions to them to vary quantitatively therapeutic agents which are in use, or those that have been tried already in the past will not, as a rule, satisfy either the physician or the patient. They insist upon entirely new kinds of ideas, and in doing so make the vital mistake at times that accounts for subsequent poor results.

When successes do attend changes in amounts, durations and frequencies of administrations of familiar remedies the results are accepted in a matter of fact way, and are considered due to trivial readjustments which it is unnecessary to think further about; and the idea that other obscure cases may be due to similar trivial maladjustments usually is one of the last things to be thought of. This is really a very serious defect the writer believes because its commonplace nature obscures it, but it should be insisted upon until physicians and patients realize the facts.

If mechanics tinkered complicated machines in the haphazard way some physicians treat patients with chronic diseases, they would soon do more harm than good. Upon the other hand, satisfactory readjustments can be made with comparatively few simple tools often when these are used with good understanding and skill.

SUMMARY.

The search for and discovery of new therapeutic agents undoubtedly will continue in the future as in the past, and out of many possibilities there will be found a few remedies probably that will be better than some we now have. Single specific measures, however, will never fill satisfactorily the need for comprehensive understanding of joint diseases.

Increased success presumably will come to an important degree from closer coöperation between practitioners and specialists through better defined plans that benefit all concerned, namely, the patients, family physicians and the special workers.

One important line of advance presumably will be through improving the possibilities of home treatments.

Lack of appreciation of quantitative defects in therapeutic methods is a very important stumbling block in the path of progress that is overlooked because of its uninteresting and commonplace nature.

Comprehensive scientific principles are not antagonistic to empirical facts as some persons are inclined to assume: on the contrary, they are built upon many empirical observations. Such broad physiological conceptions are required, however, even in the presence of definite knowledge. As the case is now with gout, so also with other obscure joint diseases, matters of personal hygiene and knowledge of many physiological reactions between organs will presumably continue to be things of greatest importance in treatments despite specific new discoveries.

THYROID OPERATIONS UNDER LOCAL ANESTHESIA.

By Frank H. Lahey, M.D., Boston,

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It is not the purpose of the writer in this paper to enter into a discussion of the merits of partial thyroidectomy in exophthalmic goitre, or

the results obtained in enucleation of cysts or adenomata, as the benefit to be derived from these operations will be presumed to have been accepted,—but to relate his experience and conclusions from a small series of operations upon the thyroid gland, using only a local anesthetic. It was with considerable hesitation that the first operation was undertaken on the thyroid with a local anesthetic, as in the first half dozen cases of a considerably larger series done by the writer with ether, many trying situations had arisen, such as severe bleeding obscuring almost completely vessels requiring ligature and concealing the posterior capsule of the gland with its neighboring recurrent laryngeal nerve and parathyroids, difficulty in exposing satisfactorily the superior or inferior thyroid vessels, and other incidents of a disturbing nature, such as cessation of respiration or a threatening condition of the heart.

Most of these being technical difficulties, were soon overcome with an increased number of operations on the thyroid, until it seemed possible that with pains and patience the operation might be accomplished with a local anesthetic.

Accordingly on the next case presenting itself for a thyroid operation the procedure was undertaken.

The patient was given a quarter of a grain of morphia one-half an hour before operation, and the technic followed was practically the same in all of the cases done with this method.

The patient is draped so that a towel or sheet covers the face, but does not lie on it and interfere with the breathing. Its upper edge is upheld by a nurse, who sits by the patient and reassures her throughout the operation, raising and lowering the covering so that the operator may observe the patient's face and converse with her, if it seems necessary to ascertain her condition or to make sure of the integrity of the recurrent laryngeal nerve.

The injection is made preferably with a syringe having a large barrel and a small, sharp needle.

A freshly prepared two per cent. solution of novocain, containing fifteen minims of adrenalin to the ounce, was used in all but two of these cases. In these two cases a one per cent. solution was used, and was not quite as satisfactory.

The first infiltration is made across the neck in the line of the proposed collar incision, and is more satisfactory, in the writer's experience, if made into the skin rather than in large infiltrations into the areolar tissue beneath the skin. Through the plainly visible line of infiltration the skin incision is carried down to the platysma muscle. Care must now be taken in going though this muscle, as it contains a number of large and small veins, the clamping of which often produces a sharp twinge of pain. This is overcome for the most part by the injection of novocain around the larger veins before they are clamped.

The incision across the neck now having reached the sterno-hyoid, sterno-thyroid and mastoid muscles, an infiltration of the flap of skin and platysma made by the curve of the horse-shoe incision is effected by inserting the needle and injecting deeply between the platysma and the two underlying muscles, the sterno-mastoid and thyroid. This flap is turned up, exposing the underlying muscles. A little of the solution is now injected along the anterior borders of the two sterno-mastoids, which are then dissected free from their attachment to the sterno-hyoid. With no further infiltration a longitudinal incision may now be made in the median line through the sterno-hyoid and thyroid down to the anterior surface of the gland. This is enlarged upward to the upper attachment of the sterno-thyroid and downward to the sternal notch.

By careful and gentle manipulation the sterno-thyroid on either side may now be freed from the anterior surface of the gland by sweeping the index finger beneath the muscles upward and downward, gradually farther and farther outward until both sides are entirely clear.

A few injections are necessary now across the sterno-hyoid and thyroid to overcome the very slight pain produced by closing the double set of clamps transversely on either side. Cutting between the clamps is productive of no pain whatever if done with a sharp knife and not with the scissors.

The superior thyroids may next be caught between two clamps, and it has been the writer's experience that, contrary to experiences with blood vessels in other regions, clamping of the vessels leading to the thyroid gland itself is productive of little or no pain.

The removal of one lobe and its isthmus, and, if deemed wise, part of the other lobe, may then be proceeded with as with a general anesthetic. The thyroid itself has little sensitiveness, and the patient complains of no pain from manipulations of it except when it is dragged upon or crushed, either with clamps or in locking double hooks, and then but slight pain.

The portion of the thyroid to be removed having been taken out and the vessels tied, a little novocain is injected in the skin beneath the centre of the collar incision and a pair of snaps worked through a small skin incision until a drain can be caught in their jaws and withdrawn through the drain hole.

The muscles, sterno-hyoid, thyroid and platysma, may now be sutured with no further infiltration, and likewise the skin sutured painlessly, even if the operation had consumed an hour in time.

Eight cases in all have been operated upon by this method.

Case 1. A large adenoma of the thyroid, substernal in position, in which malignant degeneration was later found to have taken place. This tumor was about the size of a grape fruit. The difficulty in breathing due to obstruction from its size was such in this case that either was absolutely con-

traindicated. This was removed practically without pain in spite of its retrosternal position, which necessitated considerable dragging upon the tumor.

CASE 2. An adenoma of the thyroid the size of an egg involving the right lobe, so that the whole right lobe had to be removed. The right lobe in this case was excised practically without pain.

CASE 3. A cyst of the thyroid occupying the right lobe and retrosternal for two-thirds of its extent, a depth of about two inches. On account of the necessity of pulling and perhaps because of an old solution of novocaine, there was in this case considerable complaint. The operation, however, was accomplished almost bloodlessly and without difficulty.

CASE. 4 A typical exophthalmic goitre with acute toxic symptoms, in a young girl of twenty. The right lobe and isthmus was removed in this case absolutely without a single complaint on the part of the patient.

CASE. 5 A typical exophthalmic goitre with intense symptoms of thyroid intoxication in a woman of thirty-seven. The right lobe and isthmus were removed in this case, and the superior thyroid vessels of the remaining lobe tied. There was considerable complaint on the part of the patient, who was extremely nervous and apprehensive. There were no technical difficulties in the operation, and the patient stated that a great part of her complaints were due to apprehension.

CASE 6. A typical exophthalmic goitre in a woman of forty with toxic symptoms of moderate severity. The right lobe, the isthmus and part of the left lobe were removed in this case with little or no complaint.

CASE 7. A cyst of the right lobe of the thyroid, combined with a typical exophthalmic goitre with symptoms of moderate severity. The right lobe containing the cyst and the isthmus was removed in this case with but very little complaint.

CASE 8. An adenoma of the thyroid with mild symptoms of hyperthyroidism. The left lobe including the adenoma was removed in this case absolutely without pain.

Technical difficulties in these eight cases have been almost entirely absent, due, I believe, first, to a familiarity with the technic of partial thyroidectomy, acquired by doing the operation several times under ether anesthesia; second, to gentleness and deliberateness; third, to the fact that there is distinctly less congestion of the gland than is present under general anesthesia; fourth, because when in the region of the recurrent laryngeal nerve its integrity may be ascertained by having the patient talk.

The amount of pain in these cases, as one would expect, has varied considerably with the temperament of the individual. In no case, however, has the pain been severe and a considerable part of whatever discomfort suffered is due, the writer is sure, to apprehension, which it is hoped can be overcome greatly in the future with scopolamine and morphia.*

As to the safety of the operation in toxic cases, as compared with ether, it is impossible to say until a larger series of cases has been reported.

At the present time the writer feels justified in saying that with a patient who is awake and able to talk to him in a strong voice, who is able to tell him just how she feels, and who can speak out loud when he is occupied in the recurrent laryngeal region, he finds a great deal of comfort and peace of mind.

He is further encouraged by the fact that should the patient's condition become alarming, after ligature of any vessels already clamped, a dressing may at once be applied without suturing the skin flap, and the patient immediately returned to bed, free from any further shocking or depressing influence, which is not the case when a general anesthetic must be recovered from.

CONCLUSIONS.

It is unfair to draw any broad conclusions from this number of cases.

In this group of cases the operation could not be said to be free from pain, although it was but slight.

The operation took approximately one-third longer than it takes with ether in the writer's hands.

The technical difficulties were no greater and, in the opinion of the writer, somewhat less than with ether.

The post-operative recoveries have been extremely gratifying, and very certainly much more comfortable than in those cases done with a general anesthetic.

The procedure as a whole has been sufficiently satisfactory to the writer to cause him to wish to continue in its use, particularly in toxic cases.

* Since sending this paper for publication four more goitres of the exophthalmic type have been operated on by the writer under novocaine anesthesia. Two were severely toxic, one moderately and one mildly so.

In the last three cases scopolamine and morphine have been administered in doses of 1/200 and 1/8-1/6 respectively one and two hours previous to the operation, with the result that the operation has been devoid of even the very slight amount of pain complained of in the most successful cases reported above.

The writer cannot refrain from repeating that a much greater number of cases is needed before recommending this method but that the addition of scopolamine in the last three cases made it nearly perfect in those cases and almost absolutely painless.

Medical Progress.

PROGRESS IN OTOLOGY.

BY HARRIS P. MOSHER, M.D., BOSTON,
AND
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(Concluded from page 505.)

SYPHILIS.

With the use of the Wassermann reaction in the diagnosis of hidden syphilitic lesions and with the advent of salvarsan to combat the disease, otologists have gained a very important aid in the treatment of ear diseases. Where we have worked blindly, we can now work with a

certain degree of scientific accuracy. True, with the larger experience which time has given us we find that a Wassermann reaction may be positive in a non-syphilitic and still more likely, it may fail to be positive in a syphilitic; nor has salvarsan proved to be the cure-all that it was hoped to be. Literature has been profuse in its reports of cases and its discussion of the value of these remedies. The Wassermann reaction has been used in the endeavor to attach a luetic etiology to cases of obscure internal ear deafness. Where a positive reaction has been obtained, salvarsan has been administered with improvement in some, no gain in others, and with some unfortunate otitic complications; so that the ardor for the use of "606" in these particular cases has considerably abated.

With the initial enthusiasm for "606" it was used in all forms of suspected syphilis with the promise that a cure would be forth-coming; but those with a larger experience began sometimes to discover not only a failure to cure but the presence of unforeseen complications, some of them grave in nature. Among the most frequent of these was found a paralysis of the facial nerve and an involvement of the labyrinth and cochlea. A more detailed review of some of the reports of these investigators will be of interest but must be limited to a few selected cases. Oscar Beck (*Archiv,* 84, 3, p. 174; p. 180; p. 181; *Archiv,* 91, 1, pp. 1 and 6) reported from his large experience ten cases showing untoward aural complications, which prior to the treatment with "606" had normal ears. The majority of these showed symptoms resembling those of a retro-labyrinthine disease of the vestibular nerve: subjectively, vertigo, loss of the sense of equilibrium, and eventually vomiting; objectively, marked nystagmus of a vestibular character toward the sound side, and total non-excitability to turning, caloric, or galvanic irritation tests. In a characteristic case, sudden impairment of hearing came on sixty-five days after the injection; spontaneous nystagmus was present; nor did the condition improve up to the time of reporting four weeks later. Another case showed sudden deafness and irritative symptoms seven weeks after the injection. Symptoms suggestive of a "polyneuritis meniereiformis" developed. A facial paralysis came on with involvement of the trigeminus, and there was total deafness on that side. The other ear was deaf at first, but improved later. The general syphilitic symptoms disappeared not to return at the time of reporting though the Wassermann which had been negative for three months had recently been reported positive. Knick (of Leipzig) reported a very parallel case. Alexander (*Archiv,* 84, 3, p. 175) gives a case differing from those of Beck in that there had already been an internal ear trouble at the time of injection. The patient was thirty years of age, and had shown some involvement of both auditory nerves. Both ears recovered; but several months later there was a sudden impairment of hearing on the left, with roaring noises and a failure of the vestibular reactions. Fourteen days after the beginning of this attack, an injection of "606" was given. On the next day there came on shooting pains in the neck and occiput which continued unchanged. In three weeks and a half there was a fresh attack of tinnitus and deafness with constant vertigo and repeated vomiting. He had then a complete left-sided facial paralysis with total deafness on the left and non-irritability of the vestibular apparatus. The case was reported three weeks later and no improvement had been noted. A similar case is cited by Jörgen Möller (of Fredericksberg, *Archiv,* 84, 2). Geronne and Gutmann reported thirteen cases (*Archiv,* 84, 3, p. 211) and in these the syphilitic infection was recent in all but one.

As to the theories to account for these phenomena, Oscar Beck (*Archiv,* 84, 2) first thought the cause due to a toxic neuritis, but he later abandoned this position and joined Urbantschitsch (of Vienna) and Ehrlich (of Berlin) who working independently both concluded that a local swelling in the region of the vestibular nerve gave this result, and ultimately might cause atrophy of the nerve fibres. Geronne and Gutmann consider that these symptoms may come in the course of syphilis and are only unobserved or not given the importance due them, and that in the case of these complications following the administration of salvarsan we are merely getting an intense repetition of what may happen in the usual course of the disease. To bear out this opinion they point to the fact that these complications have only been found in luetic cases (non-luetics receiving "606" not evidencing these symptoms), and that cases have been reported giving a parallel train of symptoms without having had "606." Beck cites such a case. The man was having a secondary eruption. No salvarsan was given. An attack of vertigo came on suddenly with a severe headache. Examination showed both ear drums normal, and the hearing normal. There was a perceptible horizontal and rotatory nystagmus to the right, a positive Rhomberg, and a failure to react to caloric and rotatory tests for the left ear, while the right side responded normally. This condition cleared of itself after fourteen days.

Hugo Frey (*Jour. of Laryngology,* March, 1913, p. 218) has collected 60 authentic cases of cochlear or vestibular nerve involvement in the early secondary stage of syphilis where no salvarsan had been given.

In this connection it is of interest to note (*Archiv,* 84, 3, p. 186) cases reported by Frey, Ruttin, Neumann, Kauffman, and Politzer, where a somewhat parallel train of symptoms in paralysis of the facial, cochlear, vestibular, and trigeminus nerves, could be laid to a rheumatic origin.

The conclusions which these different authors come to may be referred to. All agree that the

danger of otitic involvement following the use of salvarsan in a syphilitic having normal ears or some middle-ear trouble, is too small to enter into consideration, though some recommend warning the patient of the remote possibility. Knick advises caution where there may be a tendency to internal-ear trouble: as in those addicted to the excessive use of alcohol and tobacco, or those whose occupations give such a tendency (as in boiler-makers). It is where there has been or is present an internal-ear disorder of possible specific origin that one must be on his guard. For such Alexander recommends that caution be exercised in using "606" in acute or chronic cases of syphilitic involvement of the auditory nerve, whether from a residuary, an old latent, or a hereditary form of syphilis. He makes no exception for acute cases but does permit of exception in chronic forms as follows:—the injection can be used with safety in a chronic syphilitic disease of the auditory nerve when there is only a slight impairment of hearing; or in a case of chronic labyrinthine vertigo; or in a case having labyrinthine disease of specific origin which is not acute.

An aid to the diagnosis of salvarsan deafness is given by Alexander (*Archiv*, Dec., 1912, p. 9) in the galvanic acoustic reaction. This is positive in salvarsan deafness and negative in luetic deafness.

THE LABYRINTH.

As would be expected, recent otological literature deals more extensively with internal ear conditions than with any other phase. The experiments and tests first conducted by Barany have been productive of keen rivalry and extreme endeavor in investigation in the new field thus opened up, and as a result of this work, it occupies a very prominent part in the discussions. This research has been carried further in Europe, being especially aided by the microscopical pathology being done and by the clinical facilities at their disposal, but otologists on this side have been able to contribute much to our advancing knowledge. In America Braun and Friesner have written a book on "The Labyrinth" which brings into more accessible form the recent data; Newhart has translated Ruttin's book including a valuable number of case-records; Kerrison and Phillips and Kopetsky and Ballinger and other writers have included chapters on the labyrinth in their later editions;—so that we have access in book form to the most recent conclusions relative to labyrinthine disease and treatment. In general the simplification of the tests and a better understanding of their application has brought the consideration of labyrinthine conditions within the range of every otologist and its study has escaped the field of the theoretical to come under the observation of all. The first wave of operative enthusiasm has given way to a more conservative and careful estimation of conditions with a resultant selecting of cases and an improvement in the results. With this added familiarity, not only are we finding that the radical exenteration of the labyrinth is very rarely indicated and any opening of the internal ear should be undertaken with due hesitation as creating a possible infective channel to the meninges; but we are explaining many heretofore blind cases of deafness, and approaching their treatment in a more logical and efficient manner.

Histology.—In his studies on the histology of the internal-ear, Shambaugh has carried us ahead of our previous knowledge and has firmly established in theory at least that the tectorial membrane and not the membrana basilaris receives the sound impulses and imparts them to the hair-cells of the organ of Corti. He further finds the mechanism of the vestibule very similar to that in the cochlea and favors that school which holds that the vestibule also plays a part in the reception of sound waves.

Reaction Tests.—Of the different tests for labyrinthine reactions, the caloric and the rotatory have proved the most satisfactory. Friesner-Braun (*The Labyrinth*, pp. 120-122) point out that the caloric can be utilized also as a selective test, whereas it was thought that reliance for such would have to be put onto the rotatory. The head is placed in Brünings' so-called "oblique optimum" position (the head tilted 60° backward and 45° toward the examined side). Cold syringing in this position reaches the external semi-circular canal at its highest possible point and by condensation of the fluid establishes a fluid-flow downwards away from the vestibule, causing a lateral nystagmus to the opposite side if the canal is functionating. "If there is a positive reaction there is no need of carrying the test further as an isolated labyrinthitis in the vertical canals is practically unknown." If the reaction is negative, the external canals are considered diseased. If now, the head be rotated forward on the median axis 90°, to 30° from the horizontal (the pessimum position), the vertical canal on that side is brought into the vertical plane and the external thrown into the horizontal. If a rotatory nystagmus now develops, it is from the irritation to the vertical canals and we can conclude that they are functionating, the disease being limited to the external canals. This method being more simple lends itself well to cases where the patient is too weak to permit of the rotation tests, or is where the specialist has not access to a rotatory chair and apparatus.

We have an ingenious and simple table offered by James Adams (*Jour. of Laryng.*, Dec., 1910, p. 630) which may be of aid to some. Taking first the caloric test he notates hot water as +, cold as —; right ear +, left ear —; head erect +, inverted —; nystagmus (quick movement) to right +, to left—. This gives his first table.

Table I.—Caloric Test.

Ear.	Head.	Water.	[illegible]
+	+	+	+
+	+	—	—
—	+	+	—
—	+	—	+

That is: taking the first line we have, if the right ear be irrigated with the head erect and hot water be used there will be a nystagmus to the right. The changing of one to minus necessitates the changing of another to balance it.

In the rotation test he calls clockwise rotation (to the right) +, and counter-clockwise —.

Table II.—Rotation Test.

Rotation.	[illegible]	[illegible]	Fall.
+	—	[illegible]	+
—	+	+	—

In the fistula test he calls compression plus, aspiration minus.

Table III.—Fistula Test.

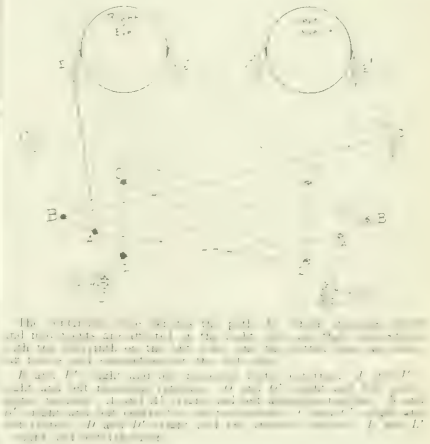
Ear.	[illegible]	[illegible]
+	+	+
+	[illegible]	[illegible]
—	+	—
—	—	+

or compression of the right ear gives nystagmus to right and so on.

The galvanic reaction requires a special outfit and is not as well accredited as the others. Barany (*Jour. of Laryng.*, Sept., 1910, p. 473) finds it an unreliable reaction because the current can reach the nerve trunk and elicit a nystagmus even after a labyrinth is destroyed. The most complete article on Electro-Diagnosis in Diseases of the Labyrinth found by the writers is by E. Junca of Bordeaux and is to be found in an abridged translation by Darling (*Jour. of Laryng.*, Jan., 1913). The reader is referred to it for a careful description of the technic. This author feels that no labyrinthine examination is complete without this test. Braun-Friesner devote a section to the technic. Hubby (*Annals of Otol.*, Sept., 1913, p. 638) discusses the method.

Nor is the fistula test found to be as reliable as was at first supposed. The most usual reaction is a nystagmus or movement toward the tested ear in case of compression, in the opposite direction in case of aspiration. The easiest technic is slow steady compression on a Politzer bag with its tip inserted into the auditory canal, remembering that there is danger of disturbing the structures in the oval or round windows if too much pressure be exerted. Alexander (*Archiv*, 84, 2, p. 140) found that in rare cases the so-called fistula symptom of this test can be gained without the presence of a labyrinthine fistula and with only a suppurative otitis media present. Ruttin (*Archiv*, Oct., 1913, p. 241) on the other hand finds that tuberculous forms are likely to give inverted or atypical reactions. He accounts for this by the fact that a tuberculous process may necrose into the canal at almost any point, while the ordinary suppurative or cholesteatomatous form shows its opening fairly constantly at the summit of the canal. He (*Archiv*. 84, 3, p. 182) reports a case of fistula of the vertical semicircular canal. Here compression gave a slow movement of the eye upwards, and aspiration gave a slow movement downwards.

Nerve Tracts.—In differential diagnosis and symptomatology several most instructive papers are found. Urbantschitsch (*Jour. of Laryng.*, Aug. 1910, p. 449) discusses in the anatomy three main routes between the labyrinth and the cerebrospinal system through its nervous connection with Deiter's nucleus: 1) the vestibulo-nuclear, through the posterior longitudinal bundle to the oculo-motor nucleus; 2) the vestibulo-cerebellar, through the restiform body to the cerebellum; (3) the vestibulo-spinal, by virture of fibres which communicate with the ventral horns of the spinal cord. Barany's chart (*Jour. of Laryng.*, 27, 5, p. 282) gives a diagram of these tracts which simplifies the tracing of the paths concerned.



Barany (*Jour. of Laryng.*, Sept., 1910, p. 437), Bruce and Fraser (*Jour. of Laryng.*, Aug., 1910, p. 394), and Neumann (*Jour. of Laryng.*, Sept., 1910, p. 451) discuss the differential diagnosis and treatment of internal ear conditions, and W. Hanson (*Archiv*, 84, 3, p. 163) goes into a rather elaborate discussion of labyrinthine meningitis, its diagnosis and treatment.

Non-Suppurative Labyrinthitis.

An experimental labyrinthitis has been produced by Grünberg (*Archiv*, 84, 2) and by Stenger (*Jour. of Laryng.*, Feb., 1911 p. 110). The former used the Bezold-Edelmann whistles. a^3 and a^4, full blasts being blown into the ear

for seven and for fourteen consecutive days, several times a day. Post-mortem examination showed a degenerative atrophy of the papilla acoustica. Stenger used rats, striking them repeatedly on the head to gain concussion results in the labyrinth. Microscopical examination showed him the different points of hemorrhagic exudation occasioned. Walter A. Wells (*Laryngoscope*, Oct., 1913, p. 989) gives the results of careful experiments, to learn the influence of sounds of different pitch, duration, and intensity, in the production of auditory fatigue. He considers that much of the fatigue is due to nerve tire; that the upper tone scale tires first, next the lower, and last the middle; but that some is due to muscle tire, that the higher pitched the sound the more does the tensor tympani muscle show a reflex contraction.

In trying to learn the relationship of the labyrinth to sea-sickness, Barany (*Jour. of Laryng.*, Mar., 1911, p. 157) tried a few experiments on himself. While riding on a scenic railway he experienced a sense of vertigo which he found he could obviate by holding his head downwards and forwards. From this he deduced that the utricule and saccule are the centres concerned with the movement of the body in straight lines, and that these are affected in sea-sickness. In contra-distinction to this view Neumann and Ruttin reported experiments they had conducted while crossing the ocean. When sea-sick they tried to overcome vestibular symptoms by using galvanism in opposition to the apparent direction of these symptoms; but without avail. Then they tried Bier's constriction about the neck. This too failed and seemed to prove that the trouble was not due to cerebral anemia. The condition was the same whether standing or lying down; and they concluded that the vestibule played a second part, the trouble being due to an irritation of the vagus. In this view Politzer concurred.

SUPPURATIVE LABYRINTHITIS.

Avenue and Nature of Infection. Max Görke (*Jour. Laryng.*, Aug., 1911, p. 398) points out that the connection from the meninges to the labyrinth is much more direct than from the middle ear to the labyrinth; hence meningitis is more likely to cause labyrinthitis than is an otitis media: in an estimated proportion of 15 to 50 of the former to one of the latter. If the infection travels from within it may come by the internal auditory meatus or by the acqueductus cochleae. Infection may enter from the tympanum through the tympanic wall or fenestra, or by induced or collateral edema, or by the blood vessels. Entrance is much more frequent in chronic forms and of these tuberculosis ranks as the most frequent cause and cholesteatome second.

Harris (*Annals of Otol.*, Sept., 1913, p. 876) cites Manasse's case and pathological findings where sudden deafness came in a scarlet fever otitis caused by a perforation in the round window; which raises the question whether more cases are due to this cause than have been supposed. Siebenmann claims the usual mode of entrance of a tubercular infection to be through the oval or round window.

Indications for Operation.—Our knowledge of this condition has not yet reached the stage where definite rules can be laid down as to when to operate. Neumann (*Jour. of Laryng.*, Sept., 1910, p. 451) advances rules for our guidance, and Shambaugh (*Annals of Otol.*, June, 1913, p. 303) summarizes his opinion as follows: "The cases where a labyrinth operation seems to be clearly called for include: (1) Cases of labyrinth suppuration where clinical symptoms exist suggesting a beginning intracranial complication, such as altered cerebro-spinal fluid, severe unilateral headache, etc. (2) Cases where the labyrinth empyema develops as a part of a violent acute panotitis, where the indications for a mastoid operation exist. (3) Cases where the labyrinth suppuration develops as a sequel to chronic purulent otitis media, where well-recognized indications for a radical mastoid exist. (4) Cases where the labyrinth suppuration is complicated by erosion of the labyrinth capsule, by fistula formation into the labyrinth, by facial paralysis, or by sequestration of a part or the whole of the labyrinth capsule."

Many authors do not feel that they can go as far as this. They find that if they wait until an intra-cranial complication gives evidence of the need of a labyrinth operation, it is then too late to gain anything by operative interference; while if they open up wide a labyrinth in a case where the meninges have not yet become affected they may precipitate a meningitis. Uffenorde (*Archiv*, 93, Heft 1-2, p. 76) recommends the labyrinthine operation in: (1) All cases of labyrinthine suppuration with endocranial complication of labyrinthine origin. (2) All cases where cholesteatome has entered the labyrinth. (3) All cases where pus under pressure comes out of a fistula. (4) Tuberculosis of the labyrinth. Alexander (*Archiv*, 84, 3, p. 178) does not open the labyrinth in suppurative forms unless he suspects pus in danger of extending to the brain. All agree that extreme care must be exercised and that a conservative consideration of operative interference is to be recommended. A radical mastoid operation and then a waiting policy is advised by Politzer. The majority do not favor the following up of a fistulous tract. In Siebenmann's clinic where many tuberculous forms are found, a conservative procedure such as the enlarging of the oval window is recommended.

Operative Methods.—Two main schools are to be distinguished in the method of operation urged; the one advocating a less radical procedure where the vestibule is to be entered as by the Jansen method, the other urging that the entire labyrinth be removed clear back to the lip of the internal auditory meatus as in the

Neumann method. Alexander (*Jour. of Laryng.*, Sept. 1910, p. 451) gives some excellent rules to guide one and Braun-Friesner in their book show illustrations. The Richards method as described by its author is entered and has met with approval as being a happy medium between the two extremes. Dench (*Laryngoscope*, Aug., 1913, p. 814) feels that with the perfecting of technic and a more acurate knowledge of the anatomy, together with a more intelligent selection of cases, we will be justified in drawing finer distinctions and operating more radically. He even prophecies an opening of a non-suppurative labyrinth as a possible operation of the future, as a remedy for an increasing labyrinthine deafness. Politzer (*Archiv von Ohrenheilkunde*, Band 85, Heft 3, p. 155) gives his findings in 18 cases where microscopical examinations were made. His thoughtful consideration of the advisability of operative interference and of the methods to be employed recommends a careful reading. The study of the illustrations to be found in the text-books becomes a necessary adjunct to the ready appreciation of the different operative methods.

The Results.—These are very varied as is to be expected. Many unfortunate results have rather tended to cool the initial ardor, but out of this is coming a more rational consideration and a more useful application of this operative remedy. E. Ruttin (*Archiv*, 84, 3, p. 178) reports a singular case where an opening of the labyrinth revealed a complete ossification of the entire labyrinth. Some report an improvement in the hearing with an opening of the semi-circular canals. A further experience in this work will alone yield us a reliable opinion as to the place labyrinthine surgery should take in otology.

DEAF-MUTISM.

With the advance along other lines we find a parallel investigation into the field of deaf-mutism. Otologists are appreciating more and more the incurable nature of certain forms of this condition on the one hand; and that many cases are consigned to this class on the other, which do not rightly belong there. There is a more earnest endeavor in the education of these cases when young. Hudson Makuen (*Laryngoscope*, Feb., 1913, p. 116) says it is at the early imitative age that the child not only can learn lip-reading better, but it is at this same age that he has the ability to learn a correct speech which if not acquired then, appears never to be mastered. He recommends that general directions be given the mother and that the child's instruction begin at the earliest possible age.

In his search for the etiology of this condition, Urbantschitsch (*Jour. of Laryng.*, Dec., 1910) classifies deaf-mutism into two forms, the acquired and the congenital, the former of which may originate in either intra- or post-uterine life, and includes the various manifestations of hereditary lues. One hundred and twenty-five deaf-mutes as well as some of their relatives, were examined by the Wassermann test and 86.4% of these gave a negative or weak reaction, 6.4% gave a partial reaction, and 7.8% gave a complete or almost complete reaction. Sakutaro Kano (*Archiv*, 84, 2, p. 146) investigated the condition of the internal-ear in 75 deaf-mutes: 33 were born so, 36 acquired it, and 6 had severe deafness of a more recent origin. Total deafness was more frequent than partial. Spontaneous nystagmus was present in 20%; complete inactivity to labyrinthine irritation was present in seven cases. The turning tests were found more reliable than the caloric; and the static function was found less often destroyed than the auditory.

A marked similarity in the pathology of the internal-ear in deaf-mutes and that in cretins is noted by Otto Mayer (*Archiv*, 83, 3 and 4). After an exhaustive description of several cases and a careful study of the histological findings, he concludes that deaf-mutism and cretinism may be analogous. He judges many forms of deaf-mutism to be endemic; and thinks these endemic cases are merely mild forms of which the more advanced types show distinct cretinism symptoms. Certain forms of idiocy and of goitre also seem to be closely allied.

E. Urbantschitsch (*Archiv*, 84, 1) tested 101 deaf-mute children for their ability to localize the tone when a testing fork was applied to the skull; 18 cases could not locate the sound but heard it throughout the head; 9 did not hear anything; 10 heard the sound at the place of application only; 10 perceived the sound as being always to one and the same side; 15 perceived it always in the nearest ear; 39 had a crossed perception, hearing it in the opposite ear.

Deaf-mutism and Eugenics.—The study of deaf-mutism can be best conducted on a larger scale than the individual observation of one man will ordinarily afford. For this we are receiving aid from an unexpected quarter, viz: the National Bureau for the Promotion of the Deaf, founded in London by Mr. Leo Bonn and richly endowed with his money and his enthusiasm. Prominent on this committee is Macleod Yearsley, otologist to the London County Council Deaf Schools:—and a leader in the work has been Dr. Kerr Love of Glasgow who read a paper before the bureau in 1913, published by it under the title of "Causes and Prevention of Deafness," which promises to be monumental as a scientific investigation of our hitherto "hopelessly deaf."

Dr. Love demonstrates the existence of three distinct types of so-called congenital deafness.

1. Early deafness, involving a consequent mutism, which is purely somatic, local, acquired, traumatic, not inherited, and not transmissible. Its commonest causes are neglected cases of measles and scarlet fever.

2. Deafness due to syphilis: a racial poison,

amenable to treatment, and not a distinctly inherited deafness excepting as it affects the offspring through racial poison. "Hosts of these cases could be saved if we knew that they were syphilitic, identified them early, and treated them with salvarsan."

3. Mendelian or genetic deafness (as Prof. Saleeby calls it in his just published book on "The Progress of Eugenics"), which Dr. Love demonstrates for the first time. He found that after the first two forms had been eliminated, there were many families where deafness descended from generation to generation. "We may suspect that some form of racial poisoning was the originating factor in these cases. But that is beside the point, which is that this Mendelian deafness exists and behaves as such." For this reason Prof. Saleeby does not argue against the marriage of this type which may be considered as the pure deaf-mute, but does recommend against their bearing children. Even though one parent be a "pure normal, the other as "an impure dominant" can be the means of the birth of a deaf-mute. This as coming from perhaps the leading authority on eugenics becomes a most interesting conclusion to otologists.

Book Reviews.

Diseases of Infancy and Childhood. Their Dietetic, Hygienic and Medical Treatment. A text-book designed for practitioners and students in medicine. By LOUIS FISCHER, M.D., Attending Physician to the Willard Parker and Riverside Hospitals of New York City, Attending Pediatrist to the Sydenham Hospital, Former Instructor in Diseases of Children at the New York Post-Graduate Medical School and Hospital, etc., etc., Fellow of the New York Academy of Medicine. Fifth edition. With 301 illustrations, several in color, and 43 full-page half-tone and color plates. Philadelphia: F. A. Davis Company. English Depot: Stanley Phillips, London. 1914.

In spite of the author's statement in the preface that this book has been practically rewritten and each chapter carefully revised, this edition is little, if any more satisfactory than those which have preceded it. It is superficial and in many instances the point of view is that of some years ago rather than that of the present day. Much space is given to comparatively unimportant subjects and other very important ones receive only passing notice. The best articles are those on intubation and the exanthemata. Methods of treatment are described in considerable detail and on this account the book should be of value both to the student and to the general practitioner. As a whole, nevertheless, the standard of the book is not up to that of several others by American authors which cover the same field. It is a reflection on the discrimination of the medical profession of this country that a book of this grade should reach a fifth edition in seven years when books like Holt's "Diseases of Infancy and Childhood" and Rachford's "Diseases of Children" are obtainable.

General Paresis. By PROF. EMIL KRAEPELIN of Munich. Authorized English translation by J. W. MOORE, M.D., New York. The Journal of Nervous and Mental Disease Publishing Co. 1913.

This volume supplies a distinct want. Since the work of Mickle of nearly thirty years ago, no authoritative and adequate English work on this important disease has appeared. In this translation of the chapter on General Paresis of Kraepelin's classic Text-Book of Psychiatry we have the best exposition of the subject in our language if not in any tongue. The author's luminous style is well preserved in the translation and there is no detail of the subject that escapes thorough consideration, if we except the presence of the spirochete in the brains of paretics, which had not been demonstrated when the chapter was written, and the intraspinous treatment by salvarsanized serum, the efficacy of which remains to be proved. With these exceptions the exposition of the subject is well up to date. A number of the recent experimental methods of treatment by Erlich, Alt, Fischer, Wagner and others receive discriminating attention and much practical and valuable advice for meeting the various symptoms and emergencies is given. The author is skeptical of the value of mercurial treatment in the developed disease, and concludes that for the present one should be content with potassium iodide. The chapters on etiology and diagnosis are equally suggestive and illuminating. As a whole, although the two hundred pages are only a portion of a greater work, they form a treatise in itself and one which every psychiatrist and neurologist will welcome. The cheap paper covers are a decided blemish on a sample of book-making which is otherwise excellent.

State Board of Health of New Jersey. Patterson, N. J.: State Printers. 1914.

This volume contains the thirty-seventh annual report of the Board of Health of the State of New Jersey and the report of the Bureau of Vital Statistics for the year ended Oct. 31, 1913. It consists of the material and data usual in such reports, and shows that in 1912 the state death-rate was only 14, the lowest in its history, and the birth-rate 22.3, the highest since 1879.

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THE NEW HAVEN HOSPITAL AND THE APPOINTMENT OF DR. SIMON F. COX.

THE gradual change which has taken place in hospital management and particularly the more intimate relation which is being established between hospitals and medical schools is exemplified by the recent action of the New Haven Hospital. On condition that Yale University would raise a large amount of money for new buildings and endowment, it was agreed that the New Haven Hospital would be taken over by the University and used in connection with its Medical School as a University Hospital. It is understood that the hospital is to be entirely under the control of the Medical School and the services of the appointees are to be continuous after the plan adopted by most of the Boston institutions from the example set by the Johns Hopkins Hospital and others. In addition to the present hospital at New Haven, a fund approximately of three quarters of a million dollars is to be devoted to the construction of a special hospital for tuberculosis to be situated in the outskirts of the city on a tract of land which will form a part of the general hospital plan and will be administered by its superintendent.

We have, in a previous issue, noted the fact that Dr. Simon F. Cox has been appointed to the responsible position of superintendent of the enlarged institution. Dr. Cox is peculiarly fitted both by training and temperament for the development of the large work which lies before him. He was graduated from the Harvard Medical School in 1900, and after serving as house officer at the Long Island Hospital, Boston Harbor, went to the Deer Island Hospital as assistant resident physician, from which, at the expiration of six months, he was transferred to the Board of Health Hospital, Quarantine Service, and placed in charge of the smallpox hospital at Gallup's Island, during the epidemic of smallpox which was then prevailing and in the investigation of which he rendered valuable service. Later he became acting superintendent of the Long Island Hospital for eighteen months, and in June, 1906, undertook the superintendency of the Albany (N. Y.) City Hospital. After about a year's service he returned in July, 1907, to Boston as superintendent of the newly organized Boston Consumptives' Hospital, a position which he held up to the time of his appointment to the New Haven institution.

From the foregoing statement it will not be questioned that Dr. Cox has had an unusual training for the work which he is about to undertake. The position is a peculiarly important one in that it establishes in somewhat revolutionary manner an entirely new scheme of administration in an old, well-established and respected institution which has always been recognized as a hospital of high standing. The responsibility of such pioneer work as will undoubtedly fall to Dr. Cox is manifestly very great and will require not only initiative but unusual executive capacity to carry the plan to successful accomplishment. We have confidence that he will meet these responsibilities in the same spirit and with the same effectiveness that has characterized his work in the various other capacities in which he has served.

AMERICAN RED CROSS AND HOSPITAL RELIEF WORK IN EUROPE.

THE American hospital relief ship *Red Cross*, which reached Rotterdam, Holland, on Oct. 6, landed at that port an expedition consisting of six surgeons and twenty five nurses, who, on Oct. 7, started by train for their respective destinations in Austria and Germany, one unit being assigned to each country. The two units

last week landed in France have been stationed at Mont-de-Marsan.

The total amount of contributions made to the Red Cross fund on peace Sunday, Oct. 4, in various churches throughout the United States is only $5661. Inclusive of this amount, the total of the New York fund on Oct. 10 was $225,187, and on Oct. 9 the total of the American Ambulance Hospital (Neuilly) fund reached $69,931. Considerable sums have also been raised for the Belgian Relief Fund and for the Prince of Wales national relief fund.

Apparently the American Ambulance Hospital at Neuilly (Paris) is winning golden opinions for efficiency from those who have come in contact with its work. Sir Frederick Treves, Bart., sergeant-surgeon to King George, returned on Sept. 30 from Paris to London, and in a recent issue of the *British Medical Journal* describes his observation of the principal military hospitals in and about the French capital.

"The Military General Hospital is taking from 500 to 600 cases. It is at the Trianon Palace Hotel, Versailles. The large rooms on the ground floor, the dining room, drawing room and reading room make magnificent wards, and are filled with private soldiers. All the patients are very comfortable. In the grounds of the hospital are two marquées for medical cases, but the patients are few, because the health of the troops at the front is excellent.

"A second hospital is the American at the Lycée Pasteur at Neuilly. The number of beds is 300. There were 370 patients there, of whom 162 were British. The Americans have reason to be proud of this hospital, which is the best of its type in Paris. The staff consists of 15 doctors, 75 fully trained nurses, and others, making a total of 180.

"A third hospital is the Astoria Hotel, which has been taken over by the British Red Cross Society. It will accommodate 300 cases, and is being gradually equipped. There are 65 patients at present, all except three being British.

"Other hospitals are at Claridge's Hotel, the Majestic Hotel, two large private houses, the Lycée Bouffon and smaller institutions.

"The great difficulty in the medical aspect of the war is the question of transport. More ambulance trains are being provided, but they will not be immune from the risk of being delayed at sidings. The great need of this campaign is for motor ambulances. The American Hospital has 20, and in this fleet of cars rests largely the secret of its success.

"The British Red Cross Society is putting 200 motor ambulances into France at the earliest moment. Five hundred would not be too many. A motor ambulance can come down from the front in a little over two hours, whereas a train may take 10 or even 20 hours."

Another observer, writing from Paris, describes as follows the field work of the American Ambulance Hospital corps:—

"Attached to the hospital is a squadron of automobile ambulances, 10 of which were presented by the manufacturers and 10 purchased. Their chassis have been covered with khaki hoods and fitted to carry two wounded men and attendants.

"On their runs they are accompanied by automobiles with medical supplies, tires and gasoline. The ambulances scout at the rear of the battle line and carry back those whom the field hospitals cannot handle.

"The other day I watched orderlies who accompany these ambulances handling about 40 English wounded, transferring them from the automobiles to the reception hall, and the smartness and intelligence with which the members of each crew worked together was like that of a champion polo team."

Equally favorable opinions have been expressed by Sir Frederick Treves and others of the efficiency of the American Women's War Relief Hospital at Torquay, England, where the Massachusetts Red Cross unit has been stationed.

Report from the European continent on Sept. 26 states that Dr. August Bier, professor of surgery at the University of Berlin, is surgeon-in-chief of the German army, and that Freiherr von Eiselsberg, professor of surgery at the University of Vienna, is surgeon-in-chief of the Austrian army.

SIXTY-EIGHTH ANNIVERSARY OF ETHER DAY.

THE annual observance of Ether Day on October 16, at the Massachusetts General Hospital, appropriately recalls each year a momentous event in the history of medicine and of the human race. This year, the sixty-eighth anniversary will be celebrated in customary manner. During the forenoon there will be demonstrations and operations, a program of which will be found on the last page of this issue of the JOURNAL. The trustees of the hospital have invited the members of the House Pupils' Alumni Association to a luncheon at the hospital from 12.30 to 1.30 P.M. In the afternoon the commemorative exercises will be held at 4 o'clock in the lower out-patient amphitheatre, with presentation of diplomas to graduating house officers. The principal address will be by Dr. John M. T. Finney, of the Johns

Hopkins Medical School, Baltimore, and will be published in full in a later issue of the JOURNAL. In the evening the ninth annual meeting and dinner of the Alumni Association will be held at Hôtel Vendôme. Thus the day's celebration affords not only pleasant occasion for reunion among the hospital alumni, but opportunity for serious review of medical and surgical progress since the great event in the world's history which the observance commemorates.

MEDICAL NOTES.

BUBONIC PLAGUE IN HONG KONG.—Report from Hong Kong, China, states that during the fortnight ended Sept. 19, seven new cases and seven deaths of bubonic plague occurred in that city.

BUBONIC PLAGUE IN NEW ORLEANS.—Report from New Orleans states that on Oct. 4 another death from bubonic plague occurred in that city, making the tenth since the outbreak of the disease on June 27.

PREVALENCE OF INSANITY IN IRELAND.—The recently published sixty-third annual report of the inspectors of lunatics in Ireland shows an increase in the total number of insane in institutions in that country from 24,839 in 1912 to 25,009 in 1913.

"These figures do not include insane wandering at large or residing in private dwellings, with a few specified exceptions. The increase in number, 170, is less by 100 than the average annual increase for the preceding ten years. It is unsatisfactory to note that the number of insane in workhouses has not decreased during the year, although 641 patients were transferred from workhouses to district asylums. The inspectors have undertaken an elaborate analysis of the age-distribution of the insane during the past 50 years, and they conclude that mental abnormality is becoming less among the young, while the number of mentally afflicted among the aged has more than doubled in the period under review. These facts support the suggestion of the influence of the former larger population, and, it may be, of a legacy of mental weaknesses dating from the sufferings of the famine years. A hope is held out that, as time goes on and these influences exhaust themselves, there may be seen, if not a diminution in the numbers of the insane, an arrest, or at least a greatly lessened velocity, of increase. The proportion of insane under care to the total population has increased from 250 per 100,000 in 1880, to 571 per 100,000 in 1913. The percentage of recoveries to admissions in 1913 was 39.2 being 1.1 lower than in the previous year. The general death-rate on the daily average number resident was 7.2%. Deaths from phthisis were frequent; only 79 deaths occurred from general paralysis of the insane, of which 45 were in the Dublin and Belfast asylums."

MEDICAL SOCIETY OF THE MISSOURI VALLEY.—The annual meeting of this society was held in Colfax Springs, Iowa, September 17-19, with an attendance of 150. An excellent program of twenty-one papers was disposed of in two days, the third day being devoted to clinics in the hospitals of Des Moines. The invited guests included Dr. Robert H. Babcock of Chicago, who made an excellent evening address, taking for his subject the various forms of streptococcus endocarditis, with specimens; Dr. J. P. Sedgwick, of Minneapolis, who gave a practical demonstration of the great importance of the x-ray in diagnosing diseases of childhood; Dr. Campbell P. Howard, of Iowa City, who presented an able paper on the diagnosis of mediastinal tumors. All were thoroughly enjoyed by those present.

The society adopted a resolution endorsing the Harrison anti-narcotic bill pending in U. S. Congress.

The following officers were elected for the ensuing year: President, Granville N. Ryan, Des Moines; first vice-president, J. C. Waterman, Burke, S. D.; second vice-president, A. E. King, Blockton, Ia.; treasurer, O. C. Gebhart, St. Joseph (re-elected); secretary, Charles Wood Fassett, St. Joseph (re-elected.)

The next meeting will be held in Omaha, Neb., the fourth Thursday and Friday in March, 1915.

THE NIBERI PRIZE.—The Niberi prize, equivalent to $4,000, is offered as usual by the Turin Royal Academy of Medicine for scientific medical research. The conditions may be learned by written application to the secretary of the Academy, 18 Vie Po, Turin, Italy.

THE CHADWICK GOLD MEDALS.—It is announced that at the close of the current year the Chadwick trustees will award a Chadwick gold medal and £50 each to the naval and military medical officer who shall have rendered most distinguished service in promoting the health of men in the British army and navy.

INFANT DEATH-RATE IN BURMA.—In Burma during the year 1913, 316,654 children were born and 107,967 under five years of age died.

"In view of this alarmingly high infant mortality a memorial bearing the signature of a large number of European and Burmese ladies has been forwarded to the Lieutenant-Governor praying that (1) the cadre of the Government Medical Department be amended by opening 21 of the appointments of assistant surgeons (25 being vacant on April 1st) to lady doctors; such women of this province as are already qualified and suitable it is suggested should be employed in some of the 21 towns now without female

medical aid, the remaining vacancies to be filled in the same way as speedily as possible; (2) separate wards for maternity cases be provided in all government hospitals where such wards do not now exist; and (3) all town authorities in large towns be urged to entertain visiting midwives."

STUDY OF INFANT MORTALITY IN BROCKTON BY UNITED STATES CHILDREN'S BUREAU.—Following its investigation of causes of infant mortality in Johnstown, Pa., and Manchester, N. H., the United States Children's Bureau has announced its purpose of making a similar study at Brockton, Mass. In this announcement, the bureau makes the following statement of its origin and aims:—

"The Children's Bureau was created by Congress about two years ago, to study all matters pertaining to the welfare of children and child life. For the first time, therefore, we have an organization fitted to study this complex social problem of infant mortality which, for many years, has been challening the attention of the civilized world.

"This study, now in progress, will touch a number of conditions which may seem to the uninitiated rather superfluous. Such is not the case, however, any more than the details necessary to the physician, the sanitarian, the chemist, or any other scientist in their research work are superfluous. Those who have already spent many years studying the problem of infant mortality know that figures on one or two of the factors entering into the high death-rate of infants are of no material value in the search for hidden causes of something. What is needed are figures on all the factors and on a sufficient number of cases so as to point the way unmistakably to certain things. By this study upon which the Children's Bureau is embarking we shall get enough facts in various parts of the United States so that it will be possible to consider the high infant mortality rate from all points of view.

"One of the great questions for which we are seeking a definite answer is: How far do home conditions (using that term in the broadest sense) determine the factors of health and development of the child? We want to know how children live as well as why they die. We want to get at the conditions surrounding all phases of infant life.

"Stillbirths are only one of the many phases of infant mortality, and it must be borne in mind that the United States Children's Bureau is not concerned in bringing to light any criminal case. Deliberate destruction of life is a matter for the grand jury and not for us. Neither are we taking any side in the question of responsibility for such death.

"The Children's Bureau has already completed its study of this subject in Johnstown, Pa., a city with a high infant death-rate, where the manufacture of steel and to a certain degree coal mining employ a large part of the male population, while most of the women remain at home. Manchester, N. H., was selected as the second city on account of the high rate of infant mortality and because nearly 50% of the women over 14 years of age, are employed outside of the home, nearly three-fourths of these women being employed in cotton mills.

"The Children's Bureau bespeaks the good will of the people of Brockton in the government's effort to learn how to save babies' lives. The government must have the help of the mothers of the country in this effort and upon that we confidently depend."

Brockton, it should be added, has been selected for study because of its high birth-rate, low rate of infant mortality, and the completeness of its vital statistics.

BOSTON AND NEW ENGLAND.

HARVARD MEDICAL SCHOOL.—The Harvard Medical School opened on Sept. 29 with an enrolment of 324 students, an increase of 40 over last year, and the largest number since the establishment of the new entrance requirements in 1902.

A NEW MATERNITY HOSPITAL FOR BOSTON.—At the opening of the Boston University School of Medicine on Oct. 1, announcement was made of an anonymous gift of $100,000 to the Massachusetts Homeopathic Hospital for the erection of a new maternity building at the corner of Harrison Avenue and Stoughton Street.

"This gift permits the fulfilment of plans which have been progressing for 20 years. A foundation already has been laid and a one-story building erected, which has been in use as a dispensary. To this building three and possibly four stories will be added. The use of the first floor as a dispensary will be continued.

The hospital will be under the control of the trustees of the Massachusetts Homeopathic Hospital, but by a working arrangement with the trustees of Boston University the medical staff of the hospital is largely made up of members of the faculty of the Boston University School of Medicine.

"The property consists of 10,597 square feet of land and a brick building, assessed at $76,000, of which $16,000 is on the land. It adjoins the Massachusetts Homeopathic Nurses' Home and is on the opposite corner from the property of the Home for Destitute Catholic Children. Below it on the opposite side of Stoughton Street are the Boston University School of Medicine and the Massachusetts Homeopathic Hospital."

POSTPONEMENT OF CONTAGIOUS HOSPITAL PLANS.—Owing to the present high cost of construction, the contemplated erection of a new

building at the Boston City Hospital for contagious diseases has been indefinitely postponed, and the evacuated West Roxbury parental school will be used for this purpose. This will make possible the sale of the present Southampton Street Hospital and the Dorchester Convalescent Hospital, and the devotion of the proceeds to extension and improvement of the buildings at West Roxbury.

Two Centenarians.—Amelia J. Lavin, who died on Oct. 6 at East Boston, is said to have been born in 1813 at Bay Fortune, P. E. I. She migrated in 1864 to Massachusetts, where she lived a widow for many years. She is survived by two aged sons.

Mrs. Solomon Hartford, who died on Sept. 25 at Rochester, Strafford county, N. H., is said to have been born in that town in February, 1812. She married in 1830, and had been a widow since 1872. She is survived by two elderly sons and two aged sisters. Longevity has long been habitual in her family.

Summer Work of Milk and Baby Hygiene Association.—The Boston Milk and Baby Hygiene Association has recently issued a report of its work during the past summer:—

"During June, July, August and September, 1914, the Association cared for 2556 babies registered at its 12 milk stations, compared with 2185 in 11 stations during the summer of 1913, and 1767 in nine stations in the summer of 1912. New admissions increased from 714 during the summer of 1912 to 1045 during 1913, and 1116 during this summer.

"During the period under consideration in 1912, 29 babies became so acutely ill that they died while registered with the milk stations. Last year, in spite of the much greater registration, only 16 babies died while under care; this summer only 15.

"The total attendance at these summer clinics shows the most surprising improvement. In 1912 the total attendance was 4361; in 1913, 5793; this summer it has risen to 8124."

Report of the Boston City Hospital for Its Fiftieth Year. — The recently published fiftieth annual report of the trustees of the Boston City Hospital, with the report of the superintendent, records the work and progress of that institution and its various departments during the year ended Jan. 3, 1914.

"During the year 13,419 patients were treated in the wards, 47,385 as out-patients, 397 at the Convalescent Home, 2751 at the South Department; at the Haymarket Square Relief Station 1252 were treated in the wards and 38,465 as out-patients; and at the East Boston Relief Station 258 were treated in the wards and 12,802 as out-patients—a total of 116,729 who have received the benefits of the hospital in all departments.

"The maximum number of patients in the hospital proper on any one day was 674, as against 651 in the previous year. The minimum number was 412, in comparison with 449 for the previous year.

"During the year 16,198 persons applied for admission at the main hospital. Of this number 12,834 were admitted and 3364 were rejected, the latter being 482 more than last year. There were 206 applicants rejected for want of vacant beds, but of these 31 were admitted later. There were 907 of these applicants who could be treated more properly in the various out-patient services without the additional cost of receiving them in the wards. Admission was denied to 617 for lack of information that they were suitable cases; of these, 206 were received within three days after application and 10 were admitted later; and 451 were rejected as apparently incurable or unsuitable for treatment here.

"The entire expenditures for all departments of the hospital for maintenance during the fiscal year were $616,301.02. Of the amount spent for maintenance, $408,503.47 was expended upon the hospital proper, $24,733.76 on account of the 10 out-patient departments, $117,845.20 on account of the South Department, $38,220.27 on account of the Haymarket Square Relief Station, $17,154.72 on account of the East Boston Relief Station, $9,834.60 for the Convalescent Home.

"This sum was expended for 41,488 weeks' board of patients, at a cost per capita of $12.67, but if we deduct the money collected from paying patients, interest on trust funds and other income, the net cost to the city per capita per week was $9.95. The cost of subsistence supplies was $150,819.66; the total weeks' board for an average of 1399 persons was $72,972.

"The work of the South Department has grown considerably. There were 2403 patients admitted to the department in 1913, which is 470 more than were received the previous year. The demand for room exceeded the supply.

"The expenditure for running this department amounted to $117,854.20. This sum was expended upon 2751 patients and divided by 13,350 weeks' board gives $8.85 as the per capita cost per week. The cost of subsistence supplies was $32,508.57.

"During the 19 years that the department has been in operation, 45,651 patients have been received, nearly all ill with an infectious disease. A study of vaccines for whooping cough is being made and it is hoped that an antitoxin for this disease may be discovered.

"In the department for vaccine serum therapy, 3250 visits were made during the year. There were 3047 inoculations. In the out-patient department there were 47,383 patients treated and there were 140,385 visits made during the year. At the Haymarket Relief Station, 39,717 patients were treated during the year, making a total of 415,095 treated during the last 12 years."

Cases of Infectious Diseases reported to the Boston Board of Health for the week ending Oct. 6, 1914: Diphtheria, 50, of which 3 were non-residents; scarlatina, 35, of which 7 were non-residents; typhoid fever, 20, of which 1 was non-resident; measles, 13, of which 13 were non-residents; tuberculosis, 55, of which 3 were non-residents. The death-rate of the reported deaths for the week was 13.40.

NEW YORK.

"Safety First."—The fact that the "safety first" campaign of the New York Central lines has resulted in a reduction of fatalities during the year ending June 30 of 39 employees and 58 trespassers, as compared with the previous years, shows that its managers have worked to some purpose. This great railway system, on which no passenger has been killed, since February, 1911, has in one year reduced by 102, or 30%, the deaths of employees, licensees and trespassers along its ways and at crossings. The managers have now taken advantage of this good showing, and the means by which it was brought about, by having prepared the films of a picture play which is staged in a New York Central car for exhibition to its employees and their wives and children. They furnish a timely warning in an impressive way, and it is stated that the Lackawanna, the Santa Fé, and other railroads will soon reproduce them for their own employees.

Work of Quarantine Department.—Health Officer of the Port has made a report to Governor Glynn in which it is shown that during the year ending Sept. 30 the usual annual deficit in his department was cut almost in half, and the opinion is expressed that the work at Quarantine will soon be placed on a self-supporting basis. During the year no case of quarantinable disease was permitted to gain admission to the city of New York, and the new laboratory, one of the most completely equipped in the world, was installed. The completion of this building not only strengthens the protective efficiency of the quarantine department, but affords opportunity to the state for research work of the most valuable character. The cost of construction and equipment, with surrounding improvements, is placed at $91,000. Dr. Oscar Teague of Cornell University Medical College has been appointed chief of the laboratory staff, to succeed the late Dr. E. C. Baldwin.

An Epidemic of Typhoid Fever.—The State Health Department reports the occurrence of an epidemic of typhoid fever during the past summer at Waterloo, Seneca County, as worthy of note in affording an apt illustration of the manner in which a serious disease may be spread through carelessness or lack of knowledge of some of the fundamental principles of hygiene and sanitation. An investigation directed suspicion toward a certain well situated at a point where a citizen maintained a public hitching shed, and it was found that the typhoid sufferers had all drunk the water from this well. In the latter part of April a lavatory had been placed in an adjoining building, with a six-inch drain running from it, within two feet of the wall, to a sewer. The tile was laid in cement, and was tight with the exception that at the point where it passed the well an opening into the drain had been made to carry off the surface water and the surplus water pumped from the well. Although the upper portion of the well was protected for a distance of two or three feet by a cement wall, the opening made in the drain was in such a position that a large amount of surface water and water pumped from the well might back up in the flow in the well-drain and cause it to go backward through the soil into the well. Samples of the water from the well obtained on the day of inspection showed the presence of organisms indicating a high degree of fecal contamination.

State Public Health Council.—Dr. Wilhelm Gaertner of Buffalo has been appointed a member of the State Public Health Council, to fill the vacancy caused by the resignation of Dr. Edward Clark, who has been made a state sanitary supervisor. Six trained nurses who were appointed from the list of those who passed the civil service examination for the position of supervising nurse, held in June, have been assigned for the time being to the division of child hygiene, to help in the infant welfare campaign organized for the county fairs, and to follow up the work accomplished during the summer by the child welfare exhibits.

Addition to Woman's Hospital.—Plans have just been filed for an addition, costing $110,000, to the Woman's Hospital, on Cathedral Parkway (110th Street). The new building will have a frontage of 55 feet on 109th Street, and is to be known as the Thompson Pathological Building. It will be six stories in height, with an operating theatre on the top floor.

Columbia University.—The official registration figures, given out after the monthly meeting of the trustees on Oct. 5, show that the net total of students at Columbia University, is 12,509, which is stated to be the largest number at any university in the world. This registration does not include the new students whose names will be enrolled in February. Gifts to the amount of $40,195 were announced by the trustees. The largest of these was one of $20,000 from Professor and Mrs. Frederick S. Lee, to constitute a permanent fund, the income of which is to be used for research work in the department of physiology. Among the other gifts were the following: $2,500 from Clarance Mackay, for the Surgical Research Fund; $2,000 from Professor and Mrs. Lee, for the use of the department of

physiology; $2,000 from an anonymous donor, as a contribution to the Frank Hartley Scholarship Fund in the College of Physicians and Surgeons; and $1,360 from an anonymous donor, for the use of the department of pharmacology. The following changes in the teaching staff of the medical department were announced: Dr. C. G. Coakley has been appointed professor of laryngology to succeed the late Dr. W. K. Simpson; Dr. H. F. Swift, associate professor of the practice of medicine, to succeed Dr. W. T. Longcope, promoted, and Dr. A. M. Pappenheimer, assistant professor of pathology, to succeed Dr. J. W. Jobling, who has been made professor of pathology in Vanderbilt University. Assistant Dr. A. M. Miller, assistant professor of anatomy, has resigned to accept the professorship of anatomy in the Long Island College Hospital.

A Centenarian.—Mrs. John Harris, who died on Oct. 6 at Long Island City, N. Y., is said to have been born in 1808. She had been active and apparently in good health until within a few hours of her death. She is survived by one aged son.

Mortality for Week Ending October 3, 1914.—The mortality for the week just passed is the lowest record in the history of the city, and it is the second time this year that the weekly death-rate per 1000 of the population has gone below 11; the other occasion upon which the death-rate descended below this figure was during the week of July 4, 1914. The rate during the past week was 10.58 per 1000, which was 1.54 points lower than the rate during the corresponding week of 1913, this lowering of the rate being equivalent to a decrease of 163 deaths. The mortality from the different causes of death show a decrease practically down the line.

All the infectious diseases, without exception, showed a considerably decreased mortality, this being especially true of the number of deaths reported from diphtheria and croup, typhoid fever, diarrheal diseases and pneumonia. The mortality from organic heart and kidney diseases also showed a considerable decrease. The one cause of death that showed an increase was that of pulmonary tuberculosis, and this increase, taking the increase in the population into consideration, was equivalent to one of three deaths.

Viewed from the point of age grouping there was a tremendous decrease in the mortality of infants under one year of age, a considerable decrease between one and five years; the decrease at five years and over was less marked than at the earlier periods of life.

The death-rate for the first forty weeks of the year 1914 was 13.81 per 1000 of the population as compared with a rate of 14.09 during the corresponding period in 1913, a decrease of .28 of a point.

Massachusetts Medical Society

Notice.—Secretaries of District Medical Societies are requested to send notices of coming meetings of their societies to the office of the Boston Medical and Surgical Journal, 101 Tremont Street, Boston, addressed to the Editor, at least two weeks before the date of any given meeting, so that they may appear in the Journal in proper time. Secretaries are urged also to send in reports of the meetings, giving time and place of meeting, whether a quarterly or monthly meeting, the names of the officers, the number present, the titles of the papers and the names and addresses of the readers and of the discussers. Brief abstracts of the papers and of the discussions will be appreciated.

Current Literature

Medical Record.

September 26, 1914.

1. Jordan, A. C. *Chronic Intestinal Stasis.*
2. *Four Clinical Lectures—Held at the New York Polyclinic Medical School and Hospital During the Week of the Meeting of the International Surgical Congress:*
   a. Wyeth, J. A. *Fractures and Burns.*
   b. Bodine, J. A. *Operations for Inguinal Hernia Under Local Anesthesia.*
   c. Lyle, A. *Fractures.*
   d. Bainbridge, W. S. *Cancer.*
3. Crowell, A. J., and Munkoe, J. P. *Salvarsan in the Treatment of Syphilis—With Special Reference to the Use of Salvarsanized Serum in Cases of Syphilis of the Central Nervous System.*
4. *Stone, W. J. *Comparative Wassermann, Cobra and Globulin Tests in Syphilis—With a Report of One Hundred and Five Reactions.*
5. Jacoby, A. *Backache and Posterior Parametritis.*
6. Abrams, A. *Abrams' Method of Treatment in Aneurysms.*

4. Stone compared the Wassermann, cobra and globulin tests in a large number of cases of syphilis. In 30 normals and controls the Wassermann and cobra tests were negative and in 6 of these the globulin test was negative in the spinal fluid. In 90 other normals and controls the cobra test was negative. In 22 cases of secondary syphilis the Wassermann and cobra tests were positive; in 5 of these the globulin test was positive in the spinal fluid and in 7 in the blood serum. In 7 cases of active late syphilis the cobra test was positive in the blood serum and the globulin test positive in both blood serum and spinal fluid. In 24 cases of late and clinically cured syphilis the Wassermann and cobra tests were both negative. In one case of cerebral syphilis the Wassermann and cobra tests were negative, the globulin positive. [L. D. C.]

New York Medical Journal.

September 26, 1914.

1. Forbyce, J. A. *Modern Diagnostic Methods in Syphilis.*
2. Wilcox, R. W. *The Medical Treatment of Intestinal Stasis.*

3. MITCHELL, H. W. *General Paralysis of the Insane.*
4. STANTON, E. M. *The Prognosis in Acute Appendicitis.*
5. MAYS, T. J. *The Consumption Crusade. A Parallel.*
6. MANION, R. J. *Some European Clinics.*
7. *RONGY, A. J., AND ARLUCK, S. S. *The Use of Scopolamine-Morphine in Labor.*
8. LEVIN, I. *The Value of the Abderhalden Test for Cancer.*
9. KINGSLEY, C. R., JR. *Artificial Pneumothorax in Pulmonary Tuberculosis.*
10. KNAPP, M. I. *Newer Teachings Concerning Diseases of the Gastrointestinal Tract.*

7. Rongy and Arluck report encouraging results with scopolamine-morphine in 100 cases of labor. [L. D. C.]

ANNALS OF SURGERY.

SEPTEMBER, 1914.

1. ROGERS, J. *The Course of Acquired Disease of the Thyroid Gland and the Principles Which Seem to Control Its Progress.*
2. *MACKINNEY, W. H. *How Shall the Clinician Interpret the Wassermann Reaction?*
3. *THOMAS, B. A., AND PANCOAST, H. K. *Observations on the Pathology, Diagnosis and Treatment of Seminal Vesiculitis.*
4. *UHLE, A. A. *The Treatment of Bladder Papilloma by High Frequency Destruction.*
5. RANDALL, A. *Clinical Manifestations of Polyps of the Male Urethra.*
6. ARCHIBALD, E. *A Method of Treating Adherent Perforating Ulcer of the Posterior Wall and Lesser Curvature of the Stomach.*
7. WALTON, A. J. *Congenital Pyloric Stenoses.*
8. TRUMBULL, T. S. *Diffuse Lymphangio-Endotheliomatous Growths of the Peritoneum.*
9. *TENNEY, B. *Tumor at the Meatus Urinarius in the Female.*
10. NEUHOF, H. *Traumatic Intra-acetabular Separation of the Pelvic Bones (Epiphyseal Diastasis in the Acetabulum).*
11. *MAYO, C. H. *The Preparation of Dry Bone Areas for Skin Grafting.*
12. COLLINS, A. N. *Thumb Forceps to Facilitate Anastomosis.*

2. MacKinney has never found a positive Wassermann reaction in primary syphilis earlier than the fifth day, but has never failed to find a positive reaction after the 15th day. Confirmation of the clinical diagnosis should, therefore, be by demonstration of the spirochetæ in smears. The Wassermann should be used for prognosis in this stage of the disease. In clinically doubtful manifestations of secondary cutaneous syphilis, he maintains that the clinician is justified in rejecting a positive test in favor of his clinical experience until by the subsequent course of a case he proves that syphilis does or does not exist. The possibility of a latent coexisting syphilis must always be thought of. In active tertiary syphilis the reaction usually confirms the clinical picture. The chief rôle of the test in this stage is as index to treatment. In his experience after two or three years of mercurial treatment the reaction is still present in 50% of cases. The clinician should never rely upon the Wassermann reaction absolutely in diagnosis.

3. Thomas and Pancoast have been impressed with the frequency of involvement of the seminal vesicles in cases of posterior urethritis. The source of certain infective, cryptogenic, nervous and arthritic conditions is in a large percentage of cases the chronically diseased seminal vesicle. The work of Fuller, of Lloyd and of Picker is referred to. The infection is usually of mixed type. The gonococcus, streptococci, pneumococci, staphylococci, colon bacilli, coryza bacteria and the tubercle bacillus have been demonstrated. Perivesicular infiltrations about base of bladder and prostate and extending through perirectal tissues are common. Massage will effect a cure in the majority of cases, but obviously, if the ejaculatory duct is completely stenosed, it will be futile. Fuller's vesiculotomy has a definite indication in a certain percentage of cases. The authors, however, prefer Voelcker's method. Vesiculectomy is to be reserved for grave chronic cases and for tuberculous infection. Needle puncture of the vas and the injection of collargol is not only of therapeutic value but of diagnostic value. Ten radiograms accompany the article. These demonstrate intimate relationship to ureter, strictures, partial obstructions and loculated collections of pus or pyovesiculosis.

4. Uhle presents epitomes of histories of eight cases treated by high frequency destruction. The technic is described. In small growths destruction with one treatment has been attempted. In large growths several treatments have been necessary. As a general rule treatment should not be given oftener than once a week depending on the size and density of the growth and local reaction. Uhle regards the method as very effective. Immediate effects (diminution in size and hematuria) are good, but cure is not to be expected.

9. Tenney presents an interesting case and then reviews the literature. The conditions considered are papillary angioma of the urethra (150 cases), prolapse of vesical dilation of the ureter (9 cases), prolapse of bladder tumor (1 case), prolapse of urethra, prolapse of bladder mucosa and prolapse of bladder wall. The symptoms, physical characteristics, and incidence of these conditions is summarized

11. Mayo presents a method to encourage speedy granulation of denuded bone surfaces, due either to accident or to result of operation. This consists of drilling bone down to blood supply (diploe in case of skull). The drill holes are placed about one-fourth inch apart. Granulations rapidly appear, furnishing excellent blood supply for skin grafts. [T. W. H.]

JOURNAL OF MEDICAL RESEARCH.

SEPTEMBER, 1914.

1. *CUSHING. *Studies on Cerebro-Spinal Fuid. Introduction.*
2. WERD. *The Theories of Drainage of Cerebro-Spinal Fluid with an Analysis of the Methods of Investigation.*
3. *WERD. *The Pathways of Escape from the Subarachnoid Spaces with Particular Reference to the Arachnoid Villi.*
4. *WERD. *The Dual Source of Cerebro-Spinal Fluid.*
5. WEGEFARTH. *The Drainage of Intra-Ocular Fluids.*
6. WEGEFARTH. *The Establishment of Drainage of Intraocular and Intracranial Fluids Into the Venous System.*
7. *WEGEFARTH AND WERD. *The Analogous Processes of the Cerebral and Ocular Fluids.*

1. Cushing points out that little if any absolute knowledge has existed as to the origin, function and subsequent drainage of the cerebro-spinal fluid.

3. The chief channel of return of cerebro-spinal fluid to the general circulation lies in the arachnoid villi, to a very minor degree through the lymphatic system. No evidence of escape through the cerebral veins and capillaries could be found.

4. Cerebro-spinal fluid appears to be derived from the choroid plexuses in the cerebral ventricles and from the perivascular systems of the nervous tissues.

7. There exists a close relationship between the cerebral and ocular fluids. Apparently they are derived from similar sources and escape in correspondingly similar ways. Both perform the same supportive and eliminative duties. They correspond pathologically as well as physiologically. [L. H. S.]

JOURNAL OF INFECTIOUS DISEASES.

SEPTEMBER, 1914.

1. *DeWitt and Sherman. *Tuberculocidal Action of Certain Chemical Disinfectants.*
2. Haslem and Franklin. *The Standardization of Anti-Hog-Cholera Serum.*
3. Fitzgerald. *A Biometrical Study of the Mucous Capsulatus Group.*
4. Hektoen. *The Formation of Antibodies in Rats Fed on Pure Vegetable Proteins.*
5. *Sharp. *The Bacteriology of Vaginitis.*
6. Holman. *The Relative Longevity of Different Streptococci and Possible Errors in the Isolation and Differentiation of Streptococci.*
7. *Crabtree. *Observation on the Growth of the Gonococcus and the Staphylococcus Albus from the Urethra in Plate Culture (A Criticism of Warden's Work).*
8. Kite. *Some Structural Transformations of the Blood Cells of Vertebrates.*
9. Wherry and Lamb. *Infection of Man with Bacterium Tularense.*
10. Lavinder and Francis. *The Etiology of Dengue. An Attempt to Produce the Disease in the Rhesus Monkey by the Inoculation of Defibrinated Blood.*
11. Good and Smith. *The Bacillus Abortionis Equinus as an Etiological Factor in Infectious Arthritis in Colts.*
12. Tunnicliff. *An Anaerobic Vibrio Isolated from a Case of Acute Bronchitis.*
13. Tunnicliff. *A Pleomorphic Branching Organism Isolated from a Case of Chronic Rhinitis.*
14. Kendall and Simonds. *The Extrinsic Activity of Plain and Broth Cultures of the Typhoid Bacillus.*
15. Jones. *The Bacteriological and Chemical Evidence of the Occurrence of a Hexose Sugar in Normal Milk.*
16. *Irons. *The Treatment of Tetanus by Antitetanic Serum.*
17. *Davis. *The Growth and Viability of Streptococci of Bovine and Human Origin in Milk and Milk Products.*
18. *LeCount and Jackson. *The Renal Changes in Rabbits Inoculated with Streptococci.*
19. Schofield. *The Etiology of Pyemic Arthritis in Foals.*

1. Phenol in 5% and even 1% solution, formaldehyd in 1% to 0.01% and ethyl alcohol in 25% solutions were found to have distinct germicidal action upon the tubercle bacillus in from one to twenty-four hours. Of the metallic salts, $HgCl_2$, $AgNO_3$ and AuCl were found the most powerful. The tubercle bacillus is less resistant than the streptococcus, staphylococcus, pneumococcus, the bacillus typhosus and the bacillus coli. The fat content does not determine the resistance of the tubercle bacillus to disinfectants, since the fat solvents were of far less value as disinfectants than the substances insoluble in fats.

5. Sharp considers the gonococcus cutaneous test and the complement-fixation reaction to be of little service in the diagnosis of late gonorrheal vaginitis and as methods of controlling treatment of apparently cured cases. Both of these tests depend upon the presence of a higher grade of immunity than is found in chronic vaginitis. Somewhere gonococci may be still present in the vaginal discharge. The smear method is also of limited value, since the gonococcus is so frequently overgrown by other organisms comparatively early in the disease process. Cultural isolation of the gonococcus proved the most satisfactory method of obtaining during the late stages of a chronic vaginitis a knowledge of the etiological factor and an idea as to the progress of the disease.

7. Crabtree is unable to substantiate the findings of Warden in regard to the etiology of acute urethritis. The claims of Warden were briefly as follows: that the staphylococcus albus, called provisionally the staphylococcus urethrae—when suspended in serum, hydrocele fluid, ascitic fluid, weak pancreatic solution and gonococcus autolysate loses the power of retaining Gram's stain; that intracellular diplococci in gonorrheal pus are probably Gram-negative staphylococci in diplococcal form; and that during the first few hours of its life upon ordinary culture media the staphylococcus albus is a Gram-negative organism. Crabtree shows that the staining property of the staphylococcus albus is due to an artefact in the form of an albuminous coating of the organism or the colony, which renders decolorization easy or the fixation of the primary stain impossible. This is demonstrated by staining of colonies in situ and by the transfer of the apparently Gram-negative albus to salt solution. From this he concludes that the staphylococcus albus has no stage of growth in which it is a consistent Gram-negative organism. Hence Warden's statement that acute urethritis is caused by the staphylococcus urethrae, not by the gonococcus, based as it is upon the foregoing pieces of evidence, is fallacious.

16. Irons shows a considerable decrease in mortality from tetanus through the use of anti-tetanic serum. It is of course imperative to start such treatment at the earliest possible moment. He advises following the outline of Park, who recommends the intraspinious introduction of 3000 to 5000 units, together with an intravenous dose of 10,000 to 20,000 units. The intraspinous injection is repeated upon the following day. The blood remains strongly antitoxic for several days, so that a subcutaneous injection of 10,000 units is not required for four or five days. The danger from immediate anaphylactic shock from the use of the serum is negligible, because of its rarity and because of the high mortality of untreated tetanus.

17. Milk souring inhibits the growth of hemolytic streptococci. The acid production in old milk and butter is fatal to the life of this organism. In ice-cream the hemolytic streptococcus remains viable for long periods of time, hence it is a most suitable medium for the transmission and preservation of dangerous streptococci.

18. LeCount and Jackson have produced in rabbits by injections of streptococci lesions of subacute nephritis similar to those found in acute infection in man complicated by or due to streptococcus infection. Such complications were found in fewer instances in those animals treated with anti-streptococcus serum or vaccine. [L. H. S.]

Miscellany.

RABIES AND OTHER NOTIFIABLE DISEASES.

The acting commissioner of health of Massachusetts, Dr. William C. Hanson, has recently sent to local boards of health in this commonwealth the following circular letters dealing with dog-bite, rabies, and other diseases dangerous to the public health. Especial attention is called to the amended list of notifiable diseases, to which have now been added dog bite, dysentery, hookworm disease, infectious suppurative conjunctivitis, malaria, mumps, plague, and septic sore throat.

CIRCULAR LETTER UNDER DATE OF AUGUST 25.

DOG BITE AND RABIES.

"Dogs run about more freely during the summer months, hence the reason for the greatest

number of dog bites at this season of the year. Unless a dog is extremely violent it should not be killed, because if killed early in the course of rabies, microscopic examination of the dog's head may fail to show evidence of the disease. The physician will then be in doubt about giving the Pasteur treatment to the person bitten. Moreover, the person bitten suffers with unnecessary mental anxiety. First in importance, therefore, is to find and keep the dog under observation. If ten days elapse and no symptoms appear the Pasteur treatment is unnecessary. Wounds caused by the bite of a dog or other animal suspected of having rabies should at once be thoroughly cauterized with fuming nitric acid, preferably by means of a small glass rod or pipette.

"When a dog or other animal shows symptoms of rabies it should be chloroformed or shot. If shot, it should be done with a pistol and the bullet enter the forward part of the brain, or the heart; otherwise important regions for examination may be destroyed. The head should then be securely packed in sawdust and ice and shipped with all possible haste to a local laboratory for examination, or to the Bureau of Animal Industry, State House, Boston, Mass., and the said Bureau notified of such shipment. Avoid shipping so that the head will reach the State House on a Saturday afternoon or the afternoon before a holiday, but hold in cold storage. All cases of rabies are now required by law to be reported to the State Department of Health through the board of health of the city or town in which the case occurs, and every case of dog-bite should be so reported for investigation.

"If a dog or other animal shows suspicious symptoms of rabies, the fact should be reported immediately to the Bureau of Animal Industry so that an inspector of animals may be detailed to act promptly and effectively. Circulars containing a description of the symptoms of rabies may be had upon application to the city or town clerk, to whom such circulars are supplied by the State Department of Health, as required by Section 132 of Chapter 102 of the Revised Laws. Pasteur treatment is now administered in various parts of the State by physicians who are in the employ of the State Department of Health. The virus used is furnished by the Hygienic Laboratory of the United States Public Health Service and is administered in accordance with their stipulations."

CIRCULAR LETTER UNDER DATE OF SEPTEMBER 30.

"A circular was recently sent to you from the State Department of Health relative to dog-bite and rabies. I wish once more to call your attention to the necessity of starting anti-rabic treatment as soon as possible after the person is bitten. Persons bitten by animals suspected of having rabies should receive the anti-rabic treatment whether or not the suspicion is confirmed by microscopical examination of the brain of the animal, inasmuch as the Negri bodies, which are regarded as specific of the disease, are not always present, possibly because they have not developed to a demonstrable condition at the time the animal was killed.

"Should you have a person bitten by a dog, to whom the Pasteur treatment is to be given, notify promptly the office of the State Department of Health and immediate arrangements will be made for the administration of the virus by one of our State physicians. Both the virus and its administration are free of cost.

"The request in the circular that notice be given to the Department of Animal Industry of any animals showing signs suspicious of rabies is not intended as a substitute for the requirement of Section 5, Chapter 608, of the Acts of 1912, which reads:—

> "The board of health of a city or town, any member or agent thereof, or any other person who has knowledge of or reason to suspect the existence of any contagious disease among any domestic animals in this commonwealth, or that any domestic animal is affected with such contagious disease, whether such knowledge is obtained by personal examination or otherwise, shall immediately give notice thereof in writing to the commissioner of animal industry, or to an inspector of animals for the city or town where the animal is kept.

"It would be well for your Board to request that reports be made to the local inspector of animals as well as to the Department of Animal Industry. It is hoped that with such notification, both to the local inspector and to the commissioner of animal industry, prompt, efficient and coöperative measures may be carried out in dealing with the animal in question."

DISEASES DANGEROUS TO THE PUBLIC HEALTH.

"The following is an amended list of diseases declared by the State Department of Health to be reportable under the provisions of Sections 49, 50 and 52 of Chapter 75 of the Revised Laws, as amended by Chapter 480 of the Acts of 1907. Householders and physicians must now give immediate notice, the latter in writing over their own signatures, to the local board of health of all cases of:—Atinomycosis, anterior poliomyelitis, anthrax, Asiatic cholera, chicken pox, diphtheria, dog-bite (requiring anti-rabic treatment), dysentery (*a*, amebic, *b*, bacillary), epidemic cerebro-spinal meningitis, German measles, glanders, hookworm disease, infectious diseases of the eye (*a*. ophthalmia neonatorum, *b*. suppurative conjunctivitis, *c*. trachoma), leprosy, malaria, measles, mumps, pellagra, plague, rabies, scarlet fever, septic sore throat, smallpox, tetanus, trichinosis, tuberculosis (all forms), typhoid fever, typhus fever, whooping cough, yellow fever.

"Cases of the above diseases must be reported

by the local board of health, *with the names and addresses of the patients*, to the State Department of Health within twenty-four hours."

MEDICAL PARIS A CENTURY AGO.

In the issue of the *British Medical Journal* for May 9, 1914, was an article on "Medical Paris in the Spring of 1814." The stirring events which have arisen in the great European war now in progress add a new and peculiar interest to these lines, written in a time of apparently unclouded peace just a century after the facts they chronicle, just a few weeks before Paris was to become again a centre of intense military and political activity.

"During the early months of 1814, when Britain was lying bound in the icy fetters of the 'Great Frost,' and when rigorous conditions were not lacking on the Continent of Europe, the eyes of the world, or of that part of it which took interest in the doings of the great Napoleon, were centred upon Paris. The fighting around that city, boasting herself to be the "Athens of Europe," and even, with a larger purview, "Capital of the Universe," had for weeks ebbed and flowed; but the Allies, with difficulty succeeding in keeping in more or less perfect alliance, gradually began to close in, and after a confused welter of marchings and counter-marchings, advances and retreats, of battles won, lost, or drawn, and of parleyings and negotiatings, Blücher and Schwartzenberg arrived on March 30, and the Battle of Paris was fought, with the result that on the following day (March 31) the Emperor Alexander of Russia and the King of Prussia made their entry into the city on the Seine. The Emperor Napoleon was some five and thirty miles away at Fontainebleau, and although in these masterly defensive campaigns of 1814 he had worked wonders, 'boy-conscripts' notwithstanding, it was a changed France since the days of the Moscow disaster and the battle of Leipzig; there was no longer the great enthusiasm for the Emperor, and there were not wanting sighs for a Republic once again. Consequently it was in sullen tranquillity that the vast crowd of Parisians watched the long procession of the foreign troops tramp along their streets; 'a few shouts saluted the noble presence of the Tsar,'[1] and a small group of aristocrats in the Boulevard des Italients called out loudly, '*Vivent les Bourbons!*' The Tsar was quite willing that the Bourbons should live (if they would let live), and with Talleyrand, capable of shining 'in a crisis or at a congress,' to help him, and the Senate in a state of easy pliancy, it was soon *un fait accompli*. Napoleon said to those sent to tell him, 'Very good, gentlemen, since it must be so, I abdicate'; he would have taken back his words a few minutes later—threw himself on a sofa, and called out, 'Nonsense, let us march to-morrow, we shall beat them'—but his marshals bore him down. The Bourbons were to live again—on the throne of France—for a time! In the meantime it was, as Tacitus[2] said about another crisis, rather a cessation of war than a beginning of peace.

There were medical men living in Paris during these exciting times; in the early months of 1814 they were visiting their patients, going their rounds in the hospitals, operating when occasion arose, debating in their learned societies, and writing articles for their great *Dictionnaire des sciences médicales;* but are they all inarticulate now, and do they speak to us in no manner of way out of the past? Fortunately there are whispers that come even from that confused city, so that we need not be ignorant of what our medical *confrères* did and said, and even of how they felt, as they looked out on the Tsar and the Russians, Austrians, and Prussians tramping along, and the agitation to restore the Bourbons began to gather force. Very interesting some of these whispers are, especially those that come to us in the *Souvenirs*[3] of a young doctor who was working away in the Hôtel-Dieu in that troublous and particularly surgical time, when convoys of wounded were arriving almost daily. Docteur Poumiès de la Siboutie was the name of the young medical man from Périgord, who kept a diary of events in these years, and who a long time afterwards, during a period of enforced inactivity—from an accident to his knee—got out his old journal and wrote his recollections.

"He was not a duly qualified practitioner in 1814, but he became one in the following year, when his city was again in the occupation of the Allies; so that it was as a medical student that he witnessed the events of the months marked by the 'First Abdication.' He and the Revolution saw the light in the same year (1789); by birth he belonged to the *bourgeoisie*, and his native place was Saint Germain-du-Salembre in Périgord. He went to Paris in 1810 to study for the medical profession; it had been settled that he should be a solicitor, but after a year of trying he found he hated the law. His mother had inspired him with a great love for natural history, and this formed one of the attractions of medicine, but he had always thought the life of the doctor an enviable one. Doctors were rare in country districts, their place being taken by the *officiers de santé*, men with a secondary qualification, and not rejoicing in the M.D. The real doctors were highly respected and well paid. So Poumiès de la Siboutie set off for Paris (1810), walking nearly all the way, in much the same fashion as Thomas Carlyle had traversed the hundred miles between Ecclefechan and Edinburgh just a year

[1] *Cambridge Modern History*, vol. ix, p. 555, 1906.

[2] Pudam magis desertat quam pax coeperat. Tacitus, *Hist.*, Book iv, 1.

[3] *Souvenirs d'un médecin de Paris.* Dr. P... de la S...boutie. ... Publiés par Mmes. A. Brandeis et ... Paris: P... 1910.

before (1809), for *bourgeoisie* students had no money to spare for coaches in those days. After some adventures of a mildly exciting kind he arrived at his destination. 'Here was I at length in Paris, the city of the young provincial's dreams! The first impression was disappointing, . . . the streets were narrow and muddy, many were unpaved, . . . the population of 600,000 was poorly clad, . . . there were very few sewers.' He betook himself to the Military College to see his brother, and thereafter found lodgings in the Rue de la Harpe, right in the centre of the famous student world of the Quartier Latin. He was a needy student: he had to care for each coin, and, like many others who have had to struggle with such difficulties, he distinguished himself above the crowd.

"Some incidents and observations made during these early undergraduate years are of interest. A characteristic of the period was the large number of cripples and hunchbacks among the students. Here was the dysgenic effect of war in evidence; the flower of the young men of the nation were marching to Spain, to Austria, and to Russia, and the weak and sickly were entering the professions and were to be the fathers of the future. Poumiès began to study anatomy in November, 1810, and after a bit became engrossed in it; but physiology he worked at with enthusiasm; 'everything is grand and marvellous in this science.' Dissecting seems to have been carried out very much as it is today; four students sat at each table on which was one subject (obtained from the hospitals), and one of their number read directions from an anatomy work whilst the others prepared the portion. There was a man 'who brought up the bodies' in these times too; he laughed and sang cheerily over his work; but one day, as he was returning from the Bicêtre where he had been collecting material, he was struck down with apoplexy: his wife, who was with him, had him placed on the handbarrow brought him back to the theatre, and insisted upon the autopsy being performed. It is rather a gruesome tale.

"Poumiès de la Siboutie saw the last of the indigent students of medicine who were termed the *'majors.'* They had no means of subsistence, and were employed as barbers' assistants in hairdressers' shops; and they afterwards set up as barber-surgeons and often did very well. There was only one left in 1810. But space does not permit of further references to this early part of the young Périgord student's training; suffice it to say that he was appointed dresser on the staff of the Hôpital Saint-Louis in 1811, acted as assistant to Dr. Texier, of Versailles, in 1812 and was made hospital house-physician in the same year, went in this capacity to the Hospice de la Salpêtrière, entered the Pitié in January, 1814, and a month later reached the summit of his ambition, the vast hospital known as the Hôtel-Dieu. Before leaving this part of his life, however, it is necesssary to rescue for posterity the following tale about Alibert, the skin specialist, who was the chief physician at the Hôpital Saint-Louis:

"Among the patients waiting for him one day after his lecture was a poor devil with elephantiasis, a well marked and very characteristic case. 'Superb,' said Alibert. 'Can't it be cured, doctor?' 'I'll have you painted,' said Alibert. 'But, sir, can I hope to be cured?' 'Certainly, certainly, but I must have you painted,' 'Can I have a bed in your ward?' 'A bed, you should have ten beds if you wanted them.'

"Every dermatologist knows about Jean Louis Alibert—a third edition of his *Nouveaux élémens de thérapeutique* appeared in this very year, 1814—but all do not know what Sainte-Beuve[4] has preserved for us, namely, that Rivarol in 1788 gave Alibert first place in his *Petit Almanach de nos Grands Hommes.* Rivarol must have been in a sportive mood when he planned his Little Almanack of Great Men, for in it, as Sainte-Beuve says, 'all the ephemeral and imperceptible authors were arranged in alphabetical order, accompanied by an ironical eulogy'; 'he made war upon a wasp's nest and with great difficulty afterwards avoided thousands of stings.' It may be added that at that time (1788) Alibert was not, of course, known for his works on dermatalogy, but for a fable inserted in a collection of provincial Muses.

"To return to Poumiès de la Siboutie. He was at the Hôpital de la Pitié in January, 1814. This was the large hospital (716 beds) behind the Jardin des Plantes, which dated from 1612 but had recently (1792-1802) been rebuilt. Here the young Poumiès worked under Lerminier, who was medical adviser to Napoleon. Convoys of sick began to arrive from the seat of war, and the hospital was quickly overfilled. Here is the picture: 'The beds were partly stripped, only one mattress being left for each; straw was strewn in the corridors, in the halls, even in the church. The sick lay side by side; gaps made by death were filled by the next convoy.' Dr. Lerminier was evidently a man of resource. 'Now then, my boys,' he said to the sick soldiers, 'hurry up and get well; every one who wants to go home shall start as soon as he is able. Your people are waiting for you.' As Poumiès says: 'The words produced a magical effect. Sunken eyes shone again, dying men pulled themselves together, for there was as much home-sickness as typhus among them.'

"Poumiès de la Siboutie was house-physician at the Hôtel-Dieu with Lallemand (1790-1854) afterwards of Montpellier. He was an extraordinary fellow, a year younger than Siboutie. He was a glutton for work. 'His original education was *nil*, therefore he determined to acquire one.' He succeeded, too, being able in two years to read the classics in the original, and to produce a good translation of the Aphorisms of Hippocrates. He lay flat on the floor with a pipe in his mouth during his hours of study.

[4] C. A. Sainte-Beuve, *Causeries du Lundi*, vol. viii, p. 55.

In medical science he was one of the remarkable men of his day.

"Armand Trousseau, who afterwards did so much to make the Hôtel-Dieu famous on the medical side, was only 13 years old, and whilst 'le bonhomme' Pelletan, with elegant manners and social tact, was the nominal head of the surgical department, it was Dupuytren, the surgeon born, who was the real head. It was under Dupuytren that Poumiès de la Siboutie worked in these eventful months of 1814; but before passing from Pelletan it may be recalled that it was he along with Lassus who made the *post-mortem* examination upon the body of Louis XVII, and found the cause of death to be neglect or scrophulosis. Pelletan took the heart home with him, but it was stolen by his pupil, Tillos, and not returned till after his death in 1817, when it was entombed in St. Denis.[5]

Dupuytren lives again in the *Recollections* of de la Siboutie:

"He was absorbed by an enormous practice and had little time for reading. He was consequently accused of not keeping himself acquainted with the advances of science. I assert without fear of contradiction that for him this was not necessary. What he did not know he divined or imagined for himself. However serious or unusual the circumstances, his genius never failed him. Students from all parts of the world crowded at his hospital visits and at his clinical lectures. He spoke easily and well; he began in a low tone, but the buzz of the theatre ceased instantly and every one listened attentively; his lectures were full of matter. . . . In manner he was serious and rather stilted; he was not very easy to know and was more admired than loved by his colleagues. It used to be said that his every word, gesture, and movement were studied and that he was not expansive or spontaneous. All this was true, but among intimates he was simple, friendly, and genial.

"There were trying days during the occupation for all true Parisians. 'We were no longer masters in our own hospitals,' wrote de la Siboutie bitterly. 'It was hard to find ourselves in the power of our enemies. We blushed when first we saw these hideous Cossacks, Tartars, and Kalmucks galloping through our streets, crouching with their long heavy lances on their little horses, and at the sight of our own military posts occupied by men in strange uniforms, our bridges guarded by cannon.' This was in April; on May 3 Louis XVIII (who had been detained in England by an attack of the gout) made his formal entry into Paris."

[5] Baas's *History of Medicine*, Henderson's translation, p. 1092. 1889.

Correspondence.

VISITING LECTURER AT THE BRIGHAM HOSPITAL AND THE HARVARD MEDICAL SCHOOL.

PETER BENT BRIGHAM HOSPITAL.

BOSTON, October 8, 1914.

Mr. Editor: It may be of interest to readers of the JOURNAL to know that Dr. Thomas Lewis of London, Assistant Physician and Lecturer on Cardiac Pathology at the University College Hospital and Editor of *Heart*, and probably the leader in the newer methods of studying cardiac function, will spend the week beginning October 25 at the Peter Bent Brigham Hospital as Visiting Physician, pro tem. to that institution. He will also act as Visiting Lecturer in Medicine at the Harvard Medical School.

While here he will conduct ward visits, clinics and other student exercises.

This is part of a plan for having prominent medical men as visiting lecturers at Harvard and temporarily in charge of the wards of the Brigham Hospital, a plan inaugurated last year by Dr. William S. Thayer of Baltimore.

Very truly yours,

HENRY A. CHRISTIAN, M.D.

APPOINTMENTS.

TULANE UNIVERSITY.—*Dr. William H. Seemann* has been elected dean of the faculty of Tulane University School of Hygiene and Tropical Medicine, and the following appointments to the faculty have been made: *Dr. Abraham L. Metz*, professor of chemistry; *Dr. Andrew F. Friedrichs*, professor of oral hygiene; *Dr. Isadore Dyer*, professor of skin diseases; *Dr. Edouard M. Dupaquier*, professor of tropical medicine and acute infectious diseases; *Dr. Charles C. Bass*, professor of experimental medicine and director of the laboratories of clinical medicine, and *Dr. Joseph D. Weis*, professor of tropical medicine.

UNIVERSITY OF SYRACUSE.—*Dr. Oliver Wendell Holmes Mitchell*, from the department of medicine of the University of Missouri, has been appointed professor of bacteriology, and has as his assistant *Mr. Ralph R. Simmons, A.M.*, also from the University of Missouri. *Dr. F. M. Meader*, associate professor of preventive medicine, has accepted the position as director of the division of communicable diseases in the New York State Department of Public Health. He has, however, retained his position as head of this department and there has been secured as his assistant *Dr. Edward D. Clark*, for the last three years connected with the health department of Buffalo. *Dr. Howard L. Van Winkle*, assistant in the Municipal Department of Public Health, has been made instructor in this department and will conduct the work in laboratory diagnosis in the municipal laboratories.

FOXBORO STATE HOSPITAL.—The Massachusetts executive council on Oct. 7 confirmed the recent appointment of *Dr. Albert C. Thomas*, of New Haven, Conn., as the new superintendent of the Foxboro State Hospital for the Insane. Dr. Thomas was for ten years assistant superintendent of the Connecticut State Hospital for the Insane at Middletown, and has been for several years serving as superintendent of the New Haven Hospital.

MASSACHUSETTS GENERAL HOSPITAL.

DEMONSTRATIONS IN THE SURGICAL AMPHITHEATRE.
"ETHER DAY"—OCTOBER 16, 1914

Physicians are cordially invited to attend. The demonstrations will be carried out on the time scheduled regardless of attendance.

1. Dr. R. C. Cabot, "Hospital Routine Investigation of Gastric Cases." 10 A.M.

2. Dr. Wyman Whittemore, "End Results in Cases of Empyema." 10.10 A.M.

3. Dr. H. C. Berger, "Anaphylaxis of Infants to Certain Proteids." 10.20 A.M.

4. Dr. Hugh Cabot, "Prophylactic Treatment of Bladder Tumors by High Frequency Current." 10.30 A.M.

5. Dr. H. P. Towle, "Heliotherapy in Skin Diseases." 10.40 A.M.

6. Dr. H. F. Hewes and Dr. D. F. Jones, "Ulcerative Colitis." 10.50 A.M.

7. Dr. D. L. Edsall, "Preventive Measures in Industrial Disorders." 11.05 A.M.

8. Dr. R. B. Osgood, "Prevention of Foot Strain in Nurses." 11.20 A.M.

9. Dr. C. Morton Smith, "Responsibility of the Medical Profession in Regard to Syphilis." 11.30 A.M.

10. Dr. C. L. Scudder, "General Principles of Open Treatment of Fractures" 11.40 A.M.

11. Dr. J. H. Means, "Basal Metabolism in Obesity and Other Conditions." 11.55 A.M.

12. Dr. C. A. Porter, "Demonstration of Surgical Cases." 12.05 P.M.

13. Dr. C. A. Leland, Jr., "Pulmonary Embolism." 12.20 P.M.

Operations by the Surgical and Special Services will be performed during the hours of 10.30 A.M. to 1 P.M., in the special operating rooms and will be announced in the Amphitheatre.

The Out-Patient Department, Pathological Laboratory, Zander Room and X-Ray Department will be open for inspection. An electrocardiograph will be demonstrated by Dr. Paul D. White in the basement fo Ward G.

SOCIETY NOTICES.

NEW YORK AND NEW ENGLAND ASSOCIATION OF RAILWAY SURGEONS.—The twenty-fourth annual session will be held at Hotel Astor, Broadway and 44th Street, New York City, Wednesday, October 21, 1914.

NEW ENGLAND PEDIATRIC SOCIETY.—The thirty-third meeting of the New England Pediatric Society will be held on Friday, October 23, 1914, at 8.15 P.M., at the Boston Medical Library. The following papers will be read:

1. "Megalocolon and Microcolon": with case reports. Dr. Langley Porter, San Francisco.

2. "The Differentiation of Human and Cow's Milk by Color Tests." Dr. Richard S. Eustis, Boston.

3. "Asthma in Children; Its Relation to Egg Poisoning." Dr. Fritz B. Talbot, Boston.

RECENT DEATHS.

DR. WILLIAM P. ADAMS, who died on Oct. 3 at Nashua, N. H., was born in 1854.

DR. LEMUEL BOLTON BANGS, prominent for many years as a genito-urinary surgeon in New York, died on October 4. Descended from colonial ancestry, he was born in New York City August 9, 1842. He was graduated from the College of Physicians and Surgeons in 1872 and afterwards served as interne at Bellevue Hospital, and in 1880 was appointed surgeon to Charity Hospital (now City Hospital) on Blackwell's Island. Five years later he was made surgeon to St. Luke's Hospital, and in 1898, professor of genito-urinary surgery in Bellevue Hospital Medical College. Dr. Bangs wrote much on his special branch of surgery, and was the author of a valued text-book. He was a charter member of the Medical Association of the Greater City of New York, and at the time of his death was consulting surgeon to St. Luke's, St. Vincent's, Bellevue and the City Hospitals, Manhattan, and the Methodist Episcopal (Seney) Hospital, Brooklyn.

DR. EDWIN O. PECK, who died recently at Morristown, N. J., was born in 1832 at Glens Falls, N. Y. He was a charter member of the New Jersey Dental Association. He is survived by his widow and three children.

DR. WILLIAM HENRY DOWNEY, a Fellow of The Massachusetts Medical Society, died at Taunton, Mass., Oct. 1, aged 46 years. He was a graduate of the Harvard Medical School in 1898, joined The Massachusetts Medical Society the following year and had practised in Peabody, Mass., until a year ago.

BOOKS AND PAMPHLETS RECEIVED.

The Relation of the Medical Profession to Accident Insurance, by W. Edward Magruder, M.D. Reprint.

Chronic Intestinal Stasis Surgically Considered, by William Seaman Bainbridge, M.D. Reprint.

Chronic Intestinal Stasis, by William Seaman Bainbridge, M.D. Reprint.

Ophthalmic Literature, July, 1914. Vol. iv. No. 7.

The Blood-Pressure Effects of the Application of Creatin to the Cerebral Cortex, by Robert Stanton Sherman. University of California Publication in Physiology. No. 19, Vol. 4.

Time and Thomas Waring, A Study of a Man, by Morley Robert. G. J. Putnam's Sons, 1914.

Chemistry for Nurses, by Reuben Otenberg, A.M., M.D. The Macmillan Company, 1914.

Intensive Treatment of Syphilis and Locomotor Ataxia by Aachen Methods, by Reginald Hayes. Bailliere, Tindall & Cox, 1914.

Manual of Obstetrics, by Edward P. Davis, A.M., M.D. W. B. Saunders Co., 1914.

Manual of Normal Histology and Organography, by Charles Hill, Ph.D., M.D. W. B. Saunders Co., 1914.

The Clinics of John B. Murphy, M.D August, 1914. W. B. Saunders Co.

Imperial Cancer Research Fund, Twelfth Annual Report, 1913-1914.

The Etiology of Phlyctenular Ophthalmia, by Samuel Theobald, M.D. Reprint.

Practical Therapeutics, by Hobart Amory Hare, M.D. Lea & Febiger, Philadelphia. 1914.

A Reference Handbook of Medical Sciences, Third Edition, Vol. 4. William Wood & Co. 1914.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY.

Lt.-Comdr. W. W. Bricker, assistant to naval attache, London, to naval attache, Paris.

Jr. Lt. A. H. Miles, the *Castine*, to *Ranger*.

P. A. Surg. T. W. Reed, Receiving Ship, Norfolk, to hospital, Norfolk.

A. Surg. E. P. Woodland, hospital at Annapolis, to hospital at Philadelphia.

Prof. of Math. W. S. Harshman, Naval Academy, to six months' leave.

Original Articles.

VACCINE THERAPY IN EYE DISEASES OF BACTERIAL ORIGIN.*

By Leon S. Medalia, M.D., Boston.

INTRODUCTION.

My personal experience in the application of vaccine in eye diseases, which makes up the subject matter of this paper, dates back to Oct. 15, 1907. It was carried on as part of my work in this field generally. My first case was a wound infection following cataract operation. The outcome was "perfect recovery" as expressed by Dr. Chandler, whose case it was. I have since had a number of cases with Dr. Chandler, Dr. Standish, Dr. Easton, and other ophthalmologists in private practice. The bulk of the work, however, I have carried out at the Massachusetts Charitable Eye and Ear Infirmary.

The anatomical peculiarities of the eye with reference mainly to its blood and lymph supply would suggest a difference in reaction to the vaccine method of treatment as compared with the response to the same by any other structure or organ of the body. While everyone will probably admit that no such differences exist when we are dealing with the *vascular* structures of the eye (the eye lids, sclera, conjunctiva, uveal tract or the retina), still when we come to consider the non-vascular structures (the cornea, aqueous lens or the vitreous) the difference in their response to vaccine would at first sight seem to be very marked. Upon careful consideration, however, such differences even in the non-vascular structures do not in reality exist.

It is true that these non-vascular tissues do not possess bactericidal properties in their normal conditions and also that very few immune bodies can be made to penetrate the aqueous or vitreous by artificial immunization as long as these tissues are in a normal state structurally. However, as soon as infection or inflammation takes place, or following the opening into the anterior chamber as for cataract operation, there immediately results a dilatation of the neighboring vessels and an out-pouring of fresh substances rich in protective ferments which help to overcome the invading bacteria. This point has been well proven experimentally by Morax and Loiseau,[1] who, having failed to find any marked increase in diphtheria and tetanus antitoxin in the aqueous of highly immunized animals as compared with the antitoxin increase of the blood in the same animals, have, however, found that the aqueous obtained from the same animals by a second tapping contained about 100 times as much antitoxin as that obtained from the first tapping. Similar findings have been reported by other investigators. Since the antibodies of the blood do reach even the non-vascular structures during an inflammatory stage or where the anterior chamber has been opened into, then the higher these antibodies are raised in the blood generally by vaccines, the quicker one may hope to combat the infection locally even if the infection is in the non-vascular structures of the eye.

BRIEF RÉSUMÉ OF THE LITERATURE.

Stephen Mayou[2] reported 30 cases of styes treated by him with vaccines with uniform success. All of his cases had at least three attacks of styes while some had as many as 20. In all cases local treatment did not prevent recurrence. The staphylococcus albus was present in all but seven cases. In the latter staphylococcus aureus was present, causing a much more severe condition. Out of 10 cases of multiple and recurrent chalazions which he treated by vaccines eight recovered and showed no fresh chalazions after first treatment; the other two improved. He also treated four cases of severe purulent corneal ulceration due to staphylococcus with "very satisfactory results in every case." Thirty-six hours after first injection there was no spreading of the ulcers in any of his cases. In one case there was paralysis of the fifth nerve, cornea insensitive;—ulcer healed in two weeks as if no trophic disturbance of the cornea existed. One case of acute non-suppurative uveitis due to staphylococcus apparently secondary to boils recovered by the use of autogenous vaccine made up from the boils. The hypopyon was gone after the first treatment.

He used gonococcus vaccine in two cases of gonorrheal rheumatic iritis. In one case there was no recurrence for a year while in the other where the vaccine was used for gonorrheal rheumatism an attack of iritis developed three weeks after third inoculation. (He apparently used too small doses—25 to 50 million.)

Mayou[2] also cites 30 cases of chronic non-suppurative uveitis of endogenous origin, 15 tuberculous, 10 staphylococcal and 5 syphilitic. The 15 cases of tuberculous uveitis he treated with tuberculin. In 12 the eyes became quiescent; the amount of vision regained depended upon the stage of the disease when the treatment was begun. The other three cases were not benefited.

I may mention here the good results reported by Derby[3] in the 30 cases of tubercular infection of the uveal tract which he treated with tuberculin.

In the 10 cases of uveitis of staphylococcus origin Mayou[2] used a staphylococcus autogenous vaccine with very good results. He obtained the autogenous vaccine by performing an initial paracentesis. He also resorted to repeated paracentesis alongside of the vaccine treatment in

* Read before the New England Ophthalmological Society, April 14, 1914, held at the Massachusetts Charitable Eye and Ear Infirmary, Boston.

these cases as a therapeutic measure. He reports two cases of cataract pre-operative immunization in which staphylococcus and Morax-Axenfeld bacillus were present in large numbers and could not be gotten rid of after six weeks of local treatment. He used mixed vaccines; the operation was performed. No inflammation intervened. In a case of subacute glaucoma with a mixed staphylococcus and pneumococcus infection he administered a mixed vaccine two days previous to the operation and no inflammation supervened.

He also cites a case of post cataract infection in an old woman of 89 treated by vaccines and a control case of a similar infection in a younger robust individual treated in the ordinary way without vaccines. He concluded that the final results in the more unfavorable case treated by vaccines "was far better than the control case," which he thinks can be attributed only to its use.

Non-suppurative uveitis following wound infection (post-operative) which is as a rule responsible for sympathetic ophthalmia, Mayou considers as being due to a mildly virulant organism such as staphylococcus. He reports ten such cases of cyclitis with keratitis punctuta which he treated by vaccine. In five cases in the early stage of the disease the K. P. cleared up after four treatments at an interval of two weeks. The other five cases had the treatment extended for three months, but they all ultimately cleared up. In none of these ten cases did cyclitis occur. In five of the cases he says there was no doubt of the beneficial effect of the treatment since they showed improvement in vision at the second or third day after the injection which lasted to the tenth day and then commenced to be misty again.

Vandergrift[4] reports one case of gonorrheal choroiditis (chorioretinitis) with severe hyalitis, treated by staphylococcus and gonococcus vaccines successfully.

Bryan[5] reports one case of very chronic lacrymal sac inflammation of two years' standing, due to the pneumococcus, which was cured by vaccine in two months. In acute gonorrheal conjunctivitis Bryan considers the vaccine of great value. He treated two severe cases. In one the condition cleared up in ten days—the other showed no apparent benefit, while in three cases of ophthalmia of the new-born the disease was cured in each case with no infection of the cornea. Bryan[5] also reports one case of late post-operative infection by streptococcus with intense chemosis—edges of the incision edematous, iris discolored, with hypopyon. Autogenous vaccine was made and administered. The inflammation gradually subsided and the eye became quiet in five weeks. Extraction and needling performed later without complication and vision 6/9 obtained.

Rubrecht[6] reports a case of systemic gonorrhea with conjunctivitis and keratitis in which three doses of gonococcus vaccine were given with excellent results. He reports one case of chronic conjunctivitis due to Morax diplobacillus of ten years' duration treated by an autogenous vaccine for five months with marked improvement.

Maddox[7] reports a case of wound infection following cataract operation in which the vitreous was gray and turbid, the iris rotten looking. The administration of staphylococcus vaccine was followed by rapid improvement and cure.

De Schweinitz[8] reports a case of streptococcus hypopyon ulcer treated by vaccine which was followed by recovery.

PERSONAL WORK.

The cases treated by vaccine reported in this paper will best be described under their clinical grouping, citing the number of cases treated, the bacteriological findings and the results obtained. A few illustrative cases are given in full, while the details of all the cases will be found under the case records.

I wish to state right here what is meant by "perfect recovery" or "cure" with reference to the results obtained in eye diseases by vaccines. The therapeutic active immunization by means of vaccines is primarily and distinctly for the purpose of overcoming the active infection. "Recovery" or "cure" is accomplished when the infection subsides, particularly if it does so quickly, thus doing away with further damage to the eye. This has in no wise to do with the optics of the case, where a great many times there may be need for a further secondary operation, or other operative procedures, or refractional correction.

GROUP I. INFECTIONS FOLLOWING CATARACT EXTRACTIONS.

I shall begin with a discussion of infections following cataract operation because my very first case was of that type. It was an infection of the wound with beginning hypopyon in an elderly woman. The smears and cultures in this case showed a staphylococcus weak aureus and a few pneumococci. The same day (Oct. 15, 1907) she was given 150 million staphylococcus and 40 million pneumococcus stock vaccines. The eye showed marked improvement 24 hours following this first treatment and kept on improving steadily. Six days later (Oct. 21) she was given another injection of 250 million autogenous vaccine and 40 million pneumococcus. She was discharged soon after with "perfect recovery" as reported by Dr. Chandler, whose case it was.

The staphylococcus opsonic index Oct. 15 was 0.59; Oct. 16 it was .69; Oct. 18, 2.11; Oct. 20, 1.82 and remained 1.30 when she was discharged "cured."

One other of my early cases of this group is a case I had with Dr. Easton.

G. E. Female, 66 years. Operated O.D. for

senile cataract May 2, 1908. Everything went smoothly until eight days later (May 10) at which time the eye began to redden. (Was thought to be due to irritation of lower lid entropion coming on from bandaging.) On the 12th of May she showed edema of conjunctiva and small hypopyon. When all measures had failed and the case was growing from bad to worse I was called in to "try the vaccines." The staphylococcus opsonic index was .44 and the pneumococcus was .56. Cultures showed a pure growth of staphylococcus aureus. I gave her on the same day (May 12, 1908) 250 million staphylococcus aureus and 50 million pneumococcus stock vaccines. Little local reaction followed. The next day she received 500 million autogenous staphylococcus vaccine. She received five more treatments at from 2- to 3-day intervals and she was discharged twelve days later (May 24) with "perfect recovery." Improvement was noticed within twenty-four to thirty-six hours following the first injection and progressed rapidly thereafter. May 24 there was no edema present. The spongy exudate which had filled the anterior chamber so that the iris could not be seen, rapidly diminished along with the inflammation, leaving a thick membrane filling the pupil. Secondary operation resulted in vision O.D. 20/20 with + 14 sphere. (I am indebted to Dr. Easton for the clinical record of this and another case of hypopyon ulcer to be cited later).

Another case I had with Dr. Easton which was completed since reading this paper is very similar to the one just described, except that it took her a longer time to recover.

I had another case of this type with Dr. Chandler and another with Dr. Standish and five cases at the Infirmary. Nine of these ten cases recovered perfectly from the infection and the remaining one improved. One case at the Infirmary which cleared up under local measures and recurred was finally cleared up under vaccine treatment. For details of all these cases see case records at end of paper.

The results optically, of course, depended upon whether the vaccine was begun early enough before permanent damage to the cornea or other structures occurred. Those where the infection was allowed to go on for a longer time the results as to sight were naturally not so good, although the infection was done away with. Even in the latter cases, however, it was felt by the surgeon that the vaccine had apparently prevented evisceration or enucleation.

The brilliant results obtained even as to vision in six out of the ten cases is worth calling attention to. The cases at the infirmary are as a rule discharged from house service as soon as danger to the eye from the infection subsides. They are referred to the out-patient department for further observation if necessary. From that time on they were lost sight of by me. I was able to obtain better records as to the final outcome with regard to sight in those cases that were treated in private practice.

I feel that these fortunate results have considerable to do with the nature of the bacteria causing the infection. In all these ten cases the principal infecting agent was a staphylococcus weak aureus. (Two cases had a pure growth of staphylococcus P. aureus; one case had staphylococcus mixed aureus and albus; four cases had B. xerosis mixed with the staphylococcus; one had staphylococcus aureus and albus and B. xerosis; one, staphylococcus aureus and a few pneumococci, and in only one case was there a rare chain of streptococcus mixed with staphylococcus aureus and B. xerosis).

There is no question in my mind that the results would not have been so brilliant had the principal infecting agent been a streptococcus instead of a staphylococcus, but apparently, according to the literature and my own findings, it is the staphylococcus that we have to contend with in practically all such cases. I therefore feel it would be inexcusable not to give patients suffering from an infection following cataract operation the benefit of vaccine treatment.

The minimum number of treatments in this group was two,—the maximum, eighteen. The duration was, minimum, one week; maximum, seven weeks. The treatments were repeated as soon as the local reaction from the previous inoculation subsided, were it twelve to twenty-four hours or two to three days or longer. Improvement was noticed in practically all these cases twenty-four to thirty-six hours following the first inoculation of vaccine, and if the reinoculations were kept up as described improvement continued progressively until cured, unless there were unusual mechanical interferences, such as in Case No. 5 (see case records), where the lens could not be dislocated and finally came out spontaneously. Improvement and cure followed.

GROUP II. PERFORATING INJURY OF CORNEA WITH INFECTION OF WOUND AND HYPOPYON.

All the cases of this group were followed up at the Massachusetts Charitable Eye and Ear Infirmary. There were seven in all. Five recovered, one outcome doubtful and one had five treatments and left the hospital against advice two weeks after vaccine was begun (see Case 11).

The following is a fair illustrative case of this group:

C. C. Male, 39 years. Dec. 12, 1913. Railroad engineer.

Struck right eye 24 hours ago by steel chip. Right eye infected. Cornea slightly hazy and has a small perforation (1 mm.) in lower nasal quadrant extending through the iris and probably through the lens. Fluoroscope positive. Magnet operation was performed and small piece of steel removed through the sclera. December 20 there was a small white exudate at the site of wound. Jan. 14, vaccine treatment begun. Eye at the time was

whiter but there was still considerable yellowish exudate in anterior chamber and at wound margin. Lens yellowish. Smears and cultures showed staphylococcus aureus and a few B. xerosis. He had eleven treatments in all at an interval of from two to four days. The first two were mixed staphylococcus and pneumococcus vaccine, after which he had autogenous vaccine. On Jan. 16, there was less injection and less hypopyon. Iris clear but discolored. Jan 25, the hypopyon was gone, eye whitening quickly. Iris remained yellowish. Discharged improved. Feb. 11. Vision: fingers at one foot. (For details of other cases see case records, group II.)

The cultural findings in all these cases were as follows: In three cases the predominating organism was the pneumococcus, few B. xerosis also present; one had staphylococcus albus, pneumococcus and B. xerosis; two had staphylococcus aureus and B. xerosis; and one had staphylococcus aureus and a few chains of streptococci.

In this group, too, those four cases where the staphylococcus was the predominating organism, the results were invariably good as to infection. The cases where the pneumococcus was the predominating infecting agent, although the acute infection ultimately yielded, the end results were not so good. The eye condition in those cases due to pneumococcus was very much worse in its general appearance, being more inflamed, much more swollen and more edematous as a rule. The minimum number of treatments was three, the maximum twelve; the minimum duration was nine days, maximum six weeks.

Anyone familiar with the results obtained in similar cases with local treatment only will appreciate, when reading the details of these cases (under case records), the benefit derived in such cases by vaccines.

GROUP III. ULCERATIVE KERATITIS WITH HYPOPYON.

There were fourteen cases of ulcerative keratitis with hypopyon. All these cases excepting one private case, were treated at the Massachusetts Charitable Eye and Ear Infirmary. The one case was a patient of Dr. Standish. In eight of the cases in this group the condition was caused by injury. One of these eight had tar in the eye, one was struck by a board, two were hit with a piece of stone, one was struck with a broken end of Manila rope, one had foreign body in eye and one had sawdust in the eye. Of the remaining six one had no injury, the origin of three was unknown, one had scar over cornea since childhood and in one the cause of the trouble was not given.

Twelve of these cases were cured as to infection and two were discharged against advice, one having had four treatments and the other after one treatment. The eye conditions at the time when vaccines were begun were so desperate in nature in practically all these cases that it was very doubtful if any improvement could be accomplished with any sort of treatment. The outcome in these cases is, therefore, the more encouraging for the vaccine method of treatment.

The character of the infecting organisms in this group differed in the majority of the cases from those following cataract operations, and is probably an important factor in the gravity of the eye conditions in these cases.

The cultural findings showed four cases due to pneumococcus. Two of these four were with B. xerosis, one mixed with Koch-Weeks bacilli and the other pure; two had streptococcus, one mixed with a few pneumococci and the other with staphylococci; one had predominating mucosus capsulatus with a few B. xerosis and staphylococci; one had predominating B. coli and few staphylococci; and six had staphylococcus aureus, two of these pure and the other four with B. xerosis.

The minimum number of treatments in this group was two, the maximum seventeen. The minimum duration was two weeks, maximum eight weeks.

The following are fair illustrative cases of this group, each due to a different infecting agent,—streptococcus, staphylococcus and pneumococcus, respectively.

G. W. E. Male, 52 years, (Case 20) entered Mass. Charitable Eye and Ear Infirmary Feb. 17, 1913.

Left eye had been inflamed for about four days. No injury. Examination showed conjunctiva and lids injected. Eye red. Central ulcer on cornea. Hypopyon. Iris slightly dull. Pupil moderate and reacts slowly. Faint fundus reflex. Tension moderate. Vision: fingers at two feet.

The eye showed no improvement under ordinary measures. The hypopyon increased and the eye was growing worse. Vaccine treatment was begun Feb. 27 and was continued on an average of once every two to five days until April 15. (Had 12 treatments in 7 weeks). Smears and cultures showed a predominating *streptococcus* and a few pneumococci. March 4, a Saemish operation was performed. Pus reappeared in anterior chamber on March 8. On March 12, the hypopyon began to disappear. Injection decreased rapidly. April 15 the eye was whitening and the corneal scar was not noticeable. Was discharged cured April 15. Vision 20/200.

The outcome of this case is worth calling attention to because of the nature of the infection (streptococcus and pneumococcus). The character of the infection and the length of time elapsed before vaccine treatment was begun are, I believe, both responsible for the length of time it took this patient to recover.

The case due to staphylococcus infection:—

B. W. H., Male 57 years, roofer. Admitted to Mass. Charitable Eye and Ear Infirmary Jan. 12, 1914.

Dec. 11, 1913 he got tar in left eye. Inflammation set in since and is getting worse. Examination showed considerable conjunctival inflammation, episcleral injection and ulcers scattered through cornea. Hypopyon in one half of anterior chamber. Saemish operation was performed and vaccine treatment was begun on admission. There was marked

improvement following the first inoculation of vaccine. Following the second the cornea was clear. Hypopyon almost gone. Improvement continued steadily until discharged (Feb. 13, 1914). He had 10 treatments in four weeks. Vision: fingers at one foot.

The prompt response of this case to the vaccine treatment is probably due to the fact that the infecting agent was a staphylococcus and that the treatment was begun on admission.

The case due to pneumococcus infection:—

G. A., Male 46, admitted to the Mass. Charitable Eye and Ear Infirmary July 26, 1913.

On July 16, he was struck with a piece of stone in left eye. Infection set in. Examination showed, at the time of admission to hospital, marked ocular and circum-corneal injection. Cornea hazy. Small central ulcer with considerable deep haze at its periphery. Small hypopyon. Pupil artificially dilated. Fundus reflex slightly hazy. Local treatment had little effect. Vaccine treatment was begun three weeks after admission (Aug. 16, '13). Smears and cultures showed predominating pneumococcus and few B. xerosis. Autogenous vaccine was made up and administered once every three to seven days. He had eight treatments in five weeks. A Saemish operation was performed Aug. 20 and stringy pus was removed. Cultures from pus showed the same organisms as described before. Another Saemish was performed Aug. 21, the next day. Improvement set in following the third inoculation, Aug. 19. Improved steadily until discharged cured Sept. 21, 1913. Eye white, Vision O. S. : 1/200.

This case was twice the length of time at the hospital as the preceding one. I believe that the delay in beginning the vaccine treatment, possibly also the difference in the character of the organism, being a pneumococcus while the other was a staphylococcus, probably had to do with the longer time it took to overcome the infection.

The improvement following the first or second inoculation of autogenous vaccine in almost all of these cases was very marked and the change was, of course, more noticeable than following the subsequent treatments. The acuteness of the inflammation—marked injection, pain and the spreading of the ulcer—were the first symptoms to subside following the first few treatments.

GROUP IV. STYES.

There were three cases in this group, all in private practice. These were cases referred by eye specialists after local treatments had been given a fair trial and had failed. The cultural findings in all the three cases were staphylococcus aureus. The number of treatments were two, three and five, respectively. The duration was four, four and twenty-one days, respectively. They were all cured. Two had the styes off and on for three months. The third had them for six years previous to treatment by vaccines. One had recurrence four months after being discharged. He was given three more treatments. Has had no recurrence since,—three and one-half years now.

The invariably good results so quickly obtained in this class of cases with the autogenous vaccine, as found in the literature and by myself, is worth calling attention to.

MUCO-PURULENT CONJUNCTIVITIS. 1 CASE.

One case of muco-purulent conjunctivitis of eighteen years' duration. Tried many treatments with various eye specialists with no relief. Has been under the care of her present eye specialist for the last four years, who sent her in for vaccine treatment. The following is a brief record of her case:

H. A. B. Female, 40 years. Jan. 25, 1913 complained of having had a purulent discharge for the last 18 years. No relief from any of the various local treatments used. Cultures showed a pure growth of staphylococcus aureus. Autogenous vaccine was made up. Treatment began Jan. 27 and continued on an average of once a week until April 16. She had another treatment on June 7 when she was discharged cured. She had 19 treatments in all. After the third inoculation she showed marked improvement. Eye stopped discharging entirely three and one half months after the vaccine treatment was begun. No recurrence of trouble to date —14 months.

GROUP V. CHRONIC DACRYOCYSTITIS.

There were four cases of chronic dacryocystitis. Three were due to streptococcus and one to a mixed staphylococcus aureus and pneumococcus. Two of those with streptococcus showed improvement while under treatment. One of them, a man of 83 years, had had the trouble for a great many years. The other was a woman of 38 with dacryoblenorrhea for the last ten years. Was operated on at the Eye and Ear Infirmary, opening of sac, without relief. Improvement lasted while she was under the vaccine treatment, but the discharge returned when the treatment was stopped. She had sixteen treatments in all.

The following is a brief record of the third case of dacryocystitis with a streptococcus infection:—

S. J. M. Female, 33 years. May 4, 1911. Infected tear sac of one and one half years' duration. Has had probing and drainage by eye specialist without relief. Was finally referred for vaccine treatment. The opsonic index [illegible] staphylococcus .96; streptococcus .64; pneumococcus 1.20. Cultures showed a pure growth of streptococcus. After the second treatment there was marked improvement. After the fourth treatment the discharge was so much improved that she stopped treatment on her own accord.

She returned two years later, Oct. 27, 1913, with recurrence of the same trouble. She had seven treatments at an interval of one to two weeks when the discharge practically stopped again. Feb.

16, 1914 she was discharged improved. Has not been seen since.

The fourth case:—

B. F. D. Male, 59 years. Mar. 9, 1914. Came in with an abscess on left side of nose over lacrymal sac of the size of a walnut. Had a similar abscess in about the same place 5 weeks ago. Got well and recurred two weeks ago. Remembers having been able to squeeze out pus from lacrymal sac over a year previous. He also had a far advanced alveolar osteomyelitis (pyorrhea). Very few teeth left, all of them loose; and an old standing catarrhal condition of the nose. He had sixteen treatments in all at an interval of two to seven days. The immediate effect on the abscess and free discharge was very marked at end of forty-eight hours following first treatment. The discharge from the lacrymal sac kept on improving but it could not be cured. Was referred to Dr. Holmes for the "Holmes operation". Was very much improved when last seen. Is still under observation.

The cultural findings in this last case have been very instructive to me: the cultures taken from the abscess when the patient was first seen (Mar. 9, 1914) showed a pure growth of staphylococcus aureus. An autogenous vaccine was prepared and used. Cultures taken on Mar. 24 from the remaining discharge of the abscess again showed staphylococcus aureus. The cultures obtained from the dacryocystitic sinus by pressing over the lacrymal sac after the abscess had healed (Apr. 27, 1914) were found to contain predominating growth of streptococci; few colonies of staphylococci present.

If this case had been treated all along with the vaccine first obtained from the staphylococcus aureus, one can readily see how slight the chance of overcoming the dacryocystitis would have been. The advantage of obtaining cultures at intervals in a chronic case is, therefore, obvious.

This group of cases well illustrates the fact that vaccine treatment will not succeed unless the mechanical interference with proper drainage is overcome by the necessary surgical measures. The character of the infecting agent is another element which determines the ease with which any given infection is overcome, if at all Staphylococcus yields best to vaccine, pneumococcus comes next and streptococcus last.

PRE-OPERATIVE PROPHYLACTIC IMMUNIZATION.

I had three cases referred to me for prophylactic treatment preliminary to cataract operations. One, a woman of 83 years (W. S. B.) referred by Dr. Standish for prophylactic treatment. Three years previous she had cataract removed O.D., which became infected. Panophthalmitis set in and eye was enucleated. She returned May 5, 1911 for a Noyes operation on left eye. Discharge from orbit of right eye and conjunctival sac of left eye present.

Cultures showed staphylococcus aureus and B. xerosis. The opsonic index was, staphylococcus .69, streptococcus 1.01, pneumococcus .90. She was given autogenous vaccine, receiving eight treatments in all at intervals of two to three days. Cultures two days prior to operation were found to contain only two colonies of staphylococcus albus. The discharge from the eye to be operated upon had almost entirely ceased. Operation, June 2, followed by recovery without incident.

In the other two cases cultures from the discharge of the eyes to be operated upon both showed staphylococcus weak aureus and B. xerosis. One had three treatments of autogenous vaccine at an interval of two to four days and the other had one treatment before the operation. Cultures of both cases taken two days prior to operation were found sterile. Cataract operation in both was followed by uneventful recovery.

While nothing definite can be said about the last two cases, in the first case of this group, however, both Dr. Standish and I have felt that the vaccine had been of great help in the final outcome of this case.

METHOD OF PROCEDURE.

It has been my custom when called out in a case of eye infection to first obtain the cultures for an autogenous vaccine, make smears for the direct microscopic examination and at once administer an injection of stock staphylococcus (250 million) and pneumococcus vaccines.* The treatment is repeated in twenty-four to thirty-six hours with the autogenous, which is kept up all through until the case is completed. I found the local reaction at the point of inoculation and the clinical progress of the eye condition sufficient guides for further treatment, both as to interval and dose of the reinoculations.

The method for obtaining cultures for the autogenous vaccine varies, of course, with the character and nature of the case. Thus, in hypopyon ulcers, the cultures are made from the discharge following a Saemish operation whenever feasible. In corneal ulcers the edges of the ulcers are scraped with sterile swabs and the scrapings planted on the various culture media used. In infections of wound following cataract operations, cultures are made from the infected wound lips, while in the same kind of cases when the wound has healed and an iridocyclitis develops in say, six or eight days after the operation, I have to satisfy myself with obtaining cultures by putting a sterile swab in the eye longitudinally, having the patient close the lid over it and squeeze it tightly. Several such swabs are obtained and cultures made from them. I believe that the organisms obtained in this way are probably the exciting cause of the infection. I personally feel that there is some oozing or bacterial filtrations from the anterior chamber outwards, through the original wound or otherwise. The results obtained in those cases certainly favor this contention.

Cultures were made on glucose agar and blood serum, and also on blood agar when necessary.

* The stock vaccines are those prepared by myself from a great many strains, several of which are obtained from eye infections.

I had no difficulty in growing the bacteria on a properly prepared glucose agar (prepared from freshly killed beef meat). When the plausible infecting agent is obtained, usually at the end of twenty-four hours, an autogenous vaccine is made up in the usual way. I found it advisable to plant a large number of cultures (15 to 25 tubes) in order to obtain a sufficient number (6 or 8) of uncontaminated cultures for the preparation of the autogenous vaccine. This procedure does away with having to resort to making subcultures and thus causing delay in obtaining the autogenous vaccine. I feel that this method of using a large number of cultures has helped me considerably in the readiness with which the autogenous vaccines were obtained. The promptness in its administration has, in my opinion, been an important factor in obtaining the successful results in a number of the cases.

CONCLUSIONS.

It is, of course, impossible to furnish anyone with absolute proof that the successful results in the cases cited were due to vaccine treatment. I feel, however, that the natural history of these ophthalmic infections and their outcome without the use of vaccine is so well known that the experienced eye surgeon can hardly attribute the good results in the cases cited to anything but the vaccines. This feeling is shared by those eye specialists who have watched the cases with me. The following conclusions are therefore warranted:—

1. The use of vaccine in bacterial infections of the eye, if judiciously carried out, will yield results such as could not be obtained with any other method of treatment heretofore known.

2. Autogenous vaccine should be used as soon as possible.

3. In order to obtain good results optically as well, the vaccine treatment should be employed before permanent damage to the eye occurs.

4. When used in infections of the anterior chamber, especially in hypopyon ulcers, repeated paracentesis, if performed alongside of the vaccine treatment, will yield better results than when vaccine is used alone.

5. Small and oft-repeated doses will do away with marked negative phases and minimize the chance of a possible set back, both of which might occur if too big a dose is employed.

6. Vaccine if used in a prophylactic way is of value in connection with preoperative immunization. It is of special value in cataract operations where the conjunctiva contains bacteria that cannot be gotten rid of in the ordinary way.

7. The bacteriological examination in connection with prophylactic immunization of all cases prior to cataract operations seems to me to be the logical method of procedure and will do away, to a great extent, with running the risk of post-operative infections.

In conclusion I wish to thank the entire staff of the Massachusetts Charitable Eye and Ear Infirmary for referring the cases to me and for their painstaking observations of the cases before, during, and after the vaccine treatment. I feel that I am especially indebted to Drs. Chandler, Standish and Easton, who were the first to give me the opportunity to study this method of treatment in diseases of the eye and for their helpful and valuable assistance throughout this work.

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Case Reports.

GROUP I. INFECTION FOLLOWING CATARACT EXTRACTION.

Case 1. S. A. Female, Mar. 26, 1913, Age 51. Cataract right eye, extracted with iridectomy Mar. 28, 1913. Apr. 5. anterior chamber hazy, iris hazy and considerable pain, full developed hypopyon present. Apr. 7, vaccine treatment was begun and continued until discharged. Cultures showed staphylococcus aureus and a few staphylococcus albus from which an autogenous vaccine was made up.* Cultures from a Saemish operation performed Apr. 10 showed staphylococcus aureus. She had twelve treatments in all at an interval of three to five days and was discharged May 26, eye well as to infection. Vision O. D.: shadows, projection absent.

Case 2. C. M. Female, age 70. Cataract of right eye extracted with iridectomy May 6, 1913. On May 12 eye was injected considerably. Ocular conjunctiva chemotic. Cornea slightly dull. May 14, eye was growing worse. Vaccine treatment begun. Cultures showed B. xerosis and staphylococcus aureus. May 16, less chemosis, still considerable injection present. June 1, eye less injected. Cornea clear, good clear pupil. June 12, discharged cured as to infection. She had six treatments in all. Vision O. D.: fingers at 3 feet + 12 = 20/70.

Case 3. E. C. Male, 53 years. Feb. 9, 1914. Traumatic cataract of right eye following a piece of steel in right eye on Mar. 13, 1913. On June 13 the steel was removed by magnet. Cataract extracted Feb. 10, 1914. Four days later (Feb. 14) there was marked injection of eye caused by his pulling off bandage the previous night. Lids were red and a hypopyon ulcer present. Vaccine treatment begun. Culture showed staphylococcus aureus and B. xerosis. He received nine treatments in all and was discharged one month later (Mar. 14) with eye cured as to infection. Vision O. D.: light perception and projection. A secondary operation was advised.

* All the cases were given an initial dose of mixed staphylococcus aureus (250 millions) and streptopneumococcus [illegible] millions, [illegible] cases after first dose. Smears and cultures were made and [illegible] genous vaccine prepared within 24 to 48 hours. Given [illegible] 500-1000 millions staphylococcus autogenous vaccine [illegible] ... vaccines of other organisms in [illegible] The interval ranged from 24 hours to four days.

CASE 4. D. A. Female 75 years, Oct. 11, 1913. Mature senile cataract of left eye extracted with iridectomy Oct. 15, 1913. The next day (Oct. 16) lips of wound were slightly yellowish and aqueous cloudy. Vaccine treatment begun Oct. 17. Cultures showed staphylococcus aureus, B. xerosis and a rare chain of streptococcus. She received four treatments and was discharged cured as to infection twelve days later. Vision O. S.: fingers at 1 foot. Vision cannot improve.

CASE 5. C. D. Female, 67 years, Oct. 27, 1913. Cataract of right eye extracted Oct. 29, 1913. After incision fluid vitreus came out. The lens became dislocated and could not be extracted. Three days later (Nov. 1) lip of wound became infected and lids were edematous. Vaccine treatment was begun. Cultures showed staphylococcus aureus and albus, and B. xerosis. Nov. 13, cataract wound opened spontaneously and lens extruded. Anterior chamber filled with a grayish yellow exudate. She was given nine treatments in five weeks and was discharged cured as to infection on Dec. 15, 1913. Vision O. D.: light perception.

CASE 6. C. H. L. Female, 71 years, Jan. 14, 1911. Cataract extracted Jan. 14. Infection set in followed by marked hypopyon; thick pus present at wound. Vaccine treatment begun Jan. 16. Cultures showed a pure growth of staphylococcus aureus. She was given eight treatments in eleven days. Suppuration ceased and cornea improved very much but yellow mass remained beneath the wound in the globe. Feb. 1 the eye was enucleated. A yellow mass was found in the vitreus chamber beneath wound. Patient did well after the operation and nine days later the conjunctiva was entirely healed.

CASE 7. H. O. W. Female, Oct. 12, 1907. Senile cataract extracted Oct. 12. Three days later (Oct. 15) eye showed infection of wound with beginning hypopyon. Cultures showed staphylococcus aureus and a few pneumococci. Vaccine treatment was begun. She received two treatments in one week and was discharged recovered as to infection. Vision not given.

CASE 8. E. E. W. Female, 55 years, Oct. 28, 1911. Senile cataract of left eye extracted Oct. 28, 1911. Three days later (Oct. 31) infection of wound followed with thick muco-purulent discharge and hypopyon. Vaccine treatment begun. Cultures showed weak staphylococcus aureus, few pneumococci and B. xerosis. She was given six treatments in two weeks and was discharged cured as to infection. Vision not given.

CASE 9. G. E. Female, 66 years, May 2, 1908. Senile cataract of right eye extracted May 2, 1908. Eye was doing nicely until eight days later (May 10) when eye began to redden. May 12 edema of conjunctiva and hypopyon present. Vaccine treatment was begun. Patient was given seven treatments in two weeks and was discharged cured as to infection. The improvement in condition was noticed thirty-six hours after the first inoculation. Vision O. D.: light perception and projection. Secondary operation resulted in vision 20/20 + 14 sphere.

CASE 10. D. M. M. Female, 69 years, April 6, 1914. Operated for senile cataract of left eye Apr. 6, 1914. Eye made uneventful recovery until April 13 (seven days later) when infection set in. Iris nearly hidden by exudate, pupil retracted. Wound healed, cornea clear. Conjunctiva very red. Cultures showed staphylococcus aureus and few B. xerosis. Vaccine treatment was begun. She received eighteen treatments in five weeks and was discharged cured as to infection. Vision: light perception and projection. Secondary operation resulted in vision 20/70.

GROUP II. PERFORATING INJURY OF CORNEA WITH INFECTION OF WOUND AND HYPOPYON.

CASE 11. M. D. Female, age 48. Hat pin struck right eye tearing margin of iris. Cornea infected slightly hazy with central perforation. Lens was opaque and swollen. Local application showed slight improvement off and on but progress was very slow. Jan. 17, 1914, hypopyon present, filling one third of anterior chamber. Lens opaque and yellowish. Vaccine treatment begun. Cultures showed pneumococci and B. xerosis. The patient received five treatments in two weeks, when she was cured of hypopyon. Eye white but lens still yellow. Enucleation advised.

CASE 12. L. L., male, 28 years, Nov. 11, 1913. Struck right eye with piece of wood. Cornea hazy. Perforated centrally and an ulcer 3 m.m. in diameter situated over wound. Aqueous humor turbid. Fundus reflex not made out. Thirteen days later (Nov. 24) ulcer was extending with increased injection. Hypopyon present, filling one-fourth of anterior chamber. Vaccine treatment begun. Cultures showed pneumococci and B. xerosis. (The hypopyon cleared up after the third injection of vaccine and the ulcer was much diminished). He received nine treatments in six weeks, when he was discharged cured as to infection. Jan. 5, 1914.

CASE 13. C. C., male, 39 years, Dec. 12, 1913. Struck right eye by a steel chip Dec. 11, 1913. Eye became infected. Steel was removed by magnet. One month later (Jan. 11, 1914) there was a yellow exudate present in the anterior chamber at the wound margin. Lens yellowish. Vaccine treatment begun. Cultures showed staphylococcus aureus and a few B. xerosis. He received eleven treatments in one month. Was dischared cured as to infection Feb. 11, 1914. Vision O.D. fingers at one foot.

CASE 14. S. J., male, 68 years, Aug. 7, 1913. Nail flew from hammer; point struck right eye causing round penetrating wound in upper outer quadrant. Cornea, clear, media cloudy. Two stitches made in conjunctival flap over wound. One week later (Aug. 14) infection of flap and conjunctiva set in with hypopyon. Vaccine begun. Cultures showed staphylococcus albus, few pneumococci and B. xerosis. He was given six treatments in three weeks and was discharged cured as to infection Sept. 3, 1913, Vision O.D., 4/200.

CASE 15. K.B., male, 41 years, July 24, 1913. Steel chip struck right eye July 24, 1913, causing perforating wound of 3 m.m. of cornea and iris. Separation of outer one-half of retina. Foreign body was seen in vitreus and was removed by magnet through the original wound. Conjunctival flap stitched. Hypopyon and infection set in July 31. On Aug. 14 the hypopyon was worse. Injection was marked. Vaccine begun. Cultures showed pneumococci and B. xerosis. He was given five treatments in two weeks, at end of which time there was

improvement of the acute infectious condition. Eye was soft and shrinking. Enucleation was advised.

Case 16. F. C., male, 32 years, Oct. 30, 1913. Two weeks previous piece of steel struck left eye. One week later eye became inflamed. Examination showed considerable conjunctival injection. Cornea and aqueous cloudy. Iris muddy. Pupil small, round and immobile. Yellowish green exudate surrounds the pupil. No fundus reflex. Tension normal. Wassermann negative. No operation was considered necessary since localization of foreign body was outside globe. Small hypopyon developed two days ago (Nov. 7). Exudate behind lens remains same. Nov. 15 hypopyon increased. Injection more marked. Vaccine treatment begun. Cultures showed staphylococcus aureus and B. xerosis. Nov. 22, hypopyon gone. Intraocular exudate about the same. Discharged cured as to infection Dec. 2, 1913. Vision O.S., light perception and projection.

Case 17. H. J. A., male, 56 years, Apr. 21, 1913. One week ago he was struck in left eye by flying glass and wood. Examination showed left eye injected. Cornea hazy with perforation centrally situated surrounded by ulcerated area. Iris dull and lens hazy. Hypopyon. Fundus not well seen. Vaccine treatment begun at once. Smears and cultures showed staphylococcus aureus and few chains of streptococci. May 19, cornea clearer, eye a little brighter. Improvement continued. Received twelve treatments in all and was discharged June 4, cured as to infection. Vision O.S., shadows. Projection O.K.

GROUP III. ULCERATIVE KERATITIS WITH HYPOPYON.

Case 18. D. D., male, 50 years, Dec. 23, 1912. Had a sore eye for a week with foreign body in eye (Dec. 16, 1912). Examination showed conjunctiva injected. Cornea hazy throughout with round sloughing ulcer. Hypopyon 4 m.m. Aqueous turbid. Pupil dilated and irregular. Lens and fundus not seen. Eye went on improving under ordinary local treatment. On Dec. 29 there was no hypopyon and cornea looked a little clearer. Jan 3 hypopyon recurred, filling one-half anterior chamber. At that time I was called in to give vaccine. Smears and cultures showed pneumococcus and B. xerosis. Eye showed marked improvement thirty-six hours following first inoculation. Kept on improving. Hypopyon entirely gone Jan. 24. Cornea all cleared up Feb. 9 when he was discharged, cured as to infection. Vision O.D., shadows, projection good.

Case 19. G. G., male, 40 years, May 19, 1913. Struck left eye by board six days ago. Eye has been sore since. Examination showed left eye very red. Cornea hazy and infiltrated. Hypopyon. Iris dull, pupil moderate, not reacting. No fundus reflex. Tension normal. Saemish operation performed May 19. Cultures showed practically pure growth of colon bacillus with marked gas production. Few staphylococci also present. He received seven treatments in all. Eye showed improvement on May 28. Kept on improving. Was discharged June 26, cured as to infection. Vision O.S., shadows, projections good.

Case 20. G. W. E., male, 52 years, Feb 17, 1913. Left eye inflamed for four days. No injury. Examination showed conjunctiva and lids injected. Eye red. Central ulcer on cornea. Hypopyon. Iris dull. Pupil moderate and reacts slowly. Faint fundus reflex. Feb. 27, hypopyon increased and eye growing worse. Vaccine treatment begun. Cultures showed a predominating streptococcus and a few pneumococci. Mar. 4, a Saemish operation was performed. Pus reappeared in anterior chamber, Mar. 8. On Mar. 12 the hypopyon began to disappear. Injection decreased rapidly. April 5 eye whitening and corneal scar not noticeable He received twelve treatments in all and was discharged cured Apr. 15. Vision O.S., 20/200.

Case 21. K. B., male, May 28, 1913. Left eye inflamed for one week. Does not know origin of trouble. Examination shows eye injected. Ulcer of cornea, with beginning hypopyon. Iris dull. Pupil moderate, reacts sluggishly. Fundus reflex poor. Vision fingers at one foot. June 4, eye much worse and hypopyon increased. Vaccine treatment begun. Smears and cultures showed predominating B. mucosus capsulatus (Friedlander's bacillus), few B. xerosis and staphylococcus also present. He received four injections of vaccine, showing slight improvement. A Saemish operation was performed June 7 and another on June 17. June 24, was discharged against advice, leaving the hospital on his own responsibility.

Case 22. S. A., male, 62 years, Jan. 28, 1913. Left eye had scar over cornea since childhood. Saw only shadows and forms. Examination showed lids slightly swollen, conjunctiva red and edematous. Lacrymation and photophobia; cornea staphylomatous and ulcer covering two-thirds of cornea. Anterior chamber shallow with hypopyon. Feb. 2, marked injection of conjunctiva, hypopyon slightly increased. Vaccine treatment begun. Cultures showed predominating staphylococcus aureus and a few B. xerosis. He received two inoculations (Feb. 2 and 5). Feb. 6, cornea clearer. Hypopyon slightly diminished. Improvement continued and was discharged Mar. 9 cured as to infection. Vision, shadows, projection faintly.

Case 23. P. H., male, 64 years, stone cutter. Oct. 28, 1913. Hit right eye with stone. Examination showed considerable conjunctival injection. Cornea dull, central and irregular ulcer. Anterior chamber fair depth, one-fourth of which is filled with hypopyon. Iris cloudy. Pupil dilated. No fundus reflex seen. Tension normal. Considerable pus is expressed from tear sac. Nov. 1, Saemish operation performed. Nov. 3, ulcer spreading over cornea so fast that it involves over three-fourths of its area. Hypopyon reaccumulating. Vaccine treatment begun. Smears and cultures showed a pure pneumococcus. Nov. 4 another Saemish operation was performed. Improvement continued. Nov. 27, conjunctiva almost white, hypopyon gone. Eye quiet. He received six inoculations in all and was discharged cured as to infection. Corneal surface was rough and wrinkled. Staphyloma increased. Enucleation was advised.

Case 24. M. T., male, 60 years, Jan. 9, 1914. Left eye trouble began two weeks ago. There is considerable conjunctival inflammation. Medium chemosis, deep episcleral injection. Cornea hazy. Yellowish undermined central and marginal ulcers. Hypopyon two-thirds of anterior chamber. No fundus reflex. Saemish operation performed Jan. 11. Vaccine treatment begun. Cultures showed

predominating staphylococcus aureus, a number of pneumococci and a rare chain of streptococcus. Improvement began after second inoculation and kept up steadily until discharged. Mar. 8, cornea clear, no hypopyon since Feb. 2. Further improvement took place. Discharged cured as to infection Mar. 9, 1914. Vision, light perception.

CASE 25. F. J. F., male, 59 years, Oct. 2, 1913. Had a cold over six weeks ago. Left eye became inflamed two weeks ago. Thinks saw-dust in eye caused trouble. Examination showed left eye moderate conjunctival injection. Cornea hazy, one-half of its surface yellowish slough. Anterior chamber shallow. Aqueous turbid. Hypopyon one-fourth of anterior chamber. Iris cloudy. Pupil immobile. Fundus reflex hazy. Tension normal. Oct. 9, vaccine treatment begun. Cultures showed predominating staphylococcus, weak aureus, and a few B. xerosis. There was a very marked improvement after second inoculation. Oct. 15 ulcer was healing and hypopyon gone. Oct. 24, ulcer completely healed. Pupil slightly dilated. Oct. 25, discharged cured as to infection. Vision, 20/70.

CASE 26. H. T., male, 62 years, Jan. 13, 1914. Left eye sore for ten days. Considerable conjunctival inflammation. Cornea hazy. Small central ulcer over pupil. Aqueous turbid. Iris markings cloudy. Pupil widely dilated. Fundus reflex poor. Tension increased. Cultures showed staphylococcus aureus and B. xerosis. Autogenous vaccine was made up, and treatment begun Feb. 4. He had seven treatments in all. Feb. 18, eye improving. Fluorescence showed ulceration of centre of cornea. Feb. 24, eye quiet. Fluorescence showed no ulceration. Scar over pupilary area. Discharged, result good. Vision O.S., 10/70.

CASE 27. M. P., male, 59 years, Dec. 18, 1913. Examination showed left eye moderate conjunctival injection. Cornea hazy. Large ulcer involving the upper one-fourth cornea temporally and above. Hypopyon one-eighth of anterior chamber. Iris markings cloudy. Aqueous turbid. Pupil sluggish. Complained of considerable almost unbearable pain. Tension normal. Vaccine treatment begun same day. Smears and cultures showed a pure growth of staphylococcus aureus. Autogenous vaccine made up and administered on an average of once every three to four days. Had thirteen treatments in all. Improvement followed second inoculation and continued steadily. Jan. 5 there was less injection. Hypopyon gone. Cornea clearing. Jan. 26, cornea clear. Discharged cured as to infection Jan. 27, 1914. Vision, light perception and projection.

CASE 28. G. C. B., male, 28 years, May 18, 1911. May 5 left eye was hit by end of broken Manilla rope. Infection noticed two days later. Lids swollen with muco-purulent discharge. Tear following margin of cornea, perhaps 20%. May 19 injection of bare surface of cornea, good deal of swelling of marginal epithelium. Vaccine begun. Cultures showed staphylococcus aureus. He received seventeen treatments in all. On June 1 necrotic area diminished and improvement continued until discharge, June 19. Vision, 20/20 with glasses.

CASE 29. B. W. H., male, 57 years, roofer, Jan. 12, 1914. On Dec. 11, 1913, he got some tar into left eye. Inflammation set in since; is getting worse. Examination showed deep episcleral injection, cornea hazy. Several ulcers scattered throughout cornea, some larger than others. Hypopyon one-half of anterior chamber. Other details not made out. Tension normal. No fundus reflex. Saemish operation performed and vaccine treatment begun same day. Cultures showed staphylococcus aureus and B. xerosis. Autogenous vaccine made and administered once every four days. Received ten treatments in all. Very marked improvement followed first inoculation. Following second treatment, Jan. 16, cornea was clear. Hypopyon almost gone. Improvement continued steadily. Discharged cured Feb. 13. Vision O.S., fingers at one foot.

CASE 30. G. A., male, 46 years, July 26, 1913. Struck left eye with piece of stone ten days ago. Examination showed marked circumcorneal injection. Cornea hazy. Small central ulcer with considerable deep haze at its periphery. Small hypopyon. Fundus reflex slightly hazy. Cultures showed pneumococci and few B. xerosis. Vaccine treatment begun Aug. 16, 1913, and continued once every three to seven days. Had eight treatments in all. Saemish operation performed Aug. 20, Stringy pus removed. Cultures showed same organisms as before. Another Saemish performed Aug. 21. Improvement followed second inoculation. Healing continued rapidly. Discharged cured Sept. 20, 1913. Eye white. Vision O.S., 1/200.

CASE 31. D. I., male, 65 years, May 23, 1913. Patient was struck in left eye by twig while walking in woods a week ago. Examination showed eye very red. Considerable chemosis. Corneal ulceration in its lower three-fourths area. Iris dull and little swollen. Hypopyon present. Pupil moderate and does not react. Very faint fundus reflex. Tension increased. May 27 eye markedly injected. Hypopyon increased. Cornea much infiltrated. June 1, eye very red and shrinking. Cornea infiltrated. June 4. condition same. Vaccine treatment begun. Cultures showed pneumococci and Koch-Weeks bacilli. Had one treatment. Discharged against advice upon own responsibility.

GROUP IV. STYES.

CASE 32. K. H. L., male, 42 years, July 8, 1909. Referred by his eye specialist for vaccine treatment. Has stye on left eye for last three months. Right eye began to trouble him three days ago. Cultures showed pure growth of staphylococcus aureus. Had three treatments, July 8, 10 and 13. Styes began to improve following first treatment. Discharged cured July 31. Four months later (Nov. 22) came back with recurring trouble. Given three more treatments, Nov. 22, 24 and Dec. 3. Was discharged cured. Has not been troubled since.

CASE 33. G. P., male, 26 years, April 2, 1913. Had been suffering with "pig styes" off and on for last six years. Getting worse. Had four attacks last seven months. Referred for vaccine treatment by his eye specialist. Examination showed well developed stye on upper right lid and a smaller one much inflamed on lower left lid. Cultures showed pure staphylococcus aureus. Vaccine begun same day. Had two treatments in all. April 4 the well developed stye came to a head the night of the first inoculation. Very little pus came out. The

other stye was resorbed. Lids look practically normal now. Discharged cured. Has not been troubled since.

Case 34. B. V. L., female, 10 years, Jan. 13, 1909. Styes of both eyes off and on for last three months. Did not respond to ordinary local treatment. Referred for vaccine treatment by eye specialist. Cultures showed pure staphylococcus aureus. Had five treatments,—Jan. 13, 16, 21, 23 and Feb. 2. Discharged cured. Has been well since.

CHRONIC MUCO-PURULENT CONJUNCTIVITIS. ONE CASE.

Case 35. H. A. B., female, 40 years, Jan. 25, 1913. Complains of having a purulent discharge from right eye for last eighteen years. No relief from local treatment. Referred for vaccine treatment by her eye specialist, under whose care she had been for last four years. Eye showed conjunctival injection. Muco-purulent discharge and marked photophobia. Cultures showed pure staphylococcus aureus. Treatment commenced Jan. 27, and continued on an average of once a week until April 16. Had another treatment May 10 and another June 7. She had nineteen treatments in all. Considerable improvement shown after third inoculation. Eye stopped discharging and no photophobia Apr. 16. Discharged cured June 7. No recurrence of trouble.

GROUP V. CHRONIC DACRYOCYSTITIS.

Case 36. S. J. J., male, 83 years, Feb. 3, 1907. Cataract of both eyes ready to be operated five years ago but for pus in right eye. Purulent discharge present from right lacrymal sac. Cultures showed streptococci and few B. xerosis. Vaccine treatment was begun the same day. Continued for two and one-half months. Had fourteen treatments in all. Showed slight improvement. Could not continue treatment, as he lived out of town.

Case 37. C. N., female, 38 years, July 8, 1909. Discharge from left tear sac for last ten years. Was operated upon, opening sac and drainage, with no relief. Considerable discharge present now. Cultures showed streptococcus and few B. xerosis. Received sixteen treatments in two and one-half months, showing marked improvement. Discharge practically stopped after fifth treatment but recurred and kept up somewhat all the time. Discontinued treatment against advice.

Case 38. S. J. N., female, 33 years. May 5, 1911. Infected tear sac of one and one-half years' duration. Probing and drainage, with no relief. Referred for vaccine treatment by her eye specialist. Has now marked purulent discharge. Cultures showed pure streptococcus. After the fourth treatment discharge improved so much that she discontinued treatment. Felt well for two years. Returned for treatment Oct. 27, 1913. Had seven more inoculations and was discharged improved. Feb. 16, 1914. Discharge practically stopped. When last heard from had a slight watery discharge, but no pus.

Case 39. B. F. D., male, 59 years, Mar. 8, 1914. Discharge from right sac for one year. Acute exacerbation and abscess of sac five weeks ago, which healed but recurred two weeks later. Has now an abscess over sac size of a walnut. Cultures from abscess showed staphylococcus aureus. Abscess healed at the end of forty-eight hours. Discharge of sac kept up. It improved at times but could not be cured. Cultures from the dacryocystitis taken Apr. 27 showed predominating streptococcus and a few staphylococci. Was referred to Dr. Holmes for "Holmes operation". Is still under observation. Is markedly improved.

A STUDY OF TWO HUNDRED AND TWENTY-SIX CASES OF ENURESIS.*

By A. B. Schwartz, M.D., Chicago.

In an effort to determine the importance of the various factors mentioned as causes of enuresis, a preliminary study is here presented of the records of two hundred and twenty-six cases of enuresis seen in the Children's Out-Patient Department since July 1, 1909. The study of a second group of cases seen during the first six months of this year is given with conclusions as to the result of treatment.

Ruhrah[1], reporting the recent work on enuresis, classifies the etiological factors of this condition under the following sub-heads:—

1. General: Diabetes,—Rickets,—Thyroid insufficiency—Enlarged Tonsils and Adenoids.
2. Physiological: Too much fluid.
3. Eliminative: Faulty metabolism—Too much salt—Due to drugs.
4. Urine: Hyperacidity—Alkalinity—Bacteria.
5. Genito-Urinary Tract.

Urethritis, Cystitis, Pyelitis } Inflammations

Malformations (Calculi—Tumors—Polypi).

6. Central Nervous System: Hypertonia—Weakness of Sphincter.

Balanitis, Vulvo-vaginitis, Anal fissure, Rectal polypi, Parasites } Reflex

Malformation of cord.
General irritability.

Various authors have laid stress on one or the other of these subdivisions.

Theimich,[2] supported by the Breslau school, considers enuresis entirely a manifestation of hysteria.

Klotz,[3] studying the family history of these cases, lays the basis of treatment on the "neuropsychopathic constitution," using suggestion in the form of Faradization or the cold perineal douche.

Fisher[4] finds that 14% of his adenoid cases had enuresis.

Hamonic[5] performed 187 circumcisions, thereby curing 137 cases.

Peritz,[6] following Fuch's suggestion, draws attention to the relationship of defective development of the spinal cord to this condition. How-

* From the Children's Medical Department of the Massachusetts General Hospital.

ever, these anomalies have been met with rather in the protracted adult cases.

Simpson[7] finds that these cases present one of four types of urine:—

a. Normal.
b. Extremely acid.
c. Alkaline or neutral.
d. Bacilluria.

Williams,[8] observing aggravation of symptoms following adenoidectomy with rapid cure ensuing upon the administration of thyroid extract, reports favorable results to confirm his theory of thyroid insufficiency as a potent factor in the production of enuresis.

Collin[9] discusses a form of enuresis characterized by its irregularity and intermittency. He believed it to be of gastro-hepatic origin.

Van der Bogert[10] states that chronic digestive disturbances, evidenced by constipation, diarrhea and acute bilious attacks, poor physical development and anemia, play an important rôle in the causation of enuresis.

Wachenheim[11] places enuresis under the classification of habit spasm for four reasons:

(1). "Habituation."
(2). Almost continuous.
(3). Frequent association with other habit spasms.
(4). Age of onset and maximum frequency correspond with other habit spasms.

Sex—Time. There were 226 cases seen in the Children's Medical Out-Patient Department,—148 were males, 98 females, 3 were diurnal, 134 nocturnal, and 89 were both diurnal and nocturnal. The nocturnal cases often give a history of having been diurnal as well, on previous occasions. Many of the nocturnal cases complained of frequency of micturition during the day, the severity dependent on the mental attitude of the child and quite often on the cooperation rendered by the school teacher.

Family History. In the smaller group of cases studied this year where the family history was carefully questioned, the results were consistent with Klotz's idea of "neuro-psychopathic constitution." Ten cases out of twenty-one gave a history of there being other cases of the same difficulty in the family.

Tonsils and Adenoids. Fifteen cases had had their tonsils and adenoids removed at least one year prior to coming to the Out-Patient Department for treatment. Two cases had had adenoidectomy alone at least one year before coming to the Out-Patient Department. Twenty-six cases needed surgical interference with the tonsils or adenoids, as follows:—

Twelve cases for adenoids alone.
Ten cases for tonsils and adenoids.
Four cases for tonsils alone.

Twenty-one of the above twenty-six cases came to operation. Of these, thirteen showed no improvement as a result of the operation, six were not heard from, one was cured spontaneously a year later, one reported better. This last patient also had a circumcision. These results show that in this series there was no connection between the adenoids and tonsils and enuresis.

Urinalysis. A study of the records of the entire series, repeated examinations of the urine being made in some cases, fails to show any characteristics of the urine peculiar to enuresis; 70.9% were acid to litmus paper, 12.1% were alkaline, 17% neutral. The urine frequently varied in reaction on different visits, while in a few instances in which the total acidity was determined by hydrogen ion concentration, the degree of acidity bore no relationship to the severity of the incontinence. In a large proportion of the cases the specific gravity was high for the age and the urine was concentrated. Unfortunately the presence or absence of crystals was not recorded. Cases of pyelitis presenting incontinence of urine as a symptom were not included in the series, as these cases improved under the usual pyelitis treatment. No cases of glycosuria were seen. The urinalysis as recorded in the small group studied more carefully, are entirely consistent with normal findings.

Genitalia. Twenty-nine cases of the entire series showed some abnormality of the genitalia. Only two of these were in female children, both of whom had hypertrophy of the clitoris. The other cases were as follows:—

Redundant prepuce	12
Preputial adhesions	5
Phimosis	5

Ten of this series were recommended for circumcision, only 6% of the total number of male children. Replies have been received from only two of these cases,—one was reported improved, one not improved. The frequency of these findings suggest that abnormalities of the genitalia because of the local irritation may have a causative relationship to enuresis.

Digestive Disturbances. Blood. Although no special study of this point was made a review of, the records do not bear out the assertion that chronic digestive disturbances are more frequent in cases of enuresis than in other patients. Neither do the hemoglobin estimations point to anemia as an associated symptom.

Central Nervous System. A nervous element was found either in the patient's family, in fifty-three of the two hundred and twenty-six cases. These were classified as follows: nervous, 19; tic, 5; chorea, 8; retarded mentality, 14*; very indistinct speech, 1; stutterers, 2; pavor nocturnus, 1; somnambulists, 2; imbecile, 1.

Treatment. Though the interval of observation on the cases treated is too short to draw dogmatic conclusions, the results are sufficiently suggestive to warrant the indication of treatment along certain lines. All the cases seen were put at once on an enuresis regime. This included all the various aids to cure usually recommended, such as no fluids after 5 p.m., elevating the foot of the bed, light supper, sleeping on

* Diagnosis made by Nerve Department.

the side, light covers, hard bed, and modifications of the diet when indicated. In no instance did these methods alone effect a cure. Drugs given to make an acid urine alkaline seemed to be of doubtful value. The usual doses of alkalies recommended in these cases were too small to change the reaction of the urine. Potassium citrate had to be given in large doses before it changed the reaction from acid to alkaline. One case in the series, which had a high acidity and uric acid crystals in the sediment (Case 236106) showed no improvement whatever following the administration of twenty grains of potassium citrate three times daily over several weeks' time. This case later was cured by the use of atropine.

Our results with thyroid extract were not as favorable as reported by Williams (*loc. cit.*) or Firth.[12] Following Ruhrah's experience, whose good results with thyroid extract were obtained immediately or not at all, the administration of this drug was limited to a period of two weeks. Seven cases were given thyroid extract; no cure was effected. Four showed some improvement, one case varying directly with its administration; three showed no benefit whatever. Of the four improved cases, one was a child of slightly dull mentality. The other cases were average consecutive cases. As it has been pointed out by Firth that the best results were obtained in backward children, this may explain the lack of results in the present series. Eleven cases were given atropine. Of these two have been cured, six improved, and three not benefited. In two cases the enuresis ceased spontaneously without anything being done.

The capacity of the bladder was not measured in any of these cases. For this reason the mechanical factors which might play a part in the production of enuresis cannot be commented upon.

The good results and the failures in the cases reported above are similar to those reported by other writers, and a study of these results leads one to the conclusion that the cause of enuresis in children is not the same in every instance. In some the nervous element undoubtedly plays a part, and in others faulty habits. Local irritation from any source is a predisposing cause. Excessive fluids result in a greater secretion of urine, while too little fluid results in a concentrated urine, which, whether it contains crystals or not, may irritate the base of the bladder and cause the desire for frequent micturition. Enlarged tonsils and adenoids apparently have no connection with enuresis. Digestive disturbances did not in themselves have any connection with the condition, but it is conceivable that constipation may be a predisposing factor.

SUMMARY OF CASES.

O. P. D., No. 224637. Sex, male; age, 9; weight, 21.9 kilo; normal weight for age, 24.6. Duration, since birth. Family history, no other cases. Nervous condition, undersized, fidgety, headstrong. Hgb., 80%. Genitals, normal. Tonsils and adenoids, normal. Other diagnosis, none. Urinalysis, neut.; sp. gr., 1020; no albumin sugar or sediment. Date of first visit, April 7. Condition when first seen, wets bed every night, wets clothes constantly. Treatment and results, given atropine. Reported three weeks later had only wet twice at night. Day wetting cured. Taken off atropine, condition recurred.

O. P. D., No. 219248. Sex, female; age, 7; weight, 19.1 kilo.; normal weight for age, 21.7. Duration, eight months. Family history, one sister wetter. Nervous condition, September, 1913, chorea. None since under treatment. Hgb., 75%. Tonsils and adenoids, normal. Other diagnosis, endocarditis and carious teeth. Urinalysis, acid, no albumin or sugar, a few leucocytes and epithelial cells. Date of first visit, April 4. Condition when first seen, wets bed three times at night, occasionally wets clothes. Treatment and results, given atropine and reported three weeks later and had wet only five times. Not heard from again.

O. P. D., No. 240087. Sex, male, age, 12; weight, 35.2 kilo.; normal weight for age, 36.1. Duration, since birth. Family history, no other cases. Nervous condition, "very nervous and headstrong." Hgb., 80%. Genitals normal. Tonsils and adenoids, adenoids +, operation May 6. Other diagnosis, carious teeth. Urinalysis, neut. 1022, no albumin sugar or sediment. Date of first visit, Apr. 10. Condition when first seen, wets clothes daily, occasionally wets bed at night. Treatment and results, given thyroid extract. Adenoidectomy also done. Showed slight improvement.

O. P. D., No. 232754. Sex, male; weight, 31 kilo.; normal weight for age, 30.1. Duration, since birth. Family history, one sister a wetter. Nervous condition, fairly well developed and nourished. Hgb. 85%. Genitals, normal. Tonsils and adenoids, adenoids +, operation Feb. 14. Other diagnosis, carious teeth and follicular tonsillitis. Urinalysis, acid, sp. gr. 1022, no albumin sugar or sediment. Date of first visit, Jan. 18. Condition when first seen, wets once every night; no day trouble. Treatment and results, enuresis ceased spontaneously following visit to O. P. D.; has not recurred.

O. P. D., No. 239831. Sex, male; age, 9; weight, 30.8 kilo.; normal weight for age, 27.1. Duration, two years. Family history, no other cases. Nervous condition, "nervous and irritable, frets considerably." Hgb., 85%. Genitals, redundant prepuce, easily retracted. Tonsils and adenoids, normal. Other diagnosis, carious teeth. Urinalysis, acid, no albumin sugar or sediment. Date of first visit, April 6. Condition when first seen, wets every night, no day trouble. Treatment and results, atropine given. Reported one month later. Had wet seven times in entire month. Condition gradually improving.

O. P. D., No. 236106. Sex, male; age, 9; weight, 21.5 kilo.; normal weight for age, 27.1. Duration, since birth. Family history, one sister wetter. Nervous condition, "undersized," "nervous." Hgb., 80%. Genitals, circumcision eight years ago. Tonsils and adenoids, operated Feb. 12. Other diagno-

sis, carious teeth. Urinalysis, acid, sp. gr. 1020; no albumin or sugar uric acid crystals+++. Date of first visit, Feb. 10. Condition when first seen, wets every night, wets clothes in day time. Treatment and results, for two months was given potassium citrate and sodium bicarbonate. No improvement. Atropine then given, cured.

O. P. D., No. 240252. Sex, female; age, 5; weight, 17.6 kilo.; normal weight for age, 18.0. Duration, since birth. Family history, no other cases. Nervous condition, W. D. and N. Hgb., 95%. Genitals, normal. Tonsils. sl.+. Other diagnosis, none. Urinalysis, acid, sp. gr. 1012; no albumin sugar or sediment. Date of first visit, April 13. Condition when first seen, wets bed at night and wets clothes in day. Treatment and results, atropine given. Tr. nux vomica given as a tonic; cured.

O. P. D., No. 222686. Sex, male; age, 9; weight, 29 kilo.; normal weight for age, 27.1. Duration, since birth. Family history, no other cases. Nervous condition, W. D. and N. Hgb., 80%. Genitals, ritual circumcision. Tonsils and adenoids, normal. Other diagnosis, carious teeth. Urinalysis, acid, no sediment. Date of first visit, April 7. Condition when first seen, wets bed at night, not in day time. Treatment and results, atropine given. Reported a month later, no better.

O. P. D., No. 138030. Sex, female; age, 10; weight, 28.8 kilo. Normal weight for age, 29.0. Duration, since birth. Family history, one brother wetter. Nervous condition, W. D., bright, normal. Hgb., 80%. Genitals, normal. Tonsils and adenoids, normal. Other diagnosis, none. Urinalysis, acid, sp. gr. 1024; no sugar or albumin or sediment. Date first seen, May 1. Condition when first seen, wets every night, no day trouble. Treatment and results, thyroid extract two weeks, no benefit. Atropine for three weeks, no benefit.

O. P. D., No. 220608. Sex, female; age, 10; weight, 30 kilo.; normal weight for age, 29.0. Duration, since birth. Family history, mother wetter as child. Nervous condition, tic—marked degree, not a bright girl. Hgb., 85%. Genitals, normal. Tonsils and adenoids, normal. Other diagnosis, congenital syphilis, carious teeth. Urinalysis, acid, 1012, no albumin or sugar. Date first seen, March 7. Condition when first seen, wets every night, no day trouble since sixth year. Treatment and results, thyroid extract three weeks; no benefit. Atropine for two weeks; no benefit.

O. P. D., No. 236200. Sex, male; age, 9; weight, 21.7 kilo.; normal weight for age, 27.1. Duration, since birth. Family history, one sister wetter. Nervous condition, normal. Hgb., 85%. Genitals, redundant prepuce; prepuce easily retracted. Tonsils and adenoids, normal. Other diagnosis, none. Urinalysis, alkaline, sp. gr. 1018, no albumin, sugar or sediment. Date first visit, Feb. 11. Condition when first seen, wets every night, no day wetting. Treatment and results, thyroid extract for two weeks; no benefit. Atropine given. Reported two weeks later, has wet only two times.

O. P. D., No. 232883. Sex, female; age, 6; weight, 26.3 kilo.; normal weight for age, 19.8. Duration, since birth. Family history, two sisters wetters. Nervous condition, normal, adipose, bright. Hgb., 85%. Genitals, normal. Tonsils and adenoids, normal. Other diagnosis, carious teeth. Urinalysis, acid, sp. gr. 1023, no albumin or sugar, few urates xxs. Date of first visit, April 3. Condition when first seen, wets every night, no day wetting. Treatment and results, thyroid extract given. Report one month later, "Will not wet if taken up once."

O. P. D., No. 226217. Sex, male; age, 11; weight, 33.4 kilo.; normal weight for age, 32.7. Duration, since birth. Family history, no other cases. Nervous condition, dull, quiet, W. D. Hgb., 75%. Genitals, ritual circumcision. Tonsils and adenoids, enlarged, operation April 9. Other diagnosis, carious teeth. Urinalysis, neut., sp. gr. 1020, no albumin, sugar or sediment. Date of first visit, April 7. Condition when first seen, wets six times a week, no day wetting. Treatment and results, thyroid extract given. Condition improves and varies with the administration.

O. P. D., No. 202953. Sex, female; age, 10; weight, 31.8 kilo.; normal weight for age, 29.0. Duration, since birth. Family history, one brother wetter. Nervous condition, normal mentality. Hgb., 85%. Genitalia, normal. Tonsils and adenoids, adenoidectomy November, 1913. Other diagnosis, enlarged peribronchial glands. Date first seen, May 16. Condition when first seen, wets every night, no day wetting since one year. Treatment and results, thyroid extract. Reported three weeks later, has wet only three times.

O. P. D., No. 239817. Sex, male; age, 4; weight, 15.6 kilo.; normal weight for age, 15.8. Duration, since birth. Family history, one brother wetter, mother was a wetter. Nervous condition, fidgety, cross, very unruly. Hgb., 70%. Genitalia, normal. Adenoids and tonsils, operation May 27. Other diagnosis, none. Urinalysis, neut., sp. gr. 100, no albumin, sugar or sediment. Date first seen, April 6. Condition when first seen, wets day and night, constantly wet. Treatment and results, atropine given. Day trouble cured. Still wets twice a week at night.

O. P. D., No. 238052. Sex, male; age, 6; weight, 22.5 kilo.; normal weight for age, 20.4. Duration, since birth. Family history, ?. Nervous condition, bright, masturbates. Hgb., 85%. Genitalia, elongated, prepuce, circumcision April 2. Adenoids and tonsils, normal. Other diagnosis, none. Date first seen, March 12. Condition when first seen, wets bed every night, none in two weeks since change of residence. Treatment and results, condition ceased spontaneously since change of residence (a state ward case).

O. P. D., No. 235472. Sex, male; age, 7; weight, 24 kilo.; normal weight for age, 22.4. Duration, since birth. Nervous condition, normal. Hgb., 75%. Genitalia, slight adhesions; broken up. Adenoids and tonsils, operation Feb. 5. Other diagnosis, none. Urinalysis, acid, alkaline, sp. gr. 1025, no albumen or sugar, amorph. debris. Date first seen, Feb. 16. Condition when first seen, wets every night. Treatment aud results, did not wet for two weeks following adenoidectomy. Not heard from again.

O. P. D., No. 240434. Sex, male; age,10;weight, 33.3 kilo.; normal weight for age, 30.1. Duration, six years. Family history, no other cases. Nervous

condition, normal. Genitalia, normal. Adenoids, normal. Other diagnosis, carious teeth, peribronchial glands. Urinalysis, alkaline, sp. gr. 1020, no alb. sugar or sediment. Date first seen, April 10. Condition when first seen, wets every night, occasionally skips a few nights. Treatment and results, has moved to Maine.

O. P. D., No. 231974. Sex, female, age, 8; weight, 28.1 kilo.; normal weight for age, 23.9. Duration, since birth. Family history, no other cases. Nervous condition, normal. Hgb., 80%. Genitalia, normal. Tonsils and adenoids, tonsils++, operation advised. Other diagnosis, carious teeth. Urinalysis, R. alkaline, sp. gr. 1009. albumin v.s.t., no sugar sediment, amorph. debris. Date first seen, April 3. Condition when first seen, wets clothes and bed "most every night." Treatments and results, improved slightly under atropine; refuses operation on tonsils.

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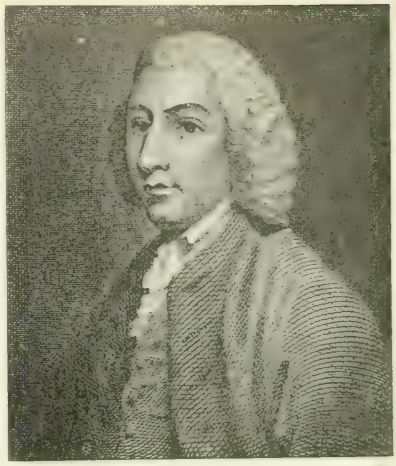
TOBIAS SMOLLETT: PHYSICIAN AND NOVELIST.

By Robert M. Green, A.B., M.D., Boston.

On October 21, 1771, died Tobias Smollett, a physician distinguished in literature as one of the three creators of the English novel. On this anniversary of his death it may be not without interest briefly to review his professional and literary career.

Smollett was a Scotsman, born in 1721 of an ancient family at Dalquhurn, near the modern village of Renton, in the vale of Leven, between Loch Lomond and Dumbarton. On March 19, according to the parish records of Cardross, he was baptized Tobias George, but seems never to have used the second appellation. His childhood was passed in this border country between highland and lowland, in scenes not only of the most romantic natural beauty but intimately associated with stirring events and great names in the history of Scotland.

Smollett's father died soon after the birth of his last child, Tobias, who, with his mother, brother, and sister, was thus left dependent on the bounty of his grandfather, an aged and parsimonious Scottish judge and knight. Tobias received his preparatory education in the grammar school at Dumbarton, and while a boy evinced the bent of his genius by the composition of satirical and patriotic verses. He was of a vivacious, humorous, and impatient Keltic disposition, and seems perpetually to have been involved in merry boyish pranks and escapades, though never of a mischievous or vicious nature. In his first novel, *The Adventures of Roderick Random*, published in later years, in which he unmistakably appears as the hero, Smollett has left us a vivid and circumstantial account of his early life, which, though it must not be taken as biographically literal, may yet be accepted as a fairly accurate picture of his personality.



DR. TOBIAS SMOLLETT
1721-1771

From the grammar school at Dumbarton, Smollett went in due season to the University of Glasgow. Here he formed an acquaintance with some students of physic, and largely from his association with them decided to enter the medical profession. Accordingly, on his graduation from the University, he was, after the custom of the time, bound apprentice to Mr. John Gordon, a successful surgeon of Glasgow, who appears in *Roderick Random* under the name of Roger Potion. In *Humphrey Clinker*, his second novel, Smollett speaks of his old preceptor by name: "I was introduced to Dr. Gordon, a patriot of a truly noble spirit, who. . . was the great promoter of the city work-house, infirmary, and other works of public utility. Had he lived in ancient Rome, he would have been honored with a statue at the public expense." During this period of his medical studies Smollett composed his first drama, a tragedy entitled *The Regicide, or James the First of Scotland*, which, however, was not produced on the stage till many years later.

In 1739, his apprenticeship being completed, Smollett cast about him for a place to settle in practise. Just at this juncture his grandfather died, and Tobias, being thus left penniless and without friends able to assist him, resolved to go and seek his fortune in London. Doubtless his

roving disposition was not all displeased by this turn in his affairs which gave him opportunity to see something of the world. At any event he did not settle even in London, but, after a short sojourn there, obtained a berth as surgeon's mate aboard the *Cumberland,* a frigate of the line, one of a fleet bound for the West Indies to harry the trade and settlements of Spain, with whom England was then at war. In *Roderick Random* he has left an amusing account of his examination at the College of Surgeons for this position, which was largely occupied by jests and personal bickerings on the part of the examiners.

The armament in which Smollett was thus embarked sailed from Spithead on October 26, 1740 under command of Sir Chaloner Ogle. In his *History of Frederick the Great,* Carlyle has an admirable description of this Spanish war, and the following paragraph (Book xii, Chapter xii) about Smollett's entrance into it:—

"Most obscure among the other items in that Armada of Sir Chaloner just taking leave of England; most obscure of the items then, but now most noticeable or almost alone noticeable, is a young surgeon's mate—one Tobias Smollett; looking over the waters there and the fading coast, not without thoughts. A proud, softhearted, though somewhat stern visaged, caustic and indignant young gentleman. Apt to be caustic in speech, having sorrows of his own under lock and key, on this and subsequent occasions. Excellent Tobias: he has, little as he hopes it, something considerable by way of mission in this Expedition and in the Universe generally. Mission to take Portraiture of English Seamanhood with the due grimness, due fidelity; and convey the same to remote generations before it vanish. Courage, my young brave Tobias. Through endless sorrows, contradictions, toils and confusion, you will do your errand in some measure: and that will be something!"

Sir Chaloner's squadron reached Jamaica on January 9, 1741, and immediately joined the British fleet under Admiral Vernon in an unsuccessful attack against Carthagena on the continent, then known as New Spain. After this failure, the expedition returned in April, 1741, to Jamaica, where Smollett quitted the service in disgust. He lived in Jamaica for several years, and there made the acquaintance of Miss Anne Lascelles, the lady who subsequently became his wife. During this time he seems to have occupied himself practising surgery among the Europeans on the island.

Some time prior to 1746, Smollett returned to England by way of France. Settling in London, he again undertook the practise of his profession, but met with ill success. His biographer, David Hannay, says of this period of his life:—

"Without a degree and with no London connexion a legitimate medical practice was not to be obtained: and even if there had been no honesty in the way, Smollett was a great deal too proud, quarrelsome, and scornful for the trade of quack, which many eighteenth century notabilities found so lucrative."

Disappointed in his medical ambitions, Smollett found resource in literature. In 1746 he published *Advice, a Satire,* a dialogue in verse on the plan of Pope's *Apology for Satire,* and wrote an opera *Alceste,* which was never produced or printed, though the music composed for it by Händel, was subsequently adapted to Dryden's *Ode for St. Cecilia's Day.* In 1747, he published *Reproof,* a continuation of his previous satire, and several minor, but spirited, patriotic poems. These early metrical ventures, however, though evidencing his temperament and ability, did not yet demonstrate the true bent of his literary genius. At the close of 1747 he was at last united in marriage with Miss Lascelles, who not only brought her husband the comfortable income of her estate in Jamaica, but proved to him a most loyal, helpful, and devoted companion and wife.

In 1748, in the happiness of his early married life, Smollett published his first important literary work, *The Adventures of Roderick Random,* a book which not only placed him immediately, at the age of 27, among the foremost English novelists, but proved to be one of the great novels of all time. It is essentially an embellished story of the first period of his life, culminating in his marriage, a story of spirited adventure, full of the vigor of youth, with keen and abundant comment and satire on the history and civilization of the time. Even more than for its autobiographic and historic character, however, it is to be valued for its perfect fidelity in "portraiture of English seamanhood," a type which recent events happily show not yet to have vanished from the earth. Thus early and completely did Smollett fulfil Carlyle's concept of his "mission in this universe."

In 1748 Smollett published a new translation of Le Sage's *Adventures of Gil Blas,* a work which he much admired and upon the plan of which *Roderick Random* is modelled. In 1749, his tragedy *The Regicide* was at last published, but did not meet, as it did not deserve, notable success. Meantime, Smollett was not neglecting his medical career, and in 1750 finally obtained from Marischal College the degree which was so essential to the establishment of his reputation as a practitioner.

In the summer of 1750, Smollett travelled again in France, residing for a time at Paris; and, as a result of his experience and observations there, published in 1751, on his return to England, his second novel, *The Adventures of Peregrine Pickle* with *The Memoirs of a Lady of Quality,* a brilliant combination of history and satire, which met with an even more commanding success than its predecessor. Perhaps his secret disappointment in medicine, perhaps some personal pique against the man whom he may have fancied to have stood in the way of his professional advancement, led him in *Pere-*

grine savagely to caricature, in the person of Pallet's companion, the physician, Dr. Mark Akenside, then one of the leading London practitioners, "a man of superior genius, worth, and learning, and himself a writer of no mean ability."* All the vigor and dash of *Roderick Random* appear in *Peregrine*, but with more *finesse* and imaginative fancy; and again, in the characters of Trunnion, Hatchway, and Pipes, Smollett renews and even surpasses his previous "portraiture of English seamanhood." *Peregrine Pickle* is the climax, as *Roderick Random* was the exordium, of his literary genius.

In 1752, Smollett removed to Bath, where he established himself as a physician, and made his first essay in medical writing *On the External Use of Water*. His insight into and love for truth, and his sense of humor, however, apparently got the better of him, and the conclusion of his treatise was that any other water would do as well as that of Bath. He also assisted his countryman Smellie in the composition of his celebrated *Treatise on Midwifery*, a work which owes not a little of its merit to Smollett's literary touch, but from which he received no credit or benefit. Says Dr. Robert Anderson, another of his biographers:—

"In the practise of physic, Smollett, though possessed of superior endowments and eminent scientific qualifications, had the mortification to be unsuccessful, at a moment when perhaps the neglect he experienced was aggravated by the unaccountable success of many a superficial unqualified contemporary, reaping the harvest of wealth and reputation."

After this failure of his third professional venture, Smollett resolved to give up medicine and devote himself to letters; and accordingly returned to London and settled in Chelsea. Here, in 1753, he wrote and published his third novel, *The Adventures of Ferdinand Count Fathom*, a work which, despite its literary merits, has never enjoyed the fame or popularity of *Random* or *Pickle*. In 1755 he published a new translation of Cervantes' *Don Quixote*, which, like his earlier translation of *Gil Blas*, remains still the most piquant and idiomatic English version of the original. In 1756 Smollett became editor of *The Critical Review*, a new journal devoted to the annals of literature; and in the same year published his *Compendium of Authentic and Entertaining Voyages*, a popular compilation of sea-going narratives, in which his own genius for description gave to authentic history the charm of romance. In 1757 he composed his patriotic comedy, *The Reprisal*, or the *Tars of Old England*, a jolly bit of swaggering dramatic prose, quite in the Elizabethan manner, which was performed with great success by Garrick at the Theatre Royal in Drury Lane.

Despite the labor of these works and of his editorial duties on the *Review*, Smollett found time during these years to collect material for, and to write his *Complete History of England*, which was published in 1757. This history, a really meritorious and extremely well written work, is his most serious production and reveals a new aspect of his capacity as a writer. It met with an extensive sale, and marked the high tide of the author's fortune.

Misfortune, however, followed soon upon the heels of this success. As a result of one of his critical articles in the *Review*, he was prosecuted by Admiral Knowles for libel, and in May, 1759, he was convicted, fined £100, and sentenced for three months to the King's Bench Prison. Smollett was not the man to fail to turn such an opportunity to good account. During his term of sentence he wrote his fourth novel, *The Adventures of Sir Launcelot Greaves*, a whimsical English counterpart of *Don Quixote*, published in 1760, not the first or only literary work of merit composed in prison. It is to the credit not only of Smollett's industry that he produced this book under such conditions, but of his temperance, his literary detachment, and his power of observation that he did not make it a rancorous attack on his traducers but instead sketched its humorous characters from the persons with whom he was brought in contact during his confinement.

In 1762 Smollett was induced to assume the editorship of a political weekly, *The Briton*, in which he ably served the cause of the party in whose interests it was printed, but which the turn of affairs compelled to suspend publication in 1763. His health now began to suffer from his sedentary life and arduous labors, and its breaking down was hastened by the untimely death of his only child Elizabeth. In the hope of recovery, he went abroad with his wife in June, 1763, residing for nearly two years in Boulogne, Nice, Turin, Florence and Rome. In 1766, a year after his return to England, he published his *Travels Through France and Italy*, a series of letters which unfortunately reflect his ill health and melancholy. After a further journey to Scotland and a winter in Bath, the asthma and gout from which he suffered were much relieved, and with the return of health his spirits improved. In 1769 he published his fifth novel, *The History and Adventures of an Atom*, a work quite different in character from any of its predecessors, being in the nature of a contemporary political romance, "exhibiting under Japanese names the characters and conduct of the party leaders in Great Britain from the commencement of the French war, in 1754, to the dissolution of Lord Chatham's administration, in 1768." It is analogous to the political satire of *Gulliver* and *Brobdingnag*, but lacks the incisive originality of Swift's invective wit.

The labor of this composition again reduced Smollett to ill health, and again in 1770 he went with his wife to Italy, settling this time at Leghorn. Here, in spite of his steadily failing physical powers, the energy of his genius enabled him to produce his sixth and last novel,

* A brief editorial sketch of Dr. Akenside appeared in the issue of the JOURNAL for Nov. 6, 1913. (Vol. clxxix, p. 19.)

The Expedition of Humphrey Clinker, the ripest, most entertaining and agreeable, if not the most brilliant, of his works. Published in 1771, shortly before his death, it reverts to the autobiographic method of *Roderick Random*, and presents, under the character of Matthew Bramble the experience of the author's later life. The exquisite "Ode to Leven Water," inserted in this novel, is the last and finest outburst of the author's lyric passion, and seems a pathetic farewell from afar to the native land which he was never to see again.

Under the burden of overwork, debt, and anxiety, after a life in which he had spent his strength and means over-freely, Smollett's health was failing fast. In a letter to John Hunter, with whom he was on terms of considerable intimacy, he writes in the spring of 1771:—

"With respect to myself I have nothing to say, but that if I can prevail upon my wife to execute my last will, you shall receive my poor carcase in a box after I am dead to be placed among your rarities. I am already so dry and emaciated that I may pass for an Egyptian mummy without any other preparation than some pitch and painted linen."

This final touch of ironic humor at his own expense is quite characteristic of his temperament.

Smollett died on October 21, 1771, worn out at the age of 50 by work and disease, but full of wit, fortitude, and composure to the end. He is buried in the cemetery belonging to the English factory at Leghorn, and five monuments, with elaborate epitaphs in English, Latin, Greek, and Italian have been erected there to his memory. A memorial column, with a Latin inscription, has also been placed on the banks of the Leven, near the house where he was born.

Of Smollett as a physician, little remains to be said. "In the practise of physic," says his biographer, Dr. Robert Anderson, "for want of suppleness, application, and perseverance, he never was eminent." Probably he might have been more successful as a practitioner, had he been less distinguished as a man of letters.

By his three enduring works, *Roderick Random*, *Peregrine Pickle*, and *Humphrey Clinker*, Smollett made himself one, perhaps the greatest, of the three great writers who in the eighteenth century created the English novel as a literary form. The foundations of the novel, it is true, had been laid in the euphuistic Elizabethan romances of Lyly, Sidney and their contemporaries; and indeed the novel of adventure had been already established by Defoe. It remained for Richardson, in *Pamela*, *Clarissa Harlowe*, and *Sir Charles Grandison*, to create the novel of sentiment; and for Fielding, in *Joseph Andrews*, *Tom Jones*, and *Amelia* to discover and reveal the secret of character study and portraiture. Finally it was Smollett who summed up and combined the work of his predecessors, demonstrating to perfection the novel form in which adventure, of the picaresque* type, sentiment and character portrayal are harmoniously combined in just proportion and fused by the fire of an original and ingenious humor.

Smollett has been severely criticized for the alleged crudity and coarseness of his style. It has been cleverly said that Richardson wrote for women, Fielding for men, and Smollett for ruffians; but there is more wit than truth in the epigram. Smollett lived among a people and in an age that practised a frankness of speech and action which a more sophisticated era has come to regard as indelicate. It was at least honest; and what seems to us license was probably no worse than the innuendo and suggestion that came with greater refinement. Smollett went about with men of all sorts and degrees, and did not hesitate to write of their sayings and doings without circumlocution. It is precisely this pungent and vivid truthfulness of understanding and depiction which constitute Smollett's greatness as a novelist. He lived and wrote with a Keltic vivacity and an almost Elizabethan exuberance of vitality, which make his work irresistibly genuine.

Perhaps Smollett owed something of this peculiar ability and quality to his training in medicine, a science whose study above all others fills men with a desire and respect for truth and a fearlessness in dealing with what to many may seem repulsive. Whenever a physician, like Smollett or Goldsmith or Keats or Holmes becomes infinitely greater in letters than in medicine, we like to feel that his time devoted to medicine was not wholly wasted, that it contributed something, which otherwise would have been lacking, to the achievement of his genius. However this may be, we of the profession may surely take an additional pride and satisfaction in the literary laurels of our colleagues, especially in such as those of Dr. Tobias Smollett.

* For a valuable and illuminating study of "The Picaro in Fiction," see Dr. Stuart M. Chisholm's recently published *Recreations of a Physician*, Chapter IX.

Clinical Department.

NERVOUS DISEASES IN CHINA.

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THE cases of nervous diseases here reported, are presented with a two-fold object. It is desired in the first place to record facts of probable value in respect of the occurrence of nervous diseases in China, and the influence of heredity and Oriental environment on their development. In the second place, certain of these cases furnish a basis for brief reviews of some affections of the nervous system which apparently are as common in China as in the

western world. By no means all of the varieties of nervous affections coming to the Yale Hospital are considered. The selection made is based either on particular features of the individual cases, or on statements in literature that the diseases noted are rare or unknown in China.

I. AMYOTROPHIC LATERAL SCLEROSIS. (CHARCOT'S DISEASE.)[1]

The patient, an unmarried Chinese girl of 17 years, was admitted to the medical service of the Yale Hospital on February 5, 1914. Her father had died of mania while her mother and one brother were alive and well. No further history of mental or nervous disease in the family was obtained. Menstruation began at the age of 12 and was always scanty, painful and irregular. Her general health was fair. No other diseases occurred until the origin of the present condition five years before.

No reliable account could be got of the anamnesis or development of the disease. Upon admission to the hospital the patient appeared indisposed to answer questions and was unable to walk owing to stiffness and weakness of the lower extremities. Physical examination showed an undersized, poorly developed girl with marked spinal deformity and paralysis of both upper and lower extremities. The head was held rigidly flexed. The neck was small and showed general muscular atrophy. Respiration was difficult, of the abdominal type and the breast was of the pigeon-breast type. Both lungs were filled with large and small moist ralês. The cardiac sounds and rhythm were normal. The abdomen was markedly distended and tympanitic, but soft and flexible. Neither liver nor spleen was enlarged.

The head and face were well-nourished and of normal size but the trunk and limbs were the seat of well-marked atrophy. Speech was retarded, slow and difficult. Enunciation was imperfect. There was some paralysis of the muscles of the palate and some interference with deglutition. The pupils reacted normally to accommodation but extremely sluggishly to light. The consensual reflex likewise was very sluggish. The upper extremities presented a well-advanced picture of progressive muscular atrophy of the Aran-Duchenne type. The thenar, hypothenar and interosseous muscles of both hands were far atrophied as were also the muscles of the shoulder-girdles, particularly the deltoid, and to some extent the biceps, triceps and muscles of the forearms. These lesions were practically symmetrical. Voluntary motion of the arms was possible but very limited and slow, and the muscular strength was proportional to the atrophy. All tendon reflexes were notably increased in the extremities but not so in the muscles of the trunk and face.

The spine was twisted into two planes, causing considerable deformity of the chest and trunk. A marked kink could be seen in the lumbar vertebræ, and a rotary-lateral curvature of the upper lumbar and lower four dorsal vertebræ. There was also an old lesion of the third and fourth cervical vertebræ with marked displacement of the head and neck forward into the attitude of dislocation. The neck and spine throughout were immobile from bony ankylosis. The muscles of the neck, especially the thyro-hyo-sternal group, the sterno-mastoid, and the trapezius, showed extreme atrophy.

The control of the sphincters was normal and the general trophic condition of the body was excellent. No sensory phenomena were present and at no time did the patient suffer pain. Ankle clonus was present and Kernig's sign and the Babinski reflex were strongly positive. Patellar reflexes were greatly exaggerated. There was a typical spastic paraplegia of the lower limbs. With the assistance of two nurses the patient could walk slowly though she was not able to support her weight alone. The gait was of an exaggerated spastic type. Adductor spasm was notably present. Feces, urine and blood were normal.

The diagnosis of amyotrophic lateral sclerosis in this case rests on the presence of a spastic paraplegia, due to sclerosis of the lateral motor tracts of the cord; a progressive muscular atrophy of the upper extremities and shoulder girdles, due to lesions of the motor tracts and anterior horn cells of the cervical enlargement of the cord; and a beginning bulbar paralysis due to involvement of the motor nuclei of the medulla and brain stem. The diagnosis is confirmed by the association with these positive phenomena, of an absence of trophic, sphincteric and sensory affections, the clinical picture in its entirety making up a characteristic syndrome. Primary diagnosis of Charcot's disease may often be difficult, especially in the earlier periods when a spastic paraplegia, an Aran-Duchenne muscular atrophy or an extending bulbar paralysis may engage the full attention and indeed not rarely represent the entire progress of the disease to date. But sooner or later, the extension to further units of the motor tracts together with the continued absence of thropic, sphincteric and sensory concomitants, will clarify and correct the diagnosis.

In the case presented, the condition of lateral sclerosis is established by the characteristic Babinski and Kernig signs, the exaggerated knee jerk, ankle clonus, and the characteristic stiff gait and adductor tension. The wasting and weakness of the shoulders and small muscles of the hands with a corresponding decrease in muscular power, show the motor lesions of the cervical cord. Indication of the destructive process having reached the medullary motor centres is found in the disturbed function of deglutition, the retardation of speech, indistinct and difficult articulation, and the slow protrusion of the tongue. The presence of an ocular reaction suggestive of an Argyll-Robertson pupil is of doubtful import. The light reflex was present but slow. A true Argyll-Robertson pupil has been reported in isolated cases of Charcot's disease. The general hyper-irritability of the muscular and tendon reflexes is quite characteristic too.

Consideration of the essential pathology brings at once an explanation for the sharply defined and progressive symptom complex. The lesions consist of horns of the cord, an atrophy which may be limited to the cervical and lumbar enlargements or may also involve the cord throughout. This atrophy extends upward as the disease progresses until the entire upper

[1] Reported in the *China Medical Journal*, May, 1914.

motor neurones may be affected even to the nuclei of the cranial nerves, and the motor centres of the medulla, pons crus, internal capsule and even to the cerebral cortex, where areas about the fissure of Rolondo may show atrophy of the motor neurones.

The prognosis as viewed from clinical experience and from the pathology is hopeless. Death follows some intercurrent affection or waits on the development of serious bulbar lesions. Treatment can only be symptomatic and supportive.

So serious a disease and one with so hopeless an outlook, deserves particular study of means of prophylaxis. But unfortunately, ignorance of the exact etiology nullifies our efforts in this direction. Trauma, various infections, and poisons have been considered in a causal relation. The origin of the disease may well be ascribed to an exciting factor of varying sort acting on a nervous system subject congenitally to an abnormal state of equilibrium, and from antenatal influences predisposed to react in a pathological manner to these stimuli. In the case presented, several facts support this view. These are, the absence of many of the commonly stated causes, the definite history of mental disease in the father of the patient, and the age of the patient. This latter point rather indicates a heredity basis for the development of the disease, in the absence of any other definitely discoverable cause. It is unusual to find amyotrophic lateral sclerosis beginning at an age earlier than thirty. If this Chinese girl noticed definite symptoms of the disease at the age of 14, it is safe to say that the condition must have existed for from three months to a year previously. This is the earliest age noted in the literature to which I have access. Spiller records one case at the age of 19. Its excessive rarity under 25 years is frequently mentioned. The case here reported, beginning certainly at the age of 14 and most probably at the age of 13, is therefore of unique interest. Judging from the fact that nervous diseases in Chinese seem to have a relative incidence, cause and symptomatology parallel to the same diseases in western countries, the strong probability of a heredity basis in this case would seem to strengthen the argument for a heredity basis for the disease in the Occident.

Another factor in this case having a possible bearing on the etiology, was the presence of old Pott's disease of the cervical and lumbo-dorsal vertebræ. These regions of the spine had undergone complete ankylosis. Tuberculous foci were present in the lungs. Tuberculosis probably could not be assigned a definite rôle etiologically because tuberculosis is perhaps the commonest disease among the Chinese, and yet amyotrophic lateral sclerosis is at least of rare occurrence. The lesion of the third and fourth vertebræ in the case here presented, was so severe as to cause a practical displacement of the articulation and the characteristic posture associated with cervical dislocation. With this, however, the cord apparently suffered no damage directly as myelitic symptoms did not appear. It is conceivable but not demonstrable that the tuberculous spinal disease lay at the origin of the motor tract disease and furnished an immediate exciting factor which acting on a nervous system hereditarily predisposed, resulted in amyotrophic lateral sclerosis. There is no ground for holding that the tuberculosis would have had any selective affinity for the motor neurones but a hypersusceptibility of these neurones might have determined the reception in them of the maximum damage from the infection. The essential cause seems thus still to lie in the inheritance by the patient of a more or less indefinite lack of stable equilibrium of the motor neurones of the cord, brain stem and cortex.

The patient left the hospital on February 27 with the disease slowly advancing. Her vegetative functions were in excellent condition, but the bulbar paralysis was perceptibly gaining ground.

II. SPINAL ACCESSORY PARALYSIS WITH INVOLVEMENT OF NERVES XI AND XII.[1]

The patient, a Chinese man of 36 years, was admitted to the medical service on January 15, 1914. He had been married, his wife dying from pulmonary tuberculosis one month after marriage. He had no brothers, sisters or children. His father died at the age of 76 after an attack of indigestion with repeated vomiting, previous to which he had always been in good health. The patient's mother died at the age of 43 from tuberculosis of the lungs. His father had five brothers who all died before him from pulmonary tuberculosis.

The patient had always enjoyed the best of health until the origin of the condition for which he sought hospital relief. He began to smoke opium at the age of 26 for amusement as did many of his friends. For six years he smoked an average of five grams daily but did not take the drug in any other fashion nor did he use morphine. After six years' use he was partially relieved of the habit under the treatment of a government physician at Changsha.

From two to four years before admission, the patient did a great deal of writing in his employment as a police clerk, averaging as much as three thousand characters a day. From this period he dated the origin of the disability in his neck which brought him to the hospital. Nearly four years before, he first noted weakness of the neck with inability to hold up the head. He was absolutely certain on repeated questioning that during and preceding the development of the first symptoms, he suffered not the slightest pain, fever, nausea, indigestion or other phenomenon which could have been of prodromal significance. The condition remained stationary for two years, with difficulty in holding the head erect and facing forward, but without pain or any affection of deglutition, articulation or mental function.

Two years after the onset, the patient began to experience indigestion with extreme eructation,

[1] Reported in the *China Medical Journal*, May, 1914.

flatulence, anorexia and constipation, but no pain. The constipation was varied with occasional periods of diarrhea. At the same time his visual acuity noticeably diminished and he became breathless on slight exertion. He denied all venereal infection and gave no history suggestive of it. On admission his complaints were weakness of the neck, abdominal distention and flatulence, and cold extremities.

Physical examination showed the man well-nourished, and in general appearance rather under his actual age. No ocular or facial paralysis was present. The pupils reacted sluggishly to light and accommodation and the tongue deviated to the right with a marked tremor of the right half and tip. The teeth were in poor condition. The head was subject to side-to-side oscillation, about five to eight vibrations per second. He could not maintain the head upright for more than a few seconds at a time as the chin tended to fall and rotate toward the right shoulder. Efforts at voluntary control increased the amplitude and rate of the tremor. The patient supported his head with his hand which relieved the tremor to a considerable extent. The examining hand laid on the head diminished the tremor to a like extent. The skin creases and general appearance of the neck were symmetrical except for marked atrophy of the right sterno-mastoid. The right trapezius was apparently normal. No glands were palpable. Both arms could be raised vertically over the head with the scapulæ remaining symmetrical.

The chest showed an apparent incipient tuberculous lesion at the left apex. No cardiac affection was demonstrable. The abdomen was somewhat distended with gas. The tonicity of the abdominal walls was normal. The spleen could be neither palpated nor percussed. The liver was hypertrophied in both lobes, extending three inches below the costal margin. The inguinal and epitrochlear glands were enlarged. The knee-jerk was exaggerated but no ankle clonus or special reactions were found. The physical examination thus revealed paralysis of the right side of the tongue, atrophy of the right sterno-mastoid, a hypertrophic liver and marked abdominal flatulence. Examination of the urine showed but one abnormality, the abundant presence of calcium oxalate crystals. Feces and blood were normal.

The nature of the paralyses in the neck and tongue justifies diagnosticating paralysis of the spinal division of the right spinal accessory nerve. The combined innervation of the trapezii from the eleventh cranial and third and fourth cervical nerves would account for the lack of paralysis of the trapezius. With the affection of the eleventh nerve was associated a unilateral paralysis of the hypoglossal as evidenced by the hemiplegia of the tongue. The question arises whether the persistent abdominal condition, apparently due locally to faulty intestinal movement, arose from vagus influence. The absence of laryngeal paralysis and cardiac disturbance strongly oppose such an idea, but the parallel course of the intestinal condition with the paralysis of the eleventh and twelfth nerves and its resistance to every form of treatment are suggestive. The hepatic enlargement would seem to have had a toxic origin, as from alcohol or other irritant, in spite of the clear history given by the patient.

An interesting reaction was obtained when for two days the patient was put on anti-luetic treatment. Administration of mercury and iodide mixture for two days was followed by a significant rise of temperature from 37 to 39 on the evening of the second day, and a return to normal on the day following. This temperature reaction was associated with extreme anorexia, headache and restlessness.

The patient left the hospital on February 26 considerably improved in general health, but with no change in the tongue, neck or abdominal condition. Spinal accessory paralysis is ordinarily of peripheral origin, from pressure of an inflammatory or tumor mass, cold, trauma, etc. The unilateral nature of the accessory and hypoglossal paralysis in this case is in keeping with this usual causation even though no local lesion or point of injury could be found. If the patient's statement is credible that the condition was progressive, only longer observation would throw light on the essential etiology and reveal a possible bulbar implication.

III. CHRONIC MYELITIS WITH UNUSUAL COMPLICATIONS.

The patient, a male Chinese of 53 years, was admitted to the medical service on March 15, 1914 and discharged unimproved on April 5. His personal and family history before the origin of the condition for which he sought relief was entirely negative. His wife and five children were living and well. For 30 years he had smoked opium with no impairment of health. The *status præsens* began about six months before when the patient suffered from a severe headache which apparently, however, had no causal relation to the present disease. For relief of the headache he consulted a Chinese practitioner who thrust a heated iron needle several times deeply into the lumbar region near the midline. At the last insertion the needle broke off apparently from the patient's sensitory description, having passed between two lumbar vertebræ and become impacted.

The patient was operated upon by a Japanese doctor four months before admission, and two months after receipt of the injury. Leg strength there was some improvement but there were several pains developed, especially in the lower extremities. At the time of admission to the hospital the acute pain had subsided. The complaints were paralysis of the lower extremities, incontinence, dull and fairly continuous pain in the back and lower limbs and inability to raise the head.

Physical examination showed a comparatively well developed and well nourished man who looked his age of 53 years. The patient was able to sit up with assistance. The head fell and rested on the right shoulder with the chin rotated to the right. He could not raise or rotate the head voluntarily. The right eye was inflamed and lachrymose. The pupils were irresponsive to light, the consensual reflex absent, and there was a slight lateral slow nystagmus. The right side of the face showed a slight but distinct facial palsy which, however, allowed the eye to be closed and the forehead to be wrinkled. The tongue deviated to the right and was markedly tremulous.

On the left side of the neck were old scars and the post-cervical glands were enlarged. Over the chest was a slight superficial edema. A shower of crepitant râles was heard along the borders of the right primary bronchus at the end of inspiration. The liver and spleen were not enlarged. The abdomen was held tensely. No tenderness could be elicited nor masses palpated. The abdominal fat was abundant.

The lower extremities were in a state of spastic contracture, and the patient could neither walk nor stand. Knee-jerks were present. Ankle clonus and Kernig's sign were elicited in both legs. Both legs were very edematous with the calves and thighs markedly atrophied. On the right leg were scars, evidently of trophic ulcers. There was a small decubital ulcer over the sacrum with scattered patches of discolored skin over the sacrum and trochanters. Passive motion was painful and when at rest the patient suffered extreme pain at times in the lumbar region and lower extremities.

The upper extremities showed the lesions of a progressive muscular atrophy in the shoulder girdles, upper and forearms and in the hands. The interosseous, thenar, and hypothenar atrophy in the left hand was well advanced. In the left arm there were fibrillary contractures of the biceps and triceps. The general muscular irritability was increased throughout the body. The fingers were cyanosed. Capillary circulation was poor. Articulation was slow, retarded, difficult, with thick expressionless enunciation. His temperature, pulse and respiration remained normal, and there was no unusual feature in the blood, urine or stool. He suffered from urinary and fecal incontinence. The patient was given a bad prognosis and left the hospital unimproved with his condition becoming progressively worse.

Although no significant history was obtainable antedating the initial headache and its treatment by lumbar needling, too much reliance can not be placed on this negative feature. It is easily possible that paralysis, atrophies and other manifestations may have been more or less advanced previous to the definite six months' history given. The Chinese patient is not prone to observe such conditions unless they are painful or seriously affect the use of his body. I have had a patient admitted for arthritis of the knee who on examination had an advanced progressive muscular atrophy, which he had not noticed. The features of the case here reported, from a pathological standpoint justify a diagnosis of an acute traumatic transverse myelitis which subsequently was extended into a sub-acute or chronic myelitis. This is supported by the history of the lumbar lesion, followed by a paraplegia attended by motor and sensory symptoms, and sphincteric disturbance. Chronic myelitis is commonly a sequel of an acute inflammation.

Coëxistent with the myelitis are symptoms warranting a diagnosis of progressive muscular atrophy of the Aran-Duchenne type. It is a question whether the progressive muscular atrophy arose subsequently to the myelitis, or whether it was part of an amyotrophic lateral sclerosis with an intercurrent complication of myelitis. The presence of bulbar symptoms would rather indicate lesions implicating the entire motor system. In the absence therefore of evidence indicating the presence of some other systemic disease, it would seem that there was an amyotrophic lateral sclerosis complicated by a traumatic chronic myelitis. But this again leaves out of account the unilateral facial and spinal accessory paralysis which were flaccid and of the central type. I am not prepared to explain the relations of the various symptom complexes presented. The case has not yet come to autopsy, and as the patient is a member of the gentry, permission for post mortem examination will be practically impossible to secure.

IV. HYSTERIA.

Hysteria is considered of infrequent occurrence in China. Indeed Jefferys and Maxwell say, (Diseases in China, p. 254) "In the major form, hysteria is probably absent. Minor cases are, however, met with from time to time." Particularly among women we see many cases of minor hysteria in the Yale medical service and within the past two months there have been admitted two cases of typical major hysteria, one of them being in the service of my colleague, Dr. Hume.

The first case was that of a man of 23 years, of good family and position, who lived in Hunan province at some distance from the capitol. With considerable personal property he was coming to Changsha one day when he was beset by thieves who did him no personal violence but robbed him of all he possessed. The nervous trauma left the patient dazed. He wandered into the city and was brought to the hospital by the police who found him asleep on the street and could not arouse him.

The patient was normal physically. He lay with his back to the light, irresponsive, with legs and thighs flexed, and with eyes tightly closed. He was amenable to suggestion and one experience with rectal feeding led him with due encouragement to sit up and take his food properly. Under a combination of suggestion and physical therapeutic methods, he improved rapidly and left the hospital ten days after admission apparently normal.

The second case was that of a young woman who presented a picture of typical hysterical convulsive seizures, interspersed with wild motor outbreaks and periods resembling a *status epilepticus*. Her family took her from the hospital before treatment was more than begun.

Minor hysterical conditions, especially in women, are greatly benefited by the strict discipline and unvarying routine of the hospital, aside from any specific therapy. These features are largely lacking in the Chinese family, and the virtues of self-control and eccentric interest are of correspondingly poor development. If the Chinese were exposed as a race to the competitive stress of the West, it would be difficult to prognosticate the effect in the realm of mental and nervous diseases.

V. POLIOMYELITIS.

Occasionally we see anterior poliomyelitis in the acute stage but if it is often unrecognized in the United States, it is still less frequently observed in China, before the development of paralysis. The residual paralyses are frequently seen, involving all four extremities. A case of the latter type is in the medical service at the present time and is deriving great improvement from tonic medication, massage and graded exercises.

I have seen one case of distinctly marked herpes zoster (acute posterior poliomyelitis). Chronic anterior poliomyelitis has thus far not been observed.

VI. MISCELLANEOUS CASES.

It is desired to record the presence of certain other diseases of the nervous system although their case records are entirely typical and do not warrant extended notice. Epilepsy is comparatively frequent, in both major and minor forms. Neuritis and Bell's palsy offer an occasional case. I have seen in clinic one typical case of paralysis agitans, and in the wards at this writing are one case each of arthritis deformans, occipito-cervical neuralgia, Little's disease, a mild Sydenham's chorea in a man with chronic myocardial disease, and finally, a case of neuritis secondary to a beginning rotary-lateral spinal curvature.

Book Reviews.

Experimental Pharmacology as the Foundation of Drug Treatment. A Text-book for Students and Physicians. By DR. HANS H. MEYER, Vienna and DR. R. GOTTLIEB, Heidelberg, Professors of Pharmacology. Third, newly revised edition. Berlin and Vienna: Urban and Schwarzenberg. 1914.

The first edition of this standard German work, published in 1910, dealt with experimental pharmacology as an aspect of biology. In the second edition, published the next year, additions were made in the pharmacology of the genitalia and in prophylactic pharmacology, and a terminal chapter was introduced on the conditions of drug action. This third edition aims to complete the original in accordance with the progress of knowledge. It is illustrated with 66 text cuts and one excellent colored table. It is a work of value to specialists in this subject, but hardly available to the general American practitioner.

Ambidexterity and Mental Culture. By H. MACNAUGHTON-JONES, M.D., M.Ch., F.R.C.S.I. New York: Rebman Company 1914.

This monograph is intended to demonstrate the influence of ambidextrous exercises on the mind of the growing child and its consequent value in character development. It is an interesting and important work, whatever may be one's agreement with its conclusions, and is well illustrated with 17 full-page plates, several text-figures, and a folding frontispiece scheme showing the connections between the speech and writing centres and the arms and hands. By way of general comment one might suggest that the common preferential development of one hand, whether right or left, is probably an example of natural evolutionary specialization, and that perhaps time devoted to equal training of both hands might result in diminished special efficiency for each.

Local Anesthesia. Its Scientific Basis and Practical Use. By PROF. DR. HEINRICH BRAUN, Zwickau, Germany. Translated and edited by PERCY SHIELDS, M.D., A.C.S., Cincinnati, Ohio. From the third revised German edition. With 215 illustrations in black and colors. Philadelphia and New York: Lea and Febiger. 1914.

Krohn's English translation of Hirschel's German "Text-Book of Local Anesthesia" was reviewed in the issue of the JOURNAL for Aug. 20, 1914 (Vol. clxxi, p. 317), and Arnold's version of Schlesinger's briefer manual in the issue for Oct. 8, 1914 (Vol. clxxi, p. 569).

The present volume, by the world's pioneer and leading authority in local anesthesia, may be regarded as the standard on which other works on this subject are based. Braun's textbook has already two German editions, and from this third edition it is for the first time made available to English readers. It is an elaborate work of 400 pages, with abundant illustrations, and should take in American medical literature the same dominant position which it has for some time held in Europe.

Text-Book of Clinical Methods of Investigation. For Students and Physicians. By PROF. DR. THEODOR BRUGSCH, Berlin, and PROF. DR. ALFRED SCHITTENHELM, Königsberg. Volume II. Parts I and II. Technic of Special Clinical Methods of Investigation. Berlin and Vienna: Urban and Schwarzenberg. 1914.

This voluminous German work is published as a complement to the second edition, issued in 1911, of the authors' original standard text-book on clinical methods of investigation. It describes in detail those scientific methods which can be carried out only in well-equipped laboratories and by an expert hand. It is written in collaboration with Brahm, Janus, Müller, Nicolae and Plesch of Berlin, Frey, Meyer-Betz, and Wiedemann of Königsberg, Schade of Kiel, Schmid and Stumpf of Breslau, and Weichardt of Erlangen. The first part is illustrated with 359, the second with 115 text figures and one colored table.

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THE CAUSATIVE FACTORS OF JUVENILE DELINQUENCY.

THERE are few more important problems confronting society than that presented by the juvenile delinquent. It is a problem which cries loudly for solution, and in its solution the physician is coming to the fore to aid the jurist. Child study is one of the live questions of the day; and it is in the field of juvenile delinquency that this finds its widest application. It is being brought home to us more and more that accurate diagnosis and prognosis are essential for the prescribing and carrying out of proper social treatment. Medical, psychologic and social data are necessary before sensible adjudication by the jurist is possible. The judge should be the social therapist, and diagnosis is necessary for a proper understanding and treatment of the case. This is especially important in our treatment of the juvenile delinquent.

Some of the essentials in dealing with such offenders are the correction of defective vision, nasal obstruction or other ailments; the services of an employment agency which may obtain work suitable to the individual; an organized system of probation or parole; the availability of proper institutional treatment, where indicated; and the coöperation of the relatives of the offender.

A recent paper (in the *Illinois Medical Journal*, October, 1914) by Dr. William Healy, Director of the Psychopathic Institute of the Juvenile Court of Chicago, gives a brief but instructive report of the results of the thorough and scientific work which has been carried on for many years in connection with the work of the Juvenile Court of that city.

Dr. Healy draws certain conclusions which deserve the widest publicity. It is found that the impulse toward delinquency may be initiated by many inciting factors. Because of this it is unscientific and pernicious to indulge in large, general statements of wide applicability. Diagnoses and prognoses of individual cases made on the basis of half-hour studies of individuals are unreliable and misleading, as well as unjust to the individual offender. Longitudinal studies and not mere cross-section studies of each individual are indicated. To be sure, mental defectiveness plays its rôle in the production of juvenile delinquency, but it must not be forgotten that many individuals who make the same age by the Binet-Simon scale vary widely in their special talents, capabilities and adaptabilities, the latter being brought out only by the employment of a larger variety of tests. If these special inclinations or adaptabilities be discovered, and if the individual who has shown delinquent tendencies be given suitable occupation which calls forth these capabilities, he may indeed once more become an honest and worthy member of the community. The significance of vocational training here will be apparent.

The delinquent who is mentally defective is more likely to be caught than is the bright offender. Hence sweeping statements applicable to juvenile delinquency or criminality in general should not be made from examinations confined only to those delinquents who happen to have been caught.

Environmental conditions play an important rôle in the causation of juvenile delinquency. As the result of careful study of 1000 cases of young repeated offenders (juvenile habitual criminals), Healy found that alcoholism in the parents in 31%, and immorality, quarreling, poverty and broken-up families in 67% were important factors. Bad companionship and lack of healthy mental interests likewise were significant causative factors. Among these 1000 cases, 7% had epilepsy, a problem in itself, while in 5.3% of the non-epileptic children convulsions in the immediate family had occurred. Seven per cent. had some psychosis or other,

while only 15% were feeble-minded. Sixty-five per cent. had no mental abnormality aside from delinquency. In more than one-third of the cases physical conditions were contributing elements, sensory defects and premature development, especially in girls, being especially noteworthy in this connection. It is thus seen that the cases must be studied individually from a broad physiologic, medical, sociologic, psychologic and biologic standpoint.

We must remember that the study of the whole individual and of the causative factors of his life direction is as important for the adult as for the juvenile delinquent.

We thus see that we must know the physical make-up, including the special abilities no less than the disabilities, the mental make-up, including abilities, disabilities, aberrational and general trends, the special types of delinquency presented in the particular case, the background, consisting of heredity, physical development, traumatism, companionships, personal habits educational opportunities and the like. Only with such information in our possession can we be expected to make a fair-minded and scientific diagnosis and prognosis, in accordance with general predictabilities, and map out the necessary medical and social treatment of the case.

When we reflect upon the findings here recorded, we see that it is what we should expect. Criminality, for example, is but one of the methods of self-expression or the gratification of the personal tastes and feelings, frequently as immediately as posssible at any cost to be paid in the future with little or no regard for one or more of the rest of humanity, and with no regard for the laws of the society and the community in which one lives. When society has decreed that certain modes of expression or self-acquisition or gratification of the personal tastes and feelings are prohibited, and attaches a penalty thereto, that form of criminal conduct is then legally labelled criminality. Criminality is a relative condition. The criminal differs only in degree from the rest of us. And all of us are potential or actual criminals of varying degree.

What are the determining factors for the fixation at or regression to criminality? We cannot discuss this here, but the tendency or the particular direction of the tendency shows itself most usually in the young, the mentally defective, the mentally disordered, and in any of us under certain special stresses or strains or under special conditions, as a means of temporary or permanent adaptation. The criminal tendency is also frequently present in the insane, in those of weak will power, in the savage and the barbarian, in dreams, and in many other mental states of a lower cultural level. The determining factors need not be further discussed in this place except to mention that the general and special tendencies are determined by our instinctive make-up, our environmental conditions, and our stage in evolution and in development—by our cultural level. This applies not alone to criminality but, in a certain measure, to all the other aberrational tendencies.

The obvious conclusion as a result of these considerations is this: The student of human life, and in particular the physician and the jurist, should first of all be a psychologist. An understanding of social psychology, such as is to be had, for instance, from the study of such a work as William McDougall's "An Introduction to Social Psychology," is a prerequisite. "The proper study of mankind is man."

THE USE OF THE SCHICK TEST IN THE SUPPRESSION OF AN OUTBREAK OF DIPHTHERIA.

Of late, research workers and clinicians have expressed increasing confidence in the reliability of the Schick test in the detection of susceptibility to diphtheria, and a practical illustration of its great usefulness is afforded in the report by the New York State Health Department of the suppression of an outbreak of this disease which recently occurred at the Howard Orphanage and Industrial School at King's Park, Long Island. For those who are not familiar with this simple test it may be stated that it consists in injecting superficially under the skin a dose of diphtheria toxin one-fifteenth that which is lethal to a guinea-pig. A red spot developing about the site of the injection, in about forty-eight hours, indicates a susceptibility to diphtheria, while if no reaction takes place it may be inferred that diphtheria antitoxin is naturally present in the blood, and that the subject is immune to the disease.

During the months of April and May last, six mild cases of diphtheria were discovered at the orphanage, and during June six others occurred. Cultures taken from all the well children in the

first week in May showed that 90 out of some 260 inmates, whose ages ranged from two to sixteen years, were carriers of diphtheria germs. The conditions for the prompt suppression of the epidemic by the usual methods were unfavorable, as the children were largely of unhealthy stock, the funds of the institution meagre, and the helpers few and unskilled. Accordingly, the assistance of the experts of the Research Laboratory of the New York City Department of Health was secured, and by the application of recently developed methods the outbreak was soon under control. The first step was to take cultures from both the throat and nose of every inmate, and it is interesting to note that in many instances it was found that the nasal culture was positive when the throat culture was negative. The carriers were then isolated in separate dormitories. The second step was to immunize every child not already immune. The Schick test was utilized to detect those who were susceptible, and the findings from this investigation indicated that about one-half of all the children were naturally immune. A majority of the ninety carriers were on the immune list, and it was regarded as probable that their immunity accounted for their freedom from clinical symptoms. About 75% of the children who had had clinical diphtheria showed a positive Schick reaction within from six to twelve weeks after the disease. Each of the non-immunes was immunized with 1,000 units of antitoxin, and at the end of thirty days the Schick test was repeated, when this was observed to be positive in about 75% of the cases which had been found positive at the first test. Each of these positive cases was then given another dose of 1,000 units of antitoxin. Schick tests made seven days afterward showed that 60% of the children were again positive, indicating that their bodies had destroyed the second dose of antitoxin in about one-quarter of the time which they had required to eliminate the first dose. This is explained by the fact that diphtheria antitoxin is a foreign protein, and that one dose sensitizes the body against succeeding doses. Another measure was to remove adenoids and the tonsils from eighteen of the carriers, and of these, sixteen became free from diphtheria germs immediately after the operation. The result of these various measures was a progressive diminution in the number of carriers, and by the first week in August only three or four remained.

This interesting and most instructive report is made by Dr. Overton, sanitary supervisor of Suffolk and Nassau Counties; Dr. Zingher, bacteriologist of the Research Laboratory of the New York City Department of Health; and Dr. Turrell, health officer of Smithtown, Suffolk County, and the following conclusions are drawn by them from the outbreak:—

1. The Schick test is of great value in detecting susceptible persons in an epidemic of diphtheria.

2. One thousand units of antitoxin usually affords protection for from twenty-one to twenty-eight days, while a second dose, as a rule, protects for only about a week, as shown by the Schick test.

3. The indications of the Schick test are that the immunity conferred by an attack of diphtheria is usually of short duration.

4. The removal of adenoids and diseased tonsils is a valuable means of freeing diphtheria carriers from germs.

MEDICAL NOTES.

LONDON DEATH-RATES IN AUGUST.—Statistics recently published show that the total death-rate of London for August, 1914, was only 12.6 per 1000 inhabitants living. Among the several districts and boroughs the highest rate was 19.8 in Shoreditch, an east side slum, and the lowest was 7.2 in Hampstead, a more open region on the north.

CHOLERA IN GALICIA.—Report from Vienna on Oct. 8 states that 40 cases of Asiatic cholera have been discovered at Tarnow, a city of 35,000 inhabitants in Galicia. The Austrian troops are receiving prophylactic inoculation. On Oct. 12 another case was reported at Feldkirch, near the Swiss frontier.

THE HEALTH OF BOMBAY.—The following item about health conditions in Bombay appears in the issue of the *British Medical Journal* for Oct. 3:—

"The improvement in the health of the city of Bombay, one of the compensating features of the hot weather season, has been steadily maintained throughout the past year, during which period the plague mortality has dwindled down from 400 deaths a week to 58. There has been a substantial drop also in the total mortality,

which declined from 651 to 606, the present death-rate being 32.17, as against 35.46 in the corresponding period of last year. The present state of the public health may therefore be considered satisfactory, and to compare favorably with the mean death-rate for the past five years. There is one slightly disquieting feature, which illustrates the danger to which the city is exposed from infection brought from the mofussil. The returns record six fatal cases of cholera, no fewer than five of which were imported from Poona, Satara, and Nasik districts. The danger of an outbreak of this malady at this time of the year is not so great as during the first few weeks after the advent of the rains, but the presence of the disease at any time is always a disturbing factor."

European War Notes.—The American Red Cross unit assigned to Germany has been dispatched to Breslau in Silesia, and the unit assigned to Austria has gone to Vienna. The unit assigned to Russia reached Petrograd on Oct. 10, on its way to Kiev, where it will be stationed at a hospital of 200 beds.

"Despite a rough voyage, all the members of the American party are in good health and enthusiastic. They have been received at the principal stations along the route by delegations of physicians, some with bands. At Raume, Finland, on the way from Stockholm, the Americans were greeted by all the doctors in the city who gave them an impressive welcome. At Petrograd they were escorted to the Emperor's waiting room, where they were welcomed by Count Robrinsky, chief of the Russian Red Cross, as the only foreign Red Cross corps sent to Russia.

"Russian officials attach importance to the American expedition as likely to add to the cordial relations between the two countries. The American surgeons probably will be equipped with Russian uniforms so that they escape being made the target of unthinking soldiers.

"A movement is in progress for increased hospital facilities at Petrograd on account of overcrowding at Warsaw."

An additional consignment of 3000 pounds of bandages and 100 stretchers has been sent to Russia from New York aboard the *Dwinsk*, sailing for the port of Archangel.

On Oct. 12 the American hospital relief ship *Red Cross* sailed from Rotterdam for New York, bringing home 150 refugee American passengers.

On Oct. 16 the total of the New York Red Cross fund amounted to $254,761 and the American Ambulance Hospital (Neuilly) fund reached $84,158. The Belgian relief fund is about $140,000.

A Scottish Red Cross hospital of 100 beds has been established at Rouen, in Normandy, the staff and nurses being drawn largely from the Glasgow Royal Infirmary.

The German army medical corps is said to consist of over 12,000 surgeons, including many of the most eminent scientists of the day. In England it has been necessary to augment the regular medical corps by volunteers.

"The medical profession has responded to the call of the country in a manner worthy of its traditions. Many have joined the Army Medical Service, and not a few are already at the front. In order to serve their country in this way, some have given up professional posts or have left their practices at considerable personal sacrifice. A strong movement has also been started in the profession with a view of carrying on the practices of those away at the war, so that they should receive them intact at the conclusion of hostilities. Another commendable scheme provides free medical service to the wives of the soldiers and sailors away on active service. Those medical men unable by reasons of age limit or from the nature of their work to help in the above-mentioned ways, have subscribed liberally to the various excellent funds organized for the relief of distress or for augmenting the comforts of the troops.

BOSTON AND NEW ENGLAND.

Diphtheria in Boston.—Since Sept. 5 diphtheria has been rather extensively prevalent in Boston. In the week ended Oct. 10, there were 63 new cases and 6 deaths from the disease. The Boston board of health has issued the following statement:—

"The board of health desires to call the attention of the public, and especially fathers and mothers of children, to the great importance and necessity of sending for a physician immediately if any of their children or members of the family complain or suffer with any throat affection.

"During the past week 63 cases of diphtheria have been reported in this city, as against 36 cases the corresponding week of last year. There have been six deaths this week, as against two the corresponding week of last year.

"Upon investigation it was found that in many of these cases there had been a delay in calling physicians. If these cases had been reported promptly, and proper treatment administered, many of these deaths might have been prevented. Parents and guardians of children who cannot afford a private physician are requested to give notice to the board of health or telephone Fort Hill 5100 and a physician will be immediately sent to investigate these cases."

Diphtheria at Holbrook and Brookville.—Report from Holbrook, Mass., on Oct. 8 states that diphtheria is epidemic there and in the neighboring town of Brookville. The local schools and churches have been closed by order of the board of health.

Comparative Statistics of Boston and Liverpool.—Dr. Francis X. Mahoney, chairman of the Boston board of health, has recently issued

a comparison of vital statistics and health conditions in this city and in Liverpool.

"Comparison shows that Boston has a lower rate for the total number of deaths, for the deaths of infants under one year of age, for the deaths from tuberculosis, and for deaths from measles, diphtheria, scarlet fever, whooping cough, typhoid fever, diarrhea and influenza.

"Liverpool is smaller than Boston by 14 square miles. Her population is greater by only 21,000. The total number of deaths in Liverpool during 1913 was 13,658 as compared with 11,839 in Boston. The deaths of children under one year of age was 2987 in Liverpool and 2111 in Boston. The death-rate from tuberculosis in Liverpool was 15.6 per thousand and in Boston was 14.5 per thousand; the death-rate for the other diseases mentioned was 2.2 in Liverpool and 1.5 in Boston. Liverpool exceeds Boston, however, in the number of births. There were 22,555 births in Liverpool last year as compared with 19,245 in Boston."

Hospital Bequests.—The will of the late Mary P. Proctor, of Boston, who died on Oct. 1, was filed last week in the Suffolk Registry of Probate. It contains a bequest of $20,000 to the Faulkner Hospital, Jamaica Plain, to endow a free bed in memory of her father.

The will of the late Caroline O. Seabury, of New Bedford, Mass., contains a bequest of $5000 to the Boston Instructive District Nursing Association.

Needs of Children's Hospital Convalescent Home.—The Children's Hospital, Boston, has recently issued the following appeal for funds for its convalescent home in Wellesley:—

"Since the new Children's Hospital in Boston was opened, in April, with accommodations for many more patients than were possible in the old building, there has been a corresponding increase in the number of children sent to the Convalescent Home, thereby adding greatly to the running expenses of the home, and, in addition to this, a very large bill for unavoidable repairs will come due shortly. In order to meet this exigency, the managers make an earnest appeal for funds, which are greatly needed. The effect of the hard times caused by the war in Europe is already making itself felt in and near Boston, as parents of patients who have been treated at the home are out of work and declare their inability to pay a cent for the care bestowed upon their children. The managers hope that this appeal will meet with a generous response, but any amount, no matter how small, will be gratefully received and acknowledged by the treasurer, Mrs. Horatio G. Curtis, 179 Marlboro Street, Boston."

Work of Providence City Hospital.—The recently published fourth annual report of the Providence (R. I.) City Hospital records the work and progress of that institution for the calendar year 1913. During this period the total number of cases treated in the hospital was 1010, of whom 155 were tuberculates, the remainder having other infectious diseases. There were nine cases of smallpox. A number of cases of syphilis were treated with salvarsan. From the nurses' training-school diplomas were awarded to 69 graduate nurses of other hospitals after a special course.

Red Cross Christmas Seals.—Through the coöperation of the American Red Cross and the National Tuberculosis Association, it will be possible to secure Red Cross Christmas Seals in Massachusetts again during the holiday season. The Massachusetts Anti-Tuberculosis League, 4 Joy Street, Boston, has been appointed agent for the state, and they are appointing sub-agents in their territory to sell the seals.

Anti-Tuberculosis Associations, Visiting Nurse Associations, Health Committees of Women's Clubs and Social Service Committees of churches are offering their services to the League with the understanding that 82½% of the proceeds of the sale can be used in each locality for tuberculosis work, the balance going towards the expenses of printing and distributing the seals and advertising matter for the national and state work. Already some thirty-six such organizations have offered their services and been appointed agents, and the League is hoping that many more from all over the state will join the campaign.

It is possible for stores of all kinds, banks, news-stands and other mercantile establishments to help in furthering the cause, both by buying the seals outright for their own use on all mailable matter, and also by selling them and returning the entire proceeds to the League. Last year 1,477,586 seals were sold in this state, and it is hoped that this number will be greatly exceeded this year. Every one should lend a hand by either buying or selling the seals, which cost only one cent each. They will not go on sale until the end of November, but organizations and stores willing to help can offer their services to the League at once.

NEW YORK.

Opening of Quarantine Laboratory.—The new quarantine laboratory of the port of New York was officially opened on Oct. 9 in the presence of 500 physicians.

"The new building is equipped with the latest appliances for bacteriological and research work. It is of the Italian Renaissance style and stands on a hill overlooking quarantine grounds and New York bay."

Fire at Columbia University.—Early on the morning of Oct. 10 one of the principal build-

ings of Columbia University, which cost $1,000,000 and which contained the gymnasium, university commons, several offices of the university, and the offices of the State Commission of Prison Labor, was seriously damaged by fire, but saved from complete destruction. In this building Dr. Nicholas Murray Butler was installed as president of the university, on which occasion Theodore Roosevelt made the address of the day, and many other notable ceremonies have been held.

Study of War Conditions.—Dr. H. MacDonald Peggs recently sailed to make a reconnoisance in England and the war zone for the British Imperial Club of New York. He will find out what surgeons, nurses and supplies are needed, and then take service in the British hospital corps. The club will furnish the supplies his reports call for, and will also send twenty-five surgeons who have volunteered for the hospital service. On the same day Dr. David E. Wheeler, genito-urinary surgeon to the Erie County Hospital, Buffalo, sailed to take service at the American Hospital in Paris, taking with him the funds for the hospital which have been collected by the Duchesse de Talleyrand.

Health Statistics.—The weekly reports of the health department show that during the month of September the mortality represented an annual death-rate of 12.07, as against 12.12 in August and 12.31 in September, 1913. Among the diseases in which there was a diminished fatality were the following: The weekly average of deaths from measles declined from 5.75 in August to 2 in September; the weekly average from scarlet fever, from 3.25 to 2; from whooping-cough, from 8 to 5.5; from acute bronchitis, from 8.25 to 5.75; from bronchopneumonia, from 53.5 to 42.5; from tuberculous meningitis, from 14.5 to 11.25; from cancer, from 87 to 84.5; from apoplexy and softening of the brain, from 20.5 to 12.25; from organic heart diseases, from 159.75 to 148; from diarrheal diseases under five years, from 213.5 to 176; from appendicitis and typhilitis, from 18 to 13.75; and from hernia and intestinal obstruction, from 10 to 7.75. Among the diseases in which there was an augmented mortality were the following: The weekly average of deaths from typhoid fever increased from 6.5 to 13.75; from diphtheria and croup, from 13.5 to 14.75; from epidemic cerebrospinal meningitis, from 2.5 to 6; from pulmonary tuberculosis, from 142.25 to 157.25; from pneumonia, from 39.25 to 44.25; from cirrhosis of the liver, from 10.75 to 11.75; and from Bright's disease and acute nephritis, from 94.5 to 95.75. The mortality from typhoid usually increases at this season, when vacationists return to the city, and it will be noted that the weekly average of deaths from the disease was more than double that in August.

Lectures at Tuberculosis Sanatorium.—The Health Department reports that through the courtesy of the lecture bureau of the City Department of Education a series of travel lectures is being given at the Otisville Tuberculosis Sanatorium in Orange County, and that the lectures are highly appreciated and greatly enjoyed by the patients.

Economy in Hospital Administration.—The State Hospital Commission, in its report for the year ending September 30, states that the elimination of waste and economy in the purchase of supplies have enabled it to keep its expenses within the appropriation for the maintenance of the fourteen institutions under its supervision, and that this is the first year in which these have been operated without a deficiency. Modern business methods have made this change possible, and the largest single saving was accomplished in the purchase of fuel, the expense of which item was further reduced by the reconstruction of furnaces and the installation of scientific heating apparatus. The quality and quantity of foodstuffs have not been diminished, but economy has been effected by standardizing the supplies and purchasing them in strict conformity with the requirements of the estimate law. The care of the 32,000 insane required approximately $7,000,000.

Service for Physicians and Nurses.—On the evening of Oct. 18 (St. Luke's day, Feast of the Beloved Physician) a special service was held for the physicians and nurses of New York, when addresses were made by Dr. Howard A. Kelly of Baltimore and Dr. William H. Jeffries of St. Luke's Hospital, Shanghai.

Registration of the Feeble-Minded.—At a meeting of the Society of Medical Jurisprudence held on Oct. 12, Dr. M. G. Schlapp, who is a member of the State Commission for the Investigation of the Mentally Deficient, made an address on "Mental Deficiency and Its Relation to Criminality," in which he advocated the passage of a law requiring all physicians to report for registration the names of feeble-minded patients. Over 30,000 insane, he said, were cared for by the state of New York, and only 5,000 feeble-minded persons were in public institutions, while there were at least 30,000 more at liberty in the state.

Red Cross Fund.—On Oct. 7 the Red Cross fund collected in New York passed the $200,000 mark, and on the 13th it had grown to nearly $237,000. The fund for the relief of Belgian sufferers amounted to $140,000, and the French relief fund to $15,500. Seventy-five thousand dollars has also been subscribed for the American Hospital in Paris, at the head of which is the distinguished New York surgeon, Dr. Joseph A. Blake, and which is reported to be doing most admirable work. Dr. Blake recently

announced that the hospital is now equipped with every modern surgical device, including a new giant magnet with prolongations which can be inserted in the smallest wounds and draw out fine particles of shrapnel shell.

Massachusetts Medical Society

Bequest to the Middlesex East District Society.—Through the will of the late John Martyn Harlow of Woburn, effective at the death of his widow, Frances K. Harlow, last May, the Middlesex East Medical Society will benefit by securities to the value of about $4000 to form a fund, the income of which is to be devoted to defraying the ordinary expenses of the Society, including the annual dinner. The trustees of the fund under the terms of the will were Dr. Arthur H. Cowdrey of Stoneham, Dr. Charles Dutton of Wakefield, and Dr. Harrison G. Blake of Woburn. Dr. Cowdrey died shortly after Dr. Harlow in 1907. Dr. Dutton has been treasurer of the Middlesex East District since 1895.

Readers of the Journal will recall that Dr. Harlow, who died in Woburn, May 18, 1907, at the age of eighty-seven, having been a Fellow of the Massachusetts Medical Society for forty-six years, reported the famous case, occurring during his early practice in Vermont, of the man whose skull was perforated by a crowbar by the premature explosion of a charge of powder he was tamping in a rock. The man lived for thirteen years after the injury, and his skull and the crowbar are now in the Warren Museum of the Harvard Medical School.

STATED MEETING OF THE COUNCIL.

A stated meeting of the Council was held in John Ware Hall, Boston Medical Library, October 7, 1914, at 12 o'cock noon. The president, Dr. Charles F. Withington, was in the chair and the following eighty-five councilors present:

Barnstable, C. W. Milliken. Berkshire, L. A. Jones. Bristol North, Sumner Coolidge, A. R. Crandell, R. D. Dean, F. A. Hubbard. Bristol South, E. F. Cody, W. A. Dolan, R. W. Jackson, H. G. Wilbur. Essex North, R. V. Baketel, G. Kurth, F. E. Pierce, F. W. Snow, Frederick Tigh. Essex South, R. E. Bicknell, J. F. Donaldson, H. K. Foster, J. F. O'Shea, W. G. Phippen. Franklin, G. B. Twitchell, Hampden, T. S. Bacon, L. E. Mannix. Middlesex East, C. J. Allen, E. S. Jack. Middlesex North, W. P. Lawler. Middlesex South, H. T. Baldwin, F. J. Barnes, F. E. Bateman, E. H. Bigelow, J. E. Cleaves, C. H. Cook, H. F. Curtis, A. A. Jackson, A. E. Merrill, S. F. McKeen, Godfrey Ryder, E. H. Stevens, J. O. Tilton, Julia Tolman, H. P. Walcott. Norfolk, G. G. Bulfinch, P. W. Carr, A. H. Davison, W. W. Duckering, T. F. Greene, W. W. Harvey, S. A. Houghton, G. W. Kaan, Bradford Kent, Harry Linenthal, T. J. Murphy, A. P. Perry. Norfolk South, O. H. Howe, E. N. Mayberry. Plymouth, C. E. Lovell, A. A. MacKeen, A. E. Paine, F. G. Wheatley. Suffolk, H. D. Arnold, F. G. Balch, G. W. W. Brewster W. L. Burrage, secretary, Hugh Cabot, A. L. Chute, J. A. Cogan, G. A. Craigin, R. L. DeNormandie, C. M. Green, chairman, J. B. Hawes 2d, W. C. Howe, J. J. Minot, J. L. Morse, G. C. Smith, Mary Smith, C. F. Withington, president. Worcester, F. H. Baker, W. P. Bowers, W. J. Delahanty, R. W. Greene, S. B. Woodward, vice-president. Worcester North, A. P. Mason, H. W. Page, E. A. Sawyer, J. W. Stimson.

The minutes of the last meeting were read and accepted.

At the request of the president the secretary read a tentative memorandum of agreement between the owners of the Boston Medical and Surgical Journal and the committee representing The Massachusetts Medical Society.

Dr. Charles M. Green read the following report of the Committee on Membership and Finance, which was adopted after some questions by councilors:

To the President and Councilors of
The Massachusetts Medical Society.

Gentlemen:

The Committee on Membership and Finance makes the following recommendations:

1. That the following named Fellows be allowed to retire, under the provisions of Chapter I, Section 5, of the by-laws:

David Hyslop Hayden, of Lynn.
Freeman Clarke Hersey, of Boston.
William Henderson Ruddick, of South Boston.

2. That the following named Fellows be allowed to resign, under the provisions of Chapter I, Section 7, of the by-laws:

Earl Danford Bond, of Philadelphia, Pa. (4401 Market Street).
Thomas Edward Duffee, of Providence, R. I. (147 Angel Street).
Frederick William Kennedy, of Lawrence (Home Club).
Roscoe Hosmer Knowlton, of St. Petersburg, Fla.
Leonard Joseph Maskell, of Newton.
Franklin Bennett McCarty, of Chicago, Ill. (1042 Argyle Street).
Mather Humphrey Neill, of Cincinnati, Ohio (care of The Ohio River Investigation, Third and Kilgore Streets).
Harry Manley Nicholson, of Toronto, Canada (2 Bloor Street East, Room 63).
William Henry Sayward, Jr., of Wayland.

3. That the following named Fellows be deprived of the privileges of Fellowship for non-payment of dues, under the provisions of Chapter I, Section 8, of the by-laws:

Wendell Holmes Adams, of Kingston.
Windsor Aldrich Brown, of North Seattle, Washington.
Andrew Nathaniel Bruckshaw, of Fairhaven.
Robert Francis Burns, of Fitchburg.
John Carbone, of Boston.
John Aloysius Ceconi, of Dorchester.
Alton Jay Choate, of Gloucester.
George Lehman Collins, U. S. Public Health Service.
George Wood Dainty, of Monument Beach, Bourne.
Thomas Irving Deacon, of Cambridge.
Joseph Horace Dennen, of Watertown.
Albert Barnes Dorman, of Winthrop.
Nathaniel Howland Gifford, of Providence, R. I.
Michael Charles Golden, of Taunton.
Edgar Fremont Haines, U. S. Army.
John Franklin Harvey, of Boston.
James John Hoban, of North Chelmsford.
Nebuther Holden, of Whateley.
Frank Wheeler Hornbrook, of Philadelphia, Pa.

Herbert Perry Jefferson, of Winthrop.
Charles Herbert Keene, of Minneapolis, Minnesota.
Michael Joseph Kelley, of Watertown.
James Edward Leary, of Lowell.
Serafin Marine Loredo, of unknown address.
Frederick Dow Lyon, of Dorchester.
Lewis Francis MacKenzie, of Newark, New Jersey.
Joseph Norris Marston, of Lowell.
Arthur Chalmers Martin, of Seattle, Washington.
Francis Coffin Martin, of Roxbury.
James Patrick McCue, of Orleans.
Harold Edson Miner, of Holyoke.
Marion Helena Ober, of Milwaukee, Oregon.
Joseph William O'Connor, of Worcester.
Francis Michael Aloysius O'Sullivan, of Lowell.
William Porter Pratt, of Braintree.
Henry Francis Quinlan, of Dalton.
Alexander Hamilton Rice, of Boston.
Grace Elizabeth Barnard Rice, of Halifax, Nova Scotia.
John Warren Stearns, of Holtville, California.
Irving Elmer Stowe, of West Medway.
John Joseph Sullivan, of Lawrence.
Edward Orlando Tabor, of Lowell.
Ada Helena Tedford, of Woburn.
William Burton Thorning, of Houston, Texas.
William Emerson Tucker, of Ipswich.
James Lee Wells, of Roxbury.
John Westall, of Fall River.

4. That the following named Fellows be allowed to change their District Membership, without change of legal residence, under the provision of Chapter III, Section 3, of the by-laws:

Louis Herbert Burlingham, from Norfolk to Suffolk.
Richard Spelman Eustis, from Middlesex South to Suffolk.
Lazarus Golden, from Norfolk to Suffolk.
Henry Talbot Hutchins, from Middlesex South to Suffolk.
Wallace Miles Knowlton, from Middlesex South to Suffolk.
Oscar Raoul Talon L'Esperance, from Middlesex South to Suffolk.

5. That the Council take such action as may be necessary to the end that Fellows who do not pay their annual assessments until after they are in arrears for two months, that is to say, until after March first, shall not be given the publications of the Society for the time during which they were in arrears.

6. That if action is taken by the Council in accordance with the last preceding recommendation, the by-law or vote, as the case may be, be printed in red on the face of the annual bills for assessments.

For the Committee on Membership and Finance,

CHARLES M. GREEN, *Chairman.*

The petition of A. W. Parsons of Tampico, Mexico, for reinstatement in fellowship was read and this committee appointed to consider it: W. N. Bullard, G. H. Monks, G. L. Walton. A similar petition from W. H. Coon of Haverhill was referred to this committee: I. J. Clarke, J. F. Croston, C. E. Durant.

Dr. Hugh Cabot presented the report of the Delegation of The Massachusetts Medical Society to the meeting of the House of Delegates, American Medical Association, at the meetings last June as appended. The proposed amendment to Section 4, Chapter VII, of the by-laws of the American Medical Association was discussed by Drs. G. W. Kaan, C. H. Cook, J. J. Minot, Hugh Cabot and H. D. Arnold, and the report with its recommendations was adopted.

REPORT OF THE MASSACHUSETTS DELEGATION TO THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION, JUNE, 1914.

The amount of business transacted by the House of Delegates of the American Medical Association is now so large as to consume practically the entire time of the delegates and from this it follows that no extended review of the proceedings can be given in the time at my disposal. I desire, however, to bring out some of the more important work coming before the House of Delegates in order that the Council may see the general character of that work.

A considerable part of the time of the House was consumed in discussing the reports of its officers and councils.

The report of the Board of Trustees was a convincing document, showing clear evidence of the amount of time and intelligence spent by the board. There has been in the past considerable criticism of the finances of the Association never, I believe, deserved but arising largely from the fact that it seemed undesirable to discuss in a quasi public manner the financial operations of the Association. The report this year brings out a very interesting item of the expenditures of the Association, showing that they have nearly doubled in the last five years The expenditures for 1909 were something over $38,000, whereas the expenditures for 1913 were something over $79,000. Among the largest items were the expenditures for Scientific Research and for the Judicial Council of $18,000; Council on Health and Public Instruction over $18,000, and Council on Pharmacy and Chemistry over $13,000.

The reports of these Councils show ample justification of the expense and a more careful perusal of the accounts, which were given in considerable detail, gives no ground for criticism of the financing of this great Association.

The Trustees referred to the House a request from a Fellow of the Association asking that the Association become the custodian of patent rights of an instrument which he desired to patent in order that the instrument might be protected, both with regard to form and the standard of material and work in its manufacture. The House, after discussion, adopted the following resolution:

"*Resolved*, That the Board of Trustees of the American Medical Association shall be permitted to accept, at their discretion, patents for medical and surgical instruments and appliances and to keep these patents, as trustees, for the benefit of the profession and the public; provided, that neither the American Medical Association nor the patentee shall receive remuneration from these patents."

This, as far as I am aware, is a new departure for medical associations in this country and bids fair to settle the vexatious question of protecting the profession and the public against the commercial exploitation of surgical instruments and appliances.

The report of the Council on Medical Education showed evidence of the great constructive value of this Standing Committee of the American Medical Association. There can no longer be any doubt of the fact that the work of this Council has had great influence in raising the standards of poor medical schools, in fostering the consolidation of medical schools and in raising the standard and uniformity of State Boards of Registration throughout the country. During the first decade of its existence the following striking changes have taken place in medical education:

a. "Instead of having 160, or one half the world's supply of medical schools, this country has now about 100 and these have been gradually improved in every respect."

b. "Instead of only four medical colleges requiring one or more years of college work for admission there are now 82 which either have already put that requirement into effect or have definitely voted to do so beginning this fall."

c. "Eighteen state licensing boards have adopted the requirement of one or two years of college work as their minimum standard of preliminary education and three other states will have adopted that requirement before the summer is over. Of these 21 states, seven

require two years of collegiate work as the minimum standard."

As further evidence that the Council intends to reach out into new fields is its announcement that a careful study of graduate medical instruction has been started by a special committee, of which your colleague Dr. H. D. Arnold, is the chairman.

The report of the Council on Health and Public Instruction showed not only the colossal task which this Council has before it but the great energy with which it is attacking the work. The policy of this Council may be summarized as follows:

It is undertaking (1) "A thorough investigation of the present public health conditions in the United States with a view to securing more accurate information on all phases of the public health problem than is now available."

(2) "Education of the public by every possible means in order that the people may understand the enormous advances in scientific medical knowledge during the last generation and the possibility of utilizing such knowledge in the prevention of disease, the reduction of the death-rate and the prolongation of human life."

(3) "The crystallizing of such educated public sentiment in necessary public health laws, regulations and ordinances which will render possible the conservation of human life commensurate with our advancing knowledge and which will render such laws effective through the only force available in this country, namely, educated and enlightened public opinion."

Our further interest in the report of this Council is the report of a Sub-Committee which has been considering the question of expert testimony. This Committee recommends that medical expert, or opinion testimony, should be divided into two classes. First, that which is based on a first-hand knowledge of the facts and the opinions based on them; and second, opinion testimony predicated on statements, usually in the form of a hypothetical question. It has been recommended that there be no restriction on the admission of testimony from physicians having any knowledge of the facts and thus coming under the first class. In the second class it would restrict the calling of experts to those who had had no previous connection with the case but should be summoned by the court, whose compensation should be fixed by the court and taxed either as part of the costs or against the party requesting the testimony. The Committee is preparing the draft of a bill to be submitted to state legislatures. This report shows a wide grasp of the question at issue and appears to offer a workable solution of the problem.

Perhaps the most interesting questions coming before the House of Delegates, because they directly affect state medical societies, were contained in the report of the Judicial Council. This Council is, in fact, the Supreme Court of the American Medical Association and is charged with the adjudication of difficulties arising in its management. In order that its work might be more clearly defined, changes in the by-laws of the Association were advocated, one of which is printed upon the call for this meeting as it was referred to state societies. This clause reads as follows:

"In all cases which arise between a constituent state association and one of its component county societies; between component county societies of the same constituent state association; between a member of a constituent state association and the component society to which said member belongs; or between members of different component societies of the same constituent state association, the Judicial Council of the American Medical Association shall have appellate jurisdiction."

It further proposed the following change, which as it did not particularly concern state societies, was adopted by the House of Delegates:

"The Judicial Council may, at its discretion, investigate general professional conditions and all matters pertaining to the relations of physicians to one another and to the public, and shall make such recommendations to the House of Delegates and the constituent associations as it deems necessary."

As regards the paragraph just read referring to state societies, I cannot better present the reasons which led the Council to ask for this change than by quoting their own words:

"THE JUDICIAL COUNCIL AN EFFICIENT AGENCY."

"These changes recommended by the Judicial Council define more clearly and more fully the proper functions of the Judicial Council. If it is the desire of the House of Delegates to make the Judicial Council amount in reality to a competent and dignified court which shall adjudicate controversies between individuals, component societies or constituent associations and the American Medical Association; or between the constituent associations themselves; or between these constituent associations and the component societies, or the individuals composing them; or between individuals themselves, there must be some definitely stated conditions under which the Judicial Council shall have primary jurisdiction, or an authorized appeal may be made to the Judicial Council. At present the Judicial Council has only original jurisdiction in cases in which the American Medical Association or one of its constituent associations is a party. There is no appellate function which it can exercise. Any case which has come to the Council in which a member—even Fellow—of the Association has demanded protection from what he considered an unjust decision of his state association, the Judicial Council has been forced to ask, as a favor, the reconsideration of the case in which an appeal would naturally have come to the Council if it had had appellate powers."

"This is not an endeavor on the part of the Judicial Council to gain more power, although the Council realizes that such accusation may be made against it. In considering this appellate function, we must consider, at any rate, the necessity of the control of its own Fellowship by the American Medical Association. To-day the American Medical Association has no control over its own membership or Fellowship beyond the fact that if a member be proven guilty of secret fee-splitting, he drops mechanically, without further action, from membership in the American Medical Association. The American Medical Association is, by its present by-laws, forced to enroll any member of any component society who makes application for Fellowship on the prescribed form and pays his annual Fellowship dues for the current year together with any indebtedness to the Association outstanding against the applicant. No matter what crimes against society, what flagrant, disgraceful breach of ethics or decency such an one may commit, the American Medical Association to-day cannot deny him Fellowship, nor has the Association power to remove from its Fellowship a member who disgraces its name or brings its Fellowship into disrepute. The American Medical Association has no power whatever to control the injuries that may be done the individual Fellow through jealousy or mistaken persecution that may arise at any point. There is no appeal open to any Fellow in the American Medical Association by which he may protect his Fellowship in the Association if he deems himself unjustly condemned by a component or by a constituent organization and deprived of membership and consequently of his Fellowship. This is not right; it is not reasonable; and such conditions should not be permitted to exist. For this reason the Judicial Council asks of the House of Delegates appellate jurisdiction in the cases mentioned above."

While at first sight these suggestions may seem to invade to some extent state rights, it seems to me clear that in fact they do not do so. Clearly, there must be some final Court of Appeal and this Court of Appeal must be representative of the great body of American physicians. If this power is not given, it

becomes possible for a state society to deprive one of its members of his membership in the National Society, since on his state membership depends his National membership. It is surely conceivable that medical jealousy and human bickerings should lead a state or county society into hasty or unjust action and if this possibility of human weakness is admitted it is clearly necessary to have some disinterested tribunal to pass upon the question. It should be clearly borne in mind that the jurisdiction here asked is not original but is appellate. The Council would have no power to pry into the affairs of a local society except upon the request either of that society or of a member of the American Medical Association. The character of the individuals constituting the Judicial Council is in itself a sufficient guarantee of care, broad-mindedness and sound judgment in the decision of these delicate questions.

Another important question discussed in the report of the Judicial Council was that of advertising in the public press and of popular write-ups of scientific subjects. They found in the action of the society of King's County, New York, a very valuable engine for the remedy of these well-known and difficult questions and they therefore recommended to the House of Delegates the following resolution:

"*Resolved*, That it is the sense of the House of Delegates of the American Medical Association that each county society should constitute a publicity committee whose duties shall be to give to the daily press accurate information on all medical matters of interest to the public, that this shall be freely given without the mentioning of names or from whence the information comes, and that this committee shall further act in an advisory capacity to all physicians of its society in questions relating to publications other than in the medical press."

This suggestion seems a most pertinent one and I would recommend to this body the advisability of informing the district societies of this recommendation of the Judicial Council with the suggestion that they put it into practice.

In closing, I desire to say a word as to the general character of this legislative body of the American Medical Association.

No one who has attended these meetings for any length of time can fail to have been impressed with the much improved character of the Delegates, their great seriousness of purpose and attachment to the interests of the public and medical profession. It is not many years since the House of Delegates was in danger of being swayed by cliques in various parts of the country, not infrequently to unsound action. The practice now becoming more prevalent of continuing Delegates in the House for a term of years has made such snap action difficult or impossible and the House is today a body of high-minded, thoughtful physicians.

I would recommend to this Council the continuance of the practice of late years, of keeping in the House as long as they will stay, Delegates of experience. If reason for such a practice is required it can readily be found in the tremendous services rendered to the state and the Association by our own Delegate, Dr. H. D. Arnold, who retired last year on his appointment to the Council on Medical Education. If, however, the Massachusetts Delegation is to take its place it will be because the attendance of this Delegation can be counted upon. It is, therefore, with regret that I note the fact that though Massachusetts was entitled to five Delegates, at no time were more than four present in the House. It should certainly be possible to require the presence either of a Delegate or his alternate at every meeting of the American Medical Association.

Respectfully submitted,

HUGH CABOT.

The president nominated and the Council elected these delegates to the annual meeting of the Vermont State Medical Society at Rutland, October 8 and 9, 1914: Lyman Asa Jones, North Adams, W. Eugene Currier, Leominster.

Dr. W. B. Lancaster of Sherborn was appointed on behalf of the Council on Health and Public Instruction of the American Medical Association, a representative to look after the development of public addresses on conservation of vision in Massachusetts.

To fill a vacancy in the Council caused by the death of the late Dr. F. B. Harrington, Dr. Robert W. Lovett of Suffolk was appointed. The president alluded to the loss which the Council had sustained in the death of Dr. J. F. A. Adams of Pittsfield, who had been for twenty-two years a councilor and had died in office, and on nomination Dr. Henry Colt of Pittsfield was appointed Councilor and Supervisor of Censors for the Berkshire district.

The Committee of Arrangements was represented by Dr. J. Dellinger Barney, in the enforced absence of the chairman. He read from the records of the committee statistics gathered by the last chairman on the attendance of Fellows from a distance and Fellows close at hand at the annual dinners of the Society in recent years. When asked by the president if the committee had any request to make to the Council concerning the hour of the day at which the dinner next spring is to be held or as to the manner of financing the dinner he said he did not know of any.

Dr. H. D. Arnold spoke on the good fortune of Massachusetts in securing the services of Dr. Allan J. McLaughlin of the United States Public Health Service to take charge of the state department of health. He paid a well-deserved tribute to the former chairman of our state board of health, Dr. Henry P. Walcott, and introduced the following motion which was voted unanimously:

Voted, That the Council of The Massachusetts Medical Society recognizes in the recent appointment of Dr. Allan J. McLaughlin as Health Commissioner of Massachusetts the fulfilment of the pledge given by Governor Walsh to this Society and to the public, when the bill to reorganize the State Board of Health was pending in the Legislature, that if the bill was enacted he would endeavor to secure as Commissioner of Health the best available man to manage the health problems of the Commonwealth.

That the Council congratulates the Governor and the people of Massachusetts because a man so eminently fitted for this position has been secured.

That the Council extends to Dr. McLaughlin, in behalf of The Massachusetts Medical Society, its best wishes for a successful administration; and pledges him the support of the Society in all health measures for the best interests of the Commonwealth.

The question whether retired Fellows shall receive the BOSTON MEDICAL AND SURGICAL JOURNAL free of expense was raised by Dr. Charles M. Green who explained that there is a discrepancy in our by-laws between Chapter I, Section 5, defining the status of retired Fellows, and Chapter VI, Section 5, setting forth the duties of the Librarian. The committee on membership and finance had made no recommendation but the members of that committee felt that the JOURNAL should be sent to retired Fellows if they asked for it. There are 150 retired Fellows and 25 have asked for the JOURNAL at the present time. Whether or not the JOURNAL may be considered as a publication of the Society under the by-laws? On motion by Dr. W. A. Dolan it was *Voted*, That during the agreement between The Massachusetts Medical Society and the BOSTON MEDICAL AND SURGICAL JOURNAL the JOURNAL be considered a publication of the Society.

Adjourned at 1.15 P.M.

WALTER L. BURRAGE, *Secretary*.

Current Literature

Medical Record.

October 3, 1914.

1. Fuller, E. *The Surgical Management of Pericystitis.*
2. Brill, A. A., and Karpas, M. J. *Insanity Among Jews.*
3. Cornwall, E. E. *A Rational Diet for Typhoid Fever. With a Report of Two Hundred Consecutive Hospital Cases in Which It Was Used.*
4. Gwathmey, T. *Oil-Ether Colonic Anesthesia.*
5. Lake, G. B. *Infection of the Middle Ear with Bacillus Tuberculosis and Bacillus Coli.*
6. Goodman, E. H. *Abdominal Aneurysm as a Cause of Left-Sided Abdominal Pain.*
7. Schapps, J. C. *The Country Physician and Congenital Club Foot.*

October 10, 1914.

1. Levin, I. *The Relation Between the Surgical Treatment and Radiotherapy of Cancer.*
2. Erdmann, J. F. *Biliary Surgery.*
3. Leo-Wolf, C. G. *The Dietetic Treatment of Children During the Second Period of Life.*
4. Ballard, I. W. *Hyperthyroidism.*
5. Crothers, T. D. *Periodicity of the Drink Neuroses.*
6. Knopf, S. A. *The Health Officer and the Tuberculosis Problem in Rural Communities.*

New York Medical Journal.

October 3, 1914.

1. Knopf, S. A. *The Modern Warfare Against Tuberculosis as a Disease of the Masses.*
2. Morris, R. T. *Non-operative Treatment of Tuberculous Glands of the Neck.*
3. *Goodman, E. H. *The Effect on Blood Pressure of Decapsulation of the Kidney.*
4. Barton, W. M. *Postdiphtheritic Paralysis.*
5. Guthrie, J. A. *Los Angeles Bronchitis.*
6. Armitage, H. M. *Acute Intestinal Obstruction.*
7. Holding, A. M. *Expert Testimony from the Standpoint of a Lawyer.*
8. Kahn, M., and Silberman, M. *Quantitative Estimation of Albumin in Urine.*
9. Knapp, M. I. *Newer Teachings Concerning Diseases of the Gastro-intestinal Tract.*

3. Goodman reports blood pressure observations following decapsulation of the kidney on a patient with chronic nephritis. There was a marked fall in pressure, especially in disastolic pressure, after the operation. [L. D. C.]

October 10, 1914.

1. Babcock, W. W. *The Technic of Spinal Anesthesia.*
2. *Gallant, A. E. *Continuous Uterine Drainage.*
3. Stauffer, N. P. *Cervical Adenitis.*
4. Hawkins, J. A. *Present Status of the Verumontanum in Deep Urethral Diseases.*
5. Humphreys, G. A. *Acquired Organic Hourglass Stomach.*
6. Herold, J. *The Modern Treatment of Bright's Disease.*
7. Oberndorf, C. P. *Substitution Reactions.*
8. Farbach, H. J. *Gonorrheal Stomatitis.*
9. Krumbhaar, E. B. *The Present Status of Functional Liver Tests.*

2. Gallant advocates continuous uterine drainage as a remedy for the many disorders resulting from obstruction to the menstrual flow. Such drainage can be secured only by the use of a drain which will permit the cervical mucus to pour into the drain, mingle with the secretions, and prevent clotting and plugging. To prevent recontracture of the internal os or reflexure of an anteflexion, the drain must be of rubber, fenestrated or perforated, sutured in the cervix, and must remain in situ for six or more months. In acute cases a gauze roll wick should be placed in the vagina with its upper end under the drain and the lower end projecting through the vulva so as to come in actual contact with the vulva pad. [L. D. C.]

The Journal of the American Medical Association.

October 3, 1914.

1. *Mayo, C. H. *The Surgical Treatment of Exophthalmos.*
2. *Lyle, H. H. M. *Aperiosteal Amputation.*
3. Sutton, R. L. *Sporotrichosis in the Mississippi Basin.*
4. Throckmorton, T. B. *Bilateral Peripheral Facial Palsy, with Report of Case.*
5. Brengle, D. R. *Pellagra in Minnesota.*
6. Cole, H. N., and Ruh, H. O. *Pemphigoid of the New-Born (Pemphigus Neonatorum), with Report of an Epidemic.*
7. Winslow, R. *Penetrating Wounds of the Abdomen.*
8. *Ball, C. F. *Abderhalden's Test in the Diagnosis of Cancer.*
9. *Falls, F. H. *A Study of the Ferment Activity of the Blood Serum During Pregnancy and Under Normal and Pathologic Conditions.*
10. Chapin, H. D. *The Physician's Field in Infant Feeding.*
11. Myers, A. W. *A Consideration of Some Practical Breast-Milk Problems.*
12. *Neff, F. C. *The Feeding of Skimmed Breast-Milk.*
13. Collinson, H. *Some Present-Day Problems in the Surgery of Gastric and Duodenal Ulcer.*
14. Gottheil, W. S., and Satenstein, D. L. *Autoserum Treatment in Dermatology.*
15. Case, J. T. *Roentgenologic Observations on the Function of the Ileocolic Valve, with Special Reference to the Causation of Ileac Stasis.*
16. Cadbury, W. W., and Hofmann, J. A. *The Treatment of Cholera by Transfusion of Saline Solution.*
17. *McGuire, E. R., Butsch, J. L., and Evans, J. *Duodenal Ulcer.*
18. Dixon, S. G. *The Duck as a Preventive against Malaria and Yellow Fever.*
19. Rosenbloom, J., and Schildecker, C. B. *The Successful Isolation of Ergotinin Crystals from Certain Organs in a Case of Acute Ergot Poisoning.*

1. Mayo, while stating that the time is yet too short after operation in his series of cases to state results as to cure, finds sections of the superior and middle sympathetic cervical ganglia together with ligation of the superior thyroid vessels to be of definite value in reducing exophthalmos and causing slight ptosis of the upper eyelids.

2. Lyle advocates in amputations the removal of the distal 1 cm. of periosteum and the scooping out of a like amount of bone marrow as the best method of producing a painless weight-bearing stump.

8. Ball does not believe that Abderhalden's test can yet be considered specific for cancer, but a positive reaction should receive careful consideration before calling it erroneous.

9. Falls, considering the same test in relation to pregnancy, finds that a large number of pathologic conditions may give rise to a positive reaction, and hence would have to be ruled out when applying the test to a given individual for the diagnosis of pregnancy. Quantitative estimation of the strength of the reaction is of little value in differentiating pregnancy from other conditions that give a positive reaction.

12. Neff believes that the feeding of skimmed breast-milk is often of great value when there are indications for the giving of a fat-free diet to nurslings.

17. These authors find that in the dog it is impossible to produce obstruction to the duodenum by excision of any amount of its wall. They find from this and clinical evidence that gastro-enterostomy is not necessary after excision of perforating ulcer of the duodenum because if all scar tissue is thoroughly excised a stricture cannot occur. [E. H. R.]

The American Journal of the Medical Sciences.

July, 1914.

1. *Fraser, F. R. *Clinical Observations on Ninety Cases of Acute Epidemic Poliomyelitis.*
2. Jacobson, N. *Gall-stones Viewed from a Surgical Standpoint.*
3. *Lee, R. I., and Hinton, W. A. *A Critical Study of Lange's Colloidal Gold Reaction in Cerebro-spinal Fluid.*
4. Drinker, C. K., and K. R. *The Effect of Extracts of Sheep's Thyroid and of Pathological Human Thyroid upon the Fatigue Curve of the Voluntary Muscle.*
5. *Corner, E. M. *Further Experiences of the Treatment of Imperfectly Descended Testicles.*
6. Thomas, B. A., and Ivy, R. H. *Observations on the Wassermann Reaction.*
7. Bryant, W. S. *The Involution of the Nasopharynx and Its Clinical Importance.*
8. *Diller, T., and Rosenbloom, J. *Metabolism Studies in a Case of Myasthenia Gravis.*
9. *McLester, J. S. *The Serum Diagnosis of Pregnancy and Its Underlying Principles.*
10. *Garbat, A. L. *The Complement Fixation Test in Typhoid Fever; Its Comparison with the Agglutination Test and Blood Culture Method.*
11. *Cole, L. G. *Relation of Lesions of the Small Intestine to Disorders of the Stomach of the Cat as Observed Roentgenologically.*

1. Fraser reports observations upon ninety cases of acute epidemic poliomyelitis studied in the hospital of the Rockefeller Institute. Noteworthy among the symptoms observed were the occurrence of stiffness of the neck and back and pain and tenderness, either general or localized usually in the parts later paralyzed. Of the 12 fatal cases, 7 died of respiratory paralysis and 5 of inflammatory conditions in the lungs. In treatment of the acute stage, urotropin by mouth and intraspinous injections of epinephrin were tried, but without conclusive results. Stress is laid, in the treatment of the paralysis, upon the importance of measures to prevent the stretching of paralyzed muscles.

3. Lee and Hinton report the results of a study of Lange's colloidal gold reaction in 100 cases comprising 122 tests. They conclude that this test is more delicate than the blood Wassermann reaction, the spinal fluid Wassermann reaction, the cell count and the globulin content. It has, moreover, the advantage that it gives a reaction with pathological spinal fluids not syphilitic easily differentiated from the reaction typical for syphilis.

5. Corner discusses the treatment of imperfectly descended testicle with the conclusion that operation is indicated up to the age of five only when hernia is present; from seven to twenty years, operate whether hernia is present or not, preferably avoiding orchidectomy; after twenty perform orchidectomy.

8. Diller and Rosenbloom confirm Pemberton's finding of an increased loss of calcium in myasthenia gravis. They incline to the belief that this may be due to some disorder of internal secretion.

9. McLester's article is a discussion of the principles and technic of the serum diagnosis of pregnancy without original results.

10. Garbat has made a careful study of the complement fixation test in typhoid fever; among his conclusions may be mentioned the following: Practically all typhoid patients sooner or later give positive complement fixation reactions, especially late in the disease or in convalescence. A polyvalent antigen, however, is essential, in view of the various strains of typhoid bacilli encountered. This reaction bears no definite relation either to a positive Widal or to a positive blood culture, but is of value in confirmation of both.

11. Cole contributes a valuable article on the roentgenological examination of the digestive tract, with numerous illustrations. [F. W. P.]

August, 1914.

1. *Cheney, W. F. *Syphilis of the Liver, Imitating Cirrhosis.*
2. *Hunt, J. R. *Syphilis of the Vertebral Column: Its Symptomatology and Neural Complications.*
3. *Wile, U. J. *Syphilis of the Esophagus.*
4. Bovaird, D., and Cecil, R. L. *Schistosomiasis Japonica: a Clinical and Pathological Study of Two Cases.*
5. Hunnicutt, J. A. *The Absence of Hyperplasia of the Remainder of the Thyroid in Dogs after Piecemeal Removal of This Gland. Auto-transplantation of the Thyroid in Partially Thyroidectomized Animals.*
6. Dunn, A. D. *Pituitary Disease: a Clinical Study of Three Cases.*
7. Gordon, A. *Mental Manifestations in Tumors of the Brain.*
8. Holloway, T. B. *Peripheral Pigmentation of the Corneae, Associated with Symptoms Simulating Multiple Sclerosis.*
9. Strauch, A. *Infantilism.*
10. Beereton, G. E., and Smith, K. W. *Studies of the Smegma Bacillus.*

1. Cheney urges that syphilis be thought of and the therapeutic test applied in all cases appearing to be cirrhosis of the liver, and cites illustrative cases. He maintains that syphilitic cirrhosis is a common form of hepatic disease.

2. According to Hunt, syphilitic spondylitis and perispondylitis, while rare, are nevertheless sufficiently frequent to be given careful consideration in every case of acute or chronic vertebral disease, especially if localized in the cervical region. Of 100 cases, 25 were associated with some complication referable to the nervous system.

3. Wile summarizes the reported cases of syphilitic stricture of the esophagus and adds an original case. He suggests that such cases may be more common than is supposed. [F. W. P.]

Surgery, Gynecology and Obstetrics.

October, 1914.

1. *Jones, R. *Internal Derangements of the Knee.*
2. Blair, V. P. *Operative Treatment of Ankylosis of the Mandible.*
3. Percy, J. F. *The Treatment of Inoperable Carcinoma of the Uterus by Application of Heat.*
4. Wilson, T. *The Results of Radical Operative Treatment of Cancer of the Uterus.*

5. Lockwood, C. D. *Ulcer of the Stomach in Children Before Puberty.*
6. *Burnham, A. C. *Post-Operative Pleurisy with Effusion and Empyema.*
7. McGlannan, A. *Intestinal Obstruction Due to Cancer of the Colon.*
8. Else, J. E. *Strictures of the Gall-Bladder.*
9. Buck, M. J. *Inversion of the Uterus.*
10. Davis, B. F. *Report of Case of Sporotrichosis.*
11. *Gellhorn, G. *Spinal Anesthesia in Gynecology.*
12. *Polak, J. O. *A Study of the End-Results in Interposition of the Uterus.*
13. *Smith, R. R. *The Behavior of the Abdominal Cutaneous Reflexes in Acute Conditions within the Abdomen and Pelvis.*
14. McCarthy, F. B. *Eruptions Following Operation.*
15. *McGlinn, J. A. *Can Surgery Be Eliminated in the Treatment of Fibroid Tumors of the Uterus?*
16. Moschcowitz, A. V. *Strangulated Epigastric Hernia.*
17. *Krotoszyner, M. *Untoward Results of Pyelography.*
18. Balfour, D. C. *Treatment by Cautery of Gastric Ulcer.*
19. Oeschner, J. F. *Autoplastic Bone Grafting.*
20. Buerger, L. *Concerning Renal Lesions after Pyelography.*
21. Barnes, W. S. *Immediate Bone Transplantation in Compound Comminuted Fracture of Tibia and Fibula.*
22. Turner, G. G. *The Uses of an Arm-Board in Surgery.*
23. Rhodes, R. L. *The Treatment of Cranial Defects by Bone-Grafts.*
24. Pirie, A. H. *Pulmonary Abscess.*

1. Jones' paper on the internal derangements of the knee-joint is an interesting one, largely confined to the description and treatment of displaced internal semilunar cartilage. He has decided views on the subject of operation, refusing always to operate on any case immediately after its first displacement because he believes that a large proportion of these cases get well under appropriate treatment. He does not encourage operation in cases where the recurrent trouble is painless and is never followed by effusion into the joint.

6. Burnham's interesting paper is concluded as follows: Pleural effusion is not of uncommon occurrence after operations and may occur at any time, but is most often seen before or shortly after the subsidence of the post-operative temperature. It is most frequently seen after septic abdominal conditions, and is usually on the right side. A clear serous exudate in the right chest is not necessarily a serious complication, such cases usually going on to recovery. Insofar as they refer to post-operative conditions, Gee and Hardy's statement that "pleural effusion following abdominal infection is more often purulent than serous," is not borne out by case records. There is a distinct clinical type of empyema which may complicate abdominal infections either before or after operation in which the mortality is very high. The relationship which exists between perforated gastric ulcer, subphrenic abscess and empyema is exceedingly close and the occurrence of one of these conditions, without apparent cause, should lead to suspicion of one or both of the others. A turbid or purulent effusion in the right chest following laparotomy requires immediate drainage and should lead at once to exploration of the subphrenic space.

11. Gellhorn is an enthusiastic advocate of spinal anesthesia in gynecological operations.

12. Polak gives an excellent description of the Baldwin-Watson-Wertheim operation for prolapse of the uterus and a review of the causes of failure and reasons for using this operation. He believes the operation should be limited to women beyond the menopause and who have small uteri, and that there should be no morbidity after this operation. If there is, it is due to faulty technic.

13. Smith finds that the abdominal cutaneous reflex has a distinct though limited value in acute abdominal conditions. When combined with other signs it is of value in strengthening the diagnosis. This reflex is lost in nearly all acute surgical conditions inside the abdomen over an area corresponding to the diseased area.

15. McGlinn believes that surgery cannot be eliminated in the treatment of fibroid tumors of the uterus. The x-ray has a valuable place in this treatment.

17. Krotoszyner believes that solutions may penetrate into the kidney tubules, even when the technic of introduction into the pelvis is perfect, and cause serious inflammatory lesions resulting in necrotic foci, and hence pyelography should be limited to cases in which a diagnosis cannot be made in any other way. [E. H. R.]

The Lancet.

September 5, 1914.

1. *Sandwith, F. M. *Lettsomian Lectures on Dysentery. Lecture I.*
2. Posnett, W. G. T. *Bullet Wounds in War.*
3. Dick, J. L. *On Some Signs and Symptoms of Hypothyroidism in School Children.*

1. Sandwith in the first of the Lettsomian Lectures on dysentery, discusses the history of this condition, with particular reference to its occurrence in the British Isles and its association with wars. He describes the differentiation between the two types, amebic and bacillary. There is an elaborate bibliography. [J. B. H.]

September 12, 1914.

1. *Sandwith, F. M. *Lettsomian Lectures on Dysentery. Lecture II. Part 1.*
2. Brown, G. V. T. *The Principles Which Govern the Ultimate Results of Hare-lip and Cleft Palate Operations.*
3. Higgens, C. *Cases of Recovery from Detachment of the Retina.*
4. Rolleston, H. D. *Persistent Low Arterial Blood Pressure in Carcinoma of the Tongue with Amyloid Disease.*

1. Sandwith, in the second Lettsomian Lecture, describes in detail the life cycle of the ameba of dysentery, describing the experimental work on this subject and the pathological anatomy of the condition in humans, with a clinical description of the chief symptoms. [J. B. H.]

September 19, 1914.

1. *Sandwith, F. M. *Lettsomian Lectures on Dysentery. Lecture II. Part 2.*
2. Woodhead, G. S. *Sterilization of Water Supplies for Troops on Active Service.*
3. Shenton, E. W. H., and Trethowan, W. H. *Juxta-Epiphyseal Strain of the Lower End of the Humerus and Its Detection by a Diagnostic Line.*
4. Miller, A. H. *The Cultivation of the Tubercle Bacillus: Change in Form by Growth on Sperm Oil and Glycerine-Egg Media.*
5. Harper, P. *Ankylostomiasis in Fiji.*
6. Hall, I. W., and Nicholls, F. *Earlier Indications of Gas Formation by Coliform Organisms, with Description of a Modified Fermentation Tube.*
7. *Broughton-Alcock, W. *Paratyphoid Inoculations.*
8. Saundby, R. *Open-air Hospitals in War Time.*

1. In the second part of the second Lettsomian Lecture, Sandwith discusses the diagnosis of amebic dysentery, and then in great detail takes up its treatment (first) with ipecac and its alkaloids, and (second) its treatment by emetine, with notes of cases. He describes briefly the value of bismuth, complications of this condition, and the danger of carriers.

7. Broughton-Alcock describes in some detail the preparation of a series of vaccines for inoculation of patients against various paratyphoid infections, and reports excellent results in the use of such vaccines.

[J. B. H.]

Miscellany.

PATENT MEDICINES IN GREAT BRITAIN.

The present status of patent medicines in Great Britain is shown by the following item in the issue of *Science* for Sept. 11, 1914:—

"Largely through the efforts of the American Medical Association and through legislation by Congress some progress has been made in the United States in limiting the dangers from the sale and use of secret medicines. The conditions are now worse in Great Britain than in this country, and in 1912 the government appointed a select committee which has just issued an abstract of its report. It finds that there is a large and increasing sale of patent and proprietary remedies and appliances and of medicated wines; that this constitutes a grave and widespread public evil and that "an intolerable state of things," requires new legislation to deal with it, rather than merely the amendment of existing laws. Legislation is recommended as follows:

"1. That every medicated wine and every proprietary remedy containing more alcohol than that required for pharmacological purposes, be required to state upon the label the proportion of alcohol contained in it.

"2. That the advertisement and sale (except the sale by a doctor's order) of medicines purporting to cure the following diseases be prohibited: Cancer, consumption, lupus, deafness, diabetes, paralysis, fits, epilepsy, locomotor ataxy, Bright's disease, rupture (without operation or appliance).

"3. That all advertisements of remedies for diseases arising from sexual intercourse or referring to sexual weakness be prohibited.

"4. That all advertisements likely to suggest that a medicine is an abortifacient be prohibited.

"5. That it be a breach of the law to change the composition of a remedy without informing the department of the proposed change.

"6. That fancy names for recognized drugs be subject to regulation.

"7. That the period of validity of a name used as a trademark for a drug be limited, as in the case of patents and copyrights.

"8. That it be a breach of the law to give a false trade description of any remedy, and that the following be a definition of a false trade description: 'A statement, design, or device regarding any article or preparation, or the drugs or ingredients of substances contained therein, or the curative or therapeutic effect thereof, which is false or misleading in any particular.' And that the onus of proof that he had reasonable ground for belief in the truth of any statement by him regarding a remedy, be placed upon the manufacturer or proprietor of such remedy.

"9. That it be a breach of the law: (*a*) To enclose with one remedy printed matter recommending another remedy. (*b*) To invite sufferers from any ailment to correspond with the vendor of a remedy. (*c*) To make use of the name of a fictitious person in connection with a remedy. (But it should be within the power of the department to permit the exemption of an old-established remedy from this provision.) (*d*) To make use of fictitious testimonials. (*e*) To publish a recommendation of a secret remedy by a medical practitioner unless his or her full name, qualifications and address be given. (*f*) To promise to return money paid if a cure is not effected."

FIRST AID IN NAVAL WARFARE.

In a paper before the International Congress on Hygiene, in 1908, Surgeon-General Stokes, of the United States Navy, discussed the subject of first aid to the injured on shipboard during a naval engagement, and pointed out that it was practically impossible: —

"A duel between dreadnoughts could last but five minutes, as in that time one or the other would be annihilated. Two modern, up-to-date, evenly-equipped fleets could last but 30 minutes, for in that time the ammunition would be exhausted and the fleets destroyed. In a close combat 50% of the sailors would be killed or wounded in a 30-minute combat.

"As the majority of the ships would sink and there would be no lifeboats unharmed, practically the entire crew would be wiped out. On a surviving battleship at the end of a 30-minute engagement there would be 80 killed and 225 wounded. In a battle lasting 20 minutes between the 20 battleships the casualties would be about 5000.

"Naval gunnery was 1200 times more effective in 1908 than it was in 1893. A single ship could hurl 10 tons of metal per minute against another ship, and modern guns seldom failed to strike their targets.

"No armor could withstand this, which statement incidentally carries with it this important fact—in a naval battle there is no place on a ship where first aid can be given in time of battle.

"One of the discussions at that congress was as to the arrangements on shipboard for first aid. There did not seem to be any place.

"In general it was agreed that when the ship carried several surgeons they should be scattered around the ship, where they were most liable to be of service. The chief surgeon was to remain in the lazaretto or hospital room and direct as best he could.

"About the only feasible plan was to teach the sailors first aid and then to distribute the means for first aid in the turrets and other fighting points around the ship. This plan worked fairly well in the Japanese navy in 1904. Before going into that war 6% of the sailors in the Japanese navy had had a course of instruction in first aid."

In the present pan-European war, experience of naval battles has thus far been limited, but so far as it goes, especially with the recent high development of efficiency in submarine vessels, it seems to bear out the correctness of Dr. Stokes's opinions of six years ago.

Correspondence.

A CORRECTION.

PHILADELPHIA, OCT 14, 1914.

Mr. Editor: I note that in the BOSTON MEDICAL AND SURGICAL JOURNAL, 1914, Vol. clxxi, p. 559, my article on "Local Anesthesia for Furunculosis of External Auditory Canal" has been misquoted. The sentence should read: "Infiltrates the *auriculotemporal* nerve immediately in front of and at the level of the tragus." It is an anatomical impossibility to infiltrate Jacobson's nerve at this point.

Yours truley,

P. G. SKILLERN, JR., M.D.

NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.

THE Stated Meeting will be held at the Boston Medical Library, 8 The Fenway, Saturday, October 31, 1914, at 8.15 P. M.

Paper by Dr. Thomas F. Harrington, Director of School Hygiene, Boston Public Schools, "Medical Problems in Education. The Responsibility of the Medical Profession." Discussion by Drs. E. H. Bradford, F. C. Richardson, W. T. Porter, J. E. Goldthwait, D. W. Wells and others.

The Society has extended a cordial invitation to the members of the Boston District Homeopathic Society to be present at this meeting and take part in the discussion.

Business meeting at 8.15 P. M. Election of nominating committee, election of auditing committee, action on amendment to by-laws and proposed resolution, incidental business.

Refreshments after the meeting.

HORACE D. ARNOLD, M.D. *President* WALTER C. HOWE M.D. *Secretary*

NEW YORK SKIN AND CANCER HOSPITAL.

The governors of the New York Skin and Cancer Hospital announce the following course of lectures by Dr. L. Duncan Bulkley on Wednesday afternoons, at 4.15 o'clock.

MEDICAL ASPECTS OF CANCER.

November 4. "Nature of Cancer."
November 11. "Frequency and Geographical Distribution of Cancer.
November 18. "Metabolism of Cancer."
November 25. "Relation of Diet to Cancer."
December 2. "Medical Treatment of Cancer."
December 9. "Clinical Considerations and Conclusions."

Each lecture will be preceded by a half-hour clinical demonstration of dermatological cases.

The lectures will be free to the medical profession, on the presentation of their professional cards.

FREDERIC HAAS,
Chairman of Executive Committee.

MASSACHUSETTS MEDICAL BENEVOLENT SOCIETY.

ANNUAL MEETING.

The annual meeting will be held at the Boston Medical Library, at 5.30 P.M., on Thursday, October 29, 1914.

The Council will meet at the same place at 5.15 P.M. It includes the following officers: President, vice-president, treasurer, secretary, and the following trustees: Drs. H. A. Christian, F. Dexter, F. H. Brown, E. H. Bigelow, W. N. Bullard, M. Fabyan, E. G. Cutler, G. M. Garland and A. Post.

R. M. GREEN, *Secretary.*

THE SUFFOLK DISTRICT MEDICAL SOCIETY.—The Censors of the Suffolk District Medical Society will meet to examine candidates for admission to the Massachusetts Medical Society at 8 The Fenway, on Thursday, Nov. 12, 1914, at 2 p.m.

Candidates, who must be residents of the Suffolk District, or non-residents of Massachusetts, should make personal application to the Secretary, and present their medical diplomas, at least three days before examination.

For further particulars, apply between 1 and 2 p.m.

WALTER C. HOWE, *Secretary*
303 Beacon Street.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A stated meeting of the Society will be held at the Boston State Hospital, Austin and Harvard Streets, Dorchester, Tuesday, October 27, at 3.30 p.m. sharp. The hospital is best reached by Mattapan car to Paxton Street, opposite Franklin Field. Automobiles will be checked and cared for. Tour of the hospital, 3.30 to 5.00 p.m. Business meeting and program 5.00 p.m.

Program: "Modern Hospital Care and Treatment of the Insane," Henry P. Frost, M.D. "Clinical Cases," John I. Wiseman, M.D., William M. Dobson, M.D. Demonstration of Work in Pathology, Myrtelle M. Cannavan, M.D.

Dinner at 6.30 p.m. The Censors will meet November 12, at 2. p.m., for the examination of candidates.

BRADFORD KENT, M.D., *Secretary,*

APPOINTMENTS.

UNIVERSITY OF ST. ANDREWS.—*Dr. Waterston*, formerly professor of anatomy at King's College, London, has been appointed to the Bute Professorship of anatomy at the United College of St. Andrews, Dundee, Scotland.

RECENT DEATHS.

DR. THEODORE WILLIS FISHER, a retired Fellow of The Massachusetts Medical Society, died at Belmont, Mass., October 10, aged 77 years. Dr. Fisher was graduated from the Harvard Medical School in 1861; he was surgeon to the 44th Massachusetts Volunteers in the Civil War. From 1884 to 1888 he was clinical instructor in mental diseases in the Harvard Medical School and lecturer on the same subject from 1888 to 1898. He had been in poor health for several years and had not been in practice. His life-work was at the Insane Hospital at South Boston, where he was in charge for many years.

DR. JAMES GREGORY MUMFORD, a Fellow of The Massachusetts Medical Society, died at Clifton Springs, N. Y., October 18, at the age of fifty-one. An obituary notice will appear in a later issue.

Massachusetts Medical Society

SYMPOSIUM ON INDUSTRIAL DISEASES.*

MEETING OF THE SECTION OF MEDICINE, JUNE 9, 1914.

I. The Relation of Industry to General Medicine. By David L. Edsall, M.D., Boston.

II. The Relation of Insurance Companies to Industrial Diseases. By Mr. Frederick L. Hoffman, Newark, N. J.

III. Occupational Diseases as a Public Health Problem. By Harry Linenthal, M.D., Boston.

I.

THE RELATION OF INDUSTRY TO GENERAL MEDICINE.

BY DAVID L. EDSALL, M.D., BOSTON.

GENERAL medicine has four important relations or lines of activity,—first, the providing of knowledge of the cause and cure of disease; second, the practical use of this knowledge in the prevention and cure of disease in individuals; third, humanitarian work for the prevention and relief of physical suffering and distress; fourth, activities that are more largely public and economic in their character and have wide influence in controlling the economic loss that disease entails.

The effects of industry upon health have always appealed to me as being peculiarly interesting because in the study of them all these lines of activity are involved and more intimately than in the study of most other large questions in medicine.

The reasons for this are in the main apparent: anything that takes up so much of a man's time as does his occupation must have important influence upon his health, good or bad, and must therefore have an important bearing on the etiology, diagnosis and treatment of his condition. Consequently, it must be of large economic importance if the hazards to health are frequent and severe. But the actual frequency and importance of these hazards have not been widely thought of by the medical profession as very decided, at least they have not been so recognized by the profession at large or by others in this country until recent years.

We have not learned from text-books of general medicine, diagnosis or treatment, to look at the matter as of sufficient importance to demand accurate and detailed attention and the time that this requires. We are accustomed to devote time and thought to the habits that are required through indulgence, but we are not accustomed to look carefully into those things that are often more habitual and of daily occurrence throughout hours of every day, but that are imposed upon the patient by the conditions of his work rather than by choice. We have been taught to give attention to these latter only in a few instances, in which, as in some cases of lead poisoning, for example, the relation to the occupation stands out so conspicuously as to have become traditional.

The first burden of one who would prove that industry is a very important factor in general medicine is to show that the effects upon health are both frequent and decided. There has been a widespread, passive feeling among medical men that this is not true and this feeling has been due chiefly to lack of interest in the matter on the part of teachers and writers.

It is difficult to prove the importance of industry if one takes as the basis of his search the usual medical records, for generally nothing is said in them that really touches the point. No one would deny that case histories would be a sorry lot if they contained only what the patient spontaneously stated, and yet this, without further elaboration or clarification is what the usual history of the occupation and its possible relation to the patient's health amounts to. As with all other points, but especially with a matter so endless in variety as is occupation, no statement is of any real value except a detailed description, yet often, one word is all that is given to the occupation. A record must state not only what name a man gives to his work, but what he does and whether certain known factors that influence health are involved in this, or the record is inaccurate and incomplete and consequently valueless upon this point.

Dr. Alice Hamilton stated to me a few days ago that in her studies of various industries in their relation to health for the Federal Government, she had in the many places she had visited in this country found only two hospitals in which the records contained with any frequency, statements that were of any value to her, and in those hospitals only the comparatively recent records did. This has for years been the complaint of those interested in occupational diseases: the facts are not available from the source from which one would expect to find them. Records of private practice are almost always less complete than hospital records.

It was with the purpose of providing more accurate facts that a system of investigating the relation of industry to health was begun last autumn at the Massachusetts General Hospital. This consists in having in addition to the usual history, a card made out and attached to the record of each patient who enters the male medical out-patient clinic (and it has since been extended to other clinics), a specimen of which is here given.

* Papers read before The Massachusetts Medical Society, June 9, 1914.

Massachusetts General Hospital Occupation Card.

Name *No.*

1. Industry. Occupation. Length of time.
   Present.
   Previous.
   Name and address of present employer.
2. Description of patient's own work.
   a. Material handled.
   b. Present working hours.
3. Conditions of work. Specify the following:
   Extremes of heat. Of moisture.
   Dust. Irritating fumes.
   Acids.
   Other poisonous substances.
   Strain { Muscular (local) (general)
   Postural
   General nervous General physical
   Eye
   Ear
4. Are fellow workmen affected?
5. Subsequent notes and reports.

This covers all the very important points that are likely to come up in an inquiry into the effect of industry upon health. As a consequence of the use of this, we have already accumulated enough material to give a much clearer idea than we had before as to the importance and frequency of bad effects of industry upon health. During six months there were one thousand five hundred and seven cases admitted to the male medical out-patient department. In the same period there were two hundred seventy-six cases, mostly from this clinic, in which industry was either the predominating cause of ill-health or was a very important cause or was very important in treating the patient. In a large proportion of these instances the relation of industry would have been entirely overlooked without this routine detailed inquiry.

As examples of what has been made apparent in this way, I will mention in the briefest possible manner the following cases:

Case 1. A man had been treated in the Out-Patient Department for constipation and vasomotor rhinitis. Inquiry into his industrial history showed that he was constantly exposed to benzine fumes and that he had all the symptoms that are frequently found as a consequence of this.

Case 2. Another man was being treated for diarrhea,—he proved to be a moulder in a brass foundry, and not only to have diarrhea but when more carefully investigated, to have the chronic bronchitis, the so-called "moulder's rheumatism," and the chills which are so common in brass poisoning.

Case 3. A patient was diagnosed merely as "apprehension." He was found to have, however, various symptoms, chiefly nervous and skin irritation. Being a varnisher, he was constantly exposed to the vapors of turpentine, and had been previously a cementer in a rubber factory where he was exposed to naphtha—and was probably suffering entirely from these industrial conditions.

Case 4. Another patient, a girl, had all the signs of pyelitis. She proved to be working as a filler in a shoe polish factory where she was exposed to the vapors of turpentine and had her hands often largely covered with the polish which contained much turpentine. The same condition was said to be frequent in other workers in the shop.

Case 5. A girl was sent to the Out-Patient Department with a diagnosis of "appendicitis," and had the usual local symptoms of a chronic appendix. Accurate inquiry into her occupation showed, however, that she was a cloth examiner, and constantly in her work kicked with her right foot the cloth she was examining in such a way as to bring a great deal of strain upon the muscles of the leg and abdomen. Rest from her occupation overcame the "appendicitis."

Case 6. A man had been going to the Out-Patient Department at times for several years without any definite diagnosis, but was thought to be neurotic. Inquiry showed that he used both benzol and benzine in his work, and that his symptoms were those apparently characteristic of the poisoning from these substances.

Case 7. Another man had been undiagnosed, beyond the fact that he was constipated. He had symptoms besides his constipation similar to those in Case 6. He was a trimmer in a shoe factory and in his work used naphtha constantly.

Case 8. Another, also undiagnosed, had similar symptoms and was a cementer in a rubber factory where he was constantly exposed to naphtha.

Case 9. There are frequent cases of irritation of the skin: in one case of severe dermatitis, for example, the man proved to be a cabinet maker and using Mexican oak a great deal in his work. This is an irritating form of wood.

Case 10. Another, and not uncommon, cause of skin irritation occurred in a girl who was a packer in a candy factory and who from handling candy, constantly had sugar on her hands, and this becoming moist caused irritation and provoked a very intense and distressing dermatitis.

Case 11. Another, a painter, had dermatitis of the hands and groin from the use of chrome yellow in painting which he had been using almost exclusively on the job he was then engaged on. He had a similar attack two years before, also, when using chrome yellow.

Case 12. One interesting case occurred in the wards in which there were extensive changes in the lungs, but the nature of the case was obscure until it was found that he had been for a long time in the South African gold mines and had evidently there acquired the chronic interstitial changes in the lungs that have been so common and severe in the miners in those mines.

These examples, and the many others that we have found indicate the actual importance and the very great frequency with which factors are found in the occupation that either wholly or partly explain the case or that are very important indeed in controlling the condition. I think no other one factor can be brought forward that can so frequently be shown to have had so very important an influence upon health in a similar group of cases, and I think this shows that the first three relations of general medicine that I mentioned are clearly matters of decided importance in relation to industry. That is, these records show the importance of industry in determining the cause and treatment of disease, and in the practical use of this knowledge and

granting this, it is clear that industry is of humanitarian importance.

As to the more public activities of general medicine, recent years have made these far more conspicuous than they have ever been before, and as they increase in importance the responsibility of the doctor increases proportionately, and it is extremely important that he have a clear knowledge of the things with which he must deal.

A striking illustration of this is the question of compensation. Compensation for industrial diseases has already begun and in some form will undoubtedly be extended to a point of very great importance. The determination in any case whether compensation should be given or not largely depends upon the physician's opinion and must so depend. It is absolutely important, in justice to both employer and employee, that the doctor should not on the one hand erroneously state that a condition is due to occupation, and on the other hand that he should not be ignorant of the effects of occupation and through this deny that a clearly occupational condition is due to industry.

One of the most influential things leading me to institute this method of inquiring into the effects of occupation on health was the desire to provide material that would be useful in making laws and special rules relating to occupation and its effect upon health. Many such laws and rules, like many others of those laws of social bearing that have become so frequent in recent years, here and abroad, have been made, not only in this country but abroad, upon very slender information, because information was not available in any accurate form but the laws had become necessary. Any laws made without full information are likely to do some injustice, and the accumulation of material to permit them to be made upon the basis of accurate facts becomes therefore a public opportunity and duty of great importance. Were many hospitals and many physicians to accumulate material upon this point in an accurate way, it would be very much easier for the public authorities to be able to determine just when to make laws or particular rulings severe and when to make them less severe and still be just to both the employer and the employe.

Another direct responsibility of the physician in relation to occupational diseases that is only too frequently neglected is the education of the individual workers themselves, and their employers when the opportunity offers, in relation to dangers incident to the occupation that had not been recognized by them and the providing of information which will aid them to prevent bad effects. Only too frequently a person exposed to poison or to dust or to unnecessary muscular strain, etc., is allowed to go without any particular direction as to the avoidance of those things insofar as they can be avoided, often I think because there has been rather a hopeless feeling that conditions in industry are hardly remediable, especially unless the manufacturer himself provide the means of controlling them.

A very large part of the bad effects of industry can be controlled only by the employer installing proper preventive apparatus and other measures, but a very noteworthy part of the bad effects can in most cases be prevented by the working people following certain advice, differing with the industry, that can easily be given them when the dangers are known. Also, in a great many instances the manufacturers have been more or less ignorant of the dangers to which they are subjecting their working people, and they are often very willing when these are pointed out to them to do a very great deal to prevent them.

At the Massachusetts General Hospital we now have a slip which is given to any persons exposed in any way to lead, which follows:

MASSACHUSETTS GENERAL HOSPITAL.

ADVICE TO A PERSON WORKING WITH LEAD.

LEAD IS A POISON.

1. Persons who work with lead in any form are liable to be poisoned.
2. Lead poisoning may be acute or chronic.
3. The chief symptoms of acute lead poisoning are: loss of appetite, headache, foul breath, indigestion, constipation, and severe pain in the stomach (abdomen).
4. Some of the symptoms of chronic lead poisoning are: paleness of the skin, headache, loss of appetite, indigestion, constipation, pains and aches in the muscles and joints, paralysis of wrists or feet, and convulsions and unconsciousness; but there are many other bad effects.
5. Poisoning occurs:
   a. By swallowing tiny particles of lead that have settled on food, or into the mouth in other ways, as from the hands or tobacco.
   b. By breathing into the mouth, or into the lungs, tiny particles of lead dust or fumes from melted lead.
   c. By lead being absorbed through the skin.

HOW TO PREVENT LEAD POISONING.

1. Personal cleanliness is of great importance as particles of lead may stick to anything they touch.
2. Always wash the face and hands before leaving the shop; and wash the face and hands and rinse the mouth and clean the fingernails before eating.
3. The teeth should be thoroughly brushed at least once a day.
4. Always eat a good breakfast before beginning work. The presence of food in the stomach helps to prevent the lead from getting into the system. Drink milk.
5. Exercise in the fresh air. Walk to and from your working-place if possible.
6. Never eat anything, or chew, or smoke tobacco, while at work because of the danger of getting lead into your mouth and so into your stomach.
7. Have one good bowel movement each day.
8. Avoid using alcohol in any form. It greatly increases the danger of lead poisoning and its severity.
9. Eat your luncheon outside the workroom, if possible. If not, eat in a part of the room away from the lead.
10. Wear overalls, or a long coat, and some head covering at your work, taking these things off before

going home. These garments should be washed frequently.

11. Be careful not to stir up any dust that may contain lead that you can help.

12. Persons working in the dust or fumes of lead, should use a respirator to avoid inhaling the poison into the lungs.

13. Follow this advice and tell others of it.

Miss Holton and her assistants in the Social Service who have charge of this industrial work, take care to make this advice clear to them. Similar slips for other occupations which have special dangers associated with them are being developed.

We have had very useful results from this. In one instance, that of a mixer in a rubber factory, who had severe lead poisoning, the employer had been previously unaware that there was any real danger of lead poisoning. When this case was pointed out to him and the frequency of such cases in such work, he changed this man's job so as to give him a chance to get well, and also started to institute proper measures to prevent further cases. In another case, a man who was a retoucher of half tones, got lead poisoning from using the air brush and from carelessness in other parts of his work. Instructions given to him were not only carried out by him, but were spread through him among other men in the shop and have resulted in their recognizing the danger as they had not done before, and co-operating to prevent it. I might mention various other similar results with well-disposed employers.

One very important way in which the medical man should have constant thought of occupation and its effect upon health is in relation to young persons,—those about to enter upon an occupation. We very frequently have opportunities, which we only too frequently neglect, of preventing young persons going into occupations that are wholly unsuited to the particular individual because of some bad family history or personal handicap. By directing them probably we could often prevent disease and also often prevent them from losing years of time in becoming expert in one occupation only to be obliged to leave it. In a case we have seen in recent months, an ill-developed boy of fourteen years was a doffer in a cotton mill, the duties in which work brought a great deal of strain upon him in such a way that it almost undoubtedly was the entire cause of an extremely severe scoliosis. This boy was entirely unsuited to go into such work in the beginning. In another case, a boy with a very bad history of tuberculosis in his immediate family, went to work, sheeplike, because his father had done such work, as a carder in a woolen mill. He soon developed early signs of tuberculosis, and three times has been in hospital or sanitarium, but always, sheeplike again, went back to the same work. He of course should never have gone into the work. In another instance, a boy of fifteen was already acting as a painter, assisting his father, and had been doing so for a year. Children cannot be successfully protected from lead poisoning, especially in an occupation in which it is so difficult to protect any one as in painting, and he should not have been permitted to go into such work, at that age at any rate. In another instance, a boy with a bad family history of tuberculosis, was acting as a grinder in a razor factory, a peculiarly dangerous thing for him to do. He had already begun to develop symptoms but rapidly began to improve when he got his employer to change his job at the suggestion of the Social Worker.

Finally, I would mention as pointing to a vision that we need to have, of the influence of industry upon efficiency, the case of a painter who, aside from other interesting facts in his history, stated that his wife had had five miscarriages. The influence of plumbism in producing miscarriage and other disturbances of pregnancy, and in causing terrible ill-health and early death in babies and young children, when the mother especially, but also when the father, is the subject of lead absorption, has been most strikingly pointed out by Constantin de Paul and others, the figures being really amazing. Undoubtedly some other poisons have some of the same influence, and it is practically certain that general bad conditions in industry have a very bad influence upon the progeny. From a medical standpoint then, as well as from a public standpoint, we need to look upon the matter as being one of influence not only upon the present but upon the future of the race.

II.

THE RELATION OF INSURANCE COMPANIES TO INDUSTRIAL DISEASES.

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THE interest of insurance companies in industrial diseases may be briefly stated to be as follows:

WORKMEN'S COMPENSATION INSURANCE.

First: Employers' liability and workmen's compensation insurance companies, including State workmen's compensation or industrial insurance departments, typified by those of the states of Washington and Ohio. The doctrine of workmen's compensation for industrial injuries either does include, or will be made to include, the collateral doctrine of compensation for industrial diseases, in conformity to the principles and practices of the English Workmen's Compensation Act of 1906. In fact, the term "industrial injuries," broadly construed, comprehends compensation for both accidents and diseases, since neither legally nor medically can an exact line of demarkation be drawn between

the two. In consequence of the enactment of workmen's compensation statutes by some 24 states, the business of workmen's compensation insurance through private companies has been developed on a large scale and the question of exact liability for industrial diseases is one of most serious concern to the companies writing this form of insurance. The term "industrial diseases" was not defined by the Workmen's Compensation Act of 1906, the expression used in the act being that of "diseases due to the nature of the employment."

ORDINARY AND FRATERNAL INSURANCE.

Second: Ordinary life insurance companies and fraternal insurance societies are interested in the subject of industrial diseases from quite a different point of view. These companies or societies issue policies of insurance at standard premium rates, based upon standard mortality tables. It would obviously be a serious technical error and an injustice to a medically-selected body of policy-holders if persons engaged in unhealthy trades were accepted at the same premium rates as those not so employed. The statistical and other evidence is entirely conclusive that the mortality rate in unhealthy trades is substantially in excess of the rate prevailing in recognized healthy occupations, that is, such as are not subject to diseases resulting from the nature of the employment. A more or less scientific system of occupation rating has, therefore, been developed on the basis of many years of practical experience, and while persons employed in exceptionally unhealthy occupations are rejected, others engaged in occupations subject to a higher death-rate, but not an excessive one, are accepted under modified plans, which vary with different companies and societies, but which either provide for an additional premium or a rating-up of the age at entry.

INDUSTRIAL INSURANCE.

Third: The interest of industrial life insurance companies in industrial diseases is rather one of general public policy. These companies, insuring for small amounts at weekly premiums collected from the houses of the insured, with their business practically co-extensive with the entire body of wage-earners, make no extra premium charges on account of occupation, but they encourage, insofar as they are in a position to do so, the nation-wide effort to bring about a reduction in the frequency of industrial accidents and industrial diseases, the social and economic consequences of which, of course, primarily affect the wage-earning element of the population.

PERSONAL ACCIDENT INSURANCE.

Fourth: Personal accident insurance companies are interested in industrial diseases insofar as they have developed a demand for so-called health insurance, but as yet this business has not attained to considerable proportions and wage-earners engaged in unhealthy trades are provided for with this form of insurance to but a very limited extent. Practically the same conclusion applies to mutual sickness insurance companies and societies, which in the main insure rather a non-wage-earning element of the population than those employed in hazardous or unhealthy occupations.

DEFINITION OF INDUSTRIAL DISEASES.

The first question which requires consideration is the best possible definition of the term "industrial diseases." In the legal history of the term it appears that the first adjudication was with reference to a case of rupture, claimed to have been an injury by accident within the meaning of the earlier workmen's compensation act of 1897, with regard to which it may be said that the inclusion of diseases, properly so-called, was certainly not within the scope of the act. At the same time, it appears that in an earlier case, blood-poisoning, caused by a piece of coal working into a miner's knee, had been held by the Court of Appeals to have been an injury by accident, within the meaning of the act. In another important case which came before the House of Lords in 1905 the question was decided as to whether a workman who had contracted anthrax, owing to a spore from some wood getting into his eye and who had died in consequence thereof, was injured by accident within the meaning of the act. The judgment was in the affirmative, but it was pointed out that the decision could not involve the doctrine that *all* diseases were accidents within the act. This case was followed in the same year by one in which a workmen had contracted blood-poisoning while using red and white lead in the caulking of a ship. The County Court in this case held that lead-poisoning was an injury by accident, but the Court of Appeals reversed the decision unanimously, on the important ground that no date could be fixed, which was an essential in the case of an accident. In citing these cases in a treatise on "The Law of Compensation for Industrial Diseases," Mr. Edward T. H. Lawes, observes:

"Here then was the distinction. Workmen who suffered from a complaint such as an infectious disease whereof the date of the "accident" could be approximated, were entitled to compensation, whereas those who had contracted a disease due to accumulated poison, just as serious in its consequences, just as much due to the nature of the employment, but slower and more insidious in its inception, found themselves outside the act."

The act of 1906 included compensation for industrial diseases for the purpose of doing away with the foregoing inequitable distinction. Quoting again from the treatise previously referred to, it is said that,

"It is impossible as yet to make the act apply to every sort of industrial complaint, and there are still many diseases, no doubt mainly due to occupation, which are outside the scope of the act, and for which there still remains the distinction between cases that are 'accidents' and those that are not, as explained above."

SCHEDULED INDUSTRIAL DISEASES.

In the original act six industrial diseases were scheduled, but power was given to the Home Secretary to add to this number by order. A departmental committee was appointed which recommended sixteen additional diseases, and in a second report of the same committee two more diseases were added, and to these others have been added since. Some of these are rare afflictions, but they are all strictly industrial or occupational diseases, and in the words of Lawes "included not so much from the point of view of the number of people who are likely to suffer from them, as from their being so specific to the employment that injury by the employment can be established in individual cases."

NON-SCHEDULED INDUSTRIAL DISEASES.

In a certain sense, it is quite possible that every disease is likely to be increased in frequency or severity by occupational activity. The diseases scheduled under the Workmen's Compensation Act are all of a nature which permits of comparatively easy identification and correlation to the occupation followed. From a practical point of view, the incidence of such diseases is of comparatively small interest to wage-earners, since the morbidity and mortality from these diseases is inconsiderable, in contrast to the enormous loss of life and health due to an increase in the frequency of general diseases due to unfavorable conditions of work. This conclusion applies particularly to chronic pulmonary diseases, which by every impartial investigation are shown to be of extremely common occurrence in certain occupations, particularly the dusty trades, while relatively rare in other occupations, particularly those carried on more or less in the open air. Bronchitis in this connection is referred to by Lawes as being, no doubt, of an industrial origin in many trades, and he mentions that "flax workers, dock laborers handling dusty cargoes, chemical workers and tinplate workers who inhale gases and fumes, and workers in many dusty employments suffer from it in a larger proportion than the rest of mankind." But he properly observes that other people also contract this disease and he adds the significant conclusion that "as there is no definite symptom which differentiates bronchitis due to inhalation of dust and gases from the ordinary type of bronchitis, it is obviously impossible to say whether any particular case is the result of the occupation or not. No workman can prove his case; no court of law or arbitrator should be asked to decide it."

FIBROID PHTHISIS.

With reference to fibroid phthisis, which, is a pulmonary disease of slow growth due to the inflammation caused by the inhalation of dust which impairs large areas of the lung tissues, Lawes points out that, "It is often complicated by the supervention of tubercular phthisis, as the impaired lung is apt to harbor the bacillus. It is a specific and sufficiently distinguishable trade disease among grinders, potters, masons, ganister miners and others who are employed continuously in gritty and dusty occupations, but has not been included in the schedule to the act for two reasons: the first, because the disease is of such slow growth that it would not be fair to impose the compensation upon the employer under whom the workman had been serving during the twelve months prior to the incapacity, and secondly, because for years before the disease can be definitely diagnosed the patient may suffer from symptoms such as the asthmatic or bronchial cough which is not distinctive; indeed, many who have such symptoms may not suffer from fibroid phthisis, even if they continue in the trade. In no other scheduled disease is there such a long period of possible premonitory symptoms. To schedule such a disease would end in many losing their employment before any disease is contracted, and many who never would contract the disease. The remedy for these complaints is to be found in the careful regulations for ventilation and prevention of dust, which in recent years have had the special attention of the factory department, with very beneficial results."

AMERICAN PROBLEM.

These observations briefly indicate the very complex nature of the problem of industrial diseases in its application to statutory requirements providing compensation therefor, or by leaving the question open whether such diseases are to be construed as being within the meaning of the statutory conception of an industrial accident. The legal and practical difficulties of this phase of the workmen's compensation problem are fully set forth in an admirable digest of the opinion of the solicitor of the Department of Commerce and Labor dealing with workmen's compensation cases under the Act of Congress granting to certain employees of the United States the right to receive from it compensation for injuries sustained in the course of their employment, approved May 30, 1908.

MEDICINE AND MALINGERING.

The subject of malingering requires to be briefly referred to in this connection. The subject has been admirably treated in a work by Sir John Collie, M.D., medical examiner of the London County Council, consulting medical examiner to the Shipping Federation, etc. As pointed out by this author, "the many provisions made by the Legislature in recent years for

securing benefits to injured work-people have, undoubtedly, given rise to a large number of cases of malingering," and referring to the possibilities in this direction with a particular regard to the National Insurance Act, he remarks that "It is practically certain that, so far from malingering being a subject which rarely comes within the purview of the general practitioner, it will become a matter for which all medical men must always keep their eyes open." He states that in his own experience, derived from the examination of two large public bodies and some 15 to 20 insurance companies, approximately 25% of those examined for alleged illness or incapacity for work, were found to be fit for their respective duties, or, in other words, ascertained to be feigning sickness for the purpose of defrauding the employer or the insurance company. In a brief discussion of the psychology of the fraudulent mind, Sir John Collie points out that,

INSURANCE AND MALINGERING.

"Malingering is much more common in connection with accidents than with disease, probably because of the legal liability involved; it has therefore, to be anxiously watched for and considered. Everyone is liable to exaggerate symptoms if doing so may operate to his advantage or excite sympathy. For instance, pain in the back following an accident is a condition which is often caused by suggestion—auto-suggestion. It does not necessarily mean malingering; but pain in the back after an accident, be it caused by a wealthy railway company or by a mishap in one's own garden, is much more often than not, accompanied by no serious pathological change. The pain is often only psychic." And he observes further that, "There is one mental peculiarity of all classes of the community which has always struck me as being inexplicable, and that is that so many people do not seem to think it a wrong to rob a company. Many otherwise honest people do not consider it a mean thing to travel first-class with a third-class ticket and rejoice over an evasion of the income tax. In discussing this matter with perfectly reputable members of society, I have often been surprised at the prevalent idea that an insurance company is fair game."

MEDICAL EXAMINATION OF EMPLOYEES.

The root of the problem lies in the ease with which medical certificates of physical unfitness for work can be obtained when pecuniary benefits are to be secured by means of fraudulent practices. As an aid in the direction of at least a fair degree of control, Sir John Collie suggests the periodic and systematic medical examination of sick employees, quite in conformity to the fundamental idea which underlies the Life Extension Institute. He relates his experience with two large corporations, which at his suggestion sent to him all employees who had been on the sick list for 28 days, not for treatment, but for medical examination and report. The results of his experiment had been entirely successful and satisfactory, it being stated that,

"In the case of a large group of employees in a public service, all of whom had been medically examined before entering the service, and were entitled to medical attendance by district medical officers paid by capitation grant, it was found that, prior to the institution of the independent medical inspection after twenty-eight days, the total number of days men were on the sick-list amounted in one year to 14,400; whereas subsequent to the institution of the new rule, this number was reduced to 9,600—a reduction, in a well-organized and disciplined small force, of no less than 4,800 days in one year, the percentage of reduction being 33.1/3%. During the corresponding periods the total number of men sick for *more* than twenty-eight days was reduced by the somewhat surprising figure of 50 per cent."

PROBLEMS OF ADMINISTRATION.

Additional to the suggestion for systematic medical examination of sick employees, Sir John Collie is strongly in favor of a system of lay inspections as a means of checking malingering and he remarks that such inspectors have in fact been appointed by friendly societies and mine owners, with good results. Considerable experience of general importance has been had in the practice of the Industrial Insurance Department of the State of Washington, particularly with regard to hernia, which, it is stated in the last annual report, "is just as perplexing and unsettled as it was at the time of our report a year ago, not only in the State of Washington, but in all the other states that have compensation acts similar to ours, with the exception of Ohio." The Ohio commission, it is pointed out, "has formulated a plan for handling hernia cases coming under their act, that is definite. Cases coming under the Ohio act, however, are not subject to review in court so the decision of the Commission is final and not appealable; they can settle hernia on its merits from a medical standpoint, and are not confronted with the legal side of hernia."

HERNIA.

The subject of hernia is entirely too complex a question in workmen's compensation law and general practice to permit of more than a brief reference to what may almost be considered a separate branch of the problem of malingering in general. The approximate number of deaths from hernia in the United States may be estimated at 4,000 per annum. The affliction is quite common and, in fact, much more so than generally assumed. The protective value of a well-fitting truss is not as thoroughly understood by the workmen as would be advisable. It has properly been observed that an ill-fitting truss is worse than useless, and furthermore it is con-

sidered well-established that "a truss is not always effective in that it frequently fails to retain the hernia and to give absolute security against strangulation."

I conclude these few observations on hernia with the following extract from the treatise by Sir John Collie:

"Actual malingering in cases of hernia is comparatively rare, although occasionally patients present themselves with swelling in the groin, usually glands or cysts, and claim that these are herniae resulting from traumatism. Even a cursory examination, of course, reveals the true nature of the case. It is, however, very common indeed for a workman to state that he is suffering from hernia as the result of a strain occurring in his work. Such cases are not only common, but very difficult to deal with, for, of course, it is open to any workman who has a hernia to try to make capital out of it." And also the following remarks by Barnard: "There is probably more fraud connected with claims for rupture produced by accident than can be found in all the other cases of fraud for the rest of the body. Of the cases that claim compensation for damages for hernia as being caused by a sudden strain, probably not one in ten is genuine."

In view of the foregoing, it is suggested by Sir John Collie, that "In view of the frequency of this disability among workpeople, all employers of labor would be wise to have a medical examination made before employing a man, and insurance companies might well suggest this as a general principle, so that employers may know whether an employee is, or is not, free from rupture when he is engaged."

OCCUPATIONAL RISKS.

In considering the second large division of the present discussion, that is, the relation of ordinary life insurance companies and fraternal insurance societies to industrial diseases, I can only, on account of the required brevity, touch upon a few important points. A company charging a standard premium at age 35 of $21.90 per $1000 for a whole life policy, with required justice to its policyholders representing a medically-selected group of first-class risks, would charge an extra premium to applicants engaged in dangerous or unhealthy occupations. Limiting the present discussion to the glass industry, it may be said that if applicant is a glass-blower, or a finisher, or a lamp worker, a special rate would be charged, which would be, for the age stated, $25.06 per $1000 of insurance. If, however, applicant is a batch wheeler, or a carboy blower, or a clay tramper, a so-called 'medium' rate would be charged, which would amount to $28.02 per $1000 of insurance; or, finally, if applicant is employed in the manufacture of plate glass as a caster, or a rough cutter, he would only be accepted at 'hazardous' rates on the endowment plan. The hazardous rate on the whole-life plan would be $35.32 per $1000 of insurance, the endowment plan being required so as to eliminate the risk at the end of the endowment period, which usually runs for 20 years. In contrast, if applicant were a plate glass cutter, no rating would be required, nor if he were an annealer, or a flattener, or a leer tender, in the manufacture of window glass; if, however, applicant were a handler of materials or employed in mixing in connection with the blown and pressed glass branch of the industry, the application would be declined, and the same course would be followed in the case of a puttyer in the cut-glass branch, on account of the liability to lead poisoning. This concrete illustration, derived from the practice of a large and representative company emphasizes the general principle of occupation selection and occupation rating on account of either extra hazard resulting from ill-health producing conditions inherent in the industry, or because of other health-injurious circumstances likely to curtail materially the normal expectancy.

RATING PRACTICE.

Another method is to raise the age of the insured, that is, to advance the age a number of years, which, of course, amounts to the charge of an extra premium, simply on a different basis. According to the methods of another large and representative company using this plan extensively, glass blowers using machinery are limited to endowment policies, but rated five years, whereas glass blowers not using machinery are also limited to endowment policies, but rated eight years. Since the normal whole-life premium at age 30 charged by this company is $24.38 per $1000 on the participating plan, a rating of five years increases the premium to $28.11 and a rating of eight years to $30.88 or a difference of $3.73 and $6.50 respectively.

MEDICO-ACTUARIAL EXPERIENCE.

That the occupational rating practice of life insurance companies is fully justified by experience is well brought out by the recently-published mortality data of the Medico-Actuarial investigation. For illustration, glass blowers at ages 15-29 show an excess of 13% in the actual over the expected mortality, and an excess of 32% at ages 30-39, and of 35% at ages 40-49. Stone cutters show an excess of 42% in the actual mortality over the expected at ages 15-29, of 138% at ages 30-39, and of 226% at ages 40-49. In view of this experience, it is self-evident that the practice of the first-named company, to insure stone cutters using pneumatic tools only on endowment plans at hazardous rates is entirely justified. A thorough understanding of occupational mortality, with a special regard to industrial diseases, is essential for the safe and equitable administration of a life insurance company. Construing the term "industrial diseases" in the broadest possible sense, so as to in-

clude the increase in the general death-rate from any causes due to unfavorable conditions inherent in the nature of the work, the problem becomes one of most serious importance. It is, therefore, so much more to be regretted that there should be no trustworthy occupation mortality statistics for the United States and that the vast amount of useful material in possession of the Division of Vital Statistics of the Census should not be utilized for the important purpose of facilitating the scientific study of the subject on the part of the general public, the medical profession and the life insurance companies.

INDUSTRIAL INSURANCE AND INDUSTRIAL HYGIENE.

The business of industrial insurance has attained to such enormous proportions that it is practically inclusive of the majority of wage-earners and their families in the United States. Since the premiums are sufficient to cover all of the ordinary mortality contingencies of the industrial population, it would neither be necessary nor equitable to charge an extra premium in the case of dangerous or unhealthy occupations. The companies transacting this form of insurance, therefore, are primarily interested in the most effective methods of public health administration, especially, of course, in the direction of a lowering of the death-rate of men and women employed in American industries. The mortality experience of the industrial companies can be utilized to good advantage in directing attention to the seriousness of the more pressing mortality problems, as best illustrated in the exhibits of the Prudential Insurance Company of America on the occasion of the Fifteenth International Congress of Hygiene and Democracy and the earlier International Congress on Tuberculosis. The companies are in close touch with their policyholders and within reasonable limitations they are in a position to aid the nation-wide movement for health betterment in American industry. Direct assistance by means of a nursing service remains a debatable question, considering the cost of such a service, if made available to all of the policyholders in every section of the country. Indirect assistance, by means of statistical research on the one hand, and active coöperation in the efforts of national and international associations for labor legislation, tuberculosis prevention, accident prevention, hospital improvement, public health nursing, etc., would seem to promise the best attainable results. Efforts of this kind are becoming more concrete and less academic, as best illustrated in the Federal laws prohibiting the manufacture of poisonous matches and the pending legislation for adequate compensation for industrial accidents to Federal employees, including compensation for industrial diseases.

LIFE EXTENSION MOVEMENT.

The recent movement for life extension under the direction of a national institute, promoted by Prof. Irving Fisher and others, may be briefly referred to. There can be no question of doubt but that periodical medical examinations are of considerable practical value, particularly in the direction of calling attention to the earliest indication of existing disease or physical bodily impairment. As pointed out in the discussion of malingering, such medical examinations were suggested by Sir John Collie, and even earlier the value of periodical medical examinations had been recognized, but the first concrete example of what such examinations can accomplish is the well-known experiment of the Postal Life, which is practically made the basis of the work of the Life Extension Institute. As yet the experience data are not sufficient to warrant definite conclusions, but it would seem entirely safe to anticipate favorable results, especially in the field of occupational diseases, including the more subtle effects of physical impairment resulting from long-continued occupational strain. Even more important in this connection would be the widest possible extension of the principle of the medical examination of employees and the periodical re-examination of such employees, if engaged in occupations more or less subject to health-injurious conditions. A movement in this direction has the encouragment of the National Association for the Study and Prevention of Tuberculosis and the aid of local health organizations throughout the country. The German army rules for reporting all rejections of recruits for tuberculosis to the local organizations or to some qualified medical body, would seem to suggest practical results of far-reaching value, although the actual experience has been more or less of a disappointment. Since the excessive incidence of tuberculosis, as determined by the proportionate mortality rate, is well-established for numerous occupations, it would not seem difficult to concentrate modern efforts for the prevention of the disease upon the workers in dusty trade most liable to early death from what is known, or generally considered to be strictly preventable disease. In these and many other directions ordinary life insurance companies, fraternal societies, as well as industrial insurance companies, and companies or societies writing personal health or sickness insurance, can render the aid required to make the nation-wide campaign for a reduction of occupational diseases a practical success.

ESTIMATE OF WAGE-EARNERS' SICKNESS.

There are, unfortunately, no trustworthy statistics of industrial diseases for the United States, nor for that matter, are there such statistics for any other country. The available statistics are practically limited to the more obvious or self-evident forms of industrial diseases, which, as previously pointed out, are of small numerical importance. A possible exception to this rule is lead poisoning, which is much more common than is generally assumed to be the case.

In its final analysis, the industrial disease problem is but one phase of the larger problem of general health in industry, which is approximately measured by the rate of sickness prevailing among different classes of employees. There are no statistics of sickness for the United States, nor for wage-earners separately considered, but on the basis of the Austrian returns for recent years, it would seem safe to conclude that there are approximately 1,000,000 wage-earners sick in the United States during every day of the year, or, in other words, that among our American wage-earners, men and women, as estimated for the year 1914, there will occur approximately 365,000,000 days' of sickness involving incapacity for work. On the German basis for recent years the probable number of days' sickness would be 318,000,000. Granting that the sickness rate is possibly lower in this country than in either Austria or Germany, it would hardly seem safe to assume this to be so without more adequate data than are at present available. The fact must not be overlooked that the establishment of a compulsory sickness insurance system brings immediately within the range of medical treatment a large number of wage-earners who would not make use of such treatment if required to discontinue their work without compensation for a given period of time, involving not only the immediate loss in wages, but also the additional expense of medical or institutional treatment. The rise in the sickness rate which is usually observed in countries or states adopting a compulsory sickness system is not necessarily an indication of malingering, but to the contrary, it is evidence of a more rational use of medical and institutional facilities when the same are likely to prove of the greatest possible value. Considered from this point of view, medical and hospital aid are social functions and not a matter of mere arbitrary individual judgment or choice. It is on this ground that the compulsory insurance system provides pecuniary support during sickness, as well as for the necessary medical or institutional needs, including medicine and surgical appliances, and opportunities for complete recovery in convalescent homes, baths, etc.

INDUSTRIAL DISEASES A COMMUNITY PROBLEM.

In its broader aspects industrial diseases must be considered a community problem, since the community is largely responsible for the continuance of their occurrence and aroused public interest, the best illustrated in the successful agitation against the manufacture of poisonous matches and the resulting cases of phosphorous necrosis, can accomplish much, if not most, in the nation-wide effort to reduce occupational diseases to the lowest possible minimum. Compensation for such diseases, while properly called for in response to an enlightened sense of social justice, must always be of secondary importance to the prevention of such diseases or their entire elimination, if necessary by the prohibition of methods and processes seriously detrimental to health. The attainment of a realizable ideal in public health administration demands the intelligent, sympathetic and active coöperation of the government, the business interests, the employees and the general public, and additional thereto the life insurance companies, whose interests are identical with those of the public at large. There can be no doubt but that these companies will in the future render a larger sphere of community service than they have done heretofore, but in no direction are they likely to render more substantial aid than by giving the widest possible publicity to the facts of their own experience, subject to the necessary explanations and qualifications, to avoid an erroneous interpretation and use of the facts.

III.

Occupational Diseases as a Public Health Problem.

By Harry Linenthal, M.D., Boston.

The ever-increasing interest in the effects of occupations upon health which is at the present time manifest in many quarters, can be traced to a variety of influences.

In the first place, those interested in social and economic conditions feel that it is the duty of society under the modern complex system of industry to protect the worker from influences injurious to his health while at work.

Secondly the more progressive employers of labor are beginning to recognize that the good health of the worker is an important asset. At the present day when efficiency is the watchword in nearly all fields of social activity it is not surprising that employers are coming to the realization that good sanitary conditions are essential to get the best returns from the worker, and that conditions which are inimical to health tend to reduce his productive capacity. Moreover, Workmen's Compensation Acts which hold the employer liable for the ill-health of his employees resulting from accidents or poisonous materials with which they are in contact, are powerful stimuli to the employer to provide such conditions as would minimize the danger to health and life of his employees.

Lastly the medical man is rapidly learning the importance of regarding his patient not as an isolated physiologic mechanism but as a member of society with innumerable intricate social relations. The knowledge of the social setting and environment of the patient is being recognized, with ever greater clearness, as important, not only in the treatment of the patient, but in the diagnosis of the disease. We are learning that it is often as important in the diagnosis of a patient's ailments to search for abnormal social relations, for maladjustments to environment as it is to look for physical abnormalities. Hence

the most remarkable development and rapid spread of social service departments in hospitals with the complete change of point of view which it has introduced in hospital work. What more natural than that the conditions in our present-day intricate industrial system under which such a large number of the population spends from one-third to one-half of their lives, should engage the attention of those concerned with the health of the community, and that efforts should be directed to form correct estimates of the effects of the various trades and industrial processes upon health.

Thus from many sources and from various angles interest is becoming centered on the problem of occupational diseases. We are, however, on the very threshold of the inquiry. Our efforts thus far in bringing about changes and improving conditions have been unsystematic, incoördinated and often ill advised. This inefficiency is due partly to our ignorance as to what are the actual effects of occupations upon the morbidity and mortality of the community, and partly to our failure to apply certain methods in dealing with occupational diseases which have been tried and found effective in another field of public health work, that of communicable disease.

OCCUPATIONAL DISEASES AND PUBLIC HEALTH AUTHORITIES.

Conditions of ill health due to occupation may be roughly divided into two general groups. We have on the one hand such specific diseases of occupation where the etiologic relation between the disease and industrial process is clear and unmistakable, such, for instance as poisoning from lead, mercury, arsenic, phosphorus, wood alcohol or other poisons among workers who are exposed to these toxic substances in their work.

On the other hand are the states of ill health which are not due to any specific industry but which are caused by unsanitary conditions common to many industries. Such conditions do not produce specific diseases, easily traceable to the employment, but may have a general deteriorating influence upon the health of the worker. A person, for instance, employed for ten hours a day in an uncleanly, poorly lighted, poorly ventilated, overcrowded workshop will in time present a picture of ill health which will not be dramatic in its onset but which will undermine the resisting power of the individual and which will cause him to fall a prey to any infection with which he may happen to come in contact.

The specific occupational diseases have definite etiologic relations to the particular industries and they are, in a large measure at least, preventable. As such they constitute a problem for public health authorities. It matters little whether ill health or death is caused by the invasion of the body by a micro-organism or by poisonous industrial fumes and dusts. The latter are no less incapacitating and deadly. It is true that the number of victims of a poison-laden atmosphere is far smaller than those who become victims of, let us say, an infected milk supply, and that, therefore, the control of communicable diseases is a more important problem than the control of occupational diseases. It is also true, however, that measured in terms of efficiency, that is, results obtained for efforts and money expended, the prevention of occupational diseases can be of higher efficiency than the prevention of infectious diseases. The problem of tracing an occupational disease to its preventable sources is far simpler than is apt to be the case in an infectious disease. Usually it is difficult and very often impossible to trace the source of infection of a case of typhoid fever, for instance, unless the disease occurs in the form of an outbreak where a common factor in all the cases may be found. This difficulty is still greater in a disease like tuberculosis. In occupational poisoning, on the other hand, the source can usually be definitely determined once the disease is recognized. Moreover, efforts at prevention are more apt to be fruitful in occupational diseases than in communicable diseases. With all our efforts to check the spread of infectious diseases it is, at present at least, a practical impossibility to guard the community against unrecognized and unsuspected carriers of such diseases. No amount of education and care can protect an individual from contact with a typhoid or diphtheria carrier. Not so in occupational poisons. The sources of the intoxications are easily traceable and methods how to guard against them are well defined. If but a small part of the energy and efforts used to check the spread of communicable disease were applied to occupational diseases, the results would in proportion be more satisfactory.

METHODS TO CONTROL OCCUPATIONAL DISEASES.

The control of the specific occupational diseases, does not present any special health problems, and should be dealt with by the same authorities whose function it is to guard the community against preventable illness, namely—the public health authorities. The following methods which have been used and found effective in the reduction of communicable diseases are likewise applicable to occupational diseases.

1. *Early Diagnosis.* The importance of early diagnosis in communicable diseases has been forcibly impressed upon us in recent years. In tuberculosis, for instance, we have learned that our only chance of arresting the disease is to recognize it in its incipiency. Likewise, the early diagnosis of cases of typhoid fever, scarlet fever, diphtheria, and other communicable diseases may call attention promptly to the source of infection and prevent the occurrence of many other cases. This applies with equal force to occupational diseases. We must learn to diagnose them in their incipiency if we would protect the worker from the more serious manifesta-

tions of these diseases, and if we would institute preventive measures against the source of the intoxication, and thus prevent the occurrence of other cases. This responsibility rests entirely with the physician.

2. *Report of Cases.* There is still another responsibility which physicians have willingly assumed in dealing with infectious diseases, namely, the prompt report of such cases to the health authorities. No efforts to check the spread of communicable diseases can be effective unless it has the interest and coöperation of the practicing physician; he is the one who first gives the danger signal to those responsible for the public health that an infection exists which threatens the life and health of the community. No single measure has been of such great importance in the control of communicable diseases as has been the coöperation of physicians by the report of their cases. This responsibility of the physicians has recently been extended in fourteen states in the Union, including Massachusetts, to certain specific occupational diseases. The laws requiring such reports are not uniform. In some states the occupational diseases are reportable to the health authorities and in others, as in this state, they are reportable to boards of labor. This I think is unfortunate. Physicians are already accustomed to report diseases dangerous to public health to the health authorities. The requirement that occupational diseases be reported to labor boards tends to obscure the fact that this measure is in the interest of public health, and is similar in its purpose to the law requiring the report of infectious diseases.

3. *Investigation of Cases.* The investigation of every case of occupational disease reported to the central authority with a view of determining the sources of the disease is even of greater importance than the investigation of every case of infectious disease. It is most often impossible to trace the source of infection of a sporadic case of typhoid, scarlet fever or diphtheria. In occupational diseases, on the other hand, the source of the intoxication can be determined in practically every instance and it should be the duty of the authority to whom the cases are reported to investigate the source of every case so as to prevent, whenever possible, the occurrence of other cases. Moreover, the comparatively small number of occupational diseases that are likely to be reported makes the investigation of the individual case practical.

4. *Instruction of the Patient.* The instruction of the patient is a measure of great importance in the control of preventable diseases. This is not carried out as well as it ought to be, especially among patients treated in hospitals. Every patient treated for a preventable disease, more particularly for a disease dangerous to public health, should be instructed as to the nature of the disease, its mode of transmission, and the measures necessary to guard against it. A patient convalescing from an infectious disease is particularly susceptible at that time to such instruction on account of his live interest in the particular disease. To discharge uninstructed patients from a hospital to spread disease organisms of which they may be carriers, instead of information as to prevention, indicates an attitude of indifference on the part of the hospital to public health. At the Massachusetts General Hospital plans are now being perfected whereby patients suffering from preventable diseases may leave the hospital fully instructed. This instruction from the standpoint of the individual patients is of even greater importance in occupational disease. For while in many of the infections the patient is, for a time at least, immunized to subsequent infection, the sufferer from an occupational intoxication has to return or has to continue work at the very source from which he contracted his disease, and instead of an immunity he usually acquires a hypersusceptibility.

The instruction of the patient is therefore one of the most important duties of the authorities to whom occupational diseases are reported.

5. *Regulations to Control Preventable Diseases.* In communicable diseases boards of health are given general powers to make regulations and establish such measures as the public health may require. Similar powers should be given to them in making regulations and requirements in industrial establishments to protect the health of the operatives. The Industrial Commission of Wisconsin is given such powers. In Massachusetts all protective measures are regulated by legislative enactments. Such laws can only be general and cannot apply to the infinite variety of conditions in modern industry. A board having general authority could make such regulations more specific, applying to particular processes in particular establishments. Moreover, such regulations could be easily modified with the changed conditions in industry, such as the introduction of new processes, without waiting for legislative enactments.

6. *Educational Campaign.* A general educational campaign similar to that carried on by health boards in their dealings with communicable diseases is equally applicable and essential in occupational diseases.

The enforcement of laws enacted to protect the worker against injurious influence is often very difficult. Opposition is met not only on the part of the employer who is unwilling to lay out the money to install the necessary equipment, but also on the part of the worker who looks upon any innovation with suspicion, and who will often refuse to utilize protective appliances. Both employer and employee must be educated. The former must be taught to realize that the provision of good sanitary conditions is an asset and increases the efficiency of the worker. He must, therefore, comply with the spirit as well as with the letter of the law and by a strict workshop discipline require the employees to use the safeguards provided for them. The workman, on the other hand, should be fully in-

structed to the dangers to which he is exposed at his work and the precautions he must take to avoid them. Placards calling attention to the dangers involved in certain processes in which workers are exposed to poisonous dusts or fumes should be posted in the workrooms where such processes are carried on. These placards should also contain instructions as to the precautions necessary to avoid poisoning.

7. *Examination of Minors.* In recent years much has been accomplished by the systematic examination of school children by school physicians and the following up of the cases found in ill health by school nurses. While originally started in Boston by Dr. Durgin with a view of diminishing the spread of communicable diseases through the schools, it has in recent years become much wider in scope. The community has assumed in a measure, a responsibility for the child's physical development and it aims to discover physical defects early so that they may be corrected and properly treated and thus give the children the best opportunity for both physical and mental growth during their period of development. This work is now generally recognized as a valuable part of health work, productive of good results. But while we are so concerned with the health of the school child we forget the less fortunate child in the mill, factory and workshop. Minors employed in industrial establishments are easily susceptible to influences injurious to health, and they, therefore, require even more careful supervision than the more fortunate children of the same age who are in the upper grammar school classes or in High schools.

Massachusetts has made a good start in that direction. In the original law of 1907 creating the State Inspectors of Health, it was provided that these medical officers familiarize themselves with the health of minors employed in factories in their respective districts. While this provision was a very broad and general one it was worked out on its administrative side most effectively by Dr. William C. Hanson who was directing the work of the State Inspectors of Health. Under his direction thousands of minors were examined annually through the state. While not endowed with any authority to exclude minors from work, the State Inspectors of Health have accomplished a great deal by calling the attention of the parents or of the employer to the minor's ill health. Very frequently it was possible to persuade the employer to put a minor on work more suitable to his physical condition. Moreover, through these examinations minors ill with tuberculosis were frequently discovered. Thus Dr. Wm. Hall Coon discovered eighteen cases of tuberculosis among the minors employed in the textile mills in his district, all of whom were placed under proper treatment.

The observations made by the state inspectors of health upon the health of minors in their respective districts led to the legislation which prohibited the employment of minors in trades and processes designated by the state board of health as injurious to health. This legislation is of inestimable value in protecting the health of young persons. Many minors were subsequently found engaged in such processes. They were found exposed to lead and plumbago dusts in printing and electrotyping establishments, to pearl-shell dust, to talc dusts in rubber works, to the fumes of naphtha in the shoe industry, and to the fumes of dipping metals in acid solutions. In every instance immediate steps were taken to safeguard the health of the minors thus exposed. They were either excluded from the factory, transferred to another department, or what was most frequently the case, the employer adopted special means and devices which appeared to the state inspector of health to be efficient in protecting the minors against the dangerous influences.

This work of examining the minors in industrial establishments which was carried on in Massachusetts from 1907 to 1912 should have been extended and made larger in scope. It is greatly to be regretted that the law in Massachusetts has been changed so that the examination of minors in industrial establishments is no longer required. Medical supervision of minors at their work is, I believe, as important as the medical supervision of school children and is a necessary factor in the control of occupational diseases.

RELATION OF OCCUPATION TO HEALTH IS OF LARGER SCOPE THAN SPECIFIC OCCUPATIONAL DISEASES.

I have thus far shown that in dealing with specific occupational diseases we are not confronted with any new problem but that all the methods now successfully used in the control of infectious diseases apply equally to the control of occupational diseases.

But the study and control of ill health due to occupation, is far wider in scope than the problem of dealing with the few specific diseases. Many employments, or avoidable unsanitary conditions do not cause any specific disease but have as their inevitable consequence the diminished bodily resistance of the worker with greatly increased susceptibility to disease of all kinds. From the standpoint of public health these debilitating influences are of even greater importance than the specific industrial diseases. Of greater importance because they affect greater numbers. The number of workers employed in processes recognized as dangerous is but a small fraction of the vast number who are employed in the enormous variety of industries which are not usually regarded as dangerous but which may, either on account of their intrinsic character or on account of the conditions under which they are carried on, bring about disease.

Unfortunately, however, we have little knowledge of the effects of these industries upon health. Such knowledge can only come from cumulative data and observations on the mor-

bidity and mortality of workers in the various trades, data which is at present unavailable. A priori it would seem as if it would be possible to gather such statistics from the records of the thousands of working men and women who are treated annually in our large hospitals. As a matter of fact such an investigation is not possible, due to the inaccuracy of the recorded occupations on hospital records. It is only by a careful inquiry into the occupations of the great number of cases that present themselves for treatment at our hospitals that we may hope to gather in time sufficient data that will enable us to draw conclusions as to the effect of any particular process on the health of those engaged in it.

Such an intensive study has been initiated at the Massachusetts General Hospital by Dr. David L. Edsall and is now being carried on by Miss Susan Holton of the Social Service Department. From the general interest which this work is arousing it promises that it will soon be taken up by hospitals all over the country.

Such an investigation, however, needs to be supplemented by accurate data and descriptions of the industrial processes and the conditions which prevail in the various industries in any given locality, so that accurate estimates may be made as to how much the industry itself is responsible for the conditions of ill health, how much is due to avoidable unsanitary conditions, how much to bad housing conditions and other influences injurious to health.

A great deal of information and data relative to the various industries in Massachusetts has been accumulated for the state board of health by the state inspectors of health. Among the industries of which intensive studies have been made are included the textile industry, the pearl industry, the felt hat industry, the mattress and curled hair industry, the boot and shoe industry, the making of jewelry, metal polishing and buffing, foundries, laundries, cigar factories, candy factories, the clothing industry, a group of industries in which workers are exposed to lead poisoning, such as printing, stereotyping, monotyping and linotyping, electrotyping, paint manufacturing, potteries, the manufacture of tile, and the rubber industry.

These two lines of investigations, that of the hospital clinic, and that of the governmental investigator, who visits the establishments from which patients are treated at the hospital and who is, or should be, familiar with the housing conditions of the community, should be coördinated and the results of one should be made accessible to the other. To make the hospital investigation complete a report should be obtained from the state authorities of the exact conditions in the establishment where the patient is employed. A careful record should also be obtained of his home conditions; then only could we draw conclusions as to the relative importance of the various factors in their effects upon health. Close and intimate coöperation between the hospital and the governmental agencies are essential.

SUMMARY.

To summarize briefly:

Diseases due to occupation may be divided into two classes. (1) The specific occupational diseases where the relation between the disease and the industrial process is a direct one, and (2) those conditions of ill health not specific in character which are brought about by conditions of employment.

The latter needs further investigation and study. Such studies should be carried on in close coöperation, by the hospital clinic, where great numbers of working men and women apply for treatment, and by the governmental authorities who visit the industrial establishments and are familiar with the industrial processes and with the conditions prevailing in the various industries.

The former, the specific occupational diseases, present no special problem in public health. The methods which have been tried out and found effective by health authorities in the control of infectious diseases are all equally applicable in the control of occupational diseases.

DISCUSSION.

Dr. Elliott Washburn, Rutland, Mass.: No one who is at all familiar with the subject can for a moment deny that the conditions which surround those who work in factories and other places of employment frequently must and undoubtedly do exercise a potent influence in reducing the individual resistance to disease. This is without doubt especially true in relation to tuberculosis.

Our Massachusetts laws provide that such places of employment shall be well lighted, well ventilated and kept as clean as the nature of the industry will permit but, unfortunately, they provide no definite standard as to what constitutes good light, ventilation and cleanliness in these places and thus these matters are largely left to the personal equation of the individual owners and of the industrial health inspectors.

Specific laws govern such unhygienic conditions as dust, noxious fumes, gases and vapors, excessive humidity and exposure to poisonous metals and chemicals, which are created by various processes of manufacturing. These laws are more or less carefully obeyed by manufacturers and by employers of labor but the degree of compliance varies somewhat widely according to the type of man in charge of the work. Thus on one extreme we find employers who of their own volition not only obey the letter and spirit of the laws but also spend large sums of money in perfecting conditions in ways not called for by the law while, on the other extreme, we have the man who obeys as few laws governing the hygiene of his factory as

possible unless actually compelled to comply by threat of legal procedings.

A somewhat large study of industrial conditions from the viewpoint of hygiene taught me that there are many other things in factory life beside those recognized by statute which tend to reduce the resistance of workers, and it is my belief that at least some of these have a very vital influence. Overcrowding of employees, excessive noise, speed of work, cramped postures and, above all, the utter monotony and grind of doing just one little process at top speed, faster today than yesterday, faster tomorrow than today, with nothing to look forward to but just the same little process, all these cannot help but tend to overtax the vitality of the workers. Often, in shoe factories I have stood beside men working on machines by which the edges of the soles of shoes are trimmed and have thought "How can they stand the pace and monotony of it and what under the sun have they to look forward to?" For, in the shoe industry, an edge trimmer is always an edge trimmer, a laster is always a laster and so on and so on, and so too in other trades. The weaver works at his utmost capacity. The mill is so run that he must work at his utmost or step out.

In certain dusty and exhausting trades such as pearl working, metal moulding and polishing, sand blasting and stone cutting the workers are notoriously of alcoholic habits. This I fully believe to be largely due to the nature of their work and the unhygienic conditions to which their work unavoidably exposes them, leaving them as it does, at the end of the day's work, so thoroughly exhausted that they yield not unnaturally to nature's cry for stimulation.

It is indeed unfortunate that with few exceptions physicians have so little real, first-hand knowledge of the actual conditions under which their patients spend their working time and of the unhygienic influences to which they are many times exposed. How many of us here today know anything at all of the working life of the iron moulder, or the brass moulder, the polisher, the weaver, the spinner, the shoe worker, the rubber worker, the jewelry maker, the stone cutter or in fact of the worker in almost any industry I might mention? Too many times we are treating patients who are ill because of conditions to which they are constantly exposed at their work and of which we know little if anything. Is it not, therefore, upon us as physicians to take up this work as our part in the industrial strife in order that we may intelligently treat our patients and search out some practical remedies for such unhygienic conditions in places of employment as we may find to be unnecessary or avoidable or capable of improvement?

Dr. C. E. Simpson, Lowell, Mass.: I am very glad indeed that the Massachusetts General Hospital has set so good an example for physicians and hospitals in this work. In my investigation of factories, the one thing that has struck me as being of the most importance was the absolute lack of any vital statistics that would be of any avail for any particular purpose. The information that we obtain from the average book amounts to practically nothing. A variety of conditions and poisonous effects resulting from the various materials that are used in the industries are touched upon. In many of them some symptoms are named, but none directly connected with the work. The death returns that we find will name an occupation as that of an operative, but never as a spinner or weaver, so that we have little or nothing to go by.

Here in Massachusetts, (whether it is so in other states I do not know) the laws leave vital statistics in the hands of town clerks and city clerks, and they in turn with the secretary of the Commonwealth,—whether that has made any difference I am not able to say. But it is evident that research work along these lines can not help being of great value to give us facts to go by, and as Dr. Washburn has said, it is almost impossible for the physician in his usual work to understand the minute workings of all the different processes, yet he can, if he looks into it carefully, understand the poisonous symptoms that affect the individual, such as chromic salts, lead poisoning or naphtha fumes —finding those in his patients, he will begin to ask about the processes in the business, and it seems to me can get at the real cause to much better advantage than he could by trying to learn the different trades in which these poisons are used.

Another thing that struck me was the old saying that "familiarity breeds contempt." We can not get much satisfaction out of the patients themselves in regard to their work. For instance, one finds the spinner in a worsted mill is anxious for a high humidity and excessive amount of heat in which he is working; he seems to think that it helps to get off more work, and more work is what he is after, and if he had his way about it he would be working in a saturated atmosphere at a temperature of 90 degrees for most of the time. The same with the typesetter: he doesn't realize that holding type in his mouth is apt to develop lead poisoning,—and so in other trades. We cannot hope for very much assistance from the patient unless direct questions are asked.

I think the point that has been touched upon by most of the speakers coincides with my experience: that if you can show the operator that he is carrying on his process with injury to the health of his employees, and thereby he is not getting the full efficiency from the employe, if you can show him reasonable conditions under which he can improve matters, he is ready to do it, keen to do it, realizing that it means more efficiency.

Another thing that I noticed was the lack

of any marked coöperation from physicians. I think in all the time I was working as factory inspector, I never had more than two or three physicians speak to me about any patient they were treating that was suffering from any occupational disease.

I think it would be of great help to the investigator to have the physicians, although they may know about these processes, bear in mind that the inspector is very anxious to get the actual patients that are suffering from these diseases, and have a chance to make a personal investigation of their surroundings.

I remember looking up one process which it was claimed was particularly dangerous. In going through some 25 factories and asking the operatives in each factory to give the names of some individuals among them who had been injured by the process in question, not one case was given me.

If doctors would simply bear in mind that they are going to help us a great deal by pointing out individual cases, it seems to me they would be doing the general cause a great deal of good.

Dr. Lyman A. Jones, North Adams, Mass.: By way of illustrating what some corporations are doing for their employees, I would like to speak of a construction camp which I recently visited. It is expected that a thousand men will be employed at the end of the month, on a contract that is to be completed January 1, 1915.

The camp has been provided with a water system, water being piped to all the buildings from a mountain brook a mile or a mile and a half from the camp. A complete sewer system was installed. A dozen houses, furnished with bath and closet, are provided for the married foremen. There are dormitories for the American and foreign help. There are two stores, one for the Americans, one for the Italians. There is a hospital building, with operating room, ward and quarters for the resident physician.

The whole camp is lighted by electricity, and there is a telephone service throughout the camp.

The various kitchens are immaculately clean, as well as the dining rooms.

All this is simply to insure efficiency and ability to carry out the conditions of the contract, which call for the completion of the work by the first of next January.

Dr. C. S. Gould, Norwood, Mass.: I would like to offer a word by way of explanation of the exemplary conditions referred to by Dr. Jones. The brother of the man undertaking the contract is a physician, and hence the careful detail in this model camp for workmen. I would like to emphasize the fact that this admirable example was or could be attributable to the influence of the brother physician, not wholly to the contractor,—the physician did play a part in bringing about the favorable conditions for efficiency and ability.

Dr. Antoinette F. Konikow, Malden, Mass.: The physicians seem to be rather too optimistic as to the attitude of the employer toward the health of his employe. The employer is too deeply concerned in the question of profit. I think the physician should rather look to organized labor for coöperation in his work. The unions, for example the Cigar Makers' Union, have done a great deal to better hygienic conditions in the shops. The working class is not so ignorant of what is detrimental to its health as some of the physicians seem to think. The employer usually has to be forced to look after the health of his employees by the unions or by legislation.

Clinical Department.

SOME FATAL SURGICAL ERRORS.

By J. Shelton Horsley, M.D., F.A.C.S., Richmond, Va.

Progress in surgery is largely due to noting mistakes in diagnosis and errors in technic and in attempting to avoid their repetition. We are naturally proud of our successes and are inclined to publish very quickly either a series of cases that show gratifying results or instances of rare surgical affections with favorable outcome. It is far more pleasant, if not so profitable, to think on such things than to ponder over our mistakes, with the haunting memory that perhaps if we had been more careful in judgment or more skillful in technic the patient would have been saved. Mr. Stephen Paget, in "Confessio Medici," says in fatal cases he often wonders if the patient would not have done better in other hands than his. This reflection has probably occurred to every conscientious surgeon, particularly when an unexpected calamity overwhelms him.

Some of the most instructive and comforting papers I have seen contained accounts of mistakes described by surgeons who frankly set forth the errors they made and told how they should have been prevented. It is with this in mind that I desire to report three cases, where the fatal results might have been avoided, at least temporarily, had it not been for mistakes I made during the operation. They do not comprise all the instances in which this has happened in my practice, but these three cases, all in recent times, stand out so prominently in my memory that I hope recording them may keep others from committing the same grave errors

Case 1. The first patient was a man, about 65 years old, upon whom I had operated two years previously for cancer of the right lobe of the thyroid, which was compressing the trachea and causing marked dyspnea. The operation was tedious and was necessarily done under local anesthesia. About an hour after the operation, the trachea collapsed and only a quick tracheotomy saved him. Otherwise he made a satisfactory recovery. I rather anticipated an early recurrence, but was gratified to learn that for more than a year the patient was comfortable. About this time a tumor appeared on the right side of the neck on the level of the larynx. It grew rather slowly. I first advised against operation, but as his general condition was good and the progress of the tumor slow, I finally consented to attempt an extirpation. Ether was first tried but was so irritating to the somewhat compressed larynx that chloroform was substituted. It was carefully given by an anesthetist skilled in administering chloroform. The growth, hard and infiltrating, was dissected free toward the larynx and to some extent above and then was attacked from below. The sterno-mastoid muscle was cut near the clavicle. The carotid had evidently been blocked by the growth; its pulsations were more feeble and the artery appeared deeper than normal. A white band just over the carotid, thought to be a band of fascia to the contracting cancer, was cut. This proved to be the collapsed internal jugular that was occluded by the growth above and had been pulled out of place by the contraction of the carcinoma.

In the elevated head position in which the operation was done, there was no blood in the collapsed vein. The entrance of air was heard and the vein was clamped. The patient's pulse stopped almost at once, though it had previously been good. The head of the table was lowered and the sequestration tourniquets on the legs were removed. The pulse improved and in about five minutes was quite good. The head of the table was again raised, and the dissection begun. In a few minutes the pulse again failed. The head of the table was lowered, artificial respiration done, and intravenous infusion of adrenalin and normal salt solution given, but the patient died within a few minutes. Death was due to aspiration of air into the collapsed internal jugular vein, which was empty and had been pulled forward by the contraction of the carcinomatous mass. The patient might have recovered if his head had not been elevated too soon after the vein was wounded. Air that was lodged and might have dissolved in the blood in time was probably loosened by the change of position and rose toward the arteries of the brain.

The possibility of serious consequences from entrance of air into the vein during operations on the neck is mentioned rather casually in most text-books. It is often alluded to as a matter of surgical history along with hospital gangrene and is referred to as a complication that occurred in pre-anesthetic days. In another case, while excising a tubercular sinus in the skin at the root of the neck and over the upper part of the sternum, I cut a superficial vein in tissue that was somewhat infiltrated. There was a slight hiss of entering air and the vein was at once compressed and ligated. The patient's pulse immediately became bad, but soon returned to a satisfactory rate and volume. He recovered uneventfully. The infiltration in the tissues had stiffened the walls of the vein and kept it from collapsing.

Case 2. The second case, a man 56 years old, had a large sarcoma arising from the meso-sigmoid and involving three inches of the sigmoid. The growth and the involved bowel were removed, together with apparently healthy surrounding tissue. Obstruction had not occurred but was imminent. The proximal end of the sigmoid was invaginated into the distal over a large rubber tube, according to the method of Mayo. The wall of the collapsed sigmoid seemed to fall into the upper end of the tube and make a valve-like occlusion. Changing the position of the tube did not obviate this, and the abdomen was closed with the idea that accumulation of gas in the upper sigmoid would lift the wall of the intestine from the tube. This probably did not occur, as there was later obstruction at the site of operation, which I believe was due to the valve-like closure of the upper end of the tube. Seven days afterwards an enterostomy was done on the right side under local anesthesia. Within a few days the tube in the sigmoid loosened and was removed through the rectum. The enterostomy was efficient, and after the tube in the sigmoid came away the bowels moved naturally, with a tendency to diarrhea. But the patient became asthenic, had no appetite, would occasionally vomit, and finally weakened and died twenty-three days after the enterostomy and thirty days after the resection. While he may have had metastases elsewhere, I did not see any. The obstruction at the site of the resection, though overcome, was a large contributing factor to the fatal outcome.

Case 3. The third case is a man of 47 years, whose previous history is unimportant and who had felt perfectly well within a few days of admission to the hospital. He came suffering with obstruction of the bowels and was greatly distended. A muscle-splitting incision over the right iliac fossa showed a distended cecum. Another muscle-splitting incision was immediately made over the left iliac fossa and cancer of the sigmoid, which bound down this bowel was palpated. The wound was closed and the cecum was drawn into the wound first made, packed around with gauze, and opened. A rubber tube was sutured in place. He recovered satisfactorily and thirteen days later the involved sigmoid was resected. The neoplasm was dissected from the abdominal wall, to which it was somewhat adherent, and the raw surface immediately cauterized with Paquelin cautery. The patient was very fat, the tissues vascular, and mobilizing the sigmoid was difficult. Before incising the bowel, a rubber covered clamp was placed above the growth and a pedicle clamp unprotected with rubber (a large Ochsner clamp) was applied a short distance below the rubber covered clamp. The surrounding tissue was protected with moist gauze and the bowel between the clamps was to be severed with a cautery. While pulling on the lower clamp to bring the sigmoid up more prominently, the bowel wall which the clamp grasped gave way. Another camp was placed, but its bite went through. A rubber covered clamp, lightly applied, held. On uniting the ends of the sigmoid after the resection, the sutures would pull out of the upper end. The upper end was so short that the rubber covered clamp had to be removed

and the fecal matter sponged from this end to secure enough room. Finally, a series of mattress sutures of catgut were applied which held. An outer continuous row of linen sutures made the union satisfactory. As much of the bowel contents had been spilled, the surrounding tissues were mopped off with a weak bichloride of mercury solution after the protecting gauze had been removed. A large rubber tube was inserted through a stab wound for drainage. The patient left the table in fair condition with pulse of 120. The head of the bed was elevated and hypodermoclysis of normal salt solution given, but he developed peritonitis and died the following day, thirty hours after operation. His resistance had previously been weakened by the obstruction and the contents of the colon was virulent. The "cheesy" condition of the sigmoid above the neoplasm was unexpected, as the bowel appeared normal, and was probably due to the effect of the previous obstruction. However, in spite of these things, if the technic had been so carried out as to prevent soiling of the tissues with the bowel contents, the patient would probably have recovered.

All three of these patients suffered from malignant tumors in an advanced stage, and all of them might have had a recurrence had they survived the operation. But this does not gainsay the fact that mistakes and errors during the performance of these operations were largely, if not entirely, responsible for the fatal results.

Medical Progress.

PROGRESS IN GYNECOLOGY.

BY STEPHEN RUSHMORE, M.D., BOSTON.

MENSTRUATION AND THE VEGETATIVE NERVOUS SYSTEM.

MARYAN[1] has conducted a series of careful observations on patients during menstruation as well as in the interval, studying the condition of the blood and of the gastric juice. Investigations were carried on not only in normal, physiological cases, but also after the injection of pilocarpin, atropin and adrenalin. He is persuaded that both the general subjective and objective symptoms during menstruation, as well as the increased secretion and heightened irritability of the vagus system at this time, point to a transitory vagotonia (in the sense of Hess and Eppinger).

The cause of this condition is not yet ascertained, but at any rate a primary nervous influence does not seem plausible. More probably there is some as yet undetermined disturbance of the glands of internal secretion, the ovary, thyroid, thymus, adrenal, pituitary and pineal glands. The solution of this question may perhaps be reached after studies along the line of Abderhalden's reaction. Increased secretion of the thyroid and thymus and diminished secretion of the adrenals may be regarded as hypothetical causes of menstrual vagotonia.

MENSTRUATION AND THE ABDERHALDEN REACTION.

In a preliminary report on the value of the Abderhalden reaction, Kjaergaard[2] calls attention to an interesting point which he has noted for further investigation. He has followed closely the technic of Abderhalden and has found that in every case, serum from non-pregnant women will break down to a slight extent placental tissue. In pregnancy this proteolytic power is increased. One case which by both optical method and dialysis showed a proteolytic power of a degree according to Abderhalden, found only in pregnancy, suggested to Kjaergaard the investigation of this property in the pre-menstrual stage. In a small series of cases in which pregnancy could be excluded, there was almost constantly a distinct increase of proteolysis in the premenstrual stage, which reached and often exceeded the lower limit for the diagnosis of pregnancy. Thus, the diagnosis of pregnancy, in the premenstrual stage, is more subject to error. In addition to its practical significance, this has a certain theoretical interest, as confirming the view that the premenstrual stage is a preparation for pregnancy, suggested on anatomical and physiological grounds. It indicates also that the cause of the proteolytic reaction may be due to other factors than the passage of material from the ovum to the mother.

In this connection it is interesting to note some findings of Solowjew[3], whose results with the Abderhalden reaction have proved always positive in case of pregnancy, though sometimes positive in women in whom no pregnancy existed. The serum of men gave uniformly negative reaction, as did the serum from several girls in whom menstruation had not yet appeared.

MENSTRUATION AND ENDOMETRITIS.

Although attention was called by pathologists some time ago to the fact that the chief signs of inflammation are absent from the so-called "hypertrophic endometritis," it has been difficult to dislodge the offending concept. The recent work of Hitschmann and Adler, confirmed in its more general outlines, has done much to clear up the field of endometrial pathology. The dogma of the anatomical integrity of the uterine mucous membrane during menstruation, at one time widely accepted, has also of late begun to suffer from attacks. In some of the older views there was described "regeneration" after menstruation, unconsciously contradicting the statements as to the premenstrual and menstrual changes, for regeneration would not occur if degeneration had not first taken place. The obvious method, of making microscopical examination of the menstrual discharge, has been used by several investigators, among them Driessen.[4]

By a very simple device, which he describes,

Driessen has been able to obtain uncontaminated menstrual blood, and his micro-photographs are his published evidence. It seems probable that there is always some destruction of tissue.

Driessen had previously called attention to glycogen production as a physiological function of the uterine glands. In pathological conditions this substance is found in the leucocytes, but not in the glands. Following up this study, he gradually came to the idea of a form of endometritis not hitherto described. It is characterized by six features: (1) Circumscribed hyalin foci are found, and around which leucocytes are grouped; (2) here and there the tissue has undergone necrobiosis, and in the necrotic tissue the original structure of the mucosa can be made out; (3) infiltration with multinuclear leucocytes, and vascular dilatation are present; (4) cystic dilatation of glands (not excessive); (5) active epithelial growth—sometimes suggestive of carcinoma; (6) no glycogen in the mucous membrane. These changes, it will be seen, are such as are found in the endometrium after abortion, "post abortion endometritis." It is to be noted further that this form of endometritis is found almost exclusively at about the menopause; in a few cases only, in adolescence.

The explanation of the changes which have here taken place is easily seen on reviewing the changes which normally occur in the menstrual cycle. After the formation of a spongy and compact layer in the premenstrual stage, the compact layer and part of the spongy layer undergo necrobiosis. There is a considerable invasion by multinuclear leucocytes. Into the small hemorrhages grow young fibroblasts, and there is epithelial regeneration also. In this regeneration the tissue is always glycogen free. If menstruation follows its normal course as a result of a proper stimulus from the ovary a new mucous membrane results as described. If, however, menstruation is irregular, due to defective stimulus from the ovary at menopause or puberty, the so-called ovarian insufficiency, the casting off of the necrotic tissue may be quite irregular and incomplete. There results a condition of post menstruation endometris, analogous to the post abortion endometritis. The clear signs of incomplete regeneration are present: (1) hyalin foci, pathognomonic for this form of endometritis, are from the unorganized small hemorrhages; (2) necrotic areas in the midst of normal tissue, from incompletely cast off compacta; (3) there results infiltration with leucocytes from the presence of this foreign material; (4) the irregular regeneration of endometrium compresses the opening of the glands, giving slight cystic dilatation; (5) the epithelial growth is a well recognized sign of regeneration and is irregular as the inflammation and regeneration are irregular.

In the treatment, as of post abortion endometritis, curettage gives immediate relief. As, however, the condition is due to ovarian insufficiency, it will recur until the ovaries entirely cease their function. The best method of checking ovarian function is not discussed.

There has been a tendency of late, especially seen in the writings of Hitschmann and Adler and Schickele, to refer all uterine bleeding to extra-uterine causes, and Driessen emphasizes his view that whatever extra-uterine cause there may be the uterine mucosa must always be kept in mind.

This theory fits in with the explanation of membranous dysmenorrhea as due to excessive ovarian secretion, leading to casting off of too much endometrium.

VICARIOUS OR COMPLEMENTARY MENSTRUATION.

For some time past menstruation has been recognized as a process which affects the whole female organism and the most striking manifestation of which is the discharge of blood from the genitalia. Probably in some way connected with the internal secretions, its explanation is by no means clear; perhaps the menstruation stimulus is produced by a definite regular cooperation of all the glands of internal secretion. It has been pointed out that every serious disturbance of this coöperation leads to anomalies of menstruation, and especially such disturbances are associated with disturbances of calcium metabolism. The genital bleeding comes from the mucous membrane of the uterus, sometimes from the tubes also. But it may arise in extra-genital organs, when it has been designated as vicarious menstruation. Generally it arises from a mucous membrane, but it has been reported as coming from an old jaw sinus and from large leg ulcers. "Vicarious menstruation," strictly speaking, is rare, as there is usually associated some genital bleeding also. For this condition the term "complementary menstruation" is more appropriate. Hirschberg[5] reports an unusual case of complementary mammary menstruation, beginning at 17, six years after genital menstruation became established and disappearing after ten years, with intermissions due to pregnancies. The genital menstruation now persists normally. The case is of great interest. Two explanations have been offered: (1) disturbance of metabolism of glands of internal secretion, (2) vascular neurosis. But no evidence has been offered which supports either view.

PROFUSE MENSTRUATION TREATED WITH PITUITRIN

In the treatment of the profuse menstruation of adolescence, Deutsch[6] has found the pituitary gland of value. At first, in the clinic, pituglandol was given to every case of uterine bleeding. It was gradually noted that the cases chiefly benefited were the adolescents, in whom it seemed to give almost certainly the desired result, namely, menstruation normal in amount, duration and interval. Of these many had been failures under ergot or hydrastis. The method used was subcutaneous injection of

1 c.c. of the preparation, repeated at intervals of one to three days, for fifteen to twenty doses. If this did not give a cure it was repeated after a month, always finally successful. The general condition of the patient improved markedly and no deleterious or uncomfortable effects could be noted, though even forty-five injections were made.

ATROPIN TREATMENT OF DYSMENORRHEA.

Novak[7] recommends atropin in the treatment of dysmenorrhea. It is not to be regarded as indicated in every case, but has proved most useful in selected cases. How it relieves the pain is not as clear as it seems at first thought. For it is not clear what is the cause of the pain.

In Novak's opinion, it is important to distinguish between predisposing factors in dysmenorrhea, and the mechanical factors. The predisposing factors are either congenital and permanent, or acquired and temporary. In the former group are various constitutional anomalies, asthenia, infantilism, congenital anomalies of the nervous system. In the latter are bodily and mental traumata of any sort.

In considering the mechanism, or the physical side, of dysmenorrhea, we do not find a simple picture. One thing is evident—that in some way the pain is due to disturbance in the vegetative nervous system. But of the real nature of the menstrual colic, the chief form of dysmenorrhea, we know as little as of intestinal colic.

We may distinguish three varieties of pain: (1) menstrual colic, which is perhaps a vascular phenomenon, a sort of vascular crisis; (2) pains like labor pains, as in the case of abnormal contents or mechanical obstruction to expulsion of blood; and (3) pain of hyperemia or congestion. It is particularly in the first and second varieties that atropin is of value, and Novak has used it in the form of suppositories (.001 gm. once or twice a day) or pills (.0005 gm. three times a day). The application to the cervix of tampons wet with a solution of atropin, or injections of a solution into the cervical canal has been recommended by Drenkhahn, but local treatments are not advisable in virgins, who constitute most of these patients.

ADRENAL GLAND AND GENITALIA.

The study of the reciprocal relations among the glands of internal secretion, has brought to light many important connections between the adrenals and the genitalia. Intimate association, anatomically, indicated on embryological grounds chiefly by malformations; and analogy of structure of intestinal glands, corpus luteum and adrenal cortex do no more than suggest the possibility of functional relation. Imperfect development of the chromaffin tissue and hypoplasia of the genitalia may both be manifestations of a general status hypoplasticus.

The effect on the adrenals of primary change in the genital system are fairly clear as a result of the studies of Ciaccio, Guieyesse, Pollak Christofoletti, and numerous others. But of the effect on the genitalia, of primary changes in the adrenal we know little. The experimental contributions to this subject are but fragmentary.

Clinical experience, though defective, makes important suggestions. In Addison's disease there is an experiment by nature in destroying the adrenal tissue. But a study of case reports of this condition is of little value, from the present point of view, for the general condition of the patient has been such that little attention has been paid by internists to the genital system. Certain features may be made out, however. There is cessation of menstruation, early in the disease, before the general condition seems much affected. In several cases gross atrophy of the uterus and ovaries has been reported, but with little microscopical changes. Pregnancy rarely occurs and then usually goes on to term. The character of the pains is quite normal. In the male, impotence, absence of spermatogenesis and change in the interstitial cells have been described.

Such scanty information as to the effects of primary disease of the adrenals on the genital system indicates the need of more exhaustive study of cases clinically and was the occasion of Novak's[8] own experimental studies which he reports.

For experimental work not all animals are suitable. The animal must survive the experiment long enough for secondary changes to take place in the genitalia. Such animals must be selected as have adrenal tissue apart from the adrenal gland, in sufficient quantity to maintain life if the gland is removed. Rabbits and rats survive removal of the adrenal for a considerable time. The operation, therefore, is not a complete removal of adrenal tissue, but only a marked reduction in the amount.

The operations were performed on white rats, in two stages, at an interval of from six to fourteen days, with comparative ease, as the organs are accessible. Control animals were operated on in the same manner so that the trauma of operation, except for the removal of the gland, might be the same. The two animals were in each case as much alike as could be selected, and in case of any difference the smaller and poorer animal was chosen as control.

After the first operation there was little change in the animal's condition. Following the removal of the second adrenal, there was marked wasting. For detailed statement of methods and results, as well as Novak's ingenious devices for excluding sources of error, reference must be made to the original article.

His conclusions he states as follows:—

Adrenal extirpation in rats produces a hypoplasia or atrophy of the genitalia, which is the more marked, the younger the animal at the time of the operation.

Partial adrenal extirpation produces no detriment to the genitalia.

Genital atrophy is especially marked in animals with artificially produced adrenal tumors (implanted sarcoma).

The genital atrophy is not, or is only in slight degree, the result of a diminished nutrition, but is due to the failure of a specific internal-secretory function of the adrenals.

The capacity for reproduction, in both male and female, is markedly diminished if the adrenals are removed.

Pregnancy, already present, is not necessarily interrupted by bilateral adrenal extirpation.

These experimental findings are corroborated by such incomplete clinical observations as have hitherto been made.

CAUSE OF TUBAL PREGNANCY.

In spite of the frequency of ectopic pregnancy, there has been found no cause which seems to explain adequately all cases. One difficulty is the condition of the tissue removed. Operation is rarely performed before rupture of the pregnancy, and the bleeding and resulting inflammatory reaction, whether from tubal abortion or tubal rupture, obscure the original condition of the tube. It is probable that fertilization of the ovum takes place in the tube, and in tubal pregnancy, the most frequently occurring form of ectopic pregnancy, implantation takes place before the ovum reaches the cavity of the uterus. The most widely accepted view is that some mechanical interference with the progress of the ovum is the determining cause of tubal nidation, for example, a diverticulum into which the ovum passed, a kink of the tube by a tumor or inflammatory adhesions, a loss of cilia from old inflammation giving defective propelling forces, or some abnormality of the ovum.

Huffman's[9] thesis is that the cause is biological, and depends on the property of the tissue which permits nidation. This peculiar tissue is derived only from the Müllerian duct, and in ovarian and abdominal pregnancies the decidua-like cells are misplaced Müllerian duct tissue. This theory was promulgated by Webster, in slightly different form, in 1895.

Huffman supports his view by evidence as to the presence of anomalies of formation in the tubes in which pregnancy has occurred. These anomalies are found in a suprisingly large number of cases, considering the previously mentioned condition of the tissues. They comprise diverticula, accessory ostia, anomalies of the opposite tube and accessory ovaries. With these anomalies he assumes that there are displacements of "embedding" tissue.

He rejects the mechanical theory, because it does not seem to explain all cases. While it seems probable that the ovum will not become implanted if the tissue is not prepared in some way for nidation, and it may be that only tissue derived from the Müllerian duct is capable of this preparation, the argument of Huffman is not convincing for it proves too much, and the question arises, since the tube is derived from the Müllerian duct, how does the ovum ever get through the tube and into the uterus? Why does it not always embed in the tube? The question is at present not susceptible to proof. Probably both mechanical and biological elements are factors, but Huffman's presentation of the biological side is interesting and deserving of careful consideration.

CONSERVATIVE SURGICAL TREATMENT OF ADNEXAL TUBERCULOSIS.

The question as to the advisability of conservative surgical treatment of pelvic (adnexal) tuberculosis depends for its answer on several factors. Does this form of tuberculosis undergo spontaneous cure? It does, yet not often. But it is clear that healing processes are frequently made out, a tendency to growth of fibrous tissue and cicatrization. Then, where is the disease situated, that is, is it local, confined to one tube, or both tubes, or does it extend to ovaries and uterus? Generally the disease is more extensive than appears at first, being present microscopically in tubes which appear healthy in the gross. Though less frequently attacking the ovaries, it may involve them also and extend to the uterus.

Basing their conclusions on a series of cases which they have carefully studied, Patel and Olivier[10] acknowledge that in certain cases in which the disease is chiefly if not entirely limited to the tubes as seen at operation, removing the tubes is sufficient. Such cases are not very frequent, but refinement of methods of diagnosis and more careful examination will increase the number of cases seen at this early stage. If the ovaries are affected they should be removed, and with them the uterus, become useless and a source of danger. Additional operative risk is slight and the gain is great as far as symptoms are concerned.

Doubtless far more can be accomplshed than heretofore if the hygienic methods are systematically employed which are used in combating tuberculosis elsewhere. In operating the abdominal route is to be preferred, because it enables the operator to decide better whether a conservative or radical operation is indicated, and conservative vaginal operations in tuberculosis have not proved a success. In this the condition differs from gonorrheal and puerperal pelvic infection.

The question of inducing the artificial menopause in women as young as are many of these patients, is answered by Patel and Olivier from their experience. They found that the symptoms were usually far less annoying when pelvic tuberculosis has been present than when a radical operation is performed for other causes. While apparently sympathizing with those who advocate a radical and complete operation in every case, they feel that the series of cases they have studied does not justify that procedure; or

rather, that the conservative operation has justified itself in selected cases.

TECHNIC IN INTERPOSITION OF THE UTERUS.

Wertheim[11] has found interposition of the uterus a sucessful method of treating prolapse in a very large percentage of cases. His experience with relapses, however, has led to a somewhat different method of performing the original operation. Attention has been called in a previous review to the mechanism of relapse and an operation employed at Wertheim's clinic to relieve such defective results. The improved technic to prevent failures consists in making sure that the uterus is sutured in such a postion as to close the anterior portion of the genital hiatus. The hiatus is bounded anteriorly by what is left of the urogenital diaphragm, atrophied in all of these cases, and laterally, by the levator muscles. In making the lateral attachments silk sutures are used and it is not necessary to dissect out the muscles, which causes considerable trauma. The muscle body can be palpated between thumb and finger and grasped in the sutures. The vaginal flap often has to be freed far back from the median line. Wertheim uses a needle especially curved for this purpose.

Anteriorly, in spite of the atrophy, there is nearly always sufficient of the diaphragm close under the symphysis and the arcuate ligament to give attachment. The dissection is carried forward to just under the external meatus and laterally close to the peritoneum. Gentle manipulation and placing these anterior sutures close to the bone will usually avoid profuse bleeding. It is important that the proper point of the fundus should be grasped by the anterior sutures, namely, between the attachments of the adnexa. Perineorrhaphy, with approximation of a posterior portion of the levators, is of course necessary. As this modification has been carried out only for one year, no statement can be made as to ultimate results. But on theoretical grounds it is well devised and thus far all the cases point to satisfactory results in practice.

CLOSURE OF HIGH VAGINAL FISTULAS.

High vesico-vaginal and intestino-vaginal fistulas following hysterectomy occasionally give considerable difficulty in the closure. They are hard to expose, and the tissue, following the previous trauma and inflammation, is usually not well suited for plastic work. Latzko[12] reports a method of high occlusion of the vagina which he has found adequate and which Wertheim has employed independently. The technic is simple. The whole vaginal circumference is freshened below the fistula and the raw surfaces are approximated with catgut, usually transversely. The procedure was followed by good healing and perfect closure of fistula in Latzko's cases, and did not shorten the vagina too much.

LATE RECURRENCE OF CANCER OF THE UTERUS.

Formerly three years was regarded as the limit of the time in which there might be a recurrence of carcinoma after radical operation. In 1902 Winter suggested that this time should be extended to five years, and the latter period is more generally accepted. Weibel[13], from Wertheim's clinic, suggests that the time should again be reduced to three years, not because cancer does not reappear after the third year, but because the percentage of cases after the third year is practically constant. In the fairly large number of cases which could be traced, following the radical abdominal operation for cancer of the uterus, fifty per cent. of the recurrences were in the first year, twenty-five were in the second year, eleven and one-half in the third year, and in the fourth, fifth and seventh years three and four-tenths per cent.; in the sixth year two and eight-tenths per cent. From these figures it is clear that the five-year limit is not better than the four or the seven. Weibel favors placing it at three rather than at seven. A serious objection to the later period is the extreme difficulty of keeping track of the patients for such a long time. The difficulties are so great that many such patients must be lost sight of, and if Weibel's figures are approximately correct little is to be gained by following a few cases; eighty-six and a half per cent. of the recurrences are in the first three years.

MYOMA HEART.

"The frequent association of cardiac lesions with fibro-myomata of the uterus, noted both clinically and at autopsy, has led to the belief that a causal relation exists between them." This causal relation has been thought by some authorities to give rise to an entity designated as the "fibroid heart." McGlinn[14] bases his study on a series of two hundred and forty-four cases which came to autopsy, a number sufficiently large for fairly trustworthy conclusions.

Among the many theories which have been advanced to explain the relationship, all but two are to be rejected, as inapplicable to every case. These two rational theories are: (1) a toxin produced during the growth of the tumor causes degenerative changes in the heart and blood vessels; and (2) fibroid tumors of the uterus are only a local feature of a general process. We should expect in either case that the heart would show some distinct change common to all cases. This is not true, as is seen from the autopsy records. Again, if a toxin were produced, the larger the tumor the greater the amount of toxin and the greater the changes in the heart. Also, if the fibroid tumor is a local manifestation of a general process, we should expect the largest tumors in those cases which show the most marked cardio-vascular changes. A study of the tables does not bear out either contention.

The cases are reported in some detail and numerous tables are presented, giving various

groupings of cases from different points of view. McGlinn concludes that a definite entity of a fibroid heart cannot be sustained from this study. If fibroid tumors of the uterus were the cause of all the heart lesions described in this study, then every tumor regardless of its size and situation should be removed—a contention that the most radical would hardly admit. Uterine myomata occurring in middle and advanced life are practically always associated with sclerotic heart lesions. These lesions are a part of a general process and bear no relation to the fibroid. Large tumors, by increasing the work of the heart, and tumors causing pressure on the pelvic circulation, may produce hypertrophy and secondary dilatation of the heart. Anemia from hemorrhages, infections and certain degenerations of the tumor may affect the heart secondarily, causing changes such as fatty degeneration, brown atrophy and cloudy swelling. The majority of cases of fatty degeneration, brown atrophy, cloudy swelling, myocarditis, and other conditions described, found in connection with fibroid tumors of the uterus are not caused by the tumor, but by conditions entirely foreign to the tumor.

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Book Reviews.

Portraits of Dr. William Harvey. Oxford University Press. 1913.

This fasciculus, published for the section on the history of medicine of the British Royal Society of Medicine, consists of a series of 20 full-page plates, photographic reproductions of the extant portraits and busts of Dr. William Harvey, the great master of physiology. There are 16 portraits, three plates of two busts, and one of Dr. Harvey's coffin in Hempstead church, Essex, England. Each plate is accompanied by a descriptive text. The work concludes with a list of the engraved portraits, busts, and statues of Dr. Harvey. It is intended as a sequel and complement to Mr. William Roberts's study of medical iconography, and to the late Dr. S. Weir Mitchell's "Memoranda in Regard to William Harvey, M.D." It is an exceedingly valuable collection of great interest and delight to students and lovers of the history of famous men in medicine.

The Problem of the Nations. By A. Corbett-Smith, M.A. Oxon. New York: Paul B. Hoeber. 1914.

This monograph, by an English barrister, is "a study in the causes, symptoms, and effects of sexual diseases, and the education of the individual therein." As a work by a layman on a medico-sociologic subject, it inevitably errs into some slight hysteria of statement. But it errs in a very human way, and its tone and purpose are wholly judicial, honest, and high-minded. The burden of its contention is that sexual disease is not the just retribution of sin (and therefore no concern of anybody but the priest), and that the remedy is education of the individual. Perhaps the best part of it is the concluding letter from a godfather to his godson, a sensible straightforward talk that might well be imitated by fathers the world over, a positive contribution to the solution of the problem of sex education. The German and the English methods of dealing with the sex questions are quite different and quite typical. Each has its merits and each is characteristic of the civilization from which it springs and which it represents. As an example of the English method and attitude of mind, Mr. Smith's work well illustrates that intense aristocratic, ethical race-pride which is at the heart of the English character, which has been and alone can be in the future the saving grace of the nation.

A Handbook of Psychology and Mental Disease. For Use in Training Schools for Attendants and Nurses and at Medical Classes and as a Ready Reference for the Practitioner. By C. B. Burr, M.D., Medical Director of Oak Grove Hospital (Flint, Mich.) for Mental and Nervous Diseases, etc. pp. 226. Philadelphia: F. A. Davis Company. 1914.

The changes in the fourth edition of this useful handbook are in the direction of instruction to medical students and the management of cases of insanity. The new chapter on Symbolism in Sanity and Insanity adds little that is of practical value. The author's description of the different forms of mental disease will prove helpful to the student and are as graphic as it is possible to make them in a small manual. There is much entertaining reading, but some of the illustrative anecdotes might well be spared to make room for diagnostic points and methods to be followed in the examination of patients, which have been largely overlooked. It is a question how far it is possible to combine adequate and appropriate instruction for nurses, medical students and practitioners in a compendium of this size and at the same time to cover the ground satisfactorily to all, but the popularity of the book as indicated in the preface is perhaps a sufficient answer to such criticism.

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PREGNANCY CARE IN NEW YORK CITY.

FORMERLY little or no attention was paid to the matter of pregnancy supervision as a means of combating infant mortality, as it was considered that scarcely anything could be done in this direction. Of late, however, there has been an increasing appreciation of the importance of such supervision. Statistics show that of all children dying during the first month of life in the registration area of the United States, almost two-thirds die during the first week, and about two-fifths on the first day. Such early deaths probably are not wholly due to hygienic or dietetic errors, and hence may be attributed in part to conditions before, at, or directly after, birth.

Among the early organizations in this country to recognize that something should be done to diminish the mortality among new-born infants, now believed to be to a considerable extent preventable, was the New York Milk Committee. In 1911 the committee appointed a special corps of physicians and trained nurses for pregnancy care, and in this undertaking valuable assistance was afforded by the Department of Health through its infant milk stations, the nurses of which enrolled prospective mothers who visited the stations or were attended at their homes. It was continued with considerable success, through 1912 and 1913, when, on account of the lack of the requisite funds, the committee was obliged to give it up.

In the spring of 1913 the Health Department, having been informed that the committee would discontinue this work at the end of the year, made preparations to carry it on itself at that time, and in the *Monthly Bulletin* of the department Dr. Jacob Sobel, chief of the Division of Infants' Milk Stations, Bureau of Child Hygiene, gives an interesting account of what has so far been accomplished by it, under discouraging circumstances, and what is hoped for in the future. In the month of April a center for instruction and training in pregnancy care of special nurses was established at one of the Manhattan milk stations, in the expectation that the department's request for a special appropriation for this work would be granted, and six nurses were trained in the district in which the station was located. On December 31 the New York Milk Committee referred the 284 prospective mothers then under its supervision to the department, and these, added to 347 already under that of the department, made 631 cases enrolled at the beginning of 1914. Unfortunately, the hope for a special appropriation was not realized; but the department felt in duty bound to look after these six hundred women, and eight nurses were selected from the regular milk station force to attend to their pregnancy care under competent medical direction. These nurses, seven in the borough of Manhattan and one in Brooklyn, have been detailed to special districts, and have continued the work during the first and second quarters of 1914.

Dr. Sobel presents the results in tabular form. Suffice it to say that of 437 babies born alive, 430, or 98%, were living at the end of one month, and 7 died; a mortality of 1.6% during the first month, and a rate of 16.03, as against the rate of 37.7 for 1913. Three out of 6 prematurely born children died during the first month. Eight stillbirths out of 454 children (including twins) equals a mortality rate of 17.6 per 1,000, a low figure when it is remembered that it is estimated that 1 in every 20 births is a stillbirth. Seven deaths (1.6%) during the first month of life must be regarded as an exceptionally good showing, as it has been estimated that 1 in every 25 babies born alive (4%) dies before the expiration of the month.

The fact must be conceded that, owing to the lack of a definite appropriation, and because of

the urgent demands of the regular milk station work, the organization of the pregnancy nurses has been largely experimental, and that, therefore, no positive conclusions can be drawn from the data, particularly in so short a time. They serve to indicate, however, what might be expected from pregnancy care thoroughly and persistently carried out. Of particular interest are to be regarded the low proportion of stillbirths, the low mortality during the first month, the small number of premature births, the protection of the mothers against fatalities, the early period of pregnancy at which instruction is begun, the large percentage of deliveries by midwives, the small percentage of the poor who take advantage of hospital facilities, the ability to secure increased birth registration, and the encouragement and attainment of a high percentage of maternal nursing. Attention is called to the fact that at the end of the first month of puerperium, if the mother and infant are in good health, they are referred to the nearest milk station; so that the woman is brought under a continuation course of instruction.

No longer ago than 1908 the Department of Health, in the annual report of its bureau of records, declared that the deaths from congenital diseases were not susceptible to any great extent to official interference. At that time these deaths were second in importance to those from diarrheal diseases as a factor in infant mortality in New York, but since then they have become the chief factor in such mortality. Now the department, recognizing that the best time to take care of a baby's health is before it is born, and that a child's greatest asset is a healthy mother and a healthy father, believes that instruction to prospective mothers should be widely extended, and that further material reduction in the infant mortality rate may come through this means; that, in order to carry on this work properly, nurses with special aptitude and qualifications should be selected; and that, even despite the imperfect organization of this work rendered unavoidable during the past year because of no special provision in the annual budget, some good, at least, has already been effected. One thing is regarded as certain—only through education can the control of deaths from congenital diseases be brought about. With the more perfect organization of pregnancy care, the department looks forward to the accomplishment of the following points:—

1. A reduction of the general infant mortality and morbidity, more particularly from the congenital diseases and during the first month of life.

2. A decrease in the number of still and premature births; thus increasing the number of births and, indirectly, the general health of mothers and resistance of infants.

3. The encouragement and increase of maternal nursing and the promotion of intelligent motherhood.

4. The production of healthier and stronger children.

5. Prevention and reduction, in the mother, of disease and injuries, improvement of her general well being, and betterment of home conditions under which the family lives.

6. Indirectly, an improvement in the practice of midwifery, because of increased supervision by personal contact of specially trained nurses with midwives.

7. Diminution in the number of cases of ophthalmia neonatorum by instructing mothers to insist that "silver drops" be instilled into their infants' eyes directly after birth.

8. The bringing of mothers and babies under the educational and prophylactic influences of milk stations immediately after the first month of the infant's life.

9. The establishment of a confidence in the mothers which will induce them to seek this instruction in future pregnancies.

It is not maintained, of course, that such instruction will affect deaths from all conditions classified as congenital diseases and all forces acting during intra-uterine life; but it is contended that a considerable part of the deaths due to these causes is preventable. It is the earnest desire of the department to continue this work with a properly organized, qualified and interested corps of nurses, and it is its sincere hope that the budget for the coming year will make suitable provision for the systematic supervision of pregnant women.

PROGRESS OF THE WAR AND ITS RELIEF.

Subscriptions continue to come steadily though slowly for the various American war relief funds. On Oct. 22 the total of the Massachusetts Red Cross fund amounted to $52,917, the American Ambulance Hospital (Neuilly)

fund to $92,814; and the New York Red Cross fund to $276,355. The New York Belgian relief fund reached $187,626 and the New England Belgian relief fund reached $23,545.59. The American branch of the Prince of Wales national relief fund has raised a total of $60,176.

Calls for more medical and surgical supplies have already been received from the American Red Cross units in France, Russia, and Servia. The Society has therefore issued the following fresh appeal for contributions of clothing and other necessaries:—

"The American Red Cross renews its appeal for clothing for sufferers by the European war. The following articles are especially needed for women and girls: Woolen blouses, warm shirts, boots and shoes, stockings, cotton chemises, knitted mufflers or scarfs, and above all, shawls, knitted or woven of warm woolen material, large enough to cover the head and body; also, simple, warm dresses and knitted hoods, with long ends to throw around the neck or short capes to cover the shoulders. All the refugees beg for wool, and gifts of yarn and long knitting needles will be very acceptable.

"Another pressing need is warm blankets; and for the wounded soldiers and sailors these garments are essential: Pajamas or nightshirts, size 17, of outing flannel; convalescent gowns, like bathrobes, of outing flannel or warmer material; socks, underwear and ward slippers or "mules." Other useful hospital supplies are pillow cases, single sheets, rubber sheets, 54 inches wide, and towels.

"It is asked that all donations of clothing be packed in packages or cases, with the contents plainly marked, and sent to the American Red Cross, care of Bush Terminal Company, Thirty-Ninth Street and Second Avenue, Brooklyn, N. Y.

"A duplicate list of the contents of each package or case should be sent to Miss Louisa P. Loring, Pride's Crossing, Mass., who is the Red Cross emergency secretary for Massachusetts. All contributions of money should be sent to F. L. Higginson, Jr., Red Cross treasurer, 44 State Street, Boston. Any other information may be had on application to Miss Loring."

The Canadian military hospital, which the Dominion offered to maintain in France during the war, has been established at Dasard on the French Atlantic coast, and is now in operation.

Report from Budapest, Hungary, on Oct. 21 states that the American Red Cross unit assigned to that city has been put in charge of a hospital of 180 beds in the Wechselmann Institute for the Blind.

"Budapest is flooded with wounded soldiers who continue to arrive daily by trainloads. The new military hospital just opened has 3600 beds and another barrack hospital has been started which will accommodate 4000 sick or wounded. Great difficulty is being experienced in finding doctors to attend the great mass of men who are being brought into the city and the Ministry of Education has agreed that students in their fourth and fifth years entering the military hospitals may count the time as a portion of their hospital year. The junior doctors in the hospitals are paid about 83 cents a day, the assistant doctors 12½ cents, and the nurses 25 cents a day. In addition, all receive their board and lodging. Reports from Trieste say that wounded soldiers are arriving there and at Goritza and other towns in Southern Austria in great numbers. In many cases convalescent soldiers are being dismissed from the hospitals and given permission to return to their homes. Large numbers of them, it is said, are without means and almost starving and are compelled to appeal to the various relief organizations for aid. The war office has now ordered that convalescents at home be given 34 cents a day in addition to their ordinary pay."

Report from Bavaria, published in the issue of the *Lancet* for Oct. 10, states that the eldest son of the Bavarian Crown Prince died recently of acute poliomyelitis. The disease has an endemic focus in this country, 44 cases having been reported at Munich within the past year. Diverse statements are printed relative to the present health of troops in the field. The *Lancet* on Oct. 10 makes the following comment:

"Improved hygiene makes itself felt in the more recent wars. In the Crimea, for each soldier killed on the field, 1.7% died later from wounds, and 6.4% from disease. On the German side in 1870, 1.6% died from wounds and only 0.9% from disease. Up to Sept. 10 the health of the German army was reported good, but there was stated to be pulmonary plague in Poland, small-pox in Russia, Belgium, and France, and cholera in Podolia and Warsaw. The German Kaiserin has issued a circular expressing the urgent wish that tuberculosis effort should not be suspended on account of the war. Up to Aug. 17, 2000 Germans had availed themselves of the special qualifying medical examination."

MEDICAL NOTES.

INFECTION OF A MOUSE WITH BUBONIC PLAGUE.—Report from New Orleans, La., states that on Oct. 16 a mouse died in that city from bubonic plague. This is said to be the first instance in the United States where a mouse has been found infected with this disease.

EUROPEAN WAR NOTES.—Report from Rome

on Oct. 16 states, as yet without authentication, that Asiatic cholera is epidemic throughout Galicia and Hungary, where there are said to be 10,000 cases of the disease.

The two American Red Cross units assigned to service in Austria-Hungary reached Vienna from Rotterdam on Oct. 14 and were enthusiastically received.

"Count Rudolph Traun, representing Herr Woelfing (formerly Archduke Leopold Salvator of Austria), president of the Austrian Red Cross Society, in an address said that America was the only neutral state making a sacrifice in these terrible times in sending nurses and doctors to Europe to tend the sick and wounded.

"The American detachment which is to serve in Hungary went to Budapest on Oct. 15. This section is under the leadership of Dr. Charles MacDonald of Salem, N. J. The other detachment, whose work is to be in Austria, remained in Vienna in charge of Dr. Carey A. Snoddy of Knoxville, Tenn."

On Oct. 24 the *Red Cross* reached New York on her return voyage from Rotterdam.

. Foot and Mouth Disease Quarantine.—Report from Washington, D. C., states that on Oct. 20 the Department of Agriculture established quarantine against movements of live stock from farms in Michigan and Indiana where there is prevalence of foot and mouth disease infection, believed to have been introduced by imported hides.

Academy of Ophthalmology and Oto-Laryngology.—The nineteenth annual convention of the American Academy of Ophthalmology and Oto-Laryngology was held from Oct. 19 to 21 last week in Boston:—

"The meeting was called to order by the president, Dr. J. M. Ray of Louisville, Ky., and an address of welcome was delivered in behalf of Boston and local physicians by Dr. Clarence J. Blake of this city.

"Dr. Erastus E. Holt of Portland, Me., read a paper on "The Economies of the Eye, Ear, Nose and Throat," as related to the economic value of the entire body. The paper included a complete method of getting at the economic value of the body as a whole and the relation of each part. His introduction of a table of original measurements in the form of tables for all the systems and organs of the body greatly interested the members. By this table, an expert can readily determine the economic loss if the function of any part of the body is stopped.

Other speakers during the meetings were Dr. James A. Spalding of Portland, Me., "How Shall We Talk on Conservation of Vision?"; Dr. G. B. Jobson, Franklin, Pa., "The Ocular Symptoms of Brain Abscess and Sinus Thrombosis of Otitic Origin"; Dr. Lee M. Hurd, New York, "Hyoscine and Morphine as a Preliminary to Local Anesthetics"; Dr. George E. Davis, New York, "Observations on the Physiology of Concentrated Cocaine"; Dr. Clifford B. Walker, Boston, "Tropical Diagnostic and Psychiatrical Value of the Wilbrand Test"; Prof. Harvey Cushing, Harvard, "Perimetric Deviations Associated with Pituitary Lesions"; Dr. J. Sheldon Clark, Freeport, Ill., "The Intranasal Partial Resection of the Tear Sac"; Dr. C. B. Wylie, Morgantown, W. Va., "Acquired Non-Traumatic Cataract of the Young"; Dr. A. J. Bedell, Albany, N. Y., Traumatic Pulsating Exophthalmos"; Dr. Robert Scott Lamb, Washington, D. C., "Subperiosteal Blood Cyst(?) of the Orbit Simulating Osteosarcoma"; and Dr. Harry S. Gradle of Chicago, Ill., "An Abscess of the Optic Nerve."

Beri-Beri in Newfoundland.—Report from St. John's, N. F., on Oct. 21 states that beri-beri is endemic in that country and in Labrador, owing to the exclusive use of white flour bread by the native fisherfolk.

The Health of Troops in the Field.—In a recent issue of the *British Medical Journal*, it is announced that Sir John Rose Bradford, Sir Wilmot Herringham, and Sir Almroth Wright have been appointed consulting physicians, ranking as colonels, with the British expeditionary force in France, and have already left England for the front. Field Marshal Earl Kitchener has also appointed a special army sanitary committee to advise with the army council on all matters pertaining to the health of the troops.

"Sir John Sloggett will be sent to France to make a thorough inspection of the medical department. and to coördinate the work of the medical service with that of St. John's ambulance and the Red Cross Society, of which he will be chief commissioner.

"Regarding the health of the army at home and abroad the director-general of the army medical corps reports it to be highly satisfactory. Nowhere is there an undue prevalence of preventable disease and the massing of the large bodies of men has not been attended by any untoward results."

Mr. Philip Hale has recently called attention to a passage in Xenophon's *Cyropaedia* describing the care taken for the health of the Persian army troops in the field:—

"Cyrus, about to take charge of an army in aid of the Medes, tells his father Cambyses that generals who care for their soldiers take out a medical staff; 'and so when I found myself in this office I gave my mind to the matter at once; and I flatter myself, father,' he added, 'that I shall have with me an excellent staff of surgeons and physicians.' To which the father made reply: 'Well, my son, but these excellent men are, after all, much the same as the tailors who patch torn garments. When folks are ill, your doctors can patch them up, but your own care for their health ought to go far deeper than that; your prime object should be to save your men from falling ill at all.' "

BOSTON AND NEW ENGLAND.

HOMEOPATHIC MATERNITY HOSPITAL.—In the issue of the JOURNAL for October 15, 1914, we noted the anonymous gift of $100,000 to the Massachusetts Homeopathic Hospital for the erection of a new maternity building. Plans for this structure have already been drawn and work on its construction begun.

"The ground story, first floor, and most of the second floor will be used for the out-patient department, greatly increasing its rapidly growing service. The entrance on Harrison Avenue will be devoted exclusively to this department.

The entrance to the maternity department will be from Stoughton Street near the general offices of the main hospital. This entrance will be through a memorial hall, finished in a manner befitting its uses. From this room elevators and stairs will lead to the upper floors, which are assigned to the maternity department. A portion of the second floor, also, will be used for the examination rooms of this department. The third floor will be devoted to ward patients, the fourth floor to semi-private patients, and the fifth floor to private patients, a total of eighty-two beds for mothers. There are also rooms for internes and externes, and each of the maternity floors will be equipped with large nurseries for the newly born babies. There will be a large solarium on the Stoughton Street end of the building, and it is proposed to utilize the roof for a garden in the warmer months. Particular attention has been given to the arrangements for toilets and accessories for the patients, and to obtain the necessary quiet; also to the delivery rooms, of which there is a suite on each floor. It is expected to have the building ready for occupancy by June first of next year."

BOSTON DEATH-RATES.—On October 16, the Boston Board of Health issued a statement showing that during the first nine months of the current year, the death-rate of this city was only 15.83 per 1000 inhabitants living.

"During the last nine months 8889 persons died in this city as against 8967 during the corresponding period last year. The death-rate during the first nine months of last year was 16.30. This was during the year when the death-rate was as low as it ever was in Boston and was only equalled by the rate of the year previous.

"The Health Board statement showed that during the past nine months the death-rate among infants was also the lowest in the city's history. In all, 1497 infants under one year died in Boston during the first nine months of this year, giving the city an infant death-rate for that period of 99.80 per thousand births as against 113.37 during the corresponding period of last year."

BOSTON HOSPITAL MUSIC FUND.—The concerts of the Boston hospital music fund for November have been announced as follows:—

Nov. 1, 2 p.m.—Cushing Hospital.

Nov. 7, 4 and 7 p.m.—Boston State Hospital for the Insane.

Nov. 8, 2 p.m.—Home for Aged Couples.

Nov. 15, 2 p.m.—Brookline Free Hospital for Women.

Nov. 22, 2 p.m.—House of the Good Samaritan.

Nov. 26, 2 p.m.—Massachusetts General Hospital—Thanksgiving, 2 companies.

Nov. 29, 2 p. m.—Holy Ghost Hospital for Incurables.

CITY HOSPITAL EXHIBIT AT PURE FOOD EXPOSITION.—One of the noteworthy exhibits at the Boston Pure Food Exposition, which is being held in this city, is the completely equipped miniature hospital shown by the Boston City Hospital.

"Its central feature is a ward unit, showing two beds and a crib, a medicine closet and other accessories such as are incorporated in a hospital ward. A fully equipped operating room, containing table, instruments and the like, adjoins the ward room in the display and is accompanied by an exhibit of the pathological and x-ray departments, showing pathological slides, negatives of a fractured bone, of a whistle swallowed by a boy and similar things. Models of a pulmotor, of hospital furniture and other items are shown.

"On one side of the ward room is a linen closet, and on the other a little service room or kitchen, both equipped and arranged as in a real hospital.

"The preparation of food and its transportation from the kitchen to the wards is shown in a diet kitchen that stands to the right of the ward room. Diet charts are also shown and explained. The blankets, towels, sheets and other materials ordinarily used in the conduct of a hospital, with the prices paid for them, are shown in a small space allotted to the housekeeping department. Nearby sits a woman mending those materials which constant usage has worn.

"The exhibit is even carried to a representation of a class and practice room for nurses, in which probationers are taught, and the means of instruction, including beds, charts, cases of drugs and a wall stand.

"The display is amplified with pictures of buildings and branches, with signs which give the observer a conception of the size of the City Hospital and the extensive character of its work, and of the things used and their cost.

"The exhibit was arranged by Dr. Frank H. Holt, assistant superintendent of the hospital, and is attended by male and female nurses."

MASSACHUSETTS STATE CONFERENCE OF CHARITIES.—The eleventh annual session of the Massachusetts State Conference of Charities will be

held in Boston from Nov. 10 to 12, inclusive. The object of this conference is "to stimulate an interest in the problems confronting the charitable organizations of the state, both public and private, and to bring together all those interested in these problems for free discussion."

"At the first meeting, after greetings by Governor Walsh and Mayor Curley, a symposium on 'As the Immigrant Sees Us,' by Dr. Umberto M. Colletti of the New York Society for Italian Immigrants; Sidney Hillman of the International Garment Workers' Union of New York and Gasimir Sienkiwicz of the American International College in Springfield will follow.

"Nov. 11, in the morning, the subject will be 'Our Law for Mothers with Dependent Children,' presided over by Mrs. H. D. Sleeper of Northampton. The speakers will be Mrs. Ada E. Sheffield of the State Board of Charity, Rev. Irving Maurer and William E. Shannon, both of Northampton.

"In the afternoon Mrs. Eva W. White of the Elizabeth Peabody House will preside over a discussion of 'Girls in Their Teens—What We Owe Them.' The topic will be handled by Miss Jean Hamilton of the National League of Women Workers, New York, and others.

"In the evening Rep. Allison G. Catheron will preside, and Frank L. Randall, chairman of the Prison Commissioners, and others will discuss 'State Control of Our Jails and Houses of Correction.'

"Nov. 12, the morning will be given over to 'Bettering Our Family Life by Single Houses at Low Rental Within Five-Cent Fare Limits,' and this subject will be treated by the chairman, the Rev. Michael J. Scanlan, director of the Catholic Charitable Bureau; Charles E. Maguiness and Charles E. Logue, Boston architects and builders.

"The afternoon meeting will be a joint session with the American Association for Study and Prevention of Infant Mortality at the Harvard Medical School at 2 o'clock.

"The general topic will be 'Prenatal Care,' and the speakers Miss Mary Beard, director of the Instructive District Nursing Association of Boston; Dr. Arthur B. Emmons, 2d, Boston; and Mrs. Max West of the children's bureau, Washington, D. C."

Angell Memorial Hospital.—During the coming month of November, it is expected that the new Angell Memorial Hospital for Animals, on Longwood Avenue, will be completed and ready for occupancy.

"The building has an artistic main entrance and on either side of the archway is an entrance to the offices. On the first floor are the offices of the physicians and surgeons, two operating rooms for the larger animals and stalls for 38 horses. The animals when brought in the ambulance will be conveyed through an entrance on Worthington Street.

"On the second floor are two operating rooms for the smaller animals and the administration offices of the two societies, as well as rooms for the mailing of the Dumb Animals booklet and wards for cats, dogs, birds, etc.

"The third or top floor will ultimately be used for the publication of the society's literature, while in the basement the literature will be stored. The building is of fireproof construction, will be heated by steam and lighted by electricity."

Massachusetts Milk Commission.—In the issue of the Journal for Sept. 3, 1914 (Vol. clxxi, No. 10, p. 392) we commented editorially on the appointment of a milk commission to conduct hearings in the endeavor to secure and digest evidence on the milk problem in this state prior to the assembly of the next General Court. The first of these hearings was held at Boston on Oct. 15, and was attended by about fifty milk producers from the neighborhood.

"All who testified before the commission left the general impression that they were making a living, but no profit, and had to work hard. They admitted that they intend to increase their herds, however, expecting that they will do better if they raise more milk. Not one of them knew definitely the cost of producing milk. There were numerous items, the cost of which they had never figured, and few of them had, until recently, kept any record of cost. Most of them have started to keep accounts, and promised to send more detailed information to the commission.

"The hearing was one in a series to be given in all the New England states through the initiative of the Boston Chamber of Commerce, to secure accurate information on the cost of production, transportation and distribution of milk. Of the commissioners selected to hear the evidence, those present included George H. Ellis, Henry D. Forbes of the National Shawmut Bank, John C. Runkle of the Barre Manufacturing Company, and Richard Hettinger, a market gardener."

Further hearings were held in Worcester on Oct. 16, and in Springfield on Oct. 17.

Cases of Infectious Diseases reported to the Boston Board of Health for the week ending Oct. 20, 1914: Diphtheria, 52, of which 3 were non-residents; scarlatina, 37, of which 2 were non-residents; typhoid fever, 14, of which 2 were non-residents; measles, 36; tuberculosis, 62, of which 4 were non-residents. The death-rate of the reported deaths for the week was 14.79.

NEW YORK.

Administrative Health Districts.—Health Commissioner Goldwater announces that instructions have been given for steps preliminary to the establishment of a "health district" in the

neighborhood of Gouverneur Hospital, on the lower East Side, where the department will test the value of a method of local health administration hitherto untried in New York. The new administrative feature consists in the proposed government of the district, for health purposes, from within the district itself, instead of from department headquarters, and in the control of local field workers by a local director, in place of various bureau chiefs. Dr. Shipley will be the local director, and Dr. Leiser will furnish, from studies made in April, figures showing the normal activities of the Department of Health in the district for one month; while Dr. Guilfoy, registrar of the department, has been directed to prepare mortality tables for the designated district. Morbidity studies are also contemplated. It is also purposed to have a representative local citizens' committee—a kind of local volunteer health board, whose relation to the Department of Health will be analogous to that of the local school boards to the Department of Education. A suitable building in the district will be rented for headquarters, in which there will also be a milk station and office room for district or social welfare nurses connected with the Bellevue and Allied Hospitals system. The plan aims at the avoidance of overlapping by different bureaus or departments concerned with health matters, and at increased usefulness through the establishment of intimate neighborly relations between the Health Department and the local community. The department does not commit itself to the wider operation of the plan, which is tentative and subject to modification, but wishes to study it in actual operation. This experiment, it is stated, will involve no extra expense to the city.

Bread in Original Packages.—Experiments recently made in the Health Department's research laboratory in regard to sanitary bread confirm the results reported from a similar study under the auspices of the United States Department of Agriculture, and bear out the contention that the only clean bread is that wrapped in the bakery, with the wrapping done in such manner that after baking no hand touches the loaf till it reaches the consumer. Only 7% of the samples of wrapped bread examined showed bacilli of the colon group, as compared to 62% for the unwrapped bread.

Examination of Food Vendors.—The Department of Licenses, coöperating with the Health Department, in its efforts to prevent persons suffering from tuberculosis in an active stage from receiving licenses permitting them to sell food from pushcarts, has determined to summon all such vendors applying for licenses and have them subjected to the Health Department tests for tuberculosis. Ultimately it is the purpose to subject to the examination of the department all classes of those selling food who are required by law to have licenses.

Relief Funds Now $850,000.—The relief funds organized in New York for the wounded and sick soldiers and destitute non-combatants in Europe now aggregate about $850,000. Of this amount, some $275,000 has been contributed to the Red Cross fund, and $90,000 to that for the American Hospital in Paris.

Gift to Ambulance Fund.—Mrs. Russell Sage, whose summer home is at Sag Harbor, Long Island, has given $1,000 to the ambulance fund of the Southampton Hospital, the ambulance service of which is designed to cover a great part of the east end of the Island.

Mortality for Week Ending October 17, 1914.—The mortality for the past week was very low, the death-rate being 11 per 1000, that is, if the death-rate for last week prevailed throughout the entire year there would be eleven deaths out of every one thousand people residing in the city. Compared with the death-rate for the corresponding week in 1913 it was a little over one-tenth of a point lower, which is equivalent to a decrease of 14 deaths.

There was no noteworthy feature attached to the mortality during the week, with the exception of the mortality from typhoid fever, there being only 7 deaths reported from this cause during the week as against 17 during the corresponding week of last year. So far during this year the mortality from typhoid fever has been quite low.

The death-rates among infants under one year and between one and five years of age were somewhat lower, at the age groups between five and sixty-five years of age approximately the same, and at sixty-five years and over moderately increased.

The death-rate for the first forty-two weeks of this year was 13.69 per 1000 as against the rate of 13.99 during the corresponding period of 1913, a decrease of .30 of a point.

If this ratio of decrease should prevail throughout the remainder of the year—from past experience it is fair to assume that it will be slightly decreased rather than increased—there will be a saving of 1675 lives for the year 1914 as compared with 1913.

Current Literature

The Journal of the American Medical Association.

October 10, 1914.

1. *Kanavel, A. B. *Osteoplastic Closure of the Trifacial Foramina.*
2. *Murphy, J. B. *Myositis; Ischemic Myositis; Infiltration Myositis; Cicatricial Muscular or Tendon Fixation in Forearm; Internal, External and Combined Compression Myositis, with Subsequent Musculotendinous Shortening.*

3. Guthrie, D. *The Rodman Operation for Breast Cancer.*
4. *Vaughan, J. W. *Cancer Vaccine and Anticancer Globulins as an Aid in the Surgical Treatment of Malignancy.*
5. *Foerster, O. H. *The Association of Erythema Nodosum and Tuberculosis.*
6. Arndt, G. *Diseases and New Growths of Lymphatic Origin.*
7. *Pilsbury, L. B. *Paresis Patients Treated with Intraspinal Injections of Salvarsanized Serum. A Brief Report.*
8. *Riggs, C. E., and Hammes, E. H. *Results of One Hundred Injections of Salvarsanized Serum.*
9. Drysdale, H. H. *Juvenile Psychosis. Report of a Case.*
10. *Little, J. M., Jr. *Beriberi.*
11. *Darling, S. T. *The Pathologic Affinities of Beriberi and Scurvy.*
12. Schäffe, K. A. *A Comparison Between the Urochromogen and Diazo Tests in the Prognosis of Tuberculosis.*

1. Kanavel's article is based on experimental work on dogs and is well illustrated. He reports one successful human case.

2. Murphy believes that myositis, and the contracture of the ischemic or Volkmann type, is of pressure or infiltration origin, or perhaps from acute edema or hemorrhage and not from nerve pressure or degeneration.

4. Vaughan again describes his cancer vaccine, and advocates its use as an accessory in operations for malignancy.

5. Foerster believes that erythema nodosum and tuberculosis are probably of the same origin and that the former is often a forerunner of advancing tuberculosis.

7 and 8. These authors find salvarsanized serum of great value in the treatment of the syphilitic pareses.

10 and 11. These two articles are very interesting. The latter author believes that scurvy and beriberi are both the result of the continued use of a one-sided and deficient diet. [E. H. R.]

October 17, 1914.

1. *Crile, G. W. *Anoci-Association in Relation to Operations on the Gall-Bladder and Stomach.*
2. Werelius, A. *Experimental Surgery of the Heart, Lung and Trachea.*
3. *Gordon, A. *Nervous and Mental Disturbances Following Castration in Women.*
4. Yawger, N. S. *Tuberous Sclerosis and Other Unusual Features of Epilepsy.*
5. *Heidingsfeld, M. L. *A New Method of Treatment of Lupus Vulgaris.*
6. Elliott, C. A., and Beifeld, A. F. *Generalized Neurofibromatosis (Von Recklinghausen's Disease). Report of a Case Showing a Superficial Resemblance to Hodgkin's Disease.*
7. Leopold, S. *Spontaneous Subarachnoid Hemorrhage. A Contribution to the Subject of Meningeal Hemorrhage.*
8. Edlavitch, B. M. *Primary Carcinoma of the Lung. Second Communication.*
9. *Comroe, J. H. *The Use and Abuse of the Tonsils.*
10. Helmholz, H. F. *The Relation of Heat to the Morbidity and Mortality of Infants from Gastro-intestinal Diseases.*
11. Southworth, T. S. *The Influence of Starch on Infant Digestion.*
12. *Wood, N. K. *Percussion of the Lungs. Part I. An Effort to Standardize the Degree of Dullness. Part II. The Advantages over the Opposite Method of Percussion from Base to Apex.*
13. Cadawalder, W. B. *Progressive Lenticular Degeneration.*
14. McLean, F. C. *The Present Status of Organic Iodin Preparations.*
15. Gillette, A. J. *Injurious Effects of Forcible Passive Motion in Diseased and Traumatic Joints.*
16. Solis-Cohen, M. *The Determination of the Next Dose in Tuberculin Therapy.*
17. Crowell, A. J. *Collargol in Pyelography, with Report of an Interesting Case.*
18. Meirehof, E. L. *Thrombophlebitis of the Sigmoid Sinus of Otitic Origin Without Local Manifestations.*
19. Butzner, J. D. *A Case of Spasmodic Ileus in an Infant Simulating Intussusception.*

1. Crile firmly believes that the application of the principle of anoci-association, not only during the operation but also in the pre- and post-operative care of the patient, will minimize the two greatest dangers attending gall-bladder and stomach operations—exhaustion with its fatal sequel, acidosis, and post-operative pneumonia.

3. Gordon believes that the disturbances caused in the female on removal of the ovaries are purely functional in nature. They may be somatic or psychic. True insanities are not observed. While often of a very disturbing nature, they do not present the characteristics of genuine psychoses. Individuals who presented various psychoneuroses before operation have their psychic phenomena decidedly aggravated by removal of the ovaries. These facts should be a strong warning against operations on the generative organs, especially for nervous disturbances.

5. This author has successfully treated lupus vulgaris by the direct application of saturated solution of trichloracetic acid.

9. Comroe shows evidence wherefore the normal tonsil in man, even if hypertrophied, should be considered a physiologic rather than a pathologic organ and should more often be preserved than removed.

12. Wood's paper on percussion in tuberculosis is of very practical interest. He shows that present methods of percussion are of little value because, far from having any universal standard of dullness, there is not, in most instances, even an individual standard. The author feels he has elucidated a proper definite standard. He finds that normal resonance is F to F sharp below middle C (on the piano); 1-line dullness, or impaired resonance, is A below middle C to middle C; 2-line dulness or definite dullness is E flat to F above middle C; 3-line dullness, or very marked dullness, is B flat below intermediate C to intermediate C; 4-line dullness, or flatness, is E to F above intermediate C. No intelligent idea of diagnosis, prognosis nor of the underlying pathologic condition can be formed by percussion without some definite standard. Upward percussion is an absolute essential of correct work. The old method of downward percussion should be discarded and no longer taught to medical students. [E. H. R.]

The Lancet.

September 26, 1914.

1. Sandwith, F. M. *Lettsomian Lectures on Dysentery. Lecture III.*
2. Watson, J. H., and Snowball, T. *Observations on the Improvization of Apparatus in the Treatment of Certain Fractures in Modern Warfare.*
3. Bruce, G. R. *A Case of Enteric Fever Complicated by Purpuric Symptoms.*
4. Cammidge, P. J., and Howard, H. A. H. *Observations on the Composition and Derivatives of Urinary Dextrin.*
5. Farrer, E. M. *A Case of Extra-Uterine Pregnancy with Prolonged Retention of the Fetus.*
6. Thresh, J. C. *The Sterilization of Potable Waters by Means of Calcium Hypochlorite.*

October 3, 1914.

1. Warren, R. *A Clinical Lecture (Abstract of) on the Application of Suturing to the Vascular*

System, Including One Case of Suture of a Wound of the Heart and Two of Wounds of Arteries.

2. *McLeod, W. *On the Value of Antistreptococcal Sera.*
3. Elliott, R. H. *The Operation of Sclero-Corneal Trephining, Considered in Relation to the Principles Which Should Guide an Operator in the Performance of a Sclerectomy.*
4. Goadby, K. *Electrolytic Prevention of Lead Poisoning.*
5. Oxley, W. H. F. *Electrolytic Treatment of Lead Poisoning.*
6. Watson, J. H., and Snowball, T. *Observations on the Improvization of Apparatus in the Treatment of Certain Fractures in Modern Warfare.*
7. Donelan, J. *Ambulance Work in France.*
8. Sibley, W. K. *Dieppe as a Military Hospital Base.*

2. McLeod, discussing the value of antistreptococcal sera in streptococcal infections, comes to the conclusion that such sera have little or no value, and that experimental work which aims to find some artificial antibody to streptococcal toxin is much more likely to be fruitful than any further efforts to amend and improve the methods of immunizing horses to this type of bacteria. [J. B. H.]

BRITISH MEDICAL JOURNAL.

SEPTEMBER 12, 1914.

BRITISH MEDICAL ASSOCIATION.

SECTION OF SURGERY.

1. Spencer, W. G., et al. *Discussion on the Etiology and Treatment of Carcinoma of the Tongue.*
2. Eddington, G. H. *A Method of Opening the Abdomen for Appendicectomy.*
3. Don, A. *Pott's Disease in Cervical Region with Methods of Bony Splinting.*

COMBINED SECTIONS OF MEDICINE, DISEASES OF CHILDREN AND ELECTRO-THERAPEUTICS AND RADIOLOGY.

4. *Lees, D. B., et al. *Discussion on the Diagnosis of Chronic Pulmonary Tuberculosis in Infancy and Childhood.*
5. Morley, J. *On Some Conditions Simulating Chronic Appendicitis.*
6. Phillips, E. W. M. H. *An Unusual Case of Appendicitis.*
7. Atkinson, J. L. *A Case of Rupture of the Kidney from Slight Trauma.*
8. Hayes, J. G. *The Treatment of Acute Gonorrhea in Men.*

4. Lees, in discussing the diagnosis of chronic pulmonary tuberculosis in infancy and childhood, points out how the clinical picture of this disease in children differs from that in adults. He believes it essential, owing to the thinness of the chest wall in children, that the chest be percussed with the patient lying down with his muscles relaxed. Dr Lees presents a diagram which, to those of us who know his ideas on this subject, is already familiar, showing nineteen or twenty so-called "dull areas" corresponding to the apices and other parts of the pulmonary lobes, which he believes can be easily mapped out by delicate methods of percussion. He also calls attention to an area of dullness on the right side due to the enlargement of bronchial glands at the level of the third dorsal spine. All of these areas, he states, can be confirmed by x-ray examination. He calls attention to the remarkable predominance of signs in children on the right side, but is unable to give adequate explanation for this phenomenon. He concludes that careful, accurate percussion is of primary importance in the diagnosis of early pulmonary tuberculosis in child and in adult. (The reviewer is quite unable to agree with Dr. Lees in this matter, nor has he found in the literature of this country or abroad any confirmatory evidence. The fact that Dr. Lees makes no mention of constitutional signs and symptoms appears to be a grave omission.)

Rivière in the beginning of his remarks states that "chronic pulmonary tuberculosis is nothing more than a 'curiosity' in infancy." He divides his discussion to bronchial gland tuberculosis, otherwise known as "hilus tuberculosis." Apical phthisis is rarely seen below the age of 7. In the diagnosis of tuberculosis of the bronchial glands, he describes the interscapular dullness, especially on the right side, comparing the signs presented by enlargement of the bronchial glands with those of phthisis at approximately the same area. He does not regard the lung areas as emphasized by Dr. Lees of any particular importance.

Bruce confines his remarks to a consideration of the x-ray diagnosis.

(It is interesting to note that in this entire discussion no one made any remarks upon the constitutional signs and symptoms of this condition.) [J. B. H.]

Miscellany.

NEW REGULATIONS FOR FEDERAL MEAT INSPECTION.

THE new meat inspection regulations governing the slaughtering of cattle, sheep, swine and goats, and the preparation of meat food products in inspected establishments, were signed by the Secretary of Agriculture on July 15, 1914. All the regulations become effective November 1, 1914, except those governing imported meats, which go into effect January 1, 1915.

The Department of Agriculture is limited by law to jurisdiction over the slaughtering and packing establishments which sell their products in interstate or foreign commerce. These establishments slaughter 60% of the meat used in the United States. The slaughtering and packing establishments which sell their product wholly within the state in which the animals are slaughtered are beyond the jurisdiction of the department. The new regulations, which occupy 87 printed pages, codify the many amendments and rulings made since the adoption of the old regulations on April 1, 1908, and also add to the requirements a number of features suggested by eight years' experience in meat inspection and conforming with recent scientific discoveries.

The new regulations provide that inspectors shall make a rigid ante-mortem inspection, and if they find clear evidence in the live animal of the existence of a disease which unfits its meat for food, they shall condemn the animal and prevent its entry for slaughter into the food-preparing departments of the establishment. The animal so condemned must be slaughtered in a separate place and put at once into the denaturing tank to be turned into fertilizer or other non-edible products. This rule is more strict than the ante-mortem inspection pre-

scribed in the old regulations. Heretofore, animals showing some evidence of disease on ante-mortem inspection were slaughtered on the same killing floors as healthy animals, and were not finally condemned until they were subjected to post-mortem examination. Under the new rules, where the ante-mortem inspector suspects a live animal of having a disease which might render it unfit for food, but is not certain of this condition he will, as in the past, mark the animal "U. S. Suspect," which will make its carcass subject to special post-mortem examination. The ante-mortem inspector is also authorized to detain the animal for further observation and taking of temperature in cases where that seems desirable in reaching a decision. All animals at the time of slaughter, even though no symptoms of disease are visible on ante-mortem examination, are subject to careful post-mortem examination before the meat can be marked "U. S. Inspected and Passed" and allowed to leave the establishment.

The regulations prescribe that any inspected establishment which violates any regulation may suffer the penalty of having all inspection withdrawn. This would mean that such establishments could not ship any meat in interstate commerce or abroad. This is designed to strengthen the department's authority to compel establishments to observe sanitary conditions.

In view of the present shortage and high prices of meat, and the fact that every pound of meat that is condemned necessarily adds to the cost of producing meat that is passed, the new regulations provide measures whereby the packers can sterilize and cook thoroughly certain classes of meat and sell it in cans or sealed containers, labeled plainly "Second-class Sterilized." This sterilized cooked meat which the packers are to be permitted to sell as "Second-class Sterilized" is the meat of portions of animals, the fat of which the old regulations permitted the packers to make into edible lard and tallow. The process of rendering served to sterilize the fat and make it entirely hygienic. The new plan extends the same principle so as to utilize the lean portions of this meat, which heretofore packers have not been allowed to sell for food purposes.

This action follows scientific investigations made by specialists of the department, and by independent veterinarians and physiologists, which have made it clear that large quantities of meat which are perfectly good food when thoroughly cooked have been condemned because of the presence of strictly localized cysts or lesions in animals. This meat is of the type which the German and Austrian governments have long permitted their packers to sterilize by cooking and sell at shops in a cooked condition. This meat which, cooked, finds ready sale at a lower price than raw meat in Germany and Austria, consists of portions of the flesh of animals which have localized cysts or lesions which make the immediately affected muscle or tissue unsuitable for food, but which do not affect the remaining flesh of the animal or render it unhealthful. Portions (usually organs or glands) containing cysts or lesions are cut away and condemned. These cysts and lesions do not come from any of the highly dangerous diseases, for any indications of which the regulations require the condemnation of the whole carcass.

Under both the old and the new regulations, in cases where the diseased condition is trivial and strictly localized, the unaffected portions of the carcass, which are free from any suspicion of disease, are passed for food and allowed to be sold in the raw state. On the other hand, all carcasses and all parts diseased to an extent rendering them unfit for food are condemned. Between these two classes lies the class of meat which may be sterilized under the new regulations. This consists of parts of carcasses believed to be entirely healthful, but which comes from carcasses affected to a somewhat greater extent than would allow the passing of these parts for food in the raw state, because these parts may contain a chance cyst which, if eaten raw, might lead to tapeworm or other diseases. These accidental cysts or lesions, even if present, are rendered entirely harmless by thorough sterilization in cooking.

While the packers of Germany and Austria for many years have widely availed themselves of this method of saving, by cooking, a huge waste of meat, it is not known how far the American packers will care to follow the practice. It is believed, however, that if it is undertaken it will make available a large quantity of cooked meat which is now wasted.

The provisions relating to the post-mortem inspection of carcasses have been made clearer and more explicit so as to make the rules under which the inspectors pass or condemn carcasses or portions of them exact and in accordance with the latest scientific knowledge. The regulations governing the carcasses of hogs suspected of hog cholera have been made much more stringent.

The rules and regulations governing the disposal of condemned meat and the use and integrity of the Federal marks have been redrafted to meet fully all conditions which have developed during the past six years. As a result, it is made certain that the mark "U. S. Inspected and Passed" can appear only on meat that has passed a rigid ante-mortem and post-mortem inspection at the hands of skilled veterinarians.

On account of the danger from trichinae in pork and the lack of any known method of inspection which affords an absolute safeguard, the regulations prescribe that no muscle tissue of pork shall be allowed as an ingredient of any article such as summer sausage, or similar foods which customarily are eaten without cooking. To be included in articles which may be eaten without home cooking, the pork must have been subjected to a temperature sufficient to destroy all live trichinae, or subjected to some other ap-

proved treatment which may hereafter be discovered.

The regulations governing the sanitary condition of packing establishments, the cleanliness of employees, and the care of utensils and instruments have been redrafted into a series of definite rules. This, it is believed, makes compliance with the rules easier on the part of the packers and makes detection of violations simpler for the inspectors. These rules are very explicit as to the provision of washing and toilet facilities for the help, as to the condition of clothing, and as to the cleanliness of the hands of those handling the meat. The rules also explicitly prohibit the passing of meat which has been allowed to touch floors or become contaminated by contact with condemned meat or knives used in butchering diseased meat.

NAPOLEON AND HIS SURGEONS.

There has recently been published in Paris a document of especial historic and medical interest at the present time, the journal of Lagneau, a French military surgeon who followed Napoleon in the campaigns of Italy, Prussia, Poland, Spain, Austria, Russia, Germany and Belgium. In his introduction to this work, edited by M. Eugène Tattet,* M. Frédéric Masson discusses the deep mark left on the military literature of the French Revolution and Empire by the army surgeons and physicians like Lagneau. His comments are briefly summarized in a recent issue of the *British Medical Journal*.

"In 1743 an agreement that the hospitals, the wounded, and the military surgeons should be considered neutrals was concluded between the Duc de Noailles and Lord Stair. In 1759 a similar arrangement was made between the Marquis de Barail, commanding in the Province of Flanders, and General Henry Seymour Conway. This agreement included commissaries and chaplains, as well as doctors, hospital orderlies, and others attached to the service of the sick. The idea was making progress when the Revolution, in the very name of humanitarian principles, brought about the most violent reaction. The Convention decreed the immediate execution of prisoners, whether they were *émigrés* or soldiers of the Coalition, wounded or not wounded. There seems to be no mention of what was done with regard to the hospitals and the surgeons, but there is evidence which points to the fact that if the medical officers were accorded certain privileges it was some time before they came in force. Whenever the people rose, as in Egypt and in Spain, the first thing they always did was to butcher the sick, the wounded, and those who had charge of them. Governments, of course, can scarcely be held responsible for such breaches of common humanity. We are proud to think of the courage shown by doctors in the face of angry mobs. During the revolution of 1830, when a crowd came to attack the Invalides, Larrey, standing alone at the entrance, told them they would have to pass over his dead body before touching the sufferers under his care. In the same revolution Dupuytren met the inquiries of the police seeking for insurgents in the Hôtel Dieu with the reply that he knew nothing about rebels; he had only wounded men there under his charge. In the campaigns against Austria in 1805 and 1809 much regard was paid on both sides to the medical officers. Napoleon gave gold snuff-boxes to a number of the surgeons attached to the hospitals of Vienna in recognition of their care of the French wounded.

Louis Vivan Lagneau was a doctor of medicine at the age of twenty-two, and had made arrangements to take over a practice in Paris when he was caught by the conscription and attached to the hospital at Bruges as surgeon of the third class. The demand for surgeons was so great that, notwithstanding facilities extended to students, almost anybody was accepted to fill the vacancies. We hear of the wounded being dressed by bandsmen, inspectors of forage, and men of all sorts and conditions. At the beginning of the wars of the Revolution numbers of seminarists and young priests were caught by the conscription, or enrolled themselves under the flag as a shelter against the Terror, quickly gained a superficial knowledge of minor surgery and gradually went on to operate. In order to give them a regular title, a general examination was after a time prescribed for all officers employed in the army. The medical officers had to suffer many indignities. They were subordinated, even on professional questions, to the executive, who claimed the right to punish them for breaches of regulations made solely with the object of keeping down expenses regardless of the welfare of the sick and wounded. This kept many excellent men out of the service. Moreover, army doctors could be dismissed without pension or allowance by the minister of war as soon as a peace was declared. If war broke out again while they were trying to build up a practice in civil life, they were liable to be recalled suddenly to an existence of hardship and danger. They had little prospect of reward or honors. The number of military physicians and surgeons who received titles under the Empire was infinitesimal. It was more profitable to a man to have treated a member of the Imperial household for a cold than to have risked his life on the field of battle. We find only six barons—Boyer, Desgenettes, Heurteloup, Larrey, Percy, and Yvan, and of these Boyer and Yvan had no war service."

* *Journal d'un Chirurgien de la Grande Armée* (L. V., Lagneau), 1803-1815. Paris: Emile-Paul Frères, Editeurs, 1913.

Forcible Resistance to Vaccination.—Report from Chicago on Oct. 22 states that ten cases of smallpox have recently occurred in Zion City, Ill., whose fanatic inhabitants have threatened forcible resistance to the state health department's order for general vaccination. The entire city has therefore been placed under quarantine.

THE AESCULAPIAN CULT IN GREECE AND ROME.

The wide diffusion of Aesculapian worship in classic times, and the importance of its relation to the progress of medical knowledge, give a peculiar interest and value to the fairly abundant traces which have survived of temples to Aesculapius and his associated deity Hygieia. The interpretation and correlation of these relics, however, is not always a matter of ease or agreement. In the issue of the *Lancet* for Oct. 10 appears the following editorial comment on an inscription upon a votive offering found in the sanctuary of Aesculapius on the Esquiline hill at Rome.

"The inscription occurs upon the base of an offering representing Aesculapius as an infant, and erected, so the inscription states, by Nicomedes, a physician who is known also from a previously edited Greek inscription. The date of the text, if it could be ascertained with certainty, might fix the time of the building or rebuilding by Diocletian of the temple of Aesculapius, inside Trajan's Baths; but the dedication by Nicomedes may be a copy of an ancient text, and the statue also a replica of a former one executed to be placed in the Diocletian temple in place of one known to have been in an older shrine of the god of healing in Rome. M. F. Versakes, who is endeavouring to establish with greater accuracy the topography of ancient Athens, while tracing the partly covered foundations of the outer wall of the Asclepieum there, came upon those of a still earlier sanctuary beneath them. These enclose a larger space than the Asclepieum boundary, and so mark the precincts of the older Eleusinium. The first shrine of Asclepios was probably in the western part of this larger enclosed space, but after the god was invited to Athens as guest and protector he appears to have appropriated most of the eastern part of the Eleusinium, leaving the western space, near the entrance to the Acropolis, to serve as the Eleusinium for later times. Some years ago, from very ancient Greek inscriptions discovered in a small temple ruin upon the Acropolis at Athens, Herr Koerte considered it proved that the god of healing, of whose worship Sophocles was a priest, was Amynos, who in B.C. 420, on the introduction of Asclepios, was associated in worship with the latter deity, and with Hygieia. Sophocles then became an official of the Asclepios cult.

"In a recent number of the *Journal of the German Archaeological School at Athens,* however, Herr Schmidt has endeavoured to show that the medical deity to whom Sophocles was first a priest was Halon, who is to be identified with Halissothius. The cult, like those of many early deities of healing, was connected with a spring. The Latin legend sets forth that in B.C. 293 an oracle commanded the Romans to send an embasssy to Epidaurus to find out what god was adored there, and that in consequence of that deputation Aesculapius came to Rome in the form of a serpent. This story may have originated from a statue of the deity having been transported to Italy bearing with the deity's own image his customary attendant serpent. As an interesting commentary upon this theory the evidence derivable from inscriptions found in Italy tends to show that Aesculapius did not, as was stated by Roman annalists, arrive in Rome direct from his most important and ancient shrine at Epidaurus, but by some more circuitous route and from some intervening sanctuary, probably in Southern Italy. In support of this view it is noticeable that in the dedicational inscriptions to him found in his early shrine upon the island in the Tiber his name is spelled Aiscolapio, indicating that his cult came there from some Greek sanctuary whereat it was written Αἰσκλαπιός. Now this spelling had disappeared at Epidaurus as early as the fifth century B.C., and had given place to Ἀσκλαπιός later Ἀσκληπιός. The route by which the worship of Aesculapius really reached Rome appears to have been *via* Tarentum, for an inscription upon a vase from that place spells the name Aislapi. Moreover, Varro, when writing of a picture representing a chariot race in which the contestants are Tarentines, tells us the scene was at an old temple of Aesculapius. Again, Julian, in the fourth century of our era, wrote of the Aesculapian cult as coming from Ionia to Tarentum and thence to Rome, and as the peace with Rome and Tarentum was made in B.C. 293, this agrees with the date of the legendary arrival of the deity in Rome from Greece. It would seem likely, therefore, that the worship of Aesculapius came to Tarentum, in Italy, from Greece at a very early date, while the deity's name was spelt in its archaic form, and later journeyed up the Italian peninsula from the south to Rome."

NEW ENGLAND TUBERCULOSIS CONFERENCE. TUBERCULOSIS DAY.

The first New England Tuberculosis Conference was held on Oct. 22 at Bangor, Me., following the annual state conference of charities and corrections. Its purposes were first, to bring anti-tuberculosis workers into closer touch; second, to discuss matters of special interest in New England; and third, to bring the facilities of the National Association for the Study and Prevention of Tuberculosis to bear more closely on local problems.

President Wilson has expressed his approval of the Fifth National Tuberculosis Day Movement during the week of Nov. 29, and also of the work of The National Association for the Study and Prevention of Tuberculosis in a letter to Dr. George M. Kober, the president of that body, made public today. He says, among other things:

blue grass (Poa pratensis L.), red top (Agrostis alba L.), timothy (Phleum pratense L.)—these flowering in June, and beach grass (Ammophila arenaria L.), flowering in Massachusetts in August.

Forty-five cases were examined with reference to grasses. It was observed that in all positive cases the red-top, timothy and blue grass equally excited reactions. Of these cases eight were affected by grass alone, none of the other plants tested exciting reaction. Thirteen cases were affected both by grasses and ragweed alone. Six cases showed positive reactions towards grasses, ragweed and golden-rod, and a variety of other plants. Three cases showed positive reactions to grasses and roses alone. The beach grass was tested in twenty-seven cases. This, although flowering late in the season, excited positive reactions in eleven cases of the spring form, fifteen cases being doubtful or negative. It would seem thus to be indicated that the proteid in the pollen of this species is essentially identical with that of the June flowering grasses, but that owing to its strict limitation to beaches and sand-dunes, it usually escapes notice as a cause of hay-fever in June subjects.

Ragweed (Ambrosia elatior L.). Ragweed was tested in 49 cases. Of these, 45 were positive, 4 being negative. This apparent disproportion, as compared with grasses is due to the fact that during the past season it was impossible to procure the ragweed in time to test many of the June subjects, and that most of the patients presenting themselves in August, did so during the attack. Of these 45 positive cases, 13 were affected by ragweed alone, no other plants tested exciting reaction. Sixteen were positive with reference both to ragweed and to golden-rod, but not to other plants. One case showed positive reactions to grasses, ragweed and roses, but not to golden-rod or to other plants.

Golden-rod. Forty-four cases were tested with an early golden-rod (Solidago canadensis L.), 15 with a late variety (S. nemoralis Ait), 7 with the seaside species (S. sempervirens L.). These showed similar reactions, that is, a patient reacting to one reacted positively also to the others tested. Forty-nine cases in all were tested for golden-rod. Of these 26 were positive, 23 being negative. One case only showed positive reaction to golden-rod alone, without disturbance from other plants, all of the other positive golden-rod cases reacting also to ragweed.

Yarrow (Achillea millefolium L.). This familiar plant of the composite family, with strong aromatic odor, occurs throughout New England during the summer, and in places has become a troublesome weed. Twenty cases were tested, 5 being positive, 15 doubtful or negative.

Beach wormwood (Artemesia stelleriana Bess.). A plant restricted to the seaside, and showing close relationship to ragweed. This was tested in 6 cases, 2 of them showing moderate reaction, 4 being negative.

Field daisy (Chrysanthemum Leucanthemum L.). A common plant throughout grassland and meadows; was tested in 14 cases, 5 of them showing a moderate reaction, 9 being doubtful or negative.

Burdock (Arctium minus Schk.) and Fall dandelion (Apargia autumnale Hoffm. L.) were tested in 3 cases, showing each 1 positive and 2 negative results.

Hawkweed (Hieracium scabrum Mich X.). A composite plant growing in dry fields, and closely related to the dandelions, was examined in 17 cases, 5 being positive and 12 negative. Of these positive ones, 2 showed intense reactions, 1 above an inch in diameter.

English daisy (Bellis perennis) was examined in 20 cases, 4 being positive and 16 negative.

Pigweed (Chenopodium album L.). An extremely common weed, in places as abundant as ragweed, was examined in 26 cases. Three of these were positive, and 23 were negative. The positive reactions ranged from moderate to considerable, but none were extremely marked.

Wild carrot, or Queen Anne's lace (Daucus Carota L.). A common weed, at times whitening whole meadows, and flowering from middle to late summer, was examined in 23 cases, only 1 being positive and 22 negative. This positive reaction was, however, extremely marked.

Tansy (Tanacetum vulgare L.). Widely distributed along roadsides. This was examined in 12 cases, 2 being positive and 10 negative. Of the positive cases, 1 was extremely marked.

Roses. Two types of roses were tested, the early flowering Japanese rose (Rosa rugosa) and the late flowering prairie rose (Rosa stigera Michx). The Japanese rose was examined in 19 cases, 3 being positive, the remainder without reaction. Of the positive cases, 1 reaction was pronounced. The prairie rose was tested in 8 cases with negative results. It should be said, however, that the cases which were positive to rugosa were not tested for setigera until after receiving injections of rugosa pollen, which may have immunized them against the latter species.

The mock orange (Philadelphus) was accused by several patients as a cause of their hay-fever. It was tested in 6 cases, 2 of these being positive.

Tests were also made in a few cases with negative results of the following plants: California poppy, hawthorne, bayberry, frost grape, jack pine, peony, white oak, rhododendron, hardhack.

The probable relation of the toxic proteids to each other as indicated by the results of immunizing experiments will be considered in a subsequent paper.

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FORLANINI'S ARTIFICIAL PNEUMOTHORAX. A STUDY.

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Part 1.

In so peculiarly chronic a disease as phthisis, an estimate of the efficacy of artificial pneumothorax is worthless unless the number of patients so treated is large and unless any resulting improvement or cure has stood the test of time. This is especially so since this treatment has been attempted only when other measures have failed in staying the progress of the disease. In the reported cases we should not only know the immediate results but also the results after many months. This is my excuse for making further report on some cases which have already been reported[1] and also for further discussing the technic and the effects of the treatment in cases which have been under my observation in the last three years.

The treatment of certain cases of pulmonary tuberculosis, lung abscess and bronchiectasis by means of an artificial pneumothorax is attracting the clinician more and more. This is shown by the rapidly increasing literature on the subject. Its advocates have become so numerous within the past few years that at the International Tuberculosis Congress, held at Rome in April, 1912, it was the predominating subject of discussion, and an international association was formed for the purpose of keeping the workers in touch with each other and stimulating further studies. In America, especially in the East, increasing interest among phthisiologists is manifest. The method is being practiced to a greater or less extent in many places throughout the United States.

The tardiness with which study of this form of treatment has been taken up is due to several reasons. In the first place, its proposal by Forlanini in 1882[2] was practically coincident with the discovery of the tubercle bacilli by Koch in the same year. Koch's discovery was naturally followed by a wide-spread attempt among clinicians to find a specific for the disease. Then, too, the technic had not been perfected as it is now; the manometer later added to the apparatus by Saugman, and the x-ray, which has largely contributed toward rendering the method safe, were then not in use.

In the second place, as Saugman[3] has aptly remarked, the very method was such as to discourage rather than attract the serious attention of the clinicians, for a spontaneous pneumothorax is known to the clinician as one of the most serious complications that may arise during the course of a pulmonary affection. Indeed, the onset of a spontaneous pneumothorax usually means a fatal termination of the disease. It develops during the course of a serious pulmonary lesion and the sudden rush of air from a perforation in the lung wall into the pleural cavity is followed by intense pain, serious respiratory disturbance, cardiospasm, irregular heart action and increase of temperature. Emphysema and a general septic condition usually accompany it. Forlanini's method of artificial pneumothorax is not accompanied by these effects, because the treated lung is compressed very slowly, and time is given the organs concerned to become gradually accustomed to the changed conditions.

That a pneumothorax can really bring about any symptomatic relief or any permanent improvement, still seems improbable to those who have had no direct experience with the artificial pneumothorax treatment of pulmonary tuberculosis and are not conversant with its literature. Even though the pulmonary collapse resulting from either a spontaneous pneumothorax or a pleural effusion has occasionally exerted a favorable action on the course of the disease, the isolated cases in which notable improvement resulted were considered anomalies and did not provoke scientific study. Such were the cases reported by Touissant,[4] in his "Thesis de Paris"; Bianchis,[6] Spath,[7,8] and Herard[9]; and later by Gaillard,[10] Mosheim,[11] and Konselman.[12] These few fortunate exceptions did not at first sight seem sufficient to justify a therapeutic measure based on a morbid complication that by accident brought about an arrest of the disease.

The favorable effect of lung collapse, produced in the course of pulmonary tuberculosis by an effusion, liquid or gaseous, gradually began to attract the attention of clinicians. Even before Forlanini developed his method, Carson's[13] experiments on animals showed that they could still live after the thoracic wall was incised and a one-sided open pneumothorax produced. Ramadge[14] some years later punctured the pleural cavity of a mason who was suffering from ulcerative phthisis, producing an open pneumothorax. The patient lived two years.

In 1885, Cayley[15] of London reported to the London Medical Society a case of hemoptysis in which he completely arrested the hemorrhage by the induction of an open pneumothorax, but the patient succumbed to infection five days later. Adams' notes, 1887,[16] suggest that if the treatment is to be at all successful it ought to be begun early. Potain[17] in France treated recurring pleural effusions by the withdrawal of some of the fluid and injecting an equal amount of sterile air. In 1888 this same clinician reported the apparent recovery of an advanced case of unilateral phthisis with a cavity at the apex which had developed a pleural effusion and which he had then treated by the withdrawal of the fluid and intrapleural injections of sterile air. This kept the lung completely collapsed for ten months. These studies, however, were crude and incomplete compared with the careful and ex-

tensive experiments made by Forlanini between 1882[2] and the time of his first report of the successful treatment of a case in 1895.[18] Then in 1898 appeared the notable work of J. B. Murphy,[19] Lemke,[20] and Schell,[21] which attracted the attention of Brauer,[22] Spengler,[23] and A. Schmidt.[24] Mary Lapham,[25] in this country, has been a persistent and enthusiastic advocate of the method for many years.

The most careful attention now being directed to the artificial pneumothorax treatment of tuberculosis is undoubtedly due to the continued failure to discover a specific cure; also to the positive clinical and pathological proofs of its benefits and to the symptomatic relief given by it where other therapeutic measures have failed.

This treatment fills a peculiar and distinct need in a limited number of cases of phthisis which receive little or no assistance in any other way. In it we seem to have another weapon to use in our fight against tuberculosis. Yet, however widespread its acceptance by its adherents, the time has not yet arrived when we can safely reach a final judgment on the extension of its indications. While its use must still be limited, nevertheless, until a specific cure is found, it can be employed in saving many lives that are now hopelessly lost and it can be used advantageously in conjunction with our present rest and sanatorium treatment.

It must be remembered that it is an unusual therapeutic procedure to resort to the creation of a pathological condition in order to cure or relieve another pathological condition. The creation of an artificial pneumothorax must always be considered a pathological condition, only to be undertaken after careful consideration of each individual case.

Indications. The indications[1] gathered from our experience and from cases in the literature may be summarized as follows:—

1. In youth and middle age artificial pneumothorax treatment may be resorted to where "home treatment" or climatic, dietetic, rest, and medicinal treatment are of no avail in staying the progress of the disease.

2. Uncontrollable hemoptysis or recurring attacks of hemoptysis form another indication. However, one must make sure that the hemorrhage is from one lung only. If it is from both this treatment is distinctly contraindicated.

3. In that large group of moderately advanced cases where the condition in the lung seems to be at a standstill, but there is a continuous slight fever or continuous profuse expectoration with many tubercle bacilli persisting.

4. Some cases of incipient tuberculosis which the experienced observer knows will progress badly might be considered for this treatment, especially when these cannot undergo a course of treatment in a sanatorium.

5. Certain cases of recurring pleural effusion where it is advisable to keep the lung compressed.[17]

6. Extrapulmonary tuberculosis such as that of the larynx or kidney, is not a contraindication. Da Gradi,[26] Courmont,[27] Weis,[28] Carpi,[29] and Pisani.[30]

7. In certain non-tuberculous cases such as early lung abscess or bronchiectasis, it may well be considered before a surgical operation is attempted.

In this study the cases include nearly every type from the clinically unilateral to the far advanced bilateral cases with and without a totally free pleura. The ideal type is the unilateral case with a free pleura or one sufficiently free to allow compression of the lung. In the bilateral cases the treatment should be restricted to those where only one-third of the upper lobe is involved and is without disintegration.[31].

Contraindications:—

1. Alcoholism.
2. Cardiorenal disease.
3. Acute or chronic advanced bilateral cases with extensive destruction of pulmonary tissue in both lungs.
4. Symphysis of the pleura—extensive pleural adhesions.
5. Emphysema.
6. Splanchnoptosis.
7. Intestinal tuberculosis.

It is well to be conservative in all cases undertaken where there are multiple tuberculous areas and more especially when there is bilateral involvement.

For the patient to receive the greatest advantage of artificial pneumothorax treatment, the treatment should be undertaken in a sanatorium or hospital; rarely in the home.

Forlanini justly says, "It is a serious procedure to penetrate into the pleural cavity, one of the largest and most sensitive serous membranes of the human body, to introduce a foreign substance, displace the heart and the largest vessels and bring about functional variations in respiration and circulation by the creation of a new pathological condition. Such a treatment requires one skilled in the interpretation of thoracic symptomatology, and a patient who is completely under the control of the physician." The intelligent coöperation on the part of the patient is a very important condition of success. If this is not to be had, one should give up the treatment. During the first few weeks of treatment the experienced operator will be able to judge fairly definitely how much may be expected from the treatment, as by that time he will have gained a fair estimate of the compression that may be attained, of the condition of the other lung and of the "character" of the patient.

Preparation of the Patient. As a rule during the first weeks of treatment the patient should be kept quiet in bed until the temperature comes to normal and remains so. An enema or a cathartic should be given the night previous. If the patient is apprehensive and nervous he should be soothed and assured that the proced-

ure is painless and as a rule devoid of dangers. It is best to give the treatment in the morning about an hour after breakfast, or early in the afternoon. The morning is chosen because the patient is rested, and usually in good humor.

Technic Based on Seventy Cases Followed by Fluoroscopic and X-ray Examination. The patient is placed in a comfortable recumbent or side position, preferably in his bed. The hand of the chosen side is placed over the head or on the opposite shoulder so as to widen the intercostal spaces. By percussion and auscultation, the operator ascertains where the pleura is free and lung margin mobile. The patient's side in the region of the intended place of puncture is carefully disinfected with tincture of iodine. The operator's hands should be thoroughly washed and disinfected with alcohol. The instruments, hypodermic and pneumothorax needles and bottle containing local anesthetic should be sterilized. The apparatus and instruments should, of course, be tested before using.

The technic can never be mastered too well and as a rule cannot be acquired from a few observations. Some observers have remarked that the puncture is like aspirating for fluid. This is incorrect, for in such a case the needle enters a space already formed by a pathological condition, while in the first puncture for artificial pneumothorax, the point of the needle is to form a space by separating the parietal and visceral pleura.

The finger of one hand is placed firmly in the interspace chosen for the puncture and with the other hand the local anesthetic is injected with a common glass hypodermic syringe having a long, firm, thin sharp needle. As a local anesthetic I use the following solution of novocaine and adrenalin, as advised by Robinson[1]:—

Novocaine	0.5
Adrenalin	1.0
Aqua Distillata	100.0

Thirty minims of this solution is usually sufficient, but more may be used without giving rise to untoward symptoms. It is inserted slowly through the skin and then straight through the tissues until from a lack of further resistance it appears the parietal pleura has been perforated. Then a little more of the solution is injected to anesthetize a small area of the pleura. No harm will be done if some of the anesthetic gets into the lung. By injecting the anesthetic slowly as one feels his way through the different layers of tissues, a channel is thoroughly anesthetized for the subsequent introduction of the pneumothorax needle. (It is essential to the success of the operation that it be painless.) I am accustomed at the first puncture to inject with the local anesthetic from one-eighth to one-fourth grain of morphia to diminish the discomfort and cough due to the pressure excited by the nitrogen.

After a few minutes, when local anesthesia is complete, the pneumothorax needle is introduced in a direction perpendicular to the chest wall. The smallest caliber pneumothorax needle is to be used. It is firmly held in the right hand between the thumb and index and middle finger, just as a pen is held in writing. The index finger, of the left hand, is placed firmly in the interspace beside the anesthetized spot while the needle is inserted gently, slowly and firmly through the anesthetized channel to a depth varying according to the thickness of the tissues. The insertion should be made exactly in the center of the interspace to avoid the intercostal artery. From careful measurements in my series of cases, I have found that usually when the needle has been inserted two centimeters, it is about to perforate the parietal pleura. In very thin or fat subjects this depth varies. These measurements, of course, apply only when the precaution is taken to press firmly on the tissues in the interspace when the puncture is made. This firm pressure in the interspace is of great importance, especially in the alternate insertion and withdrawal of the needle in attempts to reach the pleural cavity. By introducing the needle slowly, an opportunity is given for the visceral pleura to retract. If one has had considerable experience with punctures, and has a fairly exact tactile sense, he soon learns when the point of the needle has reached the pleural cavity. After I have inserted the needle to a depth which I think is almost that of the parietal pleura, namely, at the endothoracic fascia, I transfer the needle to my left hand in order to have the right hand free. Then I withdraw the stylet from the needle, close the needle cock and, holding the needle firmly in place and carefully observing the manometer which is in direct connection with the needle, I insert the needle a little deeper unless it is already in the pleural cavity as shown by the manometer. When the point of the needle enters the pleural cavity one may immediately feel a lack of resistance such as is felt when perforating a sheet of paper with a needle. Frequently as the endothoracic fascia and parietal pleura are perforated, a distinct snapping sound may be heard. If the deep tissues have not been completely anesthetized, the patient may feel a distinct sharp pain. When the point of the needle has pierced the parietal pleura as a rule the manometer indicates that the pleural cavity has been reached by the characteristic pleural respiratory oscillations, which are always negative in pressure. The manometer then shows distinct oscillations which are very characteristic. The differences of level are from 4 to 10 or more centimeters and their lowest point, about which they oscillate, is higher on the side of the manometer which is in connection with the needle than on the other side. If these characteristic oscillations are not obtained, the needle is moved slightly inward or outward, or the stylet is passed into the lumen to remove any obstruction. If the characteristic respiratory oscillations are now not obtained, then another spot must be selected. Never move the needle sideways, for

tensive experiments made by Forlanini between 1882[2] and the time of his first report of the successful treatment of a case in 1895.[18] Then in 1898 appeared the notable work of J. B. Murphy,[19] Lemke,[20] and Schell,[21] which attracted the attention of Brauer,[22] Spengler,[23] and A. Schmidt.[24] Mary Lapham,[25] in this country, has been a persistent and enthusiastic advocate of the method for many years.

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Aqua Distillata	100.0

Thirty minims of this solution is usually sufficient, but more may be used without giving rise to untoward symptoms. It is inserted slowly through the skin and then straight through the tissues until from a lack of further resistance it appears the parietal pleura has been perforated. Then a little more of the solution is injected to anesthetize a small area of the pleura. No harm will be done if some of the anesthetic gets into the lung. By injecting the anesthetic slowly as one feels his way through the different layers of tissues, a channel is thoroughly anesthetized for the subsequent introduction of the pneumothorax needle. (It is essential to the success of the operation that it be painless.) I am accustomed at the first puncture to inject with the local anesthetic from one-eighth to one-fourth grain of morphia to diminish the discomfort and cough due to the pressure excited by the nitrogen.

After a few minutes, when local anesthesia is complete, the pneumothorax needle is introduced in a direction perpendicular to the chest wall. The smallest caliber pneumothorax needle is to be used. It is firmly held in the right hand between the thumb and index and middle finger, just as a pen is held in writing. The index finger, of the left hand, is placed firmly in the interspace beside the anesthetized spot while the needle is inserted gently, slowly and firmly through the anesthetized channel to a depth varying according to the thickness of the tissues. The insertion should be made exactly in the center of the interspace to avoid the intercostal artery. From careful measurements in my series of cases, I have found that usually when the needle has been inserted two centimeters, it is about to perforate the parietal pleura. In very thin or fat subjects this depth varies. These measurements, of course, apply only when the precaution is taken to press firmly on the tissues in the interspace when the puncture is made. This firm pressure in the interspace is of great importance, especially in the alternate insertion and withdrawal of the needle in attempts to reach the pleural cavity. By introducing the needle slowly, an opportunity is given for the visceral pleura to retract. If one has had considerable experience with punctures, and has a fairly exact tactile sense, he soon learns when the point of the needle has reached the pleural cavity. After I have inserted the needle to a depth which I think is almost that of the parietal pleura, namely, at the endothoracic fascia, I transfer the needle to my left hand in order to have the right hand free. Then I withdraw the stylet from the needle, close the needle cock and, holding the needle firmly in place and carefully observing the manometer which is in direct connection with the needle, I insert the needle a little deeper unless it is already in the pleural cavity as shown by the manometer. When the point of the needle enters the pleural cavity one may immediately feel a lack of resistance such as is felt when perforating a sheet of paper with a needle. Frequently as the endothoracic fascia and parietal pleura are perforated, a distinct snapping sound may be heard. If the deep tissues have not been completely anesthetized, the patient may feel a distinct sharp pain. When the point of the needle has pierced the parietal pleura as a rule the manometer indicates that the pleural cavity has been reached by the characteristic pleural respiratory oscillations, which are always negative in pressure. The manometer then shows distinct oscillations which are very characteristic. The differences of level are from 4 to 10 or more centimeters and their lowest point, about which they oscillate, is higher on the side of the manometer which is in connection with the needle than on the other side. If these characteristic oscillations are not obtained, the needle is moved slightly inward or outward, or the stylet is passed into the lumen to remove any obstruction. If the characteristic respiratory oscillations are now not obtained, then another spot must be selected. Never move the needle sideways, for

if it should be in the lung the latter may be easily torn by it. By keeping the needle straight, one runs less risk of puncturing the lung or of tearing a pleural adhesion. Usually, of course, a superficial puncture of the lung is immediately sealed up and causes little inconvenience. Still a puncture or a tear of the lung must never be considered an indifferent procedure, for even if that portion of the lung is not a seat of disease, it may cause serious complications. If the point of the needle comes into contact with adhesions, the respiratory oscillations cease or become small or jerky in character.

I have often been surprised at the ease with which the pleural cavity has been reached, although I must confess I have had a few failures. If the effect is other than above described, it may be due to one of several causes.

In case the needle has become obstructed, the manometer will remain stationary. If the needle is in the lung there may be no excursions in the manometer, or there may be observed very feeble respiratory oscillations with equal excursions. The pressure is then zero or slightly positive, but never negative. Moreover, if when the key connecting with the nitrogen is quickly opened and immediately closed, allowing only a very minute quantity of nitrogen to flow in, the manometer then becomes positive, it is because the needle is in the lung. In such a case the manometer reading will go down, sometimes quickly, sometimes slowly, to zero. In such a case the needle must be drawn back to the pleural cavity and the manometer observed for the characteristic oscillations. If the needle has been inserted into lung tissue, blood will generally be found in the needle when withdrawn and later the patient may spit up blood, as occurred in three of my early cases. If the point of the needle is in a good sized blood vessel, a rising pressure will be noted on the manometer, due to the blood flowing into the needle.

If the point of the needle is in a lung cavity or bronchiole, the respiratory oscillations will be even because the cavity is in communication with the outside. The size of the excursion depends on the size of the space and its nearness to a bronchus. In such cases, no matter how much nitrogen is injected, the respiratory excursions will remain the same, or may become slightly positive if the nitrogen does not escape as fast as it enters. As a rule in such cases, the patient tastes and feels the nitrogen in his throat, varying according to the quantity injected. Some of the nitrogen may reach the root of the lung along the peribronchial and perivascular connective tissue and lead to "mediastinal emphysema," causing deep pressure symptoms, usually noted an hour or two after the injection, and gradually subsiding in a day or two.

The dilating of a cavity by the introduction of a large quantity of nitrogen or the puncturing of its wall may be the cause of a hemoptysis as in Cases 18 and 19. In puncturing a cavity there is always the risk of infecting the pleura. In cases where the nitrogen is introduced into a lung cavity, the physical examination will reveal tympany and slightly diminished respiratory sounds. These symptoms are always a sign that the needle has gone beyond the pleural cavity. If the point of the needle is in a subpleural space, the manometer may show variations corresponding to the respiratory acts, but the pressure is always positive. If in such cases one allows a little nitrogen to flow in, the pressure will continue actually to be positive and higher. Level or positive pleural respiratory oscillations may be obtained where a pneumothorax or hydrothorax already exists, but on the introduction of nitrogen the pressure will become more positive.

I have noted a decrease in pressure in the manometer when the point of the needle has been in pulmonary tissue or loose pleural adhesions. The nitrogen then flows very slowly into the connective tissue and only under a high pressure can it be injected. If the pressure is removed, some of the injected nitrogen will actually flow back into the bottle. The manometer will show a positive pressure with even relatively small amounts, the pressure gradually coming down but never to negative. An interstitial emphysema forms, which may become dangerous, and if lung tissue has been injured the interstitial emphysema may be increased by the respiratory movements and by coughing. If there is a communication with the air passages, some of the nitrogen will flow out. Percussion will give a tympanitic note, but no coin sound. Respiration may be feeble, but never absent. The x-ray will not show any perceptible pneumothorax.

First Injection. At the first injection never let the nitrogen pass into the pleural cavity before the characteristic pleural respiratory oscillations are obtained. When these oscillations, as shown on the manometer, assure the operator that the point of the needle is in the pleural cavity, the nitrogen is allowed to flow in slowly without exerting any pressure. It is better to inject comparatively small amounts at the first injections. In fact, I never introduce over 500 c.c. at first, even though the patient seems to stand it perfectly well. Frequently during the introduction, the manometer should be tried and the character of the respiratory excursions noted. If the pressure rises quickly on the injection of a small quantity of nitrogen, it may be due to the formation of a pocket of gas caused by adherent pleura or pleural adhesions, which prevent the nitrogen from passing throughout the pleural cavity, or it may be caused by the existence of a calcified or indurated portion of lung or by a portion of lung being adherent. In one case as soon as 200 c.c. of nitrogen was introduced, the pressure which was at first markedly negative, rose to 10 cm. positive, indicating the formation of a pocket. If pain or discom-

fort is caused, the introduction should immediately be stopped, even though the injection has been less than 200 c.c. Very slight amounts of nitrogen are often sufficient to free the pleural cavity of light adhesions, rendering subsequent introductions more easy.

In Cases 11, 27, 31, only 50 c.c., 60 c.c., and 75 c.c., respectively, could be introduced at first on account of the high pressure and the result-



Fig. 1. (Case 19.)

Shows the needle in the lung. The point of the needle is in communication with a bronchus. The oscillations on the manometer are even. After allowing 200 c.c. nitrogen to flow in, the oscillations did not vary. The x-ray plate shows no evidence of a pneumothorax, proving conclusively that the needle was not in the pleural cavity.

ing pain. In other cases with a free pleural cavity, after the introduction of 200 c.c. the negative pressure changed but little, the respiratory excursions became wider, thus showing the pleural cavity to be free from adhesions.

The one exception to the rule of introducing small quantities of nitrogen is in hemoptysis, where the pneumothorax is established in an emergency to arrest a serious hemorrhage. In Case 14 an uncontrollable hemoptysis of two weeks' duration was immediately controlled by the introduction of 1800 c.c. nitrogen into the left pleural cavity. This is the largest amount I have ever injected at one time. Four days later mobility of the lung returned with another slight hemorrhage. 1200 c.c. nitrogen were then introduced and this completely collapsed the lung and definitely arrested the hemoptysis. Seven days later 200 c.c. more were injected, making a total of 3200 c.c. In this case the lung was maintained collapsed without further injections. An x-ray plate taken two months later showed a completely collapsed lung and the heart displaced to the right of the midsternal line. Even to control a hemorrhage such an amount is too large to be given at one time and subjects the patient to a needless risk.

Before removing the pneumothorax needle, it is well to measure the intrathoracic pressure by manometer reading. If it is found to be excessive, or should the patient complain of extreme

discomfort, the pressure may be reduced by allowing some of the nitrogen to escape. The needle is constructed with two keys so as to readily allow this. After the removal of the needle, pressure should be made over the point of puncture to prevent any gas escaping. The puncture is then sealed with sterile cotton and collodion and a chest swathe applied.

Subsequent Injections. At the subsequent injections the same care must be exercised as at the first. Indeed most of the accidents have happened at subsequent injections. Further introductions are made for the purpose of surrounding the lung with a mass of nitrogen, which gradually compresses it so as to bring about and maintain its immobilization. This is best effected by frequent small injections. They enable one to feel his way along while watching the action of the heart closely and the effect on the other lung, especially if diseased. Lung compression must be obtained gradually so as not to empty cavities too quickly, which might cause the infection to spread to the sound lung. (Forlanini and Schmidt each report a case where sudden emptying of cavities infected a sound lung.) Then again less toxic products are thrown into the circulation, thus preventing a severe reaction. Besides, the neighboring organs are not subject to sudden displacement, but to a gradual accommodation. The sensitive pleura is not unduly stretched, so that there is very little danger of lacerating adhesions which may cause infection.

At first I give injections every two or three days in quantities ranging from 100 c.c. to 500 c.c., according to the condition of the non-compressed lung, heart and the pressure noted on the manometer. If the pressure rises quickly with small amounts, there are pleural adhesions and of course care must be used. If the attempted pneumothorax is on the right, greater pressure may be used in attempting to loosen and stretch adhesions than if on the left. If the case is bilateral, great care must be exercised not to throw too much work on an already diseased lung, thus possibly increasing the activity or spreading the process into the healthy portions of the non-compressed lung. After one or two insufflations an x-ray plate should be taken to determine the amount of lung collapse obtained with the amount of nitrogen injected. After a few introductions, the pressure at the end of the introduction may become positive, only to become negative again before the next introduction. A positive pressure at subsequent introductions may indicate either that the point of the needle is in a pocket of gas or that a pleural effusion has formed.

During an injection it may happen that the pressure suddenly falls. This means that an adhesion has given way and the pleural space has enlarged. The patient usually experiences sharp pleural pain at the same time and for some time afterward. It causes only temporary inconvenience and it is to be considered a favorable sign, as permanent adhesions are the greatest obstacles to an efficient pneumothorax.

When there are no adhesions, it is sufficient to obtain a positive pressure of 2-4 cm. of alcohol or water at the introduction. A higher pressure may over-displace the heart and mediastinum and interfere too much with the function of the other lung. Frequently at the end of the introduction, where a pressure of 2-4 cm. has been attained, the patient may feel a slight tension which increases in a few hours and may last forty-eight hours. If too much pressure is exerted on the diaphragm, digestive disturbances may arise, such as pain in the epigastrium, loss of appetite, sense of fullness after taking but little food, nausea and even vomiting. It is inadvisable in these subjects to interfere very much with other organic functions. A high pressure may be necessary where there are adhesions to overcome or a cavity to collapse.

If no untoward symptoms develop, the insufflations are continued every three or four days until a complete collapse of the lung is obtained, as shown by the physical and x-ray examinations. Afterward the collapse is maintained at intervals of 7-12 days, according to the rate of absorption by the injected gas. As time goes on, the absorbing power of the pleura diminishes (and this diminution is more marked if an effusion has formed) so that the injections are made at intervals of two to four weeks, never more than four weeks. The intervals necessarily vary because there is a marked difference in the rapidity of absorption in different individuals. This also depends partly upon the amount of exercise taken. The lung compression should be kept practically constant, by the injections of small amounts at stated intervals. The injection of large quantities of nitrogen at long intervals is to be discouraged because of its dangers and the uneven compression of the lung. The same results cannot be obtained from large quantities at long intervals as from small quantities at shorter intervals.

Absorption of nitrogen will be slower when the lung is completely collapsed than where it is only partially so. W. Meyerstein's[31] experimental work in this connection is of value.

Adherent Pleura. Attempts to inject nitrogen into an adherent pleura must be made with great care. If the pneumothorax increases it will be shown by the extent of the manometer's excursions; then the careful introduction of small quantities of nitrogen may be continued. However, unless there is an increasing pneumothorax, continued injections of even small quantities of nitrogen must not be made, as an interstitial emphysema may form. Attempts to separate an adherent pleura are contraindicated because only a slight pneumothorax can be produced, which is valueless; and the patient is needlessly exposed to harm. In such cases, if several attempts in different parts of the thorax yield unsatisfactory results, it is useless to continue. An accurate study of the ma-

nometer and of the x-ray in each individual case will furnish most valuable information regarding the condition of the pleural cavity.

L. Holmgren[32] suggests the injections of sterile salt solution to aid in the separation of an adherent pleura. He describes in detail a case of a woman with an obliterated pleural cavity (bilateral involvement) where forty punctures were made without succeeding in finding a free pleural space. Then he made thirteen injections of physiological salt solution, the last being followed with nitrogen and succeeded in producing a pneumothorax, which a month later collapsed the lung and displaced the heart. There followed marked improvement and five months later the patient was able to attend to her household cares. The author states that he punctured the lung several times without any untoward symptoms. When the liquid is injected into the lung it immediately brings on coughing and the expectoration has a salty taste.

Part II.

Effect on the Neighboring Organs in the Establishing of a Pneumothorax.

1. *The Non-compressed Lung.* If it is healthy, it is capable of carrying on alone the necessary oxygenating function of the organism. A healed tuberculous lung or even a lung with an arrested process may be perfectly able to carry on the necessary respiratory exchange, provided the pneumothorax is gradually produced. There are also cases with extensively diseased lungs that can carry on the necessary respiratory exchange. Whether or not this is possible in any particular case, depends largely upon the location and nature of the lesions, the degree of the patient's activity, and the manner in which the pneumothorax is established and maintained.

Riva-Rocci and Cavallero[33] in Forlanini's clinic studied the effects of a reduced pulmonary surface resulting from either induced pneumothorax or disease. They showed that in these cases the amount of breathing, that is, the quantity of air inspired in the amount of time, remains unaltered.

Carpenter and Benedict,[34] studying the metabolism in man with greatly diminished lung area conclude that, "The reduction of the area for oxygen absorption and carbonic acid elimination in the lungs by about one-half has not materially altered the total metabolism."

When the pneumothorax is established, the non-compressed lung shows an increased function. Respiration becomes of a harsh, exaggerated character, and the depth and frequency of each inspiration is increased. In Case 21, a non-tuberculous abscess of the right lung and in Case 22, a bronchiectatic abscess of the left lung, the non-compressed lung at first became emphysematous. Then it gradually accommodated itself to the new order of things and respiration became nearly normal. This was also observed in other cases.

In certain bilateral cases an improvement in the lesions was noted. At the first few injections signs of increased activity usually appear in the existing lesions of the non-compressed lung. This may be considered a tuberculin reaction, due to the absorption of toxins from the collapsed lung. This reaction usually disappears. A persistence and a progression of the disease takes place only when there is reinfection from the sudden emptying of cavities, when there is interference with the function of the non-compressed lung from a too high intrapleural pressure, from a severe reaction, or when there are more extensive and active processes. We have noted especially chronic apical lesions to retrogress. This also has happened in two cases where the lesions were acute.

In some of the bilateral cases of this series, an unfavorable effect on the non-compressed lung was noted.

In Case 36, with an extensive involvement of the left lung and moderate activity in a third of the right upper lobe, there was considerable symptomatic relief during the first four months of treatment. The cough and sputum had greatly diminished and the fever had reached normal, when a pleural effusion developed. This increased the intrapleural pressure so much that it interfered with the function of the non-compresed lung. Respiration soon became bronchial in character throughout the lung and many râles were heard. Cough and sputum increased and fever reappeared. After a severe fit of coughing the patient had a brisk hemoptysis, losing about a pint of blood. The bloody sputum continued for several days and then stopped. On the eighth day the patient was comfortable, but had some cough with slightly blood streaked sputum. Later she developed a melancholia, from which she had suffered once before, became unmanageable at home and had to be removed to an asylum, where she died a month later.

Case 42 had extensive active process on the left with active lesions at the right apex. During the treatment with almost a complete pneumothorax of the left lung she scrubbed a kitchen floor, had a fit of coughing and raised a mouthful of blood. Rest in bed quieted the process, then treatment was resumed very guardedly. There later developed a pleural effusion on the operated side which maintained sufficient lung collapse with the aid of a few insufflations of nitrogen. The patient abandoned treatment two months later. She has now a fully re-expanded lung. There is activity in both lungs.

Case 28 raised bloody sputum for several days after a complete pneumothorax was established. This patient was under treatment for three months when he returned to Italy, entering an institution there. He did not do well.

Case 55 raised a mouthful of blood twenty-four hours after the 12th injection. I have

never been able to determine positively whether the blood came from the non-compressed lung or not. That month she did not menstruate. There have been no active signs of disease in the non-compressed lung. She has not raised any blood since and has been doing well. She has very little cough. The slight amount of sputum is free of tubercle bacilli. For the two years previous to artificial pneumothorax treatment the disease had been gradually progressing.

Case 63 was a unilateral case with an extensive cavity in right upper lobe. Before treatment she raised two cupfuls of sputum and had considerable cough, chills and fever. After five weeks' treatment a partial pneumothorax was produced. The sputum was reduced to half a cupful, cough much improved, chills had disappeared and fever was practically normal. There was relief of all the symptoms with continued improvement; on the seventh week she decided to suspend treatment. As the pneumothorax absorbed, the sputum and cough increased and temperature re-appeared. These symptoms improved on resuming treatment. She later began to show active signs in the left lung. The amount of sputum again became two boxes in the twenty-four hours. Increased cough, chills, fever and night sweats were present. At her request 500 c.c. nitrogen were injected. Soon there was a diminution in the amount of sputum, improvement in cough and lowering of temperature. Slight activity in the left lung continued. Six days later 300 c.c. nitrogen were injected with no discomfort. Two days later she had a hemorrhage, losing about one pint of blood. The sputum continued bloody for five days. The amount of sputum has continued from one to one and a half boxes in the twenty-four hours. The disease is progressing. It is useless to treat a patient as capricious as this, especially when the condition is so serious at the beginning.

Hymans von den Bergh, de Joisselin, De Jong, and Schut,[35] in their report of thirteen cases, stated that the pneumothorax exerted an unfavorable action on the relatively healthy respiring lung much more often than is mentioned by others. Nevertheless, they do not express unfavorable judgment on the value of the method as they have obtained excellent results.

2. *The Heart.* Displacements of the heart are both interesting and important, because they may seriously affect the progress of the treatment. The heart when displaced to the right, or more especially on the left, may undergo certain distortions. The blood vessels may also be displaced or distorted. But the healthy heart seems to readily adapt itself to these changes.

When the pleura is free, the nitrogen at the first introductions, even in small quantities, occupies the anterior part of the chest. When the nitrogen is injected into the left pleural cavity, it tends to cause an obliteration of the absolute cardiac dullness and a diminution of the relative cardiac dullness. As the pneumothorax becomes more complete, a total disappearance of the normal cardiac dullness results. This causes a muffling and finally a disappearance of the apex beat, showing that the pneumothorax has formed over the heart. The sounds can be made out, unmodified in their phonetic and rhythmic character. As the left pneumothorax is still further increased and the mediastinum is arched, the heart is still further displaced and the cardiac dullness may appear to the right of the sternum.

In Case 22 at the second insufflation (800 c.c.) the heart was suddenly displaced or distorted, causing intense cyanosis and momentary syncope; this was immediately relieved by the withdrawal of the needle and the prompt massaging of the precordial region. The injection had been made in the fifth left intercostal space in the midaxillary line.

In Case 24 where a pleural effusion was present, at the 20th insufflation, a positive pressure of 15 cm. of water was obtained in attempting to collapse a cavity. The injection in this case was made below the angle of the scapula on the left. At the time, the patient felt much tension in the chest, but the heart action was good and regular. That night the patient had considerable orthopnea and cardiac distress, which increased until I was sent for three days later. I found the patient propped up in bed, looking very ill, with precordial pain, orthopnea and pulse 140, weak and irregular. The heart was 5 cm. to the right of the midsternal line. The whole left chest was tympanitic front and back. There was tenderness and pain over the epigastrium and on the right over the edge of the liver. I realized at once that the pneumothorax was excessive and immediately withdrew part of the nitrogen. When the pneumothorax needle was inserted, such high positive pressure was found that the alcohol was completely ejected from the manometer. The nitrogen was allowed to flow out as long as it would of its own accord. Then, as the pressure was still positive more nitrogen was forced out by the following procedure until the pressure became markedly negative. This was done by having the patient cough, and opening the stopcock on expiration and closing it on inspiration. This gave immediate relief and the patient was able to lie down in bed, for the first time in four days. The pulse gradually decreased and became stronger. In a few days she had completely recovered from the cardiac distress.

In the production of a pneumothorax on the right side, the heart behaves in a different manner. At first the area of cardiac dullness and the cardiac impulse are not affected, but when the pneumothorax has reached a considerable volume and the mediastinum is bent, the heart displacement to the left begins. This rarely reaches the anterior axillary line.

In Case 12, when the nitrogen at the tenth injection was introduced at a high pressure (the pneumothorax was mostly anterior, as the lung

was adherent posteriorly, filling of the right heart was interfered with. This caused the patient to collapse as he arose from the table. Prompt massage to the precordial region, stimulation and rest soon restored its normal function.

I believe it is also important that the intrapleural pressure should not be high for the following reason: On the right side a large surface of the venae cavae and of the right heart is directly exposed to the pleural pressure. There is more or less interference with the suction of blood to the thorax and the blood supply of the right auricle and ventricle which fill at a negative pressure is lessened. A high intrapleural pressure may thus prevent the flow of blood and the result might be fatal. On the left side on account of the anatomical relations, only in a small proportion of the cases will an appreciable area of the inferior cava be directly exposed to the pleural pressure. The intrapleural pressure may be suddenly increased even with a relatively small amount of nitrogen (especially if an effusion has formed) and this sudden increase may be a probable cause of sudden death at secondary injections.

When pleural adhesions exist, displacements occur in a different manner, according to the location, extent and form of the adhesions. In Case 16, where the heart was markedly displaced to the right, it compressed the right lung, probably causing some stasis in its inferior lobe. This gradually cleared up without any untoward symptoms. In Case 52, where only a partial pneumothorax could be produced (on the left) attempts to inject nitrogen at a high pressure so as to increase the pneumothorax caused serious cardiac disturbance necessitating the withdrawal of nitrogen and abandoning of the treatment.

In general, the patients bear marked cardiac displacements without ill effects, especially when the pneumothorax is produced gradually and the pressure is not excessive. Doubtless there are individuals without cardiac lesions who could not stand the formation of a pneumothorax because of the resulting circulatory disturbances. The condition of the myocardium in individuals who have suffered a long time and are in bad condition on account of the autointoxication and fever, may more readily give rise to trouble.

Weiss[28] noticed a marked improvement in the heart condition soon after the establishing of a pneumothorax, in cases where the heart was weakened by the absorption of toxins. In Cases 24, 43, and 54 of this series marked improvement of the heart action was attributed to a diminution in the absorption of toxins, and the lessening of the cough.

Calstrom[36] reports the case of an individual with advanced lesion of the right lung, who after a complete pneumothorax had been produced, died of intestinal tuberculosis. During life the x-ray showed an enlarged heart following the production of the pneumothorax. At autopsy the right ventricle was found much larger than the left. Nothing was found wrong with the valves. Calstrom believes that the enlargement of the heart was caused not only by the compression of the lung, but also by the displacement of the heart, causing some obstruction to the pulmonary artery.

In the reported autopsies of Forlanini, Graetz, Saugman, Begtrup Hansen, Brauer and Splengler and Kistler, no mention is made of cardiac alterations in individuals undergoing artificial pneumothorax. But Bruns'[37] experimental work has shown that hypertrophy and dilatation of the right ventricle takes place. Brauer does not believe this to be due to a diminished circulatory area, for even if in the compressed lung there takes place a greater resistance than normal to the circulation, the respiratory area being more ample relieves the work of the heart.

3. *The Pleura.* As time goes on the absorbing power of the pleura diminishes, owing to the structural alterations which take place. The pleura is more or less distended by the foreign body, nitrogen. Its nutrition is interfered with because the normal negative pressure becomes somewhat positive on the production of a pneumothorax. Besides the changed condition of nutrition, the nitrogen acting as a foreign body will naturally have an irritative action on the delicate endothelial cells. All these factors tend to bring about structural alteration. As the needle pierces the parietal pleura, the operator often notices a boggy sensation, which was absent at previous injections. This is an evidence of the change.

Still more striking than this is the fact that in all cases where the pneumothorax is allowed to absorb, the pleural surfaces, coming into contact with each other, will adhere. This prevents the reinstitution of a pneumothorax.

In Case 22, the patient, who had followed the treatment faithfully, took a business trip of six weeks. When he came back the middle portion of the lung had reëxpanded and become adherent to the thoracic wall, which prevented a complete collapse. After 500 c.c. of nitrogen had been injected to recollapse the lung, the patient felt so much pain that the introduction was suspended. An x-ray plate showed the adhesion as stated above, and a well-defined pneumothorax area above and below. This tendency of the surfaces to adhere emphasizes the necessity of frequent replenishments and the dangers from permitting the lung to reëxpand prematurely. Careful supervision should be maintained over these patients.

In Case 46 there was an extensive process in the left lung with a cavity between the second and fourth ribs. The patient raised considerable blood in the sputum which did not clear up by rest. The first injection of 300 c.c. nitrogen was introduced into the left pleural cavity. The injection was suspended on account of the pain and high intrapleural pressure noted on the

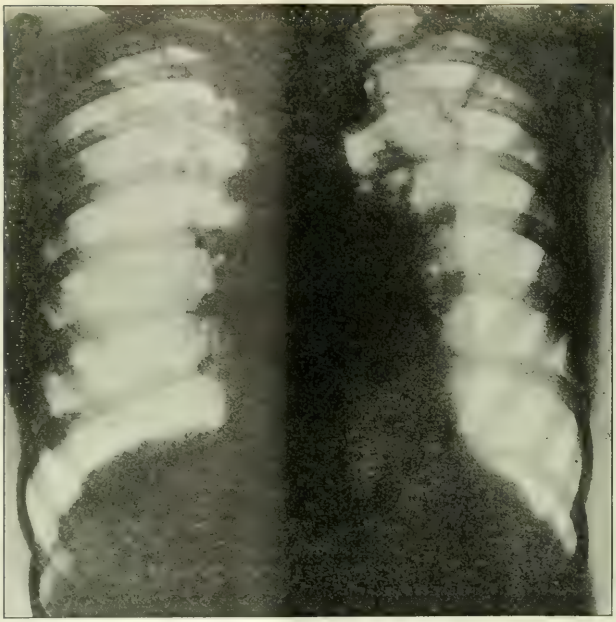


FIG. 2. (CASE 27.)

Shows the amount of lung collapse by the injection at one time of 1000 c.c. nitrogen gas into the pleural cavity.

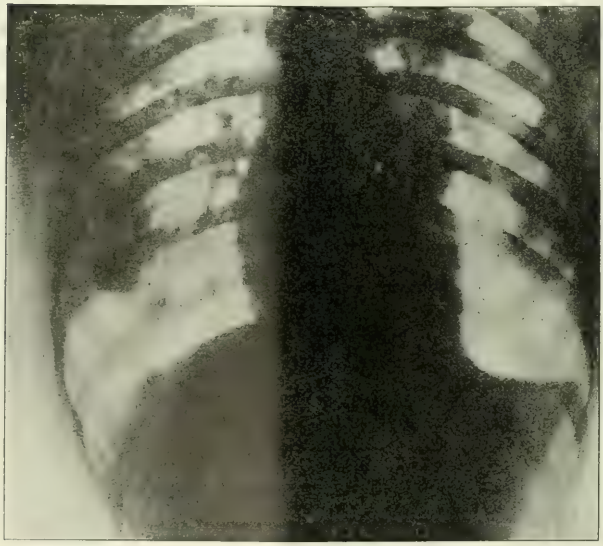


FIG. 3. (CASE 42.)

Shows x-ray taken in sitting posture. Note the fluid in costo phrenic sinus. It was impossible to detect on physical examination this small amount of fluid that had developed during the second week of treatment. The value of frequent fluoroscopic and x-ray examination is self evident.

manometer. On physical examination, the nitrogen was found to be in a definite area, mostly anteriorly. The patient was left in charge of another operator to inject again in a few days. For some reason the operator failed to do so and eight days later when I saw the case again I was unable to enter the pleural cavity. Undoubtedly the nitrogen leaked into other parts of the pleural cavity from the pocket in which it was first held and during the interval was wholly absorbed. An adhesive pleuritis resulted which obliterated the pleural cavity.

A similar result was observed in Case 29 with a hydropneumothorax. This patient had been under treatment for a year, during which time he had developed a pleural effusion. This, with the aid of nitrogen injections every two to three weeks, maintained the lung almost completely collapsed. During all this time he kept at his work. He went on a six weeks' vacation, and on his return it was found by physical and x-ray examination that there was a completely expanded lung. Several attempts to introduce the needle into the pleural cavity failed.

In one case only, Case 27, where the physical and x-ray examination showed a completely re-expanded lung, was it possible to again collapse the lung by the introduction of 1000 c.c. nitrogen. This was a young woman with an extensive process throughout the left lung, with also a moderate amount of infiltration in the right upper lobe which was slightly active. The left lung had been compressed for two months, with much improvement in all the symptoms. She did not report for examination for three weeks, when the left lung was found completely re-expanded. The x-ray confirmed the physical examination. The needle was introduced and a marked negative pressure noted on the manometer. One thousand c.c. nitrogen were carefully introduced, obtaining at the end of the introduction a positive pressure of 6 cm. of water. (Fig. 2) shows the amount of collapse obtained. That night and the following three days she suffered much pain, had chills, fever and a feeling of general malaise. Three weeks later there developed a pleural effusion on that side. In my previous article, basing my findings on this case, I asserted that once the collapsed lung had re-expanded, it could again be collapsed by resuming the treatment. I have never been able to collapse a lung that has completely reëxpanded.

4. *The Diaphragm and Abdominal Viscera.* As the diaphragm is pushed downward during the treatment there may be interference with the function of the stomach. The resulting gastric disturbances are temporary and consist of a feeling of fullness on taking little food, sometimes nausea and even vomiting. In Cases 12-60, on the development of a serous effusion, the gastric symptoms became accentuated and the patient could take only very small quantities of food. Gastric disturbances may also result from an increased liberation of toxins. With a complete or even partial pneumothorax which pushes the diaphragm down on the right, the liver is often displaced downward; besides there is probably more or less chronic passive congestion, causing a tender liver. Whenever the gastric symptoms are so severe as to interfere with the taking of a proper amount of nourishment, it is well to continue the treatment very guardedly and give only such small injections as will not interfere with gastric function. Bilateral cases will be the ones to suffer most from such disturbances.

Pneumothorax may favor the progress of a dormant intestinal tuberculosis. On the onset of severe intestinal symptoms, treatment should be suspended.

5. *Effects on Extra-thoracic Tuberculosis.* Just as the diminution of toxic absorption creates a condition favorable to the effecting of a cure and of giving symptomatic relief in certain cases of pulmonary tuberculosis, it may also exert a favorable influence upon extra-thoracic tuberculosis. In Case 54 there were symptoms of laryngeal involvement, which gradually improved with the improvement in general conditions, following the establishment of a pneumothorax. This is attributed to the decrease in toxemia and the lessened possibility of infection from the sputum. DaGradi[26] and Courmont[27] also noted the favorable influence in laryngeal cases. Carpi, [29] Pisani,[30] and recently Weis[28] have reported each a case in which there was symptomatic recovery in renal tuberculosis, following the establishment of a pneumothorax.

Parts III and IV, to appear later, will deal with complications and clinical results.

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ASTHMA IN CHILDREN. ITS RELATION TO "EGG POISONING" (ANAPHYLAXIS).

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IT has long been known that certain children could not eat eggs without symptoms of poisoning resulting. These symptoms may appear in various ways, the most common being vomiting. This usually is accompanied by urticaria, is frequently followed by diarrhea, and in a few instances by the symptoms of anaphylactic shock. Attention was first drawn to the condition known as anaphylactic shock by Theobald Smith. Many investigators have added much to our knowledge of this condition in the past eight years so that it is possible to make the following statement: "When a foreign protein is introduced into the blood or tissue, it stimulates certain body cells to elaborate that specific ferment which will digest that specific protein. When such a protein first comes in contact with the body cells, the latter are unprepared to digest the former, but this function is gradually acquired. The protein contained in the first injection is slowly digested, and no ill effects are observable. When subsequent injections of the same protein are made, the cells, prepared by the first injections, pour out the specific ferment more promptly and the effects are determined by the rapidity with which the digestion takes place. The poisonous group in the molecule may be set free so rapidly and in amounts sufficient to kill the animal."[1]

When a foreign protein gains entrance into the body it sensitizes that body unless successive doses are given at short enough intervals and over a long enough period of time to cause immunity.

When a foreign protein is administered and the body becomes sensitized, a subsequent dose causes symptoms of anaphylaxis.

Foreign proteins may be introduced subcutaneously or via the digestive tract. In the first instance it goes into the blood stream unchanged, and in the second it comes in contact first with the digestive juices. The digestive juices split up the foreign protein, and as their action progresses, the power of sensitizing diminishes. There is some question whether amino acids, the end products of the digestion of protein, are capable of sensitizing animals. It is also uncertain whether a foreign protein can pass unchanged through the healthy mucous membrane of the adult. Injury to the mucous membrane is probably necessary, except shortly after birth, before the foreign protein can be absorbed unchanged. The greater the injury to the intestinal mucous membrane the more easily can foreign protein pass through the intestinal wall.[2] The younger the infant is the more easily can a foreign protein pass through the healthy, uninjured, mucous membrane. This is important because the younger an individual is the more easily can he become sensitized.

Sensitization may be inherited by the young animal from its mother, and so it is conceivable that, in some instances, a child can be born sensitive to certain foreign proteins. An infant may either have an inherited tendency to anaphylaxis; it may become sensitized during the first few days of life; or in later infancy during a digestive upset or a diarrhea.

Many writers have suggested that asthma might be a form of anaphylaxis, but up to date no evidence has been presented to prove this view.

[1] Vaughan: Protein Split Products, Philadelphia and London, 1913.

[2] Lust: Jahrb. f. Kinderh., 1913, vol. xxvii, 243.

In 1912 Oscar M. Schloss[3] reported the results of a series of brilliant investigations on the effect of egg injected into animals, and was the first to draw attention to the fact that the symptoms of egg poisoning in children were the signs of allergy or anaphylaxis. He studied a child of eight years who was poisoned whenever he ate eggs, almonds, or oatmeal, and found that he could cause an urticarial wheal to appear on the scarified skin whenever he applied the protein of any of these substances. This wheal appeared in from five to fifteen minutes after the test was made. Egg white diluted with water reacted in this child in dilutions from 1:10 to 1:150, while ovomucoid dissolved in distilled water reacted in this manner up to dilutions of 1:15,000. Egg yolk in distilled water reacted only in dilutions up to 1:10.

Schloss was able to immunize this patient by giving him minute doses of ovomucoid in capsules three times a day. The dose was increased, at first gradually, and later more rapidly, so that at the end of two and one-half months immunization was complete and the boy was able to eat egg without any symptoms.

During the past two and one-half years the writer has studied eleven cases of egg anaphylaxis. Ten of these eleven cases had had eczema sometime during infancy or childhood. Six of the cases had severe asthma.

These cases were studied in the first place to see if there was any connection between eggs in the food and the asthma; and in the second place a skin test was made according to Schloss to determine if the individual was sensitive to eggs.

The skin test was performed as follows:—

(*a*) In patients giving the history that egg was poisonous to them, the skin of the flexor surface of the arm was cleansed with soap and water and alcohol, and then egg rubbed into the unbroken skin, Very sensitive individuals reacted within five to fifteen minutes, an urticarial wheal appearing at the place of application. The severity of the reaction was measured by the size of the wheal.

(*b*) In less sensitive cases the skin was cleaned as above and then scarified, either by making a linear incision about three-quarters of an inch long, or by making a round puncture in the manner described by von Pirquet. Care should be taken merely to break the skin and to draw as little blood as possible. The white of a fresh egg was then rubbed gently into one scarification, while a second one was left for a control. A positive reaction is shown by an urticarial wheal at the site of application. It is not wise to do more than one test at the first visit if there is a quick and pronounced reaction, because enough egg may be absorbed to cause an attack of asthma. At a later visit the skin may be tested with dilutions of egg albumen to determine how sensitive the patient is.

[3] Schloss, Oscar M.: Am. Jour. of Dis. Children, 1912, vol. 3, No. 6, p. 341.

A number of other cases of eczema have been studied in the Children's Department of the Massachusetts General Hospital, but to date they have shown very few instances of egg idiosyncrasy. In one instance it was found that an infant of three months with eczema had an anaphylaxis to egg white. This diagnosis was made by the skin test described above, which was positive to egg white. As the infant was said never to have had any food other than the breast, it seems probable that the idiosyncrasy was hereditary.

The following cases are reported to illustrate the various types of asthma which may be due to egg:—

Case 1. R. S., male, age five years; was born at full term, was breast fed for one month, and then weaned. He did well with the exception of a slight digestive upset at six months and eczema at one year, which lasted two months. At fourteen months he was given a quarter of an egg, which was promptly vomited. He vomited several times afterwards, and about two hours later began to have "hives," which increased so that six hours later he was so swollen up that he could hardly see out of his eyes. When he was two years old he began to have colds and digestive upsets. His stools showed a considerable excess of fat under the microscope, and it was found that he was much better with diminished amounts of fat in his food. His adenoids were removed at this time, because of the colds, with some improvement. At two and one-half years the colds became more asthmatic in type, although they were never typical. Repeated physical examinations showed a normal, active boy. The heart, lungs, liver, abdomen, and spleen were normal. The urine was normal. Up to this time eggs were excluded from his food because "they poisoned him." On Feb. 1, 1914, he went to a party where he had some sponge cake covered with frosting made with the white of egg. He ate a good deal of the cake and shortly afterwards had an urticarial eruption all over his body, which was followed by a cough without fever. Physical examination including the ears was normal except that there were many medium and coarse musical râles scattered over both chests, and he had considerable difficulty in breathing (mild asthma). No treatment affected the bronchitis for about three weeks, after which it gradually disappeared. The fact that the bronchitis followed so quickly after eating egg made it seem probable that egg had some connection with the bronchitis, so it was decided to give him minute doses of egg white in capsules. He was, therefore, given one capsule containing one milligram of powdered egg white a day. The first capsule brought blotches out on his face. After receiving three capsules for a few days his bronchitis returned and he became miserable. The capsules were, therefore, omitted and the bronchitis immediately disappeared. A few days later the capsules were again administered with the same result. This sequence of events was repeated three times, and established an etiological connection between the ingestion of egg white and the bronchitis.

Summary. No family history of anaphylaxis. Mild eczema as an infant. Egg, so far as is known, for the first time at fourteen months,

followed immediately by symptoms of anaphylaxis. At two and one-half years bronchitis which simulated asthma. At five years mild asthma brought on by egg white. Physical examination ruled out other causes of asthma.

CASE 2. A. H., male, age five years. His parents gave no history of anything that might be attributed to anaphylaxis except that the mother is unable to eat certain kinds of fish. He was born at full term, and was always bottle fed, having considerable trouble with his digestion. During the latter part of the first year he had eczema. At fourteen months his adenoids were removed, because of frequent colds, with some improvement, but as the colds still persisted, the adenoids were again removed at two years. After that the character of the colds changed, going down into the chest and becoming "wheezy." Since then the attacks have been asthmatic. He had "never been able to eat eggs" because they poisoned him. He was first seen at three years of age and found to be fairly developed and nourished. The lungs were hyperresonant throughout with slightly prolonged expiration and an occasional squeak. The physical examination was otherwise normal. The urine was normal. Careful dieting (cutting eggs out of the diet) and regulating of habits improved his general condition and diminished the number and severity of his asthmatic attacks. At four years he was also found to have "horse asthma."

It was decided then to start immunizing him to egg albumen by administering egg white in capsules. He received a one milligram capsule once a day on each of three successive days. The second day he became cross and the morning of the third day he began to sneeze and a rash appeared beneath the skin. On the evening of this day he had a typical attack of asthma in which he "lost in a few hours what he had gained in a year." The capsules were, therefore, discontinued and his bowels cleared out with calomel. The next morning there was no rash and the asthma had entirely disappeared. Since that time he has eaten no egg and has been free from asthma. This boy is very sensitive to egg albumen and can be kept free from asthma as long as he receives no egg in his food and keeps away form horses. The skin test was positive to egg white in 12 minutes, and appeared as a slightly reddened urticarial wheal.

Summary. Mother cannot eat certain forms of fish. Eczema as an infant. Egg idiosyncrasy, colds, asthma following administration of egg, removal of adenoids without improvement. Horse asthma. Physical examination ruled out other causes of asthma. Positive skin test to egg white.

CASE 3. T. G., male, age five years. Both parents are healthy and give no history of any form of anaphylaxis. Child was born at full term and was breast fed for two months. After that he had more or less eczema and trouble in digesting the fats. He began to have asthma when two and one half years of age. His tonsils and adenoids were removed because of the asthma, without any improvement. Repeated physical examinations and urinary examinations revealed nothing abnormal. He had never been able to eat any form of eggs. On December 28, 1912, a specific skin reaction to egg albumen was obtained by rubbing egg white into the unbroken skin of the flexor surface of the arm. The reaction appeared in about five minutes as many confluent urticarial wheals. This positive reaction established the fact that he was sensitive to egg albumen. On January 13, 1913, he was given minute doses of egg white in capsules, the number and size being gradually increased. On February 6 he was receiving ten milligrams of egg white a day without symptoms. His skin was again tested with egg, and although there was a reaction it was not so pronounced, nor did it appear as rapidly as the previous one. The first reaction produced a confluent wheal, while the second one showed two small discreet urticarial patches. The amount of egg was then increased so that on April 10 he received thirty milligrams a day. At this time the egg test caused only five little spots about the size of the head of a pin to appear; these disappeared quickly, and did not persist as long as the previous ones. It was then found possible to give him larger doses of egg, and in May, five months later, the child was eating a teaspoonful of the white of an egg a day without any symptoms. The asthma, which had previously been very severe, was not as bad as usual. Since December 3, 1913, he has been able to eat a whole egg with relish and without any symptoms of poisoning. He was, therefore, completely immunized to egg albumen, and since then, a period of over a year and a half, has had no asthma. A complete and permanent cure of the asthma came in this case with the immunity to egg albumen.

Summary. No family history of anaphylaxis. No history of sensitizing doses of egg. Persistent eczema. Idiosyncrasy to eggs. Asthma. Positive skin test to egg white. Physical examination ruled out other causes of asthma. Immunization to egg albumen. Cure.

CASE 4. R. M.* The father has hay fever and a younger brother has some idiosyncrasy to eggs without asthma for several years, but for the past three years has been able to eat eggs with impunity.

The patient was breast fed for five months and after that he was bottle fed. He had eczema, also some difficulty with his digestion during infancy, and since then his skin has always been dry with a tendency to eczema. He was circumcised when seven years old because of eczema of the scrotum and groins.

At three years he began to have severe attacks of asthma occurring at first about once in six months. These attacks became more frequent and eventually there was an attack every three or four weeks during the winter and less frequently during the summer. He had never been able to eat eggs. On September 29, 1912, it was found that plain white of egg rubbed into the skin of the flexor surface of the arm caused a marked urticarial wheal to appear in about seven minutes. This disappeared in about one-half an hour. Egg white diluted with normal salt solution one-half and one-quarter strength caused a reaction. When a slight abrasion was made on the skin, the reaction was more marked and came more promptly, usually in about four minutes. The skin reacted in this manner in dilu-

* The writer is indebted to Dr. McKeen for the privilege of reporting this case.

tions about one to ten thousand. The yolk of an egg rubbed into the intact skin apparently gave no reaction, while that rubbed into an abrasion caused a reaction in ten minutes. Several dilutions were tried the same day and a few hours after these experiments were completed, the boy developed one of the most violent attacks of asthma he had had for a long time, and was confined to his bed for several weeks. On January 10, 1913, immunization was commenced with dry white of egg powder, starting with five milligrams in capsules. This at first caused severe gastric pain and nausea. It was repeated a few days later with less effect, and gradually the dose was worked up so that in six months he was taking one gram of egg white three times a day. His asthmatic attack in the meantime had grown less and less severe so that at the end of six months they had entirely disappeared. He was then given some of the dried powdered egg white mixed with his cereal. A few minutes later his lungs filled up alarmingly, and for the rest of the day he had marked dyspnea and coughing. Treatment was, therefore, discontinued for a day or two, after which the previous doses in capsules were again commenced. During the winter of 1914 he had several quite severe infections without any recurrence of the asthma. He is now taking five hundred milligrams of egg white in capsules twice a day but it does not seem safe to give him any ordinary egg in his food. He has been free from asthma for nearly a year.

Summary. Family history of anaphylaxis. Eczema and indigestion as an infant. Idiosyncrasy to eggs. Asthma. Positive skin test. Immunization and cure. Physical examination ruled out other causes for asthma.

CASE 5. F. I., male, age 5¾ years. The father and paternal grandmother have hay fever. For the first six months he gained no weight and had indigestion. He did not have eczema. During the second six months he gained very rapidly and was of average weight at the end of the first year. There was no history of his receiving egg during this time. He was unable to eat eggs except when they were cooked. (This is of interest because it is possible that the heat in cooking denaturized the egg albumen.) The last time he received uncooked egg, his face swelled up and became yellow, and he vomited almost incessantly for two hours. He has had hay fever.

At one year he commenced to have asthma (there is no record at that time of any connection between it and egg), and had seven or eight attacks during the winter. This continued until he was three years old, when his adenoids were removed. After that he did not have so many attacks of asthma and improved in general condition. At five years, when he was first seen, he was having an attack of asthma once in five to six weeks, which usually lasted two nights and a day. His physical examination was normal and showed no cause for the asthma. The urine was normal. The skin test was not made in this case and there was some doubt as to whether it was a case of asthma due to egg or not. The fact that he could not eat raw egg made it seem probable that an idiosyncrasy to eggs played some part in this case. It was, therefore, determined to proceed in the usual manner in immunizing him. Gradual increasing doses of egg white in capsules were commenced on November 18, 1913. One month later it was reported that he acted like a different child and had had one attack of asthma, which lasted fifteen minutes. (This was the shortest attack he had ever had.) He continued to eat the cooked egg right along and continued to improve until on January 29th, it was decided to give him some powdered egg white not in capsules. Almost immediately after its administration he began to cough and at the end of five days the cough had become asthmatic. The egg albumen was, therefore, given in capsules and the cough immediately stopped. Since then he has been entirely free from asthma.

Summary. Family history of anaphylaxis. This case is not as clear cut as those reported above; the only explanation that can be given for the results is that the asthma was due to raw egg albumen. Idiosyncrasy to egg. Asthma. Immunization to raw egg. No asthma in past six months. Still has hay fever. This case is reported in this series, despite the fact that it is not proven, because it suggests that there is a difference in the action of raw and cooked eggs.

CASE 6. E. B., male, age 8½ years. Had a negative family history except that the father had hay fever, which was cured by an operation on his nose. He was breast fed for two weeks and after that on modified milk. When he was six months old barley water was added to his formula and resulted in an acute digestive upset. Castor oil was given and he received nothing for three days but albumen water (egg albumen), after which it was discontinued. At one month he commenced to have eczema, which started on his chin and spread over the whole body. It was so severe at times that he had to wear a mask. At ten months the eczema disappeared and two weeks later he had his first attack of asthma, which was very severe and lasted one week, without fever. At twelve months he was given beef juice for the first time. Two minutes later a rash appeared on his body and face, and fifteen minutes later an attack of asthma started. Beef juice was tried several times since with the same result. About this time egg albumen was again tried. It caused nausea and vomiting and was followed by asthma. Since then he has been unable to take egg in any form without these symptoms. For the past three to four years he has been able to take beef and beef juice without any trouble. He has had three operations on his nose and throat without improvement. He usually has an attack of asthma about once in ten days to two weeks and since the beginning has not been more than six weeks without an attack. The last attack of asthma, a very serious one, was brought on by an egg taken in a soda by mistake. He also has severe hay fever. His physical examination in the latter part of an attack showed a fairly developed and nourished boy, weighing forty-eight and one-half pounds in his clothes. He was barrel-chested and round shouldered. His lungs were hyperresonant throughout, expiration prolonged, and there were many medium and fine squeaks in both chests. The physical examination was otherwise normal. The urine was normal.

On March 7, 1914, immunizing doses of egg white were commenced. It was found that the dose could be increased only very slowly. On July 27,

1914, he was receiving six milligrams of egg white a day. Egg albumen rubbed into the skin of the forearm caused an urticarial wheal (12 x 10 mm.) to appear within seven minutes. This persisted for three-quarters of an hour and then disappeared. That night he had a severe attack of asthma. During the attacks of asthma, it has been necessary to reduce the dose of egg white because it invariably increased the symptoms for about two hours after its administration. Since he is supposed to receive no egg in his food, the question might be raised as to the possible connection between the egg and the attacks of asthma. This apparent discrepancy may possibly find an explanation in the fact that egg is often used in the manufacture of certain articles of food, such as crackers. Since the time that immunization was started the attacks of asthma have been decidedly less severe, although they are not less frequent. The boy looks and acts much better and has lost his worried, anxious expression.

Summary. Family history of hay fever. Eczema. Asthma due to eggs; positive skin test. Immunization still being carried on. Slight but definite improvement. Hay fever. Physical examination rules out other causes of asthma.

Etiology. Although the underlying cause of the asthma in this series of cases was anaphylaxis to egg albumen, the writer wishes to emphasize the fact that egg albumen is not the sole cause of asthma. For example, hay fever, or anaphylaxis to the pollen of flowers, was a complicating factor in some cases, horse asthma in others, and the last case was complicated at first by an anaphylaxis to beef juice.

The family history suggests that a sensitive condition of the blood may be transmitted from one individual to another. This theory receives support in the fact that this transmission of sensitivity of the mother to her offspring has been noted in animals. If this is not transmitted directly, a predisposition toward sensitization may be inherited.

It seems more probable that the sensitivity may be acquired, as it apparently was in Case 6. Unfortunately, the data obtained from the histories were not definite enough to be of positive or negative value in the other cases.

The diagnosis is made from the history and by the specific skin reaction.

Treatment. When the diagnosis is made, one of two courses may be pursued: either all egg may be excluded from the diet, thus removing the cause of the asthma; or the patient may be immunized to egg white albumen. This latter course seems to be the most logical because it is a hardship to grow up unable to use eggs, and because it is almost impossible for a person of this type to absolutely exclude eggs from their diet when they dine at any other table than their own. Small doses of egg white should be given in capsules, the dose being gradually increased until the patient is immunized. Great care should be taken to start below the limit of tolerance and to gradually work up from this point. Usually it is safe to commence with one milligram of egg white a day, but occasionally even this dose is too large. Schloss showed in his case that coincident with the immunization to egg white came immunization to the protein of oat meal and decreased susceptibility to the protein of almonds. It is impossible to say how far this parallel immunization will reach. It seems probable that those patients suffering with horse asthma will have to be immunized subsequently to horse serum. The same statement applies to other proteins which may be found to have a connection with asthma.

Summary. The evidence at hand points to the fact that asthma is a manifestation of anaphylaxis, *i.e.* a local manifestation in the lungs. It is conceivable that the urticaria which is seen on the skin may also come on the mucous membrane of the bronchi, and thus cause the symptoms of asthma. Asthma in a certain number of children is due to egg poisoning. Scarification of the skin and inoculation with egg white will show whether egg albumen is the specific cause of the asthma. Many, if not all cases of egg asthma may be immunized to egg white by feeding them with gradually increasing doses of egg albumen in capsules. When the egg idiosyncrasy is cured the asthma stops unless an idiosyncrasy to some other protein complicates the situation. Horse asthma is an anaphylactic phenomenon due to protein of the horse and may be recognized by scarifying the skin and applying horse serum. A similar reaction to the egg reaction results. It is impossible with the present state of our knowledge to state what other proteins may have an etiological relation to asthma.

This communication is in the nature of a preliminary report and it is hoped that future investigations will determine what other proteins may cause asthma.

OUT-PATIENT WORK IN THE MASSACHUSETTS STATE HOSPITALS FOR THE INSANE.*

BY A. WARREN STEARNS, M.D., BOSTON,

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IN the past few years the attitude of the public towards state hospitals has undergone a decided change. This is also true of the hospitals' conception of their duty to the public. Though there is abundant evidence to show that in the beginning, hospitals for the mentally sick, were established with the idea of curing their patients, this idea has often seemed remote compared with the pressing need of custodial care. Because of their anti-social conduct many pa-

* Being State Board of Insanity Contribution No. 34 (1914.14).

tients were formerly lodged in jails. This, together with the fact that many needed to be kept in the hospital against their will, led to a more or less close grouping between the criminal and the insane. Indeed, today in Washington, the receiving hospital and the jail are in the same yard. For many reasons this custodial idea has rapidly given way to an hospital ideal. The development of laboratories in nearly all hospitals has been a tremendous stimulation to the medical side of the work. Now, even crime itself is being separated from the realm of sin to be placed in that of disease. More and more, patients have been sent to hospitals for treatment, though general use of the hospital for mental trouble came much later than for other ills. New legislation was enacted to make admission easier and so get patients under treatment earlier. Even this did not prevent a long period of time between the first symptom and admission to the hospital. The growth of preventative medicine in the past few years finally reached psychiatry. Failure to cure made prevention more necessary. To prevent one must see a case as soon as or before the first actual symptom. The hospital itself could not expect to accomplish this. And so when the Psychopathic Hospital was planned, a spacious out-patient department was added. Some then doubted there being a field for such a department. For some years, one day a week, has been set aside at Waverley for examination of out-patients. Except for this the opening of the out-patient department at the Psychopathic Hospital on January 1, 1913, was the first clinic to be established at any hospital for the insane in this state.*

This department has grown to be a very large clinic. In the year from June 1, 1913, to June 1, 1914, there were 1031 first, and 4244 total visits. One of its most important functions, and one which was foreseen by but few has been, the examination of children for various societies and courts. This has necessitated a special psychological department with many examiners. A clinic for defects of speech has been incorporated. The importance of the Social-Service Department can best be shown by a summary of the "Developments in the first year's work, June, 1913, to June, 1914," kindly furnished me by the hospital:

"Patients dealt with 243

Classification according to action taken:

History for diagnosis 30
Arrangements for discharge 23
Advice 75
Reference to other agencies 33
Prophylaxis for other members of the family 8
Supervision or after-care 62
Miscellaneous 12

Staff:

Chief of social service appointed May, 1913.
First assistant appointed February, 1914.
Three students from School for Social Workers.

Ten other volunteers, time varying from one day a week for two months, to half time for seven months.

Historian in out-patient department who secures minimum information about every patient.

Follow-up System in Out-Patient Department by which a patient who fails to report is written to and later communicated with by telephone or visit. (In charge of volunteer on half time.)

Co-operation with social agencies:

Outline for history suggested.
System of written reports of examinations.
Blank for later information from social agency to the hospital.

Men's club for discharged alcoholic patients, meeting once a month. Average attendance of 12.

Prophylaxis for the families of syphilitic patients.

Systematic effort to secure examination and treatment for other members of the family of patients with syphilis.

Statistics:

Monthly statistics in the out-patient department.
Statistical notes on need of social service. (Given at first and second annual conferences.)

Clinic for social workers:

Once a week during the winter.

Committee on Employment and After-Care:

To employ a special agent Oct. 1, 1914, to find employment for patients and to study the relation between mental disease and industry."

The medical work in this clinic is done by physicians assigned to such duty from the house and by practising physicians who come on regular days.

A daily clinic is held from 2 to 5 in the afternoon.

As early as 1885, a boarding-out or family-care system was established in Massachusetts along lines used in Scotland and Belgium. Since this time 1242 quiet patients have been placed in families and have been under the supervision of a medical director with visitors from the office of the State Board of Insanity. In 1905 a law was passed allowing the trustees of each hospital to place out-patients in the same way. This led, in 1910, to the appointment of a physician on half time by the Northampton State Hospital to supervise such cases. Gradually a certain amount of after-care has been added to her work. Later, Westboro, Medfield, Taunton and Worcester Asylum undertook similar work. At present there are but 41 patients out under

* The Foxboro State Hospital began out-patient work on inebriates only in 1909.

this law distributed as follows: by Northampton 26, Taunton 10, and Westboro 5.

Since 1910 the Eugenics Record Office has sent workers to Danvers, Worcester, Northampton, Taunton, Monson and Boston hospitals to work on heredity. These workers have been utilized to a greater or less degree for after-care work. At Danvers there are now two workers devoting most of their time to after-care. At the Boston State Hospital one social-worker devotes most of her time to after-care, in addition to those already mentioned at the Psychopathic Department.

Many hospitals have requested certain patients to report for a few times after discharge. In 1883 a law was passed by which any patient might go out on a trial visit of 60 days before actual discharge and in 1905 this visit was made six months. This gave an excellent opportunity for after-care, but with the exception of scattering cases little has been done in this field until within two years and this little has lacked system and completeness. Especially lacking, has been the co-operation between hospitals, and social-service has been in its infancy.

Work on Mental Hygiene had been carried on here and there, medical societies have occasionally met at state institutions, and physicians have frequently addressed bodies concerning their work. The Danvers Hospital has made an especial effort to get the good will and support of the medical and lay public in its district by sending out printed matter. The activity of the Psychopathic Hospital in this line has done much to arouse interest in the care of the insane.

From the foregoing it will be seen that much has been done in this state which comes under the general head of out-patient activity. On the other hand little organized effort has been made and little attention directed toward this important field of medical work. A person needing expert advice in mental disease could obtain it only with great expense and difficulty except in Boston and one or two large cities, and few of those being committed to our institutions had such advice before this step was taken. Also, of the 3155 patients returned to the community from the state hospitals last year but a small proportion ever received subsequent advice.

The outlook for the future is more hopeful as one of the first actions of the reorganized Board of Insanity was to determine upon a policy for out-patient work for the hospitals. The extent of this is well shown by quoting from Bulletin No. I of the Massachusetts State Board of Insanity for September, 1914, viz:

"This is a policy which will affect all of the institutions and the whole state, as it is the intention of the Board to simulate each hospital to reach out into the community, and to be, as has been said, responsible for the mental health of the community or district which is covered by each hospital. The Board recommends that each hospital now doing out-patient work should ex-

In the same Bulletin the following outline for out-patient work at the Massachusetts State Hospitals was given:

OUTLINE FOR OUT-PATIENT WORK AT THE MASSACHUSETTS STATE HOSPITALS.

- Hospital (out-patient department)
  - Clinic
    - Examination and treatment of all pre- and no-hospital cases, such as psychoneuroses, alcoholics, syphilitics and mildly insane.
    - Diagnosis of feeble-minded.
    - Training of practising physicians in mental disease.
    - Examination of special cases for courts, physicians and social agencies.
  - After-care work
    - Systematic follow-up work, such as interviews with patient and family before discharge, supervision when discharged, employment, aid return to clinic or hospital when advisable.
    - To take out-patients from other hospitals if in district.
  - Boarding-out work
    - Study of hospital cases, investigation of future boarding places, supervision of patients boarded out in district, co-operation with state boarding-out system.
  - Mental hygiene and prevention
    - Education of medical and lay public in matters relating to prevention of insanity, care of insane by state or community, eugenics, alcoholic and syphilis problems and the scope of the state work in general.

Organization of Out-Patient Staffs.

- Medical head of Out-Patient Department
  - Medical assistants
    - Doctors and internes or medical students and psychologists from hospital or community, especially practising physicians in neighborhood, to work in clinic.
  - Social service
    - Paid and volunteer workers to work in clinic and outside on after-care and boarding-out work.
  - Clerks
    - Historian, stenographer, and record clerk to work in clinic and also on clerical part of other work.

tend the same along the general plan outlined for all the institutions that the work may be uniform, and that those institutions which have not been doing out-patient work shall at the earliest possible date establish out-patient departments and out-patient clinics in the several large cities in their own district, preferably in the evening, when every one may visit such clinics without interference with their duties or jeopardizing the positions which they may hold. The Board feels that this may be started without an increase of expense or increase in the staffs, as members of the staffs will be glad to see early cases and work along the lines of prevention, and also see discharged cases, thereby keeping track of them.

If the hospital has an after-care worker he or she should be present at the clinics. It is hoped that the out-patient department will eventually cover the work of the clinics, the after-care or social service work, mental hygiene and boarding-out. It is also hoped to stimulate the discharge of cases earlier than has before been possible, for patients can safely be sent out earlier than has heretofore been possible if clinics are established in or near the town or city where the patients reside. If the patients do not report regularly at these clinics the after-care worker will, of course, look them up immediately. The Board believes that the out-patient department clinics will be the first important step for the prevention of mental disease, and that the after-care of patients will prevent the return of those who have been discharged."

The future development of this plan, it is impossible to predict. Already clinics have been opened and favorably received by the Danvers and Worcester Hospitals, and plans are under way which will soon add Taunton, Northampton, Westboro, Bridgewater, Worcester Asylum, and Monson to this list.

TRANSFUSION IN THE TREATMENT OF HAEMORRHAGICA NEONATORUM.

By Robert M. Green, M.D., Boston.

(From the Clinic of the Boston Lying-in Hospital.)

In the issue of the Boston Medical and Surgical Journal for March 30, 1911 (Vol. clxiv, p. 454), I published with Dr. John B. Swift[1] a paper on "Hæmorrhagic Disease of the Newborn." At that time transfusion in the treatment of this important condition was only just coming into use, and there was only one case of its employment in the series of 51 cases which we reported. Today transfusion is the recognized specific curative agent for this disease, and it seems of interest to review the history of its development as an operation, and of the progressive simplification of its technic.

Apparently the first blood transfusion ever performed for hæmorrhagica neonatorum was done in New York by Dr. Alexis Carrel, and was reported by Dr. Lambert[2] in the issue of the *Medical Record* for May 30, 1908. The method employed was direct end-to-end suture of the left radial artery of the father (donor) to the baby's right popliteal vein. The baby, much exsanguinated by repeated rectal hæmorrhages, recovered. The technic of this method, probably possible only to experts, like the operator, is so difficult as to make the operation practically prohibitive as a generally available method of treatment. Another case transfused by Dr. Carrel, was reported by Mosenthal[3] in 1910, a third by Dr. A. A. Berg was reported the same year by Schwarz and Ottenberg,[4] and a fourth by Lespinasse and Fisher.[5]

The first transfusion done in Boston for hæmorrhagic disease of the newborn was apparently in a private case reported by Drs. H. T. Swain, J. M. Jackson, and F. T. Murphy[6] in 1909. The transfusion was done by Dr. Murphy on Feb. 13, employing a Crile cannula and anastomosing the father's (donor's) radial artery with the infant's internal saphenous vein. The transfusion was successful and the baby entirely recovered.

The second transfusion in Boston for hæmorrhagic disease was the one (No. 36) included in the original series reported by Green and Swift. Here the hæmorrhage was entirely hæmaturic in character, and was not checked by the treatment. The transfusion was done by Dr. Murphy on Sept. 26, 1909, uniting the father's radial artery and the baby's femoral vein by the Crile method. The blood was successfully transferred, but the baby continued to bleed from the urethra, and died within 24 hours.

The third transfusion in Boston for hæmorrhagica neonatorum was done on April 9, 1910, by Dr. J. C. Hubbard on a patient of Dr. F. S. Newell,[7] who reported the case in September of that year. The hæmorrhage in this case was from the stomach and bowel. An Elsberg cannula was employed, and the anastomosis was made between the father's radial artery and the baby's internal saphenous vein. "The operation presented considerable difficulty on account of the small size of the vein." Nevertheless the result was successful.

Although the Elsberg method is probably simpler than Carrel's end-to-end anastomosis by suture, and Crile's cuff and cannula, it still presents such technical difficulties as greatly to limit the extent of its application in the case of babies. Accordingly Vincent[8] in Boston experimented with the paraffin-coated glass tubes originally suggested by Brewer in 1909, and found in them a much easier means of establishing connection between the donor's artery and the baby's small, inaccessible vein. By this method he performed two successful transfusions for hæmorrhagic disease of the newborn on Oct. 11, 1910, and Feb. 19, 1911, using in both cases the femoral vein of the recipient.

In the fall of 1911, the following case occurred in the writer's practise:—

CASE 1. A female infant, weighing 6½ pounds, delivered at term by low forceps on Oct. 18, 1911, appeared in every way normal at birth. On Oct. 20 she began to have bloody stools, four of which within six hours reduced her to a moribund condition of exsanguination. She was seen in consultation by Dr. Vincent, who advised and successfully performed transfusion, employing for the first time, in this case, the recipient's external jugular vein. The baby had no further recurrence of hæmorrhage, grew up and throve most gratifyingly, and is now a vigorous, sturdy child of 3 years, who has never shown any evidence of hæmorrhagic diathesis. A male child weighing 8½ pounds, was normally born to this patient on Oct. 18, 1914, and has since shown no evidence of hæmorrhagic diathesis.

This case was reported by Vincent[9] in 1912 with three other similarly successful cases which he transfused in the same manner. This method of employing the recipient's external jugular vein was another distinct advance in ease and speed in the technic of transfusing infants.

On May 19, 1913, I was asked to see the following case in consultation with Dr. Bradford H. Pierce, of Cambridge, Mass., to whom I am gratefully indebted for his courtesy and assistance:—

CASE 2. The baby, a full-term male infant, weighing 8½ pounds, had been normally delivered on May 14. Of seven previous children in this family, one had died of hæmorrhagic disease at the age of a week. None of the others had had any bleeding, and they were all alive and apparently healthy. On May 17, the newborn infant began having rectal hæmorrhages, and when seen on May 19, was exsanguinated thereby. Transfusion was advised and was performed, with the assistance of Dr. Pierce, employing the Vincent glass cannula and the recipient's external jugular vein. The anastomosis was successfully made, and after five minutes of flow, during which it was estimated that 4 ounces of blood were transfused, the connection was discontinued and the wounds closed in the usual manner. The infant made an uneventful recovery, having no further hæmorrhages, and has grown up to the age of 1½ years in apparently normal health.

In the spring of 1913, I had the opportunity and privilege of performing transfusion on the following case of hæmorrhagica neonatorum at the Boston Lying-in Hospital (Vol. 182—p. 239) No. 19980:—

CASE 3. The baby, a full-term female infant, weighing 7½ pounds, was precipitately delivered on May 28, 1913. She was apparently well until May 30, when she began to have bloody stools, 5 of which, in rapid succession, reduced her to a moribund condition of exsanguination. Immediate transfusion was advised and successfully performed, employing the Vincent glass cannula, and the mother as donor. In attempting to insert the cannula into the baby's right external jugular vein, the latter was accidentally torn so that it had to be ligated and abandoned. The left external jugular vein was then exposed, the cannula inserted, and the blood-stream allowed to flow for six minutes. The baby's color was now excellent, and the transfusion was discontinued. The baby had no further hæmorrhages, made an uneventful convalescence, and was discharged well on June 19, weighing 7 pounds, 9½ ounces, and nursing at the breast.

In the summer of 1913, Kimpton and Brown[10] published the results of their important research work on "A New and Simple Method of Transfusion"; and in the fall of the same year Kimpton[11] still further elucidated the merits of this method and reported a series of 15 cases of transfusion performed by it, one of them being for hæmorrhagica neonatorum. This was unfortunately unsuccessful as the baby died just as transfusion was begun.

Kimpton's method of transfusion by means of glass cylinders is now familiar to all, at least in theory, and its superiority to all other methods thus far devised seems obvious. It presents only three technical difficulties: the coating of the tubes, and, in the case of infants, the exposure of the recipient's vein and the introduction into it of the cannula tip. The first, however, can be effectively mastered by practise; the two others are no greater than in Vincent's method; and the difficulties of isolating the donor's artery and effecting an approximation between donor and recipient are entirely eliminated. Kimpton's method is rapid, simple, and easy enough to be learned by any surgeon of reasonable training and dexterity. It does not require expert skill. Its development has revolutionized transfusion and has placed this valuable and life-saving procedure in the hands of the average competent surgical practitioner.

In the spring of 1914 I had the opportunity and privilege of assisting Dr. Nathaniel R. Mason in transfusing by this method a case on his service in the out-patient department of the Boston Lying-in Hospital.—

CASE 4. The baby, a full-term female infant, weighing 6 pounds, was delivered normally on March 31, 1914, and on April 3 began to have rectal hæmorrhages. She was transferred to the hospital and on April 4, being in a condition of extreme exsanguination, was successfully transfused by the Kimpton method, about four ounces of blood being taken from the father. The recipient's right external jugular vein was used. The baby made an uneventful recovery and in ten days was discharged well, nursing at the breast and gaining weight.

The most complete study to date of transfusion in the treatment of hæmorrhagica neonatorum was recently published by Lespinasse,[12] who still employs the Crile method and the recipient's femoral vein. He reports 14 personal cases and collects from the literature 23 others in which transfusion was done for this condition by one or another technic. Among these 37 cases there were only 3 deaths, a mortality of only 8%.

Quite recently I have had the opportunity and

privilege of transfusing another case of hæmorrhagica neonatorum, seen in consultation with Dr. B. H. Metcalf, of Winthrop, Mass., to whom I am gratefully indebted for his courtesy and for the use of his private hospital and operating room.

Case 5. The baby, a seven-pound male infant, was delivered normally at term on Oct. 3, 1914, and almost immediately began to pass bright blood from the penis. This would be sometimes mixed with urine, at other times apparently pure. The hæmaturia continued unabated for three days. Seen on Oct. 7, no local cause for the hæmorrhage could be found. The baby was exsanguinated, though not moribund, and transfusion was advised and performed by the Kimpton method, with the assistance of Dr. Raymond H. Parker, of Winthrop. About 3 ounces of the father's blood were given into the baby's left external jugular vein. The baby improved as usual after transfusion, but continued to have a small amount of persistent bleeding from the urethra. He gradually became again exsanguinated and died on Oct. 15. Autopsy showed the viscera normal except for distention of the right renal pelvis, calices and ureter with blood. Apparently the bleeding in this case was solely from the right kidney.

Of the post-operative care of such cases little is to be said, save that for a week at least they should be kept warm and quiet, should not be bathed, and should be fed hourly by hand, with breast-milk if possible, in a dosage beginning at one dram and increasing to one ounce.

The almost specific therapeutic value of transfusion in hæmorrhagic disease of the newborn seems now established beyond peradventure. To the 37 cases collected by Lespinasse, this paper adds 4 cases (my first case having been previously reported by Dr. Vincent). The four deaths in this series of 41 cases represent a mortality of 10%. As the mortality under older methods of treatment has been at least 50%, this in itself seems sufficient evidence for the value of transfusion.

Transfusion, therefore, is a procedure which should invariably be promptly employed in the treatment of hæmorrhagica neonatorum, whenever the early hæmorrhages are more than trifling, or if they persist. The development and simplification of the technic of the operation has now placed it within the reach of all general practitioners to whom a surgeon of average competence is available. It is my belief that the Kimpton method will ultimately supplant all others, as its superior advantages and simplicity become more generally known.

The greatest need of further investigation in hæmorrhagic disease of the newborn is in the knowledge of its etiology. In more than half the cases a definite history of parental syphilis can be obtained. My personal belief is that this is the most frequent, if not the only cause.

CONCLUSIONS.

1. Transfusion is a procedure of definitely established specific curative value in the treatment of hæmorrhagic disease of the newborn.

2. By its use the mortality of this disease has been already reduced from 50% to 10%.

3. A probable further reduction of mortality may be expected in future from its more prompt and universal application.

4. Successive improvements and simplifications in the technic of transfusion have now made its performance possible by surgeons of average training, experience, and skill.

5. Of all the methods thus far devised, that of Kimpton seems distinctly superior in certainty, speed, and ease of accomplishment.

6. Even with transfusion, the prognosis in the rare cases of hæmaturic hæmorrhage is apparently much worse than in any other form of bleeding.

7. The greatest present need of further investigation in hæmorrhagica neonatorum is into the knowledge of its probably syphilitic etiology.

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[2] Lambert: N. Y. Med. Rec., lxxiii, 883.
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[4] Schwarz and Ottenberg: Am. Jour. Med. Sci., cxl, 17.
[5] Lespinasse and Fisher: Surg., Gyn. and Obst., xii, 40.
[6] Swain, Jackson and Murphy: Boston Med. and Surg. Jour., clxi, 407.
[7] Newell: Boston Med. and Surg. Jour., clxiii, 435.
[8] Vincent: Am. Jour. Dis. of Chil., i, 376.
[9] *Idem:* Boston Med. and Surg. Jour., clxvi, 627.
[10] Kimpton and Brown: Jour. Am. Med. Asso., lxi, 117.
[11] Kimpton: Boston Med. and Surg. Jour., clxix, 783.
[12] Lespinasse: Jour. Am. Med. Asso., lxii, 1866.

A COMPARATIVE STUDY OF THREE METHODS FOR THE DIAGNOSIS OF TUBERCULOSIS BY SPUTUM EXAMINATION.

By Rudolph Ertischek, Rutland, Mass.,

Bacteriologist, Rutland State Sanatorium.

Until January, 1914, two methods were employed at the Rutland State Sanatorium in the examination of sputum for tubercle bacilli. In that month a third method was added, and at present all three methods are used.

The methods are as follows:—

1. Direct smear
2. Antiformin digestion
3. Salting method of Davis*

In all cases Ziehl-Neelson carbol-fuchsin stain was used cold, the slides being immersed in a bath for twenty or twenty-four hours. Acid alcohol, followed by ninety-five per cent. alcohol was used to decolorize, and Loeffler's methylene blue was used as a counter stain.

Before showing the relative importance of the different methods employed, which is the purpose of this article, we would like to say something about the routine employed for the examination of sputum.

A day or two after being admitted to the sanatorium, the patient receives a homeopathic vial with instructions to deposit material coming from the lungs, morning specimen pre-

* *Medical Record*, December 20, 1913.

ferred. Many patients send in for examination material coming from the nose and throat or just saliva. From our observation women are the greatest offenders in this respect, probably a false modesty prompting them not to send in the specimen wanted. Only a few days ago a woman sent to the laboratory a specimen containing numerous non-acid fast bacilli. This was thought rather unusual as non-acid fast bacilli are not often encountered in material raised from the lungs. Another specimen brought similar results, and an interview with the patient revealed the fact that her "sputum" specimens came from the throat. She received another vial with instructions that the material sent to the laboratory must come from the lungs. The next morning we received a mucopurulent sputum containing a moderate number of tubercle bacilli.

Case No.	Direct Smear.		Salt. Solution.		Antiformin.	
1. 9791 P.	Gaffky III	+	0		Gaffky II	+
2. 9775 M.	Gaffky II	+	0			0
3. 9810 L.		0	Gaffky I	+		0
4. 9799 L.	Gaffky II	+	0			0
5. 9649 L.		0	Gaffky II	+		0
6. 9573 P.		0			Gaffky II	+
7. 9880 P.	Gaffky IV	+	Gaffky II	+	Gaffky III	+
8. 9695 M.		0			Gaffky III	+
9. 9702 L.		0	Gaffky II	+		0
10. 9689 M.		0	Gaffky II	+		0
11. 9709 L.		0	Gaffky III	+	Gaffky II	+
12. 9015 P.	Gaffky IV	+	Gaffky IV	+		0
13. 9528 M.	Gaffky II	+	Gaffky II	+		0
14. 8764 M.	Gaffky II	+				
15. 9263 L.	Gaffky IV	+			Gaffky IV	+
16. 9574 M.	Gaffky III	+			Gaffky III	+
17. 9112 P.	Gaffky II	+	Gaffky IV	+	Gaffky IV	+
18. 9793 P.	Gaffky III	+	Gaffky II	+	Gaffky III	+
19. 9769 L.		0	Gaffky IV	+	Gaffky IV	+

For the first sputum examination the direct smear method is used. If found positive to tubercle bacilli another examination is not made except as a matter of routine in which case every patient receives a sputum examination at least once in six weeks. Should the sputum prove negative to T. B. on the first examination, two consecutive examinations are made, and if the sputum continues negative, the antiformin and salting methods are employed and also another direct smear is made from the same specimen for comparison. For the latter examination we send the patient a four ounce, large mouth bottle with instructions to deposit all material raised for one or two days, depending on the amount the patient can raise in twenty-four hours.

Out of 168 specimens examined, which is the basis of this report, 149 were negative to all three methods. The following table shows the distribution of the specimens positive to one or more of the methods employed.

It should be borne in mind that each sputum is put through the direct smear at least three times before being examined by the three methods at the same time.

It will be seen from the foregoing table that the frequency of positive sputum is the same in all three methods of preparation, each method showing eleven specimens positive to tubercle bacilli.

A study of the table will show that the margin of error is about equal in each of the three methods employed.

Direct smear found four positives that the antiformin did not.

Direct smear found six positives that salting did not.

Antiformin found six positives that salting did not.

Antiformin found four positives that direct smear did not.

Salt solution found six positives that direct smear did not.

Salt solution found six positives that antiformin did not.

Three specimens were positive to all methods.

SUMMARY.

Saturated sodium chloride solution of Davis is a valuable addition to the methods we already have of preparing sputum for diagnosis of tuberculosis.

In our opinion, however, it should not be employed to the exclusion of the direct smear and the antiformin methods.

In conclusion, we wish to state that from our experience, the salting, antiform, and direct smear methods are all important, and all three should be employed in the diagnosis of tuberculosis by sputum examination.

Book Reviews.

The Therapeutic Value of the Potato. By HEATON C. HOWARD, L.R.C.P. Lond., M.R.C.S. Eng. New York: Paul B Hoeber. 1914.

This monograph, based on an article by the author in the issue of the *Lancet* for April 11, 1914, aims to show the therapeutic qualities of raw potato juice, which the author believes to consist in its properties of causing rapid ab-

sorption of fluid in acute synovitis of the knee, and great relief of pain in gout, rheumatism, and lumbago. The author's method of treating these diseases is illustrated by 14 cases.

The Occupational Diseases. Their Causation, Symptoms, Treatment, and Prevention. By W. Gilman Thompson, M.D., Professor of Medicine, Cornell University Medical College. Illustrated. New York and London: D. Appleton and Company. 1914.

This work is the first general text-book published in America on the industrial diseases. Though designed primarily for physicians, it is intended "also as a guide for students of social economics, social service workers, insurance actuaries, and those whose special interests deal with problems of labor legislation, or with workers in the chemical, textile, and many other manufactures or trades in which the health of the workman is closely related to problems of efficiency and humanitarian effort," for those in short, "whose industrial or philanthropic interests require a comprehensive summary of the nature and prevalence of the occupational disease hazards as they obtain in this country." The text, which makes a complete survey of the subject, is well illustrated by 118 figures. The work concludes with four appendices presenting tabular lists of the principal harmful substances and their effects, of the important industries in which the workman is subjected to several hazards, of the principal industries in which dust constitutes the essential hazard, and of the main provisions of existing laws relative to the reporting of occupational diseases by physicians. As the first book of its kind on a relatively new subject of great present interest in this modern industrial age, on the border line between medicine and social science, it deals with large and important aspects of the relation of remedial and prophylactic medicine to human welfare, and should therefore appeal to a large and interested class of readers among both the profession and the laity.

Practical Hormone Therapy. By Henry R. Harrower, M.D., Sometime Professor of Clinical Diagnosis, Loyola University, Chicago; Fellow of the Royal Society of Medicine. London: Ballière, Tindall, and Cox. 1914.

This book, as indicated by its sub-title, is "a manual of organotherapy for general practitioners." It does not attempt to discuss or explain the nature and theory of hormones, but aims to describe their practical use in medical treatment. The preface is by Professor Dr. Arthur Biedl, of Vienna and Prague, the pioneer and foremost writer in opotherapy. With each chapter is given an abundant bibliography of that part of the subject with which it deals, and the book closes with a glossary of terms, an organotherapeutic dose-table, and a list of books on the internal secretions. This work places in the hands of English readers a valuable compendium on a subject hitherto treated almost solely by continental European writers.

A Text-Book of Medical Diagnosis. By James M. Anders, M.D., and L. Napoleon Boston, M.D. Second edition thoroughly revised. Octavo, pp. 1248, 500 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company. 1914.

The second edition of this standard work on medical diagnosis has been thoroughly revised and brought up to date. One of its most valuable features is a very complete index, which is so essential to a book of reference. The free use of headings, tables and illustrations adds greatly to the practical value of the book.

A History of Laryngology and Rhinology. By Jonathan Wright, M.D., Director of the Department of Laboratories, New York Post-Graduate Medical School and Hospital. Second edition. Revised and enlarged. Philadelphia and New York: Lea and Febiger. 1914.

The first edition of this book was reviewed in the Journal of August 3, 1905. The present edition is materially enlarged, especially where it has been necessary to bring subjects up to date. The book is the work of a scholar and philosopher and he has done a real service to laryngology in writing it. It is not only an admirable and interesting history of medicine from the earliest times, but it is also useful for reference to modern etiology and treatment of the upper air passages.

A Manual of Diseases of the Nose and Throat. By Cornelius G. Coakley, M.D., Clinical Professor of Laryngology in the College of Physicians and Surgeons, Columbia University, New York. Fifth edition, 615 pages, with 139 engravings and 7 colored plates. Philadelphia and New York: Lea and Febiger. 1914.

The fourth edition of this well-known text-book was reviewed in the Journal of Dec. 10, 1908. In this edition the author modifies his routine treatment of empyema of the antrum, and tonsillectomy; otherwise there is little change. It is a compact and useful manual for the student and general practitioner.

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FEE-SPLITTING.

THERE is reason to fear that considerable laxity of professional conscience exists over widely distributed areas in this country in the matter of the division of medical fees, in cases involving plural attendance upon an individual patient. Fee-splitting has been thought to be more prevalent in the West than in the East, but recent occurrences brought to our attention show that the evil exists to an unfortunate extent in the East as well. The temptation is limited to no locality.

Naturally such collusion is most liable to occur between physician and surgeon. The former sees a patient who in his opinion requires or may require surgical operation. He advises the employment of a surgeon of his own selection, and in case the latter operates, receives from him a portion of his fee, which is considered in the nature of a commission for the work which he has thrown in the surgeon's way.

Such an act involves a corrupt bargain between the two men. Both are alike morally smooched, regardless of which originated the proposition. Perhaps the surgeon, anxious to extend his operative practice, makes overtures to medical men to give him their work for a compensation. Perhaps the physician, not being an operator, finds himself in the position of a dispenser of valuable patronage, realizes that the fee which he can charge for a diagnosis is incommensurate in size with that which his surgical brother will collect for the operation, and thinks he might as well secure a portion of the profit by finding a surgeon who is willing to return to him a portion of the fee, rather than to give the case to another, possibly a better operator, who will make no return.

The ethics of the proposal may become a little clearer if we consider the case of a public servant in charge of water works or a sewerage system who discovers a defect threatening disaster and requiring the services of an expert outside his own line of work. The need of the proposed procedure may be undoubted. But what if the official gives the commission to a firm in which he is discovered, himself, to be a silent partner? Will not the public lose confidence in the necessity of the work, when it finds that its advocate was secretly to benefit by its performance? Nay more, will not the official feel an increasing temptation to find other work, not perhaps so necessary, which he can throw to the same firm to his own pecuniary profit?

Rebates have an unpleasant sound to the public ear. Rebates are almost always secret, which adds to their unpalatability. How many of the practicers of fee-splitting would like to have the patient see the check that was passed back in return? And how many patients if they ever learned of the rebate would feel perfect confidence in the unbiased nature of the advice given them by the physician?

Dr. J. M. T. Finney of Baltimore, in an address given last June at Atlantic City before the joint meeting of the Section on Surgery, General and Abdominal, and the Section on Hospitals, puts the case strongly. He says:—

"I am speaking of that species of graft and corruption which is commonly known under the term of 'fee-splitting,' and which is practiced in a variety of forms. I am well aware of the fact that there is a difference of opinion among surgeons in different parts of the country on this question, but I have never yet heard a man excuse the practice on any other grounds than those of expediency. Every honorable man, I feel sure, condemns it as dishonest and wrong, and as tending toward commercialism and demoralization on the part of those who practice it. It is defended solely on the ground that others do it, that its existence is well recognized, that it is well-nigh universal in some localities, that some of the best men in the profession do it, that one must practice it in order to make a living; all or most of which may be, unfortunately, true. But is it right? Is it honorable?

Is it honest? Should we as a profession submit quietly to such a condition of affairs even if it has the endorsement, tacit or open, of individual surgeons of otherwise good reputation and standing, or of local or state medical societies. Fraud it certainly is to divide fees with another, unknown to the patient; to take money that does not belong to you, and weakly constituted as human nature is, corruption and graft are as sure to follow such practices as night is to follow day. Not only this, but the man who will trade on the credulity and trust of his patient, when the test comes, will not always hesitate to jeopardize his patient's life and health by calling in the incompetent instead of the competent surgeon, for the sake of the rake-off."

Let us put away from among us this unclean thing.

PLUMBING AND HEALTH.

In a paper on practical sanitary plumbing published in the plumbers' trade journal, *Steam and Hot Water Fitters' Review,* for June 15, 1914, L. J. Lawler, secretary of the American Society of Inspectors of Plumbing and Sanitary Engineers, makes this statement: "Sewer gas is generated in the sewers. It is the gas given off by the decomposition of sewage which is composed of greases, slop water, urine and excreta. A small leak in the plumbing system would permit of a sufficient amount of this gas, if inhaled into the human lungs for any length of time, to cause much sickness, but many people would rather endure the sickness and abide by the result than have a plumber remedy the cause." At a convention of plumbers, gasfitters and steamfitters recently held at Richmond, Va., the following assertion was reported to have been made: "Insufficient laws regulating plumbing and sanitation in Virginia, Maryland and the District of Columbia are largely responsible for the high typhoid rate and the prevalence of other diseases in the two states and the district."

Anyone who has passed middle life will remember the horror with which sewer gas was regarded by the community a generation ago; how the family physician on discovering a case of diphtheria promptly ordered the plumbing of the house overhauled. No plumbing fixture was allowed in a bedroom and the number of diseases attributed to sewer gas was legion. It would appear that the plumbers are still imbued with these ideas, although the medical profession has long since forsaken them. It should not be necessary today to point out that typhoid fever cannot be caused by sewer gas, and the same is true of every other known disease, because disease germs are not found in sewer gas. Repeated experiments made several years ago by competent observers failed to discover the Klebs-Loeffler bacillus in the air of crowded diphtheria wards in hospitals. The germ when found was always upon some object, never in the air, and evidence is accumulating that the infective agent of all the infectious diseases is transmitted by contact, by direct or indirect transfer from the ill to the well and not through the air. Surely the spontaneous generation of disease and a contagium spread by miasms and sewer gas have gone forever. Furthermore, plumbers and sewer workers, who are not only steeped in sewer gas for a large part of their waking hours but are subjected as well to the dangers of bacteria rubbed into the exposed mucous membranes by contact with all sorts of filth, are a healthy set of men.

A system of plumbing is competent and of value to the public health in so far as it removes human excreta and waste from the immediate neighborhood of dwellings in the quickest and most efficient manner. It should be as simple and as cheap as is compatible with efficiency. The pipes must be of sufficient size and quality to perform their work well and the joints must be tight. Traps providing a water seal and ventilated against syphonage keep offensive odors and sewer gas out of the house.

An elaboration of fixtures exemplified by the uncleanly outside tubular waste for bathtubs and the multiplication of pipes extended through the roof for venting and back venting, much in evidence in plumbing regulations ten or fifteen years ago, have reverted at the present time to a bathtub with stoppered outlet and plain trapped overflow, and to the system of continuous venting of traps into the soil pipe, which is extended through the roof. There seems to be little doubt that the high cost of modern plumbing has been responsible in part for the tardy doing away with the dangerous privy vault in the smaller cities and in sparsely settled districts and has been a hardship to people of moderate means who owned or were building dwelling houses. At one time the large plumbing supply houses dictated that the community should use expensive and complicated sinks, water closets and bathtubs, on which there was more profit

than on those of simpler design. A federal grand jury investigated the master plumbers at Sioux City and at Des Moines, Iowa, in April and May of this year for alleged violations of the Sherman anti-trust act, during which the jury heard evidence at length from manufacturers, jobbers, salesmen, contractors and plumbers, and as a result of its deliberations indictments were found against thirty-six master plumbers. In this respect the public may feel secure that the Department of Justice is safeguarding its interests.

In an attempt to discover whether the plumbing laws of the chief cities of the country favor the makers of plumbing supplies and whether the laws are drawn with uniformity in the interests of public health, a study has been made of the ordinances relating to plumbing in the six largest cities of the United States, namely: New York, Chicago, Philadelphia, St. Louis, Boston and Cleveland. In answer to the first question, the ordinances show no internal evidence of favoring the products of any special manufacturer or group of manufacturers, although an expert might see in them unnecessary requirements. The laws of these cities show a surprising uniformity in the following essentials: All require registration of plumbers; all provide for a uniform size, weight and quality of pipe used (practically the same in all the cities); for a making of proper joints and connections; for the installation of a specified number of fixtures for a given number of tenants or for each soil pipe; for the size and kind of traps and for their location; for a system of ventilation of traps and soil pipe to prevent syphonage; for the exclusion of the waste pipes of refrigerators from direct connection with the drains, and for a proper system of testing and inspection before the plumbing is accepted by the city authorities.

Variations in details occur necessarily in the different cities; in the system of venting, perhaps, more than in other respects, and in the construction and placing of privy vaults in the cities where a large number of these structures is still in use, but the important essentials may be said to be alike in our six largest cities. The ordinances indicate, as do the plumbers' trade journals and individual exponents of this trade whose opinions have been asked, that there is a great diversity of views concerning what constitute the best plumbing fixtures and the best manner of venting, and in other important matters. The plumbers complain that their advice is not asked by the sanitary engineers and apparently neither is in touch with public health experts, while efficiency calls for the active coöperation of all three.

Our plumbing laws, though fairly good, are rule-of-thumb affairs, at the best, built up out of the sanitary needs of a restricted community and modified by commercial considerations. We need the crystallized intelligence of experts in public health, sanitary engineering and plumbing brought to bear on the many problems in this field. For instance, what is the suitable size and situation for the bathtub in hotels? Many physicians have treated patients of different ages, particularly the old, who have been injured by falls in bathtubs which have been placed either at unusual heights or depths, or so close to the wall—in some cases with one edge in the wall—that no opportunity is afforded the hand for grasping the rim, and getting in or out is rendered unduly dangerous. Accidents of this sort are altogether too common and many are preventable.

At present the plumber may as well realize that bad odors are a part of life and cannot be eliminated by the finest imaginable plumbing, that although not pleasant they do not cause disease, and that they are reduced to a minimum in a house furnished with a tight, simple, well ventilated system of plumbing.

PHYSICAL EXAMINATION OF CHINESE STUDENTS.

IN the issue of the JOURNAL for July 30, 1914, (Vol. clxxi, p. 204) we commented editorially on the work of the Yale Medical School at Changsha, China. The recently published eighth annual report of the Yale Mission in China records the activity of the college in the various parts of its oriental field, for the year ended March 31, 1914. On page 18 of this report is an account of 112 complete medical and physical examinations made on Chinese students by Dr. Edward H. Hume, the physician in charge of the medical department. It is believed this is the first time that Chinese students have been thus critically examined, and the results seem to indicate that their physical condition is generally defective.

"The need of a gymnasium in which the stu-

dents may follow out the prescribed exercises for their development is obvious. They are by no means lacking in desire for physical improvement, but unless some encouragement and tangible opportunity for it can be given, there is danger that students who are told their condition is poor will only regard the fact as an inevitable, permanent blight, and expect disease as the result, rather than resist it.

"The following percentages are based on 112 complete examinations. The general physical condition of 25% was poor, while that of 53% was only fair, leaving but 22% in actually good all round condition. In muscular development the percentages were: Poor, 39%; fair, 41%; good, 20%; and in the strength tests the average was 306.5 points below the average for students of corresponding heights at Yale in America. Nutrition and fatty tissue were subnormal in 27%, and only fair in 46%. Examinations for digestion showed 33% poor, 25% fair, and in 74% the presence of ascaris eggs. Total neglect or very ineffective care of the teeth, was common as shown by a percentage of 63% that needed cleaning.

"Unhealthy conditions in the respiratory system were noticeably prevalent, no less than 60% being in need of treatment for either nose, throat, or lungs. High pitched resonance was evident in 30% of the lungs examined. Other common defects were: adenoids, 11%; diseased tonsils, 47%; polyps or narrowed nostrils, 18%; deflected septum, 33%; swollen turbinates, 35%.

"The vision of 40% was defective, and arrangements are being made for the proper fitting of glasses in the most needed cases. Several marked cases of trachoma were found and there was evidence of it in 16%.

"In the circulatory system a thickening of the vessel wall was noticeable in 49%, which is abnormal for an average age of 18 years, 6 months. Thirteen per cent. had some enlargement of the heart, while 20% had either murmurs or other signs of irritability."

In many cases the examination was followed by personal advice and class lectures on hygiene, diet, and methods of physical training and development.

A UNITED MEDICAL PROFESSION.

The meeting of the Suffolk District Medical Society held Oct. 31, is significant from the fact that the members of the Boston District Homeopathic Society were invited to be present and to take part in the discussion, an invitation which met with a most generous response. So far as we are aware, this is the first time that such a conjoint meeting has been held by the Massachusetts Medical Society. It marks no doubt a further step toward the crumbling process now going on in sectarianism in medicine, to which Dr. F. C. Shattuck in his speech at the last meeting of the Massachusetts Medical Society drew attention. In his remarks on that occasion, Dr. Shattuck pointed out that the broad interests of medicine should not be circumscribed by schools, and insisted that the problems before the medical profession might be very much more efficiently met if physicians in good standing could present a united front against the inroads of charlatanism. From every point of view, it is desirable, and particularly so in legislative matters, that the medical profession as a whole should appear with a common program. As a matter of fact, for many years past, with few exceptions, the physicians of the Commonwealth have appeared on the side of progress and enlightenment. This meeting is a suggestion that the unity in these matters may be even greater than heretofore, and that the influence of the medical profession in matters of public hygiene and general welfare, may thereby be strengthened. Even more important than this, is the principle that scientific medicine cannot logically be divided into cults, whatever minor differences in practice may exist, and that men of intelligence must ultimately come to stand on a common platform, which accepts willingly the facts which a progressing science demonstrates.

MEDICAL NOTES.

Alvarenga Prize.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about $250, will be made on July 14, 1915, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered.

Essays intended for competition may be upon any subject in medicine, but cannot have been published. They must be typewritten, and if written in a language other than English should be accompanied by an English translation, and must be received by the secretary of the college on or before May 1, 1915.

Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author.

"It is a condition of competition that the successful essay or a copy of it shall remain in

possession of the college; other essays will be returned upon application within three months after the award.

The Alvarenga Prize for 1914 has been awarded to Dr. H. B. Sheffield, New York City, for his essay entitled, "The Fundamental Principles Involved in the Use of the Bone Graft in Surgery."

CONSTITUTIONALITY OF COMPULSORY STERILIZATION OF CRIMINALS.—In a recent test case before the Federal Circuit Court in Iowa, the local law providing for sterilization by vasectomy of male criminals twice committed to the penitentiary was declared unconstitutional. Report from Washington, D. C., states that on Oct. 23 the Iowa state attorney filed an appeal from this decision to the United States Supreme Court.

QUARANTINE AGAINST FOOT AND MOUTH DISEASE.—In last week's issue we noted the establishment of federal quarantine against counties in Indiana and Michigan where foot-and-mouth disease is prevalent among cattle. A similar quarantine was declared on Oct. 26 by the governor of Illinois, at Springfield, and by the governor of New York, at Albany, forbidding the importation into those states of cattle, horses, sheep, swine, goats, poultry or other livestock from the infected district.

ICHTHYOL AND ITS SOURCES.—Among other important drugs whose supply has been cut off by the European war is ichthyol, hitherto produced almost exclusively in Austria. A recent bulletin of the United States Geological Survey thus describes its production:—

"The raw material comes from a fossiliferous deposit near Seefeld, in the Austrian Tyrol. It is carefully selected and subjected to dry distillation. The distillate thus obtained is then sulphonated and subsequently neutralized with ammonia. The use of this material has greatly increased in the last few years, and it has proved very beneficial. Almost immediately following the beginning of the war its price doubled, going to over sixty cents an ounce."

Under these circumstances the discovery of a fresh source of supply of ichthyol is particularly important. Report from Burnet, Tex., on Oct, 27, states that a deposit of ichthyoliferous strata, underlying about 500 acres of land, has been located near that town. It is the only known deposit in the United States and is believed to be very rich. A company has been organized to undertake its production, and American ichthyol will probably be on the market before next spring.

BOSTON AND NEW ENGLAND.

PORTRAIT OF DR. FITZ.—A portrait of the late Dr. Reginald Heber Fitz, by Mr. I. M. Gaugengigl, of Boston, has recently been presented to the Harvard Medical School by a number of Dr. Fitz's former associates and pupils. It has been placed in the Faculty Room, where graduates of the school, and all other interested persons, are cordially invited for its inspection.

MASSACHUSETTS DENTAL SOCIETY.—A quarterly meeting and dinner of the Massachusetts Dental Society, held in Boston on Oct. 26, were attended by about 70 members, under the presidency of Dr. Frank A. Delabarre. The address of the evening by Dr. Percy R. Howe on "Pyorrhea Alveolaris," was discussed by Dr. Edward C. Briggs and Dr. William Rice.

DIPHTHERIA IN BOSTON.—In a recent open letter to parents and guardians, the Boston health commissioners urged the importance of early medical attention to sore throat in children. On Oct. 27 another circular was sent to school physicians directing them to make home investigation of children absent without explanation. There are at present about 55 cases of reported diphtheria in Boston, and the purpose of these letters is to put an early check to the further spread of this infection. Copies of these two letters are appended:—

"A case of *Diphtheria* has been reported in your family. All persons in your immediate family that have been exposed are liable to be infected with this disease and should receive immediately antitoxin treatment. The treatment is harmless and not painful. Children and adults take the treatment equally well.

"The antitoxin treatment may be given by your own physician. If you do not desire your own physician to administer it, the Board of Health will send a physician for this purpose, free of expense.

"Dear Doctor:—

. . . . . .

residing at . . . . . .

has been reported by you to this department as suffering with *Diphtheria*. . . . . .

"The Board of Health is ready to furnish the material for the antitoxin treatment to all persons that have been exposed. Will you kindly notify this department if you will give the necessary injections, or if you prefer, a physician from this office will administer the same.

MASSACHUSETTS SOCIETY FOR MENTAL HYGIENE.—The Massachusetts Society for Mental Hygiene has opened an office at Room 313, Ford Building, 15 Ashburton Place, Boston. The officers of the society are: the Honorable Harvey H. Baker, Boston, president; Dr. Walter E. Fernald, Waverley, vice-president; Dr. Charles E. Thompson, Gardiner, secretary; John Koren, Esq., Boston, treasurer; executive committee: Miss Edith M. Burleigh, Boston; Dr. James J. Putnam, Boston; Dr. Alfred E. P. Rockwell, Worcester; Dr. Henry R. Stedman, Brookline; Professor Robert M. Yerkes, Cambridge. Dr. Frankwood E. Williams has been appointed executive secretary.

Milk and Baby Hygiene Association.—The Boston Milk and Baby Hygiene Association has recently issued the following report of its special summer campaign:—

The approach of the hot weather last June found the trustees of the Milk and Baby Hygiene Association ready to meet the extra demands to help babies and mothers in Boston. As in the summer of 1913, the trustees began a hot weather campaign to keep more babies in Boston well, we wish to present a report of what was accomplished.

The following tables show a comparison of our four months' summer work for the last three years. The growth of our public service is apparent.

	1912	1913	1914
Number of babies supervised, June to September	1,767	2,185	2,556
Number of nurses' visits to babies' homes	12,989	15,825	19,521
Deaths of babies, June to September, while registered with Association	29	16	15

Aside from the fact that many more babies have been helped than ever before, we wish to call particular attention to the increase in the attendance at our weekly clinics for well babies. This has nearly doubled in two years. It shows that our nurses are doing very thorough educational work with mothers and that the supervision of the babies by physicians is much closer than before. This is shown as follows:

	1912	1913	1914
Number of clinics for well babies.	206	193	222
Average attendance at clinics	21	30	37
Total attendance at clinics	4,361	5,793	8,351

A study of the feeding records for these three seasons shows that the increase of babies wholly or partly breast fed has been very marked. During the summer of 1912, 63% of the total number of registered babies were wholly or partly breast fed. Last year the number was 67%, and this year the number is 75%. The percentages of wholly or partly bottle fed babies shows a corresponding decrease. In the summer of 1912 the number of wholly or partly bottle fed babies was 50%; last year it was 45%; this summer it had dropped to 39%. In September, 1912, only 14% of mothers of bottle fed babies had been taught to modify milk in their homes. For the week ending September 26, 1914, 78% had been taught home modifications and were no longer dependent upon dairy formulas. The prevention of illness among babies in a great city is a task not only for the summer but for every month in the year. Last summer's campaign was paid for by special gifts, but the maintenance and improvement of our year-round service depends on our regular contributors and those who know the value of this work to keep babies well.

Cases of Infectious Diseases reported to the Boston Board of Health for the week ending Oct. 27, 1914: Diphtheria, 80; scarlatina, 27, of which 6 were non-residents; typhoid fever, 11; measles, 53; tuberculosis, 35, of which 2 were non-residents. The death-rate of the reported deaths for the week was 14.10.

NEW YORK.

Health Department Lectures.—With a view to keeping the various inspectors and nurses informed concerning the activities of the different bureaus, and also making them familiar with progress in medical and sanitary science, the city Health Department has organized a series of lectures constituting, as it were, a school of sanitary science for its employees, in order that they may render more efficient service both to the department and the public at large. Four courses have been arranged, as follows: A, for medical inspectors and other physician employees; B, for lay inspectors (food and sanitary); C, for hospital nurses; D, for field nurses (infectious diseases, child hygiene). Although attendance will not be compulsory, employees are expected to be prepared, when the lecture courses terminate, to pass an examination on the subjects discussed.

Food Inspection.—Under the arrangement heretofore existing in the bureau of food inspection of the Health Department there has been a certain amount of duplication of work, due to the overlapping of the several divisions of field inspection. It is now purposed to reorganize and redistribute the field forces of the bureau in such a way as to eliminate this defect, and the food inspection is to be districted according to a plan corresponding with the latest U. S. census maps. The city will be divided into twenty-four districts, to each district three men will be detailed—one as senior inspector and two as junior inspectors, and the endeavor will be made to select for given districts men particularly adapted to the special lines of work to be performed in such districts.

Tennis for the Police.—Police Commissioner Woods has had distributed to all the men on his force a manual entitled, "How to Keep Well," which was prepared by a committee of police surgeons under the direction of acting chief surgeon Edward T. Higgins, and in the compilation of which Health Commissioner Goldwater also assisted. In commenting on the advice given on exercise one old Harlem policeman is reported to have remarked: "I see we are advised to play lawn tennis. It strikes me that tennis is a pretty fast game for a 220-pound cop with an ample girth. I would rather play golf."

Infant Mortality.—The State Department of Health estimates that by its campaign for the reduction of infant mortality during the

past summer the lives of 500 children (outside of New York City) were saved. In the summer of 1913, while the showing was remarkable in the city of New York, in the state at large the results regarding infant mortality were unsatisfactory.

BEQUESTS.—By the will of the late Mary A. Maxwell of New York $30,000 is left to charities. Among the bequests are $4,000 each to the Charity Organization Society and the New York Association for Improving the Condition of the Poor, and $2,500 to the Home for Incurables.

Current Literature

BRITISH MEDICAL JOURNAL.

SEPTEMBER 19, 1914.

1. SAUNDBY, R. *Open-air Hospitals in War Time.*
2. WOODHEAD, G. S. *Sterilization of Water Supplies for Troops on Active Service.*
3. HUGHES, B. *Some Points on the Examination of Recruits of the Territorial Force and Their Early Training.*

THE BRITISH MEDICAL ASSOCIATION.

SECTION OF ANATOMY AND PHYSIOLOGY.

4. MACWILLIAM, J. A. *Cardiac Fibrillation and Its Relation to Chloroform Anesthesia.*
5. MELVIN, G. S. *Some Observations on Blood Pressure.*
7. LEVY, A. G. *Ventricular Fibrillation the Cause of Death under Chloroform.*
8. CATHCART, E. P. *The Rôle of Carbohydrate in Nutrition.*
9. MACLEOD, J. J. R. *Recent Experiments Bearing on the History of Sugar in the Animal Body.*
10. BURNS, D. *The Influence of Excessive Water Ingestion on the Excretion of Creatin and Creatinin.*
11. EDIE, E. S. *Some Experimental Work on the Action of Enzymes.*
12. BOYD, S. *A Note on a Congenital Anomaly of the Duodenum Encountered During Operation.*

SEPTEMBER 26, 1914.

1. BEAUMONT, W. M. *The Evolution of Toxemic Iritis.*
2. SHIPLEY, A. E. *Insects and War: the Bed-bug.*
3. POWELL, W. W. *The Treatment of Acute Gonorrhea in the Male.*
4. *DONALD, A., ET AL. *Discussion on the Treatment of Fibromyomata of the Uterus.*
5. JELLETT, H., ET AL. *Discussion on the Treatment of Contracted Pelvis in Pregnancy and Labor.*
6. SMITH, A. T. *Rupture of Uterus through the Scar of an Old Cesarean Section.*
7. HAULTAIN, F. W. N. *Further Experiences with Veratrone in the Treatment of Eclampsia.*
8. HAIG, W. *Rapid Relief in Acute Lumbago by Manipulation and Active Movement.*
9. EVE, F. C. *The Babinski Sign in Transient Functional Diseases.*

4. In this discussion of the treatment of fibromyomata of the uterus, Gauss, Professor of Gynecology at Freiburg, makes an eloquent appeal for the x-ray treatment of this condition, basing his work on the study of 1,895 cases, in which he has had, according to his statement, remarkably satisfactory results without any operative interference. Others discussing this subject were unable to confirm his views.

[J. B. H.]

OCTOBER 3, 1914.

1. LOCKWOOD, C. B. *The Surgical Treatment of Nephroptosis by Occlusion of the Perinephritic Fascial Sac (Capsular Occlusion).*
2. GOMPERTZ, R., AND SCOTTI, M. *The Use of an Aperient before X-ray Examination of the Intestine in Chronic Constipation.*
3. SHIPLEY, A. E. *Insects and War: Fleas.*
4. OSLER, W. *Bacilli and Bullets.*
5. SUTCLIFFE, L. E. *A Case of Ruptured Ectopic Gestation Complicated by Spleno-medullary Leukemia.*
6. *GARROD, A. E., ET AL. *A Discussion on the Thymus Gland in Its Clinical Aspects.*
7. CAMPBELL, H., ET AL. *Discussion on Headache, Its Causes and Treatment.*
8. EVE, F. C. *Acute Atrophy of the Thyroid Gland.*
9. MCKENDRICK, J. S. *A Case of Anemia with Enlargement of the Spleen; Splenectomy; Cure.*
10. LISTER, A. H. *The Urinary Diastase Test in a Case of Ruptured Duodenum.*

6. Garrod and others discuss the clinical aspects of the thymus gland, particularly with reference to operative measures.

MacLennan describes the technic of thymectomy and reports the details of eight cases. He remarks that of these eight cases none died on account of the operation; that "four of the eight died in spite of it."

Wilkie, from his investigations, concludes that the subjects of status lymphaticus would appear to have abnormally low resistance to acute abdominal infections, and that chloroform should never be used as an anesthetic in acute abdominal infections in children.

[J. B. H.]

THE PRACTITIONER.

SEPTEMBER, 1914.

1. *COLYER, J. F. *Chronic General Periodontitis.*
2. TREDGOLD, A. F. *The Mental Deficiency Act as It Affects the Practitioner.*
3. HAWTHORNE, C. O. *On the Occurrence of a Bilateral Extensor Response in States of Unconsciousness.*
4. PERNET, G. *Psoriasis.*
5. CUMBERBATCH, E. P. *Diathermy and Its Use in Surgery.*
6. *TIDY, H. L. *The Relation of Tuberculosis to Other Diseases, Including Pregnancy.*
7. WHALE, H. L. *Otorrhea.*
8. STEPHENSON, S. *Ophthalmia Neonatorum.*
9. MANDEL, L. *Summer Diarrhea: A Résumé of the Recent Work Done on Its Etiology and Bacteriology, with Some Notes on Treatment.*
10. KER, C. B. *Recent Work on Scarlet Fever.*
11. PRIESTLEY, J. *Recent Public Health Work.*
12. BROWN, C. H. *Pink-Eye.*

1. Colyer, in a long article on chronic general periodontitis, or familiarly known here as pyorrhea alveolaris, discusses the importance of this subject, particularly in regard to various joint affections to tuberculosis and other conditions. In preventive treatment he urges: 1. Efficient nasal breathing. 2. Efficient mastication of the food. 3. Absolute cleanliness of the teeth, especially the interdental spaces. The regular cleansing of the spaces from early years with floss silk will go a very long way to ward off this peculiarly insidious disease in later years.

6. Tidy, discussing the relation of tuberculosis to other diseases, curiously enough includes pregnancy as one of these other diseases. He concludes as the results of his investigations that lupus, when of long duration, predisposes to epithelioma; second, that cancer and tuberculosis may exist in the same body or even in the same organ, and the incidence of each is independent of the other. He does not find any antagonism between syphilis and tuberculosis, but is of

the opinion that when the two occur together, the pulmonary condition, due to tuberculosis, usually advances more rapidly. Salvarsan can be given safely when phthisis is present. Mercury has no bad effects on tuberculosis. Potassium iodide is liable to disturb the appetite. Likewise, he finds no antagonism or relation of any kind between typhoid fever and tuberculosis. Hodgkin's disease, he believes to be independent of tuberculosis. Malaria has no relation to phthisis and may co-exist with it. He finally comes to the remarkable conclusion, which will not be accepted without further investigation, that the various forms of pneumoconiosis have no relation or comparatively little predisposing influence toward tuberculosis. [J. B. H.]

October, 1914.

1. *Poynton, F. J., Agassiz, C. D. S., and Taylor, J. *A Contribution to the Study of the Rheumatic Infection.*
2. Sherren, J. *Carcinoma of the Stomach, with Special Reference to Treatment.*
3. McArdle, J. S. *The Surgical Treatment of Hydrocele.*
4. *Wilkinson, W. C. *Tuberculin.*
5. Yearsley, M. *Some Points in the Examination of the Nose and the Treatment of Its Common Disorders.*
6. *Walton, A. J. *The Operative Treatment of Exophthalmic Goitre.*
7. Anderson, H. G. *The Value of Rectal Examination in Diseases Other Than Those of the Rectum.*
8. Back, I. *Hemorrhoids.*
9. Goodall, E. *Note on Intubation Instruments.*
10. Brend, W. A. *Law and Medicine*, 1913, 1914.
11. Douglas, A. *The Dangers of a Double Meaning Suggestion.*

1. This important paper on rheumatic infection is based on a study of 350 fatal cases of rheumatism, and on the assumption that rheumatism or rheumatic fever is a special disease, the result of the invasion of the tissues by a streptodiplococcus. Two hundred and fifty of the cases died at the age of 12 years and under; there were 195 females, 155 males. As regards heredity, there was a strong family history in only 26. The disease seemed to be at its worst from the sixth to the twelfth year. In over one-half there was a history of recurring attacks.

He discusses cardiac lesions in childhood and finds that in the 250 cases under twelve years of age, the pericardium was affected in 215, or 86%. He comments on how often pericardial complications are missed on examination, compared with their frequency at post-mortem. He believes that they may be expected in at least 80% of the cases, although friction sounds and other evidence are not found in anywhere near so large a percentage.

In regard to valvular affections, he emphasizes the great frequency of lesions in the mitral valve. In 250 cases it was found to be undamaged in only three instances. With advancing age the virulence of the rheumatic infection greatly diminishes.

He gives the details of many cases showing points of special interest. He emphasizes the need of still further study of the course and behavior of rheumatic endocarditis. He discusses pulmonary and abdominal complications. The article is a valuable one.

4. Wilkinson in a long article discusses the present status of tuberculin therapy in the treatment of pulmonary tuberculosis; and in his usual somewhat overenthusiastic vein criticizes those who have advocated the more conservative use of this agent, such as Dr. Bardswell of the Midhurst Sanatorium and others, and urges that tuberculin be used in larger doses and in more advanced cases.

Dr. Wilkinson's stand in this matter needs further confirmatory evidence before it can be accepted.

6. Walton discusses the operative treatment of exophthalmic goitre, basing his work on fourteen cases. The article is chiefly of value on account of the very complete bibliography and interesting details of his fourteen cases. [J. B. H.]

Edinburgh Medical Journal.

September, 1914.

1. *Wilkie, D. P. D. *Observations on the Pathology and Etiology of Duodenal Ulcer.*
2. *Mitchell, A. P. *A Bacteriological Study of Tuberculosis of the Lymph Glands in Children.*
3. *Rist, E. *The Healing Process of the Infantile Bronchial Glands in Tuberculosis.*
4. *von Pirquet, C. *Bronchogenous, Placentogenous, Dermatogenous, and Enterogenous Infection with Tuberculosis in Infancy.*
5. Llewellyn, L. J., and Jones, A. B. *Gluteal and Crural Types of Fibrositis. Their Relationship to Spurious and Genuine Sciatica.*
6. Adams, J. B. *The Doctors in Some Recent French Plays.*
7. Sym, W. G. *A Medico-Legal Problem: The Visual Conditions Necessary for Shooting.*
8. Falconer, A. W. *Further Note on a Case of Dyspituitarism.*
9. Leighton, P. *Cesarean Section in a Primipara with Ovarian Cyst.*

1. Wilkie, in a long article on the pathology and etiology of duodenal ulcer, excellently illustrated, concludes that this malady of frequent occurrence is often unrecognized; a chronic ulcer may exist and give rise to no characteristic symptoms. Such ulcers have been most frequently met with in the subjects of arteriosclerosis. Some toxic or irritative factor most frequently associated with the colon or appendix is found in a large proportion of cases of chronic ulcers. Many acute ulcers are probably due to the breaking down of inflamed lymph follicles. Whatever may be the primary cause of an ulcer, spasm of the muscular coats is an important factor in determining this chronicity. This muscular spasm causes vascular deficiency, which in turn is the cause of the chronicity of the ulcer. The increased number of ulcers in the male, he explains on anatomical grounds on account of the relatively high pylorus and short fixed duodenum of the male, which causes an unduly long exposure of the first duodenal angle to the acid secretions of the stomach undiluted by bile or pancreatic juice.

2. Mitchell, in an important article on the bacteriology of tuberculous lymph glands in children, concludes that as the result of inoculation with autopsy material the human bacillus is the main contributor to the mortality rate, but that bovine tuberculosis and its spread must not be neglected, and that the campaign against tuberculosis must include the bovine sources.

3. Rist of Paris discusses the complex question of the healing process of the infantile tuberculous bronchial glands in an interesting manner. He comes to no definite conclusions, but his remarks are of interest to pathologists and students of this subject.

4. von Pirquet, in a short article on the various modes of infection by tuberculosis in infancy, which he illustrates with an excellent diagram, concludes that for the first year of life infection through the bronchi is by far the most frequent way of entering of about 95% of all infections. He does not consider infection through the alimentary tract as at all important, at least not in Austria (2% of all infections). Infection through the maternal placenta as well as infection through mucous membrane of the mouth or through the skin are rarities. The prophylaxis of infant tuberculosis has chiefly to deal with the separation of the nursing infant from the coughing adult. [J. B. H.]

IL POLICLINICO.

SURGICAL SECTION.

AUGUST, 1914.

1. BEVACQUA, A. *Two Laryngectomies by Durante's Method for Neoplasm.*
2. MARGONA, P. *Contribution to the Study of the Papillomata of the Renal Pelvis.*
3. POGGIOLINI, A. *Dislocations. Partial Decortication and Fixation of the Kidney.* (*To be continued*).
4. *SCALONE, I. *The Surgical Cure of Basedow's Disease.* (*Conclusion.*)
5. CIGNOZZI, O. *Cholecystectomy in Non-Calculous Cholecystitis.*

4. Scalone concludes his paper with an operative contribution to thyroid surgery. [R. M. G.]

SEPTEMBER, 1914.

1. POGGIOLINI, A. *Dislocations. Partial Decortication, and Fixation of the Kidney.* (*Conclusion.*)
2. STOPPATO, W. *The Treatment of Granulating Surfaces with a Hot-Air Current, with Special Regard to the Treatment of Burns.*
3. RUSCA, C. L. *A Particular Form of Ray Fungus Found in the Pus from a Chronic Inflammation of the Maxilla.*
4. SCALONE, I. *An Exceptional Indication for Plugging for the Cure of a Suppurative Lesion of the Thyroid, and the Use of Plugging in Modern Surgery.* (*To be continued.*)

Miscellany.

PROGRESS OF RELIEF IN THE EUROPEAN WAR.

ON Oct. 30, the Massachusetts Red Cross fund amounted to $56,319.80, and the New England Belgian relief fund to $40,677. On Oct. 27 the New York Red Cross fund amounted to $283,863, the New York Belgian relief fund to $213,371, the New York German fund to $150,000, the American Ambulance Hospital fund to $104,347, and the American branch of the Prince of Wales fund to $62.889.38.

Appeals for more medical and surgical supplies are already being received from the American Red Cross units in Europe, especially from Petrograd and Paris.

"The supplies asked for in the Petrograde appeal include chloroform, opium, cocaine, disinfectants and absorbent cotton. The American colony in Petrograd has just established a small hospital there and the American Red Cross is arranging to send it drugs, absorbent cotton, bandages, linen and blankets. The appeal from France is for more starched gauze, absorbent cotton, iodine and blankets."

The Servian unit was shifted on Oct. 24 from Nish to Belgrade. On Oct. 29 another Red Cross unit of 3 surgeons and 12 male nurses, with 25 tons of hospital supplies, left New York for Servia. All the members of this contingent speak Servian and the cost of their expedition is being met by wealthy Slavs of Chicago.

"Arrangements are being made for supplementary shipments of medical supplies and hospital garments to Germany via Rotterdam. England and France desire more supplies of that nature and there will be further shipments to those countries shortly.

"To the Russian Red Cross, 100 litters, 30,000 bandages and large quantities of supplies, vaseline, absorbent cotton and a number of hospital garments have just been shipped by the American Red Cross. For the American Hospital in Petrograd also many medical supplies have been shipped."

On Oct. 22 the Japanese Red Cross expedition left Tokio for Petrograd.

The following letter of appeal has been published from an American lady resident in Paris:

"To help meet the present great need I have decided to open in our Paris home a small hospital. Could you help me by collecting some money among your friends for the wounded soldiers? I have been nursing already nearly two months in the Protestant hospital here, but the need is so very urgent for more and more nurses, for more and more beds to receive the wounded, that I want to do all in my power to help. But I in my turn need help,—for though I have decided to give everything we have, still it is not sufficient—so I am turning to our American friends, feeling sure that they, who are enjoying peace, instead of living through the horrible nightmare our daily life over here has become, will lend a helping hand.

"Most sincerely yours,

"Laura Jayne Bucknell Loyson.

"110 Rue du Bac, Paris.

"Contributions, large or small, may be sent to Mrs. Charles W. Wendte, 25 Beacon Street, Boston, and will be duly acknowledged and promptly forwarded."

Report from Berlin on Oct. 24 states that Count Goldschmidt-Rothschild, who is attached to the American Red Cross units in Germany, has been purchasing supplies in that city.

"He reports that the American doctors and nurses are at Gleiwitz, in Silesia, where two purely American hospitals have been established, one in a converted theatre and the other in a business building. The original idea of scattering these American workers among German hospitals was abandoned, and in the opinion of the Count this was a wise measure. The hospitals are now receiving wounded direct from the battle front, a number of men being brought in from the fighting at Ivangorod. Their location at Gleiwitz, in the extreme southeastern corner

of Silesia, brings them as near as possible to the front.

"Most of the men being brought to these American establishments are severely wounded. The mission has supplemented its equipment also in Breslau, and has been supplied with warm clothing for the coming winter. The nurses are quartered comfortably in the hospitals themselves, while the doctors reside outside. The Americans have been given a very warm welcome."

The St. John County Tyrone Association, of Belfast, Ireland, has established at Pau, France, a hospital of 50 beds, with 3 surgeons and 10 nurses.

"With the shifting of the fighting toward the channel, Folkestone has become a very important hospital point for the Allies. A Red Cross ship lies here most of the time and makes daily trips to Calais for the injured. Many of the large hotels there have been converted into hospitals and others will probably be taken very shortly, as it is necessary that more beds be placed at the disposal of the seriously wounded who are not able to make a long trip by rail after coming across the channel.

"With the abandonment of Ostend by the Allies, all the Belgian wounded quartered there came to Shorncliff and the other hospitals at Folkestone. One large hotel also was turned over entirely to Belgians that they might be under the care of nurses and doctors who understood their language."

"Hospital trains are provided daily to meet the Red Cross ship, and all the injured who can travel without danger are taken to hospitals as near their homes as possible. The Red Cross ambulance corps has its headquarters at a hotel on the quay, and motor ambulances are kept on the quay to transport any injured soldiers who arrive on any of the regular boats from Boulogne or Calais. When the Red Cross ship starts across the channel on its daily trip several motor ambulances are taken for use on the other shore. Surgeons and nurses from the hospitals here also make the trip to Calais that they may observe all cases carefully and get full reports from the doctors who have had charge of the soldiers in France."

Casualties among British medical officers at the front have already been numerous. One particularly heroic death reported was that of Dr. J. Laidlaw Huggan, of Jedburgh, Scotland, an assistant surgeon in the Coldstream Guards, who was killed at the battle of the Aisne on Sept. 16 in the discharge of duty.

"He organized and led a party of volunteers, whereby a number of wounded were all safely removed from a barn that had been set on fire by a German shell. The operations were conducted under a heavy shell fire, and the success of the enterprise was entirely due to the personal gallantry of Dr. Huggan."

For this action Dr. Huggan was recommended for the Victoria Cross.

First-hand accounts of surgical conditions in the field are already appearing in foreign medical journals. The *Lancet* of Oct. 17 says:—

"Of those who came from the front after the battle of Mons and during the retreat the majority suffered from general exhaustion, want of rest, and foot-soreness rather than from wounds, and rest and care worked immediate restoration in the majority of cases. Of those who came after the battles of the Marne and the Aisne, nearly all were suffering from shell and bullet wounds, the number of the former greatly preponderating, this observation thus exactly bearing out Mr. Makin's statement of the position in the French hospitals. The striking point, said our informant, was the extraordinarily good condition in which the men arrived and the careful and cleanly nature of the dressings. Considerably less than 10% of any suppurating wounds came under his notice, which is gratifying information taken in connection with the comparatively large proportion of shrapnel injuries. Rapid healing has taken place in many cases and the men soon regained their general health. On inquiry from them it became evident that every possible opportunity had been taken during their transport to change the dressings, and the commissariat arrangements appear to have been admirable, the men expressing themselves, as having been well fed all through thir long journey of several days."

The following extract from a letter by Dr. Alexis Carrel at Lyons, France, was published in a recent issue of the *British Medical Journal*:

"I am in my own city. Mobilized, naturally. I am in the Hôtel-Dieu in the Department of Surgery. I have more than a thousand wounded to look after. My patients are the first who came under fire. They are those who in Haute Alsace completed with the bayonet the work of the mitrailleuse. Fortunately the wounds are not very serious. In all, the wounded in Lyons are about 12,000, distributed among forty-two hospitals; in the district there are 25,000 more. Having regard to the tremendous number of combatants, the number of wounded up to the present is not, so far as our army is concerned, very heavy and the mortality is very low. In my hospital of 2,000 men, hardly 20 have died of their wounds. Besides, our wounded go back in great numbers to the front, and thus our army goes on acquiring as time goes on soldiers who know what taking cover under fire means."

An Italian newspaper, quoted by *Il Policlinico* comments on the medical service of the German navy:—

"The experience of recent naval warfare shows that the number of killed in modern sea

fights is 5% and that of wounded about 15%. The sailors of the German navy are trained not only in the transport of wounded men, but also in first aid, for which at various stations sterilized bandages and dressings are provided. The appliances include light splints for fractured limbs and elastic bandages for the arrest of profuse hemorrhage. The sailors are also trained in the performance of artificial respiration. There is a service of carriers of wounded attached to the hospitals. In smaller ships with only one surgeon there is a ward for first dressing and immediate treatment, whilst a second ward is kept in reserve in case the other is destroyed. Battleships carry three surgeons, who give immediate attention to all cases. Only the most urgent operations, such as the arrest of hemorrhage, necessary amputations, and tracheotomy, are done on the battleships, though to this list laparotomy is added. All wounded men in a condition to be transported are sent as soon as possible to the hospital ship."

RESOLUTION.

AT a meeting of the Executive Committee of the Trustees of the Clifton Springs Sanitarium, held Thursday, October 29, the following Resolution was passed, which the secretary was directed to send to the BOSTON MEDICAL AND SURGICAL JOURNAL.

Resolved, That in recording the sad and sudden departure from among us of our late Superintendent, Dr. James G. Mumford, the Executive Committee, in behalf of the Board of Trustees, place upon the Minutes, their high appreciation of the scientific attainments and professional reputation which he brought to the service of the Sanitarium, and expresses its profound sympathy with the bereaved widow in her sore affliction.

M. E. FOSTER, *Secretary*.

ARMY MEDICAL CORPS EXAMINATIONS.

The Surgeon-General of the Army announces that preliminary examinations for appointment of First Lieutenants in the Army Medical Corps will be held on January 11, 1915, at points to be hereafter designated.

Full information concerning those examinations can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C." The essential requirements to secure an invitation are that the applicant shall be a citizen of the United States, shall be between 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of Doctor of Medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training as an interne, after graduation. The examinations will be held simultaneously throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received, in order to lessen the travelling expenses of applicants as much as possible.

In order to perfect all necessary arrangements for the examinations, applications must be completed and in possession of the Adjutant-General at least three weeks before the date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present twenty vacancies in the Medical Corps of the Army.

NOTICES.

Dr. Edwin W. Gehring, of Portland, Me., was nominated on Oct. 28 as a member of the Maine State Board of Health.

RECENT DEATHS.

DR. FRANCIS LESTER BABCOCK, who died of cerebral hemorrhage on Oct. 27 at East Dedham, Mass., was born in Medfield, Mass., on June 12, 1849. He received the degree of M.D. in 1879 from the Boston University Medical School, and immediately settled at Dedham, where he continued active in the practise of his profession until his death. He was long a member of the local board of health, and for ten years visiting physician to the Norfolk County Home at Dedham. He was a member of the American Institute of Homeopathy, of the Massachusetts Homeopathic Medical Society, and of the Dedham Medical Club. He is survived by his widow and by one daughter.

DR. WALTER B. GREEN, of Trenton, N. J., son of the late Judge Edward T. Green, died suddenly at Hopewell, N. J., on October 26. He was graduated from the medical department of the University of Pennsylvania in 1886.

DR. GEORGE LIVINGSTON PEABODY, who died on Oct. 30 at Newport, R. I., was born in New York City on Aug. 25, 1850. He received the degree of A.M. in 1870 from Columbia University, and that of M.D. in 1873. He was for many years a professor in the university and on the staff of the New York, Roosevelt, Bellevue and St. Luke's hospitals. He was a member of the Association of American Physicians, the New York Academy of Medicine, and the New York Practitioners' Society. He is survived by his widow.

BOOKS AND PAMPHLETS RECEIVED.

A Laboratory Manual of Qualitative Chemical Analysis for Students of Medicine, Dentistry and Pharmacy, by A. R. Bliss, Jr., Ph.G., etc. W. B. Saunders Company. 1914.

Abdominal Operations. Vols. 1 and 2, by Sir Berkeley Moynihan, M.S. Third Edition. W. B. Saunders Company. 1914.

Local and Regional Anesthesia, by Carroll W. Allen, M.D. W. B. Saunders Company. 1914.

Medical Jurisprudence, by Elmer D. Brothers, B.S. C. V. Mosby Co. 1914.

Chemistry and Toxicology for Nurses, by Philip Asher, Ph.G. W. B. Saunders Company, 1914.

A Manual of Diseases of the Nose, Throat and Ear, by E. B. Gleason, M.D. W. B. Saunders Company. 1914. Third Edition.

The Tonsils, by Harry A. Barnes, M.D. C. V. Mosby. 1914.

Memoir of Louis A. Duhring, M.D. Philadelphia.

Contributions from the Third Division, Neurological Institute of New York, June, 1914.

Municipal Ordinances, Rules, and Regulations Pertaining to Public Health. Reprint No. 199. United States Public Health Service.

Leprosy, Its Treatment in the Philippine Islands by the Hypodermic Use of a Chaulmoogra Oil Mixture, by Victor G. Heiser. Supplement No. 20 to the Public Health Reports.

Massachusetts Medical Society

SYMPOSIUM ON CANCER OF CERTAIN PELVIC ORGANS.

MEETING OF THE SECTION OF SURGERY, JUNE 9, 1914.

I. Cancer of the Uterus. With Special Reference to the Possibilities of Cure by a Radical Abdominal Operation. By Farrar Cobb, M.D., Boston.
II. Cancer of the Rectum. By Daniel Fiske Jones, M.D., Boston.
III. Cancer of the Bladder. By Arthur L. Chute, M.D., Boston.
IV. Cancer of the Prostate. By Horace Binney, M.D., Boston.
V. The Use of Radium in Cancer and Allied Conditions at the Huntington Hospital. Illustrative Cases. By Thomas Ordway, M.D., Boston.

(Dr. Ordway's article will appear in next week's issue of the JOURNAL.)

I.

CANCER OF THE UTERUS. WITH SPECIAL REFERENCE TO THE POSSIBILITIES OF CURE BY A RADICAL ABDOMINAL OPERATION.

BY FARRAR COBB, M.D., BOSTON.

FOURTEEN years ago I first became interested in operations for cancer of the cervix uteri and since then whenever opportunity offered I have done substantially the extended abdominal operation of Wertheim of Vienna who more than any other surgeon has proved that this is the operation of choice and the one that offers the greatest hope of permanent cure. For the last three years, under the selective system at the Massachusetts General Hospital, all the cases of cancer of the uterus, both of the cervix and of the fundus, have been assigned to me for operation, during which time I have developed some original technique.

In April, 1912, I read a paper on this subject at the annual meeting of the Suffolk District Medical Society, which paper was published in the BOSTON MEDICAL AND SURGICAL JOURNAL, July 11, 1912. On February 20th of the present year I read at a clinical meeting at the Massachusetts General Hospital another paper in which I proved my previous work and reviewed my conclusions in the light of three additional hospital years and my own larger experience—the first part of this paper was published on June 4 last, not quite a week ago, in the BOSTON MEDICAL AND SURGICAL JOURNAL,—in addition I have read papers on the same subject before certain of the district medical societies during the past two years. Those who have read or heard my previous articles will recognize inevitable repetitions, for such I crave your indulgence.

I can this afternoon add nothing to my previous contributions, but must content myself with presenting to you in a condensed form what I consider the most prominent features of this very important surgical problem.

The conclusions in this paper are based on a complete analysis from the standpoint of end results of all the cases of cancer of the uterus at the Massachusetts General Hospital for the 14 years from 1900 to 1913 inclusive, 367 in number, of which 70 were personal cases of my own.

The paper emphasizes the importance of early diagnosis of cancer of the cervix and distinctly shows the possibilities of cure by the extended abdominal operation and describes certain original methods of operating. At the outset I call your attention to the duty of all surgeons to study their end results and compare them with other workers', but, while our results must be compared with those of the best workmen everywhere, it is not fair to contrast the work of a large number of men, some of whom have had no special training or experience, operating infrequently with small material, with the work of one specially trained man who has worked continuously with abundant material; this should be remembered when the results as a whole at the Massachusetts General Hospital are compared with those of Wertheim or with one of its own staff who has been given larger opportunity.

Cancer of the uterus ordinarily means squamous cell cancer of the cervix Cancer of the cervix is a disease which demands the extended abdominal operation. Wertheim's reported cases are all this form of uterine cancer. The important part of our work from an educational point of view relates to this form and in discussing the operation and late results cases of cancer of the cervix should be separated widely from those of cancer of the fundus, since the latter form is a comparatively favorable one for cure by simple hysterectomy, either vaginal or abdominal.

The radical abdominal or Wertheim operation is concisely the removal of the uterus and a liberal portion of the vagina through a median abdominal incision, with thorough dissection of the ureters and bladder with removal of as much of the parametrium on both sides as possible, the regional lymph glands being removed only if palpably enlarged. The operation is a difficult and tedious one and the medical profession and public should be made to understand that it is an operation only to be attempted by surgeons especially interested and trained in this work.

The two most important questions in regard to the subject are:—

I. How can the public and the medical profession be taught the importance of early diagnosis and the possibilities of cure by a radical operation?

II. In what cases is a radical operation justifiable?

It is gratifying to see that within a year or two in this country attempts have been made to educate the public in regard to cancer in all its forms and the possibilities of cure by early radical operation. There is most urgent need of education about cancer of the uterus, education of the lay public and the medical profession as a whole and the education of surgeons. It is not unusual to hear surgeons of wide experience say that the abdominal operation for cancer of the cervix is unjustifiable because of the small chance of permanent cure and the extremely high immediate mortality. Men holding such opinions are not familiar with what has been accomplished. As stated by Dr. Graves in his discussion of one of my previous papers on this subject, "It is undoubtedly true that the prognosis of cancer of the cervix uteri operated on early by a trained surgeon employing the best technical methods is considerably better as to recurrence than that of an early cancer of the breast operated on under similar circumstances."

Many physicians and a goodly number of the laity believe that cancer of the uterus is an incurable disease and it is not surprising that they do so when one considers that over three-fifths of the patients coming to our large hospitals with cancer of the cervix present themselves too late for any attempt at a radical or curative operation, and that of those radically operated on by surgeons not especially experienced, three-fourths die of recurrence inside of five years.

Of the 367 cases of cancer of the uterus admitted to the Massachusetts General Hospital in the fourteen years from 1900 to 1913 inclusive, 4 absolutely refused operation, 57 were considered totally inoperable, 173 could only have a palliative operation, amputation or curetting and cauterization, with or without ligation of the internal iliac arteries,—this last procedure being done only by myself. There were 17 vaginal and 116 abdominal hysterectomies. In other words, 230 cases came too late for any attempt at a curative operation, an operability of only 36.2%.

Fifty per cent. of Wertheim's cases were operable. From 1898 to 1912 he examined 1430, 71 absolutely refused any operation, 684 were inoperable, 675 had a radical operation done.

This appalling lack of operability is due to popular ignorance as to the nature of the disease and its hideously insidious onset and, in a measure, to the neglect of some medical practitioners to examine the cases or recognize the importance of the condition found on examination and also, and this applies especially in this country, to the lack of knowledge on the part of the surgeons as to what is an operable case. Until it can be taught convincingly that irregular bleeding at any time in a woman's life may mean cancer and always demands investigation by a competent man, there will continue to be a long list of hopeless cases and possibly avoidable deaths. A study of our hospital series corroborates what is already known, that the earliest symptoms are irregular bleeding and that pain is a late symptom. Of the 230 inoperable and palliative cases the average duration of symptoms before the patient came to the hospital was about a year and it is doubtless true that cancer of the cervix may be present for many months before any symptoms are noted and that it may go to an inoperable stage with practicaly no symptoms.

I make here a plea for those unfortunate patients who come too late for radical operation. I think it is our duty in every case where a radical operation is inadvisable to make determined and repeated efforts toward the prolongation of life and relief of pain and hemorrhage. I feel sure that all too frequently the inoperable cases are neglected and allowed to die without much of anything being attempted for their relief. We are all familiar with the value of thorough curetting and cauterization. It should be remembered that curettage without the use of the cautery is unwise and that the cautery itself probably has a positive influence in checking cancer growth much deeper than the surface actually cauterized, and that the developmental activity of the cancer cells can be arrested and permanently destroyed at a distance far remote from the surface upon which the cautery is used. Between cauterizations much good can be done by local applications, either of acetone or formalin, not neglecting general treatment,—bromide of arsenic and tincture of iodine and the judicious use of opium. I have had no experience with radium, but think it should be used when possible. Dr. Ordway's paper will discuss this form of treatment.

In eight cases I have supplemented the curetting and cauterization by ligating both internal iliac arteries. I first thought this procedure was an original one with me, but have found out that it originated with Charles Ryall, surgeon to the Bollingbrooke Hospital and the Cancer Hospital of Brompton, England. He reports over twenty cases of ligation with decided benefit and no complications. There has been no immediate mortality in my eight cases and in certain of them I have been much impressed by the almost instant relief from pain and hemorrhage. Patients that before operation have required morphine in fairly good sized doses have needed none the day after. The operation is one that can be done safely and rapidly even in obese patients. The abdomen is opened by a median incision, both ovarian and both internal iliac arteries tied with silk and the abdominal wound closed without drainage. Obviously, the theory of this method is to shut off the blood supply to the uterus as much as possible and by starving the malignant growth diminish the pain and hemorrhage.

What is an Operable Case? Two hundred

and thirty cases of the hospital series were pronounced unfit for radical operation, but this represented the opinions of many different surgeons. It is probable that some of the cases regarded by some men as beyond surgical aid might have been considered by others as fair risks. The fact that of the 317 cases before August, 1911, only nine were given the advantage of an exploratory laparotomy proves that in many a true decision could not have been made.

If the entire pelvis is filled with a hard mass, the uterus fixed and the vagina markedly involved, there is no doubt but that such a case is inoperable, but in many cases no bimanual examination, with or without an anesthetic, can determine positively that the case is not one for radical treatment, because fixation of the uterus and indurated masses in one or both broad ligaments are not infrequently due to inflammatory tissue, adhesions, pus tubes or cysts. Even if fixation and induration of the broad ligaments is due to cancer, such cases should have the advantage of exploratory laparotomy, because it is certain some of the apparently desperate cases, even those involving the bladder can be cured. Of Wertheim's cured cases there were no less than ten that had been considered inoperable by very worthy men. One of my own cases that has lived the longest free from recurrence,—over thirteen years,—was a case in which the left ureter had to be dug out of a mass of apparent disease, and in which the iliac glands on both sides were markedly enlarged and were removed: in her case there was marked thickening and induration in the left broad ligament noted before operation; and one other of my own cases, in which the uterus was fixed and both broad ligaments indurated, is alive and well over five years after operation. I have operated on three cases previously operated on palliatively by other men. In each case I found it possible to do a radical operation; in two of them the bladder was opened and successfully repaired. One died of recurrence in one year, eight months and nine days, the other two are cured cases. Therefore, in the face of such evidence as Wertheim's and my own limited experience, I believe that there are a number of cases in which none of us have the right to decide in regard to the possibility of a radical operation until the abdomen has been opened. The border-line cases will be the most difficult, possibly involving injuries or resection of the bladder and ureters, but without operation death is certain, suffering extreme, and we know that with it a definite number of cases are cured.

The general condition of the patient must be considered carefully, and the long, tedious and frequently bloody abdominal operation should never be attempted in feeble subjects; it is contraindicated, also, in the presence of marked adiposity. In such cases vaginal hysterectomy should be substituted. In certain of the adipose cases it may be possible to do a para-vaginal or radical vaginal hysterectomy, the operation of Schuschardt and Schauta. My own experience has convinced me that the Wertheim abdominal operation in very fat women is one of extreme difficulty and risk, and in the future in such cases I intend to do the extended vaginal operation.

Care in Pathological Examinations. Unless great care is used, pathological examinations of tissue from suspected cervix may be in error. The most favorable cases for cure are those in which the diagnosis of cancer is made early by the microscope. Possible sources of error are depending upon curetting without excising pieces, failure to obtain tissue from the diseased areas, and incomplete study of the tissues after removal, also the mixing up of specimens in a laboratory which is burdened with much work. In suspicious cases wedge-shaped pieces should be cut from more than one place, should involve the area of granulation tissue and the normal mucosa adjoining. Many sections should be cut and examined with care.

The Immediate Mortality and End Results in Different Forms of Hysterectomy. According to Wertheim's latest report published in November, 1912, he has done the radical abdominal operation 675 times in fifteen years. Of this number 380 were done over five years previous to the report; of this number 160 cases were alive and well over five years, 42% of cures. His immediate mortality in his first one hundred cases was 30% and in his last one hundred and seventy-five only 9%.

The simple vaginal hysterectomy can have no place as an operation of choice in cancer of the cervix, except in very fat subjects and those cases in which because of the poor condition of the patient it is wise to do a rapid and safe operation, or possibly a very small number of cases of very early microscopic diagnosis. No operator with large experience has been able to report over 10% of cures. I believe it is true, however, that simple vaginal hysterectomy in the hands of numerous men who have had no special training or experience will be the safest method and will give a greater percentage of cures than the radical abdominal method in the same inexperienced hands. In the Massachusetts General Hospital series there were 17 cases of vaginal hysterectomy, the majority being for cancer of the body. There was no immediate mortality. The number of operations is too small to justify any conclusions as to end results.

The immediate mortality in the radical vaginal or para-vaginal operation, the operation of Schuschardt and Shauta, is almost as high as that of the radical abdominal operation and the percentage of cures not so large; briefly, this is an operation in which the para-vaginal and para-rectal tissues on the left are split to the sacrum, laying wide open the perineum. By this procedure it is possible to remove a generous por-

tion of the vagina and some of the parametrial tissue, but the pelvic lymph glands cannot be reached. It is a difficult and bloody operation, and undetected injuries of the bladder, rectum and ureters are said to be common, and the danger of implantation metastasis is greater than in the abdominal operation. Convalescence may be complicated by tedious suppuration and sinus formation.

In our hospital series there were 49 simple abdominal hysterectomies done by numerous men; by simple hysterectomy I mean the ordinary hysterectomy in which no unusual attempt is made to dissect out the ureters or remove the parametrium. In these 49 cases there was an immediate mortality of over 34% and only 19% of cures.—cases in which the bladder, rectum and ureters were injured were more common than in the radical operations. It must be concluded that an abdominal hysterectomy which makes no attempt to dissect the ureters and remove the parametrium, to say nothing of the pelvic glands, cannot be advocated as a safe or reasonable operation for cancer of the cervix because it exposes the patient to increased danger from shock, hemorrhage and peritonitis without making any wider removal of the disease and its lymphatics than in the simple vaginal hysterectomy. In other words, it showed itself to be an extremely dangerous method in the hands of numerous surgeons with a percentage of cures insufficient to justify its employment as an operation of choice for cancer of the cervix.

There were 40 radical Wertheim hysterectomies done in our hospital series, including 23 of my own personal cases, with an immediate mortality of 22% and 50% of cures,—a very satisfactory showing for our hospital. The lower mortality and increased percentage of cures of the radical abdominal operation as contrasted with the high mortality and small percentage of cures in the simple abdominal hysterectomies can be explained by the fact that the radical operations were attempted by only two or three men of our staff especially interested and educated, and more than half of them were done by one man, whereas on the other hand the simple hysterectomies were done by numerous members of the staff, many of whom, in all probability, had made no special study of the technic of the subject or chose the abdominal route as a method with which they were more familiar.

In addition, in our hospital series there were 27 abdominal hysterectomies for cancer of the fundus, 7 of which were my own personal cases. The immediate mortality was 4, or 14.8%, and of those cases in which the operation was done over five years before, only 42.8% were cured. Ordinarily cancer of the fundus is considered a favorable form for cure by either form of simple hysterectomy. The small percentage of cures in our hospital series should be explained by the fact that many of these cases came to the hospital late in the disease, after the carcinoma had invaded the peritoneal surface of the uterus and a number of the cases were in very feeble condition on entering the hospital.

To sum up: The extended radical abdominal operation is the method of choice, the method that offers the greatest possibility of cure in cancer of the cervix if done by specially trained men. The earlier the diagnosis is made the greater the chance of cure. Simple vaginal hysterectomy is a safer and better method than simple abdominal hysterectomy in ordinary hands. The extended abdominal operation is contra-indicated in marked adiposity and in feeble patients.

I have done the Wertheim operation for cancer of the cervix 34 times with an immediate mortality of 5, or 14.3%. In addition I have done abdominal hysterectomy for cancer of the fundus 7 times with no immediate mortality. Only 6 of my cancer of the cervix cases were done over five years ago, 5 of these are alive and well and free from recurrence from five to thirteen years. The cause of death in my cancer of the cervix operations is as follows: One case died of peritonitis within forty-eight hours; one in twelve hours of shock; one on the tenth day, cause of death not made out at autopsy; one in the fifth week of iliac thrombo-phlebitis, and one in the tenth week of intestinal obstruction.

The important factors in the operation are:—

1. The preliminary preparation.
2. The anesthetic, with special reference to the prevention of shock.
3. The abdominal incision.
4. The freeing and handling of the ureters.
5. Removal of the parametrium and glands.
6. Control of hemorrhage.
7. Prevention of peritoneal infection and implantation metastasis from the growth itself.
8. Drainage and after-treatment.

I gradually have adopted some original technic by which I think the operation is made even more radical and perhaps somewhat safer. I refer specially to the combined method of spinal and general anesthesia, the abdominal incision, the retraction and elevation of the ureters by tapes and the ligation of both internal iliac arteries.

Cases should be studied carefully as to whether their general condition would justify a radical abdominal operation. Special attention should be paid to the heart and kidneys and the functional renal test done more than once. A percentage of 25 prohibits a radical operation.

It is surprising to see how much certain cases will improve with a few days' rest in bed with forced fluids and liberal diet, with a moderate amount of stimulation.

The combined method of spinal and ether anesthesia has enabled me to operate safely on a number of cases which previously I should not have been willing to consider as operative risks.

I think that curetting and cauterization as a distinct preliminary operation a week or two before the abdominal operation is apt to create a

much more foul and septic condition about the cervix because of the large migration of bacteria into the freshly infiltrated areas. Whenever possible I do a curetting and cauterization as the first step of one operation. In early cases in which it is reasonably sure that at a later stage of the abdominal operation the right angled clamps can be applied to the vaginal wall below the growth I do not curette or cauterize the cervix, but simply disinfect the vagina as described presently. Cases of extensive proliferative growth, especially those cases that have been flowing profusely before coming into the hospital, must be thoroughly curetted and cauterized as a separate operation, and sufficient time taken to allow the cleaning up of the region of the cervix and getting the patient strong enough for the abdominal stage. To disinfect the vagina, whether or not the curette and cautery have been used, I have the last year adopted the following method. This preliminary preparation is always done by myself.

After scrubbing with green soap and water, and using a 1-2000 corrosive douche freely, the scrubbing and corrosive douche being done before the use of the curette and cautery, I fill the vagina with tincture of iodine and allow it to remain two minutes. After wiping this out with gauze sponges the vagina is filled with alcohol, pains being taken afterwards to wash out all the alcohol with bichloride solution 1-2000. A small gauze sponge is tucked lightly for a short distance in the vagina as the final step, no attempt being made to demark the cervix or to attach any instrument to the posterior vaginal vault.

An abdominal operation of this magnitude will always take from one to four hours. Much pains should be taken to shorten the time in every way and the choice of anesthesia and the anesthetist is of the greatest importance. The duration of spinal anesthesia alone is too short and the necessity of using a large amount of intraspinal fluid in combination with the Trendelenberg position makes this method of anesthesia dangerous. It is important also to have these patients, who are usually in dread of the operation, unconscious and oblivious. Ether anesthesia is generally accepted as the best anesthetic. I think this is correct, but I have found that within the last year by using intraspinal injections and ether in combination that in a large majority of my cases I have had no shock at all and also that the patients have been surprisingly free from the alarming sequelae of convalescence that all too often occurred in cases that left the operating table in severe shock after the long etherization alone. I have used this spinal injection on the "nerve bloc" or anoci principle, as advanced by Crile. One-half hour before anesthesia, morphine gr. 1-4 with atropine gr. 1-120 is given hypodermically. The spinal injection is from 1 to 2 c.c. of tropococaine, with 5% of suprarenin. This is usually given between the second and third lumbar vertebrae. Immediately after giving the spinal injection ether is begun and continued to the end of the operation. The preliminary vaginal work can be begun as soon as the spinal injection has been given.

Management of the Ureters. The dissection and handling of the ureters, freeing them from the parametrial tissue, is the most important technical part of this operation. The object is to have them free so that they can be lifted up and out of the pelvis, and at the same time preserve their own blood supply and thus avoid subsequent necrosis and fistula formation. The method of inserting ureteral bougies before operation as aids in finding and dissecting the ureters is time consuming and unnecessary not only, but, on the other hand, is a distinctly dangerous procedure because the bougies act as rigid splints and prevent displacement of the ureters and at the same time exert a counter resistance and pressure, and so contribute to necrosis. It is seldom difficult to locate the ureters if one begins to look for them high up near the bifurcation of the iliac arteries, but in cases that are complicated by only pelvic infection with adhesions, the finding and isolating of the ureters may be most difficult. I have found my method of handling the ureters with tapes to be satisfactory and safe. I have not had a ureteral fistula, although in many cases I have made quite strong traction on the tapes. After the broad ligaments have been opened and the ureters identified, a cut is made below the ureter through the posterior leaf of the broad ligament about three-quarters of an inch below the ureter, through which tapes are passed, and at a later stage of the operation a peritoneal cuff is cut from the broad ligament, so that when the ureters are lifted by the tapes they are protected, and at the last stage of the operation, during the division of the parametrial tissue and the amputation of the vagina, it is often possible to lift them well out of the pelvis, as high as necessary. This method has been illustrated in my recent published article.

Prevention of Infection and Implantation Metastasis. Inasmuch as the chief cause of death in the Wertheim operation is septic peritonitis and the most frequent recurrence is implantation metastasis about the stump of the vagina in the pelvis, one of the most important parts of the technic is to shut off infection, the source of infection being obviously the infiltrated growth of the cervix and the presence of discharges and cancer cells from the growth in the vagina. The best method to avoid such infection is by the use of Wertheim's strong right-angled clamps. After the parametrium has been divided and the vagina freed for a long distance from bladder and rectum and the ureters lifted out of the way, two right-angled clamps are applied, one above the other close together across the whole vagina; then the vagina is cut across between them, preferably by a right angled electric cautery knife.

Glands. In cancer of the cervix the first

glands involved are the iliac, those glands lying between the internal and external iliac arteries. The glands next are the obturator, and last the sacral and inguinal. Cases in which the sacral and inguinal glands are involved are beyond doubt absolutely unfavorable. It is impossible to remove all the glands. Wertheim's decision that only the glands that are palpably enlarged should be removed is now accepted by most operators. Enlarged glands are not necessarily cancerous by any means. In over half of my cases in which the iliac glands were distinctly enlarged and removed, the pathologist reported, after a careful serial examination, no cancer, but enlargement due to hyperplasia, that is to say, enlargement was due to the arrest of septic material from the ulcerating growth. A thorough survey early in the operation for glandular conditions is necessary, and it should be understood that to do this properly the peritoneum must be split and the great vessels laid bare.

Control of Hemorrhage. In my last paper on cancer of the uterus, I said it was problematical how much ligation of the internal iliac arteries would interfere with pelvic nutrition and especially influence post-operative cystitis. Since that writing I have ligated the internal iliac arteries in the majority of my cases. Instead of adopting the former method, that of Wertheim, of tearing through the tissues along the pelvic wall and lifting up the uterine arteries on the finger right after tying the ovarians, I have carefully exposed the ureters on the inner layers of the broad ligaments, and then deliberately tied the internal iliac arteries on both sides. While, because of the free anastomosis, the ligating of the internal iliacs does not control the hemorrhage from the uterines absolutely, it enables a much clearer dissection, an easier freeing of the bladder and a deliberate securing of the uterines when they are cut across and also diminishes arterial bleeding deep down when the vagina and rectum are freed. I am convinced from my cases that this procedure does not in any way cause bladder complications or necrosis; cases in which I have done this have done fully as well as those in which I have not done so. This procedure is especially valuable in cases of obesity and in which the room in the pelvis is small.

Drainage. Drainage through the vagina with a long strip of iodoform gauze, the peritoneal surfaces being sutured over so as to form a floor above the gauze is, in most of the cases, all that is necessary. The gauze should be started out on the fifth day and removed an inch or two daily until all has been withdrawn. In a few cases where there is reason to suspect unusual infection of the peritoneum, where the bowel had been injured or the bladder resected, abdominal drainage also is wise, and in my recent cases, where I had reason to fear unusual accumulation of blood below the peritoneal floor about the vaginal drain because of obstinate venous oozing, I have also used the abdominal drain at the lower angle of the abdominal wound for a few days, and have been surprised to see the amount of serous drainage which this has cared for.

The after treatment is simple. The head of the bed should be elevated a foot for the first week and salt solution given by rectum every five or six hours. An inlying catheter and urotropin are essentials.

DISCUSSION.

Dr. William P. Graves, Boston: Dr. Cobb is very much to be congratulated on his excellent work on cancer of the uterus. His records compare very favorably with the best operators in Europe and so far as his curability percentage is concerned it is better than I have noted in any other reports.

Dr. Cobb's work has been invaluable in educating the general profession with regard to getting these patients early. During the last year or two I have noticed an improvement in the cases that have come to the Free Hospital for Women for examination, in that not so many cases have been neglected by the family doctors. I feel sure that Dr. Cobb's education of the public has had something to do with this result.

One thing I wish to speak of is with regard to the number of cases that are operated on in this country as compared with those in Europe. The number in this country is relatively extremely small. Few surgeons in the United States have performed more than 50 or 60 radical operations for cancer of the cervix, whereas in Europe the reports of numerous surgeons mount into the hundreds.

I recently conversed with a prominent gynecologist from St. Louis with the hope of seeing him perform a vaginal operation for cancer of the cervix, an operation which he has ably exploited. He told me that he had not seen an operable case of cancer of the cervix in a year and a half. A surgeon who comes in contact with some of the large gynecological clinics in New York recently told me that there has been an appreciable diminution in the number of cancer of the cervix cases seen in the clinics within the last few years. There is no question that cancer of the cervix is less common than it is in Europe and it is evidently not on the increase.

In regard to operability, this is a matter that depends chiefly on the experience and judgment of the individual surgeon. Dr. Cobb's operability is about 40 per cent. Wertheim's is about 50 per cent. During the last ten years at the Free Hospital for Women the operability has been 45 per cent. During the last five years my personal operability has been 55 per cent. I think, however, that I have been in my own practice somewhat too radical.

As to the general statistics of my personal cases, I have done 30 cases of cancer of the cervix, chiefly by the extended Wertheim operation. Of these cases five died as a result of the opera-

tion, a mortality that is not quite so good as Dr. Cobb's.

With regard to curability of my cases, all excepting three were done within five years so that I cannot give any figures. Of the three cases that were done more than five years ago one is perfectly well, one died from recurrence, and one has very recently had a recurrence which appeared more than five years after her operation. Of the 30 cases five died as result of operation, five have died from recurrence and five have recurrences at present. Fifteen are well today but as some of these cases have been recent it is not possible that my curability will be over 35 per cent.

With regard to cancer of the fundus of the uterus, in about 20 cases seen at the Free Hospital for Women during the past five years the operability has been 100 per cent. and there are no known recurrences after operation. Cancer of the fundus is a more benign form of cancer than cancer of the cervix because it gives warning of its presence earlier, has less tendency to metastasise and is in an easier location for operation.

With reference to technic, I should like to say a word about curetting and cauterizing before the operation. The old method was to curette and cauterize the patient first under ether and then operate a week or two later. At present most operators are curetting and cauterizing at the time of the radical operation. Dr. Cobb does this under ether; Dr. Werthein does it without ether. I still adhere to the old method, treating the patient with formalin and iodin for about a week before the radical operation.

I should like to say a word about radium. In conjunction with Dr. Ordway of the Huntington Hospital I have been doing some work on cancer of the cervix that has been treated with radium. From what I have seen I feel sure that radium is of very great value in aiding the surgical treatment of cancer of the cervix. It seems to be possible by the use of radium to make a number of inoperable cases operable, whereas in palliative treatment of recurrences I have found it very promising.

Dr. Ernest B. Young, Boston: Dr. Cobb is to be congratulated on his good results, and also Dr. Graves. They are again to be congratulated upon the fact that so many women have come under their care when a radical operation was possible. In spite of all that has been said and done and written in the last twenty-five years, it is rather discouraging to look over the records of a great hospital and find that in the last fifteen years on the gynecological service of the Boston City Hospital, there is practically no increase in the number of cases of cancer of the uterus coming to the clinic in the early stages of the disease. Some, of course, have been operated late, and palliative operations performed. I had been connected with the clinic for some time before I even saw an operable case of cancer of the uterus. In the last five years there have been about one hundred cases of cancer of the uterus, nineteen of which have been operated. All these operations, unfortunately, have not been undertaken with the hope or expectation of a cure. About ten per cent. of operability has been the average for the last fifteen years; so that in our midst, at the present time, there are a great many cases of cancer which are never seen by any one, which come into our hospital in the last stages, while quite a large proportion are seen by physicians and not sent to the hospital until they are past any cure.

Sometimes I have been led to think that the teaching in the medical schools has something to do with this problem. I know when I was in the medical school, very little was said about the fact that cancer occurred in earlier years; but there is really quite a large number of women who have cancer in early life. Out of 254 cases at the City Hospital, there were 33 women with cancer of uterus before 30 years of age, and one had an inoperable cancer of the cervix at the age of 20 years.

Any discharge or unsual bleeding needs to be immediately investigated no matter what the age. If investigation is thorough, we shall have more cases to operate upon and a larger percentage of cures to our credit.

I might say that I had what I supposed was a ureteral fistula. It appeared to be about an inch from the opening of the ureter, and was very close to the vaginal wall. The bladder in this case was covered with ulcerations and the ulcerations in turn encrusted with triple phosphate. The ureters in this case were handled carefully and there would seem to be no possible cause for any disturbance of the ureter unless from an infection coming from the bladder, or else the ureters may have been already infected. The latter is more probably the case. The patient is now alive and well.

Dr. Stephen Rushmore, Boston: My own experience with cancer of the cervix is so limited that I shall say very little about my cases, except possibly to use them as an illustration of some points which have been referred to by men who have had a larger series. I have had about 30 cases in which I have been able to carry out the more radical operation. The immediate mortality in my cases was a little less than 20%. Out of four cases done five years ago, two are living and in good condition.

In this part of the world we are generally in favor of the radical abdominal operation, but the question naturally arises,—is the operation worth while?

A very interesting contribution on the subject has recently been made by Professor v. Ott of St. Petersburg, who is an expert in the use of the vaginal method. He has devised a special technic with special devices for illuminating the pelvis, and he has reported a large enough series of cases to carry some weight. He presented

some conclusions a year ago at the International Congress. More recently he has published some results of his work. He compares his own work with that of Schauta and Wertheim. The statistics he quotes from Wertheim are not the most recent; but at that time v. Ott reported 295 cases operated on five years before, compared with 250 from Wertheim's clinic, with an immediate mortality for him of 1.7% compared with about 20% of Wertheim's; with an operability practically the same, v. Ott's being 42%, and Wertheim's 43%. The result as far as cures were concerned was 34% for v. Ott and 57% for Wertheim.

The question which he raises is—Is not the radical vaginal operation more humane than the radical abdominal?

Personally, I am in favor of the abdominal operation, but I call your attention to this because I think it is only fair to the other side to have those conclusions presented. It is said that Professor v. Ott is an extremely expert operator, and that with his special technic he has been able to accomplish a great deal.

Dr. Cobb's paper is very comprehensive and there are only a few points that I can speak of. It covers the ground exceedingly well, and gives a fair presentation of the radical abdominal operation.

With regard to whether a case is operable or not, it is only fair to the patient, as Dr. Cobb says, to give the patient an examination under ether, and an exploratory laparotomy. Some prove to be operable which at first sight seem inoperable.

Another point is, whether we should continue with the five-year limit in determining a cure. Dr. Graves speaks of one of the cases where there was a recurrence after five years. In 169 cases referred to by Wertheim, 13 cases redeveloped after five years, namely in the sixth and seventh years. He suggests, perhaps wisely, that we raise that limit to seven years.

The ideal operation is to clean out the pelvis thoroughly. It has been an ideal which operators have held for some time, but the great objection to carrying it out is the fact that the ureters cross the pelvis, and you cannot practically get along very well without them. They are not vital organs, but we have not yet found a method of getting them out of the pelvis and giving the patient a comfortable and safe existence. If that could be done, the operation would become far safer than at the present time.

In regard to the question of ureteral implantation, there is a method suggested by Coffey, which I think offers a better opportunity for ureteral work than any other method. According to his method, the ureter can be implanted into the bowel with safety.

That it can be done is shown by the fact that it has been done, though the percentage of cases without infection is smaller than we wish.

DR. JOHN T. BOTTOMLEY, Boston: I note that Dr. Cobb says he has had no post-operative ureteral fistulae following the Wertheim operation. I would like to record such a fistula which appeared ten days after operation. The cause was probably poor technic but I think the possibility of its occurrence should be mentioned.

DR. ERNEST W. CUSHING, Boston: I think we all appreciate the work that Dr. Cobb is doing; but I might be allowed to say that there is a great difference between the status of cases in big hospitals and the question which comes up with the practitioner who finds he has a case of cancer of the uterus requiring operation.

The radical method, as described, is very perfect as an operation, undoubtedly, but it has a pretty high mortality, and after a good deal of experience the question arises whether it is worth while to push the question of clearing out the pelvis, practically, as far as one would like to do theoretically. My experience has been, and others have also had it, that the question of recurrence depends more on the time the cancer has existed than on anything else. A case of only six months' duration can be operated on without so radical an operation, and with a good chance of no recurrence. A case that has lasted a year, although it may be perfectly easy to operate, will probably recur, no matter what is done. Therefore, the problem arises of balancing up the greater mortality which comes from the radical operation against the less chance of recurrence which may or may not come therefrom.

Many of the radical procedures were tried before they became so famous under the name of Prof. Wertheim, whose operation is a development of the Ries-Clarke procedure; I do not think it is any improvement on the latter. The clumsy Wertheim clamps are not so convenient as a series of small clamps with right-angled jaws such as I have used for the last 12 years, to close off the vagina in two rows, cutting across between them. The tying of the iliac arteries was much employed by the late Dr. Pryor in his cases. It is not now commending itself. I used it for some years but gave it up.

Glands found in the fork between the iliac arteries if operable are not malignant as a rule, and if malignant they can seldom be removed.

The handling of the ureters, as described, and the thorough lifting of the ureters can be done, and it is great surgery, if it does not take too long, and the patient does not die of shock and the ureter does not slough afterwards.

Substantially the removal of the uterus without tying the iliac arteries, and without such extensive handling of the ureters, will stand a better chance of satisfactory results, in cases of your private patient, recommended for operation than any surgical intervention requiring 3½ or more hours; as described in the paper to which we have listened.

II.

Cancer of the Rectum.

By Daniel Fiske Jones, M.D., Boston.

It has been my privilege to have referred to me all the cases of carcinoma of the rectum entering the Massachusetts General Hospital in the last two and one-half years. While I appreciate this opportunity, the subject has been rather a discouraging one, because of the extent of the disease and mutilation necessary in the great majority of cases, even when only a palliative operation was necessary.

I have in no way changed my opinion expressed in a previous paper, that men who talk of carcinoma of the rectum as a benign disease which does not require an extensive operation, are making a statement which they cannot substantiate.

After reading my last paper, several men quoted single cases that they had operated upon ten, twelve, or even fifteen years before, which were still alive. Practically all these cases had had what might be considered an entirely inadequate operation. I have one such case myself. These are accidental cases, and should not be considered as examples of what does occur, but rather as due to some fortunate circumstance which brought them to the surgeon early. But how often does this occur? The report of Harrison-Cripps cases, will, I think, give us some idea. He saw 445 patients and operated upon 107, of these 107 cases 17% died from the effects of the operation, and 40 were alive five years after the operation, that is 9% of the total number seen. It would be fair, I am sure, to say that not more than 5% would be alive at the end of ten years.

At the Massachusetts General Hospital, but 28% of the cases entering the hospital between 1902 and 1912, were operated upon for radical cure, eight of these, or 22%, were alive three years after operation, while only five were alive without recurrences, three or more years after operation, that is 14% of the radical operations, or 4% of the total number entering the hospital.

With such statistics as these, is it not absurd to talk about carcinoma of the rectum as a benign disease, and is it not absurd to quote a single case which has lived an indefinite number of years after a simple resection of a few inches of bowel, or after some perfectly inadequate operation, to show that the disease is benign?

It is true that the disease does remain local for a long time, but when the average time between onset of definite symptoms and operation, averages about nine months, is that not more than a "long time" to remain local?

While carcinoma of the rectum is usually a slowly-progressive disease, and late in producing metastases we must admit that by the time it reaches the surgeon, it is an *unusually fatal* disease.

It is, I believe, much better to compute the mortality in all kinds of malignant disease by comparing the number of cases alive at the end of three or five years, with the total number of cases seen, and not with the number operated upon; that is, if 25 out of 100 cases seen, are operated upon and 4 are alive five years later, the percentage of cures should be 4% and not 16%, as is generally given.

If now we admit that carcinoma of the rectum is not a benign disease by the time it reaches us, what can be done to improve matters?

First and most important, is to teach the public that while blood from the rectum may be due to hemorrhoids, or fissure, it may be, and frequently is due to a new growth.

Second, the physician should be taught that bleeding from the rectum demands a careful rectal examination. He should be shown that the results in these cases depend upon the early recognition of the disease by him, and very little upon what the surgeon does. We surgeons should be ready and willing to make it known that the good result in a case recognized early, is due entirely to the physician.

How can we expect to make any progress, when a local physician operating upon a patient eleven months before entrance, finds a thickening of the rectum, and tells some member of the family that it is nothing, but may be later? Or what can we expect when the patient after going to his physician for six months, has to demand a rectal examination?

Seventy-five per cent. of cases seen in the last two years, were treated for hemorrhoids. The average duration of definite symptoms before the patient entered the hospital was ten months.

Third, we must spread the idea among patients, physicians, and surgeons, that an iliac colostomy or sacral anus, is not such a terrible condition as they believe it to be. I am sure that some physicians and surgeons neglect to urge patients to be operated upon early, because of the dread of an artificial anus. In regard to this, I have enquired very carefully of all who have had an artificial anus, in connection with a radical operation, and all have admitted that they are bothered very little by it. All have been sure that they preferred it to remaining as they were. Their attitude is astonishingly contented. The only patient who has complained is a woman, whom I tried to persuade to have an iliac anus, but who insisted upon having a sacral anus. This woman, when she returned nine months after the operation, berated me for giving her a sacral anus, when she had recently been told by her physician that an iliac anus was better.

Fourth, an improvement in our operative procedures. It is to these procedures that I wish to call your attention, not because I can say to you that I have found the ideal operation for every case, and not because I feel that the more extensive operations have proved of great value in my hands, but because they have been worked

out on the theory that more extensive operations would give better results. That theory has yet to be shown to be an entirely correct one.

Before considering these procedures in detail, it might be of interest to consider for a moment the pathology, blood supply, and lymphatics of the rectum.

The histological characteristics of the tumor are seldom considered, yet they would seem to be of considerable importance.

Peterson and Colmers after going over a large number of specimens both macroscopically, and microscopically and then following the cases up after operation, found that in 125 cases 16.8% were cured for three years or over, and that all of these belonged to the adeno-carcinoma group. All those which they had classed as solid carcinoma, the mixed form, and the colloid variety of the adeno-carcinoma group, were dead.

Almost all of the solid forms recurred within a year, while the adenomatous forms lived for three or more years, to a very large extent. All solid or colloid forms, recurred sooner or later.

It is evident from those statistics that there would be very little use in operating upon a late case of the scirrhous or colloid variety.

The blood supply to the rectum may be divided into three groups:

1. The superior hemorrhoidal artery, which is the terminal branch of the inferior mesenteric, the main supply.

2. The middle hemorrhoidals, which are comparatively small vessels arising usually from the anterior branch of the internal iliacs. and the lateral sacrals, from the external iliacs.

3. The inferior hemorrhoidal arteries, arising from the internal pudics.

The lymphatics, which are of far greater importance, follow in a general way these three systems of vessels.

Braziew has said that the spread of carcinoma varies in the upper and lower rectum. In the lower rectum, it may spread laterally, into the lateral sacral glands, and upward, while in the upper rectum it spreads upward only.

Lymphatics of the anal canal empty primarily into the inguinal glands, but they also anastomose with the lymphatics of the lower rectum.

Miles divides the lymphatics into three zones: 1) Zone of downward spread, *i.e.* perineal skin, ischio-rectal fat and external sphincter. (2) Zone of lateral spread, including the levators, retro-rectal lymph nodes, lymph nodes, in relation to branches of the internal iliac, prostate, base of bladder, posterior vaginal wall and base of broad ligaments, with Poirer's gland. (3) Zone of upward spread, *i.e.* the peritoneal floor of the pelvis, pelvic meso-colon, para colic lymph nodes, and a group of glands at the bifurcation of the left common iliac artery.

Miles mapped out these three zones from the recurrences following four series of cases, the operation in each succeeding series being more extensive than in the preceding.

The fact that these metastases took place after an operation, in which the bowel above the growth was brought down to the skin in each case, vitiates this work to a very great extent, we believe. If it were not for this, the work would be most convincing and would make one feel quite positive that it is necessary to remove the whole rectum, sphincters, levators, the ischio-rectal fat, and a wide area of skin in every case of cancer of the rectum.

I will take very little of your time on the various operations as they have been carried out; they are numerous and all have various modifications. The only posterior operation which has stood the test of time is the Kraske, as carried out by Hochenegg and Mayo. But even this, if the lymphatic channels are any guide as to the extent of our operation, does not fulfill the requirements.

It seems to be generally admitted that the main lymphatic channels follow the course of the superior hemorrhoidal and inferior mesenteric vessel. This vessel makes a straight line from the aorta to the ampulla of the rectum, it is, therefore, impossible to tie these vessels above the promotory in the Kraske operation; it therefore follows in this operation that the lymphatic vessels and glands cannot be reached above the promontory by this route, in spite of the fact that many surgeons speak of being able to draw down as much of the bowel as they need. By this route also if the superior hemorrhoidal is tied at the promotory, and the sigmoid brought into the pelvis, there is great danger of injuring the arches from the left colic, which supply the portion to be brought down.

Another objection to this route is that the operation is usually carried out without knowing the conditions in the abdomen; many operations are therefore done entirely unnecessarily.

In my group of cases, the liver was involved in 21%, and metastases in high glands, or involvement of peritoneum was present in another 20%.

Many cases are discharged as inoperable, because of the location and size of the growth when considered from the point of view of the Kraske operation. It should be remembered that many of the larger growths are more favorable for radical cure, than the smaller growths.

But Hochenegg's statistics of 18.9% mortality, and 20% of five-year cures, makes the operation a close rival of any more extensive operation. It is moreover, the only route to use in the obese, the feeble, and those over sixty years of age.

In 1883 Czerny advocated the abdomino-perineal route, but Kraske states that König did the first operation in 1882. At various times the operation has been used but the mortality has been so high, it has had comparatively few advocates.

The so-called combined or abdomino-perineal operation, consists of two distinct steps. (1) Abdominal incision, which gives an opportunity for a thorough exploration of the whole abdom-

inal cavity, and thus frequently prevents further operative procedure, because of metastases in the liver, extensive glandular infection, or involvement of some organ. It also makes many cases operable, which seemed inoperable either from size or location.

If there is no contra-indication to the operation, the inferior mesenteric artery is tied by two ligatures and cut. The sigmoid and rectum are then dissected from the posterior wall, and the peritoneal leaves dissected from the sides of the rectum, leaving all fat attached to the rectum. The ureters are found and isolated, after which all fat and glands in the pelvis are separated from the pelvic walls and vessels by gauze dissection. In other words, the rectum, perirectal fat, with all glands in the pelvis, from the iliac vessels down to the levator ani-muscles, and the mesentery of the sigmoid with the inferior mesenteric artery, are freed en bloc. The rectum is then separated from the bladder and the sigmoid sectioned at the desired height between a silver wire and clamp after which the distal end is dropped into the pelvis, and the peritoneal flaps brought together over it. The proximal end is brought out through the wound, and attached there for a permanent colostomy. The abdominal wound is closed, and the patient put on the table, on the left side, or in the reversed Trendelenberg position, as recommended by Mayo.

Second step. The anus is closed by a suture, an incision made about it, and the dissection carried up to meet that made from the abdomen. The whole mass is then brought out through the perineal wound.

There are so many variations upon this operation that I will not attempt to go into them, but will simply mention those details which have appealed to me as essential.

In the abdomen, after the decision is made to operate, the first step is to tie off the inferior mesenteric artery, just below the colica sinistra, and cut it; the mesentery of the sigmoid is then separated from the posterior wall, and the rest of the dissection carried out as above. The reasons for this are:

1. To get all the lymphatics along the superior hemorrhoidal and inferior mesenteric arteries, and especially the gland which is generally present at the junction of the inferior mesenteric, with the aorta, as stated by Moynihan.

2. To leave the vascular arches, which will supply that portion of the bowel, it is desired to leave.

3. To give an almost bloodless dissection of the upper portions of the pelvis.

If the end of the sigmoid is to be brought down through the sphincter, or an end to end suture is to be done, the bowel is left intact and the peritoneum brought together about it. Before closing, the peritoneum on the outer side of the ascending colon and splenic flexure, should be cut and the bowel freed to insure a sufficient length of bowel to be brought through the sphincter without tension.

Great care must be used not to injure the vascular arches close to the bowel, as the entire blood supply of that portion of the bowel to be brought down is dependent on them.

Let me make it plain here, that sufficient bowel can be brought down, no matter how extensive the growth, by cutting the outer leaf of peritoneum along the descending colon to the splenic flexure, and freeing the splenic flexure. A sufficient blood supply will usually be maintained by the arches from the superior mesenteric and colica sinistra.

Below, I believe that a sacral operation is much superior to the perineal, because (1) it gives much better exposure. (2) Permits a much wider extirpation of the surrounding tissue, and a more careful dissection of the bowel from the urethra, prostate and bladder, in the male. (3) It gives a better opportunity to do an end to end suture, if that method is to be used.

If we are to get as wide a dissection as possible, the sacral method must be used, and in low-lying carcinomata, it is essential to get a wide dissection, removing the sphincter, ischiorectal fat, and levatores ani muscle.

This operation is of course, too long and severe a one for many patients to stand. We have, therefore, determined upon a two-stage operation in a few of the cases. This consists in:

First Stage. The same procedure as in previous operation, up to the point of closing the abdomen, that is, the inferior mesenteric is tied just below the aorta, the mesentery of the sigmoid is separated from the posterior wall, the ureters identified, and the rectum with all the pelvic fat is separated in one mass down to the tip of the coccyx posteriorly, while anteriorly it is separated from the bladder, or vagina. After separating the bowel in this manner, it is held forward and the peritoneal flaps brought together behind it.

Instead of dropping the sigmoid back into the abdominal cavity, the upper portion is brought out through a rectus incision, the bowel clamped by two clamps and sectioned with a cautery, great care being used not to injure the vascular arches in the mesentery.

After twenty-four hours, the clamps are removed and the distal portion cleansed by frequent washing, both from below and from above.

Second Stage. After five to seven days, the sacral portion of the operation is carried out as in the single stage operation. The sigmoid is cut off as high as possible in the pelvis, the proximal end inverted and left as an appendage to the colostomy, as recommended by Mayo in his two-stage operation. I have carried out this two-stage operation with excellent immediate results, in six cases.

There is no danger from necrosis if care is taken to avoid injury to the vascular arches, and the arteries are seen to pulsate. The bowels

move as freely and as comfortably as if no freeing up had been done. At the end of four or five days, or even a week, the adhesions formed are not sufficient to cause any inconvenience. In bringing down the bowel which has been freed, suture is more difficult because of the thickened and hardened mesenteric fat.

There is a theoretical objection to this operation which may be of some importance, *i.e.* carcinoma cells may be carried through the lymphatics and poured into the pelvic cavity through the open lymphatics, during the period of waiting for the second stage. Aside from this objection, we believe that this two-stage operation will be of great value in cases of men and feeble patients, or those in whom there has been marked obstruction.

The theoretical objection to this operation leaves one feeling rather uncertain about its value, on the other hand, its practical value is very considerable. First, because the necessity for haste is obviated, and all the time necessary to do a careful dissection in the abdomen and posteriorly can be taken. Second, the time between the first and second stage is sufficient for the lymphatics of the pelvic wall to become plugged, so that any infection which may take place during the operation below has little effect. Third, the second stage, which seems to be so disastrous in the one-stage combined operation, has little effect upon the patient when done under spinal anesthesia. Fourth, it is possible I am convinced, to reduce the mortality from 50% to 15 or 20% in men.

The question of a permanent colostomy is a very important one, and we are convinced the only rational method in a great majority of cases is to make a permanent colostomy. It is essential, we believe, in all cases in which the growth is within three inches of the anus. Braziew says two inches. It will give the best opportunity for permanent cure and the lowest immediate mortality in all cases in which the combined operation is used.

In those cases in which the growth is three or more inches from the anus, an effort may be made to retain the sphincter by bringing the end of the sigmoid down, and doing an end to end suture, or better by pulling the sigmoid through the sphincter.

The objections to restoring the canal are that the danger of sepsis from leaking faecal matter is much increased, and the danger of leaving infected tissue is very great. The temptation to section the bowel close to the growth is almost too great. That this is an important point is shown by the statistics presented by Chalier and Perrin, who report fifty cases of amputation with eleven, three-year cures, that is 22%, and twenty-seven resections with three, three-year cures, that is 11.11%.

There is one other objection to leaving the sphincter, that is, the extensive dissection in this region is very likely to leave the sphincter paralyzed, and as Mayo has said, an iliac anus is preferable to a normal anus, without sphincter control.

Bloodgood and Moynihan both say that the sphincter should be left more frequently.

Kupferle states that of twenty cases of resection, eight were continent, ten were continent for solid faeces, and two were incontinent.

Chalier and Perrin, report that except in one case of Rotter where there was incontinence, *all others were perfect!* Only a few were late in getting control: One in eight months, one in ten months, one in one and one-half years, and one in twenty-one months. In three a slight stricture was easily remedied. In three a sacral anus was established.

The discomfort of an iliac anus is, we are sure, much exaggerated in the minds of those of us who do not have to have one. I have been astonished to see the good grace with which the patient of average intelligence accepts it, and is apparently happy.

Many different methods of anesthesia have been tried, spinal anesthesia alone, spinal anesthesia with a little ether to finish the operation, spinal anesthesia combined with ether, ether alone, ether alone for the first stage, and spinal anesthesia alone for the second stage. Of these methods, spinal anesthesia for the Kraske operation in obese and old people is eminently satisfactory. In the combined operations, ether alone, or spinal anesthesia, with a little ether, if necessary, to finish the operation were very satisfactory. Combined spinal and ether anesthesia were not satisfactory. Ether alone for the first stage of a two-stage operation, and spinal anesthesia alone for the second stage is, I believe, the most satisfactory method for any two-stage operation. Ether alone for the combined operation, while satisfactory, does undoubtedly take more out of the patient than when spinal anesthesia is used to block shock.

MORTALITY IN COMBINED OPERATION.

	Total Cases.	Deaths.	Per Cent.
Chalier and Perrin	187	83	44.5
Authors having done from 6-26	208	85	40.86
Mayo	14	5	30.
Miles	42	17	40.
Rotter	25	11	44.
The Writer	19	6	32.

MORTALTY ACCORDING TO SEX.

	Total Cases.	Deaths.	Per Cent.
Manuel—Men	31	16	51.6
Women	32	5	15.6
Chalier and Perrin			
Men	107		52.
Women	80		31.2
Mass. Gen. Hos.			
Men	8	4	50.
Women	4	0	0.

RECURRENCES.

Chalier and Perrin—187 cases, 83 deaths, 85 followed, 19 lost sight of.

Of the 85 followed, 29, or 43% are dead (14 recurrences, 6 metastases, 5 intercurrent disease, 4 died of cause unknown.)

125 cases—21 alive, three years plus....16.8 %
50 amputations, 11 three-year cases....22. %
27 resections, 3 three-year cases.....11.11%

CONCLUSIONS.

1. The results obtained in carcinoma of the rectum, depend almost entirely upon the character of the growth and its duration, and comparatively little upon the operation done. That is, they depend upon the vigilance of the patient, and the vigilance and thoroughness of the physician and surgeon.

2. Certain cases where there is much tenesmus demand a radical operation, even when hopeless, simply for the relief it gives, and which is not obtained in many cases with a simple colostomy.

3. Theoretically, the combined abdomino-sacral operation is the operation of choice.

4. Practically the mortality is too high except in selected cases. Statistics of late results are not sufficiently good to warrant taking the extra risk in the obese, the feeble, and in men over fifty.

5. The combined two-stage operation, if the second stage is done under spinal anesthesia, will give a mortality between 15 and 20%.

6. A serious objection to this operation is the danger of infecting the denuded area with cancer cells brought through the lymphatics from the growth. Is this sufficient to condemn it?

7. The Kraske operation is the operation of choice in, the obese, the feeble, and patients over sixty.

DISCUSSION.

Dr. John T. Bottomley, Boston: There is but little to say in the way of discussion of this paper. In the present state of our knowledge and practice, surgery alone offers a cure for cancer of the rectum. The technical part of the work has been carried to a high degree of perfection; its surgical principles are very well developed. Yet the operative mortality is high and the percentage of permanent cures relatively low. How are we to lessen the former and to increase the latter? I see only two possible ways: first, and most important, earlier diagnosis by the profession at large. It does not always follow that even an early diagnosis means an early stage of the growth. Unfortunately cancer may exist and exist a long time without giving sufficient signs of its presence to excite the patient's attention. This will always be an important causative factor in the mortality from cancer in general. But even when the signs are striking and indicative, the diagnosis is often delayed by the failure of the patient's medical adviser to make a proper examination. Every patient complaining of a rectal pain or of rectal bleeding or of both should have a careful visual and tactile examination made. A large proportion of cancers of the rectum are within reach of the examining finger introduced through the anus. The diagnosis of simple, uncomplicated hemorrhoids should be made chiefly by exclusion. It is to be always remembered that hemorrhoids may exist with or without rectal cancer. Consequently, there is little excuse for omitting a digital rectal examination even in a case of very evident hemorrhoids; there is still less excuse in a case presenting rectal symptoms without any evidence of hemorrhoids. Even in young adults the possibility of cancer must be remembered. I have seen an inoperable cancer of the rectum in a woman twenty-four years old.

Secondly, a large operative experience in this field is the only thing that can make a surgeon familiar with its technic. Moreover, it is the only thing that will give a man the judgment requisite for deciding in favor of or against operation or in choosing this operation over that. Consequently, this work should fall into the hands of relatively few men, if we are to gain any advantage in a technical way.

In a broad way, we shall see no further advance in technic; the freeing and pulling down of the sigmoid and the introduction of spinal anesthesia for the doing of the perineal portion of the operation have, I believe, brought us to our ultimate point. It is only through the perfecting of individual technic that we can make headway in a technical way and because of that fact relatively few men should be given the work. No advantage should be neglected in our fight against cancer.

Dr. Ralph W. Jackson, Fall River: No doubt none of the more frequent sites of malignancy is worse than the anus, rectum and pelvic colon, and nowhere is the percentage of recoveries from surgical interference smaller. The best men here and abroad have published valuable but disheartening data in regard to such surgery, and we must appreciate Dr. Jones' attack on the problem in our own community and his collation of the results of his own and others' work, with practically the same conclusions.

Early operation before extension by continuity or metastasis and retention of normal function are ideal, but nearly impossible where curative surgery cannot even be considered in over one-third of the cases diagnosed. Failing of the ideal, we have left either attempts to cure without preservation of function, or simple palliative transference of function without effort at cure. Here is the only debatable ground till earlier diagnosis is possible, for there can be no question of the perfection of operative detail as presented by the paper today.

In London three years ago I watched for four months the work of three of the men whom Dr. Jones has mentioned in his published paper, viz., Edwards, Mummery, and Miles at St. Mark's

and the Gordon (both exclusively rectal hospitals) and at the Cancer Hospital; saw much of the results of the older operations and also the newer radical procedures, of which Mr. Miles is the best English exponent; and had opportunity to reach some conclusions.

I believe that the perineal and sacral methods are seldom justifiable and almost never without exploratory laparotomy to eliminate the possibility of intra-abdominal metastases, and that attempts at preservation of the normal anus are unwise in any type of operation. From observations of the work and writings of the Mayos one must conclude that they are most reluctant to destroy the sphincters. Yet in a reprint received from Dr. William Mayo within the past week he says, "As I look back over experiences in operating for cancer of the rectum in our clinic, I am tempted to say, and probably without much exaggeration, that a large percentage of the operative deaths and recurrences has been due to an attempt to conserve function, and, therefore, I can sympathize with those surgeons who believe that patients must sacrifice control in practically all cases as the price they pay for a reasonable chance of cure."

That the expectation of life is distinctly better when extirpation is coupled with permanent colostomy is well proved; but how low even then is the number who will be alive at the end of five years? Not over one in ten at the best estimate. How much worse would the prognosis be if the same cases were treated by simple colostomy without radical operation? I have now under monthly observation a patient on whom two years ago I did a colostomy through the left rectus for a carcinoma which was possibly on the operable border line. He is well, has gained fifteen or twenty pounds, his artificial anus functionates perfectly and the growth extends but very slowly; he has had two years of happiness and looks good for at least two more. Would he have been as well now, or here at all, if he had been radically operated? I doubt it. Such cases are not exceptional and show that a properly located and cared for colostomy should not be seriously dreaded and is infinitely better than a damaged natural outlet; and further, that, if the truth could be told, the expectation of life and comfort are often best without radical surgery.

Certainly one's conclusions as to the present outlook for the permanent cure of rectal cancer must be rather pessimistic, and the prognosis can only be improved by driving home to every practitioner the necessity for being alive to the insidious early symptoms of such growths, and by overcoming the natural reluctance of the victims to submit to the radical interference which seems to them disproportionate to the symptoms of early malignancy. Otherwise we cannot prevent the usual and fatal migration of such patients from doctor to doctor till it is too late for successful surgery.

Dr. Lund: I have been very much interested in this subject for some years. I have not anything to add to what Dr. Jones has said except to confirm one or two points from my own experience. One is that the combined operation is the ideal operation in thin women. It can be done without any shock, and without as much trouble as a total hysterectomy. It is the operation of choice. I did one eight years ago which is well now, and another one three years ago.

I was pleased to hear him say that you must not think of these operations in men over sixty years old. I have done them in men over sixty, to my great regret. If a man of that age has a cough after these combined operations, he is pretty uncomfortable, and in old men especially, the combined operation is not to be considered; but the Kraske operation gives them a good chance with very little shock, and I have several cases alive and well from three to five years after operation. The disadvantage of the Kraske operation is that you do not find out what is going on in the liver, but you can tell a good deal by the patient's condition.

The combined operation in the two-stage extends the operability to a large number of cases, and in the first stage you get a good chance to explore the abdomen.

In cancer of the rectum, I think that we have reason, on the whole, to feel encouraged rather than discouraged. I have many patients well and happy with inguinal ani, and others with Kraske's, who are perfectly comfortable.

Dr. Jones, in closing: I would like to ask one thing of the gentlemen present, and that is that each one of you will make an effort to spread among the people of the community in which you practice, the idea that blood from the rectum is a very serious symptom. I do not believe that it makes a great deal of difference at the present time as to whether you perform a Kraske or a combined operation, for the cases are beyond the possibility of a permanent cure when they come to operation. About 96% of the cases seen by a surgeon will be dead at the end of ten years, whether the Kraske or combined operation is used, and unless you gentlemen will spread the idea that hemorrhage from the rectum is a serious symptom, and unless you urge the physicians in your community to make rectal examinations more frequently, there will be no great improvement in the statistics of these cases.

The Kraske operation is an excellent operation, and I would not have you for a moment think I advise discarding it, but I think the combined operation would give better results if we get the cases when they are operable. The mortality can be brought down by selecting the cases carefully.

I am sorry that nobody spoke of the danger of the two-stage operation, which I am afraid amounts to something,—how much I do not

know. However, I am perfectly positive that it will reduce the immediate mortality from 50% in males to about 20%; but even then I do not think the combined operation should be used in men over sixty years old.

III.

Cancer of the Bladder.

By Arthur L. Chute, M.D., Boston.

I shall devote the time at my disposal to considering malignant growths that have their origin in the bladder. I shall not consider the papillomas nor those growths that, taking their origin in the prostate or elsewhere, come to involve the bladder secondarily. I have found in my records twenty-nine cases of primary carcinoma of the bladder in which the history and examination are fairly complete. I have made use of this series of cases largely in the preparation of this paper.

The story of carcinoma of the bladder is most discouraging when we consider the small number of cures that we effect by means of operation. For instance, of my twenty-nine cases of cancer of the bladder eighteen were operated upon, and of these six only are now living. One is living and well after a period of three years; one has a recurrence, but is in fair condition two years after operation. The other four have been operated upon within a year. Of these, two had palliative operations only and are sure to recur. Another had a very extensive resection of the bladder and ureter, and while this patient is well now, it is a case in which I feel that a permanent cure is not probable. The fourth case is apparently a favorable one, and one in which, up to the time of preparation of this paper, I should have had reasonable hope of permanent cure; now I do not feel so sanguine.

It will thus be seen that the percentage of cures in this series of cases is very small. There is, in fact, but a single case that measures up to the usual standard required in order to use the term "cure" in connection with cases of malignant disease that have been treated surgically,—that is, instances where an interval of three years has elapsed following operation without any sign of a recurrence. There are just enough cases that remain well after operation to allow us to say that cancer of the bladder is not absolutely hopeless and to spur us on to renewed effort in the hope that when we have a clearer understanding of the condition our results will be better. It is needless to add that without operation the outlook in these cases of cancer of the bladder is absolutely hopeless.

Though results have been discouraging when considered from the standpoint of permanent cure, yet the palliation given in many cases where cure has not been attained, perhaps not even attempted, has been very well worth while. The difference in the suffering of a patient who dies of the exhaustion and sepsis due to a malignant ulceration of his bladder, and the progressive weakness of one who dies from cachexia due to visceral metastases is very great and much in favor of the latter.

While I think my results in this series of cases are not up to the average and give a little too discouraging picture of the results, yet in any series of cases of bladder tumors in which the papillomatous cases have been excluded, the ultimate death-rate will be found appalling and the percentage of cures discouragingly small. The fact that any cases get well indicates that there must be either certain conditions or else certain methods of operation that are favorable for bringing about a cure. As the most favorable case that I have had was the one that was recognized practically the earliest, it seems fair on this score, as well as on the general principle of the surgical treatment of malignant disease as a whole, to assume that the early recognition of malignant disease of the bladder is an essential for its successful treatment. The very first essential then for success in these cases is early recognition. The difficulty with early recognition of malignant disease of the bladder is not so much that this condition does not give symptoms,—though this may exceptionally be the case,—as that it does not give symptoms that are characteristic. People too often expect with cancer of the bladder characteristic and pronounced symptoms at the outset,—the time we are most anxious to recognize it, since it is the time when operation is most favorable. As a matter of fact, in most instances the symptoms at this time are neither pronounced nor characteristic. They are simply the same symptoms that we may see with other bladder or renal conditions. The symptoms that one might say come nearest to being characteristic of cancer of the bladder, such as the passage of the little phosphatic cancer caps and the occurrence of pain in the distribution of the pelvic nerve trunks, more especially the sciatic, are indications of advanced disease. The latter symptom, in fact, I have usually looked upon as an absolute contraindication to anything other than attempts at palliation.

The age of a patient may help us somewhat in arriving at a probable diagnosis. Thus, I have never seen cancer of the bladder in a patient under thirty. I have seen but two cases between thirty and forty, and but three between forty and fifty. On the other hand, I have seen nine between fifty and sixty, ten between sixty and seventy, four between seventy and eighty, and one above eighty. It will thus be seen that the probability of cancer of the bladder in a person under fifty years of age is relatively small, though it may occur.

The symptom which a very large proportion of these cases have shown is bleeding. Bleeding is perhaps not so invariable in these cases of cancer

as it is in the cases of papilloma of the bladder, but is very common. It is mentioned as having been present in twenty-three of my twenty-nine cases, and it may easily be that it was present in still other cases in which no definite mention of it was made,—that its omission was due to an oversight in taking the history. In the cases that have presented bleeding, this has often taken place over a long period. In some instances it has preceded the other symptoms by a number of years, so long before in certain cases that one wonders if the bleeding was really due to the growth or was due to some unrelated condition. There is, as a rule, nothing characteristic about the type of hematuria seen in these malignant cases.

Most of the cases of bladder cancer complain of pain sometime in the course of the disease, but this has not necessarily been early, and again this pain has not been characteristic. The presence or absence of pain as a symptom will depend largely on the location of the growth. Thus, a mass that is at the vertex of the bladder or in the posterior wall sometimes will not give pain for a long time and occasionally will give practically no pain at any time. On the other hand, growths that begin near the bladder outlet usually give pain early in their course. It can be said that bladder pain coming on without evident cause in people above fifty, and increasing almost imperceptibly, is suggestive of malignant disease. The rule in inflammatory conditions is that the onset is sudden, while with malignant disease the reverse usually holds.

There is no condition of the urine that is characteristic. In some cases it is practically normal in the intervals between attacks of bleeding; in others it will contain constantly a few blood capsules and an excess of epithelial cells. I have, on several occasions, seen cells that presented what I believe were myotic figures; but then, too, I have occasionally seen such cells in cases that did not have malignant disease. In advanced cases infection is common, and there is an odor that is almost characteristic that often accompanies infection and necrosis; but this comes only when the disease is advanced,—where diagnosis is evident as well as almost useless.

I have been accustomed to make, as a test of the efficacy of symptoms alone in arriving at a correct diagnosis, a provisional diagnosis from the symptoms before making my cystoscopic examination. I find that, though I can in a certain number of cases make a correct diagnosis from the history and symptoms alone, yet in a considerable number of cases I cannot,—too large a proportion of cases to allow me to put any more than suggestive value on the history and symptoms.

For early diagnosis in cancer of the bladder one must depend on cystoscopy; and considering the impossibility of making a diagnosis from symptoms alone, very mild symptoms should be sufficient to lead one to urge cystoscopic examination, especially in people over fifty. For men above fifty another confusing element comes in that makes cystoscopy especially important. A considerable number of men of this age have a prostate that is hypertrophied to a greater or lesser degree. One must guard against accounting for symptoms that really arise from a beginning bladder growth by attributing them to the prostate. We have, to be sure, hematurias of prostatic origin, but bleeding does not occur so often with this condition as it does with carcinoma of the bladder.

Well marked cases of cancer should be easy to recognize cystoscopically, especially when there is an area of normal bladder surface with which to compart the diseased area. The raised edge, the irregular surface often covered with bits of adherent clot, the ulcerated areas, the places with sloughs adhering, all make a picture that is pretty distinct. The very early cases do not, however, present so clear a picture. They may simply present a slightly raised surface that is roughened or granular looking. This surface may be seen to be oozing, or, if not oozing, is found to bleed easily. It is at this stage, where a diagnosis is most difficult, that we are most anxious to recognize these growths, and must occasionally make repeated cystoscopic examinations. I do not believe that taking bits of a bladder tumor for microscopical diagnosis, by means of an operating cystoscope, is a measure that should be employed often. The mass of tissue removed is, at best, very small, and may lead to wrong diagnosis. If the cystoscopic picture is such as raises the question of malignancy the wiser procedure will be the thorough investigation of the area with the bladder open. If we are going to operate upon these patients early, we must take the chance of making an occasional mistake and opening a bladder unnecessarily. It is slight when compared with the graver error of letting a suspected growth remain until its appearance is definite.

It is, of course, absolutely unwarranted to conclude that because a patient with bladder symptoms looks well, has a good appetite, and has not lost weight that he cannot have a cancer of the bladder. The same applies to the absence of inguinal lymph nodes, upon which I put but little importance at best. The absence of these signs may mean that a patient has not an advanced growth, but it can never mean more. I have repeatedly seen people whose general condition was excellent, who presented well marked examples of cancer of the bladder.

If one has recognized a carcinoma of the bladder, the question arises as to whether his treatment shall be palliative or radical. Unfortunately, in a disease which shows no pathognomonic signs early in its course, and the seat of which is so effectually hidden from ordinary examination as is the case in cancer of the bladder, we shall always have some cases that have progressed to a point where they are not suitable for

radical treatment before they are recognized. As, for instance, those that present a brawny induration at the sides of the pelvis with pain referred down the legs.

Our palliative treatment will be of two sorts; first, that which may be spoken of as of the medical type, consisting in the use of drugs, retention catheters, and possibly radium; second, surgical palliation, which may consist in the application of the high frequency current through a cystoscope, or the partial removal of the growth by curetting or cauterization, with or without the establishment of a permanent fistula. These methods of treatment are naturally unsatisfactory from the surgical point of view, but as I have stated before, they often give a freedom from pain that is most grateful.

Our attempts at radical treatment must consist at the present time in the removal of the diseased part of the bladder with a wide margin of healthy tissue. There is no particular operation that serves equally well for all the cases. Thus, while the trans-peritoneal resection is especially adapted for growths of the vertex of the bladder and of the posterior wall, it has no particular advantage in removing growths near the bladder outlet.

The recent study of my material on cancer of the bladder has brought out several points which have not been clear to me before, and which I believe should modify our operative technic materially. In these cases of cancer of the bladder, we have been content with simply removing the growth,—the primary focus,—with as wide a margin as possible, but have done no more. This local removal we have gradually made more sweeping, but I am by no means sure that this has been attended with a corresponding increase in the number of cases cured. An autopsy, performed some little time ago on a patient on whom I had carried out about a year before a trans-peritoneal resection of the bladder, was most instructive and suggestive to me. Though at operation I had found no lymphatic involvement, there were, at autopsy, metastases with huge masses of cancerous glands all through the abdomen. In three other cases that I have seen more or less recently, I find that my notes mention an involvement of the glands in the abdominal cavity. It has been held that metastasis takes place late in cancer of the bladder. I doubt if this is necessarily so; and I believe that our operations cannot in most instances be considered radical unless we take into account this lymphatic involvement. I believe the condition is probably this: that so long as a growth is confined to the mucous layer of the bladder there is probably no lymphatic involvement; that the moment it invades the deeper layers we have lymphatic involvement; that when this has taken place the lymphatics of the pelvis must be removed, no matter how small the original focus is, if we are to cure our patients. I believe this accounts for what has been observed repeatedly, namely, that freedom from recurrence sometimes comes in those patients whose original operation has been most inadequate according to our present views. My belief is that these were cases confined to the mucosa; that the disease had not gotten into the deeper layers and consequently the lymphatics were not involved; and that the operation, though inadequate according to our present views, had destroyed completely the original focus confined as it was to the mucous membrane.

This study has completely modified my views on still another point. I have felt that total cystectomy was a mutilation that was rarely justifiable, but as I found in ten of the twenty-nine cases I studied that the growth began at or very near the bladder outlet, where it would be impossible to remove it adequately without removing the outlet, it seems to me that it becomes necessary to consider total cystectomy with its dangers and difficulties if we are going to make an intelligent surgical attempt at radical treatment in these cases. It may be that the final decision will be that these cases that begin near the outlet are unsuited for attempts at radical cure,—that I cannot say. As yet, I do not believe we have enough knowledge on this point to answer this question definitely; but I do feel that we must accept total cystectomy temporarily at least, as a necessary part of any attempt at radical treatment of malignant disease near the bladder outlet.

There are only two points in the actual technic that I wish to call to your attention. One is the very large amount of bladder that you may remove,—practically all but the trigone,—and later have a bladder that will hold a considerable amount of urine. The other is the advantage, in resection and transplantation of the ureter, of fixing a large ureter catheter into the resected ureter. I have left one for ten days or more without any apparent disadvantage.

I regret that my paper should contain so much of hypothesis rather than consist of an orderly exposition of well recognized and accepted rules; but I believe our present treatment of cancer of the bladder is inefficient and does not follow the generally accepted surgical rules for the treatment of malignant disease, in that it fails to pay any attention to the lymphatics that come from the diseased area. We must either content ourselves with this inadequate method of treatment, which amounts to little more than palliation, or reach out for new ways. I believe that the early and wide removal of the focus of disease, combined with a dissection of the pelvic lymphatics is the rational course to pursue. I believe it will be followed by better ultimate results than we now obtain. I am not unmindful of the fact that this procedure would be both dangerous and difficult.

IV.

CANCER OF THE PROSTATE.

BY HORACE BINNEY, M.D., BOSTON.

THE rapid growth of prostatic surgery during the past decade has brought about a change in our opinions regarding carcinoma of the prostate, especially on two points. These are: first, the frequency of the disease in comparison with simple hypertrophy; second, the possibility of complete removal of the disease in some cases. As a result of this altered opinion as to its frequency,—it being now accepted that carcinoma is a more common disease of the prostate than was believed ten years ago,—and from the occasional report of a case of prostatectomy for enlargement of the gland, found at or after operation to be due to cancer, and resulting in a freedom from recurrence for a period of several years, there has naturally arisen among surgeons a greater and more general interest in the subject. Recent literature contains, therefore, a large number of more or less valuable articles, some of them based on a sufficient number of observations to be of especial importance. It is my purpose in this paper to attempt to crystallize the views expressed in the more important of these articles, and to mention some facts which have been brought home by the writer's personal observations.

With regard to the comparative frequency of cancer and simple hypertrophy, the conclusions of Albarran, who found evidence of cancer in 14% of his cases, are now considered as underestimating the true proportion. His report seems to have been based on observations of cancer developing in the presence of benign hypertrophy, and therefore not including cases of enlargement purely cancerous. In this country, Young, Wilson and McGrath, and others have found a somewhat higher proportion. Of 486 cases at the Mayo Clinic, Wilson and McGrath found 73, or 15½%, to be cancerous, while Young, in recent reports, gives steadily rising figures, varying from 10% in 1906 to 28% in 1913 (the figure given in his article in the last volume of "Keene's Surgery"), and based on about 700 cases of prostatic enlargement. Moullin in 1909 stated that cancer occurred in 25% of his series of cases. While these latter figures may ultimately prove too high, we can certainly safely conclude that cancer occurs in 15% to 20% of all so-called hypertrophied prostates.

As in the case of simple hypertrophy, no new light has been shed upon the question of etiology. The quickened interest in the study of the pathology of the prostate has brought out a number of new doctrines regarding the mode of origin and character of the carcinomatous growth, unfortunately somewhat conflicting, but on the whole adding much to our knowledge of the pathology. Albarran and Hallé's theory of carcinomatous degeneration of benign hypertrophy, which they termed "epithelioma adenoide," held sway for a time, but has lost weight in the face of the evidence brought out by Young and Geraghty in their extensive study of the pathology. The latter have demonstrated that in a large proportion of cases the carcinoma arises in the posterior lobe, beneath the posterior capsule, and not in the lateral lobes, which they have shown are the usual site of origin of benign hypertrophy. Posner also questions the possibility of malignant degeneration occurring, but believes that the two conditions may develop side by side. Young likewise states that in about one-half of the cancerous prostates treated by operation, nodules of benign hypertrophy are found ("Keene's Surgery," Vol. iv). The belief, therefore, that carcinoma and benign hypertrophy are separate in their site of origin seems to be gaining ground.

While the fact that carcinoma arises in the true glandular tissue of the prostate needs no corroboration, it is interesting at least to note that Posner finds new evidence to this effect. In testing a newly found staining method for lipoid substances, he was able to demonstrate their presence in the gland epithelium, of pathological as well as normal prostates, from which he concludes that carcinoma as well as benign hypertrophy must develop from the prostatic glandular elements.

Previous to the illuminating work of Young and Geraghty, our ideas as to the mode of progression of carcinoma, at first in the gland, and later outside of it, were somewhat vague. They have shown how, starting usually in the posterior lobe, the disease develops as one or more nodules beneath the posterior capsule, which, with the fascia of Denonvilliers close behind, acts as a barrier to the growth in that direction. Sooner or later the cancer cells invade the lymphatics accompanying the ejaculatory ducts, by which the disease spreads to the space just above the prostate between the seminal vesicles and beneath the trigone, which becomes elevated, but rarely does the disease actually invade the bladder mucosa. The classical picture of the disease at this stage is that of a general involvement of the posterior portion of the gland, with induration extending upward in the region of one or both vesicles, in the latter case forming an indurated mass just above the prostate, its upper margin concave, with lateral masses extending outward and upward toward the sides of the pelvis. Following the lymphatics with greater or less rapidity, the disease reaches the iliac glands, and from these it may form metastasis in a great variety of structures, the most frequent being the superficial inguinal glands, the retroperitoneal glands of the upper abdomen and thorax, the spine, with occasional involvement of the long bones. In one case which I was

able to follow, the earliest sign of metastasis was an enlarged supraclavicular gland. According to Young, in 50% of the cancerous prostates nodules of simple hypertrophy are found also. A downward growth toward the membranous urethra is usually late and practically never actually invades the urethra.

The gross appearance on cut section is so characteristic in typical cases that differentiation from benign hypertrophy is easy. Where the type is more that of adenoma, and the malignant change is at an early stage, the microscope is necessary for diagnosis. Also in chronic prostatitis, the gross appearance may be misleading, although clinically the two conditions are usually quite distinct.

As a minute description of the histology is not permissible in this brief paper, I would simply mention the different types of diseases as given by Kaufman. They are adeno-carcinoma, scirrhous (carcinoma solidum simplex) and medullary, in the latter type the cells being larger and more irregular. Prostatic concretions are not commonly found in carcinoma.

While recent studies have, perhaps, added little to our knowledge of the symptoms of the disease in general, they have, however, given us a clearer picture of the symptomatology in its varying phases as the disease progresses, and enabled us to classify, more exactly than formerly, the evidence, subjective and objective, according to the stage of growth. The disease may, for this purpose, be divided into three stages: first, initial stage, in which the carcinoma is limited to a small area within the prostatic capsule; second, the stage of beginning extra capsular involvement when the disease is spreading along the ejaculatory ducts towards the trigone and seminal vesicles; third, stage of metastases.

First stage. Unfortunately the symptoms here may be so slight that the patient is not sufficiently aware of any change to lead him to consult a physician. A slightly increased frequency of urination or disturbance of the sexual function may, at his age, appear to him as natural and so be disregarded. In a certain proportion of cases, probably 10% or greater, the frequency becomes marked enough to attract attention, or pain arises due to pressure of the growth upon nerve fibres within the prostate. Examination reveals a hard nodule or an indurated area in the prostate sufficient to arouse suspicion. I have seen one such case recognized and operated upon in the first stage five years ago, and the patient is now in good health. The symptoms in this case were slight frequency and occasional pain in the bladder region on urination, of six months' duration. There had never been any difficulty, blood or even turbidity of the urine. (This case will be referred to later in discussing treatment). Desnos reports three cases in which frequency had existed for six months to three years, the disease recognized and a simple removal of the prostate gland only resulted in a "cure," which has lasted five years in the longest, six months in the most recent case. From the rapidity with which the growth reappears when not wholly removed, it seems certain that these four cases were recognized before any extension beyond the prostatic capsule had occurred, and that therefore the cure will be permanent. Inasmuch as the functional result, as regarding urination, of such an operation leaves nothing to be desired, the recognition of these cases in the first stage is all important. As the duration is often but a few months, early operation offers the only chance of a cure of the disease without impairment of the bladder function, such as follows any radical removal of prostate, vesicles and trigone.

Second stage. Here the enlargement of the carcinomatous area produces more marked urinary symptoms. Frequency, difficulty in urination, and even retention of a transitory nature, are common. Sooner or later radiating pains in sacrum, hips, thighs, or occasionally sciatic regions are noted. This is due to involvement of the prostatic nerves in the growth, and the pains are referred to other regions whence nerves run to the same segment of the cord as the prostatic nerves. Bryan states that the nerves carrying the stimuli are the pelvic plexus of the sympathetic, and the internal pudic by the third and fourth sacral nerves. In one patient who complained of intense sacral and lower dorsal pain, the pathological examination showed the cancer cells invading nerve sheaths. If the growth has extensively invaded the trigone and base of the bladder, hematuria may be present. This symptom was formerly considered as pathognomonic of cancer, but recent authors agree that it is rare in the early stages, and when abundant, indicates a late stage with ulceration of the trigone. It was absent in the early cases reported by Desnos. In Young's series of 111 cases, hematuria occurred but sixteen times. As may be the case with other organs, carcinoma of the prostate may exceptionally progress through the first two stages without causing any symptoms whatever, so that the first evidence noted is that due to the metastases.

Third stage. The development of metastases is so erratic and uncertain that no regular symptoms belong to this stage excepting those due to the primary growth, causing the urinary difficulties mentioned above in a greater or less degree. Invasion of the iliac lymphatic glands may give rise to intestinal obstruction due to adhesions of the lower intestine to the mass or from pressure exerted by the latter upon the sigmoid, as happened in one of my cases. Rarely the upper rectum is surrounded by lymphatic invasion causing stricture. The list of symptoms due to development of metastases, scattered as they may be throughout the lymphatic and osseous systems especially, would form too long a catalogue for this paper. Death usually re-

sults from cachexia, and uremia resulting from ureteral obstruction by pressure of lymphatic growths in the pelvis.

Coming to the diagnosis of prostatic cancer—the phase of the subject of greatest interest to physicians in general—the most constant and suggestive diagnostic point is that obtained by the rectal examination, namely, induration of the whole or part of the posterior surface of the prostate. Unfortunately, however, the symptoms do not always direct the examining physician's attention to the prostate. Many a case at the outset gives a story of vague neuralgic pain, not associated necessarily with urination, or complains of only slight frequency or urinary difficulty. The physician is easily led to attribute the pain to some extra-prostatic cause, or to assume, in a patient approaching or somewhat past 60 years, that there is simply a beginning simple hypertrophy, which can be palliated until the symptoms become aggravated. His rectal examination—if one be made—may be conducted with too great a regard for the patient's comfort to detect a small hard area, only revealing the possible moderate enlargement which masks the true condition, unless the examination is thorough and deliberate. With the possible proportion of one in every four or five enlarged prostates in elderly men, being malignant, it is evident that our responsibility is as great, if not greater, than in the diagnosis of tumors of the female breast. Therefore, a careful rectal examination should invariably be made (1) in men over 50 years of age, complaining of frequency, irritation, or difficulty in urination, however slight; (2) in men suffering from neuralgic pains in any part below the level of the umbilicus whether or not urinary symptoms are present.

This brings us to the consideration of the signs on which the diagnosis depends. Inasmuch as the prostate can be better palpated with the bladder empty, it is advisable to test for residual first. Therefore, after the usual search for superficial glands, metastatic tumors in the abdomen or pelvis, our routine should be (after the patient has voided all that he is able to)—pass a small rubber catheter and measure the quantity. In early cases the residual may be slight, but there is practically always some present if the case has progressed at all. The ease or difficulty of passage and amount of pain caused are to be noted as indices of the extent of compression of the prostatic urethra. Then, with the patient in the knee-chest or bent over position, make the rectal examination. The points to be noted are so well summarized in an article by Willan, that I quote freely from him:

"A. PROSTATE.

"1. Whether enlarged or not.

"2. If it is bilobed, or is the median sulcus obliterated?

"3. Consistency,—whether the prostate is soft, elastic, hard or stony hard.

"4. Its surface,—whether smooth or nodular.

"5. Is it fixed to the wall of the bony pelvis?

"B. SEMINAL VESICLES.

"Are the seminal vesicles indurated or the space between them?

"C. LATERAL PELVIC WALLS

"Examine these to determine the presence of infiltrated lymphatic glands."

The most reliable signs pointing to carcinoma are hardness, nodularity and fixity of the gland. There are, of course, exceptions in which these signs are lacking, and as Young points out, the gland may contain soft benign growths covered posteriorly by a layer of carcinomatous tissue, not thick enough to give the characteristic hard consistency. Again, the surface may be smooth and no definite enlargement present, but even here the altered contour of the gland and lack of median sulcus should arouse suspicion.

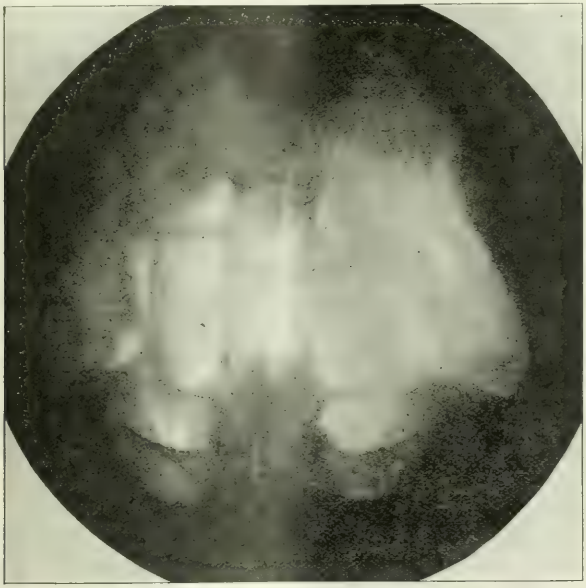
The presence of a clear, or almost clear, urine should not prejudice us against cancer. I have seen four cases in which symptoms have existed from six months to three years passing clear urine. In Willan's cases, hematuria was present in 30% only; in Young's in 14% when first seen.

The value of cystoscopy has of late years been frequently emphasized, and it is often the final criterion clinically between malignant and benign conditions. Since the instrument is necessarily not in general use among the profession, a minute description of cystoscopic appearances will not be given here, and I therefore dismiss this subject with the general statement that in carcinoma, the bladder picture may be normal, or if the infiltration has reached the trigone, the latter is elevated and rough. If not accompanied by hypertrophy of one or more lobes, there will be lacking the characteristic prominences about the internal urethral meatus present in simple hypertrophy.

To the practiced finger, additional evidence is offered by the palpation of the gland through the rectum, with the cystoscope or a sound in the urethra. The suburethral thickening in the prostate itself or infiltration beneath the trigone are then easily detected.

There are, of course, other conditions besides simple hypertrophy which give rise to symptoms and signs more or less like those of cancer. The more important of these are chronic prostatitis, abscess, tuberculosis, and stone in the prostate. While chronic prostatitis is characterized by induration and some enlargement, the gland is rarely as hard as in cancer, and the two lobes remain more distinct, the median sulcus being retained. In exceptional cases the microscope only will settle the diagnosis. Abscess usually occurs as a result of urethral infection and in younger patients than does cancer. (The signs present may be extremely deceptive as in a case I saw

operated upon for complete retention. The patient was a young man, who had suffered from urinary difficulty for some weeks, had no fever, but had a greatly enlarged and very hard prostate. Suprapubic cystotomy was done for drainage and exploration, resulting in the evacuation of a pint or so of pus from the prostate. There was no neoplasm whatever.) Tuberculosis also is rare at the age of carcinoma, gives evidence of the process elsewhere as a rule, as in the epididymis, vas, or bladder, and should rarely be confused. One doubtful case has come under my notice, a single, very hard nodule present in the prostate being the only sign; the diagnosis of tuberculosis was made at operation. Calculus occurs at the same time of life, and may easily be mistaken for carcinoma, the diagnosis being settled only by radiograph or operation. I recently examined a patient whose only symptom was dull sacral pain after exercise, and I found a very hard nodule in each of the lateral prostatic lobes. An x-ray showed multiple calculi filling the whole prostatic region.



Prostatic Calculi, Simulating Cancer at Rectal Examination.

Sarcoma occurs usually at a much earlier age, produces a very large tumor, and is much more rare than any of the above diseases.

The prognosis in carcinoma of the prostate will remain bad until men over 50 years of age have learned to regard slight urinary warnings and consult a trained physician promptly, or until a positive cure for cancer is discovered. Even such a utopian condition will not avail in the occasional case where urinary symptoms are lacking in the early stages.

Willan followed sixteen cases and found the average duration of life to be two years and four months from the onset of symptoms. The extremes were one month and five and one-half years. A general rule mentioned by Desnos is worth remembering: The younger the patient the more rapid the course. In other words, a man of 70 with carcinoma of prostate has a chance of slower progress of his disease than one of 50.

The treatment of prostatic carcinoma is best considered according to the stage of the disease as defined under symptomatology.

First stage: That early carcinoma can be removed satisfactorily, and, in the light of those cases mentioned in this paper which were operated upon and in good health at the end of five years, with much assurance of permanent cure, cannot be gainsaid. This can best be accomplished by the perineal operation, which allows thorough exposure of the suspicious nodule, removal with a wide margin of healthy prostatic tissue, and an immediate pathological examination, followed, if positive, by removal of still more prostatic tissue when necessary. Such an operation leaves the urethra, bladder neck and sphincters intact, and normal urination is retained. Needless to say, the operation is valueless as a curative measure after the growth has begun to spread beyond the prostatic capsule.

The following case, alluded to above, illustrates what can be accomplished by early diagnosis and prompt conservative operation:—

Mr. W. C. G., consulted Dr. A. T. Cabot in April, 1908, the history obtained being as follows: Four or five years previously troubled for some time with nocturnal frequency of micturition, which was relieved by alkalies. A few months ago began to have frequency both day and night, varying in degree. Urine clear. Examination showed the prostate slightly enlarged, of normal consistency save for a small hard area on posterior surface of right lobe.

The case was seen at frequent intervals for the next three months, and although the symptoms improved under urotropin, the nodule in the prostate increased slowly in size. X-ray (for calculus) and the tuberculin test proving negative, operation was decided on. July 22, 1908, perineal prostatectomy. The nodule was first removed by an elliptical incision with a margin of healthy tissue surrounding it, was examined at once microscopically by Dr. Kidner and pronounced "probably malignant." The remainder of the right lobe was therefore partly shelled out, and partly cut away with prostatic forceps, and the left lobe removed in the same manner. Considerable thickening about bladder neck also cut away, leaving a cavity with no indurated areas in the wall, and nothing but soft tissue about bladder neck. Drainage by wick and tubes. Normal convalescence. Pathological report (Dr. F. C. Kidner): "Early adenocarcinoma of the prostate."

He reported in October, 1908, as well, having had no trouble except occasionally a minute sinus at site of drainage tube opened up and a small amount of "leakage" occurred. On November 20 this had healed, urine was clear, the prostate reduced to a small soft mass. A No. 26 sound passed easily and there was no residual urine.

January, 1910. Has had a few attacks of epididymitis since the operation; otherwise well and no urinary symptoms.

May, 1914. No return of urinary trouble of any kind. In good health.

Second stage: Where the growth has invaded subtrigonal lymphatics, or reached the seminal vesicles, operation is not to be advised, unless for the purpose of relieving urinary obstruction. Cases with retention or difficult or painful catheterization, if subjected to a conservative perineal operation, often enjoy a number of months of comfort and reasonably good health before the effects of metastasis become evident.

While Young has employed and recommended a radical operation for cases of the first and second stage, and has succeeded in removing the disease in a few cases, the objections arising from the high mortality (25% or over), and the resulting complete incontinence of urine in every case, are too great for the operation ever to be classed as popular.

When, in the second or third stages, the involvement of urethra or bladder neck make a conservative operation of doubtful value, a suprapubic fistula for permanent drainage of the bladder is advisable. Young finds an apparatus allowing intermittent emptying of the bladder—thus preventing contraction on the drainage tube—to give best results. Other measures in the third stage are those directed to relieve pain from metastatic growths.

Since the extensive exploitation of radium and its products has awakened such wide-spread interest in its use for treating cancer, it is proper to consider its applicability here. Not having any personal experience, I cannot speak with authority. One case, however, I have heard of, where its use caused severe burns of the urethra and bladder neck, with sad results to the patient. Pasteau and Degrais state that they used it in fifteen cases of "supposed" prostatic cancer with benefit, varying according to the length of the treatment. The radium was introduced into the prostatic urethra by means of a special tube, the bladder having been previously filled with fluid. From the fact that three cases had to have cystotomy performed for "obstinate cystitis," it appears that their technic is not without its danger. The method has not been used long enough for us to judge of its value.

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DISCUSSION.

DR. PAUL THORNDIKE, Boston: You have heard two excellent short résumés on two subjects which nobody knows very much about. I can add nothing except to emphasize two or three points, and mention one or two others.

The history of cancer of the bladder has been the history of the usual sad story of late diagnosis and inefficient operation. This is the whole thing up to the present time. Dr. Chute has pointed out that the way out of this is early diagnosis and more thorough operations. I think the one point which stands out especially, and which seems to me is the one thing that we are all going to take away with us this afternoon and remember always, is his point about the dissecting of the lymphatics. It seems incredible that we have lived so many years and done operations in which this has had no part, and we cannot lay too much stress upon that point.

Another point which Dr. Chute has made is this: diagnosis from symptoms is difficult; diagnosis from urine is practically impossible; the clinical history of these cases is not made mani-

fest until long after the time for operation has passed. In my belief the diagnosis of cancer of the bladder must be made by the cystoscope, and must be made usually as a result of the fact that hemorrhage has called to our attention the necessity for that cystoscope.

Now as to operative procedure, I agree with Dr. Chute absolutely. You must assume one of two points about cancer of the bladder,—either it is a thing that cannot be radically attacked, or it can be. If you are assuming it is a thing to be operated upon, you must consider the complete removal of the bladder. When you think what a large number of cases occur on the floor and neck of the bladder, you cannot consider radical operation on the bladder unless you consider total cystectomy.

There are few men who after the age of 50 or 60 can stand for a radical removal of the bladder. The field for this operation must be small.

There is one procedure which seems to me to be important. Many cases of rectal cancer demand a palliative procedure. In the same way it seems to me that fewer of these bladder cases would be so serious if they had a palliative procedure of exactly the same nature. And I do not see why the procedure which Dr. Francis Watson suggested some years ago, of bringing out the two ureters on the loin and side-tracking the urinary stream is not more often used. My experience with this procedure is limited to three or four cases, but I have seen three or four unhappy men made into pretty comfortable men, and kept so for several years by this procedure. The two apertures are easily cared for.

I am not so sure that I think much of my radical operations on cancer of the bladder, but I have done palliative operations which have justified themselves over and over again, and they kept the men comfortable. I am perfectly sure I am going to keep on doing palliative operations as long as I live.

Now for Dr. Binney's paper on cancer of the prostate. There are several points which he has mentioned which cannot be too strongly emphasized. Our knowledge is just coming, just beginning, and the first point for us to remember is frequency. This disease is a frequent, common disease. It is so common that every doctor in this room probably sees cancer of the prostate every year of his life. There is no doubt that one of every five or six cases of enlarged prostate is of a malignant character.

It is up to us all to make a diagnosis as soon as we can, to examine those cases carefully, to be suspicious of everybody, and to take notice of little things. The fact that this disease can exist and does exist at the same time with ordinary hypertrophy is also another important fact. Now with cancer of the bladder, you have to make a cystoscopy to make a diagnosis; with cancer of the prostate this is not always so necessary. Cancer of the prostate does occur and develop most frequently in the posterior segment of the organ. We know that the rectal touch will usually give a diagnosis before you get anything on the bladder side. Cases will develop cancer of the prostate when you have absolutely nothing to show from a cystoscopic point of view. Here, again, it is up to all of us to make rectal examinations constantly on suspicious cases.

As far as operation goes, I have nothing to say. I agree entirely with Dr. Binney that the way to approach these cases is by the perineal route.

I want to say just one word about a class of cases of cancer of the prostate which have been interesting me. I have had three cases the last few months. One case dated back for a year, in which cystoscopy, rectal touch, nothing made a diagnosis. On all three cases I operated for hypertrophy of the prostate. The convalescences were typical convalescences. They healed up, and then at the end of the year they began to have trouble. In these cases neither rectal touch, nor clinical history, nor cystoscopy gave any indications. When we say that cancers of the prostate are hard and can be felt by rectum, it is not always so.

Dr. R. F. O'Neil, Boston: These two excellent papers and Dr. Thorndike's remarks leave little for me to add. Certain points may be emphasized. As in only those cases of bladder cancer discovered early is there any chance that radical operation will effect a cure, every effort at early diagnosis must be made. This can only be done by investigating early urinary symptoms and particularly the presence of blood in the urine. I should like to add to Dr. Jones's text, that every one will go home with the added fact, that hemorrhage from the urinary tract is quite as important as that from the rectum. He made the significant statement that 75% of his cases of rectal cancer had been treated for hemorrhoids without thorough examination.

I once had a patient referred to me with the statement from the attending physician that treatment had entirely failed to control the hematuria. This is a most pernicious doctrine. Hematuria is only a symptom and when we consider that a slight painless bleeding may mean as serious a condition as a beginning cancer of the bladder, it is our duty to locate the source and to consider every hematuria "guilty until proved innocent." This can only be done by cystoscopy. Early recognition of new growths may be difficult even for the expert, whether or not it will be possible to recognize certain conditions in the bladder which might be described as pre-cancerous remains to be seen. Various inflammations and edemas of the bladder may be very difficult to differentiate from neoplasm. I should like to add my protest to attempted diagnosis by the examination of bits of tissue removed by means of the operative cystoscope. The method is unreliable; negative evidence is

valueless and moreover the procedure may be harmful. The location of these growths has much to do with their operative removal. Some of them, notably those with summit or high lateral walls may be removed by suprapubic cystotomy; but in my experience, the majority may be more radically and readily removed by the transperitoneal operation. A better exposure is obtained and the growth may be resected without being handled, with a good margin, including all the coats of the bladder. The uniformly bad results following partial resection of growth about the trigone and bladder outlet make it more evident that total cystectomy, as advocated by Dr. F. S. Watson, is indicated if anything is to be attempted in the way of a radical cure. Under these circumstances the urinary stream is to be previously sidetracked by means of a bilateral nephrostomy, which it has been proved may be done without serious infection of the kidney. Such infection follows, as far as I know, in practically all cases where implantation of the ureter into the bowel has been attempted. Such patients must, of course, be able to receive the proper care incident to double loin fistulae.

Dr. Chute's suggestion as to a better study and understanding of the lymphatics of the bladder is timely.

In regard to Dr. Binney's paper, here again we meet with the same difficulty, that of early recognition, and again here it is of the utmost importance as cases are undoubtedly cured in what he describes as the first stage.

In regard to operation during what Dr. Binney has described as the second stage of the disease, that is, a palliative operation when there is urinary obstruction. I recall such a case in the practice of a colleague where a perineal operation was performed, rather against the advice of a distinguished genito-urinary surgeon, but with great relief to the patient; and at the present time, about two years after operation, he is still very comfortable, although the growth was malignant. It is interesting that so-called hypertrophy and cancer can exist together. According to the work of Young and Geraghty when this is the case, the cancer is always in the posterior lobe. When there is no adenomatous process the cancer may begin in other parts of the prostate.

DR. LINCOLN DAVIS, Boston: I do not feel very enthusiastic about the dissection of the pelvic lymphatics. Personally I have done this in two cases of cancer of the bladder, which I recall; a liberal section of the bladder wall, including the growth, was excised and the lymphatic glands along the iliac vessels dissected. One of these cases has already recurred, and I am afraid the other is going to.

I remember assisting Dr. Maurice Richardson in a case of cancer of the bladder, where he made a very beautiful dissection of the lymphatics. That case also recurred.

So that on the whole I feel that when the lymphatics are involved, it is a very difficult, if not impossible, matter to remove them all. Undoubtedly an attempt should be made, and it has been made in the past. The question is, if the glands are affected where are you going to stop.

I certainly believe in a very wide excision of the primary growth, a total cystectomy if you like, but I am afraid after the pelvic glands are once involved, that it is an almost hopeless task to remove them all.

DR. BINNEY, in closing: I might mention—what I did not speak of in the paper—that at the Boston City Hospital during the past four months 15 cases were admitted for prostatic enlargement and 4 of these were cancerous, a percentage of over 25.

I agree with Dr. Thorndike that there are occasional cases which appear to be typical benign hypertrophy, are operated upon and prove to be cancer. Sometimes the growth seems to progress forward so as not to become evident by rectal examination. Another possible explanation is that the form suggested by Albarran does occur in certain cases, the benign growth undergoing malignant degeneration. I have seen one case where this was a possible explanation.

That the more common form of prostatic cancer is a malignant degeneration I do not believe, but think that Young and Geraghty are right in their contention that usually it is a posterior lobe cancer.

(Paper V of this Symposium on Cancer, by Thomas Ordway, M.D., will appear in next week's issue of the JOURNAL.)

Book Reviews.

A Text-Book of General Bacteriology. By EDWIN O. JORDAN, Ph.D. Fully illustrated. Fourth edition, thoroughly revised. Philadelphia and London: W. B. Saunders Company. 1914.

The first edition of this well-known general text-book of bacteriology was reviewed in the issue of the JOURNAL for June 3, 1909 (Vol. clx, p. 722), the second in the issue for Feb. 2, 1911 (Vol. clxiv, p. 165), and the third in the issue for July 24, 1913 (Vol. clxix, p. 133). In this fourth edition several sections have been rewritten in harmony with recent advances of knowledge, and important new matter has been added, especially in the chapters on pertussis and poliomyelitis. A new chapter on the filterable viruses has also been inserted, and the subject of streptococcus sore throat is considered in a new section. The total number of pages is increased from 623 in the third edition to 647, and the number of illustrations from 164 to 178. The book should continue to maintain its usefulness as an established standard on its subject.

Blood-Pressure. Its Clinical Applications. By George William Norris, A.B., M.D. Illustrated with 98 engravings and 1 colored plate. Philadelphia and New York: Lea and Febiger. 1914.

The two principal previous English works on blood-pressure, by Faught and Goodman, were reviewed respectively in the issues of the Journal for August 7, 1913 (Vol. clxix, p. 209), and August 20, 1914 (Vol. clxxi, p. 317). This new book is an attempt more completely to present the literary history of the subject, and to correlate experimental data with clinical experience. The chapters on physiology and on venous blood-pressure were written by Dr. J. Harold Austin, who also assisted in preparing the chapter on functional tests. There is an extensive bibliography in the form of footnotes, which might to more advantage be gathered alphabetically at the end. The illustrations are excellent and the work one which should assume a valuable place in the growing literature of the subject.

Clinical Hematology. An Introduction to the Clinical Study of the So-Called Blood Diseases and of Allied Disorders. By Gordon R. Ward, M.D. Octavo, pp. 394, illustrated. Philadelphia and London: W. B. Saunders Company. 1914.

In the preface the author states that the volume is primarily concerned with the clinical study of the so-called blood diseases which has been so much overshadowed by exclusively pathological investigation. Dr. Ward is thoroughly consistent and gives us a very careful description of various blood diseases, almost entirely from the clinical side. The fact that there is very little attempt to include even the important pathological studies of the blood seems a serious omission. The classification which is advanced in the book will not be widely accepted.

Diseases of the Heart. By John Cowan, D.Sc., M.D., F.R.F.P.S. Octavo, pp. 458, with 199 illustrations. Philadelphia and New York: Lea and Febiger. 1914.

The numerous books that have appeared recently on the diseases of the heart show very clearly that we are readjusting our knowledge and our ideas of the diseases of the heart and arteries. Gowan has utilized the newer methods of histological technic, the sphygmomanometer, the polygraph, the electro-cardiograph and the roentgen ray in connection with his personal experience with the actual clinical cases. The result is a well rounded, sane work. W. T. Ritchie contributes the chapter on the electro-cardiograph.

Clinical Examination of the Blood and Its Technic. A Manual for Students and Practitioners. By Professor A. Pappenheim, Berlin. Translated and adapted from the German by R. Donaldson, M.A., M.B., etc. New York: William Wood and Company. 1914.

This small book of less than a hundred pages is an epitome of the essentials of blood examination, and as such, coming as it does from an authoritative source, should prove of distinct value. Its merit lies essentially in the fact that only the more important procedures are discussed, and it is therefore usable even by those who have had no special training in the field of which it treats. The English translation is increased in usefulness by the addition of several illustrations, two of which are admirably printed colored plates.

Dietetics. Or Food in Health and Disease. By William Tibbles, LL.D., M.D., L.R.C.P. Edin., M.R.C.S. Eng., L.S.A. Lond. Philadelphia and New York: Lea and Febiger. 1914.

This new English book on dietetics is divided into two parts, the first dealing with theories of metabolism and diet in health, the second with the special dietaries of the various diseases. It is an elaborate work of 627 pages, and with the author's previous publication on "Foods: Their Origin, Composition, and Manufacture," forms a complete treatise of great value to specialists in this important subject.

Mental Deficiency (Amentia). By A. F. Tredgold, L.R.C.P., London; M.R.C. S., England; Consulting Physician to the National Association for the Feeble-Minded and the Littleton Home for Defective Children; Lecturer at the Medical Graduates' College, London, etc. Second edition revised and enlarged. pp. 474. New York: William Wood and Company.

This complete and modern treatise on the incidence, causation, pathology, mental and physical characteristics, social relationship, diagnosis, prognosis and treatment of persons suffering from mental deficiency is the latest and best exposition of the subject,—a classic work. It gives a very comprehensive survey of the whole field. Not only are its purely clinical and pathological aspects fully set forth in a wealth of instructive matter based on many years of painstaking observation and research, but the social and philanthropic questions involved are dealt with in the same thorough and enlightened manner. The chapter on the important and live subject of Moral Deficiency and Criminal Aments and their criminal responsibility is a masterpiece in itself. It is a notable and opportune volume and fully justifies the universal praise that has been accorded it.

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THE PROPOSED DIVISION OF MENTAL HYGIENE OF THE UNITED STATES PUBLIC HEALTH SERVICE.

THERE is at present a movement on foot which has for its object the provision of a special Division of Mental Hygiene in the United States Public Health Service, Bill H. R. 16637, which provided for divisions of Mental Hygiene and Rural Sanitation in the United States Public Health Service, was introduced in the House of Representatives during the session just closed (May 18, 1914) by Mr. Adamson; it was referred to the Committee on Interstate and Foreign Commerce and ordered to be printed. The same bill (S. 5763) was introduced in the Senate by Senator Ransdell on June 5, 1914, with the result that it was read twice and thereupon referred to the Committee on Public Health and National Quarantine, of which Senator Ransdell himself was chairman. The adjournment of Congress prevented a consideration of the bill by that body. It is believed, however, that the chances are very good that it will pass at the session which begins December 1, 1914, and ends March 4, 1915.

It is stated that the duties of this newly proposed Division of Mental Hygiene shall be the study and investigation of mental disorders, their causes, care and prevention. The organization of this special division is being urged for two main reasons: namely, in order that the government may be enabled to deal more efficiently than is possible under present conditions with the problems in psychiatry and mental hygiene which may arise in the daily work of the various departments of the government, none of which, as at present constituted, being in a position to cope with the problems which present themselves for solution in this special department of medicine; and, secondly, in order that the government may be enabled to do its share in initiating and bringing about better care and treatment for the insane and mentally defective, where such measures are necessary, and in instituting proper measures for the prevention of mental diseases.

The first object of this plan is by no manner of means to be viewed as an inconsiderable or negligible problem. The mental hygiene problems in the government's present work, which could be referred to this Division of Mental Hygiene for special study, investigation, coöperation and expert advice, include such comprehensive problems as arise in connection with the mental examination of immigrants for detection of the insane and mentally defective, the mental aspects of some of the investigations which are conducted by the Hygienic Laboratory, as, for instance, the study of pellagra; the care, including the administration and supervision, with the establishment of methods for the commitment, detention and discharge, of the insane and mentally defective in Alaska and our other foreign possessions, the devising of practical methods for and their employment in the mental examination of coastwise pilots and of engineers on interstate railroads and for the prevention of the employment of psychopathic persons in any capacity in the Public Health Service and other services of the Government, the assistance of the Bureau of the Census in the enumeration of the insane and mentally defective and the scientific anaylsis of the results, the investigation of provision for the mentally defective in the District of Columbia, the problems in mental hygiene in connection with the care of the Indians, Esquimaux, and other wards, the relations between mental health and industrial conditions, assisting the Bureau of Education in supplying information to urban districts regarding the recognition and education of subnormal children in the public schools,

the relation of mental hygiene to the education of normal children, the relation of mental defectiveness to crime, especially in connection with federal prisoners, and other questions of an allied nature.

The second great function of such a bureau or division would be participation in the work for the prevention of mental disorders and mental defectiveness and for improving the standards for the care and treatment of such cases. It is unnecessary here to convince the reader, by the citation of statistics, of the humanitarian, social and economic significance of mental diseases. We may merely mention the isolated but significant fact that during the year 1913 in the City of New York there were 499 persons who died from typhoid fever, while 500 persons afflicted with general paresis were admitted to hospitals for the insane from that same city.

One of the prime objects of this work will be the study of the causes of mental disorders and defectiveness and the widespread dissemination of all positive knowledge known or gained in this direction. It will furthermore aid in raising the standards in the care and treatment of the mentally disordered, for there are still too many communities far behind the times, not only in the treatment but even in the care of the insane, so that, as a consequence, we may truthfully say that almost every step in the history of the care and the provision for the insane may be found today existing somewhere in the country. The problem of commitment, including voluntary commitment, parole and after-care would receive special consideration. The early treatment of the mentally disordered would be encouraged, and better instruction in psychiatry in the medical schools of the country would probably be advocated.

The work of this division would consist largely in the acquisition and widespread dissemination of information concerning the many aspects of the care and treatment of the mentally disordered and defective. There are many other fields of activity and useful functioning for such a bureau. If inaugurated on a broad scale, as it most certainly should be, it would be to the government in the sphere of mental health what other divisions now are in the sphere of physical health. It would have for its supreme goal the prevention and cure of mental disorders and defectiveness, the preservation of the mental health of the nation and the scientific study and investigation of the problems involved, with the dissemination of useful and necessary information in this field.

Such a division is greatly, in fact, urgently, needed. It would be a central bureau and a clearing house for all things psychiatric in nature. And, it may be mentioned, it would be a step toward enlarging the scope of the United States Public Health Service, with the National Department of Health as the ultimate goal.

THE TUBERCULOSIS HOME HOSPITAL EXPERIMENT.

In the early part of the year there was published in the Journal some account of the results of the first year of the home hospital experiment in New York, which was conducted by the Association for Improving the Condition of the Poor in a block of tenement houses of special construction, the "East River Homes," placed at the disposal of the association by certain philanthropic persons. The association has now just issued a report covering the second year of this work, and, like the first report, it is a contribution to the subject of the management of tuberculosis of unusual interest and practical value.

The questions which it set out to answer in the course of this experiment were: 1. Is it possible to treat families in which one or more members are affected with tuberculosis by keeping the families together, in their individual home, without danger to other members of the family? 2. Do the results of treating patients in their own homes under satisfactory conditions of living, with adequate medical supervision, compare favorably with results secured by removing the patient from his home and treating him in a special institution for tuberculosis? 3. In the case of a family in which there is combined tuberculosis and poverty, which costs more, to treat the family as a unit, as is done in the home hospital experiment, or to break up the family, as is done under other methods of treating families with tuberculosis? As planned, the experiment was to extend over a period of three years, but while by the end of that time more data will have accumulated, the evidence now at hand and presented in this report points unmistakably, the association is convinced, to the fact that it is perfectly practicable to treat as a unit families in which there is tuberculosis, without

apparent danger of spreading the infection to well members of the family. The results thus far even indicate that this is the most practical way to prevent other members of the family from contracting tuberculosis. This is accomplished by careful medical and nursing supervision, proper segregation of the patient from other members of the family, and the correction of any hygienic or physical defects detrimental in any way to good health. The evidence presented also, it is believed, points convincingly to the fact that the results during these two years of the treatment of tuberculosis patients compare very favorably with those in the best sanatoriums and hospitals. In the report these results are presented for the fullest and freest criticism, and they have been found even more satisfactory than was hoped when the institution was first planned. Modern therapeutics is recognizing more and more the importance of the psychological factor. Particularly is this true in the case of tuberculosis, and at the home hospital the mental effect on the patient appears to have been of material assistance in securing the result noted. The report likewise includes a full discussion of the relative cost of treating tuberculosis by the home hospital method as compared with other ways of treating families in which one or more members are the subjects of the disease, and it shows that the experiment has already demonstrated that the cost of doing an adequate piece of work in treating combined poverty and tuberculosis by the method in question is less in each instance than adequate treatment of both on any other plan.

While one year still remains for the completion of the experiment, the results at the end of two years are so convincing that the association feels that from now on its main problem is to secure the continuation and extension of the home hospital. Even now it is no small institution, having an average of approximately 130 patients and of over 200 individuals. Considering the patients alone, it is over one-half as large as the New York Hospital and nearly one-half as large as Roosevelt or St. Luke's Hospital, while its average number of patients is greater than that of Trudeau Sanatorium at Saranac Lake. The demand is so great, however, that it is felt that it should not only be made permanent, but rapidly extended in size. Before the completion of the three years every effort will be made to add at least another staircase of twenty families. After all, the home hospital idea, as Mr. Burritt, the general director of the institution, remarks, is only that of a decently constructed house with a decent budget available to provide adequate nourishment, together with provision for constant medical and nursing provision of the family. Even less expensive tenements, with provision for the maximum of light and air, can be used for the extension of this idea. With these three items—a decent home, an adequate budget, and proper supervision—families afflicted with the ills resulting from tuberculosis and poverty combined can be rehabilitated. The inescapable conclusion is, moreover, that with decently constructed homes, adequate nourishment, and proper instruction and help, the spread of tuberculosis can practicably be prevented. The home hospital is at once a demonstration of successful treatment of combined tuberculosis and poverty and an illustration of how society must regulate its housing conditions and the wages of families if it seriously contemplates the prevention of tuberculosis.

One of the greatest difficulties with which this experiment has been confronted is one common to it and to hospitals and sanatoriums, namely, the very great difficulty of securing suitable work, with adequate remuneration for patients able to work. This difficulty was aggravated last winter, because of the large number of unemployed. Even were such difficulty removed, however, it would still be true that industrial opportunities for the suitable employment of ex-patients are very unsatisfactory; though the data in this report show that treatment at the home hospital does much to increase the ability of patients for work. A serious consideration of this difficulty would seem to be an imperative next step in the problem of the successful management of tuberculosis, and it may be necessary to organize work with patients suffering from this disease in mind. The reader of this report cannot fail to be impressed with the fact that at the home hospital much more is being done for the health of the family than to arrest tuberculosis and prevent its spread. It treats all cases of sickness which occur in the families of which it takes charge, and, more than this, it prevents the development of diseases other than tuberculosis through improving the resistance of each member of the family. Furthermore, keeping the family together in wholesome surroundings promotes not only its health conditions, but also its moral and social tone. Any measure of the real value of

the home hospital method must recognize the essential feature that it is something more than mere medical treatment.

The report gracefully acknowledges the indebtedness of the association to Mr. John A. Kingsbury, now commissioner of public charities in New York City, who conceived the idea of the home hospital and actually organized it, and to the first chairman of the home hospital committee, Dr. Linsly R. Williams, now deputy state health commissioner, whose medical advice and help ensured a stable foundation; both of whom are still directly interested in the work of the institution. Recognition is made, as well, of the services of the administrative and medical staff, to whose painstaking interest the success of the experiment is also largely attributed.

AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY.

The fifth annual meeting of the American Association for Study and Prevention of Infant Mortality was auspiciously opened in Boston on Nov. 12. This meeting is of particular local as well as general interest, since it was in this city that the movement for the investigation and control of infant mortality had its inception. The meeting was opened in the forenoon by sessions of the executive committee and of the board of directors, and at the several hospitals was instituted a series of clinics which will be continued throughout the week.

"The clinics for well babies are held under the direction of the Milk and Baby Hygiene Association, which will show three of its milk stations in full running order, to the delegates to the convention. These stations are the ones now conducted in the North End Union, South Bay Union and at Roxbury Crossing.

"Clinics for sick babies will be held principally at the Harvard Medical School and at the Children's Hospital, under the direction of Dr. Henry I. Bowditch. Several hospitals will show to visitors the work they are doing in baby-saving, the names of the hospitals and the officers who will have charge of the display of their work, being as follows:

"Boston City Consumptives' Hospital, Dr. Overlander; Boston Dispensary, Dr. Arthur A. Howard and Michael M. Davis, Jr.; Boston Floating Hospital, Boston Lying-in Hospital, Children's Hospital, Infants' Hospital, Dr. Charles Hunter Dunn; Massachusetts General Hospital, Dr. Richard M. Smith of the outpatient department; Maverick Dispensary, Dr. Arthur B. Emmons, 2d; New England Hospital for Women and Children."

In the afternoon there were at the Harvard Medical School a session on "Nursing and Social Work," with papers by Dr. A. B. Emmons, 2nd., of Boston, and by Mrs. Max West, of Washington, D. C.; and a joint session on "Pediatrics and Vital and Social Statistics," with papers by Dr. Henry D. Chapin of New York City, Dr. J. H. Mason Knox, Jr., of Baltimore, Dr. H. J. Gerstenberger of Cleveland, and Dr. Frank S. Churchill of Chicago. At the latter session the committee on vital and social statistics presented a preliminary report on "Institutional Mortality and Morbidity."

In conjunction with the convention, there is presented in the corridors of the courtyard of the Boston Public Library an exhibit, which was first shown at the Congress of Hygiene and Demography at Washington in 1912. Among the features of this exhibit is the display made by the division of child hygiene of the Boston Board of Health, illustrating its work;—

"The first is a model six by six feet, containing 12 bottles, representing the 12 months of the year. In each bottle are red and white pills, which represent the actual deaths of infants under one year of age. The red pills represent bottle-fed babies, and the white pills breast-fed babies. The excess of red over white pills shows graphically the smaller chance of living which bottle-fed babies possess. This model is labelled 'Infant Mortality in Boston by Months and by Feeding.'

"Then there is a model labeled 'Relation of Infant Mortality to Total Mortality in Boston for the Year 1913.' This consists of one large bottle containing a layer of white and a layer of red pills. The red pills represent infant mortality, the white total mortality. The relation of red to white pills is 17% in Boston.

"The last exhibit is a chart in the form of a tree, labeled 'Suggestions for the Prevention of Infant Mortality.' The trunk of the tree represents the natal condition, the foliage the postnatal condition, and the roots the prenatal condition. The postnatal suggestions are: Municipal nurses, day nurses, milk supply, milk stations, convalescent home for nursing mothers, infants' hospital and medical supervision, breast-feeding, coöperation with hospital clinics, and with private charities and with the press; natal—government supervision of births; prenatal—hygienic surroundings, municipal nurses and supervision of parturient women, living wages, education and certificate of health a prerequisite for marriage."

MEDICAL NOTES.

A POSTGRADUATE SCHOOL OF NEUROLOGY.—In accordance with the spirit of the times and particularly stimulated by the war in Europe, the neurological staff of the Philadelphia General Hospital, with the approval and encouragement of the director of the Department of Public Health and Charities, has organized a postgraduate school in neurology. The prospectus makes the following statement: "Owing to the present war in Europe it will probably be one or two years, at least, before American students can avail themselves of the neurological clinics and laboratories of London, Paris, Vienna, Berlin, Rome, and other centers of medical instruction abroad." The instruction will be given by the members of the neurological staff of the Philadelphia General Hospital and their assistants and will be arranged in four periods of six weeks each, which, with special courses during the summer months, give a continuous series throughout the year. It is proposed to give a limited number of clinical lectures, but in general the instruction will be in the nature of ward visits and conferences. Short special courses on serology, pathology, neurological ophthalmology and the jurisprudence of nervous disease and insanity will be offered in connection with the institution. The fees are placed at a very moderate amount.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.—At its meeting in Cincinnati, Ohio, on Oct. 30, Dr. Hugh Cabot, of Boston, was elected president of the Mississippi Valley Medical Association for the ensuing year.

LONDON DEATH-RATES IN SEPTEMBER.—Statistics recently published show that the total death-rate of London for September, 1914, was 15.5 per 1000 inhabitants. Among the several districts and boroughs, the highest rate was 25.8 in Shoreditch, a crowded east end slum, and the lowest was only 9.6 in Hampstead, an open region on the north.

VACCINATION IN BRISTOL.—Of 4467 babies born in Bristol, England, between July 1 and Dec. 31, 1913, only 1093 are reported as having been vaccinated. The parents of 763 had certificates as conscientious objectors, and the remainder were unaccounted for.

EUROPEAN WAR NOTES.—Report from Petrograd on Oct. 30 states the American Red Cross units assigned to Russia have been stationed at Kiev. The two senior surgeons have been commissioned generals and the four juniors colonels.

On Oct. 30 the British hospital ship *Rohilla* was wrecked off Whitby on the Yorkshire coast, with a total loss of 70 lives, including 11 physicians.

Report from London on Nov. 2 states that Dr. Howard W. Beal, of Worcester, Mass., who went abroad in charge of an American Red Cross unit, has been appointed chief surgeon of the military hospital at Paignton, Eng.

On Oct. 30 the following fresh appeal for funds was issued by the Massachusetts branch of the American Red Cross.

"As the organization and purposes of the Red Cross Societies do not seem to be fully known, we wish to state that all of these societies are permanent and are under the supervision of the government of their respective nations. Their international obligations and immunities are defined by the conventions of Geneva and the Hague.

"Their functions, broadly stated, are to succor the wounded in time of war, and at all times to relieve suffering. For these purposes they have an efficient body of surgeons and nurses to call upon, as well as agents to distribute relief. By means of their organization here and in Europe, and the gratuitous help rendered to them in many quarters, they are able to apply assistance at the points where needed with the least possible expense for transmission and management.

"The American Red Cross Society has already sent to the several European nations now at war ten units—each consisting of three surgeons, twelve nurses and surgical supplies in the Red Cross ship. This ship was lent to the Society without any charge, and for this reason and because under the protection of the American flag and the international Red Cross, she was allowed to enter the ports of the warring nations, the cost of transshipment was avoided and these units were distributed at a minimum cost.

"To remove all apprehension as to the distribution of funds, we are authorized to state definitely that subscribers may designate the country and object to which they desire their contributions sent, and these instructions will be faithfully carried out. Contributors wishing their contributions to be devoted, for instance, to Belgian relief, or to the English, French, German, Austrian, Servian or Russian Red Cross, should indicate clearly their wishes.

"The American Red Cross Society is kept informed by the foreign embassies as to the needs of their respective countries. All receipts and expenditures are accounted for and audited by the War Department. While countless numbers are in unspeakable misery from want of proper care, we are informed from Washington that two thousand surgeons and physicians have applied for positions, and the roll of the Red Cross nurses reaches several thousand. There is urgent need of more funds to send forward these doctors and nurses who are ready to help, and to buy medical supplies which are desperately needed.

"In view of these facts we hope that the response to this appeal will be general.

"Contributions should be sent to Francis L. Higginson, Jr., treasurer, 44 State street, Boston."

On Nov. 9 the New England Belgian relief fund amounted to a total of $75,323.54 and the Massachusetts Red Cross fund to $62,175.63.

The Epizoötic of Foot and Mouth Disease.—In recent issues of the Journal we have noted the gradual extension of an epizoötic of foot and mouth disease among livestock in some of the middle western states. Apparently the spread of this infection has not been checked by the interstate quarantine measures thus far employed against it, for on Nov. 2 a much more extensive federal quarantine was established by the United States Department of Agriculture.

"The quarantine of livestock on account of outbreaks of the foot and mouth disease has been extended to cover the entire area of the states of Michigan, Indiana, Illinois and Pennsylvania. In addition, restrictions have been placed upon shipments of stock from Ohio. The order extending this quarantine was signed by the secretary of agriculture, Nov. 2, and goes into effect immediately.

"The provisions of this quarantine are practically the same as previously announced for a few counties in Michigan and Indiana. No cattle, sheep or swine can be shipped from these states in inter-state commerce, and all fodder and animal products of every sort which might possibly convey the disease must be thoroughly disinfected.

"The quarantined states are not only prohibited from shipping cattle to unaffected areas, but they cannot even send shipments of stock from one infected area to another.

"This epizoötic originated in Southern Michigan in August, but was not discovered until Oct. 15, when county quarantines were applied to check it. It was found, however, milk from infected cattle had been sent to dairies and the skim milk returned to farmers and fed to hogs, transmitting the disease. Hog shipments of that character were sent to the Chicago yards, and as sporadic cases of the disease began to appear in various sections of the four states named, its origin was traced to stockers and feeders sent out from the yards to be fattened on farms.

"The spread of the disease was extraordinarily rapid. It is so highly contagious that cattle passing through pens and alleyways where infected livestock have preceded them acquire the infection.

"Officials said it was impossible to predict the duration of any of the quarantine orders. As infected sections are determined and localized, other parts of each state will be freed of restrictions. Drastic measures in the way of cleansing and disinfecting all cars, pens and loading docks have been ordered. So far, the number of cases reported has been comparatively small, but they are scattered far apart.

"A large corps of federal inspectors already is at work in Michigan and Indiana and another in Illinois. A third corps is being mobilized in the Pennsylvania and Ohio districts. These men are making farm to farm inspections, besides enforcing disinfecting precautions.

"The disease is not fatal, but the only way to prevent its spread throughout a herd is to kill infected animals. Its effect is to emaciate beef cattle and reduce the milk supply of dairy animals."

On Nov. 3 a case of the disease was discovered in the stockyards at Chicago, and another at Pittsburgh. Over one thousand animals have already been destroyed in the effort to check the disease.

On Nov. 4 the union stockyards at Chicago were ordered closed for 9 days, beginning on Friday, Nov. 6, and New York and Maryland were added to the list of quarantined states. The Department of Agriculture issued the following statement:—

"This outbreak, which is the first in the United States since 1908, is regarded as the most serious of any that the United States has experienced. It has spread over an extensive area. Its virulence seems to be above the average. Vigorous measures will be necessary to stamp it out. The cost of suppressing the last outbreak in 1908 was estimated at $299,112.10. In addition, the loss to dairy and stock raisers was heavy.

"Interstate shipments of cattle, sheep and swine are absolutely prohibited from the states now quarantined. Stock cannot even be sent from one infected state into another. The federal authorities are endeavoring to ascertain the exact area over which the infection has spread, and as soon as this is known it will, it is hoped, be possible to lift the quarantine from sections now included in it."

On Nov. 6 cases of the disease were discovered in Iowa and in Massachusetts, and the quarantine was therefore extended to cover these states.

On Nov. 8, 60 cases were discovered in Rhode Island, and this state was also quarantined.

BOSTON AND NEW ENGLAND.

A Living Centenarian.—Richard Powers, of Lancaster, Mass., is locally reputed to have been born in 1810. His health is said to be excellent, and he walks several miles daily.

Methyl Alcohol Poisoning in Bristol.—Report from Bristol, Vt., on Nov. 4 states that of 42 men who in that city on Oct. 31 drank liquor adulterated with methyl alcohol, 13 have already died.

Hospital Bequests.—The will of the late Miss Caroline Louisa Williams French, of Boston, who died in this city on Oct. 27, contains

bequests of $100,000 to the Massachusetts General Hospital and $2000 to the Brookline (Mass.) Free Hospital for Women.

MORTALITY STATISTICS IN BOSTON.—During the week ended Oct. 31 there were in Boston 89 cases and four deaths of diphtheria, as compared with 29 cases and no deaths during the corresponding week last year.

"So far this year there has been a distinct decrease in the number of deaths from all communicable diseases as compared with the first ten months of last year. The only exception is typhoid fever, the number of deaths from which remain the same as last year, 53. The number of deaths from diphtheria has been 127 this year as compared with 139 last year. The deaths from the other communicable diseases compare as follows: Scarlet fever, 64 deaths last year, 57 this year; measles, 83 last year, 47 this year; tuberculosis, 903 last year, 888 this year, and whooping cough, 92 last year, 38 this year. The figures also show a decrease of 472 cases of tuberculosis this year over last and a decrease of 663 cases of whooping cough."

TYPHOID FEVER IN BEVERLY.—Report from Beverly, Mass., states that on Oct. 27 there were in that town 14 cases of typhoid fever. The source of this minor epidemic has not been determined.

MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH.—A quarterly meeting of the Massachusetts Association of Boards of Health, held at Boston on Oct. 29, under the presidency of Dr. James C. Coffey, of Worcester, was attended by about 100 members. Mr. Frederick H. Fay presented an illustrated address on the Quequechan river improvement project at Fall River.

"Mr. Fay, who is one of the experts retained by the Quequechan commission to survey that district and suggest means of improvement, pointed out that no matter what the needs of Fall River may be in the way of water the city is not permitted to conserve the supply in its pond, but is dependent on the will of a private corporation. This condition is due, Mr. Fay explained, to a curious complication which interweaves the city water supply with that for the mills, whereby the former must follow the latter by making good the supply taken from the mill pond by water let out from the city reservoir.

"After outlining the natural advantages of the city, Mr. Fay called attention to the geographical situation, with the Watuppa ponds lying at a height to insure a rapid flow and with a storage capacity of nearly twenty billion gallons. Despite this great supply, 40% of which is available for use, the mills are at times without sufficient water for their industrial uses and have, in fact, been shut down at times for lack of water.

"A little stream, the Quequechan, leads from the mill lake, which is the South Watuppa pond, through the heart of Fall River, passing by City Hall and under streets and buildings to the Taunton River. This has hundreds of acres of flats exposed at times of low water, and has the nuisances and pollution that flats taking surface and house drainage, and bordered with dumps, cannot avoid having.

"The following questions were discussed: "Should the Results of Milk Analyses be Given Publicity?" by G. E. Bolling of Brockton; "Of What Value is House Fumigation after Infectious Diseases?" by Dr. C. V. Chapin of Providence; "How May the Best Results be Obtained in the Care of the Incorrigible Consumptives in Towns Where There are No Hospitals?" by Dr. E. O. Otis of Boston; "What are the Best Methods for the Control of Markets, Restaurants and Bakeries?" by Dr. Alexander Burr of Boston: "Are Boards of Health in Different Cities and Towns Supposed to Furnish Silver Nitrate Solution to Midwives?" by Dr. W. P. Bowers of Clinton; "Why Do Some Physicians Decline to Report Tuberculosis When They Know the Law Requires Them to Report All Such Cases?" by Dr. T. B. Shea of Boston, and "Why Is It That So Few Towns of 10,000 Inhabitants or Over Have Complied with the Law Requiring Them to Maintain a Tuberculosis Dispensary?" by S. H. Stone of Boston."

MORTALITY FROM TUBERCULOSIS AMONG CHURCH MEMBERS.—In an effort to ascertain how serious a problem tuberculosis is to the average church congregation of the United States. The National Association for the Study and Prevention of Tuberculosis publishes today a report which shows that in nearly 3000 churches in 37 different states one funeral in every ten is due to this single disease.

Through a questionnaire sent out all over the country, 2852 clergymen representing 1,603,300 communicants or parishioners gave replies telling at how many funerals they officiated for the year ending August 31, 1914; how many of these were due to tuberculosis; how many living cases of tuberculosis they now have in their parishes, and how many communicants or parishioners. There were 36,798 deaths from all causes reported, showing a death-rate of 229.4 per 10,000 population, which is considerably higher than the corresponding rate for the entire country, 138.7 in 1912. This high death-rate is probably due to the fact that pastors of churches officiate at many funerals of others than members or communicants, while their membership reports are taken from actual records.

As indicating the extent of the tuberculosis problem in the average church the figures show that 10.3% of all the funerals reported were caused by tuberculosis, and that, in addition to the 3794 deaths from ths disease, the ministers had 4254 living cases now under their pastoral

supervision. In one year, therefore, the 2852 churches were caring for 8048 cases of tuberculosis, or an average of nearly three for each congregation. The average size of the congregations was 56, which would indicate that there is a case of tuberculosis developing each year for every twenty church members.

Because tuberculosis demands so much time and money from the churches, The National Association for the Study and Prevention of Tuberculosis is calling upon all of them throughout the United States to join in an educational campaign against this disease on Tuberculosis Day, which will be observed during the week of Nov. 29.

Cases of Infectious Diseases Reported to the Boston Board of Health for the week ending Nov. 3, 1914: Diphtheria, 81, of which 1 was non-resident; scarlatina, 39, of which 4 were non-resident; typhoid fever, 10, of which 2 were non-resident; measles, 76; tuberculosis, 43. The death-rate of the reported deaths for the week was 13.47.

NEW YORK.

Septic Sore Throat.—The State Health Department reports another milk-borne outbreak of septic sore throat. This occurred at the end of August, among the guests and servants of the Lake Mohonk Hotel, in the Shawangunk Mountains, and was of mild character. Any localized center of infection on the premises was ruled out, the water supply was found to be of admirable quality, and suspicion therefore naturally fell upon the milk supply. This came from three farms. The stables, milk houses, utensils, of the latest approved patterns, were all kept in good condition; while the cattle were of the finest grade and in good condition. On one of the farms, however, it was found that the proprietor had a severe cellulitis on the back of his neck, with several small openings from which pus was draining; but, notwithstanding this, he was at the barn attending to his work. This case and a previous case of sore throat at the same farm were presumably the sources of infection, and it was ordered that for the balance of the season the milk and cream used at the hotel should be pasteurized.

Special School Day.—Friday, October 23, by order of the State Department of Education, was observed by teachers and pupils throughout the state as a special School Day, when letters from the commissioner of education and the commissioner of health were read in each of the 15,000 schools. Plans are under way for a special Health Day in the schools later in the season.

Hospital Bequests.—Among the benevolent bequests in the will of the late Hugo Reisinger of New York are $100,000 to Columbia University, $55,000 to Harvard University, and $5,000 to the German Hospital and Dispensary, New York.

Rockefeller Relief Ship.—The steamship Massapequa of the New York and Porto Rico line has been chartered by the Rockefeller Foundation, and on Nov. 3 sailed for Rotterdam with 4000 tons of foodstuffs, costing some $275,000, for the destitute non-combatants of the warring nations of Europe. It is announced that the foundation is prepared to expend millions in this work of relief. Up to Nov. 1 the total collections in New York for European relief work, exclusive of the Rockefeller Foundation contributions, aggregated over $1,000,000. Of this amount, about $325,000 is for the Red Cross, and $112,000 for the American Hospital in Paris.

Mrs. Whitney's Field Hospital.—On Nov. 4 Mrs. Henry Payne Whitney, daughter of the late Cornelius Vanderbilt, accompanied by four American surgeons, half a dozen hospital internes, and fifteen trained nurses, sailed for Europe on the steamer *Lusitania* to establish a field hospital for the care of the wounded behind the battle lines in Northern France. The project, it is stated, is being financed solely by Mrs. Whitney as her contribution toward the relief of sufferers from the war, and that she had been quietly planning this work for several weeks. Ten motor ambulances and a large quantity of supplies for the hospital's equipment were shipped to France by the steamer *Chicago* on Oct. 31. The four surgeons of the hospital staff are Dr. Walton Martin, surgeon to St. Luke's Hospital; Dr. Karl Connell, assistant surgeon to Roosevelt Hospital; Dr. Donald Gordon, of the out-patient surgical staff of Roosevelt Hospital; and Dr. W. E. Drennan, an experienced surgeon of Birmingham, Ala. The special reason assigned for this undertaking is the great need of skilled surgery at the front. At present, it is explained, it is impossible for the military hospitals to handle any but the less serious cases of wounded. The result is that large numbers of men who are injured most severely have to wait for treatment until they can be sent to Paris. This means a delay of twenty-four hours, or more, and by that time the cases may be beyond hope. By establishing an up-to-date and fully equipped hospital close to the lines it is hoped to render a most important service in this respect; for, with sufficient motor ambulances constantly in service, the wounded can be rushed to the hospital, and the dangers arising from delay avoided. The surgeons to be in charge have all volunteered their services, and will remain at the front for three or four months, after which their places will be taken by other volunteers. This field hospital is to be conducted in coöperation with the American Hospital in Paris, and it is stated that, if necessary, other similar hospitals will be established by Mrs. Whitney.

Current Literature

MEDICAL RECORD.

OCTOBER 17, 1914.

1. DOTY, A. H. *The Means by Which Infectious Diseases are Transmitted and Disinfection.*
2. LINTHICUM, G. M. *Chronic Mucous and Membranous Colitis.*
3. DELAVAN, D. B. *The Employment of Skiagraphy in the Diagnosis of Enlargement of the Thymus Gland.*
4. CARTER, D. *Alcoholism as a Factor in Disease.*
5. RUECK, G. A. *The Diagnosis of Typhoid Fever.*
6. WILDMAN, H. V., JR. *Syringomyelia, with Report of a Case of Morvan's Type of the Disease.*
7. JOSEPH, B. *Rhinolith of Several Years' Duration in a Child of Eight.*

OCTOBER 24, 1914.

1. BULKLEY, L. D. *The Relation of Diet to Cancer.*
2. FAUNTLEROY, A. M. *Amputations.*
3. GORDON, A. *Neurologic and Psychiatric Aspects of Railway Accident Cases. Consideration of Some Medico-legal Problems.*
4. *WATTERS, W. H. *The Modern Treatment of Syphilis.*
5. STRAUCH, A. *Acute Leukemia.*
6. VIORAN, R. L. *Umbilical Infections.*
7. FRIEDMAN, E. D. *Occlusion of the Inferior Mesenteric Artery.*
8. BIRDSALL, E. *A Case of Giant-Cell Sarcoma Successfully Treated by a Combination of Surgery and the X-rays.*

4. Watters discusses the modern treatment of syphilis and gives his conclusions from his personal experiences. Salvarsan, he says, is preferable to neosalvarsan, both from a clinical and a serological standpoint. Properly prepared, it causes reactions not materially more numerous or more severe. The treatment of syphilis without salvarsan is inadequate. Salvarsan alone is less efficient than salvarsan accompanied and followed by mercury, which is best given as the salicylate intramuscularly. In tabes and paresis, formerly considered hopeless, much benefit can be confidently expected from the use of salvarsan. In these cases the best method of administration is the intraspinous. Salvarsan treatment should always be controlled by blood examinations. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

OCTOBER 17, 1914.

1. LYDSTON, G. F. *Implantation of the Generative Glands and Its Therapeutic Possibilities.*
2. MORRIS, R. T. *Heteroplastic Grafting of Testicle.*
3. CUMSTON, C. G. *Gunshot Wounds of the Spine.*
4. WHITALL, J. D. *Median Bar Obstruction in Prostatic Disease.*
5. CROTHERS, T. D. *Was the Engineer's Mind Impaired by Alcohol?*
6. GREENSHAW, H. *Localization of Brain Lesions.*
7. HARRIS, T. J. *The Nasopharyngoscope in Treatment.*
8. MORGAN, F. P. *Alleged Tuberculosis Cures upon the Market.*
9. ROLPH, F. W. *Tropacolin as an Indicator for Gastric Acidity.*
10. BODENHEIMER, J. M. *Purpura Hemorrhagica Treated with Horse Serum.*

OCTOBER 24, 1914.

1. HIBBS, R. A. *Muscle Bound Feet.*
2. MANGES, M., AND WESSLER, H. *Eventration of the Diaphragm.*
3. SHOEMAKER, W. T. *Tuberculosis of the Conjunctiva.*
4. HAGNER, F. R. *Neoplasms of the Bladder.*
5. RABINOVITZ, M. *End Results of Criminal Abortion.*
6. GALLEGHER, E. A. *A New Bed Bathtub.*
7. LYDSTON, G. F. *Implantation of the Generative Glands and Its Therapeutic Possibilities.*
8. MEIERHOF, E. L. *A Curette for the Endotympanum.*
9. BAETZ, W. G. *Syphilis in Colored Canal Laborers.*
10. MISSILDINE, J. G. *Horse Asthma.*
11. GAY, F. P. *Methods of Antityphoid Immunization.*

THE LANCET.

OCTOBER 10, 1914.

1. *LEWIS, T. *An Address on the Pathology of Heart Function.*
2. COLLIE, J. *Observations upon Thirty-one Thousand Consecutive Medical Examinations, Conducted Chiefly for the Public Service.*
3. DOUGLAS, S. R. *On a Method of Making Cultivation Media without Prepared Peptones and on a Peptone-free Medium for Growing Tubercle Bacilli.*
4. KONDOLEON, E. *The Transport of the Wounded in War.*
5. SMITH, G. MCC. *A Case of Acute Exophthalmic Goitre Simulating Acute Obstruction.*
6. WATSON, J. H., AND SNOWBALL, T. *Observations on the Improvisation of Apparatus in the Treatment of Certain Fractures in Modern Warfare.*
7. MAKINS, G. H. *A Note upon the Wounds of the Present Campaign.*

1. In this address on the pathology of heart function, Lewis describes the results of recent work on this subject and then discusses the function of the heart in relation to its disturbed action, heart-block, premature contractions and allied disorders of the heart's rhythm, the relation between extrasystolic and physiological beat, and the rôle of the heart nerves in causing extrasystoles. [J. B. H.]

OCTOBER 17, 1914.

1. BLAND-SUTTON, J. *Presidential Address on Cancer of the Duodenum and Small Intestines.*
2. BOND, C. H. *Introductory Address on the Position of Psychiatry and the Rôle of General Hospitals in Its Improvement.*
3. NEWMAN, D. *Incontinence of Urine in Women.*
4. SLANEY, C. N. *Multiple Round-celled Sarcoma Originating in the Nares.*
5. ROSE, A. *A Case of Mediastinal Pleural Effusion.*

BRITISH MEDICAL JOURNAL.

OCTOBER 10, 1914.

1. *MACCONKEY, A. *Tetanus: Its Prevention and Treatment by Means of Anti-tetanic Serum.*
2. SHIPLEY, A. E. *Insects and War: The Flour Moth in Soldiers' Biscuits.*
3. MCDONAGH, J. E. R., ET AL. *Discussion on the Treatment of Syphilis.*
4. *WALKER, N., ET AL. *Discussion on the Need of Greater Method in the Treatment of Lupus.*
5. MCWALTER, J. C. *Antimony in Syphilis.*
6. MCDONAGH, J. E. R. *The Rationale or Modus Operandi of the Wassermann Reaction.*
7. TOMKINSON, J. G. *Four Cases of Lahore Sore.*
8. DAVIS, H. *Infantile Eczema.*
9. WILLIAMS, A. W. *Keratodermia Blennorrhagica.*

1. MacConkey, in a brief history of tetanus, describes the distribution of the bacillus and its cultivation, the production of tetanus toxin and of tetanus antitoxin. He then discusses the prophylactic use of tetanus antitoxin in order to prevent the development of this disease in animals with various operations. He discusses the curative use of antitoxin and emphasizes its inefficiency in many instances owing to the advanced stage which the disease has usually reached before such treatment is instituted. He urges the widespread use of antitoxin for prophylactic purposes in order to stamp out this disease.

4. Walker urges the need of a more methodical treatment of lupus. He describes the great variety of treatment at present employed. The local use of tuberculin by means of tuberculin ointment, he believes, should be given a far wider use than it is at present. He also describes favorable results with the use of tuberculin injections. (The reviewer is unable to confirm this statement from his own experience.) [J. B. H.]

October 17, 1914.

1. *Bland-Sutton, J. *On Cancer of the Duodenum and Small Intestine.*
2. Horsley, V. *Present-Day Lessons from the Life Work of Mitchell Banks.*
3. Cathcart, C. W. *Pinewood Sawdust as a Surgical Dressing.*
4. Shipley, A. E. *Insects and War: Flies. (1) The House Fly.*
5. Turner, W. A. *The Outlook in Epilepsy.*
6. Brown, D. D. *Rheumatoid Arthritis.*
7. Roth, P. B. *The Treatment of Torticollis. (Congenital Non-spasmodic Wry-Neck).*

1. In an article on cancer of the duodenum and small intestine, Bland-Sutton presents a general description of various forms of cancer in various regions of the small intestine, including the appendix. There are six illustrations which, considering the standard of illustrations in this Journal, are very excellent. [J. B. H.]

Edinburgh Medical Journal.

October, 1914.

1. Hart, D. B. *On the Atypical Male and Female Sex-Ensemble (So-called Hermaphroditism and Pseudohemaphroditism).*
2. Greig, D. M. *On Primary Hypertrophy of the Gums and on Reduplication of the Lip.*
3. Cullen, G. M. *The Passing of Vesalius I.*

Miscellany.

AN EXPERIMENT IN DISPENSARY SERVICE CO-OPERATION.

On Nov. 1 there was initiated in East Boston a new project for coördinating the work of the various dispensaries and organizations of charitable medical relief and service in that section of the city, which has a population of about 60,000.

"Within this field seven distinct health organizations, in addition to the Associated and other charities, have been at work, largely on the same ground, and until lately with only the slightest of coöperation in some directions. On the part of the city of Boston there are the Board of Health and the school physicians and school nurses, with a tincture of the Division of Child Hygiene. Associated with the Maverick Dispensary have been the District Nurses' Association, which furnishes pre-natal and post-natal care and general nursing; and the Milk and Baby Hygiene Association, which has furnished milk and taught mothers how to care for their infants. Two district physicians paid by the Boston Dispensary have visited the sick who could not come to the dispensary. On still another side were the eye and dental clinics of the dispensary, drawing patients mainly from the schools."

The new plan, as described by Mr. Baker in a recent issue of the *Transcript*, involves primarily an active coöperation between the Boston Dispensary, the Maverick Dispensary, the Instructive District Nursing Association, and the Boston Milk and Baby Hygiene Association.

"The Maverick Dispensary has received an average of about twenty-five patients a day, presenting all sorts of troubles. Some of these patients are in need of major surgical operations, which the dispensary is not equipped to do. Such cases have been referred mostly to the Peter Brigham and the Massachusetts General Hospitals, and a nurse from the dispensary has seen to it that the arrangements made for such patients were carried out. Patients suspected of being tuberculous have been sent to the Boston Consumptives' Hospital for diagnosis, and if found to be suffering from that disease have been put in charge of tuberculosis nurses in East Boston. Children with throat and nose affections other than comparatively simple adenoids and tonsil troubles have been sent to Boston hospitals; all those whose ears have been involved are sent to the specialists of the Eye and Ear Infirmary. In this way coöperation with the large hospitals has been established, and the best available treatment secured for the patients. About 30% of the dispensary patients are now referred to other hospitals for necessary operations which those hospitals are best fitted to provide."

Defective school-children are to be dealt with in the following manner.

"On the school side, the dispensary has received during the school year a considerable flow of children with defective eyes or teeth. For these patients the dispensary has furnished eye examinations, prescriptions, and the glasses themselves. On the dental side, the difficulty of taking the children to the far-distant Tufts or Harvard clinics at the South End, especially for mothers largely or wholly ignorant of the English language, demanded dental service in East Boston. And the dispensary furnished it, often having three dentists busy during the entire day. The saving in time and car-fares was no small item; and the greater ease of getting at remedies resulted in practically every child being attended to.

"Between the Baby Hygiene and the Nursing Associations a new coöperation has been established. Some babies brought to the dispensary as sick were actually not diseased, but in need of proper feeding. Received first by the dispensary, a mere change of records turned these babies over to the Baby Hygiene Association, whose nurses instructed the mothers in proper feeding, secured milk and by visits to the home secured the proper following of directions. On the other hand, babies were brought to the Baby Hygiene Association who were really diseased, and needed medical treatment. Another transfer put these patients in the care of the dispensary, which laid out treatment which the Nursing Association superintends.

"The largest remaining gap, now to be filled, was in the work of the district physicians. There were two of these, paid a nominal salary by the Boston Dispensary. They were on call for cases of sickness where the patient could not leave the house. Aside from the difficulty of getting competent men for this service, there were other troubles. Calls for the district physicians were left at certain drug stores. After a first visit the physician might tell the patient to go next to the dispensary. But there was no way for the dispensary to know whether the patient actually came as directed, because the district physician's work was not properly connected with the records of the dispensary. In the matter of convalescence also, the physician might make several visits to the house, and then turn the patient over to the dispensary without the dispensary ever discovering the fact. In many cases the convalescent did not go to the dispensary, and a relapse, with a waste of all the preceding medical and nursing effort, followed.

"One physician, Dr. Mark Wentworth, will now displace the two district physicians of the old order, on a salary to be paid by the Boston Dispensary. While Dr. Emmons will continue as physician in chief of the Maverick Dispensary, Dr. Wentworth will receive and prescribe for all patients applying at the dispensary, and he will also make all the house visits formerly left to the district physicians. This will close all the former gaps between the dispensary's work in its own clinics and its work in the homes. The result will be continuous medical and nursing effort carried out to visible results. The transfer of babies between the Baby Hygiene and Nursing Associations, according to the need of food or medicine, will continue, and the Nursing Association will provide for nursing in the homes.

"Another important element in the service, is the social worker, who takes the histories of applicants at the dispensary before they see the physician, so that when he considers the medical problems of a patient he has also before him vital facts as to home conditions, such as the amount of wages, housing conditions, unemployment, if that is a factor, and the other social influences on bodily conditions that the skilled social worker knows how to search out. Whenever there is need, this social worker calls on the Associated and other charities for such help as is needed to make the home conditions allow of the possibility of a cure.

"Every remedial organization working in East Boston will be by this plan brought into constant touch with the new health centre at the Maverick Dispensary and with all of the other organizations. The resources of each and all are focused in the dispensary. Each does its appropriate share in meeting whatever needs are disclosed. There is no wasteful overlapping of effort; there are no gaps left uncovered, and a greatly increased proportion of cases, of whatever sort, are followed up to final results."

A CORRECTION.

In the notice of the Alvarenga Prize Award, in last week's issue of the JOURNAL, the title of Dr. Sheffield's successful essay should have been "Idiocy and Allied Mental Deficiencies in Infancy and Early Childhood."

APPOINTMENTS.

COLUMBIA UNIVERSITY.—*Dr. Alwin M. Pappenheimer* has been appointed professor of pathology, and *Dr. Homer F. Swift* professor of the practise of medicine in the New York College of Physicians and Surgeons.

VANDERBILT UNIVERSITY.—*Dr. James W. Jobling* has been appointed professor of pathology.

RECENT DEATHS.

DR. LOUISE DODSON HOLMES, of Athol, died at Springfield, Mass., Sept. 10, aged 47 years. She was a graduate of the Woman's Medical College of Cincinnati in 1895, and a member of The Massachusetts Medical Society.

DR. JAMES J. MULLOY, who died on Nov. 7 at Winthrop, Mass., was for many years a resident of East Boston. He received the degree of D.M.D. in 1877 from the Boston Dental College. He had served as a member of the Winthrop board of health.

BOOKS AND PAMPHLETS RECEIVED.

Circular of Information to Physicians Regarding Contagious Diseases, Tuberculosis, Typhoid Fever and Other Infectious Diseases; Directory of Supply Stations. 1914.

Hand-Book of the Bureau of Infectious Diseases, 1914. Department of Health, New York.

For School Children: How to Keep From Getting and Spreading Diphtheria, Scarlet Fever and Measles. Department of Health. 1914.

Circular of Information Regarding Laboratory Examinations in Venereal Diseases. Department of Health. 1914.

Kirkes' Handbook of Physiology. Revised by Charles Wilson Greene, A.M. William Wood & Co., 1914.

A Text-book of Pathology, by Francis Delafield, M.D. William Wood & Co., 1914.

The Health Supervision of School Children of New York City, by Edward F. Brown.

A Medical Dictionary for Nurses, by Amy Elizabeth Pope. G. P. Putnam's Sons. 1914.

Dental Cinics for School Children, by Edward F. Brown. Reprint.

Original Articles.

THE CHLOROPHYLL TEST OF GASTRIC MOTILITY.*

By Franklin W. White, M.D., Boston,

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There is no need to emphasize the importance of the motor function of the stomach. It is well recognized that it is the stomach's chief function, or at least the one which makes most trouble, if it is deranged. A simple, exact test of motility has, therefore, great value.

Our tests of secretion are simple and accurate. Our tests of the motor function of the stomach are not as simple nor as accurate, especially for the finer changes in motility.

The chlorophyll test was devised by Boas[1] two years ago, with the hope of avoiding some of the defects in previous tests of gastric motility, and the present work was done to make a trial of this test in a considerable series of cases, to see how far this hope has been justified.

Some of the defects in previous tests, which the chlorophyll test aims to avoid, are as follows: the Leube meal, which is much used, is a rather heavy meal (plate of soup, steak or roast beef, potato, a roll, a glass of water), and is often taken with little appetite by sick patients, which must affect the motility of the stomach. A patient who has been on a light diet often dislikes the sudden change to the heavy Leube meal and may have difficulty in tolerating it, and vomiting may result. In a considerable number of tests of motility, rather coarse food, such as raisins, green vegetables and so forth, are given. Those are not without a disagreeable effect in some cases of ulcer.

In those tests of motility which are made by aspirating the residue in the stomach after the course of a number of hours or over night, there may be a considerable addition to the bulk of the residue due to gastric secretion or hypersecretion. Thus the element of secretion enters to confuse what was aimed to be a test of motility. The ten- and twelve-hour tests for gastric residue do not show the finer changes in the motility of the stomach.

The x-ray is often used at present for testing gastric motility. The expense and the necessity for repeated visits are sometimes an objection. Also the bismuth often leaves the stomach at quite a different rate from the food.

To illustrate this briefly: A recent patient with complete achylia gastrica had no residue after a test breakfast at the end of one-half hour, on three separate occasions (the stomach was washed out each time to make sure it was empty). The stomach showed a six-hour residue after a bismuth meal.

Another patient with catarrh of the stomach, who showed a three-ounce residue of food eight hours after a Leube-meal, showed an empty stomach four and a half hours after a bismuth meal. Such illustrations might be multiplied.

With some of these defects of previous tests in mind, we can easily appreciate the value of a simpler and more accurate method.

The technic of the chlorophyll test is as follows:

The test is made in two parts.

First part: The patient, on a fasting stomach, drinks 400 c.c. of water, which has been colored pale green by the addition of twenty drops of a watery chlorophyll solution. At the end of half an hour, the residue is aspirated with the stomach-tube, and the amount noted.

Second part: In order to make the test more accurate and that no residue might escape, the stomach is then washed out with a 1% watery solution of sodium-bicarbonate. The amount of this solution used for lavage depends upon the amount of residue aspirated at the end of one-half hour. Let the thirty-minute residue equal x. The stomach is washed out with 400 minus x c.c. The residue and the wash waters are put together and made up to 400 c.c. (if necessary) and the green color of this mixture compared with dilutions of the original chlorophyll water taken (400 c.c. water, 20 drops chlorophyll solution), and in this way the per cent. of the colored water, which has passed out of the stomach in one half-hour, is estimated.

This test was based upon Moritz' observation, that 500 c.c. of water leaves the normal stomach in one-half to three-quarters of an hour, and to Boas' own observation in normal cases, that 400 c.c. of water taken into the fasting stomach, leaves a residue in a half hour of 50 to 60 c.c.

The chlorophyll solution is tasteless, easily obtained and is not absorbed from the stomach. It is, however, easily precipitated by saliva and mucus and the patient is warned not to swallow saliva after drinking the chlorophyll water.

The advantages claimed for this test of motility are, that the chlorophyll water gives little stimulus to secretion, causes no pyloric reflex and is a pure test of motility. The watery residue is easily recovered. The water is easy for the patient to take and it constitutes a rapid, simple method for the doctor.

In making a systematic trial of this test, we were especially interested to see if these claims were justified, and whether or not the test was equal or superior in accuracy to the older tests, whether it would detect finer grades of motor disturbances. In our series of 50 cases, we have systematically compared the test with the Leube seven-hour test. The x-ray has been used in many of the cases, but primarily for other purposes, the detection of defects or deformities in the outline of the stomach. While the x-ray

* Read at the seventeenth annual meeting of the American Gastro-Enterological Association at Atlantic City, June 22 and 23, 1914.

findings are given in our table, they are not emphasized as a guide to the accuracy of the chlorophyll test.

We have found the technic of the test simple and easy for both doctor and patient. Careful aspiration of the residue is very necessary, but this is easy with the watery solution.

The second part of the test, which was designed to increase its accuracy, *does not* do this in our opinion and we have omitted it for the following reasons: We have found that the chlorophyll pigment clings to the mucus in the stomach and makes the second part of the test inaccurate. This is readily seen in the table of the cases by comparing the amount of residue in c.c. in the first column with the amount of color-residue in the second.

In Case 1 we see a 5 c.c. residue, well within normal limits, and a 50% color-residue far above the normal (which is about 10%). The same thing is seen in a varying degree in Cases 3, 4, 5, 6, 8, 19 and 22. The amount of color retained in the stomach in these cases runs more or less parallel with the amount of mucus in the stomach, to which it could cling. The mucus precipitated and held back pigment, while the water escaped. In short, the amount of residue in c.c. in the stomach was a far better guide to the speed of emptying than the color test. Several other stains were tried, in hope of finding one which would prove tasteless, and not be absorbed or held back by the mucus, but with poor success.

The cloudiness of the mixture of residue and wash water, the presence of minute food particles, the occasional reflux of bile, sometimes made accurate color comparison difficult. Filtration was not practicable, as thereby most of the pigment was filtered out.

It was found that complete aspiration of the residue was the rule, making the second part of the test unnecessary and often misleading, and this colorometric part of the test was omitted after the first 22 cases, and our estimate of the motor power of the stomach based upon the number of c.c. of residue at the end of one-half hour. This omission makes the test shorter and easier for both patient and doctor. It is not absolutely necessary to add the chlorophyll to the water, in making the test, but it is a convenient way of identifying the residue with the liquid taken.

We have not found the chlorophyll a stimulus to gastric secretion, neither did it check it and, if marked hyper-secretion was present, we found it wise to empty the stomach in the morning, before making the chlorophyll test.

RESULTS.

The following table gives our results. First in the 45 cases where the chlorophyll and Leube tests agreed, in patients with normal and with abnormal motility, then in the 5 cases where somewhat divergent results were obtained with the two tests. In judging of the accuracy of the test, we have used chiefly the amount of residue seven hours after a Leube meal, for comparison. In 90% of cases, the results are the same as with the Leube meal and in the remaining 10% the differences are all minor ones. No important change in motility was missed and in this way the test was satisfactory for diagnosis. A few individual cases, 5 out of 50, have shown some difference in results with the different tests used. In Case 46 there was a slightly increased residue with the half-hour chlorophyll test and a normal residue with the 7-hour Leube test. There was evidently a slight, early retention of food in the stomach. The same is true to a less degree of Case 50. In Case 47, one of ptosis, the chlorophyll residue is close to normal. The Leube 7-hour residue was something more than normal. The stomach emptied quite well at first and later showed fatigue. In Case 49, a duodenal ulcer, the chlorophyll test was normal and the Leube 7-hour test showed considerable residue. There was marked hyper-secretion in this case, which undoubtedly explains the considerable residue at the end of seven hours, and the differences between the two tests. As a pure test of motility, I believe the chlorophyll was more accurate than the Leube test, in this case.

The same thing is true to a less degree in Case 48, one of gastric ulcer.

Comparing the results of different tests of gastric motility is not a simple matter. It is difficult to say what is the "standard test." The Leube 7-hour test has been chosen for this series, because it is one of the best known and most widely used and most satisfactory tests which we have had.

Gastric motility is rather complex. The x-ray has especially helped us to understand this of late years. The activity of peristalsis is not uniform at different periods of digestion. In one case, it is very active at an early stage, later fatigued and slow. In another, it is sluggish at the beginning and later "gets its second wind."

We do not believe that the occasional slight differences which we have found between the chlorophyll and the Leube tests are important in diagnosis and we do not believe that the chlorophyll test will detect finer differences in motor function than the Leube test.

The theoretical objection may be raised, that it is better to combine the test of motility with a test of secretion, since the latter affects the time of the emptying of the stomach and that a "real meal" is more natural than a long drink of green water. These objections do not seem to be valid. The practical results of this test in diagnosis have been good, sometimes apparently better than the controls. It is a satisfactory quantitative test of a very simple type, the amount of residue varying with the grade of disturbance.

Kemmerling[2] and Wartensleben[3] have recently reported results which resemble ours. Both found difficulties in the colorometric part of the test and Wartensleben, working in Boas' own

clinic, advises omitting the second part of the test. The per cent. of cases in which the chlorophyll test ran parallel with other tests of motility was smaller, in both series, 62% Kemmerling, 78% Wartensleben (90% in our series). This difference is largely due to their frequent comparisons of the chlorophyll test with the bismuth meal and x-ray test of motility. I do not believe that the bismuth test of motility should be used as a criterion to judge the value of other tests of motility for the reason stated above, namely, that bismuth often leaves the stomach at an entirely different rate from ordinary food or drink.

		Chlorophyll Test. Residue in c.c.	Residue Color	Color on Mucus.	Leube 7 Hr. Residue.	X-ray Stomach Empty in Hours.
A.	Both Tests Agree.					
(1)	*Normal Motility.*					
1.	Neurosis	5	50	+++	0	—
2.	Achylia	9	10	0	0	—
3.	Colitis	0	45	+++	0	—
4.	Adhesion cecum	10	20	++	0	—
5.	Neurosis					
6.	"	12	20	++	0	—
7.	"	6	0	0	0	—
8.	Duod. ulcer	45	20	+	0	—
9.	Neurosis	5	15	+	0	5
10.	"	24	10	+	0	—
11.	Gallstones	15	—	—	0	—
12.	Duod. ulcer	0	—	—	0	—
13.	Neurosis	10	—	—	0	—
14.	Fatty liver	12	—	—	0	—
15.	Catarrh	0	—	—	0	—
16.	Constipation	10	5	—	0	6
17.	Cholecystitis	5	5	—	0	6
18.	Gastr. ulcer	0	0	—	0	6
19.	Chronic appendix	40	20	+	0	7
20.	Constipation	20	15	—	0	6
21.	Chronic appendix	5	10	—	0	6
22.	Gastr. ulcer	20	30	++	0	6
23.	Neurosis	0	5	—	0	8
24.	"	0	5	—	0	—
25.	Phthisis	2	5	—	0	7
26.	Cancer	10	—	—	0	4½
27.	Neurosis	40	—	—	0	6
28.	"	60	—	—	0	—
29.	Ptosis	10	—	—	0	—
30.	Gall-stones	50	—	—	0	—
(2)	*Abnormal Motility.*					
31.	Tabes	90	15	+	8	—
32.	Catarrh	180	30	—	90	4½
33.	Cancer	540	—	—	390	24
34.	"	300	—	—	412	12
35.	"	435	—	—	340	24
36.	Duod. ulcer	240	—	—	490	18
37.	Gastr. ulcer	170	75	++	35	9
38.	Ptosis	180	—	—	40	6+
39.	Benign stenosis	205	—	—	130	6+
40.	" "	290	—	—	175	6+
41.	" "	200	—	—	200	—
42	Duod. ulcer	210	—	—	160	6+
43.	Benign stenosis	340	—	—	180	6+
44.	Ptosis	120	—	—	145	—
45.	Benign stenosis	300	—	—	420	—
B.	Divergent Results.					
46.	Gastr. ulcer	90	—	—	0	6
47.	Ptosis	65	—	—	57	9
48.	Gastr. ulcer	3	—	—	25	6½
49	Duod. ulcer	30	—	—	120	6+
50.	Ptosis	75	—	—	0	—

SUMMARY.

The second colorimetric part of the test is better omitted and the estimate of the motor power of the stomach based on the number of c.c. of residue found at the end of one-half hour.

We may answer the question whether it is better than older methods of testing gastric motility by saying that it is simpler than most; makes little demand on the appetite, and is very easy on the stomach. It is readily used in patients who are vomiting, or who are on a very simple light diet, where a big meal is uncomfortable or impossible. The sources of error are few and probably unimportant and no considerable disturbance of motility escapes detection. It is an easy method of following results of treatment of gastric stasis.

It is probably not superior in accuracy and not likely to replace the best of the older tests, but it is simpler and easier for both doctor and patient in a large group of cases and gives us an extra "string to our bow."

REFERENCES.

[1] Boas, J.: Beitrag zur Motilitätsbestimmung, Deutsch. med. Woch., No. 10, 1912.

[2] Ueber die Boassche Chlorophyllprobe zur Bestimmung der Magenmotilität, Arch. f. Verdauungskr., 1914, Band xx, S. 49.

[3] Ueber Motilitätsbestimmung des Magens mit besondere Berücksichtigung der Boassche Chlorophyllmethode. *Idem*, S. 66.

A NOTE ON THE INCREASE OF TOTAL NITROGEN AND UREA NITROGEN IN THE CEREBROSPINAL FLUID IN CERTAIN CASES OF INSANITY, WITH REMARKS ON THE URIC ACID CONTENT OF THE BLOOD.*

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and

B. H. Ragle, Boston,

Interne, Psychopathic Hospital.

I. CEREBROSPINAL FLUID DETERMINATIONS.

The cerebrospinal fluids examined by us were obtained from patients at the Psychopathic Hospital by lumbar puncture. The earlier speci-

* Being Contributions from the Psychopathic Hospital, Number 50 (1914.16). (*Bibliographical Note.*—The previous contribution, Number 49 (1914.15), by Mary L. Gerrin, entitled "Impressions of a General Hospital Nurse on Beginning Work at the Psychopathic Hospital, Boston," published in the Boston Med. and Surg. Jour., Vol. clxxi, No. 13, Sept. 24, 1914.)

mens were taken from patients in whom there was a strong probability of an organic disease of the central nervous system. Later a numer of patients were examined in order to determine whether the variations from the normal observed in certain cases were to be considered diagnostic or not.

The material thus accumulated comprises one hundred and ten cases. The specimens of cerebrospinal fluid were examined within twenty-four hours after removal from the patient. In most cases the examination was started within an hour after withdrawal of the cerebrospinal fluid. Where this was not done, the specimens were preserved at 0° C. but in no case over more than twenty-four hours.

The examination which we wish to report on here consisted of the determination of the total nitrogen and the urea nitrogen by the colorimetric methods of Otto Folin and W. Denis.

The following tables present the findings:—

TABLE I.

TOTAL NITROGEN IN MMG. PER 100 C.C. OF CEREBROSPINAL FLUID.

Diagnosis.	No. of Cases.	Maximum.	Minimum.	Average.
Manic depressive insanity	14	32.0 mg.	14.5 mg.	21.2 mg.
Dementia precox	17	29.41	14.1	19.8
General paresis	24	55.3	15.5	27.2
Delirium tremens	3	20.0	18.4	19.1
Juvenile paresis	1	93.4	27.7	71.5
Classified dementias	10	41.65	13.2	24.1
Unclassified dementias	26	168.4	16.6	34.4
Not insane	15	31.7	13.1	21.3

TABLE II.

UREA NITROGEN IN MMG. PER 100 C.C. OF CEREBROSPINAL FLUID.

Diagnosis.	No. of Cases.	Maximum.	Minimum.	Average.
Manic depressive insanity	7	20.5 mg.	10.0 mg.	16.2
Dementia precox	12	21.6	10.9	14.6
General paresis	11	43.86	10.1	18.7
Delirium tremens	1	10.1	10.1	10.1
Juvenile paresis	1	20.7	13.9	17.1
Classified dementias	5	18.9	11.0	16.0
Unclassified dementias	19	49.8	10.7	21.7
Not insane	11	24.5	10.11	15.5

It will be seen that the mental diseases represented do not include senile and arterio-sclerotic cases. This group will form the basis of a separate communication.

The striking feature of the findings, as shown in the table, is the high total nitrogen content of the cerebrospinal fluid in general paresis. The average of the twenty-four cases examined was 27.2 mg. with a minimum 15.5 mg. and a maximum 55.3 mg., whereas the normal variations are from 15 to 20 mg. in 100 c.c. This observation coincides with the well-known increase in albumen and globulin, which forms one of the diagnostic features of the disease.

The unclassified dementias included several that show high total nitrogen content. The average of the twenty-six in this group is 34.4 mg. with a maximum of 168.4 mg. in a case of meningitis.

The urea nitrogen variations follow in the total nitrogen fairly accurately. In the unclassified, here again, the number of cases shows high urea nitrogen.

We do not wish to commit ourselves on the significance of these findings beyond the statement that since an increase in proteins in the cerebrospinal fluid is of diagnostic importance in certain cases of disease of the nervous system, an accurate quantitative determination, such as is possible by the Folin-Denis method, is of considerable advantage.

One case of juvenile paresis was examined five times, and each of these examinations showed a marked increase in the total nitrogen with a constant normal urea nitrogen. This case terminated fatally, and at autopsy, a basal meningitis of considerable extent was found. The total nitrogen findings are consistent with this, and probably the marked rise from 27.7 to 93.4 mg. per 100 c.c. of cerebrospinal fluid indicated the progress of the meningitis.

II. BLOOD DETERMINATIONS.

Otto Folin and W. Denis in their article on "Uric Acid, Urea and Total Non-Protein Nitrogen in Human Blood" report uric acid determinations in the blood of 38 cases at the Psychopathic Hospital. These they divide into three groups according as: 1, they found less than 1 mg. of uric acid per 100 grams of blood (Group I); 2, between 1 and 2 mg. per 100 grams of blood (Group II); and 3, over 2 mg. (Group III).

They further make the deduction that the uric acid content of normal blood may vary from not less than 1-2 mg. to 2.5 mg. uric acid per 100 grams of blood. From 4-6 mg. of uric acid to 100 grams of blood represents approximately the concentration in cases of acute disease.

According to that, the cases that they have reported are all within the normal limits except the five cases of Group I which show a slightly smaller amount than their normal minimum of 1 mg.

The present report deals with the examination of 156 patients at the Psychopathic Hospital. The following table shows the findings in the different cases grouped according to diagnosis. It is interesting to note that all are within the normal limits, the averages being remarkably uniform. It is further interesting to note that the highest quantities of uric acid were determined in patients that were either unclassified or not insane.

Table III.

URIC ACID CONTENT OF BLOOD IN MMG. PER 100 C.C. OF BLOOD.

Diagnosis.	No. of Cases.	Maximum.	Minimum.	Average.
Epileptic insanity	1	1.86	1.86	1.86
Manic depressive insanity	5	2.80	.74	1.84
General paresis	6	1.56	.91	1.31
Unclassified	11	4.51	.71	1.84
Alcoholic hallucinosis	29	2.82	1.06	1.71
Paraphrenia + Unclassified paranoid	10	2.10	.85	1.49
Not insane	40	4.09	.71	1.71
Senile + organic	18	2.65	.70	1.64
Dementia precox	36	1.58	.96	1.58

If we classify these cases according to Folin and Denis in three groups, namely: Group I, cases in which the uric acid content of the blood is less than 1 mmg. per 100 c.c. of blood; Group II, cases in which the uric acid content is between 1 and 2 mmg. per 100 c.c. of blood; and Group III, in which the uric acid content is over 2 mmg. per 100 c.c. of blood, we have the following arrangement as shown in Table IV.

Table IV.

Diagnosis.	Number of Cases.	Group I.	Group II.	Group III.
Epileptic insanity	1	—	1	—
Manic depressive insanity	5	2	—	3
General paresis	6	1	5	—
Unclassified	11	1	6	4
Alcoholic dementia + Delirium tremens + drugs	29	—	22	7
Paraphrenia + Unclassified paranoid	10	1	7	2
Not insane	40	3	27	10
Senile + organic	18	1	14	3
Dementia precox	36	2	25	9
Grand total	156	11	107	38

From this it appears that the greatest number of cases belong to Group II, *i.e.* the normal.

A very few number of cases were found to belong to Group I. The only diseases having any representative in this group were epileptic insanity, of which we had only one case, and alcoholic dementias, delirium tremens, etc. It is possible that this fact has some significance in the case of the alcoholic insanities, although this requires proof on a larger material.

Considering Group III, we found a few cases of each of the diseases represented, with the exception of epileptic insanity—for the reason above mentioned—and general paresis. As the total number of cases of general paresis was only six, it is possible that a larger number of examinations would reveal cases belonging to Group III. Otherwise the cases run about proportionate to the total number examined.

These figures, then, seem to indicate the probability that concentration of uric acid in the *blood* of insane patients varies within normal limits.

Massachusetts Medical Society

SYMPOSIUM ON CANCER OF CERTAIN PELVIC ORGANS.

Meeting of the Section of Surgery, June 9, 1914.

(Concluded from page 754.)

V.

The Use of Radium in Cancer and Allied Conditions at the Huntington Hospital—Illustrative Cases.

By Thomas Ordway, M.D., Boston.

During the past year the Cancer Commission of Harvard University has been engaged in investigating the clinical value of radium in the treatment of cancer and allied conditions at the Huntington Hospital. Up to the present time about two hundred cases have been treated. This number is insufficient and the time elapsed is too short for a comprehensive, critical report on the value of radium therapy. This paper should be regarded therefore in the light of a preliminary communication indicating the nature of the cases treated and showing progress in the accumulation of data for record and subsequent critical review and analysis.

Such a clinical investigation has necessitated the combined efforts of almost the entire staff of the commission. Professor E. E. Tyzzer, director, has had general charge of the work and has made the pathological study of cases as far as practicable. Dr. Thomas Ordway, physician in charge, has prescribed the radium treatments and has immediate supervision of all the cases. Professor William Duane, to whom the Commission is indebted for the new methods of application, has been engaged, together with his assistant, Dr. W. T. Bovie, in the preparations of new forms of applicators and in the measurement of their activity. Dr. Ellis Kellert, house physician, has taken most of the photographs and assisted in the clinical work. Dr. R. B. Greenough, consulting surgeon, has examined many of the patients in order to decide whether operation was advisable.* From this it will be seen that many have coöperated in the work and it is as a representative of the Commission rather than its sole author that I present this preliminary announcement of progress in radium therapy at the Huntington Hospital.

Material. The cases treated were referred from various institutions and by private physicians. Most of the cases were of inoperable and recurrent cancer, and many of these had widespread dissemination and were in the cachectic terminal stage. A few patients having super-

* We are also greatly indebted to Drs. Mosher, Graves, White, Porter, Cushing, Cabot, Jones, Derby and Bowditch who have seen patients in consultation. Much of the routine or special laboratory work has been done by Messrs. Hammett, Kerr and Harris.

ficial lesions which were operable were treated, for cosmetic effect, at the request of their physician or the consultants above referred to. A few cases were treated after operation, in prophylaxis of recurrence. Radium treatment has not been used in cases where operation was possible and offered a reasonable hope of cure, with the exception of those superficial lesions where delay was of no consequence.

The nature of the pathological conditions was varied and included papilloma, keratosis, verruca, leukoplakia, superficial and deep rodent ulcers, leukemia, Hodgkin's disease, so-called basal cell type of carcinoma, sarcoma—round, spindle cell and melanotic, carcinoma—epidermoid adeno and alveolar in type. Many parts of the body were affected in the different cases, notably the eye, ear, cheek, nose and mouth, tongue, jaw, neck, larynx, esophagus, breast, abdominal wall, peritoneum, ovary, uterus, rectum and extremities.

Methods.—The properties of radium are now quite generally known. Briefly it is a metallic element designated by the symbol Ra. Three of the commoner salts are the chloride, the bromide and the sulphate of radium. Radium is constantly undergoing transformation into other substances, *i.e.*, radium becomes successively emanation, Radium A, B, C, D, E, and F (or Polonium), which is probably converted into lead. The rate of this transformation cannot be altered by any known process or condition. During these transformations energy is radiated from the substances in the form of the so-called *alpha*, *beta*, and *gamma* rays, upon the various effects of which the therapeutic action depends.

The methods used were those devised and already described by Dr. Duane. The emanation or radio-active gas evolved from a solution of radium was used in most instances. Exceptions include a few cases in which deposited activity, radium A, B, C, from the emanation was employed. By Dr. Duane's method the emanation is purified or freed from the admixture of hydrogen and oxygen, and so reduced to a very small volume. It is then passed by mercury pumps into fine capillary glass tubes which are sealed off into lengths suitable for various containers.

The strength of a radium salt depends on the amount of radium element present. Therefore, in reporting cases the dosage should be accurately stated in milligrams of radium metal or millicuries of radium emanation per hour per unit area. A millicurie is the quantity of emanation that furnishes the same penetrating radiation that one milligram of radium element produces.

The dose employed has varied from 10 to 75 millicuries applied for various periods of time and over areas of greater or less extent, the small dose in superficial skin lesions and the larger particularly in uterine cases. The Commission at present has 250 milligrams of radium expressed as metal.

The emanation loses half of its activity in 3.86 days, or at the rate of approximately 1/6 a day. The solution of radium, however, is replacing this loss at the same rate, so that there is no real diminution in the amount available and the applicators can be thus frequently strengthened or renewed. The applicators at present found most practical for routine work are illustrated in Fig. 1, which is 2/3 natural size.

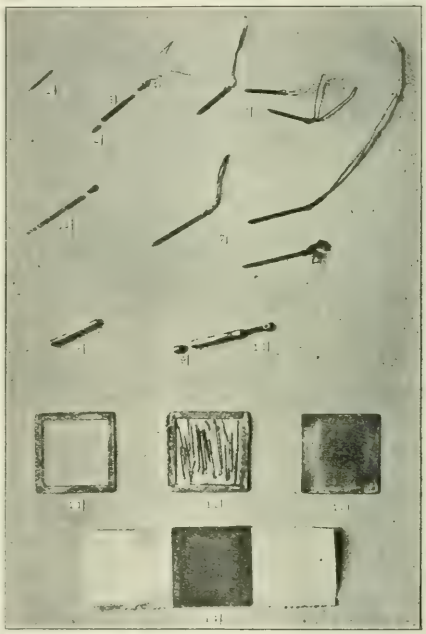


FIG. 1. Applicators at present found most practical for routine radium treatment. (Two-thirds natural size.)

Figure 1. "1" shows a small capillary glass tube containing emanation.

"3" is a thin steel tube to protect "1" from breaking. It is closed by screw ends, "2" and "4." "2" is pointed and "4" has a small eye.

"5" the same as "3" showing the ends closed; one end is tagged with a piece of colored thread for identification as to the measurement of its activity. "5" are short steel tubes with pointed ends containing emanation tubes similar to "1."

"6" and "7" are similar to "5" but twice as long.

"8" is a silver sheath for "7", walls 1 millimetre in thickness for filtration.

"9" and "10" are large rounded ends to prevent perforation of rubber covering.

"11" is the frame of the surface applicator.

"12" shows surface applicator containing small emanation tubes, "1", which have become too weak to use in single containers.

The small tubes are placed on adhesive plaster which is applied to the steel frame, "11."

"13" is a square of metal which may be applied to "12" by adhesive, as indicated in "14", for protection or filtration.

These tubes and surface applicators are used on patients according to the following general rules, to which, however, there are exceptions in special cases. These rules indicate only single applications and give no idea of the number or the time elapsing between them. The number varies greatly with the variety and size of the growth and the intervals in most instances are from three to six weeks, although in certain cases applications are made every day or two for a week and repeated at the regular three to six weeks' interval. The time of application depends not only on the strength of the applicators, usually from 10 to 75 millicuries, but also on the size and nature of the growth, the area to be covered, and the sensitiveness of the patient's skin. Certain technical details of application are illustrated in Figures 2, 3, 4, 5, 6, 7, 8.



FIG. 2. Surface application.



FIG. 3. Protection for healthy tissue about lesion on nose.

GENERAL RULES FOR APPLICATION OF RADIUM.

1. For effects upon *growths beneath the skin when the latter is intact.* Surface applicator—Screening 2 mm. of lead. Protection, gauze, paper and rubber. Exposure, 4 to 8 hours or less.

2. *For superficial skin lesions,* such as keratosis, small growths, etc. Screening, none or 1/10 to 5/10 mm. of lead. Protection, rubber over lesion, adjacent normal skin carefully protected by shield of 1 to 2 mm. of lead, gauze and rubber. Exposure, 10 minutes to 2 hours.

3. *For deep skin lesions with ulcerations.* (*a*) Screening, none except rubber. Protection of adjacent tissue as in No. 2. Exposure, 2 to 4 hours. (*b*) If lesion is still deeper, screening 1 to 2 mm. of lead and rubber, exposure 4 to 12 hours.

4. *Lesions of mucous membranes when superficial.* Same as No. 2, except exposure of 1 to 2 hours.

5. *Lesions of mucous membranes when deep* and growths beneath the mucous membrane. The same as No. 3, except exposure 12 to 24, and occasionally 48 hours' duration.

6. *For introduction of radium within growths.* (*a*) Tubes. Screening, 1/2 to 1 mm. of silver. Protection, none. Exposure, 4 to 48 hours, depending on size and nature of the tumor. Average, 12 to 24 hours. (b) *For local destructive effect.* Thin steel tubes without additional filtration 1 to 2 hours up to 12 hours; length of time dependent on size of the growth and the reaction desired.

As above stated, no extensive report of the cases treated will be given at present, for it will take a number of years to collect and record data for critical analysis. Illustrative cases only will be reported in abstract, arranged in three groups: I, That in which radium therapy may be of curative value. II, Another in which it has proved of little or no value. III, In which palliative results with particular reference to improvement in the local or general condition were obtained.

ILLUSTRATIVE CASES.

Group I. *Cases in which radium therapy may be of curative value.*

CASE 1. C. O., 13.72. Woman, 53 years, married, housekeeper, American. Referred by Dr. G. Littlefield, Dorchester, Dec. 10, 1913.

For five years patient has had an ulcerated area on the left cheek below the eye. At times this has crusted over, but when the crust came off it showed a tendency to bleed. The area has gradually extended toward the left eye, where the lesion is deepest. No improvement has resulted from the use of ointments and powders.

Patient is in good general condition though nervous and apprehensive. Ulceration measures 3 x 1.7 cm. Outline is somewhat irregular and is depressed from 1 to 3 mm. below the adjacent skin, the edges of which are moderately firm but not brawny. The diagnosis "rodent ulcer" is confirmed by Dr. C. J. White.

Radium treatment, rule 2, Dec. 10, 13, Jan. 5, 12, 23, Feb. 17. Note.—All trace of lesion has disappeared. There is slight pigmentation of the adjacent skin. The whole area is soft and pliable. March 1 no trace of active lesion. Pigmentation is much less. Result, superficial rodent ulcer, apparently cured.

Case 2. C. O., 13.63. Woman, 44 years, widow, home, American. Referred by Dr. G. S. Derby, Boston, Nov. 18, 1913.

For four months had a reddened nodule on the left upper eyelid, outer portion. This was lanced, but increased in size and invaded lid. Histological examination of small fragment removed showed epidermoid carcinoma.

Patient's general condition is excellent. The left upper lid is thickened and reddened, and shows an irregular mass 0.5 x 1 cm. in size which extends through to the conjunctival surface of the lid. Note.—To excise the whole area would mean sacrificing considerable portion of the lid and thus expose the eyeball to trauma of dust and possible secondary conjunctivitis and sequelae. It was therefore decided to try radium therapy and operate if the condition was not relieved.

Radium treatment, rule 2, Nov. 24, 25, 26, 28, 29, Dec. 9. Note.—Considerable injection of conjunctival vessels. Tumor almost entirely gone except for small crust. Dec. 24, growth has disappeared, lid is flexible. Feb. 25, no evidence of recurrence, small, flexible, depressed scar. Result, small local epidermoid carcinoma, apparent cure.



Fig. 4. Application to [illegible] through tracheal opening (Case 21).



Fig. 5. Surface application and protection of adjacent tissue. Case 19.



Fig. 6. Application to growth in frontal sinus. Case 22.



Fig. 7. Small tube inserted into growth of tongue. Case 24.

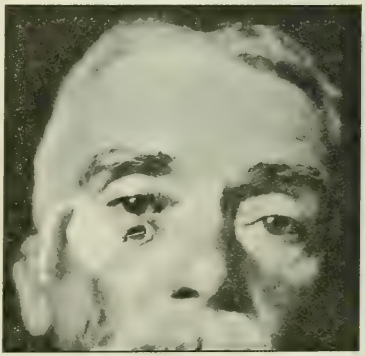


Fig. 8. Small tube applied to surface and inserted into hard edge of a small rodent ulcer.



Fig. 9. Case 1 before radium treatment.



Fig. 11. Case 2 before radium treatment.



Fig. 10. Case 1 after radium treatment. The skin is soft and flexible and there is no sign of active process.



Fig. 12. Case 2 after radium treatment. The growth has disappeared and the eyelid is soft and flexible.

CASE 3. C. O., 13.81 and C. L., 13.70. Man, 64 years, married, shoemaker, American. Referred by Dr. J. W. Plunkett, Boston. Dec. 18, 1913.

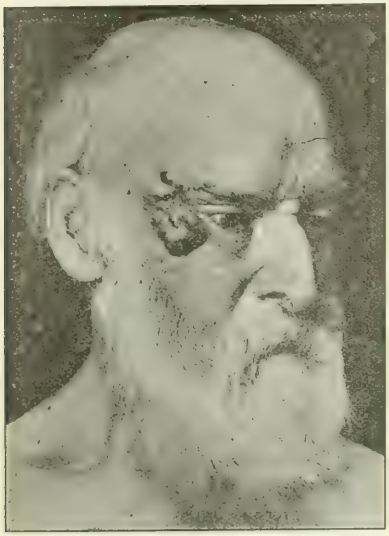


FIG. 13. Case 4 before radium treatment.

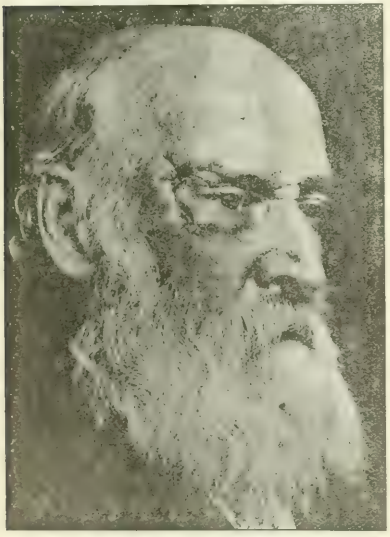


FIG. 14. Case 4 after radium treatment.

Ten years ago roughening of right nipple; two years later a lump in lower part of the right breast, which increased in size and was associated with soreness and burning sensation. It was treated by ultra-violet rays and x-ray, the latter off and on for five years. The condition of the breast became ulcerated and continued to increase in size.

General condition appears good. There is a large ulcerated area over the right breast, extending to axila; it measures 15.5 x 11.5 cm. The edges are markedly elevated, hard, brawny and reddened. In places the ulcerated area is clean, red, and granular, and in others is covered with a whitish gray to yellowish sloughing material. Histological examination of fragment removed shows adeno-carcinoma, having a structure similar to coil glands.

Radium treatment, rule 3, a and b, Dec. 23, Jan. 1, 12, Feb. 5, 16, 23, March 2, 9, 10, 16, 23, 27, 30, April 13, 20, 28, May 5, 13. Note.—There has been diminution in the size of the ulceration and almost complete flattening of the edges of the area which show a marked tendency to heal, only for two areas of ulceration 3 x 2 and 6 x 6½ cm. respectively, persist. Result, adeno-carcinoma of probable sweat gland origin, extensive without metastasis, marked diminution in size of ulceration, apparently healing.

CASE 4. C. O., 14.31. Man, 68 years, married, saw-filer, American. Referred by Dr. G. N. Jones, Wellesley Hills, Jan. 23, 1914.

Ten years ago patient noticed a small pimple, which did not heal, on the right temporal region. This has gradually increased in size, particularly within the past four months.

General condition is good for his age. On the right temporal region is a nodular, irregular, elevated area 4 cm. in diameter 1 to 1½ cm. above the surrounding skin; it extends to the external angular progress of the orbit. The entire mass can be moved slightly; apparently it is not firmly adherent to the tissues below. The patient is seen in consultation with Dr. R. B. Greenough. Considering the patient's age and chronic course of the growth it seemed advisable to try the effect of radium treatment and operate later if necessary. Histological examination of small fragment shows granulation tissue and carcinoma, basal cell type.

Radium treatment, rule 1 and 6 b., Feb. 3, 6, 9, 14, 19, 27, Mar. 5, 12, 16, Apr. 15, May 22. Note.—The main portion of tumor has entirely disappeared leaving a slightly irregular, depressed, flexible scar. There is still a small nodule 1 x 1½ cm. in diameter in the upper portion of the temporal region. This will necessitate further treatment by rule 1 or 6 b. Result, localized carcinoma, marked diminution in size, almost disappearance of growth.

CASE 5. C. O., 14.58. Woman, 73 years, widow, at home, American. Referred by Dr. A. K. Paine, Boston, Feb. 17, 1914.

Four weeks ago noticed a small lump on right side of the nose. This grew rapidly. About three weeks later it was the size of a cranberry. Fragment removed by Dr. A. K. Paine; histological report was epithelioma.

Patient is distinctly senile. Poor general condition, marked tremor. On the right side of the nose is a small reddish elevated ulcerated area 1 x 1½ cm. in diameter. The base is gray to reddish and covered with purulent material; edges are elevated but show very little induration.

Radium treatment, rule 2, to right side of nose. Feb. 20, 28, March 7, 25. Note.—The lesion on the right side of the nose has entirely disappeared, leaving no evidence of scar in this area. The skin is

pink and somewhat thinner than the adjacent skin. Apr. 28, no evidence of recurrence. Result, rodent ulcer, apparent cure.

Case 6. C. O., 12.55 and C. I., 14.27. Man, 66 years, hostler, married, American. Referred by Boston City Hospital, September 6, 1912.

Twenty-five years ago patient had a small pimple on right side of face; this tended to scab. Excised, but ulcerated area again formed; was again excised and x-ray was used after operation; it again broke down and radium treatment was used three or four times. In spite of this the ulcerated area spread.

Patient is in fair general condition except for asthmatic breathing. On the right side of the face touching the ala of the nose, is an irregularly circular, ulcerated area 2 to 3 cm. in diameter and 5 to 7 mm. deep. Margin is hard and reddened. Base is covered with grayish yellow discharge. There is a small opening which communicates with the nostril. The skin surrounding the ulceration is hard, red and shiny. Patient came to hospital very irregularly and in the interim has been treated by x-ray and carbon-dioxide snow. The ulcerated area became much larger and he was seen by Dr. R. B. Greenough, who advised excision. Patient did not consent; took treatment by liquid air and a form of heavy packs; returned to hospital almost one and one-half years later. Ulceration had extended almost to the right eye. Complete excision was done by Dr. R. B. Greenough, antrum was found involved and fragments removed showed carcinoma, epidermoid type. The nasal cavity and antrum were both left exposed and radium treatment was applied to suspicious areas, as follows—

Radium treatment, rule 3, a and b, March 12, 20. Note.—Wound contracting in. No evidence of recurrence. Result, epidermoid carcinoma, post-operative radium treatment, improved.

Case 7. C. O., 14.69 and C. I., 14.30. Woman, 63 years, widow, housewife, American. Referred by Dr. F. A. Pemberton. Feb. 19, 1914.

Note.—Supra-vaginal hysterectomy performed by Dr. F. A. Pemberton July 22, 1913, leaving about one-half of the cervix, the mucous membrane of which was rimmed out.

June 4, 1914, patient had slight to moderate bleeding. The cervical canal was curetted. The curetting showed adeno-carcinoma.

Patient's general condition is good except for "wheezy" respiration. In the vault of the vagina is a fragment of cervix which appears normal except for slight bleeding on introducing probe. To the left and anterior to this are a few small nodules.

Radium treatment, rule 5, Feb. 20, May 6. Note. —Patient's general condition still excellent. No evidence of local recurrence. She is still under observation. Result, adeno-carcinoma of the uterus. Post-operative recurrence. Improvement.

Case 8. C. I., 14.50 and C. O., 14.21. Man, 32 years, weaver, married, English. Referred from Massachusetts Charitable Eye and Ear Infirmary Jan. 16, 1914.

August, 1912, was struck with shuttle in the nose and left cheek. Two weeks later nose blocked up. Eyes swollen. Operated upon through the nose Oct. 12, again Oct. 19, again Oct. 26. Nov. 12 growth removed from left cheek near nose, at the Massachusetts General Hospital. Feb. 10, 1913, second operation at the Massachusetts General Hospital. Dec. 30, at the Massachusetts Charitable Eye and Ear Infirmary Dr. H. P. Mosher made a complete excision, including entire orbit and adjacent portions of nasal cavity, and antrum. Histological examination of fragments removed showed sarcoma.

Patient is in very good general condition and shows no definite post-operative recurrence, though a few roughened areas suggest possible recurrence.

Radium treatment, rules 4 and 5, Jan. 20, 21, 22, March 27, Apr. 20, May 15. Note.—A small nodule at the base of operated area which suggested recurrence, curetted by Dr. H. P. Mosher. Histological sections show osteochondro-sarcoma. Results, osteochondro-sarcoma. Post-operative radium treatment. Small recurrence. Radium treatment continued intensively.

Group 2. *Cases in which radium therapy proved of little or no value.*

Case 9. C. O., 13.37 and C. I., 13.51. Man, 68 years, married, shoemaker, American. Referred from Massachusetts General Hospital July 8, 1913.

For nine years patient had pain in left side of face and white patch on the tongue. This gradually spread over the tongue, which became stiff and hard. Has been treated with powders and gargles, without improvement. In spite of negative Wassermann patient was given three intravenous injections of salvarsan without improvement.

Patient is in fair general condition. The greater portion of the tongue is covered with a thick white material. The entire tongue is thickened.

Radium treatment, rule 4 and 5, Nov. 5, 20, Dec. 13, Feb. 13, 17, 19, 23, 27, Mar. 4, 10, 17, 24, 31, April 7, 14, May 1, 4. Note.—The local condition has shown periods of improvement when the whitening has partially disappeared from portions of the tongue. On the whole, the condition remains about the same. Slightly less on the superior surface and somewhat more on the inferior surface. Result, leukoplakia. No improvement.

Case 10. C. O., 13.70 and C. I., 13.73. Man, 44 years, married, salesman, Hebrew. Referred by Dr. H. Franck, Dorchester, Dec. 9, 1913.

Two months before admission patient had aphonia. Slight cough, blood in sputum. General condition is good. Patient is seen in consultation with Dr. Mosher, who finds marked reddening of right arytenoid and right false cord, which is infiltrated and hypertrophied. Right vocal cord does not move. Left false cord is infiltrated and reddened; left vocal cord moves slightly.

Note.—It does not seem advisable to treat patient with radium without tracheotomy, owing to the difficulty of accurate application and the danger of edema of the glottis. Tracheotomy performed by Dr. H. P. Mosher, Jan. 1, 1914.

Radium treatment, rule 4, through tracheotomy opening and through mouth to larynx, Jan. 14, 15, 16, 22, Feb. 14, 17, 19, 24, Mar. 25, Apr. 2, Apr. 9.

Radium treatment, rule 1, to surface about tracheotomy opening, April 30, May 14, May 21. Note.—Considerable subjective improvement though infiltration gradually increased locally. At present there is marked reddening and infiltration about and to the side of tracheotomy wound, and this is connected with the larynx. Result, carci-

noma of larynx. No determinable effect upon the growth.

CASE 11. C. I., 14.9 and C. O., 13.80. Man, 41 years, married, painter, English. Referred from Massachusetts General Hospital Dec. 17, 1913.

Three years before entrance patient noticed a small lump at the angle of left jaw. About five months afterward was operated upon by private physician. January, 1911, he was again operated upon. In June, 1911, he was operated upon at the Massachusetts General Hospital. Patient refuses operation; has asked to try radium treatment.

Patient's general condition is good. On the left side of the neck is a long, healed incision over the sterno mastoid muscle. Just beneath the left ear is a nodule 7 x 7 cm. in diameter. This is only slightly movable, apparently being fixed to a certain degree to the tissues below. It is firm. Patient seen by Dr. R. B. Greenough and Dr. C. A. Porter, who advise operation, which patient refuses.

Radium treatment, rule 1 and rule 6, a and b, Jan. 10, 11, 31, Mar. 1. Mar. 16. Note.—Radium treatment has caused no improvement although small opening has been formed in the centre of tumor by introduction of tubes. The growth as a whole shows no response. Patient is transferred to Massachusetts General Hospital for operation. Result, carcinoma of the neck. No improvement.

CASE 12. C. I., 13.72 and C. O., 13.84. Man, 48 years, single, roofer, American. Referred from Boston City Hospital Dec. 20, 1913. September, 1913, patient noticed a small lump on the right side of the neck. It has continued to grow rapidly. Dec. 8, at the Boston City Hospital a fragment of the growth was excised for diagnosis. Marked loss of weight. General condition is poor. Slight cachexia. Right side of neck is greatly enlarged by a tumor mass which occupies almost the entire right side and measures 10 x 12 cm. Skin is tense and brawny. The outer surface has a small ulceration 3 x 1 cm., from which necrotic material exudes. Movements of right arm are somewhat restricted by the tumor mass. Microscopical diagnosis, carcinoma of the neck.

Radium treatment, rule 1 and 6 a, Dec. 26, 31, Jan. 2, 9, 16, 17, Feb. 17. Note.—Tumor mass decreased markedly in size. Abundant puriform discharge. Patient has rapidly become weaker, toxic, stuporous died. Result, carcinoma of neck. No improvement. Dead.

CASE 13. C. O., 14.27 and C. I., 14.13. Young man, 25 years, Italian, married, laborer. Referred from Massachusetts Charitable Eye and Ear Infirmary, Jan. 20, 1914.

Two months ago pain in left eye. Eye became swollen. Went to Eye and Ear Infirmary, where the entire left orbit was cleaned out and diagnosis of sarcoma made. Patient sent to the Huntington Hospital for post-operative radium treatment as there were signs suggestive of recurrence.

Patient is in good general condition. The left eye is absent. The left lid is turned into the socket, the posterior walls of which are reddened and rough, as is also the nasal side.

Radium treatment, rule 3, a and b, rule 6, a and b, Jan. 21, 24, 27, Feb. 8, 9, 12, 13, 15, May 25. Note.—In spite of active radium treatment the growth continued to increase steadily and markedly in size until it reached enormous proportions, patient soon becoming blind in the other eye and gradually weaker, died. Result, sarcoma of orbit, post-operative recurrence. Active radium treatment failed to check growth. Death.

CASE 14. C. O., 13.87 and C. I., 14.7. Woman, 57 years, housewife, American. Referred from the Free Hospital for Women, Dec. 23, 1913.

Three years ago patient noticed a small lump in right breast, which continued to get larger and was followed by a lump under right arm. In October, 1912, was operated upon and right breast removed. In March, 1913, nodules in scar and under both arms. In July, 1913, operation upon lumps under both arms. Very shortly followed by lump in left breast, which was operated upon September, 1913.

Patient is in poor general condition, nervous and apprehensive. She has widespread recurrence in the form of nodules, varying from 1 to 4 cm. in diameter, thickly scattered over entire chest, the axillae, back and shoulders; over the sternum is a large ulcerated area 10 x 12 cm., with hard, reddened edges and covered with friable tissue, which bleeds easily on touch. The widespread character of the recurrence and the multiplicity of skin nodules is remarkable.

Radium treatment, rule 1, a and b, and 3, a and b, Jan. 12, 14, 15, 17, 18, 20, 26. Note.—Patient has had little or no relief from the pain in right arm. There has been no improvement in the local or general condition. Result, carcinoma of breast, extensive, widespread, post-operative recurrence. No subjective or objective improvement from radium treatment.

Group III. *Cases in which palliative results with particular reference to improvement in the local or general condition were observed.*

CASE 15. C. I., 14.28 and C. O., 14.82. Woman, 44 years, married, at home, American. Referred by Dr. W. P. Graves, Feb. 12, 1914.

Two years ago hysterectomy was done for carcinoma of the body of the uterus. Four weeks ago a tumor was noticed in the abdominal wall near the old scar. A second operation was performed by Dr. Graves, and an apparently circumscribed mass of cancer tissue was found situated beneath the fascia, apparently not extending to the peritoneal cavity. This was dissected out. No other masses felt.

Radium treatment, rule 1, covering surface of masses in abdominal wall, Feb. 13, 14, 15, 24, 25, 26, 27, 28, Mar. 1, 2, 3, 4, Mar. 11. Note.—The area of induration is distinctly less superiorly and somewhat increased in the lower portion of the abdomen. In spite of the reddening of the skin and the danger of causing ulceration, the patient's attending surgeon desires to have another series of radium applications as the growth has showed considerable diminution in size.

Radium treatment, second series, rule 1, surface applications to area of induration, March 11, 12, 13, 14. Note May 14.—The burning as a result of radium applications is entirely healed. The induration of the abdominal wall is very much less. Although there is a distinct improvement in the local condition, the general condition is not so good. Result, carcinoma of the uterus, fundus, implantation metastasis post-operative in abdominal wall. Marked decrease in size of induration in abdominal wall. No improvement in general condition.

Case 16. C. I., 14.12 and C. O., 14.45. Woman, 43 years, married, housewife. Swedish. Referred from Free Hospital for Women Jan. 21, 1914.

Bleeding from uterus since October, 1913. Jan. 13, curetted and cauterization of cervix. Specimen removed showed adeno-carcinoma of cervix.

General condition fair. Local examination shows in place of the cervix a reddened, ulcerated, crater-like depression. Fluid blood exudes from crater. Tissue about the ulcerated area is found to be markedly infiltrated. Rectal examination shows uterus retroverted; lower portion enlarged, hard and immovable.

Radium treatment, rule 5, Jan. 22, 27, Feb. 7. Feb. 12. Note.—Patient was examined and seen in consultation by Dr. Graves, who thinks uterus is distinctly more movable; the crater is pale and smooth and bleeding has ceased. Patient transferred to the Free Hospital for Women, where hysterectomy was performed by Dr. Graves Feb. 16. Examination of gross specimen shows practically no evidence of carcinoma. Microscopical sections, however, reveal atypical gland tissue in the cervix, warranting the diagnosis of adeno-carcinoma. Following operation there was infection (possibly lessened local resistance) resulting in patient's death. Result, adeno-carcinoma of the cervix, with improvement in local and general condition, rendering an inoperable case operable; post-operative infection, death.

Case 17. C. I., 13.6. Woman, 51 years, widow, dressmaker, Canadian. Referred from Masssachusetts General Hospital, Jan. 22, 1914.

Since July, 1912, patient has been troubled with diarrhea, increasing weakness and pallor.

General condition poor, markedly prostrated, almost stuporous. Spleen greatly enlarged. While at the Massachusetts General Hospital, under x-ray treatment over the spleen and long bones, from Dec. 12, 1912, to Jan. 22, 1913, inclusive, there was a very slow drop in the white count, from 45,000 to 7,500 on Feb. 24, 1913, during March, April and May, the white count rose gradually. On May 13 the white count was 20,000, when the patient left the hospital. On Dec. 21, 1913, the patient returned to the hospital; the white count was 55,000.

Radium treatment, rule 1, surface applications over spleen, Jan. 2, 3, 4, 5, 6, 7, 8, 9. Rapid and marked fall of the white count, which became 6,000 on Jan. 22. Coincidentally there was a very marked decrease in the size of the spleen, increase in the total nitrogen and uric acid output. May 20, 1914. Note.—White count, 8,100. The decrease in the white cells affected almost exclusively the lymphoid cells, with the resulting relative increase in polymorphonuclear leucocytes and hemoglobin. Result, chronic lymphatic leukemia, marked and prompt diminution in white count and in size of spleen, relief of abdominal discomfort. Slight improvement in general condition.

Case 18. C. I., 14.45 and C. O., 14.76. Man, 51 years, wood worker, married, American. Referred by Dr. J. R. Abbott of Providence, March 13, 1914.

Eight months ago had difficulty in breathing through nose. Left nostril entirely closed; supposed to be due to polypus. Feb. 7, fragment removed by Dr. J. R. Abbott showed sarcoma.

General condition fair; patient is deaf. There is obstruction to breathing in left nostril, which is entirely filled with black growth, fragment of which shows on histological examination melanotic sarcoma. Growth bleeds very profusely, showing distinct systolic pulsation. The soft palate bulges downward; growth is seen not only at the anterior nares on the left, but in the naso-pharynx.

Radium treatment, rule 6, a and b, Mar. 27, Apr. 2, 6, 9, 14, 22, 24, 29, May 11, 18. May 22. Note.—Patient's general condition remains good. There is much less bulging of the soft palate. Growth reduced in size in the left nostril. Patient has regained his hearing. Result, melanotic sarcoma left nares and naso-pharynx; inoperable. Marked diminution in size of growth, which is less vascular. Improvement in breathing and hearing.

Case 19. C. O., 14.11 and C. I., 14.24. Man, 62 years, married, marble worker, Scotch. Referred from Boston City Hospital, Jan. 12, 1914.

Fourteen years has had ulceration beneath right eye. After curetting it partially healed and then broke down. After excision, healed and broke down again. Second excision did not heal. Prolonged x-ray treatment without benefit.

General condition good. Large, deep, ulcerated area 5 x 1½ cm. under right eye, extending to the nasal cavity and antrum. Patient seen in consultation with Dr. Greenough advises trial of radium treatment. If not successful, radical excision advised.

Radium treatment, rule 1, and rule 3, a and b., Jan. 14, 31, Feb. 6, 14, 18, Mar. 9, 17, Apr. 2, 9, 21, May 12, 19. Note, May 19.—There is marked improvement in the local condition, both in partial healing of deep ulceration and cessation of signs of activity of growth. Patient is able to give up eye shield and resumes business. Result, deep rodent ulcer. Post-operative recurrence. Improvement in local condition.

Case 20. C. I., 14.31. Boy 2½ years, American. Referred from the Lynn Hospital Feb. 18, 1914.

Last July lump appeared above right knee. It is hard and not tender, and slowly increased in size until October. Since then it grew more rapidly and in February mother noticed lumps in right groin.

Patient is a well developed and nourished boy. There is marked enlargement of right thigh, which shows a fusiform swelling 6 x 8 cm. in diameter. X-ray shows no involvement of the bone. There are also large irregular masses in the right groin and in the right lower quadrant, extending half way from Poupart's ligament to the umbilicus.

Radium treatment, rule 1, surface applications to thigh, groin and right lower quadrant. Feb. 23, 25, 27, Mar. 1, 3, 4, 5, 6, 9, 10, 16. Note, May 28.—Slight diminution in size of thigh. Maximum circumference reduced from 32 cm. to 29 cm. Increased mobility of growth. This was followed by a period of reddening and increase in size, disability, pain and disuse of the leg. At present the growth is apparnetly quiescent, and although patient does not care to walk he can rest weight upon the leg. Result, sarcoma of thigh with extension to groin and abdomen. Temporary reduction in size of growth.

Case 21. C. I., 14.11 and C. O., 14.23. Man, 68 years, married, glass maker, American. Referred from Massachusetts Charitable Eye and Ear Infirmary Jan. 16, 1914.

Since July, 1913, noticed gradually increasing hoarseness. November, 1913, went to Eye and Ear Infirmary, where, Jan. 7, 1914, tracheotomy was performed by Dr. H. P. Mosher (for subsequent radium treatment) and growth beneath the right side of the larynx curetted. Histological examination showed carcinoma.

Patient is in fair general condition. Both vocal cords move freely. Below the right cord there is a small reddish projection.

Radium treatment, rule 4, Jan. 20, 22, 24, 27, 28, Mar. 24, April 4, 24, May 14. May 28. Note.—Patient's general condition has improved. There was slight but gradual increase in the size of the growth following radium treatment. This has apparently remained stationary for some weeks; it is less reddened and there is some indication of softening. Both cords move freely. Result, carcinoma of larynx, temporary improvement from radium treatment, patient improving in general condition. Slight increase in the size of the local growth.

CASE 22. C. I., 13.54 and C. O., 13.71. Young woman, 22 years, single, music teacher, American. Referred from Massachusetts Charitable Eye and Ear Infirmary Nov. 13, 1913.

Since August, 1913, nose bleed. Swelling towards corner of left eye, increasing in size and extending to the right and left frontal region. Sept. 8 operated upon by Dr. Mosher, who found frontal sinus, particularly on the left, filled with reddish tissue. Histological examination showed sarcoma. It was twice afterward curetted, but rapidly recurred.

Patient is in very poor general condition, pale, emaciated. There is an irregular opening in the base of the nose, extending to the left and slightly to the right frontal region. Marked swelling and induration of the left upper lid. Towards the inner part it is of cartilaginous consistency. Fragment of tissue shows on microscopic examination sarcoma of frontal sinus.

Radium treatment, rule 6, Nov. 17, 28, Jan. 7, 8, 10, 12, 16, 23, 27, 29. May 28. Note.—At first there is marked response to the radium treatment. The reddened growth in the region of the left frontal sinus and the induration of the left lid almost entirely disappeared. The latter recurred and the second time there was more resistance to radium treatment. The process then extended to the right and twice the growth almost completely filled the anterior nares on the right. This receded each time after radium treatment. The last recurrence was at the base of the nose on the right, and after three recurrences here, at the present time the process is apparently inactive. There is no evidence of growth in nose. Deep excavation in the region of frontal sinus on the right. Base reddened. Possibly some active tissue at the base here. No evidence of activity elsewhere. Result, sarcoma of frontal sinus, repeated post-operative recurrence, extension to nose, rapid retrogression under radium treatment, repeated recurrence and retrogressions following radium treatment. Marked improvement.

CASE 23. C. I., 14.42. Man, 47 years, married, wire worker, Swede. Referred from the Massachusetts General Hospital, March 17, 1914.

For about two years patient has been having increasing weakness, pain and sense of fullness in abdomen. Four weeks ago gave up work.

He is in fair general condition; able to be up and about ward, pallor of skin. Remarkably large spleen, extending 5 cm. below the umbilicus and 4½ cm. to the right of the umbilicus, upper border fourth interspace in the mid-clavicular line on the left. Benzol treatment at the Massachusetts General Hospital did not appreciably affect the white count, which on entrance to Huntington Hospital was 700,000.

Radium treatment, first series, surface application over long bones, rule 1, March 27, 28, 29, 30, 31, April 2, 3, 6.

Radium treatment, second series, surface application over spleen, rule 1. Apr. 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, May 4, 5, 6, 7, 11, 12. May 22. Note.—No appreciable change in white count from surface applications over long bones. Surface applications over spleen showed a prompt and marked fall of white cells from 700,000 to 11,000, an increase in hemoglobin from 48 to 62%, and a marked reduction in size of the spleen, 4 cm. to left of umbilicus and 1½ cm. below costal margin. There was no consequent toxemia although a marked increase in the output of total nitrogen and uric acid on purin-free diet was observed. Result, myelogenous leukemia. Marked reduction in white count and in size of spleen. Improvement in strength and general condition.

CASE 24. C. O., 14.65. Woman, 70 years, married, at home, Canadian. Referred by Dr. Hugh Cabot, Feb. 26, 1914.

A month before noticed a lump on left side of tongue midway back.

Patient is in good general condition. On the left side of the tongue between the middle and posterior thirds is a rounded button-like nodule which projects from the adjacent surface of the tongue 3 mm.; it is 1 cm. in diameter. It is indurated and apparently well defined. Wassermann reaction negative. Histological examination of small fragment excised shows irregular epithelium, numerous mitoses. Fragment insufficient for exact diagnosis.

Radium treatment, rule 4, Feb. 26, 27, 28, Mar. 2, 3, 4. May 6, rule 6b. May 21. Note.—The upper portion of growth is entirely flattened although there is considerable burning of adjacent portion of tongue due to difficulty of maintaining exact application. This was obviated by inserting small tube in remaining portion of growth, in place of which is now a small circumscribed area of necrosis. There is still a slight induration at the outer portion of the tongue seemingly the effect of the radium treatment. Result, epithelial growth on tongue, marked diminution, practical disappearance of growth.

CASE 25. C. I., 13.57 and C. O., 13.67. Woman, 44 years, married, housewife, English. Referred by Dr. H. P. Stevens, Cambridge, Mass., Dec. 5, 1913.

Six months patient has had bloody vaginal discharge. Nov. 1 high amputation of cervix and cauterization was performed.

Patient's general condition good though using three to six napkins a day for bloody discharge. Cervix absent and in its place an irregular cavity containing soft, friable, reddish tissue, which bleeds easily when touched. There is considerable resistance to the edges. The vaginal wall, chiefly on the

left, contains irregular discreet and confluent nodules of firm consistency. There are a few smaller nodules on the right vaginal wall. By rectum the uterus was found to be slightly enlarged and retroverted. Uterus is not freely movable.

Radium treatment, rule 5, Dec. 8, 11, 29, Jan 26. Note.—Discharge entirely ceased. Patient was seen in consultation with Dr. Graves. The uterus is now freely movable, no nodules can be detected in vaginal wall and the crater-like cavity has shrunken. Edges drawn together and it is smooth as if covered with mucous membrane. Patient has had no bloody discharge and there is no bleeding on examination. Dr. Graves now believes that patient's condition is operable and she is transferred to the Free Hospital for Women and operated upon by Dr. Graves Feb. 4, 1914. In gross the uterus shows absence of cervix. No evidence of carcinoma. A large nodule is found in the iliac region 3 x 2 cm. Microscopical section of this shows carcinoma. Many microscopical sections show no evidence of tumor, although in one there is a small island of irregularly arranged epithelium which probably represents carcinoma tissue.

Local infection followed operation. It is possible that tissue in vaginal vault was less resistant to infection and showed somewhat less tendency to heal. Result, carcinoma of the uterus. Post-operative recurrence following palliative amputation of cervix. Metastatic nodules in vaginal wall. Radium treatment apparently rendering the case operable. Operation. No recurrence as yet.

Case 26. C. O., 14.42 and C. I., 14.33. Woman, 50 years, single, seamstress, American. Referred from Massachusetts General Hospital, Jan. 30, 1914.

Two years ago patient noticed a hard lump in her right breast. This grew larger. A year ago ulcerated and broke down. No improvement followed various applications. She never consulted a physician before going to the Massachusetts General Hospital.

Fair general condition. Over the right breast is a large ulcer 10 x 10½ cm. in diameter adherent to chest wall. The base is irregular and roughened; it shows red, friable tissue and in portions yellow to greenish sloughy material. The edges are elevated and markedly indurated. The axillary glands on the right are slightly enlarged and freely movable. A fragment excised from edge of the ulcer shows scirrhus carcinoma.

Radium treatment, rule 3, a and b, Feb. 2, 5, 7, 16, 18, 20, 23, 27, Mar. 6, 12, 17, 23, May 5, 21. May 26. Note.—Patient's general condition improved. The necrotic roughened tissue in the ulcerated area has disappeared leaving a smooth reddened base. The edges are less elevated. Result, inoperable carcinoma of breast; marked improvement in local condition.

DISCUSSION.

In considering the varying opinions regarding the results of radium therapy, it should be borne in mind that differences in dosage and technic may be, to a certain extent, responsible. Very important also is the varying resistance of different growths. It cannot always be told before treatment what cases will respond. In certain instances radium is of little or no benefit, while in others there is marked improvement as indicated by diminution in size of the growth, healing of ulceration, or alleviation of symptoms, such as pain, hemorrhage, or other discharge. Cachectic cases are apt to become "toxic" and those with widespread metastasis are not helped by radium treatment. A few cases of cancer regarded as distinctly inoperable have, under the influence of radium therapy, become operable. In certain uterine cases, treated with radium and subsequently operated upon, infection occurred. It is possible that there is lessened resistance of the neighboring tissues to infection and a slowness in healing. Whether the radium treatment was the cause of this condition in these cases it is not at present possible to state. It would seem best, however, to defer operation until at least four weeks after the radium treatment has ceased. In lymphatic and myelogenous leukemia the abnormal white cells are most markedly affected by radium applications over the spleen. The white count may become normal, the red cells and hemoglobin are increased, the spleen is reduced in size and the symptoms may be improved. Sufficient time has not elapsed to say how long these effects will continue.

Post-operative radium therapy is extremely unsatisfactory before recurrence has taken place, for considerable damage may be done to healthy tissue, and any evidence of recurrence masked. It seems better to observe carefully the first sign of recurrence and then begin active treatment with radium whenever it is thus clearly indicated.

From the clinical point of view, in the treatment of human beings we cannot ignore individual differences with reference to the effects of therapeutic procedures. These effects may be for the most part objective and either curative or palliative, as above described, or they may be subjective or psychical; each is rarely clear cut for we know how a change in one of these conditions alters the other. In dealing with patients we use all methods which contribute to their recovery, comfort, or encouragement, and this is particularly important with those so pitifully afflicted with incurable cancer.

For the purpose of accurate record of data which can be critically analyzed and of increasing value as time goes on we must distinguish clearly between the physical and mental effects of treatment. Great natural variations occur in the course of different types of cancer in the same and in different individuals: in some cases the entire duration is short, months; in others the disease may last years, as many as twelve or fifteen, and though the general trend is downward there are periods of great temporary improvement. The fact that this variability in the natural history of new growths may account for many of the favorable results supposedly due to therapeutic procedures cannot be too strongly emphasized.

CONCLUSIONS

The best, apparently curative, results from radium therapy are obtained in certain types of skin and other localized forms of cancer. In myelogenous and lymphatic leukemia the blood picture becomes almost normal, the spleen is reduced markedly in size and certain symptoms may be relieved without toxemia resulting. In many cases of true cancer which have advanced beyond the operable stage, or those recurring after operation, improvement from radium therapy may follow not only subjectively but in the local condition. This improvement may include relief from discharge, hemorrhage and pain; cleansing or healing of ulceration; diminution in size or disappearance of the growth. Such cases, however, are rarely cured. Even large growths sometimes disappear under the influence of radium, but metastasis or spreading of the growth to other parts is not prevented, or the patient may succumb to the rapid disintegration of the original growth. Newer methods may improve these results of radium therapy; at present its proved value is limited, but occasionally cases beyond these well recognized limits are distinctly benefited.

DR. FRANCIS H. WILLIAMS: Dr. Ordway and his colleagues are to be congratulated upon the scientific manner in which they have approached this subject. I agree with what the speaker has presented so clearly.

The field for radium is a limited one at present, as to the extent and location of the growth, but within that field it can accomplish marvelous things. Moreover, some kinds of new growths yield more readily to it than others. Experience is needed to know how to use this remedy, and to determine which cases are suitable for it, just as it is to determine on what patients to operate. If the practitioner is doubtful whether radium will be helpful in a given case, he is justified in trying it for a short time, and if improvement takes place in three weeks or earlier, in continuing its use. If there is no improvement at the end of three weeks, operation should be resorted to. One reason for using radium as a primary treatment, in many cases, rather than operation, is because of the recurrences that follow the latter method, although no method is free from them. In patients who have had recurrences after one, two, three or four operations, the new growth is not infrequently healed by radium treatment and no recurrence follows, or after a longer interval than after the operation, and this recurrence yields again to radium, as a rule.

Growths on the eyelids offer a good opportunity for radium, as operation there presents special difficulties.

How long do new growths remain healed after treatment by radium? At the radium clinic at the Boston City Hospital, which was started more than ten years ago, Dr. S. W. Ellsworth and I have had patients with new growths that have already remained healed for four, five, six, seven, eight and even more than nine years.

DR. FRANCIS D. DONOGHUE: In all this treatment of malignancy by radium, and in all the papers read in the early part of the afternoon on the surgical treatment of cancer, we have not taken into account the combination of surgery and radium, by radium meaning radio-activity in its various forms, ether in the form of radium, mesothorium or Roentgen ray, and we have entirely ignored the still greater field of chemotherapy and electricity in the treatment of cancer.

By reason of the fact that ray-therapy is uncertain or dangerous and also in view of the fact that radio-active substances are limited in amount and difficult to obtain, the hope for cancer sufferers must lie in a properly correlated method of treatment, using chemo-therapy, surgery and ray-activity in what may be called a combined method of treatment.

It does seem, however, that the discussion of the treatment of cancer, either by surgery or radium, should not be closed without indicating where the hope of the future lies in regard to progress in treatment. From my own work with the cancer affinity substances, notably selenium vanadium and with borocholine, used either subcutaneously, intramuscularly or intravenously, I have found that the growth of cancer can be materially affected.

In substantially all cases pain can be controlled without morphia.

Border line cases, by the shrinking action, become more easily operable.

This treatment, when properly perfected, will undoubtedly lead to the devitalization of cancer cells so that a small dose of radium will cause the disappearance of the cells, and the massive doses and the necessarily dangerous doses will not be needed. I have seen cases which did not respond to radium or to mesothorium alone but which did yield to combination of, first, chemotherapy, and afterwards raying. So that now my routine is to give a full course of chemotherapy before operating in cases which are ordinarily considered operable from the surgical standpoint, and to follow the operation by raying the scar tissue, and after treatment by further injections.

It seems to me that treatment alone by surgery is not giving the patient the best chance, and in view of the statistics presented here today of the number of cures at the end of three years, something further than surgery must be employed. That, I think we have at hand in the combination method which I have indicated. For those cases which by reason of age, by location of the growth, by the general condition of the patient, or in cases where operation is refused, we have valuable methods of treatment, aside from surgical interference. The results of the combined method of treatment as carried out at the Cancer Institute in Heidelberg (un-

der Professors Czerny, Werner and Caan) which acts as a clearing house for the great number of inoperable cases turned over to it from the rest of Germany, show apparent cures amounting to about 14%, in cases ordinarily looked upon as beyond surgical aid. The results are so impressive that they cannot be ignored. The more recent work of Prof. Caspari with combinations of cobalt, silver and copper salts, is interesting and indicates that further progress with the heavy metals will be obtained. In the cases of leukemia, Dr. Ordway shows that hemoglobin was increased and the number of white cells was reduced. The same result can be brought about by thorium-x, which is less expensive and more readily obtained than radium emanation. This result has been shown in a few cases I have seen, not by increase in the number of red cells, but it appears that the red cells carry more hemoglobin.

Clinical Department.

INTRA-ABDOMINAL HAEMORRHAGE COMPLICATING NORMAL PREGNANCY.

By Franklin G. Balch, M.D., Boston,

and

Robert M. Green, M.D., Boston.

In the *Journal of the American Medical Association* for Nov. 2, 1907 (Vol. xlix, p. 1528), the senior author reported, with Dr. A. L. Hamilton,[1] a fatal case of ruptured uterine sinus complicating normal pregnancy. In brief, the data of this case were as follows:—

Case I.

History. The patient, a healthy young Irish unipara, was seven months advanced in her second pregnancy, when, on Jan. 30, 1906, she suddenly began to have severe general abdominal pain. She vomited four times, was unable to take a long breath, and though feeling faint could not lie down with comfort. The bowels moved normally, and there was no disturbance of micturition.

Examination. The examination made at 6 p.m. revealed the following: The woman was very pale, face was pinched, mucous membranes were pale. There was considerable dyspnea, the patient was comfortable only when sitting up. The heart showed systolic murmur at apex, otherwise nothing unusual. The abdomen was distended, hard and tense, with a symmetrical tumor extending in the median line above the umbilicus and filling the abdomen—evidently a pregnant uterus. Fetal heart sounds had ceased. The abdomen was tender all over, especially in the right upper quadrant. Temperature was 100.6 F., pulse 110. Blood count, whites 14,000. A diagnosis of probable appendicitis was made and the patient was prepared for immediate operation.

Operation. The uterus filled the abdomen so completely that a median incision seemed inadvisable, and as the greatest tenderness was on the right an incision four inches long was made over the outer border of the right rectus muscle in the appendix region. The muscle was retracted and the peritoneal cavity was opened with escape of much free, fresh blood. The abdomen was full of blood with a few clots, which were sponged out and the cavity explored. A seven months pregnant uterus was found. The possibility of an additional extrauterine pregnancy was here thought of, but a careful examination of the ovaries, tubes, appendix and all abdominal viscera revealed nothing abnormal. The hæmorrhage had apparently stopped. The wound was closed with through and through catgut sutures, a drain was left in and the patient was put to bed in poor condition.

Post-operative History. She was given "shock enema," heat was applied, salt solution was given by rectum, hypodermoclysis was performed, bed was elevated, etc. The patient recovered quickly from ether but grew restless, thirsty and blanched. Her pulse rose to 140, but was of fairly good character. The dressing stained badly and at 1 a.m. the patient was again etherized and a long median incision made. The abdomen had refilled with blood. The uterus was delivered into the wound and the abdominal organs were thoroughly explored. A bleeding point was found on the posterior surface of the uterus very low down and impossible to reach without emptying the uterus. An incision was made into the anterior surface of the uterus and a dead fetus was delivered. The incision was sutured with through and through catgut stitches and after contraction had taken place the fundus was tipped forward. On the posterior wall near the cervix was a large open bleeding venous sinus, with intestines bound together with adhesions, near hæmorrhage. The bleeding was controlled by three chromicized catgut sutures and a dry dressing was applied. The patient recovered quickly from ether, but despite all stimulation became pulseless at 4 a.m. and died at 6.45 a.m. The autopsy showed nothing beyond what has been reported.

At the time, a careful search of the literature failed to reveal any similar reported case. This case, therefore, is here quoted on account of its extreme rarity and of the relation which it bears to the following case of intra-abdominal hæmorrhage complicating normal pregnancy.

Case II.

History. The patient, a high-strung but healthy young primigravida, wife of a professional man, was under the observation and care of the junior author during her pregnancy. The most conspicuous fact in her previous history was extreme dysmenorrhea, incapacitating her in bed for several days each month, with intense pain and a marked degree of prostration, amounting sometimes almost to apparent shock. She had a slight mitral lesion, following scarlet-fever, but her heart was well compensated, not enlarged, and occasioned no symptoms except for slight irregularity on over-exertion or undue fatigue. No cause for the dysmenorrhea had ever been ascertained. Medical treatment had

never proved of the slightest benefit. There had seemed no valid indication for surgical treatment. The dysmenorrhea was assumed to be of neurotic origin, and, as the patient became pregnant almost immediately after her marriage, it would seem not to have been due to any important ovarian disease or uterine maldevelopment.

The pregnancy proceeded normally, except that in the fourth and fifth months, at the time when she would have menstruated if not pregnant, the patient had considerable cramp-like, general abdominal and pelvic pain, for which she stayed in bed, but from which she recovered without incident. On April 18, 1914, at the menstrual epoch of the sixth month, she had a similar but much more severe attack, exciting grave apprehensions of impending miscarriage. She was kept in bed, given several small doses of morphia, and after 24 hours the pain gradually subsided and disappeared. Though not accompanied by definite uterine contractions, it was distinctly spasmodic in character. With none of these attacks was there any flowing or pyrexia. They seemed analogous to the previous dysmenorrheic attacks and in some way correlated with the menstrual molimena.

On the evening of May 16, being then seven months advanced in her pregnancy, the patient went to bed early, feeling very tired, but otherwise as well as usual. For some days previous she had been suffering from a diffuse capillary bronchitis, without fever, but with a good deal of cough. About midnight she woke with severe general abdominal pain and a sensation of faintness. She felt nauseated but did not vomit. The attack seemed similar to those she had previously had, and after a bowel-movement and the application of a hot-water bottle she felt somewhat relieved. She could not sleep, however, and towards morning the abdominal symptoms recurred with greater severity. She felt breathless and stifled, and in apprehension summoned her physician.

Examination. Seen at 7 a.m. by the junior author, the patient appeared pale, restless, and in a condition of considerable shock. The pulse was 140, slightly irregular, and of poor quality. The temperature was 98.0°. The abdomen was enlarged by the uterine tumor, but in addition seemed to bulge abnormally in the flanks, where there was dullness, shifting with change of position. There were generalized abdominal tenderness and rigidity. There was no flowing, and the pain was described as constant rather than periodic in character. Vaginally, the cervix was soft but undilated, the presenting fetal head high, and nothing abnormal to be felt.

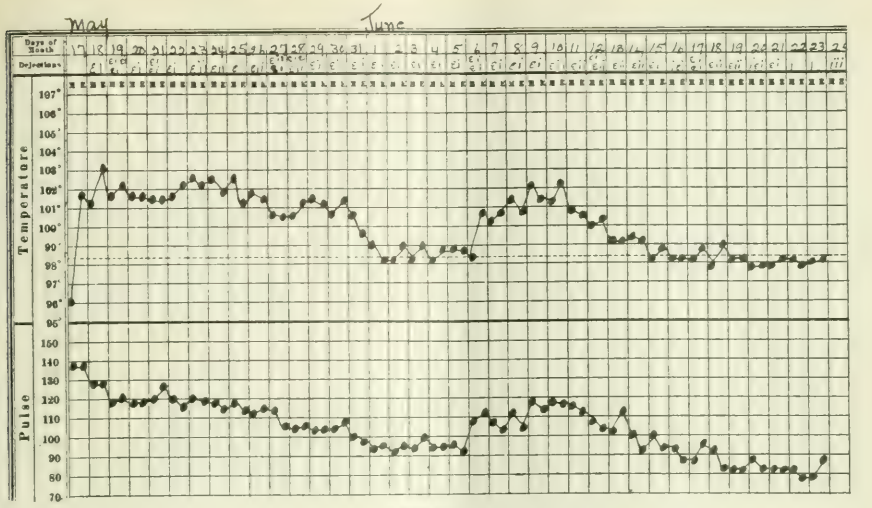
Diagnosis. The patient was obviously in a condition of acute abdominal emergency. She presented the clinical picture of internal concealed hæmorrhage, and, had the history coincided, a diagnosis of ruptured tubal pregnancy would unhesitatingly have been made. In the presence of a seven months' intrauterine pregnancy, however, it was felt that this was extremely improbable. Appendicitis, or other inflammatory process seemed also unlikely in the absence of fever. Intestinal obstruction, from any cause, was ruled out by the absence of vomiting. In view of the previous history, therefore, a probable diagnosis was made of acute torsion of a small ovarian cyst, the presence of which, it was held, would account for her previous dysmenorrhea and for the attacks of pain during pregnancy. As an alternative, the perforation of a previously unsuspected peptic ulcer was considered possible but unlikely. In any event, the patient was evidently in critical condition and probably in need of early surgical intervention. She was therefore immediately transported to a private hospital, and the senior author was asked to see her in consultation.

On arriving at the hospital, the patient's pulse was 160 and her temperature 96.0°. When seen by the senior author at 8.30 a.m., she was pale, thirsty, restless and in a condition of profound shock. His diagnosis was intra-abdominal hæmorrhage of unknown origin; but in view of her precarious condition, he advised postponing operation until she should to some extent have recovered from the shock of transportation. She was therefore given a small dose of morphia and brandy, with water freely by mouth, and was warmed with heaters, the foot of the bed being elevated. Meantime preparations for operation and for transfusion were made.

Under treatment the patient's condition improved. The pulse fell to 140 and the temperature rose to 98.0°. Otherwise the physical signs remained unaltered. The white count was found to be 17,000. At 10 a.m. the pulse began to rise slowly, and by 10.30 was 152. Immediate intervention was decided upon.

Operation. Under general ether anesthesia by Dr. Richard H. Miller, the abdomen was opened by the senior author, assisted by the junior, with a linear incision slightly to the left of the median line, half above and half below the level of the umbilicus. The peritoneal cavity was filled with dark fluid blood. The pregnant uterus largely occupied the field. Both tubes were normal and intact. Both ovaries were normal in size and appearance. Rapid exploration failed to reveal the source of the hæmorrhage, which, however, seemed to come from behind the uterus. To deal with the situation, it was evident that the uterus must be immediately emptied. A rapid hysterotomy was done, and a dead seven-months' fœtus delivered. On drawing the contracted uterus forward into the wound, its posterior surface was found to be the seat of a diffuse angiomatous mass, equal in area to the palm of the hand, one of whose venous plexuses had ruptured and formed the source of the bleeding. This mass was not like the varices occasionally seen in the broad ligament, but resembled rather the pulsating cavernous nevus occurring about the face in children. The patient's pulse was now 180 and her condition almost moribund. It was obvious that she would not survive hysterectomy. The nevoid mass was therefore seized with large clamps and tied off with catgut in several places until the bleeding was controlled. The peritoneal cavity was then sponged clean, the uterus and abdomen were rapidly closed, and without further anesthesia, the patient was transfused by Dr. Beth Vincent, by the glass tube method, with about sixteen ounces of blood, her husband acting as donor. Her color rapidly improved, and when she was put to bed her pulse had dropped to 140 and was much improved in quality.

Subsequent History. The patient had a stormy and harassing convalescence. Immediately on recovery from ether, she was much disturbed by vomiting and by severe cough. The former was finally relieved by washing out the stomach; the latter, a sequel of her unfortunate antecedent bronchitis, persisted for days in spite of treatment with morphia, codeia, and ammonium carbonate. The temperature rose the night of operation to 101.8°, and continued between 101.0° and 102.0°. The pulse,



CASE II.

however, fell gradually to 120. For the first five days, the pyrexia caused no particular apprehension, but was attributed to the absorption of fibrin ferment from the extravasated blood in the peritoneum. On the sixth day, the temperature rose nearly to 103.0° and the pulse to 130, and there was a distinct augmentation of the tenderness in the lower abdomen. The lochia were normal in amount and not foul. Vaginal examination showed an indurated, tender mass of plastic exudate, occupying the left vault of the pelvis and extending behind the uterus, which was involuting normally and not tender. There was also slight tenderness along the course of the left internal saphenous vein. It was felt that the condition was probably one of pelvic thrombo-phlebitis, the thrombosis being initiated at and extending from the ligated points in the uterine angioma. The infection of this thrombosis might well have occurred from deficiencies of technic incident to emergency operation, or it might have been metastatic from the bronchial infection already present.

Whatever the cause of this complication, expectant treatment seemed wisest. Ice-bags were applied to the thigh and left lower abdominal quadrant, the head of the bed was elevated, fluids were pushed by mouth, the bowels were more freely moved by saline catharsis and enema, citric acid was given thrice daily, and ergot was exhibited in small doses. For several days the increased pyrexia continued, but the pulse tended downward. On the tenth day the pain and tenderness were gone; the temperature began to fall, and on the fifteenth day was normal. For five days it remained below 99.0° and the pulse below 100. Then there was a recrudescence of fever, with elevated pulse; and coincidently there was an increase of pain in the pelvis and right leg. Vaginal examination showed the mass in the left vault much smaller, but a new and similar mass in the right vault. Evidently the thrombo-phlebitis had extended across to the other side. The previous treatment was renewed, with the addition of hot copious vaginal douches twice daily. This complication also ran an eight-day course, the temperature subsiding by lysis to normal on June 15, four weeks after operation. The patient soon got up and about and on June 23 was transferred to her home, where she completed a trying convalescence, much prostrated by her hazardous surgical adventure, but recuperating with tolerable satisfaction. A moderate degree of ptosis, associated with her muscular weakness, was corrected with a suitable corset. Three weeks after her return from the hospital the pelvis was examined and found free from exudate or tenderness. The uterus was well involuted, retroverted, and apparently adherent.

Reviewing this case, it seems probable that the angioma or varix of the uterus was congenital, essentially neoplastic, in character and origin, and that its engorgement at the time of menstrual congestion was the cause of the dysmenorrhea. During pregnancy, this engorgement increased and gave rise to the monthly attacks of pain of increasing severity. Finally, during such an attack, a knot of the varix ruptured, producing the train of events described.

In the first case, there had evidently been a previous pelvic inflammation, and the hæmorrhage was apparently produced by the tearing of an adhesion behind the expanding uterus, which opened a sinus in the uterine wall. In both cases the consequent signs and symptoms were those of sudden, unaccountable intra-abdominal hæmorrhage complicating normal pregnancy.

Such cases must be regarded as exceedingly rare. Further careful search of the literature has failed to discover any reported case suffi-

ciently similar to either of these two to be properly included in a group with them. Smith[2] in 1911 reported a fatal case of intra-abdominal hæmorrhage from rupture of an aneurysm of the splenic artery during labor; and Wesenberg[3] reported a similar one in 1912. As early as 1866, Simpson[4] reported three cases of rupture of the hypertrophic spleen during pregnancy, labor, or puerperium; and similar cases have more recently been reported by Hubbard,[5] Schwing,[6] Savor,[7] Le Lorier[8] and Penkert.[9] Chavannaz and Loubat,[10] and others, have described cases of sub-peritoneal hematocele of the broad ligament from rupture of uterine varices during pregnancy and labor, producing signs and symptoms of concealed hæmorrhage. But none of these cases seems sufficiently analogous to the two here reported to be included in the same etiologic category.

In the second case here reported, menstruation recurred a month after the patient's return to her home, and was almost entirely painless. Since this time it has continued regular, somewhat scanty, but still almost wholly without pain. The hopeful explanation of this apparent cure of the previous dysmenorrhea seems probably to be the obliteration of the uterine varix by the infective thrombosis following operation. It is, of course, too soon to be sure that this improvement will be lasting; but if it is, what seemed an unfortunate complication may prove a therapeutic blessing.

At the time of operation, and thereafter, it seemed certain that, if the patient survived, she ought never to run the risk involved in another pregnancy. The possibility, however, that this experience may have in large measure removed that risk, may lead to modification of this opinion. The patient is exceedingly desirous of a child. The nature of her trouble and its possible cure have been explained to her. She and her husband have been advised that, if her freedom from dysmenorrhea continues, her probable risk in another pregnancy is not prohibitive, and that if, after her general health is fully restored, she is willing to run an increased, though not excessive, risk for the sake of a living child, it is in her discretion to do so, provided she will submit to the closest observation during pregnancy and to an elective Cæsarean section prior to full term. Only time and fortune can determine whether this experiment will be tried and what will be its result.

CONCLUSIONS.

1. Intra-abdominal hæmorrhage complicating normal pregnancy is exceedingly rare, but, apart from trauma, may arise from various unusual causes.

2. In the presence of classic signs of internal concealed bleeding during the later months of pregnancy, a diagnosis of such hemorrhage, from unknown cause, should unhesitatingly be made, and appropriate treatment instituted.

3. Among the possible, rare causes of intra-abdominal hæmorrhage complicating normal pregnancy may be congenital angioma or varix of the uterus.

4. The presence of such a varix may be a cause of habitual antecedent dysmenorrhea for which no other evident anatomic or physiologic cause can be found, and which is unaffected by treatment.

5. In the grave exsanguination following intra-abdominal hæmorrhage associated with normal pregnancy, as in the commoner obstetric complications of placenta previa, post-partum hæmorrhage, and ruptured tubal pregnancy, transfusion is a life-saving procedure of proved value and should be promptly employed as soon as the source of bleeding has been checked.

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Book Reviews.

Studies from the Rockefeller Institute for Medical Research. Volume XIX. New York: The Rockefeller Institute for Medical Research. 1914.

This volume consists of a series of 61 reprints of articles by various workers at the Rockefeller Institute. Notable are the contributions of Flexner on meningitis and poliomyelitis, of Noguchi on syphilis, of Rous on the cultivation of tissues and tumors, of Carrel on visceral organisms and the mechanism of tissue-growth, of Loeb on parthenogenesis, and of Peabody on oxygen content of the blood in pneumonia. The volume is a valuable compilation of original literature of research.

Report of the Bureau of Health for the Philippine Islands. By VICTOR G. HEISER, M.D., Director of Health, United States Public Health Service. Manila: Bureau of Printing. 1914.

Owing to the legislative change identifying the fiscal with the calendar year, this belated report, printed in English and Spanish, covers the transactions of the United States Philippine Health Bureau for only the half-year ended Dec. 31, 1913. There are now over 60,000 fewer deaths per annum in the Philippines than there were in 1905, and the Manila death-rate, in spite

of cholera, has fallen to 24.98. The Philippine General and the provincial hospitals continue their activity and rapid growth. The report closes with a careful alphabetic analysis of the diseases incident in the islands, with especial consideration of leprosy. The director of health recommends the construction and maintenance of additional buildings for the insane, measures for discouraging the consumption of polished rice, an increased water supply for Manila, compulsory muzzling of dogs, and research into the control of leprosy and cholera.

Recreations of a Physician. By A. Stuart M. Chisholm. New York and London: G. P. Putnam's Sons. 1914.

Some of the ten essays which compose this delightful volume have already been published in the *Albany Medical Annals* and the *Journal of the American Medical Association.* Others are here printed for the first time. All are equally charming and original in subject matter and in style. Perhaps the best part of the author's work is its service as an example of the truth of his contention that through wise use of his leisure, even a busy physician may not only counteract the narrowing tendencies of professional specialism, but may also measurably enrich his own life, and perhaps that of others, with enduring things that lie above and in and beyond his daily routine.

Anoci-Association. By George W. Crile, M.D., Professor of Surgery, School of Medicine, Western Reserve University; Visiting Surgeon to the Lakeside Hospital, Cleveland; and William E. Lower, M.D., Associate Professor of Genito-Urinary Surgery, School of Medicine, Western Reserve University; Associate Surgeon to the Lakeside Hospital, Cleveland. Edited by Amy F. Rowland. Original illustrations. Philadelphia and London: W. B. Saunders Company. 1914.

A well made, attractive volume of 250 pages consisting of two parts, The Kinetic Theory of Shock and Anoci-association, and The Treatment of Shock and Its Prevention through Anoci-association. Dr. Crile has written a book so interesting that it is difficult to put it aside once we open it. Moreover, it is so profusely and excellently illustrated that it is quite possible to read from cover to cover in a few hours, for no less than seventy pages are devoted to pictures and diagrams. This does not mean, however, that only a few hours should be devoted to the book, for it must be repeatedly examined and carefully studied. Dr. Crile is an enthusiast, and while he taxes our imagination at times, he compels genuine admiration for many things: for his repeated exhortation towards delicate and gentle handling of tissues; for sharp and accurate dissection; for complete hemostasis; and for the highest personal interest of the patient, from the first consultation to the final discharge from the hospital. In some hands, Dr. Crile's technic has not led to results as near ideal as those which he reports from his own hospital. Possibly, an explanation of this may be found in one of his sentences, "If performed perfunctorily, as a dull ritual, the technic of anoci-association will fail. It can accomplish its purpose only when each detail, however minute, is considered from the viewpoint of the individual patient." At the end of Part I, the author has summarized in a single page "The Kinetic Theory of Shock," and has summarized at the end of Part II the entire book in a little more than two pages. These summaries are of the highest value, because they enable the reader to grasp the formulated expression of the author's views condensed by himself. Dr. Crile's work should be judged preferably by a visit to his clinic. If this is impossible, it is at least due to him that our impression of anoci-association should be based on careful study of his own most interesting book.

Manual of Normal Histology and Organotherapy. By Charles Hill, Ph.D., M.D. Third edition. Thoroughly revised. Philadelphia and London: W. B. Saunders Company. 1914.

The second edition of this useful manual was reviewed in the issue of the Journal for Jan 20, 1910 (Vol. clxii, p. 82). In this third edition, each chapter has been carefully revised, new text has been added on the stomach in ruminants and on the hoof of the horse; and significant changes have been made in the topics dealing with heredity and sex, glands, blood and lymph. The volume is well illustrated with 312 text cuts and 6 full-page plates, 4 of the latter being colored. It should continue to fill a place of definite value in the teaching of this subject.

The Student's Handbook of Gynecology. By George Ernest Herman, M.B., F.R.C.P., Lond.; F.R.C.S., Eng., Consulting Obstetric Physician to the London Hospital, Consulting Physician-Accoucher to the Tower Hamlets Dispensary, Late President of the Obstetrical Society of London and of the Hunterian Society, etc. Second edition, revised by the author, with additions by R. Drummond Maxwell, M.D., Lond.; F.R.C.S., Eng.; Assistant Obstetric Physician to the London Hospital, and Physician to Queen Charlotte's Lying-in Hospital. With 6 color plates and 194 figures in the text. New York: William Wood and Company. 1914.

This little book is less useful to one taking up the subject for the first time than to one reviewing the subject previously studied thoroughly. It contains a surprising amount of information since it is written with admirable conciseness. The topical arrangement, chiefly according to some important symptom, has a certain advantage which a study based on purely anatomical considerations does not possess, however much the latter is to be preferred for a complete treatise. The illustrations are fairly clear and those in color are good.

The views of the author as to the relations of the nervous system to gynecological disease are safe and conservative, and in general the line of treatment suggested is excellent. Occasionally, as in the consideration of dysmenorrhea the material presented shows lack of insight or assimilation. In tubal pregnancy, which is incompletely discussed in two widely separated chapters, the expectant treatment advised by the author is less favorably regarded by numerous other authorities. Under ordinary circumstances the mortality with or without operation is very small, but the morbidity following operation is less than the morbidity without operation in most cases in which the diagnosis can be made with any degree of certainty. The chapter on chronic metritis is deficient in that the pathological anatomy and histology are neglected. In general, the book is sound in doctrine, clear in presentation and comprehensive in scope. Though written to take the place to a certain extent of the author's larger book, it will exercise an influence in stimulating students to consult that work.

Medical Gynecology. By S. WYLLIS BANDLER, M.D., Adjunct Professor of Diseases of Women, New York Post-Graduate Medical School and Hospital. Third thoroughly revised edition. Octavo of 790 pages, with 150 original illustrations. Philadelphia and London: W. B. Saunders Company. 1914.

This third edition of Bandler's Medical Gynecology, appearing six years after the first, indicates the author's desire to keep abreast of the progress in gynecology, and the need which the book fills. Attention has been directed of late chiefly to the importance of the internal secretions, which have a growing field in gynecological therapy, and it is in connection with this topic that the chief changes in the book are found. The literature here is well covered, but the presentation is a little fragmentary, and if, in the next edition, this section were still further amplified and the sections on chorionepithelioma and ectopic pregnancy were omitted, the appropriateness of the title as well as the value of the book would be still further increased. Examination of the table of contents shows the need of rearrangement of the material.

The growing tendency to emphasize the medical or non-operative side of gynecology is exemplified and encouraged, for attention is drawn to the considerable non-operative resources and the gratifying results following medical treatment for many conditions, which are too often recorded as operative successes when the patient is by no means cured.

Cancer of the Breast. An Experience of a Series of Operations and Their Results. By CHARLES BARRETT LOCKWOOD, F.R.C.S. (Eng.), Consulting Surgeon to St. Bartholomew's Hospital, etc., etc. London, Henry Frowde, Oxford University Press; Hodder and Stoughton, Warwick Square, E.C. 1913.

This book "is an endeavor to give my own experience of operations for cancer of the breast. . . . I have not thought it necessary to dwell at length upon the morbid anatomy and histology of the tumors. . . Inasmuch as this is a record of personal experiences, I have not attempted to refer to the literature of this subject." The little book bears the vital interest of the personality of its author, since it is his own description and his own conclusions based upon his own work. It is of interest, therefore, more for the operating surgeon than for the medical undergraduate. It will repay amply careful examination by every operating surgeon. Within a little more than 200 admirably printed pages Mr. Lockwood has compressed 9 chapters, which consider in succession clinical observations, pathology, operative technic, recurrences and results. The chapters in turn are composed of sections, each of which refers to minor divisions of the chapter subject; at the beginning of each chapter is a list of the sub-divisions. This mechanical arrangement serves admirably to systematize and emphasize the details which are described. For instance, Chapter VII is entitled "Recurrences and Extent of Operations," and immediately under this comes,—(1) Recurrences and the Extent of Operations; (2) Incomplete Operation and Recurrences; (3) Complete Operation and Recurrences in Skin and Scar, Chest Wall, in Neck, in Scapular Muscles, in Opposite Axilla; (4) Other Recurrences. It is, therefore, possible to plunge into the book at any point and obtain in a few words the author's experience and opinion on the various aspects of the particular part of the subject, with which that chapter deals.

The book is amply and effectively illustrated. The technic outlined is complete and very thorough. The patients have been followed with great care for long series of years. One feels that Mr. Lockwood has made it possible for us to avail ourselves of his entire experience with cancer of the breast in such a way that we can gain from it every essential and are entirely free from every unnecessary detail, and for this both the author and the book should be warmly recommended.

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AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY.

THE fifth annual meeting of the American Association for Study and Prevention of Infant Mortality successfully completed its sessions in Boston last week. On Sunday, Nov. 8, as a popular preliminary to the meeting, addresses on aspects of infant welfare were made in various Boston churches by Dr. John Lovett Morse, Dr. Henry I. Bowditch, Dr. James L. Huntington, Dr. Arthur A. Howard, Dr. Arthur B. Emmons, 2nd, Dr. Richard S. Eustis, Dr. Karlton G. Percy and Dr. Harold A. Gale, of Boston.

On November 11, as an additional popular preliminary, an exhibit was opened in the courtyard and corridors of the Boston Public Library, illustrating various phases of the work of different societies and organizations engaged in combating infant mortality.

"One of the rooms was devoted to a model milk station with a nurse in charge, which comprises the exhibit of the Milk and Baby Hygiene Association of this city. This station was presented in exactly the form of the regular operating stations and shows the methods of modifying milk, instructing mothers, weighing babies.

"At the extreme end of the courtyard was the exhibit of the New York State Board of Health, which also showed a welfare station, with a trained nurse in charge; and also the exhibit of the Russell Sage Foundation, which presented a child welfare exhibit, one feature of which was 15 illustrative panels, with a fading electric star to show graphically the actual rate of infant mortality.

"The Massachusetts Commission for the Blind had a stereometrograph giving illustrations of the work it is doing. The Children's Hospital exhibited its work by means of screens lighted from behind by electricity, giving the appearance of x-ray photography. The exhibit of the Boston Society for the Relief and Control of Tuberculosis is permanently at the Hawthorne and Louisa Alcott Clubs, in the South End, and won a silver medal at the International Congress on Tuberculosis.

"The Infants' Hospital represented its work by means of doll models in sanitary beds with proper medical surroundings. The Massachusetts Babies' Hospital, the Woman's Municipal League and the Boston Dispensary Hospital for Children also showed exhibits.

"Among other organizations which exhibited by means of screens, placards, charts and other forms of graphic presentation were the New York Committee for Prevention of Blindness, the Society for Aiding Destitute Mothers and Infants, the New England Hospital for Women and Children, the Brookline Friendly Society, the Massachusetts Society for the Prevention of Cruelty to Children, the Sunnyside Day Nursery, the Social Service Department of the Massachusetts General Hospital, the Boston Floating Hospital, the Children's Aid Society, the Massachusetts Milk Consumers' League (through Mrs. William Lowell Putnam, one of the directors of the association), the Children's Mission, the Massachusetts Commission for Modifying Milk, the South Department of the Boston City Hospital, the Massachusetts Homeopathic Hospital, St. Mary's Infant Asylum and the Wet-Nurses' Directory.

"In addition to the Public Library exhibit, the affiliated societies of the association from 68 cities in 31 states showed placards, announcing their scope and activities, in the Copley-Plaza Hotel during the convention, and several of them exhibited in the Library courtyard as well."

This exhibition, which was one of the features of special interest in connection with the meeting, was kept open for public inspection until Monday, November 16.

On Thursday evening, November 12, a general session of the Association was held at the Copley-Plaza Hotel. After the presidential address by Dr. J. Whitridge Williams of Baltimore, on "The Possibilities and Limitations of Pregnancy Care," there was an informal reception. On the afternoon of Friday, November 13, a session on obstetrics was held at the Copley-Plaza, the central theme

being a plea for increased and improved maternity hospital service. There were papers by Dr. W. W. Chipman of Montreal, Dr. Edward Reynolds of Boston, and Dr. E. P. Davis of Philadelphia. The work of local investigation was continued by the various sub-committees. On Friday evening a mass meeting was held by the association in Faneuil Hall in co-operation with the Pilgrim Publicity Association. Judge Michael J. Murray presided and there were addresses by Governor Walsh, Mayor Curley, Dr. Hugh Cabot, J. Randolph Coolidge, Jr., Esq., President of the Boston Chamber of Commerce; Dr. Josephine Baker, director of the Bureau of Child Hygiene of the New York Health Department; and the Hon. Homer Folks.

On Saturday morning, November 14, the closing session on public school education for the prevention of infant mortality was held at the Copley-Plaza Hotel with the general topic of continuation schools and classes. The principal address was by Dr. David Snedden, Massachusetts Commissioner of Education. The discussion was opened by Dr. Joel E. Goldthwait, of Boston, with remarks on the "Effects on Children of Carrying Burdens," based on x-ray studies and other investigations.

At the business meeting the following officers were elected for the ensuing year:—

President, Dr. S. M. Hamil of Philadelphia; vice-president, Dr. W. C. Woodward of Washington, D. C.; second vice-president, Dr. William P. Lucas of San Francisco; secretary, Dr. Philip Van Ingen of New York; treasurer, Dr. Austin McLanahan.

The board of directors was increased from 80 to 85 and the following elections to the board were made: For five years, George R. Bedinger and Dr. S. Josephine Baker, New York; Dr. A. B. Emmons, Boston; Dr. W. W. Butterworth, New Orleans; Dr. Charles V. Chapin, Providence; Dr. F. S. Churchill, Chicago; Dr. C. L. Furbush, Philadelphia; Miss M. F. Etchberger, Baltimore; Dr. C. E. Ford, Cleveland; Dr. Caroline Hedges, Chicago, and Dr. William Palmer Lucas, San Francisco; for four years, Dr. H. C. Carpenter, Philadelphia; for three years, Dr. F. S. Rankin and Dr. E. C. Levy, Richmond, Va.; two years, Dr. Carl L. Alsberg, Washington, D. C., and for one year, Mrs. C. B. Crane, Kalamazoo, Mich.

This meeting of the American Association for Study and Prevention of Infant Mortality is of particular local as well as general interest, since it was in Boston that the movement for the systematic investigation of causes of infant mortality not only had its inception but has been most actively prosecuted. Considerable part of the credit for this important work is due to the Women's Municipal League of this city, whose committee on infant social service has been actively engaged in the work since 1909. For a year and a half this committee has employed a nurse whose entire time is devoted to the visiting and care of pregnant women in their homes. This work was conducted in conjunction with the pregnancy clinic of the Boston Lying-in Hospital, with the Harvard Medical School, the Peter Bent Brigham Hospital, and the Massachusetts Homeopathic Hospital. Each patient is visited at least once in ten days and oftener if necessary. In another column of this issue of the JOURNAL we publish in part a recent report of this committee, based on its work for the past five years.

The importance of the work of the Association, of the Women's Municipal League, and of other affiliated organizations, which have all borne their part, and the prospect of tangible and valuable results afforded by the accomplishment already made, should, as a result of this meeting in Boston, give renewed encouragement and stimulus to all who are engaged in any aspect of the movement to control the causes of infant mortality. Boston thus far has led in this branch of social and medical service and should continue so to do.

A PRACTICAL TEST IN VENTILATION PROBLEMS.

IT is announced that an elaborate series of scientific tests, extending over a period of two years, is about to be undertaken upon some sixty school children in New York City, with a view to solving the problem of "bad air" in the public schools. These experiments are to be conducted by the State Commission on Ventilation, of which Prof. C. E. A. Winslow, formerly of the College of the City of New York, is chairman, and the expense of the investigation, which will be very considerable, is to be met out of the fund of $750,000 established last year by Mrs. Elizabeth Milbank Anderson to improve conditions among the poor. The other members of the

commission are Prof. Frederick S. Lee of the medical department of Columbia University, physiologist; Prof. E. L. Thorndyke of Teachers College, Columbia University, physiologist; Dr. J. A. Miller, visiting physician to Bellevue Hospital; D. D. Kimball, engineer; and Prof. E. B. Phelps, chemist in the Government Hygienic Laboratory, Washington. These names give assurance of the absolutely scientific character of the work which will be done, and its results will be looked forward to with much interest.

The tests will be made in two class-rooms in an entirely new school building, one of the finest in the city, and these will be equipped with a great variety of ventilating appliances, and also an elaborate plant for furnishing such changes in temperature, moisture, etc., in the air admitted as may be desired. Each of the rooms is provided with double ceilings, walls and floors, for the access or egress of air at any point, but otherwise their general construction does not differ from that of the other class-rooms in the building. In carrying out the proposed plan, careful physical examinations of the children will be regularly made to determine the effect of the different systems of ventilation upon their health, tests as to their mental efficiency will be applied, and the teachers will also be instructed to note the effect of the experimentation upon the class work.

As a preliminary to this systematic investigation it is stated that for nine months during the last session tests were conducted in a specially constructed chamber at the College of the City of New York, upon five volunteer students, who were subjected daily to varying temperatures and degrees of humidity, as well as to different methods of ventilation. The condition of their health and the work they were able to accomplish under the various conditions were carefully noted, and with the data thus obtained, the commission is now prepared to enter upon the more extended and elaborate series of investigations under the most advantageous circumstances. Although it prefers not to make any definite report now as to the results of these experiments, certain conclusions seem to have been reached which are distinctly at variance with some of the fresh air ideas which have long been in repute.

One of the first things the commission set out to do was to put to actual test the contention that discomfort in a stuffy, poorly ventilated room is due to the carbon dioxide exhaled by the occupants. The opinion has been held that when the four parts of the dioxide in 10,000 contained in normal fresh air is increased to more than twelve parts the air becomes unfit to breathe. Yet the five students were shut up in the experimental chamber for as much as eight hours continuously, while the proportion of carbon dioxide went up as high as 135 parts, and still they did not suffer. Indeed, they showed no ill effects, whatever, either mental or physical, so long as the temperature of the room was not allowed to rise above a certain point. The studies so far made have shown that the important thing to guard against is overheating. Crowded rooms become uncomfortable because of the heat given off from the bodies of those present, and it was found that while persons may be capable of doing as much work in an overheated room as in one with modern temperature, they are listless and do not have the same inclination to work; so that each task becomes an enforced one. Another thing regarded as responsible for the discomfort of a crowded room is the odor, not so much from people's bodies as from their clothes. A fair example of this is met with in a crowded subway train in New York. The air of the subway itself is sufficiently good, but the odor from the passengers' clothing, in conjunction with the heat generated by their bodies and resulting from the friction of the wheels and motors, renders the atmosphere decidedly unpleasant. Such odors have no appreciable effect upon health, except perhaps that upon the nervous equilibrium of sensitive individuals, but their disagreeableness constitutes an excellent reason for proper ventilation. Prof. Winslow states that the information gained by the experiments at City College will be put to good use in the work of the commission in the more extended ones about to be undertaken, in which all the various methods and theories of ventilation for which there is reasonable authority will be thoroughly tested.

It may be noted that Dr. Miller, the representative of the medical practitioner on the commission, in speaking in a recent paper (*Journal of the American Medical Association*, November 7) of hospital ventilation from the standpoint of the clinician, remarks that in general the attitude of the latter consists, with a considerable degree of unanimity, in a reaction away from artificial systems of ventilation toward one approximating as nearly as may be outdoor conditions, that is, open windows. In consequence of variations in the open air and

the difficulty of its proper distribution, however, it would appear that at present a combination of the two so-called systems is desirable. He then goes on to say: "After all, the whole question falls back on the unfortunate fact that really we do not know. It would therefore appear futile and foolish to argue dogmatically about ventilation until some fundamental problems involved in the effect of atmospheric air on the healthy and diseased human body are better understood." It is to be hoped that in the investigation in question no little light will be thrown on these problems, and it can scarcely be doubted that the results thus carefully worked out will be of permanent scientific value.

FOOT AND MOUTH DISEASE.

THE epizoötic of foot and mouth disease, whose existence we noted in the two preceding issues of the JOURNAL, has extended rapidly during the past fortnight. On Nov. 5, four cases of the disease were discovered on a farm in South Attleboro, Mass., and on notification being sent to Washington, the United States Bureau of Animal Industry issued the following order to Dr. F. J. Ryder, its Boston agent:—

"Notice is hereby given that the Secretary of Agriculture has issued B. A. I. order 229, effective Nov. 4, 1914, to prevent the spread of foot and mouth disease in cattle, sheep, other ruminants and swine. The effect of this order is to place in quarantine the states of Illinois, Indiana, Michigan, Maryland, New York and Pennsylvania, and to forbid the interstate or foreign movement or shipment therefrom of the said animals during the existence of the quarantine; also to forbid shipment therefrom of dressed carcasses of calves, sheep and other ruminants interstate or to foreign countries from any point in the area quarantined until the hide, skin or hoofs are removed from the carcasses. To forbid the interstate or foreign transportation of hides, skins and hoofs of cattle, sheep and other ruminants, and all hay, straw or similar fodder, or manure or litter from a point in the area quarantined unless said hides, skins and hoofs of cattle, sheep and other ruminants, and all hay, straw or similar fodder, or manure or litter be disinfected prior to shipment under the supervision of an inspector of the B. A. I.

"No railroad cars or boats of any area quarantined which have carried livestock shall be moved interstate until the said cars or boats have been cleaned and disinfected with a 5% solution of carbolic acid or a 3% solution of cresol compound, or other permitted disinfectant.

"It is of importance to the livestock interests of the country and to the railroads engaged in the transportation of the livestock that this disease be eradicated as soon as possible."

On the same date the disinfection of the Chicago union stockyards was begun by a force of 800 men, who had to deal with 13,000 pens and 25 miles of water troughs covering an area of 540 acres. Following this disinfection the yards were closed until Nov. 16.

On Nov. 6, 11 cases of the disease were discovered at Amherst, Mass., and 8 at North Amherst. Rigorous quarantine was extended throughout the state, and on Nov. 7 the Rhode Island Board of Agriculture declared quarantine against Massachusetts.

On Nov. 8, four foci of infection were discovered in Rhode Island, originating in shipments of cattle made from Massachusetts before the quarantine was established. All these cases were traced to Brighton, Mass., and on Nov. 9 the Brighton and Watertown stockyards were closed, cleared, and then disinfection begun, and 11 infected cattle killed. On the same date, three stockyards in New York City were closed, and Canada forbade the importation into the Dominion of any livestock, poultry, fodder, wool, and hides from the United States. On Nov. 9 also foot and mouth infection was found in the hog cholera serum manufactured at Chicago. The manufacturing plants were closed, and $20,000 worth of virus destroyed.

On Nov. 10 infected herds were discovered at Grafton, Granby, and Chicopee, Mass., and suspicious cases at Canton, Dedham, Gloucester, Swansea, and Woburn. On that day, the federal quarantine was extended over 14 states, including Kentucky, where 3 cases were found; and importations of cattle into Vermont and Alabama were forbidden. On Nov. 10, also, 13 cases of the disease were discovered in a herd at Deer Island, Boston, and 18 cases were found in Worcester, Mass.

"Two orders were issued from the office of the commissioner of animal industry, one prohibiting the movement of all poultry, pigeons or other farm birds in this state on railroads, boats or other conveyances, or to be moved in any manner upon the public highways or byways in the Commonwealth without written permission from the commissioner of animal industry. The second order forbade the distribution, sale or use of virulent blood from hog-cholera infected hogs,

or virus or anti-hog-cholera serum also without written permission."

On Nov. 10, David Houston, United States Secretary of Agriculture, issued the following statement:—

"The present outbreak of the foot and mouth disease, which is one of the most contagious and destructive diseases of cattle, swine, and sheep, exceeds in area affected any of the five previous outbreaks in this country. Unless the infection can be immediately localized and quickly eradicated, it threatens untold losses among live-stock.

"So contagious is the disease that in past outbreaks where but one animal was infected, the entire herd in almost all cases later contracted the sickness. While the mortality is not high, the effects of the disease even on animals that recover, are such as to make them practically useless. They lose flesh rapidly; in the case of cows, the milk dries up or is made dangerous for human consumption; in the case of breeding animals, the animal once infected becomes valueless for breeding, as it may continue to be a constant carrier of contagion.

"It is possible to cure the external symptoms, but during the process of attempting to cure one sick animal the chances are that hundreds of others may be infected.

"As a result of the five outbreaks in this country and other disastrous epidemics of the disease in Europe and Great Britain, veterinary authorities of the United States are agreed that the only method of combating the disease is to stop all movement of stock and material which have been subjected to any danger of infection, and to kill off without delay all herds in which the disease has gained any foothold."

On Nov. 11, the disease was discovered in four different parts of Vermont, and that state was added to the federal list of those quarantined. In Massachusetts, the disease was found to occur in 25 cities and towns, and surveillance was declared over 60 herds. On the same date, over 300 cases were reported in Pittsburgh, Pa.

On Nov. 12, five human cases of the disease were discovered in Rhode Island, all in the same family on a farm where there were seven animal cases. Dr. P. H. Mullowney, of the Boston board of health, makes the following statement about human infection:—

"I do not know of any recorded cases of adults having the apthous fever from the use of milk from cows infected with the foot and mouth disease, but I also have no reason to believe that adults cannot be so infected. This fever, however, is not a serious proposition. The children who had it during the 1906 epidemic had chills and fever and very sore mouths with blisters, but the cases were mild and no serious consequences followed."

Dr. Ryder, the Boston agent of the federal bureau of animal industry, makes the following statement:—

"The malady is very contagious, peculiar to ruminating animals, such as cattle, sheep, swine, goats and deer. It is rarely transmitted to man. The manifestations are eruptions of vesicles or blisters in the mouth, between the toes, and upon the udder. The animal falls off in condition and becomes lame, milk flow decreases, and the appetite lessens. After a day or two the vesicles peel off, leaving a raw surface which may heal in a few days, or may remain sore for a long time, especially upon the feet and teats, when serious complications are likely to follow. The death-rate is low, but a whole herd will be attacked, and as many animals are liable to serious damage the loss to an owner is bound to be rather heavy.

"The most readily recognizable symptoms are sluggishness, shivering, poor appetite, stiffness or lameness, collection of saliva upon the lips, slobbering or drooling, sucking and swallowing motions of the mouth and throat and blisters inside the lips and adjacent places. In the case of sheep and swine the feet are mainly affected."

The disease apparently first made its appearance in this country in 1902, in the New England States. In Europe the last epizoötic form of the disease occurred in 1887, starting in Russia, thence spreading widely over the continent. It has not as yet been completely eradicated.

Doubtless the present epizoötic is of great economic as well as medical seriousness, and coming at this juncture will have the unfortunate effect of still further increasing the already high cost of meats and indirectly of other foodstuffs.

On Nov. 13, 17 new animal cases were discovered in Auburn, Brockton, and Westport, Mass., and others at Danvers, Dracut, Holbrook, and Randolph. On Nov. 14, extensive slaughtering of infected cattle was begun throughout the state.

It is reported that Dr. Simon Flexner of the Rockefeller Institute for Medical Research, New York, is at work endeavoring to isolate the organism of the disease from virus and from inoculated animals.

PETER BENT BRIGHAM HOSPITAL.

Founder's Day at the Peter Bent Brigham Hospital was celebrated with appropriate exercises on Thursday afternoon of last week, November 12. The occasion was essentially the

official opening or dedication of the hospital. Over five hundred persons were present. The principal addresses were given by Dr. William H. Welch of Baltimore, Dr. Frank Billings of Chicago and Dr. J. Collins Warren of Boston. Mr. John P. Reynolds, in behalf of the building committee, of which he is chairman, presented the report of this committee and delivered a symbolic silver key to Mr. Alexander Cochrane, president of the corporation. The treasurer, in his report, stated that the trust fund of the hospital amounts to $5,000,000, from the income of which the running expenses will be paid. Since the unofficial opening of the hospital on January 27, 1913, there has been a constant average of 173 patients in the institution. In conclusion, Dr. Harvey Cushing responded for the surgical and medical staff. After the exercises luncheon was served and the guests were invited to inspect the various departments of the hospital. These formal exercises, on the anniversary day of the founder of the hospital, mark the complete establishment of the institution as one of the associated hospitals of the Harvard Medical School and one of the leading charitable medical institutions of Greater Boston.

MEDICAL NOTES.

AMERICAN ASSOCIATION FOR CLINICAL RESEARCH.—The sixth annual convention of the American Association for Clinical Research was held in Baltimore on Nov. 5, 6, and 7. A resolution was passed favoring the foundation of an American College of Physicians.

A CENTENARIAN.—William A. Hill, a negro, who died on Nov. 8 at Winchester, Ill., is said to have been born a slave in 1804. He had been an inmate of the local county infirmary for over 30 years.

A VEIN OF AMERICAN PITCHBLENDE.—Report from Idaho Springs, Colo., on Nov. 10 states that an 18 inch vein of pitchblende has been discovered in that vicinity. This is the richest of radium-bearing ores, and should prove a more valuable deposit for the production of American radium than the carnotite veins of western Colorado and Utah.

EUROPEAN WAR NOTES.—It appears that Asiatic cholera is extending among the troops in Austria. Report from Vienna by way of Venice and Paris, states that on Nov. 6 there were 256 cases of the disease in Galicia, of which 126 were at Przemysl.

Report from London on Nov. 5 states that during the first month of its activity 600 soldiers were treated in the American Women's Hospital at Paignton, Devonshire, England.

Additional hospital supplies are urgently needed by the American Red Cross units in Europe. On Nov. 10 a shipment of 15,000 pounds of absorbent cotton, 15,000 pounds of gauze, 30,000 bandages and 20 boxes of hospital garments was forwarded aboard the steamer *Potsdam* from New York for the American Red Cross units in Germany. Later in the week a consignment of clothing, dressings, iodine, alcohol and disinfectants was sent aboard the steamer *Rochambeau*, to Dinard, France, for the American units in that country.

On Nov. 17 two additional hospital units sailed from New York aboard the *Finland* for Servia. Each unit is composed of three surgeons and six nurses. The surgeons in this expedition are Dr. Ethan F. Butler of Rochester, Minn., Dr. H. H. Hodge of Knoxville, Tenn., Dr. E. P. McGruder of Glendale, Md., Dr. Clapham King of Washington D. C., and Dr. Morton H. Lane of Washington D. C.

A fund for the relief of Belgian physicians has been started by our contemporary, *American Medicine*. Contributions may be sent to the office of this periodical, 18 East 41st St., New York City.

On Nov. 13, the New York Belgian Relief Fund reached a total amount of $447,946, the New York Red Cross Fund $341,483, the American Ambulance Hospital Fund $147,000, the New England Belgian Relief Fund $90,401.37, the Boston Branch of the American Ambulance Hospital Fund $25,544, and the Massachusetts Red Cross fund $70,139.81.

In San Francisco a fund of $110,000. has been raised with which a 3,500-ton steamer has been chartered for a relief expedition to sail on Nov. 18 for Belgium.

There is great need for more motor ambulances for service among the British troops. The American Women's War Relief Committee in England has equipped and contributed six such ambulances and appeal is made for funds amounting to $3,500 for the equipment of another from Boston. Contributions should be sent to Brown Bros., 60 State St., Boston, who will forward them to the treasurer of the American Women's War Relief Fund in London. The amount already raised is $2,386.50

Report from Tokyo, Japan, Nov. 9, states the Emperor Yoshihito has given $25,000.00 towards the foundation of an international hospital at Tokyo under the auspices of St. Luke's Episcopal Mission. It is estimated that the entire cost of equipping this hospital will be about $500,000.00.

BOSTON AND NEW ENGLAND.

THE NEW YORK AND NEW ENGLAND ASSOCIATION OF RAILWAY SURGEONS, held one of its

most successful meetings on Oct. 21-22, at the Hotel Astor, N. Y. City, under the presidency of Dr. C. A. Pease, of Burlington, Vermont.

A Symposium on the Treatment of Fractures was presented and proved to be highly instructive and of great interest. The Address in Surgery delivered by Dr. Wm. S. Bainbridge of New York City was deeply interesting.

Following are the officers elected for the ensuing year: President, Dr. W. H. Marcy, Buffalo, N. Y. First Vice-President Dr. D. H Lake, Kingston, Pa. Second Vice-President, Dr. H. G. Stetson, Greenfield, Mass. Treasurer, Dr. J. K. Stockwell, Oswego, N. Y. Recording Secretary, Dr. J. H. Reid, Troy, N. Y. Coresponding Secretary, Dr. George Chaffee, Brooklyn, New York.

Diphtheria in Malden.—Report from Malden states that there are 12 cases of diphtheria in six families in the Linden district of that city. The local school has been closed.

An Active Centenarian.—John Girdler, of Beverly, Mass., recently celebrated his supposed centennial anniversary. He was born in Manchester, Mass. He is still actively engaged in the coal and ship-fitting business.

Forsyth Dental Infirmary.—Invitations have been issued to the exercises in dedication of the Forsyth Dental Infirmary on Nov. 24 at 10 a.m. Tea will be served in the afternoon. It is announced that Dr. Harold Dewitt Cross has been appointed director of the Infirmary, and Dr. William Z. Hill, assistant director. The following staff appointments are also announced:—

"Dr. William E. Chenery will be in charge of the nose and throat department; Dr. Frank A. Delabarre will be the head of the orthodontia department, and Dr. E. Albert Kinley will conduct the x-ray department.

"The extracting staff, whose duties will embrace visits to the various public schools, will consist of Dr. Joseph B. Rockett, Boston; Dr. W. A. Bradford, Boston; Dr. Fennimore S. Andrews, Quincy; Dr. J. Stephen Scott, Jamaica Plain; Dr. Edward V. Bulger, South Boston; Dr. John A. Breen, Boston; Dr. William H. Canvan, Revere; Dr. William D. Squarebrigs, Boston; Dr. Webster Bradt, Dorchester; Dr. William A. Gobie, Groton; Dr. Harold B. Norwood, Boston; and Dr. Charles S. Parker, Newton Highlands."

NEW YORK

Increase in Number of Physicians.—Volume XVI of the Medical Directory of New York, New Jersey and Connecticut, just issued by the Medical Society of the State of New York, contains the names of 18,210 registered physicians, an increase of 352 over 1913. The figures for the three states are as follows: New York, 14,114, an increase of 237; New Jersey, 2,683, a decrease of 2; Connecticut, 1,413, an increase of 17. The number in the city of New York is 7,724, an increase of 297, and in the rest of New York state, 6,290, an increase of 40.

Rockefeller Belgian Relief.—In order that there may be the greatest dispatch in collecting foodstuffs for the relief of non-combatants in Belgium, the Rockefeller Foundation, in addition to the measures of relief initiated by itself, has arranged to provide a steamship pier, to charter ships, and to convey free of charge to Belgium such supplies as the public may contribute. Following the announcement that the foundation would send a commission of experts to Europe to advise as to the time, place and means by which relief can be best provided for needy non-combatants in all the warring countries, that commission has now been constituted as follows: Wickliffe Rose, (chairman), inspector general of the International Health Commission; Henry James, Jr., manager of the Rockefeller Institute; E. P. Bicknell, national director of the American Red Cross.

Montefiore Home and Hospital.—The annual meeting of the Montefiore Home and Hospital for Chronic Diseases was held at its new buildings in the Bronx on November 8, and among the gifts to the institution announced was one of $25,000 from the family of the late Milton S. Lehman, as a memorial endowment fund. During the year other donations amounting to $8,000 and legacies aggregating $38,000 were received.[4] In the course of his annual report the president, Jacob H. Schiff, said: "Fortunately, with the advance of medical science, and not the least because of the experience gained by the medical staff of the Montefiore Home, actual remedies have been discovered for chronic diseases which before were considered incurable, or even unimprovable; so that it has become increasingly possible to discharge a very considerable percentage of inmates, after shorter or longer stays, often entirely cured and more frequently vastly improved, and thus make room for others entitled to the benefits of the institution."

Work of the Little Mothers' Leagues.—The *Weekly Bulletin* of the city health department announces the award of banners to its Little Mothers' Leagues in the different boroughs for 1914. Thanks to the receipt of a special fund, the Bureau of Child Hygiene was enabled last year to purchase handsome banners, one of which is to be awarded annually to that league in each borough making the best record during the summer, to be held for one year. This work among the younger girls, it is stated, continues to be one of the department's most valuable aids in the work of reducing infant mortality, and in the season just past the at-

tendance and interest have been far above the average; 137 leagues having been formed, with a total membership of 13,301.

PERTUSSIS AND TUBERCULOSIS CLINICS.—The health department now maintains a daily whooping-cough clinic at its research laboratory in East 16th street. Since September 1, all cases of this disease reported at dispensaries, as well as other cases ascertained to be without the care of a private physician, have been kept under the supervision of the nurses of the Bureau of Infectious Diseases, who are required to visit and revisit pertussis cases in common with those of measles, scarlet fever and diphtheria. No fumigation of premises or disinfection of bedding is done by the department, but the nurse recommends renovation of the premises by washing walls and floors with soda solution and exposure of bedding and clothing to light and air. The health department, in announcing the progress made in its tuberculosis work since 1912, reports that the most important step forward in its supervision of the disease has been the division of the entire city into 19 districts, each with its clinic and branch registration office, its physician and nurse in charge, and its clinic physicians and district nurses. As the result of an investigation made for the committee of health, hospitals and charities of the Board of Estimate and Apportionment, eighteen recommendations regarding the tuberculosis work of the Division of Communicable Diseases were submitted to that board. All of these were approved by the Department of Health, and all have been adopted with the exception of those calling for a larger staff of employees than has been available.

BRITISH WAR RELIEF ASSOCIATION.—The British War Relief Association has been incorporated in New York. Its special object is stated to be to raise funds to provide a motor ambulance corps for service in the European war. On November 11, the war relief contributions in New York, exclusive of those of the Rockefeller Foundation, had exceeded $1,500,000.

FINGER-PRINT SYSTEM OF IDENTIFICATION.—At a meeting of the Society of Medical Jurisprudence, on November 9, Lieut. Col. C. E. Woodruff, U. S. Army Medical Corps (retired), speaking on identification as practised in the army, stated that since 1906, when the finger-print system was introduced, the proportion of deserters recaptured had been doubled. The number of desertions has been greatly reduced, he said, and better food and better quarters, together with the reduction of the enlistment term, has had much to do with this. Following Col. Woodruff, Inspector J. A. Faurot, head of the city detective bureau, spoke of the service rendered the police department by the Bertillon and finger-print systems.

SANITARY INSPECTION OF FACTORIES.—It is announced that the health department has made plans providing for a sanitary inspection of the factories and workshops of the city. Facts thus gathered will be communicated to the proprietors, who will then know just what ought to be done to better conditions. In outlining this work, Commissioner Goldwater is reported to have said: "Since it is advantageous that the work be carried on through the coöperation of employers and employees, the activities of the health department should be limited to initiating the movement, which has for its object the organization of a work that will accomplish the greatest good in every industry, through a system of voluntary sanitary control. Through its Bureau of Public Health the department will be glad to assist in formulating sanitary industrial standards for the prevention of occupational diseases."

STREET CLEANING METHODS.—Officials of the street cleaning, police and health departments attended a conference at the Academy of Medicine on November 10, at which the city of New York's street cleaning methods were characterized by the Academy's committee on public health as "antiquated, expensive and unsatisfactory." This committee, through a special subcommittee, has been conducting an investigation of street cleaning conditions, and has come to the conclusion that control of the streets should by a revision of the city charter, be centralized in one department, instead of being shared, as at present, by the street cleaning, police, health and highway authorities. The report of the committee likewise declared that the present methods of disposing of ashes and garbage are out of date, and should be supplanted by the institution of a number of modern incinerators. Immediate removal of snow after each storm was also recommended.

COLUMBIA UNIVERSITY MEDICAL SCHOOL.—At the monthly meeting of the trustees of Columbia University held Nov. 2, it was announced that a gift of $113,750 from William K. Vanderbilt had enabled the university to complete the purchase of a city block adjoining its grounds. The university began the acquisition of this property five years ago, with the view of removing the medical department to it. Its subsequent alliance with the Presbyterian Hospital, however, led to a re-examination of the whole question as to the best site for the medical school, and it is probable that for a considerable time at least the latter will be allowed to remain in its present location in West 59th Street. At present a portion of the newly acquired block is occupied by the temporary buildings of the Crocker cancer research laboratories. Prof. W. T. Longcope has been appointed a member of the board of managers of the George Crocker Special Research Fund, and Drs. A. P. Coll and John Leshure instructors in laryngology. It was also

announced that an arrangement has been made with the Montefiore Hospital for Chronic Invalids by which the students of the medical department may receive clinical instruction at that institution; and such instruction is to be given by members of the hospital staff, who have been appointed to positions in the medical department of the university. The list is as follows: Dr. Siegfried Wachsman, medical director of the hospital, professor of clinical medicine; and Drs. G. L. LaPorte, B. S. Oppenheimer, and S. P. Goodhart, assistant professors of clinical medicine.

Mortality from Vehicle Traffic.—The National Highways Protective Society reports that since Jan. 1, 276 children have been killed on the streets of New York City by vehicle traffic. With a view to the prevention of such deaths, the police department has for some time past been setting apart a number of blocks in congested districts, prohibiting the passage of vehicles during certain hours of the day in order to give the children an opportunity to play in safety. In these restricted blocks instructors are provided to teach the children games, as in the regular city playgrounds, and the arrangement has been greatly appreciated by the tenement population.

A New Dispensary.—The new dispensary of the Hospital for Deformities and Joint Diseases was formally opened on Nov. 3, when addresses were made by Dr. A. Jacobi, Dr. H. W. Frauenthal, surgeon-in-chief, and others, and after the exercises the building was inspected. It is six stories in height, and in the basement provision has been made for the manufacture of braces and other appliances. On the third floor are facilities for treatment by electricity and massage, and the fourth is equipped with Zander apparatus. On the fifth are two gymnasia and on the sixth the laboratories and an operating theatre.

Current Literature

Medical Record.

October 31, 1914.

1. Knopf, S. A. *The Treatment of Advanced Pulmonary Tuberculosis.*
2. Hoxie, G. H. *Effects of Forty Years of Cholelithiasis.*
3. Hartshorn, W. E. *A Suggestion Regarding the Treatment of Fractures About the Elbow Joint.*
4. Thomson, W. H. *Vasomotor Disorders.*
5. *Solis-Cohen, M. *The Subjective and Objective Symptoms of Favorable and Unfavorable Reactions to Tuberculin.*
6. Hunter, G. G., and Williams, E. H. *The Widening Pellagra Zone.*
7. Pendexter, S. E. *The Treatment of Orbital Cellulitis.*

5. Solis-Cohen classifies a very large number of observations on the symptoms of tuberculin reactions. One hundred and twenty-six different symptoms, favorable and unfavorable, are noted. The only favorable symptoms which were at all common were improvement in general condition and in appetite and spirits. Unfavorable symptoms were observed by the score, the most important being malaise, fatigue, drowsiness, headache, delirium, chills, rapid pulse, cyanosis, hoarseness, aphonia, increased cough, herpes, anorexia, nausea, vomiting, polyuria, albuminuria.

[L. D. C.]

New York Medical Journal.

October 31, 1914.

1. Grant, J. *Nerve Block, Public Health and Tuberculosis.*
2. Satterlee, G. R. *Diseased Conditions of the Cecum.*
3. Gordon, A. *Some Features of Pneumococcus Meningitis.*
4. Gallant, A. E. *An Improved Ether Inhaler.*
5. Lydston, G. F. *Implantation of the Generative Glands and Its Therapeutic Possibilities.*
6. Halsted, T. H. *Intranasal Operation in Tumor of the Hypophysis.*
7. Deaderick, W. H. *Blackwater Fever.*
8. *Theisen, C. F., and Fromm, N. K. *Normal Horse Serum in Hemorrhage from Nose and Throat Operations.*
9. Bechet, P. E. *Treatment of Ringworm of the Scalp.*
10. *Schwartz, A. I. *An Effective Method to Prevent Postoperative Nasal Hemorrhages.*

8. Theisin and Fromm report eight cases in which they administered normal horse serum previous to nose and throat operations. In all the cases unusual bleeding was expected because of a history of severe cases of hemorrhage in the patient's family or of severe spontaneous hemorrhages in the patient. In the eight cases there was an average decrease in coagulation time of one minute and six seconds, and post-operative bleeding was very slight.

10. Schwartz advocates cauterization, first with the electro-cautery and later with a 100% solution of silver nitrate as a means of preventing post-operative nasal hemorrhages. By this method he has made his nose operations almost always bloodless.

[L. D. C.]

The Journal of the American Medical Association.

October 24, 1914.

1. Finney, J. M. T. *The Standardization of the Surgeon.*
2. Collins, H. O. *The Surgical Service in Hospitals.*
3. Matas, R. *Testing the Efficiency of the Collateral Circulation as a Preliminary to the Occlusion of the Great Surgical Arteries.*
4. McGlannan, A. *Aneurysm of the Posterior Tibial Artery, with Report of Two Cases.*
5. Oliver, P. *Myositis Ossificans Following a Single Trauma.*
6. Brooks, H., and Carroll, J. *The Treatment of Heart Involvement in Syphilis, Based on a Study of 300 Cases.*
7. Cabot, R. C. *The Four Common Types of Heart Disease. An Analysis of 600 Cases.*
8. Stengel, A. *Cardiorenal Disease. The Clinical Determination of Cardiovascular and Renal Responsibility, Respectively, in Its Disturbances.*
9. Bassler, A. *Discusson of the Surgical Theories of Intestinal Stasis.*
10. McWilliams, C. A. *Subscapular Exostosis with Adventitious Bursa.*
11. Dalton, A. J. *Harness Rivets Removed from Nasal Cavity.*

12. MILLER, A. H. *Nitrous Oxid-Oxygen Anesthesia. A New Apparatus.*
13. MANNING, W. J. *A Shockless Horse-Litter for Transportation of the Wounded.*
14. POTTER, C. *A New Perineal Board for Use in Perineal Prostatectomies and Genitourinary and Rectal Surgery.*

OCTOBER 31, 1914.

1. *CUSHING, H. *The Weir Mitchell Lecture. Surgical Experiences with Pituitary Disorders.*
2. *STRAUSS, A. A. *Two New Methods of Closure of the Pylorus for Pyloric and Duodenal Ulcer.*
3. *KÜTTNER, H. *The Results in One Hundred Operations Performed on the Diagnosis of Brain Tumor.*
4. *CHESNEY, A. M., MARSHALL, E. K., AND ROWNTREE, L. G. *Studies in Liver Function.*
5. *SAWYER, W. A. *Ninety-Three Persons Infected by a Typhoid Carrier at a Public Dinner.*
6. *LINDEMAN, E. *Blood Transfusion by the Syringe Cannula System.*
7. SPILLER, W. G. *Acute Myelitis, Secondary to Perirectal Abscess, Developing a Few Hours after Severe Fright.*
8. GILLIS, A. C. *Occlusion of the Posterior Inferior Cerebellar Artery.*
9. MCKENDREE, C. A. *A Case of Myasthenia Gravis.*
10. MCLAUGHLIN, A. J. *The Necessity for Restriction and Control of Sewage Pollution of the Great Lakes System.*
11. *STOLL, H. F. *The Late Manifestations of Inherited Syphilis, with Especial Reference to Arterial Disease.*
12. BORDEN, C. R. C. *Latent and Tertiary Syphilis in Diseases of the Nose and Throat.*
13. SWIFT, W. B. *A New Method of Reflex Elicitation. Preliminary Report.*
14. HAYHURST, E. R., AND SCOTT, E. *Four Cases of Sudden Death in a Silo.*
15 REED, A. C. *Kala-Azar. A Case Report from China.*
16. KOPLIK, H. *The History of the First Milk Depot or Gouttes De Lait with Consultations in America.*
17. LOUGEE, J. L. *End-Results Following the Yankauer Operation on the Eustachian Tube.*

1. Cushing's paper is clean cut in type and beautifully illustrated. It is not fitted to short abstract, and should be read.

2. Strauss describes and illustrates his method of free fascial submucous transplant for tightly closing the pylorus. If one believes that this is a desirable procedure, this technic seems a good one.

3. Küttner is an enthusiastic advocate of preliminary and exploratory decompressions in practically all cases of brain tumor.

4. These authors find that the tetrachlorphenolphthalein test for liver function, while very far inferior to the phenolsulphonephthalein test for renal function, is not of inconsiderable value in estimating liver function.

5. Sawyer found the carrier to be a woman who prepared for a dinner a certain cooked dish; the heat of cooking being sufficient only to incubate the bacteria and not to kill them.

6. Just why this author describes his article as Blood Transfusion by the Syringe Cannula System is not quite clear as he makes no mention of technic. The chief interest in this paper is his advocacy of transfusion in cases of chronic sepsis. He is convinced that the blood of normal individuals contains bactericidal elements or elements that inhibit bacterial growths which possess considerable potency. These elements when introduced convey some degree of passive immunity.

11. Stoll believes that one-half of the children born of syphilitic parents, who survive infancy, give a positive luetin reaction. In nearly 90% of those with obvious ailment the Wassermann or luetin test is positive. It seems probable that syphilis may be transmitted to a third generation. Some cases of neurasthenia are due to congenital syphilis and can be promptly cured by specific treatment. [E. H. R.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 24. JUNE 15, 1914.

1. v. d. BERGH, A., AND SNAPPER, J. *Investigations in Jaundice.*
2. UJIHARA, K. *A Contribution to Our Knowledge in Regard to the Albumin Found in Serous Effusions and Precipitated by Dilute Acetic Acid—Also on Its Clinical Significance.*
3. *STEINEBACH, R. *Visual Disturbances after the Use of Atoxyl.*
4. *v. SZILY, P. *Serum Therapy in Acute Gonorrhea.*
5. OPPENHEIM, E. *The Treatment of Surgical Tuberculosis in Children with "Copper-Lecithin" Preparations (Finkler's Method).*
6. *Practical Points.* SAALFELD, E. *Dermatology.* LIESKE, H. *Medico-legal Questions.*

3. Visual disturbances after the use of atoxyl are not common when the drug is carefully used, and occur usually in those cases in which there is an underlying affection of the nervous system, as in severe cachexias and auto-intoxications, tabes and cerebral syphilis, and especially chronic alcoholism. These conditions are distinct contra-indications to the use of atoxyl.

4. v. Szily reports very briefly excellent therapeutic results in acute gonorrhea, by the use of a fresh autogenous vaccine, in which he uses the living bacteria, producing early in the disease an active immunity. His account is too short to be conclusive.
[R. H. M.]

No. 25. JUNE 22, 1914.

1. *HESSE, F. A. *Surgical Observations on Tuberculosis of the Prostate.*
2. *MELCHIOR, E. *Congenital Stenosis of the Duodenum.*
3. PELTESOHN, S. *Injuries to the Upper End of the Humerus in Birth Palsies.*
4. FINKELSTEIN, H. *The Occurrence of Serous Meningitides in Tuberculous Children.*
5. PEISER, J. *Concerning Fat in Infant Feeding.*
6. HEIM, P. *Concerning "Hypertonic" New-born and Infants.*
7. SACHS, H., AND NATHAN, E. *The Mechanism of the Production of Anaphylaxis.*
8. HIRSCHFELD, L., AND KLINGER, R. *On the Theory of Serum Reactions.*
9. HIRSCHBRUCH, A. *Observations on the Excretion of Typhoid Bacilli by Typhoid Carriers.*
10. BLUM. *A New Conception Regarding Hyperemia of the Brain and Viscera.*
11. BERNHARDT. *A Streptothrix Recovered on Lumbar Puncture.*
12. v. d. BERGH, A. A. H., AND SNAPPER, J. *Investigations in Jaundice.*

1. Tuberculosis of the prostate is far more common than was formerly recognized, and this gland must be classed with the kidney and epididymis as a frequent site of infection. In case of a large abscess drainage is indicated, preferably through the perineum. If the process is extensive, partial or total prostatectomy is advisable, though contraindicated in extensive tubercular involvement of the lungs or kidneys.

2. Melchior reports a case of congenital stenosis of the duodenum due to a condition of partial "transposed viscera" with abnormal posterior fixation of the colon where it crossed over the duodenum. This particular case was cured by operation. [R. H. M.]

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VOL. 104. PART 4.

29. *HELLER. *Experimental Attempts to Transplant the Epiphysis on to One Half the Shaft.*
30. *KLEINSCHMIDT, O. *Experimental Studies in the Histological Surroundings of Freely Transplanted Fascia Lata and Proof of the Viability of the Same Through the Use of Prelethal Staining.*
31. LÄWEN, A., AND JURASZ, A. *Experimental Studies in the Application of Free Pieces of Muscle to the Heart and Some Other Organs to Secure Hemostasis.*
32. SONNTAG, E. *Advanced Haemangioma Cavernosum of the Lower Lip and Tongue, and Its Treatment.*
33. LÜKEN, E. A. *Single and Bilateral Vagus and Accessorius Injury and Complete Deafness after Fracture of the Base of the Skull.*
34. LÄWEN, A. *Hemostasis from Heart and Liver by Application of Free Muscle Fragments.*
35. *SCHMIDT, W. *An Attempt to Prevent Formation of Adhesions within Abdomen by Use of Hirudin.*
36. HOHLBAUM, J. *Determination of Gastric Function.*
37. JURASZ, A. J. *Mobilization of the Duodenum.*
38. KLEINSCHMIDT, O. *A Solitary Echinococcus Cyst of the Omentum.*
39. DÜNKELOH, W. *Congenital Dislocation of the Patella.*

29. Heller reports unfavorable results following the transplantation of the epiphysis into half the thickness of the shaft of the radius of rabbits. At the end of his paper he places a postscript saying that he has had much better results from transplanting a thin disk of epiphysis.

30. Kleinschmidt shows that fascia lata transplanted to cover defects preserves its peculiar structure for at least two and one-half months.

35. Schmidt has prevented the formation of intraperitoneal adhesions in animals by the injection into this cavity of Hirudin-adrenalin solutions. Hirudin lessens the coagulability of the blood. The injections must be made for several days after operation, a procedure which Schmidt accomplished by means of a subcutaneous drain, but one which he himself says can hardly be followed with human beings. [G. G. S.]

VOL. 105. PART 1.

1. REHN, E., AND MUJAUCHI. *Cutaneous and Subcutaneous Tissue in Different Rôles. A Clinical and Experimental Study in Transplantation.*
2. RIEDEL. *Disturbances and Dangers Due to Cystic Goitre.*
3. *GULEKE, N. *Results of Pyloric Closure by Constriction.*
4. PERTHES, G. *Resection of the Stomach for Gastric Ulcer.*
5. SPRENGEL. *Cause and Treatment of Postoperative Abdominal Hernia.*
6. SOLIERI, S. *Punctured Wounds of the Brain Through the Base of the Skull.*
7. MEYER, A. W. *The So-called "Total Anesthesia." Following Intravenous Injection of Local Anesthetics.*
8. *v. RAUCHENBICHLER, R. *The Question of Primary Resection of the Large Intestines.*
9. OPITZ, E. *The Relations of Diseases of the Appendix to Those of the Cecum and Sigmoid Flexure.*
10. v. WALZEL, P. R. *Operative Reduction of Old, Irreducible Dislocations and Dislocation Fractures of the Elbow Joint.*
11. JENCKEL, *Post-operative Pancreas Necrosis.*

3. Guleke reports 11 cases bearing on the patency of the pylorus from one-half to two years after it was occluded by the ligature method of Kelling and Parlavecchio. Nine of these showed complete or almost complete closure of the pylorus, as determined by the x-ray after a bismuth meal. Guleke says that the ligature must be tight enough to close the pylorus, and yet not tight enough to cut through. He does not believe that in men ligatures cut through as readily as they do in dogs. The method, he says, does not close the pylorus with certainty, but is a good one to employ in cases where haste is important, or in recently perforated cases in which septic matter has been spilled about.

8. von Rauchenbichler reports the results of primary resection of the large intestine in 37 cases. Eight died, 24 healed by first intention, in 5 a fistula resulted. He believes that acute obstruction is a contraindication to primary resection, whereas chronic obstruction is not. The operative mortality of the one-stage operation is not greater, and this method has the advantage of more rapid recovery, and an earlier removal of the diseased tissue. [G. G. S.]

Obituary.

JAMES BARTLETT BREWSTER, M.D.

JAMES BARTLETT BREWSTER, M.D., died at his home in Plymouth, Mass., November 7, 1914, aged 72 years. He was born at Plymouth on April 1, 1842.

Dr. Brewster left Tufts College, where he was a student, to enlist in the 44th Regiment, Massachusetts Volunteer Militia, and he served with this regiment through the Civil War as its assistant surgeon and surgeon. Returning, he was graduated from the Bellevue Hospital Medical College, New York, in 1866 and became the first surgical house officer at the Boston City Hospital, where he served until April, 1867. He became a Fellow of the Massachusetts Medical Society in 1866, and was retired in 1909. In 1891 he delivered the annual discourse before the Society, taking as his topic, James Thacher, M.D., of Plymouth, the Eminent Medical Biographer. This discourse was published in the BOSTON MEDICAL AND SURGICAL JOURNAL, vol. cxxiv.

Dr. Brewster practiced all his life in Plymouth and was at one time Port Physician, and for many years Medical Examiner for the third district of Plymouth County. He is survived by his widow, one daughter, and one son.

AMERICAN COLLEGE OF SURGEONS.—The third annual meeting of the American College of Surgeons was opened in Washington, D.C., on Monday of this week, Nov. 16, with an attendance of over 2000 delegates. It is announced that 600 new members will be admitted at this time. The president of the College is Dr. J. M. T. Finney, of Baltimore.

Miscellany.

WOMEN'S MUNICIPAL LEAGUE OF BOSTON.

COMMITTEE ON INFANT SOCIAL SERVICE.
WORK BEGUN ON APRIL 15TH, 1909.

STATISTICS FOR FIVE YEARS, 1909-1914.

Total number of patients cared for	1512
Total number of deaths during pregnancy	0
Total number of miscarriages	3
Percentages of miscarriages	.2%
No miscarriage has occurred for the past 3½ years.	
Total number of cases of eclampsia	4
Percentage of cases of eclampsia	.2%
Total number of maternal deaths during and after confinement	9
Percentage of maternal deaths during and after confinement	.6%
Total number of deaths of babies under 1 month of age	43
Percentage of deaths of babies under 1 month of age	2.8%
Birthweight of babies including premature children	7 lbs. 11 oz.
Stillbirths—For two years the percentage was only	18 per 1000
The last year was filled with accidents like 2 placenta praevia, etc., which disgustingly raised the percentage, making the total percentage for 5 years	32 per 1000
Premature babies (percentage of total births)	1.7%

The report of the committee follows:—

Methods of Coöperation.—Work was begun by taking the House Patients of the Boston Lying-In Hospital. In two years we cared for 800 of their patients and *at their request* sent our nurse about with their nurse when they began to do the work themselves in November, 1911 to show her how it was done.

We took care of the house patients of the Massachusetts Homeopathic Hospital for about four years until we gave up the visiting nurse in April, 1914. This hospital is now caring for its own house patients through the nurse whom we trained and who worked under us for three years.

We began coöperation with the Instructive District Nursing Association in November, 1911, and were asked by them to supervise all their prenatal work, beside giving training in this care to the pupil nurses in their training school for district work. This coöperation continued until we gave up the visiting nurse in April, 1914.

We have also taken such private patients as applied either personally or through their physician. We have always insisted that patients be under medical care.

Spread of Work.—Dr. Philip Van Ingen in opening the discussion on a paper read at the Baby Saving Show in Philadelphia in May, 1912 said that this committee "had called the attention of the whole of this country to the value of prenatal care."

Dr. Slemons of Johns Hopkins, writes from Berkeley, California, that he had started a prenatal nurse there because of our reports.

Dr. Ballantyne of Edinburgh, writes, speaking of an article in the *British Medical Journal* written by him: "You will notice on p. 825 of the number for Sept. 27, 1913, a reference to your prenatal nurse at Boston—you will also notice that I have adopted the idea in a form in our Maternity Hospital here. We have had the internal arrangements for pregnancy cases for twelve years, and the outdoor development begins now. I trust it will be as great a success here as in Boston."

Dr. Sinclair, Health Officer of Melbourne, Australia, writes in speaking of the work, "One is seized with its great importance and is desirous of learning from your experience."

The Women's Coöperative Guild, Hampstead, London. "It may interest you to know that it was the report of the work done by your Municipal League in assisting the developments of the Boston Maternity Clinic which started us on our great campaign, so you will see any reports of your progress will be greatly appreciated by us."

Report of the Committee.—I believe this committee to have made the first attempt to determine scientifically what benefit would accrue to mothers and babies if prenatal care were to be given as a matter of routine throughout, as nearly as possible, the full period of pregnancy. Pregnant women have been visited time out of mind by their physicians where signs of illness seemed to make such visits necessary, but the investigation here reported was undertaken with a view to determining the possibility of preventing through medical care the very illness which doctors had hitherto only been called in to cure. The work has always been experimental throughout its five years of existence. No effort has been made to do it on a large scale, but the committee has felt itself always to be merely the sign post pointing the way to the great help which others would give. The experiment has justified itself, and the fifth year of prenatal work was completed on April 15, 1914,—before speaking of the new line of work which we have since then undertaken it seems fitting to give a summary of the most important results to mother and child which have seemed to us to come from prenatal care, together with a few words to explain its simplicity.

The care is not difficult to give, it is not beyond the capacity of any thoroughly trained nurse, and with the standard established by the committee of visits to every patient at least every ten days, we have found that one nurse can keep on her books from 80 to 100 patients all the time, even though they live in widely separated parts of the city. Were the city districted much more could be accomplished for we have found it possible properly to pay twelve calls in a morning where the patients lived near one another.

The study of the methods of feeding the babies covers only a part of the five years, but may be taken as an average. The results are as follows:—

Percentage of those breast-fed	84.7%
Percentage of those mixed-fed	4.5%
Percentage of those bottle-fed	10.8%
	100.0%

BREAST-FED CONDITION.

Well at end 1 mo.	97.5%
Ill at end 1 mo.	1.7%
Dead at end 1 mo.	.4%
Condition unknown at end 1 mo.	.4%
	100.0%

MIX-FED CONDITION.

Well at end 1 mo.	92.3%
Ill at end 1 mo.	0%
Dead at end 1 mo.	0%
Condition unknown at end 1 mo.	7.7%
	100.0%

BOTTLE-FED CONDITION.

Well at end 1 mo.	72.4%
Ill at end 1 mo.	13.8%
Dead at end 1 mo.	3.4%
Condition unknown at end 1 mo.	10.4%
	100.0%

I believe we may say that prenatal care appears to lessen the likelihood of serious complications for both mother and child, not only during pregnancy but also at childbirth. Fewer children seem to come before their time. More are born viable and their birthweight is considerably increased. A larger proportion of mothers come safely through their ordeal, and it seems likely that they are also sounder and stronger afterwards than those who have not had these advantages, if one may judge by the proportion of those able to nurse their children and the condition of the children so nursed.

That prenatal care has abundantly proved its value is shown by the reports of all the many associations during this work, not only throughout this country, but in other parts of the world.

The next step has seemed the standardization of obstetrical practice among patients of small means and of no means at all; and the education of women in the importance of securing for themselves and their unborn children only the best care at this most vital time.

With this object in mind the committee has taken over the entire charge of two clinics recently established in Boston, one in East Boston at the Maverick Dispensary and the other started by the Milk and Baby Hygiene Association at the Peter Bent Brigham Hospital. The medical care at these clinics is being given by the obstetrician of the committee, Dr. Arthur B. Emmons, 2d, in coöperation with the two institutions where the clinics are held, and with the invaluable help of the Instructive District Nursing Association. The latter organization does all the nursing required, supplying not only the nurses at the clinics but doing all the prenatal visiting of the patients in their homes according to the standards set by this committee in its previous work, and also making all postnatal visits which may be required during the puerperium.

At these clinics the patients register as early in their pregnancy as they can be persuaded to come. The obstetrician makes a thorough examination of the patient, including the pelvic measurements. The patient's medical and social history are taken, both her personal history, and the history of any previous pregnancies, and also that of any previous children. After this initial visit at the clinic the patient is visited by the nurse in her own home at least every ten days, and oftener if anything in her condition appears to need more frequent oversight. Should she require medical care, she is sent to the clinic for observation and advice, but if all goes well her visits there are made only at rare intervals, just often enough for the doctor to keep track of the proportion between the size of the pelvis and the growth of the baby and to see that everything is going as smoothly as nature intends it shall go.

When the time for confinement comes the patient is delivered by a trained obstetrician in her own home, and is cared for by him during the puerperium, until the need for such care is over.

RESOLUTIONS ON THE DEATH OF DR. A. LAWRENCE MASON.

The following resolutions on the death of Dr. A. Lawrence Mason were adopted at a meeting of the Senior Staff of the Boston City Hospital held on Nov. 9.

Dr. Mason died at Albany, New York, June 5, 1914, at the age of seventy-two years. His connection of twenty-five years of active and eleven years of honorary service with the Boston City Hospital well merit the consideration of the members of this staff.

He was appointed physician to out-patients for the year beginning May 1, 1877, and April 4, 1878, he was appointed visiting physician. This position he resigned in December, 1902, the resignation taking effect the following January, when he was appointed senior physician. On his resignation of this position in November, 1908, he was appointed consulting physician.

During his years of active service he held various positions on committees in relation to the work of this staff and always to the entire satisfaction of his colleagues associated with him and of this staff as a body. In May, 1900, he became a member of the advisory staff of the South Department, serving until November,

1908, when he resigned as visiting physician. In January, 1902, he became a member of the Board of Discipline and served until 1908. In January, 1903, he was appointed to the Library Committee, serving thereon until 1908. In March, 1903, he was made chairman of the committee to consider the gift of Mr. L. G. Burnham. In June, 1904, he was appointed an editor of the History of the Hospital, published in celebration of the fortieth anniversary of the institution. He had also been several times one of the editors of the Hospital Reports.

Dr. Mason's discharge of his duties during the twenty-five years of his active work was marked in a high degree by skill, patience and assiduity towards his patients and by due consideration for all with whom he was brought in contact, whether his seniors or his juniors. He formed and held his own opinions, at the same time recognizing the rights of others. Whether agreeing with him or differing from him, it was likely to be the other's fault if harmony was impaired.

During twenty years of his connection with this hospital he was also a teacher at the Harvard Medical School, either as instructor, assistant professor or associate professor, doing his teaching largely in our wards. The simplicity, the directness, the sweetness of his nature were qualities, among others, likely to commend themselves to students and to internes brought into a still closer relationship. One of the best tributes to his memory came from the pen of one of those internes, now a member of this staff, published in the BOSTON MEDICAL AND SURGICAL JOURNAL of June 25, last. Another admirable sketch of his character and life by a layman, an old friend, appeared in the *Boston Transcript* of June 9. This present memorial aims mainly at putting on record Dr. Mason's relations to the Boston City Hospital which were useful to the public and form a wholesome example for his successors.

NOTICE.

ILLINOIS STATE CIVIL SERVICE COMMISSION.

NOTICE OF EXAMINATION.

TRAINED NURSE.

The State Civil Service Commission will hold an examination for trained nurse on Saturday, December 5, 1914, at fourteen points in Illinois. This examination is open to residents of the United States from 25 to 50 years of age. The starting salary is $40 a month with board, room, and ordinary washing, and there is possibility of increase to $75 a month. Several vacancies now exist in the College of Medicine of the University of Illinois at Chicago, the Training School for Girls at Geneva, and the Illinois State Penitentiary.

The principal duties of a trained nurse are to take care of the sick in a hospital ward and to assist at clinics and operations. Candidates must have a license as registered nurse before certification, and have thorough training and experience in practical nursing.

Applications must be on file at the office of the Commission in Springfield not later than 5 P.M., Saturday, November 28. The proper forms may be secured by addressing the State Civil Service Commission, Springfield, Illinois.

APPOINTMENTS.

COLUMBIA UNIVERSITY.—*Dr. Cornelius Coplcy* has been appointed professor of laryngology at the College of Physicians and Surgeons, New York.

WESTERN RESERVE UNIVERSITY.—*Dr. Howard Thomas Karsner* has been appointed professor of pathology in the medical school.

RECENT DEATHS.

DR. GEORGE STANLEY LYNDE, of New York, died at the New York Hospital on November 5, in his 54th year. He was born in Bangor, Me., and was graduated from Yale in 1883 and from the College of Physicians and Surgeons, New York, in 1887. Dr. Lynde was for more than twenty years in the service of the city health department, and for five years previous to his retirement, some time since, was chief diagnostician of the department.

DR. PHILIP G. CREVELING, of Phillipsburg, N. J., died on November 5, at the age of 80. He was graduated in Philadelphia in 1857.

DR. JOHN A. HORGAN, who died on Nov. 11 at Roxbury, Mass., was born in 1864. He received the degree of M.D. in 1888 from the Harvard Medical School, and subsequently served as interne at the Boston City Hospital. He was visiting physician at the Foxboro (Mass.) State Hospital, a member of the American Medical Association, and a Fellow of The Massachusetts Medical Society. He is survived by his daughter.

DR. JOSEPH HENRY KELLEY, of Worcester, Mass., died of apoplexy in that city on November 10, aged 52 years. He was a graduate of Bellevue Hospital Medical College in 1884 and had practised since in Worcester, his native city. He was a Fellow of The Massachusetts Medical Society.

SOCIETY NOTICES.

BOSTON ASSOCIATION FOR THE RELIEF AND CONTROL OF TUBERCULOSIS—The annual meeting of the Boston Association for the Relief and Control of Tuberculosis will be held at the Twentieth Century Club, 3 Joy Street, Boston, Thursday, November 19, 1914, at 4 P.M.

A meeting of the Council will be held immediately after the annual meeting.

Following the regular business, the meeting will be addressed by Charles J. Hatfield, M.D., Executive Secretary, National Association for the Study and Prevention of Tuberculosis. "Tuberculosis and Public Health." The public is invited.

ALICE HIGGINS LOTHROP, *Clerk.*

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A meeting of the Society will be held in Sprague Hall, Medical Library Building, Boston, on Monday, November 23, 1914, at 8.15 P.M. Memorial addresses:

"Dr. Francis Bishop Harrington," Dr. Herman F. Vickery.

"Dr. Thomas Morgan Rotch," Dr. Charles Hunter Dunn.

"Dr. Charles Pickering Putnam," Dr. William B. Robbins.

Members of the Suffolk District Medical Society and of the Harvard Medical School are cordially invited to attend.

E. WYLLYS TAYLOR, M.D., *President,*
ROBERT M. GREEN, M.D., *Secretary.*

Original Articles.

THE LABORATORY IN THE STUDY AND TREATMENT OF CRIME.

By V. V. Anderson, M.D., Boston.

Many factors are combining to bring about a changing attitude towards certain social problems, particularly crime. Possibly the frequency of recidivism has had much to do with it. Certainly there has arisen in the minds of many serious thinkers a suspicion as to the adequacy of present methods of handling offenders. Possibly the growing unrest of the age, the ever-increasing desire for greater efficiency, lies at the bottom of it all.

However, this we know, that lessons already learned by workers in other fields have served to cause earnest students of crime to stop and consider whether, after all, the old and beaten paths are the best.

Certain fields of human knowledge have made immense strides, notably the recent and instructive achievements of modern medicine. There had been a complete change of front on the part of this science, the inclination to treat symptoms had given way to a tendency to search out the cause or causes, with a view to as complete eradication as is possible. The tendency to treat symptoms without any real knowledge of the underlying causes, which was such a serious element of failure in the treatment of physical ailments by the medical profession, gave way to a recognition of the positive necessity of sound laboratory methods, and a willingness to base treatment on such laboratory findings and research work, resulting in a far more rational basis of combating human ills.

This tendency to base treatment on a knowledge of the underlying causes has spread into other fields, and promises, especially in the handling of crime, to bring about an era of evolutionary changes similar to that which has been accomplished in the treatment of disease.

More and more is society realizing the positive necessity of studying the criminal as well as the crime. More and more are judges recognizing that there are considerations other than legal, and of as great importance, in handling offenders.

One hears the questions often asked,—What are the causative factors in this particular case? What does the particular individual need? How best can society be protected and the offender reformed?

One notices a growing tendency among criminal jurists towards individualization, and a handling of offenders in the light of what they are, rather than what they have done. There is a feeling that what we recognize as crime may more often be treated pathologically than morally; as it is clearly more often the result of irresistible physical forces than the deliberately chosen end of voluntary moral action.

There is a feeling that that great host of individuals, abnormal in mind and in body, in whom there is a serious question as to whether they really know the nature and quality of the act which they have committted and for which they have been arraigned, demand in the name of common justice that a scientific estimate of their capacity for what judges have been in the habit of calling "free moral action" be made. This is a crucial question, a question that cannot be settled by general observation, but is only answered by the trained scientific observer, and, in many instances, only after prolonged and patient investigation.

But then this would mean the establishment of laboratories with expensive apparatus and a corps of specially trained experts in our courts. Nevertheless, just this particular thing has been advised by Committee A of the Institute of Criminal Law and Criminology. The report of this committee contemplated the establishment of such criminological laboratories in the municipal courts of our larger cities, that were to furnish "such a diagnosis is of the criminal from psychological, neurological and sociological points of view, as might be of immediate practical aid to the judge who must sentence the defendant before the bar. It should furnish him with exhaustive knowledge of the individual case, in order that through his sentence he may adequately protect society, while doing the best that is possible for the prisoner as an individual." In general, the data supplied to the court by the laboratory will assist the judge in determining how he may best perform his protective service to society.

The research side of this work will not be lost sight of, for it was the purpose of the committee "that the laboratory serve to collect a body of anthropological, physiological, neurological and sociological data concerning criminals that will ultimately be of great scientific value."

This contemplates quite a forward step in socializing our courts, and means that the absurdity of interpreting as crime the reactions of the countless thousands of mentally weak of varying degrees of abnormality, who are incapable of understanding and measuring up to the dictum of society, will give way to an appreciation of the underlying causative factors in their conduct and a realization of the mental deficiency or disorder that often exists; that the imbecile, or feeble-minded man (man in physical years, but boy in mental), is unable to understand his obligations to society and will naturally fail to obey its mandates; that sentencing him to a penal institution for a short term of punishment presupposes that he exercises a free will in the line of evil,—a thing quite impossible, and fails to in any sense meet the situation; he is soon returned to society unmodified and after a short term of freedom he is again found in

the courts and again sentenced. This useless process is kept up over and over again. The pity of it all is that in the meantime he is liable to have become a hopeless pervert; all possible chance for improvement in the proper type of custodial institution, all possible chance for industrial education, and advance along the lines of habit training, and thus character building, has been lost.

After the report of Committee A, a certain development along these lines began to take shape in Boston. Mr. Albert J. Sargent, the chief of the Probation Department of the Municipal Courts, who had long felt the need of just such a laboratory in the courts, began to interest himself in the matter, with the result that soon the Chief Justice, Hon. Wilfred Bolster, after carefully considering the question submitted it to the judges, and in September of last year the work in which we are now engaged was initiated.

From the first we recognized the impossibility of examining anything like the number of individuals daily passing through the courts who needed a careful mental and physical examination before their cases could be properly disposed of. So, instead of taking the initiative, and picking out our cases, we decided to have the judges and probation officers do this and have them send us what they considered their serious problems. This course we have pursued all through. We quickly saw our good fortune in being in a court where there was a corps of very efficient probation officers,——men and women whose thorough manner of handling their problems was most pleasing to us. Their keen insight had already prepared the way for our work, and they welcomed us with an eager coöperation. Looking back over the year's work one can but feel deeply grateful for their kindly interest and most intelligent assistance. Most of all, we thank their chief, Mr. Albert J. Sargent. His thoroughly constructive attitude has been to us the most hopeful part of the entire situation.

Naturally, our first concern was the tools with which we had to work and the methods of getting at our problems. The recognition of the insane and the feeble-minded furnished no great difficulty, but the great borderline field lying in between, that on one side shades into mental disorder and on the other into mental defect, needed the development of accurate methods for investigation. On the one hand we had the unstandardized methods of the neurologist and the usual diagnostic measures of the psychiatrist. On the other hand the psychological laboratory offered us methods of experimental study by means of which the individual differences of men could be tested in a manner far beyond anything which common sense and social experience could suggest. That same accuracy shown by the physiologist in his investigation of bodily processes was to be found in the psychological laboratories in studying mental processes, but no coördinated system of tests for the adult individual were at hand,—nothing that could be lifted out bodily and be made to do the service we required for the study of criminals.

Healey had already evolved most practical methods for estimating certain abilities of juvenile delinquents. We had been using these tests since the opening of the Psychopathic Hospital in the investigation of all the borderline cases sent to the hospital, including juvenile court cases, industrial school girls, delinquents referred by various social agencies, backward children from the schools and others, with more satisfying results than could be obtained from any other method. In approaching adult criminals, however, many difficulties were at once apparent that forced upon us the conviction that we must develop our own methods for studying these individuals. The Binet-Simon tests we hardly thought of depending seriously on in connection with our work, realizing, after using them for several years, that they were quite inadequate for the purposes we were now called upon to use tests; intended by their authors for the classification of school children, they were not adequate to deal with an entirely different situation, the measurement of the degree of development of the mental processes of adult individuals. We were here dealing with such a complexity of factors, that, as our experience had long ago taught us, we would get an intellectual level in no sense representative of the true one if we relied upon the use of those tests.

The innumerable alcoholics would too often appear feeble-minded, for it is startling the number coming between 8 and 12 years Binet, but for the flashes of intellectual development, in many cases, beyond the standard to which the feeble-minded could aspire and indicating originally a maturity of mind often quite in keeping with their class in life; their low level being explained by a mental deterioration, an insidious impairment of all the senses, and a degeneration of the higher mental faculties, due to alcohol.

Other "derelicts" almost invariably show a lower level than their orginal status because of a deterioration due to their manner of living, discouragement, depression, and other factors. They are unable to respond to the Binet scale in a satisfactory manner and are included amongst the feeble-minded. But this is a serious matter, for it means all the difference in the world in our outlook on the general social situation. If their deficiency is native, then the steps to be taken along the lines of prevention are quite different from those to be taken if acquired.

Our first step was to standardize for our use certain methods of the neurologist and psychiatrist, but our principal task was in the development of mental tests for adults.

It seemed to serve our purpose best to use the scale method, and in this we sought not only a quantitative estimate of mental processes but a qualitative one as well. This latter point, that

mental tests serve their best purpose in enabling us to watch the mind in action, has always seemed to me of greater importance than their service as measuring rods. The scale consists of twenty points, and allows a credit of 100. The tests selected were considered best suited to bring into play those mental faculties that characterize the adult. These tests are being given in connection with Binet on every case, and we hope to make some comparative studies along these lines which will be of value. A report of our work with these tests is to be published soon.

In addition to a measurement of his mental capacity must come an estimate of his traits of character, a study of his personality. It was quite evident that the qualities here involved were not capable of direct experimental measurement, so that the only approach to the quantitative character that science demands consisted in an evaluation of comparative judgments about them. In this way have we sought to develop methods that would give us an estimation of our individual's ethical relations and enable us to examine into those qualities which constitute his value in relation to his fellows.

It has seemed to us distinctly worth while to arrange a chart for the recording of certain anthropological, psychological, neurological and sociological data, which when collected on a sufficient number of individuals may serve a better understanding of the crime problem. This we have done, after much time-consuming labor, so that now at the end of a year we feel that we are just beginning to get ready for our real work. In the meantime, we have all the while been doing plenty of clinical work, the courts being full of the richest material for investigation and study.

In a paper of this type it is impossible to go into many details showing the results of this changing attitude from punishment to treatment, but a few illustrative cases might be worth while.

The following case belongs to a type that it is very important from the standpoint of prevention to get hold of early.

E. W., age 20, arrested for larcency. Owing to persistent and uncontrolable crying the judge, at the suggestion of the probation officer, sent the girl to us for an examination. One found a well-nourished young girl with physical examination negative except for choreifrom movements. Mental examination, however, showed defect in memory, impairment in fund of general knowledge, some hallucinations, hypnagogic in character. She was greatly depressed, cried bitterly, was unwilling to talk much, wanted to get by herself. Such a mental condition had been quite marked for the last month, the change taking place at the time of having trouble with a sister, since which time she had been greatly depressed, crying considerably. She had noticed a distinct change in herself, and often felt like committing suicide. The judge very readily accepted the idea of treatment in the place of punishment and we sent her to the Psychopathic Hospital, where the diagnosis of dementia precox was confirmed, and the girl detained for observation and treatment. Her condition gradually began to clear up and finally she was tried out on a visit home. She began slowly to adjust herself to conditions, went back to work, is now in good health, earning good wages, and doing nicely. The fact is, the girl was not responsible for the crime she committed and had she received confinement in a penal institution would have doubtless deteriorated and soon have become an advanced case of dementia precox. She represents a group of cases that we are finding it quite important to get at in the earliest beginnings of their mental trouble if by proper preventive measures we are to ward off an oncoming dementia.

Another type is represented by E. C., age 27, street car motorman, arrested for larcency. The judge not feeling satisfied with answers he gave as to the motives of his conduct, sent him to us for investigation. One not only found larcency, but such accidents as driving his car into other cars repeatedly and imperilling passengers. Physical examination showed neurological signs suggestive of general paresis. Mentally he showed the classical picture of general paresis. The question of his mental soundness was placed before the judge, who readily substituted for the idea of punishment that of treatment. He was sent to the Psychopathic Hospital with the provisional diagnosis of general paresis. At the hospital the Wassermann was found positive for both blood and spinal fluid, and from there he was committed to Taunton.

We have had several individuals of this type, men charged with forgery, with assault and battery, with larceny, etc., whom it is quite important for society to get hold of and give the proper detention and treatment rather than a few weeks' punishment, not only for their own good, but especially for society's protection.

Of course there is a lot of substandard, inferior and defective individuals needing a special type of handling, rather than the ordinary routine probation and short term prison sentences. There are some who make good first impressions, appear superficially bright, are glib talkers, and deceive even the elect, whom mental examinations show to be of low grade intelligence and quite incapable of conducting themselves properly in a normal environment; and then on the other hand, there are many who appear much worse than they really are, who give the impression from personal appearance of being feeble-minded, but who as a result of mental examination show surprising mental capacity.

W. P., age 30, was of this latter type. Arrested repeatedly and given various terms of penal treatment, he was brought into court the time we saw him for drunkenness and lewd and lascivious cohabitation. Various different officials, court as well as jail, knew him and spoke to us of his being an imbecile. Physical examination showed results in facial muscles of paralytic condition in childhood, considerable ptosis of upper eyelids, relaxation of lower jaw and drooping of mouth; in fact, he did have the general appearance of an imbecile. Mental examination, however, was surprising, for he had good mental capacity. We found his mother was of low grade morally. They lived in a vicious environment, and influences in general were bad. The

ANALYSIS OF 140 MEN'S CASES.

	Drunkenness.	Larceny.	Attempt at Lar.	Assault and Battery.	Offenses Against Chastity.	Non-support.	Vagrancy.	Stubborn Child.	Threats.	Evading Cab Fare.	Forgery and Uttering.	Mal. Mischief.	Trespassing.	Vio. Drug Law.	Felonous Assault.	Totals.	Percentage.
Ment. defectives	8	9		1		2	2							1		23	or 16 3-7%
Cons. psycho.	25	3		3		14		1	3							49	or 35 %
Sub-normal	9	5		2		2	1			1		1		3		24	or 17 1-7%
Dem. precox	1	1	1			1	1					1	1			7	or 5 %
Epileptics	5			1												6	or 4 2-7%
Gen. paresis	2	1		1							1					5	or 3 4-7%
Cer. sp. syphilis	1					1										2	or 1 3-7%
Al. hallucinosis	1															1	or 5-7%
Psychasthenia	1															1	or 5-7%
Senile dementia	2						1									3	or 2 1-7%
Unclas. psychoses	2	2		1										1		6	or 4 2-7%
Normal	5	4			1	1								1	1	13	or 9 2-7%
	62	25	1	9	1	21	5	1	3	1	1	2	1	6	1	140	100%

court saw fit, as a result of our report, to put him on probation. The probation department secured him employment, and he was sent to the country on a chicken farm. He persisted in coming down to see me every week, and now, after a year, has a good position with a store in Boston, making $10.00 to $15.00 a week. He moved with his mother to a better neighborhood, and has had no return to his old bad habits.

One could go on multiplying instances of different types and merely be elaborating what is obvious, that there are a lot of deteriorating individuals in the courts, men and women, who have lost something they once possessed, or who never possessed very much, but who in the past have been considered confirmed criminals, who today are not going to be looked on in the light of hopeless incurables needing permanent segregation until society has failed in the more constructive measures of physical, mental and more intensively directed social treatment.

A general picture of the situation as regards the more serious problems in the court may be obtained from the following table, which consists of a report of the diagnosis of my last 350 cases:—

Mental defectives	31-1/7%
Dementia precox	3-5/7%
Constitutional psychopaths	24-2/7%
Subnormal	20-2/7%
Hysteria	4/5%
Psychasthenia	1/5%
Epilepsy	3-5/7%
Alcoholic hallucinosis	3/5%
General paresis	1-3/7%
Cerebro-spinal syphilis	3/5%
Senile dementia	1-5/7%
Unclassified psychoses	3-1/7%
Manic-depressive insanity	4/5%
Normal	3/7%

Here we have a reasonably larger group of defectives, individuals who started life with the handicap of retarded mental development, but the greater proportion are deteriorating cases, individuals showing evidence of an acquired condition rather than native.

To be sure, the constitutional psychopath has a poor soil to begin with; his nervous system is unstable, easily upset and less resistant to the battles of life than the normal, but the deterioration in these cases was in the majority of instances preventable. Sufficient facts are at hand to indicate that certain educative measures, physical treatment, and training in early life can go far towards preventing their becoming stranded later on.

There is a great horde of school children who are not up to par in their mental organization, who when subjected to the vicissitudes of life as adults are especially liable to develop the psychoses. These are the psychopaths, and they are usually completely overlooked. The teacher and medical examiner recognizes that they are neither defectives nor normal children; that they are not adjustable to the routine requirements of school and cannot be fitted into the ordinary régime, and usually let the matter drop there. Their anomalies of character and mental instability enable them to cope no better with the complex demands of life than it did with the simpler ones of life's training school; so they soon join that great body that Judge Gammell has so well termed "The Army of Defeat," and find their way into almshouses, prisons, insane hospitals and other institutions. What we need to bear in mind here is the efficiency of preventive measures.

The 350 cases that we have above referred to came from the first and second criminal sessions of the municipal courts, as well as a few from the domestic relations court. There were 140 men and 210 women. The following tables show offences for which they were arraigned in court and the mental condition found.

A few interesting points stand out in a comparative study of these tables. Take the record of the men offenders. We find that only 16%+ were mental defectives, while 35%, or more than twice as many, were psychopaths. Among the men offenders arrested for drunkenness there were 62 cases. Of these, 12.9% were mental de-

Analysis of 210 Women's Cases.

	Drunkenness.	Larceny.	Assault and Battery.	Offenses Against Chastity.	Vagrancy.	Stub. Child.	Threats.	Idle and Disorderly.	Profanity.	Vio. Drug Law.	Totals.	Percentage.
Ment. defectives	46	4		25	1	3	2		1	4	86	or 40.95%
Cons. psychos	29	4		2	1						36	or 17.14%
Sub-normal	11	12	1	15		2		4		2	47	or 22.38%
Dem. precox	3	3									6	or 2.86%
Epileptics	3	1		3							7	or 3.33%
Hysteria	2			1							3	or 1.43%
Al. hallucinosis	1										1	or .48%
Manic dep. insanity	2		1								3	or 1.43%
Sen. dementia	3										3	or 1.43%
Unclass. psychoses	3	2									5	or 2.38%
Normal	2	3		6						2	13	or 6.19%
	105	29	2	52	2	5	2	4	1	8	210	100.00%

fectives, while 40.3%' were constitutional psychopaths.

From the domestic relations court there were 21 individuals arrested for non-support. Of these, 9.5%' were mental defectives, while 66 2/3% were constitutional psychopaths. Apparently in the domestic relations court the problem of the mental defective is rather insignificant. The psychopath, however, looms up in large proportions.

A study of our women offenders gives an entirely different picture. Whereas there were only 16%'+ mental defectives amongst the male offenders, among the female offenders there were 40.95% mental defectives. There were 35%' constitutional psychopaths among the male, but only 17.14% among the female.

Of the women arrested there were 105 cases of drunkenness. Of these, 43.8%' were mental defectives, and 27.62% constitutional psychopaths.

A study of those women arrested for offences against chastity shows that the mental defective is the serious problem; 48%+ were mental defectives, 28% were subnormal, while only 3.84% were psychopaths.

In general our studies bear out the conclusions of other investigators, in regard to women offenders, that they are differentiated from noncriminals by a lack of intellectual development, that mental deficiency is the problem here.

In regard to criminals as a whole, however, they contradict certain reports, for the psychopath is almost as frequent as the defective, and among men recidivists is of larger magnitude.

We conclude that there is a type of individuals passing through our courts who form a group of as serious proportions as the feebleminded; who furnish as much if not more trouble to the social worker and probation officer than the defective, often suspected by the layman of being insane and diagnosed occasionally by experts as suffering from psychoses, or as mental defectives, defective delinquents, emotional defectives, moral imbeciles, and what not. These individuals when studied intensively by exact methods show no real defect in the intellectual field, they give no evidence of insanity, but seem to have certain anomalies of character, certain lack of personality adjustments; unstable, neurotic individuals, whose adaptation is inadequate and inefficient. They easily become disordered under the influence of emotion, alcohol, etc.

We have to consider these individuals in the light of adjustment of their personality rather than in terms of development of intellectual processes. Their antisocial conduct is due less to the stupidity of their ideas, less to their lack of understanding of the demands of a social organization and an inability to foresee the consequences of their acts, than it is to a lack of coordination of the proper mental faculties and a disturbance in the working of the proper mental mechanisms. The impulse to do a thing may come with such force as to drive out all opposing ideas, or the checking ideas may come into action too slowly, or may be permanently at fault. It is quite possible that these individuals belong to the same group as the neuroses and psychoneuroses, rather than defectives. And it is further quite possible, as Adler suggests, that our laboratory investigators are going to find some metabolic disturbances as a basis.

It is hardly necessary to call attention to the seriousness of the problem of the defectives and the proper social steps that need to be taken, inasmuch as now there is a wealth of literature on the subject. However, I am constrained to remind you of certain facts.

The public is getting the idea on the one hand that a majority of criminals are mental defectives. On the other hand, it is hearing that feeble-mindedness is incurable. So that the problem that faces society is to segregate all these defectives permanently. This is going to be a much contested point, and if the day of reckoning should come, would we be able to summon sufficient data to justify such conclusions? Are we convinced that all the evidence is in? On the contrary, we all know the last word has not been said from the standpoint of causa-

tion (and therefore of treatment). In fact, we have hardly touched on the subject from this side. Real scientific investigation of the question is only beginning, and we should be a little more cautious in speaking of the hopelessness of the situation.

As yet the pathologist and biochemist are to be heard from. The psychologist himself is going to dig a little deeper than merely classifying levels of intelligence. In fact, there is an immense field of research problems that will have to be worked out before any positive statements can be made.

In a series of 225 cases studied at the Psychopathic Hospital I called attention to the fact that 10% were specialized defectives, that is, their deficiency, instead of representing a halt in the stage of mental development corresponding to a certain level of mental age, was the expression of certain irregularities of mental makeup that consisted in a partial dropping out of some field of mental imagery.

Of the cases above referred to, 42 6/7% showed marked defect in auditory memory and imagery; 89% of whom measured so low in the scale as to leave little hopes of benefit from educative measures, the other 11% gave every evidence of being remediable.

The remaining 57 4/7% of this series showed defect in visual memory and imagery. Of these, 25% (two-thirds of whom were congenital syphilitics) were very low in the scale and were distinctly unpromising; the other 75% showed excellent learning capacity in other fields than those having to do with visual imagery and memory, and showed every evidence of good capacity to profit by intelligently directed, intensive method of instruction.

The interesting situation was this: all of these individuals were distinctly backward children and members of classes of defectives. Our findings show that of those distinctly defective in auditory memory and imagery, 89% were apparently hopeless cases from the standpoint of education; but of those whose defect was in the visual field of memory and imagery, 75% showed every evidence of ability to profit by properly directed educative measures.

The lesson that we wished to call attention to was that there is a certain percentage of children in the schools showing one or other of these defects, whose extreme backwardness may be due to a defect in auditory word memory or visual word memory, etc. The defect may be partial or extreme, and their apparent level in the scale of intelligence will depend upon the degree of severity of the defect.

Those having the defect in the auditory field are much lower and more hopeless than those having such in the visual. Stearns' findings bear this out, in that those having auditory hallucinations show greater disturbance of consciousness than those having visual.

Educative measures might consist in making good the loss sustained from a certain field being in arrears by intensive work on others. For instance, in case of visual memory defect, one would pay special attention to the auditory, motor, vocal motor, etc.

If these findings are borne out by other studies we have an additional tool with which to wage our warfare against feeble-mindedness.

These and numerous other problems at the very root of crime are waiting to be attacked in our court laboratories that are going to be established; and for a long time yet knowledge of criminals will have to be handed out in teaspoonfuls rather than bucketfuls. There will be no room for the faddist or misguided enthusiast, for the work will of necessity have to develop slowly; but this is quite clear, that in the creation of just such laboratories in the municipal courts of our larger cities lies the road to the establishment of a rational and scientific method of dealing with criminals. "You must first find out what they are before you can successfully cope with them."

SOME THINGS THAT INFLUENCE THE MORTALITY AFTER PROSTATECTOMY.*

BY ARTHUR L. CHUTE, M.D., BOSTON.

IT is useless, in my opinion, to deny that the death-rate following prostatectomy is still high except in the hands of a relatively few people. If any one questions the accuracy of my statement, I would ask him to peruse the reports of some of the large hospitals. I will admit that some of these reports are very difficult to translate, that others are so filled with lists of donors and graduate nurses that there is no room for statistics of the medical work, but there remain other reports from which the surgical mortality can be computed. In the last reports of three well-known institutions the mortality following prostatectomy varied from 9% to 26%,—not a low mortality by any means.

Another thing that also points in the direction of a high mortality is the attempt to devise new ways to control hemorrhage that we have been hearing of lately. Unless men lost cases in which they felt hemorrhage had played an important part, they would not concern themselves on this score.

While mortality is not the only thing to be considered in cases of prostatectomy, I believe none will dispute me when I say it is the most important single consideration in dealing with these cases. Certainly unless we succeed in the prime essential of saving our patients' lives, we have accomplished but little.

The basis for the conclusions set forth in this paper is a series of fifty-eight consecutive pros-

* Read before the annual meeting of the American Association of Genito-Urinary Surgeons, at Stockbridge, Mass., May 16, 1914.

tatectomies that I have recently looked up with but a single death. You may say with considerable reason that fifty-eight cases makes too small a number from which to draw conclusions, since, in so small a series, a happy outcome or two or the reverse will change the percentage of mortality materially. It is my feeling that the low mortality in this series of cases depends, not upon chance, but upon the recognition of the great cause of mortality in these cases; that much the same things apply to this series of cases that apply to other series of equal size. In other words, that this was an average series of cases and that application of the same methods should give practically the same mortality in other series. These cases extend over a period of two years and have been done in hospital and private practice; a number even in the country, where their after-care had to be entrusted to men not particularly familiar with the care of such cases. I take the cases of this period for the reason that about that time I began to recognize what I now believe is the underlying, fundamental point on which mortality for the most part depends in these cases of prostatectomy.

To come to the point at once, I believe that the danger in prostatectomy lies almost wholly in the renal condition; that with good kidneys properly functioning, or even with rather poor kidneys that have been gotten into good functional condition, these patients get well in the vast majority of instances; one might almost say regardless of operation or operator. When, however, this principal danger—the renal condition—is not recognized or not attended to, we have a moderate number of patients who "peter out" from two to five days after operation and are supposed to die of shock, hemorrhage or exhaustion. It is my opinion that the vast majority of these patients really die of renal insufficiency, though they do not show signs usually considered to indicate this condition. At any rate, with the functional condition of the kidneys carefully looked-out for, these apparent deaths from shock, exhaustion and hemorrhage do not occur with anything like the frequency that they formerly did.

There are two renal conditions that may endanger the life of the patient who is about to submit to prostatectomy. The first is the renal suppuration, pyelo-nephritis. In these cases, when the kidney involvement, plus the degree of temporary disability due to back pressure, bring the patient's renal reserve down pretty low, the irritation of ether will often cause a fatal shutting down of the kidneys, which, because of its relative slowness, leads to the idea of death from exhaustion. If one has them in mind, these pyelo-nephritis cases are relatively easy ones to recognize and to guard against because they present an infected urine of low specific gravity, a distended bladder, and in the more advanced cases, digestive symptoms. In these cases it is easy to judge the amount of renal disability by estimating the phenol-phthalein output, the quantity of urea, the amount of albumin and such things.

The other type of case that is especially dangerous is the one where one has a chronically over-distended bladder with a non-infected urine. I have called this condition one of renal embarrassment and referred to it in a paper entitled "Some Observations on Cases of Prostatic Obstruction Presenting Over-Distended Bladders," that I read before the Philadelphia meeting of this society two years ago. These cases are much more dangerous than the others for two reasons: first, because they are very often overlooked on account of the lack of symptoms pointing to the kidneys; second, because they have not received the immunity granted by a chronic infection and almost any manipulation will be attended by infection. What these patients may show is simply a low gravity urine in large amount, usually with, but occasionally without, a little albumin. This large amount of low gravity urine is evidence of Nature's attempt to rid the organism of the usual amount of waste products with kidneys that are unable, because of the embarrassment of back pressure, to filter solutions of the usual concentration. The kidneys' situation is not unlike that of a water-wheel which is partially or wholly put out of service because of the level of water below the dam rising to the point where the wheel does not clear itself. Both water-wheel and kidney have plenty of potential power, which they could exert under more favorable circumstances.

These patients may have coated tongues and dyspepsia, and if the process is advanced, nausea, or even vomiting; but no edema, no headache, no blurring of vision, rarely renal elements in the urine. The blood pressure is not necessarily high. These patients are in condition where an ill-considered anesthetic may cause their kidneys to shut down. Following it they become dull and heavy, their tongues become dry, their abdomens often distend, and they gradually fail, dying in from two to five days of symptoms that it is easy to attribute to shock or hemorrhage if they come early, and exhaustion if they come late. The falling blood pressure seen in the latter part of the course of these cases, in conjunction with the greater amount of staining that we see in general with the suprapubic operation, would seem to add color to the probability of death from hemorrhage. Such deaths are, I believe, really due to renal insufficiency. At least, cases which start in this way may occasionally be gotten well by stimulating their elimination, sometimes even when they have gotten to the stage of soft distention and vomiting, and cases whose condition is similar may be prevented from developing such symptoms by proper pre-operative treatment. I have yet to see one of these patients die who was passing 80 to 100 ounces of urine daily. In the fatal cases, the quantity of urine, when definitely known, is always small.

As there is no point that we can say definitely

indicates the danger line, I feel we should treat all prostatics with a residual urine as though their kidneys were under suspicion. The very least we can do is to keep these patients under observation for several days prior to operation and make out definitely the quantity of urine and its specific gravity. If there is any indication that the renal function is not perfectly good, we should not consider operation till the kidneys have been gotten to function well.

It is upon the whole clinical picture that the decision of the necessity of bringing up the renal function must be made, and not upon a single sign. One does not like a low phenol-phthalein output; 30% in two hours, for instance, makes me apprehensive; a urine that has a constant low gravity and a slight trace of albumin is bad; a very large amount of low gravity urine is dangerous; worse than these things is a patient who has, in addition to the above, digestive symptoms in the shape of a coated tongue, lack of appetite, nausea, or vomiting. A high blood pressure, especially if there is but little evidence of sclerosis of the superficial vessels is ominous. These are points that make me particularly concerned, but all patients with a much distended bladder are risky, especially if the bladder has been symptomless. This is because the lack of discomfort means a lack of muscular tonicity of the bladder with probable dilatation of the ureters and embarrassment of the kidneys by back pressure. Patients who present uninfected urines are less favorable in a way than those who have been infected, since this latter class have developed a certain immunity which the former do not possess.

These prostatic cases with failing renal compensation or threatened failure of renal compensation are most satisfactory to treat—wherein they differ from the failing renal conditions of the medical type, where there is little to be done except to take off as much work as possible and perhaps drive the heart a little harder. We cannot in the chronic medical conditions hope for any real, lasting improvement in the condition of the kidneys. With these chronic back pressure cases, however, we may confidently expect a restoration of function that is equal to the amount of crippling that is due to the element of back pressure. This often amounts to enough to make the difference between passing through a prostatectomy or succumbing to it. One sees cases where, before operation, the specific gravity had been about 1010, or less, for a considerable time and where, some months after operation, the same patients pass a urine of a gravity of 1020 or more, showing a great gain in the kidneys' ability to excrete a concentrated solution of waste products. This is chiefly, if not solely, due to the relief of back pressure. The difference in these two conditions represents the renal disability that had been brought about by back pressure.

The principle to be followed in these cases is to relieve completely the back pressure. This is most definitely accomplished by opening the bladder suprapubically, and putting in a large-sized tube. I feel that this operation should be done practically always by means of local anesthesia, preferably novocaine. I have used spinal anesthesia for this purpose in a few instances, but do not do so routinely, because it is unnecessary. In my opinion, ether is not to be used, for if a patient's renal condition is sufficiently serious to require this manoeuvre, he ought not to be subjected to ether, because of its irritating action on the kidneys. My experience with chloroform and gas-oxygen anesthesia for this purpose has been nil—but I doubt if they are so desirable as novocaine. It is in cases where the bladder is over-distended with non-infected, low gravity urine that this preliminary drainage by suprapubic incision made under local anesthesia, receives its most urgent indication.

As a rule the ureters are dilated in these cases. I know of no way that one can catheterize such a bladder for any length of time without infecting it, and that, too, relatively early in the process. With the bladder infected, the intermittent backings up of urine between the periods of catheterization, if this is done at intervals, or at such times as the catheter blocks if constant drainage by catheter is attempted, allows the infection to extend up one or both ureters. We then have a pyelo-nephritis, the extent of which will vary, as will also its seriousness. Our best insurance against this is a large suprapubic tube, which will not allow of back pressure. In spite of this precaution, the infection of the bladder which is bound to occur, may extend up a ureter; but we have done our best to prevent it, and the time before infection takes place may be sufficient for the ureters to contract and reassume their protection of the kidneys. If the patient's urine has been infected for some time and there is no appreciable amount of temperature, the need of this preliminary suprapubic drainage is less; presumably infection of the kidneys has already taken place if it is going to occur, and a certain immunity has been developed. If, in such a case, we can keep the bladder empty by means af a catheter, and the retention catheter is well borne, the requirements for the relief of the back pressure are sufficiently well met. If, however, there is a turbid urine with temperature and perhaps renal tenderness, immediate suprapubic drainage may limit the extent and damage of the acute renal infection that has probably just taken place.

There is one incidental advantage of the preliminary suprapubic incision, even in the cases where it is not urgently indicated—it allows us to wall off the space of Retzus before the time of the chief operation; it causes a diminution in the congestion about the prostate with consequent diminished liability of bleeding—a prophylactic treatment of bleeding that I believe is desirable.

How long a time is required, after drainage of

the bladder has been established, either by suprapubic incision or by retention catheter, to get the kidneys into condition to do the prostatectomy? This varies widely with the case, also with the sort of anesthesia one proposes to use for the operation of enucleation. I have almost always waited a week and more often two—on one occasion recently I waited between ten and eleven weeks. One should wait until the patient is passing a good amount of urine and until his tongue has cleared up. If there is distention one should wait until this has disappeared. In other words, wait until all signs of urinary intoxication have ceased. If one is to use ether for the enucleation, I believe it is essential to wait longer than if one is to use spinal anesthesia. There is no limit to the time one may wait. I have, on a number of occasions, seen patients in the country in serious condition from renal insufficiency due to back pressure, have opened up their bladders under local anesthesia, and then left them for some weeks. At the end of this time I have either had them sent to me in town for the completion of the operation, or have done it at their homes.

The only objection to this procedure is the fact that the preliminary suprapubic drainage rather commits one to the suprapubic enucleation of the prostate. I find that I still prefer to do two-fifths of my prostates by the perineal route. The small fibrous prostate, the clearly malignant prostate or the prostate that suggests probable malignancy, the prostate in the very fat man—all these I believe the man who has acquired a reasonable facility with the perineal operation will prefer to do by that method. The suprapubic opening is, of course, no absolute bar to carrying out the perineal operation.

Having, by preliminary drainage, gotten the kidneys of a prospective prostatectomy patient into good condition, it is essential that we do nothing that may injure them. I believe ether is a great renal irritant, especially to these kidneys that are convalescing, so to speak, and avoid it if I possibly can in patients whose renal function has been poor. In its place I use spinal anesthesia with increasing frequency. I have used it thirty-nine times in this last fifty-seven cases. While I cannot say that I have never had disquieting experiences with it, I have never had a fatality and use it with growing confidence. The occasional threatening episodes during or following spinal anesthesia are preferable to the euthanasia that I believe ether not infrequently brings about with these patients.

Bleeding, which has, I believe, received more attention than it deserves, and is entirely secondary as a cause of mortality to the renal condition, comes in for consideration more especially in connection with the suprapubic operations. It may be that hemorrhage may be an important factor in the bladders that are distended with water by use of the constant irrigation apparatus following prostatectomy, due to the effect that the hydrostatic pressure may have in keeping open the mouths of bleeding vessels. I have always felt that it was unnecessary to control the bleeding by this method, and have never employed it. I have felt that it was pernicious in that it did not allow one to measure the amount of urine secreted—a thing that must be known in order to guide accurately the patient's convalescence immediately following operation.

I see patients at times who ooze very freely; once in a while I see them bleed more than I believe is good for them, but even then they do not die so long as they are passing a large amount of urine. Therefore I doubt if fatalities often depend upon excessive bleeding. While I am careful to avoid excessive bleeding, following operation, and have packed two, I think, out of this list of fifty odd patients, yet I cannot help feeling that moderate bleeding is more likely to be beneficial than detrimental, especially in the men who have a high blood pressure at the time of operation. I believe that relatively few patients bleed enough to do themselves great harm; that bleeding is rarely a cause of death following prostatectomy. I believe that the time spent in the complicated ways of arresting hemorrhage is worse than wasted. It prolongs the time of an operation, which one should make reasonably short; it also adds to the trauma. The importance of these last two elements is of course less when one operates under spinal anesthesia, but is, in my opinion important to avoid.

A method that I have employed when I have had a troublesome bleeding in suprapubic cases —one that takes but a few moments and has always proved effective—is to pass a good sized soft rubber catheter, say No. 18 or No. 20 into the bladder by way of the urethra. A styletted catheter may be necessary if there is difficulty of introduction. This catheter is sometimes fastened in place by a stitch through the meatus, but preferably by bringing its tip out the suprapubic wound and by passing a silk stitch through its end and then passing this stitch through the edge of the suprapubic incision. The stitch is tied with enough slack so that the eye of the catheter can be withdrawn well down toward the bladder outlet; then, with the catheter held securely in place, the prostatic cavity is firmly packed with gauze strips around the catheter as a core. This apposes the funnel shaped process or diaphragm, that is sometimes left at the bladder outlet after an intra-urethral enucleation, to the sides of the cavity from which the prostate has been removed. This method has, in my hands, never failed to control bleeding promptly and efficiently. It can be done rapidly and by touch without seeing the field. Dr. Lower* has in a recent article, described this method as a procedure which effectively prevents hemorrhage. I have never

* "A Technic for Performing a Shockless Suprapubic Prostatectomy," William E. Lower, Annals of Surgery, Feb., 1914, p. 279.

made use of it as a prophylactic measure, but believe it is better than the more elaborate measures if one is going to make routine use of some method of hemostasis.

If my contention is right, the high mortality following prostatectomy is unnecessary and is to be avoided in two ways: first, by getting kidneys that are not doing their work into a condition where they are acting efficiently; second, by avoiding injury to embarrassed or susceptible kidneys at the time of operation. According to my belief, the question of the mortality can be and has, in most instances, been settled, before one begins his prostatectomy. The question hinges almost wholly upon the condition of the kidneys, or perhaps, to speak more accurately, upon the functioning of the kidneys. The task of getting them into condition must be done before operation. A certain amount can be done after operation, but for the most part whether or not a patient is going to recover has been decided before we begin our prostatectomy and depends upon the renal function.

MAGNESIUM SULPHATE IN PURULENT CEREBROSPINAL STREPTOCOCCIC MENINGITIS.

History of a Case Complicating Acute Otitis Media, Complicated by Paralysis of External and Internal Recti Oculi.

By W. Sohier Bryant, A.M., M.D., F.A.C.S., New York.

In the case of purulent streptococcic cerebrospinal meningitis here recorded, the treatment employed was so beneficial in its results, and those results were so encouraging—the patient recovering completely from the cerebrospinal meningitis, and living longer after the onset of the disease than in any other case hitherto reported—that the author is convinced the same method used in other cases might prove entirely successful in its final outcome. This assertion is based on the fact that the patient treated by the author succumbed in the end, not to the original disease, all symptoms of which had disappeared long before, but to complications which allowed repeated recurrence of local infection, and finally caused death through encephalitis.

The treatment consisted mainly of three things,—decompression, local drainage, and the intraspinal use of magnesium sulphate, which last is, to the best of the author's knowledge, a new procedure in meningitis.

The patient was a man of twenty-two years, whose general health was good, and who had had no previous trouble with his ears. He was first seen by the author on the night of September 23, 1914, in the clinic of Dr. Robert Lewis of the New York Eye and Ear Infirmary. Ten days before admission to the infirmary he had been troubled by a pain in the left ear and by slight deafness, and when he entered Dr. Lewis' service he had already passed into a typhoidal state, with a temperature of 102 3-5°, a pulse of 56, and a severe headache, and showed stupor and slight delirium. When roused, he answered questions very slowly. His neck was rigid, there was no patellar reflex, only a slight *Kernig* reflex, and altered Babinsky sign. He evidenced descending optic neuritis of the left eye. An aural examination showed the left meatus edematous, full of pus, and very tender. The tongue was foul. The spinal puncture showed the spinal fluid under very high pressure, containing pus and cocci in pairs and short chains. An examination of the blood gave the following results: Red corpuscles, 5,200,000; white corpuscles, 18,000; *differential count*, small mononuclear 10%, large mononuclear, 5.6%, transitional 8%, polynuclear 83.6%. The urine showed neither sugar nor albumen, and the heart and lungs were normal.

At 7 P.M. of September 23, the patient had become noticeably worse since his admission to the hospital, and his condition appeared to be very critical. The typhoidal state was rapidly increasing, and meningitis symptoms were now marked. The eye grounds of both eyes showed marked choked discs; the rigidity of the neck had increased, and the pulse was only 40. The patient was comatose, but it was still possible to rouse him.

By 10 P.M. an immediate emergency operation for septic cerebro-spinal meningitis had become necessary. The operative field was prepared with tincture of iodine, and chloroform administered as the anesthetic. Then a curved incision was made, starting above and about one inch in front of the left ear, and extending backward to the tip of the mastoid. The muscles were cut, exposing the bone; part of the posterior and superior canal wall and roof of the tympanic cavity was removed, and also a part of the squamous portion for an area of about one and one-half inches in diameter. The sigmoid sinus was exposed posteriorly and opened; no thrombus was found, and the sinus wound was packed. A few granulations were found on the dura mater just above the tympanic cavity, while the dura mater itself showed board-like tension in the middle fossa, so an incision was made in the dura mater, immediately to relieve intracranial pressure, and for local drainage, whereupon the pulse-rate increased at once and improved somewhat in quality. A double pectoral saline epidermiclysis of 1200 c.c. was given. Wet dressings were applied to the wound, and soon afterward, a saline proctoclysis was given to the patient, and was repeated at intervals of three hours. Much fluid, chiefly isotonic saline solution, was administered by the mouth. The patient passed from the anesthetic into a comfortable sleep without rousing. An examination of smear of ear pus showed pneumococci, and of the mastoid pus, streptococci.

2nd Day. On the following morning the patient's mental condition was bright; he showed no discomfort, and was both hungry and talkative. A watch was heard in his left ear 1/60. A cerebral hernia protruded about half an inch, and the cerebrospinal fluid drained freely. Proctoclyses were continued, and the patient drank a great deal of milk, of water, and magnesium sulphate solution. The patient was urged to drink as much as possible magnesium sulphate well diluted.

4th Day. On the fourth day, the dressings were found to be contaminated by pyocyaneous infection, and the cerebral hernia showed incipient necrosis. The wound was wiped with bichloride of mercury solution, dusted with chinosol, and a saline wet dressing applied. The enemata were continued, as was also the internal use of the magnesium sulphate solution.

5th Day. On the fifth day, the wound was clean and sweet.

7th Day. On the seventh day, *all symptoms of the meningitis had entirely disappeared,* and the patient's mentality was very keen. A mild degree of facial paralysis on the left side was noted. There was a little cerebrospinal leakage, and the wound was slightly purulent; therefore it was wiped with corrosive sublimate solution, and dressed with aluminum and lead acetate wet dressing. The patient continued to drink much magnesium sulphate solution.

8th Day. On the eighth day, the wound having become suspiciously dry, gas and ether were administered, and the mastoid operation was thoroughly completed. Then the sinus packing was removed and an alcohol wet dressing applied. The smear from the mastoid wound was found to contain streptococci.

12th Day. On the twelfth day, the patient was up and dressed, felt very well, and had begun to recover his appetite. He drank a large quantity of magnesium sulphate. The wound had granulated well, and was narrowing, though there was still some slough adherent.

13th Day. On the thirteenth day, the cerebral hernia had decreased very much, but the deeper layers of the wound were suppurating, the pus containing streptococci. An alcohol wet dressing was applied. Although the patient had a good color and appeared very well, except for the unhealed wound, he complained of double vision—due to insufficiency of the left external rectus—and the left facial paralysis seemed more marked. He continued to take much magnesium sulphate through the mouth. The blood count on this day was as follows: Red corpuscles, 4,900,000; white corpuscles, 18,000; differential count, small mononuclear cells 20.8%, large mononuclear cells 1.6%, transition cells 2.8%, polynuclear cells 75%.



Fig. 1.—Hernia on 13th day.

27th Day. On the twenty-seventh day, there was a sudden rise in the patient's temperature, he had a severe headache, and vomited a great deal. The facial paralysis was worse, and the left eye, which closed the day before, now would not quite close, and the same eye had a slightly choked disc. All over the wound was a membranous exudate. The lumbar puncture produced a turbid fluid under moderate pressure, containing pus cells, but no organism by cultures. Saline enemata were administered to the patient every two hours, and an increased amount of water, and two ounces of magnesium sulphate were given him through the mouth, but he could retain nothing, and his nutrition was poor.

29th Day. On the twenty-ninth day, the patient's general condition was much better. An aluminum and lead acetate dressing was applied to the wound, and the patient was given one-half ounce of magnesium sulphate during the day.



Fig. 2.—Diagram of wound on 29th day.

41st Day. On the forty-first day, the patient was doing well. The hernia had disappeared, and the wound was clean.

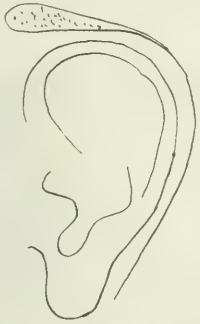


Fig. 3.—Diagram of wound on 41st day.

43rd Day. On the forty-third day, the wound was still smaller, but the patient had an epileptiform convulsion with an aura of "whizzing in the head like taking an anesthetic." He continued to drink magnesium sulphate well diluted, consuming one-half an ounce during the day.

44th Day. On the forty-fourth day, the patient felt very well. The wound was almost dry, but a

microscopic examination of the discharge showed considerable pus and an occasional coccus.

50th Day. On the fiftieth day the patient did not feel so well. The wound was suppurating, and the lower jaw was drawn strongly to the right, to a distance equal to the width of two incisor teeth, by the contraction of the right, and paresis of the left, masticatory muscles. One dram of magnesium sulphate was administered to the patient three times during the day.

61st Day. On the sixty-first day, the patient experienced a second epileptiform convulsion, which was, however, shorter than the previous one. The tension in the wound had increased.

62nd Day. On the sixty-second day, the wound had contracted, and looked completely healed, except for considerable cerebrospinal drainage. Amidoazotolulol salve was used as a dressing. The patient was given one dram of magnesium sulphate three times during the day.

68th Day. On the sixty-eighth day, the epidermitization was complete. One-half an ounce of magnesium sulphate was taken internally by the patient.

72nd Day. On the seventy-second day, the patient was seized with a third epileptiform convulsion, which was, however, slight. The patient said that this time an aura of color appeared before his right eye only, whereas in the last convulsion it had appeared before both eyes. The discs of both eyes were choked, more markedly so in the left. The left pupil was much larger than the right.

76th Day. On the seventy-sixth day, the wound surface was necrosing, and the cerebrospinal fluid oozing considerably. The patient was pale and thin; he no longer cared to help about the ward as he had done hitherto, and could not even read without fatigue. He was aphasic for nouns—a condition which lasted one day only—and was also very deaf, suggesting word deafness. Half an ounce of magnesium sulphate was given him during the day.

79th Day. On the seventy-ninth day, the hernia was larger, and had taken on the appearance of a malignant tumor with erosions on its surface and invading the neighboring skin flaps. There was a leakage of cerebrospinal fluid with a little pus. The wound was wiped with mercuric chloride in alcohol.



Fig. 1. Hernia on the 82nd day.

82nd Day. On the eighty-second day, the wound was nearly epidermitized, and though there was copious cerebrospinal leakage, there was very little pus. The patient, however, felt severe pain in the wound and down his neck. He was given two doses of magnesium sulphate, half an ounce at one time, two ounces at the other.

98th Day. On the ninety-eighth day, the patient's left facial paralysis was total, he had a severe headache, experienced intensely loud tinnitus and flashes before his eyes at the same time, and at night felt faint. There was some serum and blood from the wound, but no pus. The hernia had increased 25% since the day before, and there was much serous leaking. A specimen of the tumor for histological examination proved to be only granulation tissue. The patient was given one dram of magnesium sulphate.

101st Day. On the one hundred and first day, the hernia was large, and sloughing, with a cadaveric odor, and was in appearance a malignant granuloma; induration reached from the outer angle of the left eye to the lower wall of the meatus, with nodules below the ear posteriorly in the neck. The granuloma was invading the healthy tissues and the skin, and no healthy granulations were visible. The lumbar puncture produced 33 c.c. turbid, flocculent, stringy cerebrospinal fluid under great pressure. There were many polynuclear cells, but no germs in the smear, and the cultivation was negative. The jaws and face of the patient were much twisted to the right. He had edema of the right eyelid and had a severe paroxysm of pain in the left eye, and severe pains in the head. A tincture of iodine dressing was applied to the wound, from which there was free drainage. The patient was given two ounces of magnesium sulphate.

129th Day. On the one hundred and twenty-ninth day, the patient was *not* up and dressed, the first occasion in a very long time. The wound was dirty and foul.

145th Day. On the one hundred and forty-fifth day, the patient was weak, nauseated, complained of pain in both eyes, and was discouraged at last; he looked pale, sallow, and cachectic. The fungus hernia was large, although cleaner. The appearance of a malignant granuloma invading the skin was intensified, and much more tissue was involved than recently. Two drams of magnesium sulphate were administered to the patient every four hours.

152nd Day. On the one hundred and fifty-second day, the wound was clearing, and the patient was much better and more comfortable. His condition about this time varied considerably; one day he would show improvement, and the next he would be worse again. It was noted that he had seemed either inattentive or else very deaf for a week or two past.

162nd Day. On the one hundred and sixty-second day, the patient was weaker. From the time, *three weeks earlier*, when he had first been given alcohol to stimulate his appetite, he had lost more rapidly.

167th Day. On the one hundred and sixty-seventh day, the wound was green, and the granuloma very large. The patient was weak and indifferent, dozed all the time, seemed extremely deaf, and spoke very slowly at long intervals. For ten days past his speech had been growing unintelligible, like sensory aphasia, and inarticulate, like motor aphasia. His mind, however, was perfectly clear, although slow. He found no trouble in swallowing, but could retain little nourishment, as there was considerable vertigo, nausea, and vomiting. He also had a severe headache.

169th Day. On the one hundred and sixty-ninth day, the patient was better again. He began to pick up interest, and to talk, but though his words were, as usual, chosen correctly, his speech was almost unintelligible from faulty muscular action; in talking he did not move the muscles of his face or mouth at all, and scarcely moved his tongue. He was also very deaf. On the other hand, the left facial paralysis had been improving for several days, and he could now close his left eye tightly.

171st Day. On the one hundred and seventy-first day, the wound was very foul and green, with considerable cerebrospinal leakage. The external and internal recti muscles of the left eye were weak, paretic, and irregular in action, and the same eye showed marked strabismus, while both eyes had a spontaneous nystagmus to the right. On this day the patient ate nothing at all. He was in a very drowsy state, sleeping most of the time, though answering questions readily. This drowsiness had been gradually increasing for three weeks past.

173rd Day. On the one hundred and seventy-third day, the wound was dirty, the fungus granuloma extending over the edges of the wound on all sides, under the skin, and under the posterior half of the zygoma. The left auricle was pushed down to the angle of the jaw. There was noticeable rigidity of the neck. The patient was slightly comatose.

175th Day. On the one hundred and seventy-fifth day, the patient left the hospital, and went home. He was comatose, but not profoundly so.

179th Day. On the one hundred and seventy-ninth day, the patient was reported to be better than on leaving the hospital.

186th Day. On the one hundred and eighty-sixth day, the patient was reported comfortable. His jaw now shuts tight and even. Facial movements perfectly restored.

190th Day. On the one hundred and ninetieth day—March 30, 1912—the patient died.

SUMMARY OF CASE.

Diagnosis, as cerebrospinal meningitis, established by symptoms and lumbar puncture.

Decompression operation gave immediate relief from intracranial pressure.

Toxemia combated by magnesium sulphate water and drainage.

Cure of the cerebrospinal meningitis follows in a few days. Infection of the cranial wound follows contamination of the dressings. Result, a recurrence of toxemia together with encephalitis, with death on the 190th day from time of decompression operation.

Cause of death, encephalitis and toxemia, *not* cerebrospinal meningitis.

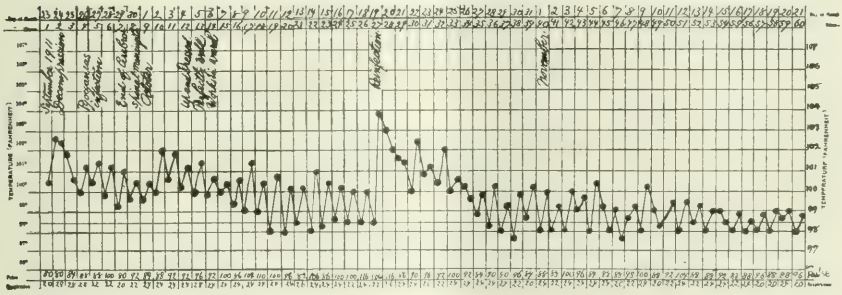


Fig. 5.

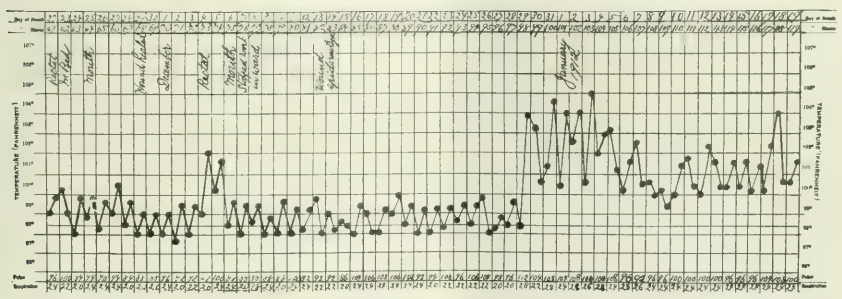


Fig. 6.

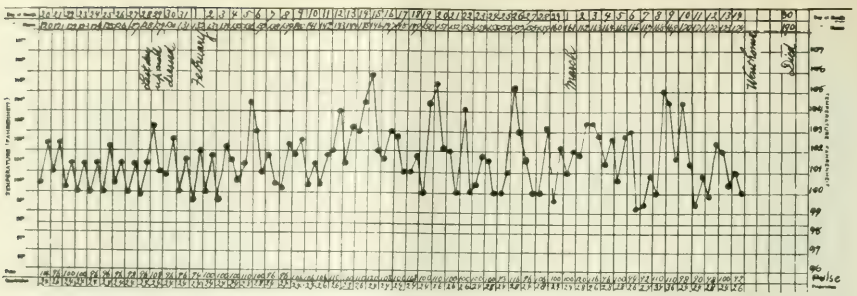


FIG. 7.
FIGS. 5, 6 and 7. Daily, morning and evening, maximum, minimum records.

THE MODERN TREATMENT OF AMEBIC DYSENTERY.

BY EDGAR F. HAINES, M.D., FORT LEAVENWORTH, KAN.,

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AMEBIC dysentery has become endemic in the United States. Holt[1] states that "reports to the Surgeon-General of the Public Health Service show its presence in numerous localities in this country. It has been reported in California, Oregon, Washington, Idaho, Georgia, Arkansas, Indiana, Ohio, Massachusetts, Maryland, Pennsylvania, Michigan, Illinois, North Carolina, Texas, Alabama and New York. Reports of other observers indicate the presence of the disease in a number of other localities." In our island possessions it has been known to exist for years. Giffin[2] of the Mayo Clinic reported that during a period of two and one-half years the stools of 1700 patients were examined, in 79 of which the Entamœba histolytica was demonstrated. In the 79 cases in which the entamoeba was demonstrated, the patients came from the following states: Minnesota, Iowa, North Dakota, South Dakota, Nebraska, Wisconsin, and Montana. Only a very few of these patients had ever traveled in the South, and without doubt contracted the disease in their home locality. Jerome Wagner[3] states that over one hundred cases have been seen at the New York Polyclinic Hospital in the last twelve years. From the above it is readily seen that amebic dysentery becomes a disease of importance to every practicing physician and the diagnosis and efficient treatment of this malady should be well known.

Many drugs have been used in the treatment of amebiasis, the chief among which are: ipecac, bismuth and quinin. Varied results have been obtained by different observers with each. The treatment was tedious, relapses and deaths were frequent, and on the whole no drug gave satisfactory results. In March, 1911, Vedder[4] of the Army Medical Corps, published his experiments undertaken to test the efficacy of the ipecac treatment in dysentery. These experiments brought emetin to light as the potent factor in the treatment of amebic dysentery. Rogers immediately began to treat all of his cases of dysentery (where the entamœba histolytica was the causative organism) along the lines laid down by Vedder. The reports of the wonderful results obtained by Rogers in India are well known to all. While in North China in 1912 it was the writer's good fortune to have the opportunity to observe several cases of amebic dysentery that were being treated with emetin hydrochloride. The European physicians of that locality were loud in their praise of emetin, and it seemed no less than miraculous that patients who had the entamoeba histolytica demonstrated in their stools, should be up and about their work while receiving the treatment, have no uncomfortable symptoms from the drug, the stools return to normal frequency and consistency in three or four days, while the active amebas disappeared in a like period in a large percentage of the cases. In all, four cases were closely observed for a period of four months; all were acute cases and there was no relapse during this time. Frequent microscopical examinations of the stools were made, and in no case were active ameba found after treatment. In Manila, P. I., in 1913, through the courtesy of Captain A. T. Cooper and Lieut. E. A. Anderson of the Army Medical Department the writer was able to observe and compare the results that were obtained with bismuth subnitrate and emetin in the treatment of amebic dysentery. The acute cases under bismuth did poorly and the chronic ones went from bad to worse; and, in one instance, the disastrous results of the bismuth were clearly demonstrated at autopsy. It had coated the majority of the amebic ulcerations, and by so doing had bottled up the entamoebas, which had burrowed deeper into the intestinal wall and finally caused multiple perforations. The only ulcers that had perforated were those that had been sealed with a layer of bismuth. Bismuth will temporarily stop the pain in amebic dysentery by coating the ulcerations, thus preventing the passage of the intestinal contents over raw

and excoriated surfaces; it will cause the disappearance of blood in the stools for the same reason; and lastly, will cause the periodic disappearance of the entamoebas from the feces due to the coating of the ulcers, in which the greater percentage of the amebas are located. Many have claimed excellent results from this drug in the treatment of dysentery, but I have never seen bismuth subnitrate or any other form of bismuth "cure" a case of dysentery where the etiological factor was the entamoeba histolytica. The results obtained with emetin were remarkable. Many of the cases were chronic in character, but their response was rapid. A large number of the cases had failed to respond to various lines of treatment given at their post hospitals, and had been transferred to the Division Hospital, prior to their being returned to the United States; many of these cases after receiving the emetin treatment, instead of being "invalided home," returned to their stations in a far better physical condition than they had been for years

Jerome Wagner[3] of New York has recently reported excellent results obtained from the use of emetin in amebic dysentery.

G. W. McCaskey[5] reported in February, 1914, a case of amebic dysentery of thirteen years' duration cured by emetin hydrochloride.

Lyons[6] reports six cases of amebic dysentery in which emetin hydrochloride was used with successful results in five.

Major Hartsock[7] of the Army Medical Corps states that his experience with three cases where emetin was used was very satisfactory, the effect was prompt, but one case necessitated a repetition of emetin after a month. One case developed an amebic hepatitis, which promptly subsided under treatment with emetin.

Holt[1] of the Public Health Service states that the results were favorable in six of his cases treated with emetin, and believes that in emetin we have our most powerful weapon in the fight to control amebiasis. He further states that reports are at hand from 17 officers of the Public Health Service relative to the use of emetin and none are unfavorable.

The writer desires to report four cases. Case 1 has been under my personal observation for 18 months, Case 2 for nine months, and Case 3 for four months. Case 4 has been heard from at frequent intervals for a period of 18 months and states that there has been no abdominal pain or discomfort, the stools have been normal in frequency and consistency, and there has been a marked gain in body weight.

Case 1. Mrs. H., aged 26. Had been in the tropics two and one-half years; absolutely well during this time. In September, 1912, was taken with abdominal pains and frequent stools containing blood and mucus. She lost ten pounds and became very anemic. Circumstances made it impossible for a microscopic examination of feces at this time. Ipecac was given with moderately good results. Pain ceased and stools became practically normal in consistency. In October, 1912, the patient had another attack similar to the one stated above; examination of the stools at Tientsin, China, failed to show the presence of amebas. It was advised that bismuth subnitrate be used; poor results were obtained from this treatment. For two or three days there would be an apparent improvement, then a relapse to former condition. This kept up until January, 1913. By the latter part of January the patient had lost nearly twenty pounds, looked anemic, was exceedingly weak, and was having three or four bloody stools a day. Examination of the stools made by Captain T. D. Woodson at the Division Hospital, Manila, P. I., and confirmed by myself, showed the presence of *entamoeba histolytica* in large numbers. The patient was admitted to the Division Hospital, Manila, about February 1, 1913. She retained ipecac very poorly. Bismuth subnitrate was used with no results. Emetin hydrochloride (Merck) was begun about February 10, used hypodermically in one-fourth grain doses, two injections a day, night and morning, until three grains had been taken. At the end of this time an opposite condition existed from a dysenteric one. The patient was up and about the third day after emetin treatment was stopped, and left the hospital on the fifth day. There was a slight recurrence one week after leaving the hospital. Two one-half grain injections of emetin were given. All symptoms cleared up immediately. There has been no relapse up to this date (Sept. 17, 1914). Weight is normal, no anemia, and no pain is present, the stools are normal, and the patient states that she never felt better. A total of four grains was used in this case. No entamoeba can be demonstrated in the stools.

Case 2. Sergeant, Prison Guard, Military Prison, Fort Leavenworth, Kansas. Aged 40. Had amebic dysentery in May, 1903, while stationed at Ormoc, P. I. Had from 12 to 16 stools daily, containing much blood and mucous. Was given quinin irrigations at Ormoc and First Reserve Hospital, Manila, P. I., until June 15, 1903. No beneficial results from the irrigations. The patient was transferred to the General Hospital at Presidio of San Francisco, Cal., in June, 1903. Weight 138 pounds. Received quinin irrigations and olive oil internally. Received this treatment until February 24, 1905, when patient was returned to duty markedly improved. Had gained in weight from 138 to 196 pounds, but was still having frequent "loose" stools, as described above, with a moderate amount of pain. Felt weak, but never came on sick report during this time. On December 27, 1913, the patient had a severe hemorrhage from the bowels. He was found unconscious on the floor of his home. Subsequent examination of the stools showed the presence of the *entamoeba histolytica*. Emetin treatment was begun at once. One-third grain doses, one injection in the morning, a double dose at night. Five grains were used, covering a period of five days. Patient gained rapidly. At this time (September 17, 1914), he is eleven pounds heavier than he has been since 1903, and also says that he feels better than at any time since 1903. There has been not a sign of a relapse. Eats everything. Stools normal for the first time since 1903. A few encysted amebæ have been demonstrated in his stools at various times since the emetin treatment.

CASE 3. Private, Hospital Corps. Age 21. Contracted amebic dysentery in June, 1912, at Camp Petieus, Alabama. Was treated with bismuth subnitrate with poor results. Was admitted to the Walter Reed General Hospital, Washington, D. C., in July, 1912. Remained a patient there for 41 days. Bismuth subnitrate given during this time. Felt better on discharge from hospital, but frequent stools containing large amounts of mucous continued. Blood appeared at frequent intervals. In February, 1913, received a course of ipecac treatment at the United Stated Military Prison Hospital, Fort Leavenworth, Kansas. Moderate improvement followed the ipecac. In February, 1914, was given the emetin treatment. One-third grain doses, one injection in the morning, a double dose at night. Normal stools began three days after first injection of emetin. Patient has gained in weight, and states that he feels perfectly well. No entamoeba can be demonstrated in the stools.

CASE 4. Miss M., aged 34, a school teacher, has been in the tropics six years. In 1909 had amebic dysentery, quinin irrigations was the only treatment given at this time. Since 1909 has had three or four attacks, each lasting from four to six days. In the latter part of February, 1913, she had another attack of "diarrhoea," which had lasted about two weeks when I was called to see her. She asserted that this attack was due to eating a certain fruit, which she said, always brought on her trouble. Examination of the stools showed the presence of *entamoeba hystolytica* in large numbers. Emetin treatment was begun at once, one-half grain doses being used, one injection night and morning. Five grains were used in this case. All dysenteric symptoms cleared up immediately. Patient gained weight and was looking much better on my departure from the Philippines in April, 1913. Word received from this patient in May, 1914, states she has had no recurrence, and is in excellent physical condition.

An analysis of the four cases given above shows that one was acute and three chronic. In chronic cases all observers agree that we should not expect as good results as when treating acute cases. One of the cases has been carefully followed for 18 months, and there has been no relapse. One has been followed for nine months, one for three months, and the other reported as in excellent health. Cases 1, 2 and 3 have been under my constant observation since the first injection of emetin was given. It would appear, therefore, that emetin acts well in chronic cases, and I believe that it is in these chronic cases that emetin will show its most wonderful therapeutic action.

Some have objected to emetin on account of the relapses that have occurred. Relapses occur in syphilis, after treatment with mercury and salvarsan, and in malaria, after treatment with quinin, yet will these same physicians hesitate to use and praise the latter named drugs? The wonderful results obtained by Rogers, in India, with emetin, both in acute and chronic cases, is enough in itself to commend this drug as the drug "par excellente" in the treatment of amebic dysentery. To these results must be added the reports in this country, which show equally as good results. If emetin should in time prove itself of no more value (as shown by the after-results of treatment) than ipecac, it should still be regarded as the drug of choice. Those who have had experience in administering the ipecac treatment, know only too well how much pain and discomfort are done away with by the use of emetin. Laboratory workers (Craig, Nichols, Vedder, and others, tell us that a large percentage of the cases treated with emetin continue to harbor amebas in an encysted form. It seems then that the entamoebas that are not killed or driven out of the intestinal tract during emetin treatment are stimulated to encystment and thus rendered harmless to their host. However, the cases that continue to harbor the entamoeba in an encysted form are "*Carriers*" of the disease, and thus are a danger to the public health. It would seem, therefore, that in order to complete the treatment of amebic dysentery, that some form of irrigations should be used. Quinin irrigations have proved of value in the treatment of amebic dysentery, and it seems as if their use in conjunction with emetin would reduce the number of "*Carriers*" of this disease, and form its modern treatment. Before condemning emetin as a potent factor in the treatment of dysentery, one should make sure of the causative organism, for in the bacillary form of dysentery emetin is useless. The recent works of Captain Charles F. Craig,[8] Medical Corps, U. S. Army, relative to the classification of amebas are both exhaustive and easy of comprehension, and should be read by all who are interested in the parasitic amoebae.

I wish to express my thanks to Major Kent Nelson, Medical Corps, U. S. Army, Surgeon at the United States Military Prison, Fort Leavenworth, Kansas, for the opportunity to present this paper. Also, to Captain Charles F. Craig, Medical Corps, U. S. Army, for valuable assistance.

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Clinical Department.

INTESTINAL PUTREFACTION WITH CONVULSIONS.

By W. L. Thompson, M.D., New York.

The spectacle of a five-year old child with high-grade intestinal putrefaction, stupefied with bromides under the hasty assumption of epilepsy, is not a particularly strong encomium of diagnostic skill. The case in point is so fraught with interesting and instructive features as to render its report of value.

History.

The patient, I. J. S., a boy of six years, was brought to me in November, 1913, with a history of "convulsions."

Past History. Birth normal, without instruments. Chicken-pox at 3½ years. No family history of insanity, epilepsy, or other neuropathy. When two years old (several weeks after the convulsions first appeared), the child fell from a tree a distance of six feet, striking his head on the ground; there was no loss of consciousness or other untoward symptom. His general health always excellent, and mentality good.

Present Illness. At the age of two, while in apparently good mental and physical condition, the patient began having attacks of dizziness in which he would stagger and sometimes fall. These attacks occurred at first only during waking hours, increasing in severity until the typical symptom-complex was established.

Spasmodic movements of the arms and legs (most marked, however, in the arms) were accompanied by congestion of the face, gurgling expiration through clenched teeth, and rigidity of the neck and body. The child occasionally fell to the floor, but never lost consciousness. The duration of each seizure was very short, "not more than a minute, even the severest ones," to quote his mother. The attacks gradually increased in frequency, varying from 10 or 12 to 40 or 50 in the course of twenty-four hours. Night attacks, during which the parents were awakened by the child's stertorous breathing, have been common, but of short individual duration.

There has been, apparently, no mental delinquency, the boy being unusually bright in school and active in play.

The only respite from these convulsive seizures has been when deeply drugged with bromides—as much as 122 grains per day having been administered by one physician over a long period.

To quote the patient's mother: "Nine different physicians were consulted at various times; only one called it 'epilepsy,' one said 'it looked like it,' while the others 'did not know' but agreed 'it looked like epilepsy, and would result in that in time if not stopped.'"

Physical Examination. Well-developed and well-nourished boy of six. Mental alertness above normal. No deviation from normal in conformation of cranium, oral cavity or its adnexa. Visual and auditory powers acute. Skeletal frame well-proportioned. Thoracic and abdominal viscera showed no signs of abnormality. All reflexes normal. The only feature of interest in the physical examination was the occurrence of hair upon the lower legs.

A visit to the home afforded confirmation of the reported convulsions. During the visit of a half-hour's duration, the child had two convulsive seizures. While seated in a chair, marking upon a slate, the patient suddenly became rigid, though remaining in the sitting posture and retaining hold of the slate. The eyes became fixed, but not rotated, the complexion dusky red, the breath emitted in forcible, prolonged, gurgling expirations between clenched teeth. There was no frothing at the mouth, no outcry and no warning of any sort. Slight clonic convulsions began in the arms and legs, torso stiff, neck rigid, eyes fixed, sitting posture still maintained. During the height of the convulsion, which lasted not more than two minutes, I spoke to the child, calling him to walk over to me; this he did at once, with a jerky, precipitous series of movements, the other phenomena, as first noted, being still present. At the expiration of the seizure the child looked up, smiled, and went back to his chair and resumed his play. In the course of ten or fifteen minutes, this performance was repeated.

Diagnosis.—Although the diagnosis of epilepsy has been unqualifiedly made by some, and tacitly agreed to by others of the nine physicians who had been consulted in the preceding four years, the lack of family history of any neuropathy, the preservation of unusually sound mental and physical health, the absence of many of the stereotyped phenomena of epilepsy (aura, outcry, stigmata, biting of tongue, loss of consciousness, etc.) and the great number (as many as 50 in a day) and the mild character of the convulsions, impaired the validity of this assumption.

Predisposing causes of constitutional origin, producing nutritional disturbances of the brain, such as rickets, anemia, syphilis, malnutrition, or any recent or remote acute infectious disease presented no objective evidence.

Exciting causes, such as direct irritation of the cerebral cortex from tumor, general or localized pachymeningitis, embolism, thrombosis, etc., could be excluded.

Likewise, reflex irritation from renal or intestinal colic, retention of urine, phimosis, possible depressed fracture of the inner table of the skull from the fall recorded in the child's history, and even persistent thymus were considered but received no confirmation from physical examination.

A normal, healthy appetite for food, without nausea, vomiting or distress after eating, eliminated any gastric disturbance.

Freedom from flatulence and abdominal pain and tenderness, with regular daily dejections of normal size and consistency, effectually disposed of the presumption of enteritis.

There was no evidence of intestinal parasites.

Bearing in mind the instability of the nerve centres, so characteristic of infancy, and the preponderance of intestinal disturbances in provoking involuntary discharges of nerve force from

these unstable cortical motor centres, Metchnikoff's hypothesis was assumed and the cause of the symptom-complex sought in the large intestine.

Urinalysis revealed the presence of the sulpho-conjugate ethers in disproportionate amount. The conjugate, or ethereal, sulphates eliminated by the urine, being the accepted index of the intensity of the putrefactive process, it is apropos to review their origin and significance. The sulphuric acid in the urine is derived from albuminous material—both native and ingested proteid. While the greater portion of the sulphuric acid in the urine is found in the form of mineral sulphates, about one-tenth of the total amount is in combination with aromatic substances belonging to the oxy-group (salts of phenol, indoxyl and skatoxyl). Indoxyl and skatoxyl are derived from indol and skatol, which, together with phenol, are formed during the process of intestinal putrefaction, their amount increasing and decreasing with the degree of putrefaction, and hence are a direct index of its intensity. The total amount of sulphates excreted in twenty-four hours in the urine of a normal individual varies between 2 and 3 grammes, the ratio of the mineral sulphates to the conjugate or ethereal sulphates (salts of phenol, indoxyl, skatoxyl) being as 10 of the former to 1 of the latter.

Treatment.—Urinalysis having revealed the presence of abnormal quantities of indoxyl and its congeners, thus establishing the diagnosis of proteid putrefaction with its consequent toxemia as the cause of the convulsions, the treatment further confirmed the diagnosis.

As a preliminary measure, proteids were excluded from the diet, and a combination of the phenolsulphonate of zinc with cascara sagrada given at four-hour intervals for five days. The convulsions, which numbered forty on the day treatment was begun, had now diminished to twelve per day. On the morning of the sixth day, one-half ounce of magnesium sulphate in hot water was administered, followed by the same dose at noon; on retiring, the patient was given 5 grains of thymol in a small piece of bread, followed the next morning by another half-ounce of magnesium sulphate. During this time, and until the bowels were completely evacuated (a period of 36 hours), all food and drink, except teaspoonful doses of water, were interdicted. When the bowels had been completely emptied of the thymol, the patient was allowed his usual diet, with meats, however, restricted to a minimum. He was at once started on a bi-daily dose of lacto-bacilline (a suspension of lactic-acid bacilli in pure culture), and urged to drink freely of buttermilk.

The convulsions rapidly diminished in number, and in five days from the administration of thymol (ten days from the beginning of treatment), had entirely disappeared, nor has there been a single instance of recurrence in the succeeding seven months.

SUMMARY.

The salient features of this instructive case are worthy of enumeration.

1. The great number (50) of the convulsions per diem; their mild character; their brief individual duration (1 to 2 minutes); their occurrence for 3 consecutive years.

2. The preservation of unusually sound mental and physical health.

3. The rapidity and completeness of the cure, following thorough sterilization of the intestinal tract.

4. The preservation of the sterility thus obtained by acclimatization of the lactic-acid bacillus.

5. Confirmation of Metchnikoff's contention that the large intestine, by reason of putrefactive processes occurring there, is the chief portal of entry to the system of profoundly toxic substances.

This remarkable case is of value not alone for its illuminating clinical features, but as a commentary on the diagnostic deficiencies unfortunately all too common in the work-a-day world of medicine.

If Osler's sound advice, "When in doubt, examine the rectum," were more often applied to our therapy, to the end that many obscure symptom-complexes be presumed to originate in the intestine and treated upon this assumption, we might be less frequently guilty of such gross and oft-repeated error as illustrated by the past experiences of this child.

TWO UNUSUAL TRAUMATIC CASES.

REMOVAL OF BULLET FROM ATLAS; AND PUNCTURE OF THE RECTUM BY THE AXLE OF A BABY CARRIAGE.

BY FRANK H. LAHEY, M.D., BOSTON.

THE two following cases are, I believe, sufficiently unusual and interesting to warrant their publication.

CASE 1. A boy of eight, while sleeping, was shot by a demented parent, the bullet entering the left side of the upper jaw just above the left second incisor. It penetrated the hard palate at about its junction with the soft palate and entered the posterior pharyngeal wall, embedding itself somewhere in the neck behind this point.

The wound in the lip was cleaned up as well as possible at a nearby hospital, and the next day a stereoscopic x-ray was made Dr. Ariel George and the boy transferred to the Deaconness Hospital.

The x-rays, Figs. 1 and 2, showed the bullet lying just inside the posterior arch of the atlas on the left side, and just behind the groove for the vertebral artery.

An immediate operation was not undertaken on account of the amount of slough in the mouth, from the wound in the palate, and because there were no symptoms relative to the bullet itself.



Fig. 1.

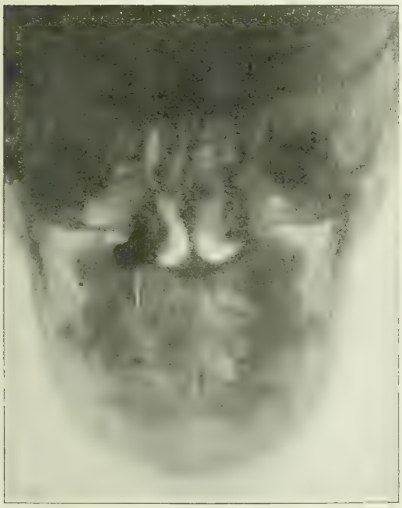


Fig. 2.

At the end of three days, when much of the slough had separated, the child was etherized in the face-downward position, and a curved incision, extending from just below the external occipital protuberance nearby to the mastoid, was made. This incision was deepened through the neck muscles, in a way similar to the suboccipital decompression approach, until the posterior arch of the atlas was reached. The incision was then carried through the left lateral occipito-atlantal ligament until a small blackened area of tisue was found surrounding the bullet, which lay, as shown by the x-ray, inside the posterior arch of the atlas on the left side and just behind the groove for the vertebral artery. Until a good grasp had been obtained on the bullet with toothed clamps, its withdrawal was a little difficult on account of its being wedged beneath the arch and because of a few sharp projections on the bullet made by its journey through bone. A rubber dam drain was laid into the wound leading from the situation of the bullet to the lower angle. The muscles were sutured with chronic catgut and the skin with silkworm gut. Recovery from the operation was uneventful, the temperature reaching normal in a few days. There was a slight discharge of sero-purulent material from the wound for a few days after withdrawal of the wick, which was done on the fourth day. The child was kept flat on his back and not allowed to move his head for two weeks. He was discharged from the hospital on the twentieth day. The wound was solidly healed, but there was considerable stiffness of the neck, particularly for backward movements of the head and rotation from left to right.

The child was seen again tweny-seven days after leaving the hospital, and was able to move his head much more freely, but still had some limitation of motion in the directions spoken of above.

The child was seen a few days before publication of this article and now has every motion in his neck.

This case is interesting when one considers that a bullet entering the bony canal of the cord in front between the base of the skull and the atlas, was extracted from this canal in the rear, yet no injury to the cord was apparent.

Case 2. A boy eleven years of age was seen during the course of my service at the Haymarket Square Relief Station, with the following story: The boy states that he was playing with part of an old baby carriage, consisting of an axle with one wheel attached; states that he had been rolling the wheel along with the other end of the axle grasped in his hand and that after doing this for some time became tired and decided to sit down, using the wheel as a seat, and the axle as an upright. He accordingly inserted the end of the axle, not occupied by the single wheel, into the ground and seated himself on the seat made by the upturned wheel on the opposite end of the axle. On sitting down he felt something suddenly enter his anus and rectum, suffered a sharp pain in the abdomen, and fell to the ground, thereby extracting the axle, which had pushed its way through the hub of the wheel and accurately entered the boy's anus, with no external wound to indicate its entrance, excepting a slight laceration of the mucous membrane over the external sphincter.

On examination there was found a well-developed and nourished boy, nauseated, pale, sweating, and in some shock. Pulse, 108. Respirations, 20, and shallow. Other than this his general physical examination was negative except for some tenderness on deep pressure between his umbilicus and pubes.

Rectal examination showed a slight abrasion of

the mucous membrane over the external sphincter and a laceration of the rectum, three-fourths of an inch long, two inches above the internal sphincter, on the anterior wall.

Operation was advised and accepted by the child's parents.

Operation at the Haymarket Square Relief Station. Ether.

A median incision three and one-half inches long was made between the umbilicus and pubes, the peritoneum opened, and the abdominal contents examined. Free faeces were found in the pelvis, emerging from a perforation of the rectum on the anterior wall, just at the point of reflexion of the bladder peritoneum onto the rectum. Several abrasions were found on the small intestine and an abrasion of the parietal peritoneum over the sacro-iliac joint. The wound in the rectum was sutured with Pagenstecher and a cigarette drain carried down to it, the abdominal wound being closed in layers. On account of the wound in the rectum being extra-peritoneal, and to guard against an extra-peritoneal accumulation, a second cigarette wick was carried up from below, through the ischiorectal space beside the rectum, to the repaired hole.

The recovery was uneventful except for a slightly fecal discharge for a few days after the withdrawal of the abdominal drain. Twenty-one days after the operation the child left the hospital with his wounds completely healed.

There is no comment to be made on this case, its chief interest being the unusual form of the accident.

A CASE OF ROTARY DISLOCATION OF THE ATLAS.*

BY JOHN J. MORTON, JR., M.D.,

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A REVIEW of the literature covering various forms of dislocation of the atlas reveals that the condition is by no means a rare one. There are on record at least 14 uncomplicated cases of the rotary type and many others associated with fracture either of the odontoid process or arches of the atlas. E. M. Corner[1] published his excellent article, "Rotary Dislocation of the Atlas" in the *Annals of Surgery* for 1907. He reviewed the nineteen known cases, both complicated and otherwise, and gave a comprehensive treatise on the anatomy, etiology, diagnosis and treatment of the condition. A second important contribution was made by Mixter and Osgood[2] in 1910. Their paper, "Traumatic Lesions of the Atlas and Axis," consisted in a report of seven cases, five of which were rotary in nature. In his monograph in 1910, Wittkop[3] treated the dislocations of the atlas, and devoted a section to rotation luxations. He considered four cases of the latter form. Beside the main articles, single cases have been added by Taylor,[4] Brooks,[5] Christovitch,[6] Kocher,[7] Eisendrath,[8] Pilcher,[9] and Kienboch.[10] Several of these, however, must be regarded as a combination of forward and rotary dislocations.

The following case, a rotary dislocation of the atlas, is reported because of two unusual factors,—aphonia, and the presence of an accessory cervical vertebra.

On May 26, 1914, J. O., a boy of 12, was admitted to the Peter Bent Brigham Hospital, complaining of pain in the back and inability to raise the head from a bowed position on the left shoulder. Three days previously he was wrestling with a much larger boy and was twisted violently towards the right while his head was caught rigidly between his opponent's legs. Immediately following this, the head was bent to the left shoulder, and could not be brought back to the midline. He complained of severe cervical pains which prevented him from sleeping during the next two nights. Directly after his injury the boy could not speak aloud. He had considerable difficulty in swallowing, and took nothing but liquids in the way of nourishment.

On examination he was apparently suffering much pain, responding only feebly in a scarcely audible whisper to questions asked him. His head was twisted far to the left, bowed down with the left cheek resting on the shoulder and practically fixed in this position. He held his left hand against his forehead constantly as a support and cried out with pain if it was removed (Cf. Fig. 1). Passive motion of the head caused extreme pain. The spines of the axis, seventh cervical and first thoracic vertebrae were prominently felt and there was a depression just below the occiput. The transverse processes of the atlas could not be palpated in the normal position on either side. The mouth could not be opened sufficiently to permit an examination through the pharynx. An irregularity in the heart action was noted, there being an extra beat at about every fifth systole. There were no cardiac murmurs. The reflexes were all active with a quick response, and much exaggerated on both sides. Ankle clonus and plantar stimulation gave suggestive reactions although not typical for an upper segment lesion. There was no disturbance in sensation and no difference in the power of the muscle groups of the extremities.

The x-ray exposure from a lateral position revealed a "displacement between the atlas and axis with no evidence of fracture of the odontoid but suspicion of the anterior arch of the atlas." The plate also showed the presence of eight cervical vertebrae (Cf. Fig. 2). It was impossible to obtain a good antero-posterior view on account of the difficulty in opening the mouth.

On May 29, under deep anesthesia, an attempt was made at reduction of the deformity. Examination at this time revealed a prominence on the right side of the pharynx on a level with the soft palate. This lump was considered to be the transverse process of the atlas. No similar projection was palpable on the left side of the throat. When full relaxation was obtained the head was extended on the body and gently rotated toward the right. At the same time an assistant pressed upon the above noted prominence, which, however, did not completely disappear on restoring the head to its normal position. The head can be to the midline easily without a catch or click of any kind. A crinolin bandage passed around the head, neck and chest was used to maintain the presumed reduction.

* From the Surgical Clinic of the Peter Bent Brigham Hospital.



FIG. 1.
Patient on entry. Note the bent position of the head and the use of the left hand as a support.



FIG. 2.
Xray picture, [illegible] before reduction. Note the position of the left transverse process of the atlas; the impinging of the right lateral mass of the atlas on the odontoid process, the [illegible] and the [illegible] vertebra.



FIG. 3.
Lateral view after reduction, the atlas is in [illegible]

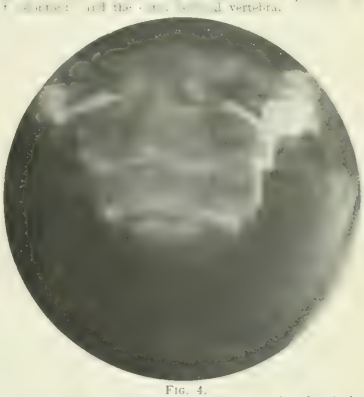


FIG. 4.
Antero-lateral view after reduction; the odontoid and anterior arch of the atlas are intact, the atlas is in good position.



FIG. 5
After reduction, showing head turned to other side, normal position.



FIG. 6
After reduction, no limitation in movements of head.

On return of consciousness, the pain had disappeared and normal phonation was restored. At the end of the second week the cast was removed and free passive motion of the head was possible without restriction or pain. A second dressing was applied and after another week the boy was allowed to go about the ward without a supporting bandage.

Roentgen examination on June 2, in lateral and antero-posterior positions, showed the atlas and axis in normal relation with no evidence of fracture of the arches of the atlas or of the odontoid process (Cf. Figs. 3 and 4).

There was absolutely no limitation in the motion of the head, as can be seen in the photographs (Cf. Figs. 5 and 6) taken just before his discharge from the hospital. Thorough examination gave no evidence of sensory or motor disturbance,—phonation was normal, but the heart action remained irregular as noted on entry. There were no subjective complaints.

The features of special interest in the case were the aphonia and the presence of an extra cervical vertebra. In other respects the picture was typical of the condition as pointed out in Corner's[1] paper.

Aphonia has never been reported as a symptom of rotary luxation, though it has been observed in cases of other dislocations of the atlas and in dislocation of the upper cervical vertebrae. Küster[11] in 1884 described an interesting case of forward dislocation of the atlas with fracture of the odontoid. In this case there was aphonia for nine months, followed by a gradual return of voice. Walton[12] mentioned some impairment of speech in two cases of dislocation of upper cervical vertebrae in 1889. Law[13] in 1912 called attention to a case of backward dislocation of the atlas with hoarseness as a symptom. In these cases the aphonia was probably due to direct embarrassment of the vagus in its course. In the case here presented the same possibility holds, although we should also consider a purely psychical origin. In support of this it is only fair to state that the patient was under a trying emotional strain which was augmented by the hysterical attitude of his mother. The rapid disappearance of the aphonia after reduction may or may not be of significance, as even two weeks later the boy preferred to whisper although he could easily speak aloud if urged. He was unable to do this on entry.

The presence of an extra cervical vertebra has never been noted in previous cases of rotary dislocation. The accessory vertebra may well have been a contributing factor in the production of the lesion.

Supporting the head was a characteristic feature of Bayard's[14] case, 1870—a rotary dislocation with fracture of the odontoid. Here the hand was held as a prop under the chin, the position constantly maintained for nine months till artificial support was given. Silver's patient (reported by Mixter and Osgood[2]), also suffering with a rotary dislocation of the atlas, steadied his head with both hands whenever moved about in bed. In cases of anterior dislocation reported by Pilcher,[9] Albee[2] and Black,[15] the same tendency to use the hands to prevent motion of the head was displayed.

The reports of Corner,[1] Mixter,[2] Pilcher,[9] and others show that difficulty in opening the mouth or trouble in swallowing has frequently been observed. This is probably due to embarrassment of the upper cervical nerves as pointed out by Corner. The characteristic is also very common in the forward atlas dislocations, there being a long list of these cases in the literature.

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THE SHAFT OF THE RADIUS AS A PIN CUSHION.

By H. F. R. Watts, M.D., Dorchester, Mass.

A woman of 30, coming down stairs, carrying sewing materials, fell and injured her arm. Some time later it was observed that there was an abnormal something, palpable, under the skin of the forearm, which moved with pronation and supination. Closer observation established that it was firmly connected with the radius and moved with it.



[illegible] the injury the patient was referred for an x-ray examination.

An [illegible] very prettily shows the radius is [illegible] by a broken needle driven squarely [illegible] of the bone.

The condition is interesting from a mechanical [illegible] than from a clinical viewpoint.

Reports of Societies.

THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, Wednesday, October 7, 1914, at 8 P. M.

The President, Dr. James C. Wilson, in the chair.

THE CLINICAL INTERPRETATION OF THE WASSERMANN REACTION, WITH SPECIAL REFERENCE TO CHOLESTERINIZED ANTIGENS.

Dr. Jay F. Schamberg and Dr. John Albert Kolmer.

The main purposes of the communication are:—

1. To study further the antigenic value of cholesterinized alcoholic extracts of normal heart as compared with alcoholic extracts of syphilitic liver and acetone insoluble lipoids.

2. To study with particular care those cases reacting only with cholesterinized extracts and negatively with other antigens in order to determine the specificity of the reaction with cholesterinized antigens.

3. To study the question of weak positive reactions with cholesterinized extracts and serums of persons who have syphilitic infection and who present no evidences of the disease.

4. To ascertain the value of the Wassermann reaction as performed with cholesterinized extracts as a guide in the treatment of syphilis.

The following conclusions are given:

1. Cholesterinized alcoholic extracts of normal heart constitute more sensitive antigens in the Wassermann reaction than alcoholic extracts of syphilitic liver and extracts of acetone insoluble lipoids. The latter extracts are superior to alcoholic extracts of syphilitic liver and rank second to the cholesterinized extracts as antigenic substances.

2. [illegible] only with cholesterinized [illegible] than [illegible] entirely to [illegible] at least 14 the diagnosis of [illegible] What could [illegible] If these extracts had not been used, [illegible] of syphilis would not have been [illegible] treatment might have been instituted [illegible] had ceased.

3. We have found the cholesterinized extracts [illegible] in conjunction with non-[illegible] performing the Wassermann [illegible] positive reactions [illegible] should be interpreted [illegible] clinical study of the patient. [illegible] in the presence of [illegible] positive and are an indication for further treatment.

4. The large number of negative reactions with cholesterinized antigens and the serum of persons in good health or those known to be suffering from non-luetic conditions, is evidence that false positive or pseudo-reactions with these extracts are rare.

5. In using cholesterinized antigens it is not advisable to work with single units of complement and amboceytes because of the well-known antihemolytic properties of the cholesterin, and the corresponding increased likelihood of obtaining false reactions.

6. Cholesterinized alcoholic extracts of heart are easily prepared and are quite stable. It is advisable, however, to retitrate them at frequent intervals, as is usual with other antigens.

7. Cholesterinized alcoholic extracts of human heart are probably better than those of beef and guinea-pig heart. The latter extracts are particularly prone to become anti-complementary.

8. Cholesterinized extracts constitute the best antigens when the treatment of syphilis is being guided by the Wassermann reaction, because they are most delicate and serve to indicate spirochetal activity after the reactions with alcoholic extracts of syphilitic liver have become negative.

DISCUSSION.

Dr. B. A. Thomas: I think it worth while to present the other side of this important subject. In view of our experience on 3,000 Wassermann reactions in which in a certain proportion of cases—only a few hundred in number—a comparative study has been made with respect to the two antigens, alcoholic extracts of syphilitic liver and cholesterinized extracts, we have come to place greatest reliance upon the syphilitic liver extract as number one in importance and the cholesterinized antigens as number two. Our recent work with cholesterinized extracts as compared with the syphilitic liver extracts has been confirmatory of results previously reported by Dr. Ivy and me. In our comparative tests we found that the cholesterinized extracts gave apparently a more "delicate" reaction than the extract of syphilitic liver, but we also found that many weakly positive results were obtained by the former in non-syphilitic cases. This last fact alone is quite sufficient in our opinion to offset any advantage in delicacy of the reaction obtained with the use of cholesterinized extracts. We feel that just as high a percentage of positive results is obtained in known or clinically apparent syphilitics with a good syphilitic liver extract as with the cholesterinized antigens, and we do not get positive results with non-syphilitic sera. This is doubtless due in part to the use of one unit of complement and amboceptor properly standardized instead of double or triple units as employed by many workers. We must conclude that with cholesterinized antigens, weakly and medium positive, and occasionally strongly positive reactions, may be obtained in many conditions other than syphilis, and in normal persons. While our experience with the use of cholesterinized extracts is limited, and we have no criticism to make of the commendable experimental studies being carried on for the improvement of the Wassermann technic, we regard the employment of these artificial antigens for routine clinical use at the present time, a distinct step backward.

Dr. Schamberg (closing): Dr. Thomas admits the greater sensitiveness of the cholesterinized

antigens as compared with the alcoholic extract of syphilitic liver. He claims, however, that with these antigens one obtains frequently positive reactions in normal subjects. That is the important point for discussion. The reading of our communication with the case histories will demonstrate that in a large series of patients known to have had lues, the occurrence of positive cholesterin reactions with negative reactions with the ordinary antigens, indicated the persistence of the infection. Dr. Kolmer and I believe that when we have 50% fixation of complement with the cholesterinized antigens we may definitely assert the existence of syphilis. When we come to that small group of cases in which we have a reaction weakly positive with cholesterinized antigens and negative with the alcoholic extract of syphilitic liver, we have a group concerning which it is impossible to speak dogmatically. We do not assert that these patients are luetic. On the other hand, we are not in a position to state that they are not luetic. It would be hazardous to state absolutely that there was no syphilitic infection in an individual because of the absence of obvious symptoms.

CASES ILLUSTRATING MODERN BONE AND JOINT SURGERY.

Dr. Astley P. C. Ashhurst: Although modern methods in bone and joint surgery have been gradually developed during the last 20 years, it is only within the last five years that what may be described as modern bone and joint surgery has begun to exist. The new procedures have been made possible largely by the perfection of aseptic technic, and may be discussed under the headings of: (1) Treatment of Fractures; (2) Treatment of Ankylosis, and (3) Bone Transplantation. The treatment of fractures is becoming almost a surgical specialty, and most of the bad results are due to ignorance or carelessness in treatment. The cases herein reported are illustrative of the work now being done and I trust they may stimulate the interest of the profession in a class af patients too often neglected, or in whom the most favorable time for operative correction is allowed to pass before the surgeon is consulted.

(The following cases are reported in detail.)

Case 1. Fracture of surgical neck of left humerus impacted in bad position. Reduction under anesthetic. A young and healthy adult in a fall of 30 feet sustained in addition to the above mentioned injury, fractures of the left radius and ulna above the wrist, and a fracture of the left femur below the trochanters. The impaction at the shoulder was broken up by manipulation, the fractured ends reduced and a suitable dressing applied. To meet the outward rotation of the upper fragment, the arm was dressed in abduction. Within two weeks the fractures of the humerus and forearm had united and union was progressing in the femur. If sufficient reduction is not possible by manipulation under an anesthetic and with all the aids known to surgery, it is proper to resort to open operation.

Case 2. Fracture of the shaft of the left femur, irreducible without operation. Fixation by plate. Result: no shortening; free motion in the knee (75 to 180 degrees).

Case 3. Unreduced Colles's fracture of the right radius. Absolute disability, not relieved by subcutaneous osteotomy. Resection and plating. The normal contours of the articulating surfaces have been restored. Within five weeks after operation the woman could oppose her thumb easily to all the fingers and had some power of grasping in the hand.

Case 4. Malunion of bimalleolar fracture at the right ankle. Absolute disability. Resection and screw fixation. Ability to walk without pain at the end of two months.

Case 5. Ununited fracture of radius and ulna. Fixation by bone transplant and steel plate. Operation to remedy non-union 16 months after original injury. The radius was resected until healthy marrow was exposed and then plated. The ulnar fragments, the gap between whose ends could not be bridged without sacrificing an undue length of the radius, were united by a transplant, cut from the ulna higher up.

In the treatment of ankylosis the modern operation of arthroplasty (by interposition of fat and fascia flaps), enables the patient to secure not only much greater stability at the elbow and shoulder than was secured by excision, but even at the knee and hip a fair degree of motion may be secured without impairment of stability. The operation, however, is difficult. Possibly 50% of successful results in arthroplasty of the knee may be considered satisfactory. One case is reported in which this operation was done at both knee and elbow for ankylosis. Free motion was secured in the elbow and fair motion in the knee three months after the last operation and the patient was able to walk without crutches upon leaving the hospital.

One case is reported of bone transplantation for tuberculosis of vertebrae with the ultimate result of inconspicuous deformity and perfect health of the child. One other case, myeloma of radius with excision and transplantation of bone is reported. The present condition is that of firm union of the transplant to the shaft of the radius, rotation in the forearm through an arc of more than 90 degrees, flexion in the wrist to 140 degrees and extension to a straight line with increasing grasping power in the hand. Much might be said of the treatment of dislocations by arthrotomy, reefing of the capsule, etc.; of the treatment of osteomyelitis by excision of the diaphysis and of the treatment of paralytic flail-joints by the production of ankylosis, all of which are operations of value.

DISCUSSION.

Dr. John B. Roberts: The growth of bone surgery in regard to fractures, the reconstruction of ankylosed joints and transplantation of bone has been so exceedingly satisfactory in the last few years that it is almost like a revelation. The medical men must agree that many fractures ought to be treated only by surgeons, because surgeons alone are the medical men who have the experience, judgment and technic to operate upon such cases in a modern aseptic operative way. I am of the opinion that many fractures are operated upon by plates, screws and wires that would not need to be, if a surgeon saw them early, and if after he did see them, he used the care and scientific skill of the gentleman who has reported these cases tonight. I am convinced that Lucas-Championniere was correct in teaching that fractures should be treated by the early application of moderate massage—light stroking to relieve spasm and pain—followed by early passive and active mobilization with a moder-

The law specifically governs the matter of the creation of deficits by heads of departments and clearly defines the conditions under which a deficiency may be created and the expenditure which may be incurred in creating such deficits.

"Its provision to inspectors not to permit the destruction of livestock in any one herd in excess of $200 in value without reference to the owner is simply a matter of business necessity for checking and accounting. It causes no undue delay and does not impair the efficiency of measures."

On November 16, new cases of the disease were discovered in Orleans County, New York; at Glendale, Mont.; and at Hartford, Conn. Federal quarantine was, therefore, extended over the states of Connecticut and Montana, making a total of sixteen states now under restrictions. On November 16, also, the Boston Board of Health adopted an order recommending the sterilization by boiling of all uncertified milk supplies before their use as food for human beings. At Spokane, Wash., a herd of 101 cattle, valued at $25,000, was declared by inspectors of the Federal Bureau of Animal Industry to be infected with foot and mouth disease and was ordered killed.

On November 17, 27 new cases of infection were discovered at Ashland and 12 at Dracut, Mass. Six new cases were found at Granby and others at Swansea and Grafton, Mass. Twenty-nine cattle were slaughtered on this day at North Amherst, Meriden and Granby, and others at Medford and Bellingham, Mass., on November 18. On November 18, also, new foci of infection were discovered at Ashland, Franklin, Russell, Framingham, West Boylston and East Maynard, Mass., and at Providence, R. I. A total of 215 cases of the disease is now known to exist in Massachusetts. Since November 19, however, few more cases have been reported, and it is believed that the epizoötic is now under control.

The cost of dealing with this important and serious infection is, of course, considerable. To the present time approximately $750,000 have been spent, of which $400,000 have been contributed by the United States Government from the appropriated funds of the Department of Agriculture. This is already more than the cost of the outbreak of 1908, in which the Federal Government expended only $300,000. The total further cost of eradicating the infection is estimated at $2,500,000, and an appropriation for this amount will presumably be asked at the next session of the national Congress.

THE HOME HOSPITAL EXPERIMENT IN THE TREATMENT OF POVERTY AND TUBERCULOSIS IN NEW YORK.

THE New York Association for Improving the Condition of the Poor has recently published a report presenting clearly and concisely the results of the Home Hospital experiment which, for the past two years it has been making in the combined treatment of tuberculosis and poverty. This publication (No. 84) details also the methods of the work, and the comparative cost of the treatment of poor families made dependent by tuberculosis.

The questions which the Association set out to answer in this experiment were, first, whether it were possible to treat families, in which one or more members are infected with tuberculosis, by keeping each family together in its home, without imperilling the uninfected members; second, whether the results of such treatment would compare favorably with those secured by removing each patient from his home to a sanatorium or other special institution; and third, whether, in cases where tuberculosis is combined with poverty, it costs more to treat the family as a unit or to break it up.

The results of two years' actual trial of the experiment appear to answer the first question emphatically in the affirmative. Medically the results compare favorably with those obtained in the best sanatoria and hospitals, and the cost has proved less than that of any other adequate treatment of combined poverty and tuberculosis. The general director writes of the work as follows:

"The continued success of the experiment during the second year, even though the number of families under care was doubled, is so gratifying that we already feel confident this method of treating poverty and tuberculosis will in the future play an important part in restoring to health and self-support a large number of families made dependent by this disease. Indeed, we believe that the time has come when we must consider the permanency of the Home Hospital, in which the demonstration has been made, as a part of our work of rehabilitating families, and also endeavor to encourage the establishment of similar institutions."

It was originally planned to continue the experiment for three years; but so convincing seem the results at the end of these two years, that the Association feels its main problem now

is to secure the continuation and extension of the Home Hospital, which already has an average of 130 patients and over 200 individuals. This is by no means the sole, or even the principal work done by the Association, which is also dealing with such questions as those of public laundries, the fly problem, school lunches, health inspection and physical examination of pupils, and popular education in matters of cleanliness. Yet the importance and value of this Home Hospital experiment appeals with peculiar force to both physicians and publicists, since it involves not only an efficient medical treatment of disease, but the sociologic and economic rehabilitation of families and individuals otherwise a double burden and menace to the community.

CHARLES SEDGWICK MINOT.

By the death of Dr. Charles Sedgwick Minot on November 19, after a painful illness bravely borne, the medical profession lost one of its distinguished scientists and investigators. Dr. Minot's brilliant mind and analytic genius won him international repute not only as a scholar but also as a teacher; and his personal qualities, to the relatively few who knew him intimately, revealed a depth and kindliness of disposition that many did not realize. To all his colleagues, his loss is not only that of an inspiring leader but also that of a thoughtful friend.

MEDICAL NOTES.

College of Physicians of Philadelphia.—The Mütter Lecture on Surgical Pathology will be delivered by Dr. F. H. Albee of New York City in the Thomson Hall of the College of Physicians of Philadelphia, at 8 p.m., Dec. 4, 1914. Subject, "The Fundamental Principles Involved in the Use of the Bone Graft in Surgery." After the lecture a reception will be given to Dr. Albee at the Rittenhouse Hotel.

Kinematograph Will Show Tuberculosis Prevention.—As an aid in the Red Cross Christmas Seal sale and the Anti-Tuberculosis Campaign, a motion picture dealing with the problem of tuberculosis in children has been prepared by Thomas A. Edison, and beginning next week it will be shown throughout the country. The film was produced in coöperation with the National Association for the Study and Prevention of Tuberculosis.

The plot of the picture, which is entitled "The Temple of Moloch," is laid in a small village, the chief industries of which are some potteries, owned by Harrison Pratt. He also owns a group of dilapidated tenements, in which most of his employees live. Dr. Jordan, health officer of the village, is struck with the prevalence of tuberculosis, and on investigation finds that the unsanitary working conditions in the Pratt potteries, together with the unhealthy state of the tenement homes of the workmen have most to do with the spread of the disease. He calls the matter to the attention of Pratt, who rebuffs him and tells him it is no use to try to do anything in the matter.

Meanwhile, Dr. Jordan has fallen in love with Eloise, the daughter of Harrison Pratt, and she has become interested in his work, particularly that at the preventorium for children from tuberculous families. Three times Jordan appeals to Pratt, and each time he is rebuffed. Finally, in despair between his love for Eloise and his duty, he exposes the conditions he has discovered through articles in the newspapers, in which he calls the Pratt potteries and tenements a modern "Temple of Moloch," in that they feed young children to the God of Greed. When Eloise, who is ignorant of conditions in the factory, sees the paper she immediately resents what she considers an insult to her father and returns her engagement ring to Dr. Jordan.

A week later Pratt's daughter and son are found to have tuberculosis. When Eric Swanson, a former employee of Pratt's, who had been discharged because he had contracted "potter's rot" in the mills and was no longer able to work, hears of it, he exults over the calamity, which he views as a sort of personal vengeance. He musters all of his strength and steals away to the Pratt home, where Eloise and her brother are taking the cure for tuberculosis on the porch and there denounces Pratt, gloating over him and telling him that his son and daughter were originally infected as young children by Cora Swanson, when she served as nurse-girl for the Pratts several years ago. So struck is Pratt by this denunciation and the graphic story of Swanson, which is affirmed by Dr. Jordan, that he decides to clean up conditions in his potteries and tenements at once.

The story ends with a Christmas scene, in which the engagement ring is returned to the hand of Eloise, and Dr. Jordan receives as a present a liberal check for the employment of visiting nurses, the establishment of open-air schools and other anti-tuberculosis agencies in the town.

Honor for a Boston Physician.—Dr. Charles Greene Cumston, formerly of Boston, a

Fellow of the Massachusetts Medical Society, now resident in Geneva, Switzerland, has recently been elected a Fellow of the Royal Society of Medicine of London.

EUROPEAN WAR NOTES.—Report from Japan on Nov. 13 states that Japanese Red Cross contingents have been sent to Russia, France, and England, and hospital supplies to Servia and Belgium. Two hospital ships have been equipped to receive the wounded from Kiau-chau.

In a letter to Washington, D. C., dated at Kosel, Silesia, on Oct. 19, Dr. Bial F. Bradbury, of Norway, Me., makes the following report of the American Red Cross units assigned to Germany:—

"I have to report that Unit G is finely located at Kosel, being attached to a military hospital of some 800 beds and having 700 wounded on hand. The hospital is made up of nine buildings, and our unit has complete charge of several wards. We have a fine operating room.

"Unit I is at Gleiwitz and well located,—about one hour's ride from here. We hear and see no evidence of cruelty."

Mrs. James Grant Forbes, of Milton, Mass., writing from Ferndale, Chagford, Devonshire, England, makes an urgent appeal for money and supplies to maintain the French hospital at Houlgate, Calvados, on the coast of France, near Caen in Brittany. Contributions may be sent direct to Mrs. Forbes.

On Nov. 21, a cargo of hospital supplies and clothing was shipped from New York aboard the French steamer *La Touraine* for the military hospitals at Havre, France.

On Nov. 20 the New York Belgian relief fund reached a total amount of $517,075.07, the New York Red Cross fund $360,523.25, the American Ambulance Hospital fund $175,839.00, and the American branch of the Prince of Wales fund $7,[illegible].

On Nov. 18, the American Red Cross shipped to the Russian Red Cross at Petrograd 1000 pounds of bandages, 10 cases of hospital clothing and 3 cases of assorted drugs.

On Nov. 21, the New England Belgian relief fund amounted to $102,949.83, the Massachusetts Red Cross fund $76,609.07, the Boston branch of the American Ambulance Hospital fund $33,-78[illegible]51, and the Boston German Relief fund $1,[illegible]74.00.

In Kansas City, Mo., a fund of about $50,000 has been raised, representing the largest proportional *per capita* contributions of all cities in the United States. This sum is to be used for the organization and equipment of three Red Cross units of 3 surgeons and 12 nurses each. One of these units will be sent to France, one to Germany, and one to Serbia.

BOSTON MEDICAL LIBRARY.—At a stated meeting of the Committee on Library and Finance of the Boston Medical Library, held Nov. 16, 1914, it was *Voted*, That the Directory for Nurses be discontinued after December 31, 1914. This action was taken because of the crowded condition of the Library building, the rooms of the Directory being needed to accommodate some of the great number of books which have accumulated rapidly of late, and because the Directory no longer meets the needs of the medical profession.

BOSTON AND NEW ENGLAND.

DIPHTHERIA AND SCARLET FEVER IN GLOUCESTER.—Report from Gloucester, Mass., on Nov. 18 states that within the past three weeks, 25 cases of diphtheria and scarlet-fever have occurred in that city, in consequence of which all the local schools have been closed by the board of health until Nov. 30.

HOSPITAL CONCERTS FOR DECEMBER.—The concerts of the Boston Hospital Music Fund for December are announced as follows:—

Dec. 6.—Somerville City Hospital.

Dec. 13.—New England Hospital for Women and Children, Roxbury.

Dec. 17.—Home for Destitute Catholic Children, Boston.

Dec. 20.—Massachusetts Homeopathic Hospital.

Dec. 27.—Psychopathic Department, Boston State Hospital.

A VIGOROUS CENTENARIAN.—In the issue of the JOURNAL for November 20, 1913, we chronicled the supposed 102nd anniversary of Mrs. Elvira Gannett of North Scituate, Mass., who is said to have been born on Nov. 12, 1811, in that town. We take pleasure in noting that Mrs. Gannett has survived the vicissitudes and perils of another year and recently celebrated her birthday in excellent health. At the age of eighty she sustained a fracture of the neck of the femur, but recovered from this injury so as to be able still to walk actively without assistance.

NEEDS OF CHILDREN'S HOSPITAL.—The following appeal for contributions of money has recently been issued by Mr. Gordon Abbott, treasurer of the Children's Hospital, Boston.:—

"The new hospital offers much larger and much more perfect facilities for taking and caring for patients, both in the wards and in the out-patient side. That the city needed both is shown by the fact that although the increase over last year averages 93% in the wards and 85% in the out-patient side we can do no more than deal with the calls upon us. It is evident that this increase in work means greater expense, and we beg those receiving this letter not to allow their sympathy with the misery abroad to cause them to overlook the fact that we have constant illness and suffering around us at home."

Subscriptions may be sent to Mr. Abbott at 17 Court Street, Boston.

Hospital Bequests.—The will of the late William Endicott, of Boston, which was recently filed in the Suffolk county probate court, contains bequests of $50,000 to the Beverly (Mass.) Hospital, $25,000 to the Massachusetts General Hospital, $25,000 to Harvard College for the work of the Cancer Commission, and $10,000 each to the Sharon (Mass.) Sanatorium and the Boston Instructive District Nursing Association.

A Case of Smallpox Aboard the Cretic.—On Nov. 16 a case of smallpox was reported aboard the steamer *Cretic* which arrived in Boston that day from Mediterranean ports. The case was discovered on Nov. 4 during the voyage. Every passenger and member of the crew was vaccinated, and no more cases developed. The patient, a Greek immigrant, is doing well.

Prevention of Infant Mortality by Boston Board of Health.—The Boston board of health has recently issued the following statement of the work done in this city for the prevention of infant mortality:—

"Boston's death-rate of infants for this year thus far is almost as low as that of the city of New York, both being between 90 and 100 per 1000 births.

"The number of babies seen by private charities is infinitesimal as compared with the number of babies seen by the nurses of the division of child hygiene. Everybody knows that the most telling work in tuberculosis is done in the pre-tubercular stage. So in the case of babies, the most telling work is prevention of disease among them.

"For three years Boston has been doing this work through the division of child hygiene of the health department in a manner from the point of efficiency and result second to no city in the country, and at an outlay of money far below its nearest competitor, the city of New York. Owing to a satisfactory system of reporting births, this department is furnished with a list of the names and addresses of all babies born in Boston.

"The division of child hygiene works in perfect harmony with every agency in the city engaged in child welfare work. Through such team work, infant mortality has been reduced in our city from 239 deaths per 1000 births in 1872 to 126 deaths per 1000 births in 1911, to 117 deaths per 1000 births in 1912, to 107 deaths per 1000 births in 1913, and for the nine months ending Sept. 30, 1914, to about 98 deaths per 1000 births. The division of child hygiene was created in 1911.

"For the year ending Dec. 31, 1913, there were born in Boston about 19,247 babies. Of this number, 16,279 were located and visited by the nurses of this division. The balance were not located, either on account of wrong address or removal from the city.

"At the time of this visit, particular stress is laid on the value of breast-feeding, and such information is carried into the home of every baby born in Boston as will insure the continuance of breast-feeding. As a result of such a campaign of education, of the 16,279 babies located in 1913, 12,974 were breast fed, 2,162 were bottle fed, and 1143 were breast and bottle fed.

"Everybody agrees that preventive medicine, as applied to babies, begins with the prospective mother. As far as our appropriation permits, pregnancy work is done by the division of child hygiene."

Evans Memorial Lectures.—On Tuesday evening of last week, Nov. 1, Dr. Allan J. McLaughlin, Massachusetts State Commissioner of Health, delivered the first of a series of popular lectures at the Robert Dawson Evans Memorial Department of Clinical Research and Preventive Medicine of the Massachusetts Homeopathic Hospital. He spoke, in part as follows, on "The Importance of Public Education in the Prevention of Disease."

"One of the most important agencies for conserving public health," he added, "is the public schools, especially the lower grades. The tendency to teach this subject in the upper grades only, I consider unwise. Many of the pupils, coming from surroundings which need betterment, must leave before they reach the upper grades. An opportunity to reach them is lost.

"The instruction must start in the lower grades if it is to do the greatest good. It must be of the simplest character. I tested this plan in the Philippines in time of cholera epidemics and it proved the most effective way of reaching the parents in the poorer homes. In Massachusetts the authorities close the schools when an epidemic appears, but I favor keeping them open and teaching the children preventive methods, rather than letting them run the streets.

"The results of teaching hygiene to young children are doubly effective. The standards in the home are raised by the influence of the children, and the effect is carried on to the next generation. Impressions on the plastic mind of the child are lasting and affect the health and usefulness of that child throughout its entire life. I sincerely hope the pupils in the lower grades of the Boston schools will be given an opportunity to receive this early training in hygiene.

"We must educate the public in hygiene, and that is what I shall try to accomplish in the office I have recently assumed. The average citizen is indifferent to the diseases which he sees around him. He considers them as necessary and inevitable visitations, which come annually and take their toll of death from the community.

"The only way to educate the public in preventive medicine is by teaching it in the lower schools, preaching it in the churches, and spreading it broadcast through the columns of the

press. When we have these forces enlisted we shall come nearer to stamping out the common foe to which flesh is heir' than has ever been possible before."

The schedule for the remainder of this series of lectures is as follows: —

Nov. 24.—"The Obligations of Fatherhood," Dr. Lyman Cobb.

Dec. 1.—"The Public Press and the Prevention of Disease," Dr. Hugh Cabot.

Dec. 8.—"Our Children—What Shall We do With Them?" Dr. Edward P. Colby.

Dec. 15.—"The Truth About Twilight Sleep," Dr. Erwin W. Smith.

Dec. 29.—"Rheumatism," Dr. Alonzo G. Howard.

Jan. 5.—"Tuberculosis," Dr. Herbert C. Clapp.

Jan. 12.—"The Immigrant and Public Health," George W. Tupper, immigration secretary, Y. M. C. A.

Jan. 19.—"Character and Health," President Lemuel H. Murlin of Boston University.

Jan. 26.—"The Social Value of Preventive Medicine," Robert A. Woods.

Feb. 2.—"The Proper Selection and Use of Food," Dr. J. Arnold Rockwell.

Feb. 9.—"Avoidable Causes of Insanity," Dr. Elmer E. Southard.

Feb. 16.—"Sexual Advice to Men," Dr. A. W. Weysse.

Feb. 23.—"Practical Eugenics," President G. Stanley Hall of Clark University.

Mar. 2.—"The Church as a Factor in the Prevention of Disease," Dean Laurens J. Birney of Boston University.

Mar. 9.—"Diphtheria," Dr. George B. Rice.

Mar. 16.—Guide Posts for the Prospective Mother," Dr. Martha E. Mann.

Mar. 23.—"Heredity in Relation to Sex Hygiene," Dr. Eliza B. Cahill.

April 6.—"The Physical Woman and Her Enemies," Dr. DeWitt G. Wilcox.

April 13.—"The Physiologic, Economic and Moral Consideration of Alcohol and Tobacco," Dr. J. P. Sutherland.

April 20.—"What Shall We Do in Emergencies?" Dr. Clarence Crane.

April 27.—"Milk," Dr. Wesley T. Lee.

May 4.—"What Is In the Blood," Dr. Helmuth Boyd.

May 11.—"Some Public Health Dangers," Dr. J. Walter Schirmer.

May 18.—"Our Flying Foes," Dr. W. H. Watters.

May 25.—"Demonstration in Public Health Nursing," under direction of Miss M. H. P. Bridges, practical instructor of District Nursing Association.

CASES OF INFECTIOUS DISEASES reported to the BOSTON BOARD OF HEALTH for the week ending Nov. 17, 1914:—Diphtheria, 100, of which 3 were non-residents; scarlatina, 58, of which 5 were non-residents; typhoid fever, 13, of which 1 was non-residents; measles, 105; tuberculosis, 42. The death-rate of the reported deaths for the week was 15.42.

DEDICATION OF FORSYTH DENTAL INFIRMARY.—The formal dedication of the Forsyth Dental Infirmary took place on Tuesday of this week, Nov. 24, with addresses by President Eliot, Governor Walsh, Mayor Curley, Dr. Rosenau, and others. There was music by a chorus of public school children. On Friday of this week, Nov. 27, the building will be open for inspection by teachers; on Nov. 28, by children; on Nov. 29, by parents and the public. On Tuesday, Dec. 1, the Infirmary will be opened for the reception of patients.

NEW YORK.

MORTALITY STATISTICS.—The weekly reports of the health department show that the mortality in the city during the month of October represented an annual death-rate of 11.14, as against 12.07 in September and 11.80 in October, 1913. In the week ending Oct. 3 a low record in the death-rate was reached, 10.58. The previous low record was in the week ending Oct. 18, 1913, when the rate was 11.20, and this is the first time, therefore, that a figure below 11 has been recorded. In one of the weeks of the month not a single death from measles was reported, and in another week there was no death from scarlet fever. Among the diseases in which there was a diminished fatality were the following: The weekly average of deaths from typhoid fever declined from 13.75 in September to 9 in October; the weekly average from scarlet fever, from 2 to 1.5; from epidemic cerebrospinal meningitis, from 5.75 to 4.25; from pulmonary tuberculosis, from 157.25 to 140.5; from tuberculous meningitis, from 11.25 to 8.75; from cancer, from 84.5 to 82.75; from diarrheal diseases under five years, from 176 to 79; from appendicitis and typhlitis, from 13.75 to 10.75; and from Bright's disease and acute nephritis, from 95.75 to 81.5. Among the diseases in which there was an augmented mortality were the following: The weekly average of deaths from diphtheria and croup increased from 14.75 to 18; from acute bronchitis, from 5.75 to 8.25; from pneumonia, from 44.25 to 55.75; from bronchopneumonia, from 42.5 to 45.5; from apoplexy and softening of the brain, from 12 to 21.5; from organic heart diseases, from 148 to 164.75; from hernia and intestinal obstruction, from 7.75 to 11; from cirrhosis of the liver, from 11.75 to 14; and from puerperal diseases, from 9 to 11.25.

ANTI-TUBERCULOSIS CAMPAIGN.—A largely attended tuberculosis conference was held at Syracuse on Nov. 11, under the auspices of the State Department of Health and the State Charities Aid Association, the purpose of which was to discuss plans and organize additional agencies for the prosecution of the anti-tuberculosis campaign in the state.

BEQUESTS.—By the will of the late David Mayer of New York bequests are left to fourteen educational and charitable societies and institutions. Among these bequests are the following:

$2,500 each to Mount Sinai Hospital and the Montefiore Home and Hospital for Chronic Diseases, and $1,000 each to Lebanon Hospital and the German Hospital and Dispensary.

Death-Rate for Week Ended Nov. 14.—The mortality during the past week was much the same as the corresponding week of 1913. The number of deaths reported from organic heart diseases and Bright's disease of the kidneys was somewhat in excess of that of last year; the deaths from violence were a trifle lower.

The death-rate from all causes was 11.92 per 1000 of the population, as against a rate of 12.14 during the corresponding week in 1913, a decrease of .22 of a point, which is equivalent to a relative decrease of 24 deaths.

Viewed from the point of age grouping, infants under one year and between one and five years showed a decreased mortality, as did the age grouping between five and sixty-five years; on the other hand, the mortality of the extremely aged was considerably higher, an increase of 43 deaths being reported.

As the calendar year approaches its end it is interesting to note that there has been up to the present time a decrease of three-tenths of a point in the death-rate compared with the corresponding rate during 1913. The maintenance of this decrease until the end of the year will indicate a saving of 1730 lives as compared with the mortality experience of 1913.

Massachusetts Medical Society

Hampshire District Medical Society.—A public meeting was held in Carnegie Hall, Northampton, November 12, 1914, under the auspices of the Committee on Health and Public Education of the Hampshire District Medical Society. Dr. Thomas F. Harrington, director of hygiene in the Boston Public Schools, spoke on the topic, "Common Preventable Diseases" to an audience of seventy-five. Dr. Maurice W. Pearson, of Ware, presided on behalf of the committee of the Hampshire District. The meeting was a popular one, Dr. Harrington being one of the speakers in Massachusetts on the list of the Speakers Bureau of the Council on Health and Public Instruction of the American Medical Association.

Current Literature

Medical Record.

November 7, 1914.

1. Callender, G. R. *Albumen in Sputum and Its Relation to Pulmonary Disease.*
2. Friedman, H. M. *Problems of Life.*
3. *Heller, J. *A Study of One Hundred and Fifty Cases of Twilight Sleep.*
4. Robinson, B. *Practical Points in Tonsillar Infection.*
5. Levings, A. H. *What Preparation is There in the Fundamental Branches in Our Dental Schools for the Teaching of Oral Surgery?*
6. Tyrrell, J. B. *Foot Troubles as a Factor Affecting Human Efficiency.*

3. Heller reports his experience with twilight sleep in 150 cases at the Jewish Maternity Hospital in Brooklyn. In 122 cases he obtained complete amnesia and an almost equal degree of analgesia. In 13 cases he obtained analgesia without amnesia. In 15 cases there were no results. He concludes that this method will practically abolish pain in 90% of cases and that it is free from danger to health and life of both mother and child. He believes that it is not necessary to give enough scopolamine-morphine to produce amnesia. [L. D. C.]

New York Medical Journal.

November 7, 1914.

1. Gwathmey, J. T. *General Anesthesia, with Special Reference to Surgery of the Genitourinary Tract.*
2. Mitchell, J. F. *Local Anesthesia in Relation to the Surgery of the Genitourinary Tract.*
3. Knopf, S. A. *Is the Modern Anti-tuberculosis Crusade Really a Failure?*
4. Benedict, A. L. *Operative Treatment of Cancer from the Standpoint of Internal Medicine.*
5. *Lydston, G. F. *Implantation of the Generative Glands and Its Therapeutic Possibilities.*
6. *Robinson, W. D. *Pilocarpine in High Blood Pressure.*
7. Kenefick, T. A. *The Relief of Gas Pains after Appendicectomy.*
8. Rimer, E. S. *Some Essential Points in Infant Feeding.*
9. Yoosuf, A. K. *Hodgkin's Disease.*
10. Lewis, T. *The Excitatory Process in the Heart.*

5. Lydston concludes an exhaustive paper on the therapeutic possibilities of implantation of the generative glands. He finds that total or partial implantation of human sex glands in both male and female is practicable. A close blood relationship between donor and recipient is desirable but not necessary for purely therapeutic purposes. Glands taken from the healthy dead prior to the beginning of decomposition are of therapeutic value equal to that of those taken in vivo, if implantation succeeds. The ovary is slightly more susceptible to implantation than the testis. The gland of one sex is transplantable upon the other and the hormone of one is possibly useful to the other. The sites of election for implantation are the peritoneum in the female and the tunica vaginalis in the male. The internal secretion of the sex glands is stimulant, nutrient, tonic and reconstructive, and many therapeutic possibilities are suggested for implantation, viz., greater longevity, delayed senility, postponed or attenuated climacteric, relief of sexual impotence and sterility, of imperfect sexual development, of dementia precox and other psychic disorders, of arteriosclerosis, and of debility from chronic diseases such as tuberculosis, severe anemia, neurasthenia, eczema and psoriasis.

6. Robinson discusses the use of pilocarpine for the relief of hypertension and reports five cases in which he obtained excellent results with it in doses of 1/30 of a grain three times a day. In intelligently selected cases, he says, it is often of great value. The general feeling that the drug is dangerous is due to the fact that it has been given in too large a dose (gr. 1/10 to 1/4). [L. D. C.]

NOVEMBER 7, 1914.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

1. RAVENEL, M. P. *The Education of Health Officers.*
2. BASS, F. *Test for Ventilating Plants.*
3. WINSLOW, C. E. A. *The Importance of Studying the Actual Condition of Hospital Air.*
4. MILLER, J. A. *Hospital Ventilation from the Point of View of the Clinician.*
5. LEE, F. S. *Laboratory Experiments with Air.*
6. CHARLES, A. K. *Hospital Ventilation from the Ventilating Engineer's Point of View.*
7. VAN DER BENT, T. J. *A Comparison of the Hospital of Old with the Modern Structure.*
8. BECK, J. C. *Chronic Focal Infection of the Nose, Throat, Mouth and Ear.*
9. WILSON, N. L. *The Faucial Tonsils as a Gateway to General Infections.*
10. MOORE, R. *The Present Teaching of Psychiatry in American Medical Schools.*
11. SINGER, H. D. *The Ideal Course in Psychiatry for Medical Schools.*
12. RAMSEN, C. M. *Operative Intervention in Cyst of the Left Cerebral Hemisphere, with a Consideration of the Preoperative and Subsequent Symptoms.*
13. CLARK, L. P. *A Clinical Contribution to the Diagnosis of Epilepsy.*
14. LAMB, H. K. *A Culture of B. Tuberculosis from the Blood Post Mortem of a Case of Miliary Tuberculosis.*
15. LECOMTE, R. M. *Rabies. Its Diagnosis in Animals and Prevention in Man.*
16. DICK, G. F., AND DICK, G. R. *The Bacteriology of the Urine in Two Cases of Parenchymatous Nephritis.*
17. RHEIN, J. H. W. *Tumor of the Crus Cerebri.*
18. MCCLEAVE, T. C. *Idiosyncrasy to Orthoform.*

SURGERY, GYNECOLOGY AND OBSTETRICS.

NOVEMBER, 1914.

1. *VON EISELSBERG, F. A. *The Choice of the Method of Operation in the Treatment of Gastric and Duodenal Ulcer.*
2. *SHERREN, J. *Contribution to the Discussion on "the Choice of Operation in Chronic Gastric and Duodenal Ulcer."*
3. *ALLISON, N., AND BROOKS, B. *Ankylosis: an Experimental Study.*
4. *BUERGER, L. *Is Thrombo-Angitis Obliterans an Infectious Disease.*
5. REYNOLDS, E. *Forward Fixation of the Cervix as a Predisposing Cause of Some Retrodeviations of the Uterus, and an Operation for Its Release.*
6. CASE, J. T. *A Critical Study of Intestinal Stasis, Including New Observations and Conclusions Respecting the Causes of Ileal Stasis.*
7. KELLY, H. A., AND LEWIS, R. M. *Diagnosis of the Particular Form of Hydronephrosis Due to Movable Kidney.*
8. HAAS, S. L. *Regeneration of Cartilage and Bone with a Special Study of These Processes as They Occur at the Chondrocostal Junction.*
9. *PLASS, R. T. *The Clinical Manifestations of Disease of the Glands of Internal Secretion in Gynecological and Obstetrical Patients.*
10. WELLS, R. E. *Volvulus: Torsion of the Whole Mesentery.*
11. PEARCE, R. *Causal Factors in the Disposition to Cancer in Old Age.*
12. CHEVASSU, G. H. *A New and Rapid Method for Operating upon Impassable Urethral Stricture.*
13. PENCOAST, C. E. *The Study of Chronic Intestinal Stasis by Means of the Roentgen Rays.*
14. PALMER, E. P. *Bone Transplantation as a Treatment of Fracture and Fracture-Dislocation of the Spine.*
15. FOWLER, R. S. *Decortication of the Lung.*
16. HAUBOLD, H. A. *Traumatic Aphasia.*
17. HUPP, F. L. *Trachcotomy: A New Retractor and Tube Pilot for the Emergency Operation.*
18. FIGUEROA, S. *An Unusual Laceration of the Female Urethra.*
19. ROBLEE, W. W. *Splenectomy for Primary Pernicious Anemia.*
20. HAGNER, F. R. *A New Method of Controlling Hemorrhage Following Suprapubic Prostatectomy.*
21. WHITE, C. S. *A Modification of the Technic in the Operation for Suppurative Appendicitis, Based on Post-operative Hemorrhage.*
22. THOMSON, ST. C. *A Contribution to the Discussion on "The Results of Operation (Laryngofissure) for Intrinsic Cancer of the Larynx."*

1. von Eiselsberg's paper is of interest and importance, but does not lend itself to ready abstraction. Considerable space is given to description of technic.

2. Sherren differs from von Eiselsberg in stating without reservation that gastrojejunostomy is the operation par excellence for chronic gastric ulcer, whether situated at the pylorus or distant from it. von Eiselsberg states that ulcers removed from the pylorus do not always heal after this operation but that other gastric or jejunal ulcers subsequently form.

3. Allison and Brooks from experimental work find that an inflammatory process in a joint which is of sufficient severity to result in the formation of granulation tissue will destroy the joint cartilage. On removal of the cartilage or in partial excision of the joint, ankylosis by bone is a slow process which takes place first by union of granulation tissue, then union by dense fibrous tissue, followed by a metaplasia of fibrous tissue into fibro-cartilage, and later a transformation into bone. The shortest period of complete experimental ankylosis was 180 days. In man it is longer. Experiments of others demonstrating that interposition of soft parts prevented ankylosis were erroneous because of too short observation. They believe that the difference which exists betwen the epiphysis and diaphysis in the capacity for bone regeneration is explained by the fact that there is no periosteum on the epiphysis.

4. Buerger, in an interesting study of endarteritis obliterans, concludes that the process is an infectious one, involving the superficial as well as the deep veins. The article is well illustrated and the conclusion seems logical.

9. Frank's article on the condition of the glands of internal secretion in relation to gynecology and obstetrics is very thorough and of practical as well as theoretical interest. It is too long for abstract.

[E. H. R.]

THE LANCET.

OCTOBER 24, 1914.

1. POWELL, R. D. *The Harveian Oration on "Advances in Knowledge Regarding the Circulation and Attributes of the Blood Since Harvey's Time."*
2. PICK, B., RANKINE, R. A., AND LAMBERT, J. *Shell Wounds in Modern Naval Warfare.*
3. *MILLER, C. H. *Pyloric Obstruction in Infants.*
4. TROTTER, W. *Prognosis in Cancer of the Tongue.*
5. MAKINS, G. H. *Further Notes upon the Wounded in the Present Campaign.*
6. OWEN, E. *Epsom and Ewell War Hospital.*

3. Miller presents ten cases of pyloric obstruction in infants, five females and four males, the youngest age sixteen days, the oldest eighteen weeks. Of these ten infants, six recovered. He discusses the physical signs and symptoms. Medical treatment consisted in keeping the patient warm, washing out the stomach, and feeding with predigested milk. The easiest way he found to keep the baby warm was to

put it all but the head in a hot air bath. He concluded that some of these cases can only be treated by the physician, and that some would be better off treated by the surgeon, but that whether they are surgically treated or not, medical treatment is always necessary, and that no treatment will be effective without the care of a specially skilled nurse.

[J. B. H.]

October 31, 1914.

1. Treves, F. *The Influence of Enforced Dogmatism in Medicine.*
2. Stevenson, W. F. *Note on the Use of "Dum-Dum" and Explosive Bullets in War.*
3. Webb-Johnson, C. *The Soldiers' Feet and Footgear.*
4. Shipley, A. E. *Insects and War: Flies.*
5. Lazarus-Barlow, W. S., et al. *Discussion on the Action of Radiations on Cells and Fluids.*
6. Penfold, W. J., et al. *Discussion on Variability among Bacteria and Its Bearing on Diagnosis.*
7. Cruickshank, J., and Moyes, J. M. *The Presence and Significance of Nitrites in Urine.*
8. *Hort, E. C. *The Recognition of Hemic Infections of the Urine: Its Clinical and Experimental Value.*
9. Morgan, M. M., and Teacher, J. H. *Aneurysm of the Aorta Due to Bacterial Infection.*

8. Hort believes that more successful results in finding the bacterial cause of various prolonged fevers will be obtained from a study of the urine than from that of the blood. The comparatively high bactericidal power of the blood and the low bactericidal power of the urine explains, in his mind, the fact. Out of twenty cases of lobar pneumonia, in no instance did he fail to find the causative organism in the urine after careful search. In thirty cases of typhus fever he had equally successful results in isolating organisms which he believed to be the cause of this disease. He believes that for both diagnosis and treatment, hemic infections of the urine are well worth studying in every case in which continued fever occurs.

[J. B. H.]

The Quarterly Journal of Medicine.

Vol. 8. No. 29. October, 1914.

1. *Hune, W. E., and Clegg, S. J. *A Clinical and Pathological Study of the Heart in Diphtheria.*
2. *Bolton, C. *The Effects of Anemia upon the Pathological Processes Occurring in Acute Ulcer of the Stomach.*
3. Nish, A. E. *Conduction in the Auricles.*
4. *Falconer, A. W., and McQueen, J. M. *Observations on Inspiratory Diminution of the Pulse (Pulsus Paradoxus).*
5. *Elliott, T. R. *Pathological Changes in the Adrenal Glands.*
6. Patrick, A. *The Tonicity of the Abdominal Muscles in Typhoid Fever.*

1. Hune and Clegg studied the heart in 40 cases of diphtheria presenting irregularity of the pulse. The arrhythmia was of the sinus type in 22 and associated with normal cardiac signs. In the remaining 18, various types of arrhythmia were encountered, from extra-systolic to auricular fibrillation and heart-block. On microscopical examination they were unable to correlate the signs in life with the lesions found post mortem. They conclude that in diphtheria any form of irregularity, except sinus arrhythmia, indicates injury to the cardiac muscle or nerves, and calls for prolonged rest in bed.

2. Bolton, whose experimental and clinical work on gastric ulcer is well known, reports the results of experiments on the effect of anemia on the healing of gastric ulcer. The usual clinical teaching has been that anemia is an important etiological factor in peptic ulcer. The author found in patients dying of hemorrhage that the ulcer always showed signs of healing at the edges, and has not met with cases of ulcer associated with chlorosis, or preceded by anemia. To investigate the question experimentally he produced acute ulcers in cats by injections of gastrotoxic serum into the wall of the stomach. Anemia was induced by bleeding from the carotid artery. The result of the experiment was that the ulcers did not form more easily and did not heal more slowly in the anemic animals than in the controls.

4. The paradoxical pulse has been considered a sign of some importance in the diagnosis of adhesive mediastino-pericarditis. It has been reported present also in pericarditis with massive effusion, in obstruction of the air passages, as in croup, and in some otherwise normal individuals. Falconer and McQueen demonstrate the important fact that in many healthy young adult males a typical paradoxical pulse can be produced by simple retraction of the shoulders. They ascribe this to oval deformation of the third part of the subclavian artery, so that it is easily compressed by the muscles acting on the shoulder. It is important therefore in cases of paradoxical pulse to exclude this source of error before drawing diagnostic conclusions.

5. Elliott has made a thorough study of the adrenalin content and the lipoid of the adrenal gland in a variety of conditions. The interesting fact was brought out that the amount of lipoid in the cortex has no relation to the fat content of the rest of the body, for cases with marked emaciation often showed a heavy load of lipoid, and in acute toxemias, such as diphtheria, the cortical lipoid was markedly diminished, although the adipose tissue was not. The amount of lipoid was found also to bear no relation to the amount of adrenalin in the medulla. The latter was diminished in many of the acute infectious diseases, but not enough to imperil the circulation. The greatest loss of adrenalin was met with in cardiac failure associated with great mental distress. This is analogous to the experimental glycosuria and emptying of the adrenals by fright. With regard to the relation of the adrenal to hypertension, Elliott found no increase in the adrenalin of the medulla and no increased weight of the gland in this condition.

[W. T.]

Münchener Medizinische Wochenschrift.

No. 30. July 28, 1914.

1. Seitz, L., Wintz, and Fingerhut. *The Biological Function of the Corpus Luteum. Its Chemical Properties, and Its Use in the Treatment of Menstrual Disorders.*
2. Stuber, B., and Heim, R. *Fatty Acids in Relation to the Coagulation of Blood.*
3. Frend, R., and Beahm, C. *Further Studies with Abderhalden's Reaction, and a Comparison Between It and the Anti-trypsin Method.*
4. Lindi, P. *The Question of Substrata in Abderhalden's Dialysis Method.*
5. Aujenrieth, W., and Montigny, W. *The Colorimetric Estimation of Blood Sugar.*
6. *Olpp. *Auscultation by the Tuning-fork Method.*
7. Müller, H., and Bendere, E. *Experiences with Nicoll's Gonococcus Vaccine.*
8. Müller, T. *The Operative Treatment of Wounds of the Heart.*
9. Eitner, E. *The Results of Two Plastic Operations on the Ear.*
10. *Weih. *Tricalcol in Infant Feeding.*
11. Heisler, A. *Erythema Infectiosum.*
12. Borchardt, M. *A Plaster Dressing to Stimulate Epithelium on Granulating Surfaces.*
13. Weinberg, M. *Abderhalden's Dialysis Method in the Diagnosis of Malignant Tumors.*
14. Schütze, C. *The Disadvantage in the Increasing Number and Cost of Sanatoria.*

[illegible] a tuning fork and stethoscope to [illegible] organs from those containing air or [illegible]. The principle of the method is based on the fact that a solid body over which a tuning fork is [illegible] transmits [illegible] while as soon as the tuning fork passes beyond the solid edge of the organ, the [illegible] corresponding to the stethoscope changes. Thus it is [illegible] the fork from point to point over a given [illegible] tissues that he can map out various or- [illegible] and can differentiate solid tumors from those containing gas or fluid.

[illegible] is a proprietary powder made by W. Wulfing & Company, in Elberfeld to make a milk mixture with [illegible] potassium and phosphoric acid [illegible]. It is an amorphous, white powder, containing [illegible] of tricalcium phosphate and 10.5% nitrogen. With [illegible] that it is useful in spasmophilia and [illegible] can entirely take the place of human milk in infant feeding. It is also expensive. [R. F.]

No. 31 AUGUST 4, 1914.

1 Levene, I. *Physico-chemical Studies on Blood Serum.*

2 Russ, S. *The Biological Penetration of Radium, Mesothorium and Roentgen Rays.*

3 Abrams, J. A. *Brief Comments on the Actual Treatment of Malignant Disease.*

4 Phillips, P. I., Scharf, S. P., and Terwen, A. J. I. *The Colloidal Adhesion of the Urine, and Its Significance in the Diagnosis of Cancer.*

5 Nagayama, C. T. and Zoeller, H. *The Diagnosis of Kidney Disease by Cytology.*

6 Bernard, A. and Stassen, R. *Leucocytosis Induced by Cold.*

7 Beck, J. *The Diathermy in Diseases of the Eye.*

8 Beck, J. J. *The Diagnostic Features of Carcinoma of the Stomach.*

9 Bevan, C. *Resection of the Duodenum and Jejunum for Carcinoma.*

10 Nammack, S. W. *Hour-glass Stomach or Gastrectasia.*

11 Stevens, I. J. *A Case of Aneurism of the Abdominal Aorta Showing Tendency to Heal.*

12 Grant, H. *The Treatment of Lupus with Luminal.*

13 Thompson, F. *Tuberculin.*

14 Nammack, H. *A New Method for Making Tasteless Preparations of Disagreeable Medicines.*

15 Wilson, [illegible]. *The Technic of Abderhalden's Dialysation Method.*

16 Stevens, G. *The Cure of Deep Carcinoma by the External Application of Roentgen Rays.*

17 Mills, M. *The Question of Emetin in the Treatment of Dysentery.*

18 Sajous, D. Wilson, H. and Pincoffs, L. *The Internal Function of the Corpus Luteum, Its Chemical Properties and Its Use in the Treatment of Menstrual Disorders.*

[illegible] is generally stated in the literature that radium and mesothorium rays cannot penetrate to a depth of more than 2.3 cm., and that, therefore, these rays are useless in the treatment of deep lying carcinomata. Krug reports several cases which disprove this statement. Krug concludes that tumors vary in their sensitivity to the different rays. Certain tumors which are resistant to high roentgen ray exposure, respond at once to relatively small doses of radium, and vice versa. Therefore the idea that radium therapy has nullified its predecessor, and that only the x rays are of any value is hopeful to the further development of the [illegible] treatment of cancer.

[illegible] experimenters have reported that chilling of the body will produce a leucocytosis in the peripheral vessels. The cause of this has been disputed. Rovight and Sicard quote observations which show that the application of cold to the body causes a peripheral leucocytosis, which is compensated by a leucopenia in the central blood vessels. In addition they believe that cold water has a favorable influence upon the circulation, the nervous system, and upon internal metabolism. [R. F.]

Miscellany.

HUMAN HEALTH AND THE FOOT AND MOUTH DISEASE.

THE United States Department of Agriculture makes the following statement about foot and mouth disease: The anxiety that has been expressed in several quarters in regard to the effect upon human health of the present outbreak of the foot and mouth disease is regarded by government authorities as somewhat exaggerated. The most common fear is that the milk supply might become contaminated, but in view of the precautions that the local authorities in the infected areas are very generally taking, there is comparatively little danger of this. Milk from infected farms is not permitted to be shipped at all. The only danger is, therefore, that before the disease has manifested itself some infected milk might reach the market. For this reason, experts in the United States Department of Agriculture recommend pasteurization. As a matter of fact, however, pasteurization is recommended by the department anyway for all milk that is not very high grade and from tuberculin tested cows.

It has been demonstrated by experiments which have been made in Denmark and Germany that pasteurization will serve as a safeguard against contagion from the foot and mouth disease just as readily as it does against typhoid fever, but in any event it must be thoroughly done—the milk must be heated to 145 degrees Fahrenheit and held at this temperature for 30 minutes.

In this country the foot and mouth disease has been so rare that there are few recorded cases of its transmission to human beings. In 1902 a few cases were reported in New England, and in 1908 in a few instances eruptions were found in the mouths of children which were believed to have been caused by contaminated milk. In both of these outbreaks, the sale of milk was stopped as soon as the disease was found among the cattle. As long, therefore, as the disease can be confined by rigid quarantine to certain specified areas, the danger from this source is very small. Should the pestilence spread all over this country and become as general as it has been at various times in large areas in Europe, the problem would become more serious. Under any circumstances, however, pasteurization would be an efficient remedy. Where pasteurization is not possible, and where there is any reason to suspect that the disease may exist, the precaution of

boiling milk might be advisable. Simple directions for pasteurizing milk at home, however, are contained in Circular 127, which will be sent free on application to the United States Department of Agriculture.

Cows affected with the malignant form of the disease lose practically all of their milk. In mild cases, however, the decrease may be from one-third to one-half of the usual yield. The appearance of the milk also changes. It becomes thinner, bluish, and poor in fat. When the udder is affected, the milk frequently contains coagulated fibrin and blood, so that a considerable sediment forms, while the cream is thin and of a dirty color. These changes, however, occur only when the disease is in an advanced stage and, as a matter of fact, the disease is not permitted to pass into an advanced stage, as any stricken animal is at once slaughtered.

Men who come in contact with diseased animals may also become infected. In adult human beings the contagion causes such symptoms as sore mouths, painful swallowing, fever, and occasional eruptions on the hands, finger tips, etc. While causing considerable discomfort, however, the disease is rarely serious. Where it is very prevalent among animals, some authorities believe that it is fairly general among human beings, but that the disturbances it causes are usually so slight that they are not brought to the attention of the family physician. There is, however, a very good reason for everyone giving the diseased animals as wide a berth as possible, namely, that otherwise they may easily carry the disease to perfectly healthy herds. Federal inspectors engaged in the work of eradicating the pestilence are thoroughly equipped with rubber coats, hats, boots and gloves, which may be completely disinfected; and others who lack this equipment are strongly urged not to allow their curiosity to induce them to become a menace to their own and their neighbors' property.

The disease, in short, is dangerous because of the loss that it occasions to property, and not because of its effects upon the health of mankind. At present all infected herds are being slaughtered as soon as they are discovered, the carcasses buried, and the premises thoroughly disinfected. Until all danger of infection has been removed in this way, the local authorities quarantine the milk.

Those who wish additional precautions are recommended to use pasteurized milk, but as has already been said, this recommendation holds true whether or not there is any fear of the foot and mouth disease.

MEMORIAL TO JAMES BARTLETT BREWSTER, M.D.

In this busy world reminiscence holds little place. Yet, on occasions, a few words of tribute to one who has gone may not be unwelcome to his contemporaries.

Dr. Brewster was one of my earlier house surgeons at the City Hospital, and one of the most acceptable. At that most active period of my life I was engaged in some surgical novelties, which would have done badly under an incompetent assistant. Dr. Brewster was as much interested as I was, and to his constant watchfulness and care much of my success was due. I felt that I owed him a great deal. The qualities he then displayed were an augury of professional success in his own life. He was a well thought of, earnest, faithful doctor because he was so made by Nature. Sympathetic, kind, genial, he was equally firm, patient and industrious. He filled a large place in Plymouth County. Until middle age he gave himself up to his patients.

Then came gradually clouds on his horizon. His personal health called a halt, and the latter years of his life were passed in enforced idleness; but were grateful to those about him on account of his fortitude and cheerfulness.

David W. Cheever.

UNITED STATES CIVIL SERVICE EXAMINATION.

The United States Civil Service Commission announces an open competitive examination for epidemiologist, for men only. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position in the Public Health Service for service in the field, at a salary of $4000 a year, and vacancies as they may occur in positions requiring the similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The duties of this position will be to make laboratory and field investigations of the diseases of man in relation to prevalence, causation and methods of control, and to conduct field studies of public health matters. It is desired to secure persons thoroughly qualified to do laboratory and field research work in epidemiology, and to organize and conduct such work in the field.

Graduation with an A.B. or B.S. degree from a college or university of recognized standing, and graduation with an M.D. degree from a medical school of recognized standing, and at least five years' experience in epidemiological research, including field studies and laboratory technic, and at least five years' public health service under Federal, State, or municipal authorities, are prerequisites for consideration for this position. Experience in epidemiologcal research and experience in public health service may be concurrent. Statements as to education and experience are accepted subject to verification. Applicants must have reached their twenty-fifth but not their fortieth birthday on the date of the examination.

This examination is open to all men who are citizens of the United States and who meet the requirements. Persons who meet the requirements and desire this examination should at once apply for Forms 304 and 2095, stating the title of the examination for which the forms are desired, to the United States Civil Service Commission, Washington, D. C., the Secretary of the United States Civil Service Board, Post Office, Boston, Mass.; Philadelphia, Pa.; Atlanta,

... Cincinnati, Ohio, Chicago, Ill.; St. Paul, Minn.; Seattle, Wash.; San Francisco, Cal.; Customhouse, New York, N. Y., New Orleans, La.; Honolulu, Hawaii; Old Customhouse, St. Louis, Mo.; or to the Commission of the Porto Rican Civil Service Commission, San Juan, P. R. No application will be accepted unless properly executed, excluding the medical certificate, and filed with the Commission at Washington prior to the hour of closing business on December 15, 1914.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING NOV. 14, 1914.

October 24, Medical Inspector G. A. Lung, from Naval Training Station, Newport, R. I., to Torpedo Station, Newport, R. I.

Surgeon C. F. Ely, from Naval Station, Guam, to *South Dakota*.

P. A. Surgeon Martin Donelson, to Receiving Ship, Norfolk, Va.

October 27, Asst. Surgeon J. N. Bassin, to Receiving Ship at Norfolk.

October 29, Medical Director M. F. Gates, Commissioned Oct. 27, 1914.

Surgeon W. H. Reunie, Commissioned October 27, 1914.

Surgeon F. L. Benton, from Marine detachment, Pensacola, Fla., to Naval Station, Key West, Fla.

P. A. Surgeon C. E. Strite, from Naval Station, Key West, Fla., Marine detachment, Pensacola, Fla.

October 31, Surgeon A. Farenholt, from *Missouri* to ... Wait orders.

November 4, P. A. Surgeon L. W. Johnson, from Bureau of Medicine and Surgery, to Naval Station, Guam, via Army Transport, Dec. 5, 1914.

P. A. Surgeon H. F. Lawrence, from *Wyoming* to ... Wait orders.

P. A. Surgeon N. T. McLean, to *Wyoming*.

November 5, Med. Insp. A. R. Alfred, Commissioned Nov. 29, 1913.

P. A. Surgeon L. W. McGuire, to *Maine*.

November 7, P. A. Surgeon E. P. Halton, retired, detached Naval Recruiting Station, Boston, Mass., ... on the retired list of officers from November 4, 1914.

November 9, P. A. Surgeon E. E. Curtis, detached Naval Station, Guam, to Pacific Reserve Fleet.

November 10, Surgeon H. D. Wilson, to the *Rhode Island*.

Surgeon Wm. Seaman, detached from *Rhode Island*, to temporary duty Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

November 12, Pharmacist Frank Fulton to Naval Hospital, Boston, Mass.

SOCIETY NOTICES.

HARVEY LECTURE.—The fourth in the current series of lectures before the Harvey Society will be given on Saturday evening of this week, Nov. 28, at the New York Academy of Medicine, by Prof. Lafayette B. Mendel of Yale University, on "Nutrition and Growth."

NEW ENGLAND PEDIATRIC SOCIETY.—The thirty-fourth meeting of the New England Pediatric Society will be held in the Boston Medical Library, Friday, December 4, 1914, at 8.15 P.M.

The following papers will be read:

1. "Cholera with Positive Skin Tuberculin Reaction." Dr. Orville F. Rogers, Jr., Boston.
2. "Traumatic Rupture of Intestine." Dr. Lincoln Davis, Boston.
3. "A Case of Acetonuria." Dr. Willard S. Parker, Boston.
4. "The Significance of the X-ray Gastro-Intestinal Findings in Cases of Congenital Stenosis of the Pylorus Following Posterior Gastro-Enterostomy," Dr. Charles L. Scudder.
5. "Some Studies in Fat Indigestion," Dr. Charles Hunter Dunn, Boston.

Light refreshments will be served after the meeting.

C. A. PRATT, M.D., *President*,
F. B. TALBOT, M.D., *Secretary*.

APPOINTMENTS.

MEDICO-CHIRURGICAL COLLEGE OF PHILADELPHIA.—The following appointments and faculty changes have recently been made. *Dr. Herbert H. Cushing*, professor of practical anatomy; *Dr. Ardrey W. Downs*, professor of experimental physiology; *Vernon K. Suydam*, professor of physics; *Charles E. Vanderkleed*, professor of analytical chemistry; *Dr. John H. Small*, associate professor of bacteriology; *Dr. Eugene A. Case*, associate professor of pathology; *Dr. Philipp Fischelis*, associate professor of histology and embryology; *Dr. Guy Hinsdale*, Hot Springs, Va., associate professor of climatology; *Dr. Arthur C. Morgan*, associate professor of medicine, and *Dr. John Stewart Rodman* and *Dr. John J. Gilbride*, associate professors of surgery.

RECENT DEATHS.

DR. ERNEST HERBERT CASWELL, of Boston, who died of nephritis in Fitchburg, Mass., on Nov. 13, was born at that city in 1876. He graduated in 1904 from the Harvard Dental School, and since that time had practised his profession in Boston. He was unmarried.

DR. RUDOLF EMMERICH, professor of hygiene and bacteriology at the University of Munich, has recently died in that city. He was born in 1852.

DR. JOHN SHRADY, of New York City, who died last week at Stamford, Conn., was born in 1829. After graduating from Columbia University and the New York College of Physicians and Surgeons, Dr. Shrady served throughout the Civil War in the second Tennessee regiment. At the close of the War he settled at Harlem, N. Y., where he continued active in the practise of his profession until 1908. He was at one time editor of the *Medical Register* and was a former president of the New York County Medical Association. He is survived by two daughters and by two sons, both of the latter also being physicians.

DR. HENRY K. YOUNG, who died on November 12 in Avon, Mass., was born at Boston in 1836. He served throughout the Civil War in a Maine volunteer regiment. He is survived by two daughters and one son.

DR. CLARENCE B. UNDERWOOD, who died on Nov. 21 at Quincy, Mass., had practised dentistry in that city for many years. He was born in 1850. He is survived by his widow and by two daughters.

BOOKS AND PAMPHLETS RECEIVED.

Quain's Elements of Anatomy. Eleventh edition. Vol. II. Part II. Splanchnology, by J. Symington. Longmans Green & Co. 1914.

The Science and Practice of Dental Surgery, edited by Norman G. Bennett. William Wood & Co. 1914.

Operative Surgery, The Head and Neck, the Thorax and the Abdomen, by Edward H. Taylor. William Wood & Company. 1914.

Symptomatology, Psychognosis and Diagnosis of Psychopathic Diseases, by Boris Sidis. Richard G. Badger. 1914.

A Manual of Physiology, by G. N. Stewart, M.D. Seventh Edition. William Wood & Co.

Address.

MEDICAL PROBLEMS IN EDUCATION. THE RESPONSIBILITY OF THE MEDICAL PROFESSION.*

By Thomas F. Harrington, M.D.,

Director of School Hygiene, Boston Public Schools.

In a paper, "Medical Supervision Versus Medical Inspection,"[1] read before this society in February, 1907, I tried to point out some of the medical problems in education awaiting the active coöperation of the physician and the pedagogue. In the fall of that year, the Boston School Committee took the initiative in the matter by establishing a department of school hygiene, the first of its kind in this country. Today, forty-two states are doing something for the physical welfare of the children. Twenty states have medical inspection laws. Eight hundred cities have organized medical inspection, while one hundred and fifty cities have trained nurses in the schools to "follow up" the work of the medical inspectors and secure for the children appropriate relief. Sixty colleges and institutions have established special clinics for the psycho-educational study of school children.

In Massachusetts, the yearly medical examination of all pupils in the public schools is mandatory. In Boston, the health and the educational authorities are carrying out this statute to the letter. Much of the material for this paper is based upon the results of the coöperation between these two departments.

The educational department has had the assistance and counsel of an advisory committee of physicians and laymen, each a specialist in some division of the work embodied under the school department of hygiene.

I have been requested to present some of the problems met in this field of public health and to point out the responsibilities of the medical profession in their solution.

The first problem that I would present is that resulting from the false assumption that children are little men and little women. To this error much of the failures, misfits, and mental shipwrecks are due. That each child is an individual peculiar to itself is such a fundamental in medical practice that its reiteration before this audience would be out of place were we not considering the relation of the fact to school life. Here it has not received any considerable degree of recognition.

School curricula are arranged with a certain degree of elasticity within the bounds of which the majority of children are expected to fit. Daily experience, however, testifies conclusively that even perfectly normal children vary greatly in the time as well as in the order of sequence of mental development and faculty unfoldings. These variations, as shown in difference in mental acuteness, sense perception, muscular-neural condition, and in physical and mental stamina, are so evident in all groupings of pupils that it is surprising that many present day school customs seem to ignore their significance.

Lately, the findings of medical inspectors have been interpreted as indicating that the physical defects revealed by the examinations are the causes of mental deficiency, juvenile delinquency, and moral obliquities more or less prevalent among school children. The associated physical and sensory defects have a certain rating as contributing factors only; they are not the cause. This lies deeper; it is traumatic, environmental, racial, hereditary, or sexual in origin, and antedates, in the great majority of cases, the school life of the child.

This problem is of great importance today on account of the attention it is receiving from sociologists, economists, jurists, and criminologists. The physician and the trained psychologist have a very important duty in this problem in order that the public may know the true facts. That the problem is pre-school age in origin can be demonstrated by the most cursory examination of any group of 100 children entering school life. Here will be found 1 feeble-minded child, 2 mentally defective, 15 or 17 mentally slow or backward, 2 or 3 who lisp, stutter, or stammer, 5 or more who have badly decayed teeth, 7 with faulty posture due to lack of adequate nerve control, and 18 or 20 who are poorly nourished and below par physically. In other words, fully 50% of the medical problems in child life exist when the child is registered for the first time.

In a recent study of more than 7000 pupils referred to the department of child study in Chicago, it was found that only 8% are school problems because of defective vision, and only 6% required special training because of defective hearing; whereas over 40% were nervously depleted, ill nourished, weakened power of resistance, uneducated in the fundamental bodily activities, apathetic in voluntary initiative, and lacking in bodily control.[2]

The Westminster (England) Medical Inspection Centre for children under school age gives some interesting data on this problem. It was found that the percentage of defects in children under school age was as follows:—

	One Year of Age.	Two Years.	Three Years.	Four Years.
Bad teeth	2.6%	18.1%	34%	33.6%
Diseased tonsils .	7.8%	16.9%	24%	26.9%
Adenoids present.	10.4%	22.9%	38%	33.3%
Rickets	25 %	9.6%	8%	3 %

Closely associated with this problem is that of communicable diseases among children prior to school attendance. The mortality from these diseases shows the following[3]:—

Whooping cough	11.4%
Scarlet fever	11.6%
Measles	12.3%
Diphtheria	21.4%

* Read at meeting of Suffolk Medical Society, Boston, Oct. 31, 1914.

The death rate from whooping cough is 57% under one year of age, 23% under two years, 8% under three years, 4% under four years, and 2% under five years. That the mortality of these diseases decreases with the age of the patient is shown thus: —

	Ages 5 to 9	Ages 10 to 19	Ages 5 to 19.
Measles	2.8%	0.9%	1.6%
Scarlet fever	8.2%	1.8%	4.1%
Whooping cough	1.3%	0.1%	0.5%
Diphtheria and croup	15.3%	2.6%	7.1%

The point I would make here is the necessity for the medical profession to unite in a campaign of public education on the seriousness of these communicable diseases, and to emphasize the fact that even when the diseases do not kill, they are very likely to collect a heavy penalty later in life at a most promising and useful age. The willful exposure of children to these diseases, as practiced by so many families, is nothing short of criminal.

The problem of communicable diseases among school children is reduced to the same basis as among children of pre-school age, namely, avoid contact, especially by sputum, droplet infection from sneezing, coughing, kissing, mouth-swappings, and from ear discharges, remembering also that "carriers" and "missed cases" are the real source of many school epidemics.

When the child enters school life, the medical problem becomes increasingly more and more mental and psychologic, and less and less physical and direct contagion. Many of these problems have received little or no scientific study in this country. A summary of these so called pedagogical problems shows at a glance the inter-relation of each with the fundamental facts of psychology, physiology, biology, and modern psychiatry.

Time allows mention of the more general of these problems only, viz:—At what age should the school life of the child begin? At what age should the child be given different studies? What is the physiologic way to teach spelling, reading, languages, *i.e.* whether by the auditory image and auditory presentation, or by visual presentation and by use of motor ideas, or by all methods combined? How far does group work stimulate or retard the individual? What is the real test for intelligence? Is intelligence acquired or inherited? Can it be measured? Is the Binet Simon scale a measure of special talents, capabilities, and adaptabilities, or does it give general limitations only? What is a safe fatigue index in childhood? How tested? What is fatigue? What is the fatigue content of each study in the curriculum? What is the physiologic sequence of studies in daily program? Should daily sessions be single or double? What size, type, and shade of paper conserves eyesight best? At what age should writing and sewing enter the daily life of the child? How far is open-air treatment beneficial and adaptable to ordinary classes? What is bad air? How ventilate best a class-room? What is the best class-room temperature and humidity for a group of children? What is cardiac disease in childhood? Should pupils with cardiac affection be placed in open-air rooms? Should all enlarged tonsils be removed? What is the relative normal growth and weight for the various ages? Is the chronological age the best guide for grading pupils? Are tests, examination and competitions healthful or harmful to the average child? What is the relative enervating effect of oral and of written tests? Do academic tests, athletic competitions, public exhibitions, etc., affect the ductless glands? Is the effect favorable or unfavorable? Is the prevalence of thyroid enlargement among high school girls an age coincidence or the result of school life? Is status lymphaticus detectable early in school life? Should the mentally slow be kept in regular classes or segregated? These and many kindred problems are awaiting solution in education. They exist in every grade from infant life to college graduation.

The more select the school, the more prominently stand out some of the more serious of the groups. The school is a great human laboratory awaiting physician and psychologist.

THE WORK IN BOSTON.

The medical problems in education are met in Boston by the joint authority of the health and the education departments. Medical inspection is carried out by physicians appointed by the Board of Health. The school nurses, who "follow up" the findings of the medical inspectors and secure appropriate treatment or a remedy, are under the School Committee's department of school hygiene. This department has supervision and control of all matters affecting the physical welfare of pupils and teachers. These matters are grouped as follows: 1, School nursing. 2, Physical education. 3, School athletics. 4, Military drill. 5, Playgrounds. 6, Testing of hearing and vision. 7, Open-air classes. 8, Classes for the mentally defective. 9, Classes for speech defectives. 10, Classes for hearing mutes. 11, Classes for the semi-blind. 12, Classes for the tuberculous hospital cases. 13, Health of pupils preparing for the teaching profession. 14, School sanitation. 15, Heating, lighting, ventilation. 16, Seating of pupils. 17, School luncheons. 18, The teaching of physiology, hygiene, and kindred subjects required by the course of study.

Ill Health Among School Children. On the institution of the work in 1907, the first step was to learn, if possible, the size of the medical problem rather than its variety. A survey of more than 90,000 pupils by medical inspectors, teachers, and school nurses showed that at least 5.5% of the pupils were anemic, glandular, undersized, choreic, or had been recently ill, and that this number should have some modification of the routine class organization to meet their

debilitated state. The percentage of these illnesses was as follows:—

	Kgn.	Grades. I.	II.	III.	IV.	V.	VI.	VII.	VIII.	Total.
Anemic	86	550	470	381	496	438	334	246	170	3171
Choreic	5	40	40	40	35	29	42	31	12	276
Glandular	8	63	89	67	81	69	52	43	27	499
Undersize	21	68	51	39	74	61	50	34	23	421
Recently ill	30	96	82	60	59	55	39	33	32	486
	150	817	732	587	745	652	517	389	264	4853

In other words, 65% of the group had anemia, 10% were glandular, 10% were suffering from recent illnesses, chiefly contagious diseases, 8.5% were undersized, and 5.5% were choreic. These illnesses were distributed throughout the grades as follows:—

Kgn.	I.	II	III.	IV.	V.	VI.	VII.	VIII.
2%	16%	14%	11%	15%	12%	10%	7%	5%

The social work by the school nurses gave us some interesting and unlooked for data relative to these ill children. It was found that contrary to the general impression, the great majority of these children came from so-called "good" homes, *i.e.* 3531 children, or 70%; while only 1512, or 30%, came from what were classified as "poor" homes. It was shown that 90% of the choreic children in the group came from good homes.

On the problem of under-feeding, our findings were at variance with many published reports. The school nurses reported that 3375 of the children had a good breakfast, while one-third, or 1664, had a poor breakfast before coming to school. A good breakfast was fruit with bread and butter, or eggs and milk, or cocoa, or cereal with milk or cream. A poor breakfast consisted of some picked-up made-to-order breakfast food without milk, and usually included tea left from the wage-earner's breakfast earlier in the day. The surprising and unexpected fact, however, was that 69% of the children who came to school without any breakfast, or with only a very light meal, came from good homes, while 513, or 30%, came from poor homes. Few, if any, of the latter pupils were without money, which was spent usually for candy, pickles, cheap fruit, etc.

Following these selected pupils into the classroom, it was found that 3009 were in rooms where a room temperature of 69° F. or over was the rule, 321 were in rooms with a temperature of 68° F., while only 235 children of the group were in rooms between 64 and 67° F., inclusive.

Fresh Air and Room Temperature. With these data at hand, the School Committee established open-air classes for the anemic, glandular, and non-tuberculous children of the debilitated type, and regulations were made that 67° F. should be the maximum class-room temperature. It was further provided that windows should be kept open on at least one side of the class-room, weather conditions of rain and storm permitting.

The far-reaching value of this health education is beyond dispute. Already the conditions are markedly changed for the better in the classroom. A recent survey of 1065 different classrooms showed that during the months of February, March, and April of this year, 1004 had open windows and 61 had closed windows; 947 rooms had a temperature of 60 to 70° F., while 611 rooms had a temperature of 64 to 68° F., inclusive.

It is interesting to note in this connection that at the State School for Cripples at Canton, Mass., the substitution of fresh-air rooms, night and day, has almost entirely superseded surgical interference for adenoids and enlarged tonsillar affections.

The children and school nurses carry into the homes the instruction and precept on the value of fresh air, and the room teacher periodically calls for reports from the children on practices in the homes relative to open windows.

Normal Growth. There are no reliable data today on this great problem. Prof. William T. Porter, of the advisory committee, prepared a plan for the monthly weighing and measuring of pupils of different ages. The School Committee supplied scales and measuring rods. The school nurses weighed and measured, each month, all the pupils then five years of age. This has been continued and this year we are weighing and measuring all pupils nine years of age. The work is to go on until a monthly norm is obtained for all children of school age—five to eighteen years, inclusive.

Tuberculosis Among School Children. Many varying reports from different localities have been made on this subject. A report to the Boston School Committee from a committee of physicians, in 1906, says: "Your commission believes that 5000 is a conservative estimate of the total number of tuberculous children in the public schools of Boston." The question arises at once as to a definition of tuberculosis of childhood. The following data, furnished by Dr. Thomas B. Shea, gives the real situation in Boston.

I have no hesitation in saying that there is no city where this problem is so well appreciated and followed as it is by the Boston Health Department. This department has a record of 7000 cases of tuberculosis involving 1340 families. The number of children of school age living in these families is 2131. Of this number, 304 are positively tuberculous. The Hospital School at Mattapan cares for 44 and the Holy Ghost Hospital for 11. The remaining 259 are under physician or hospital care in the homes.

The school nurses have followed up 2087 children exposed in tuberculous families, and report as follows:—

In public schools - not tuberculous	1228 children
In private schools - not tuberculous	248 children
Working or under school age, not tuberculous	380 children

There are 525 non-tuberculous children in open-air classes in the public schools.

A list of 196 pupils, diagnosed as suspicious or positive tuberculosis, was referred to the school nurses for further examination by family physician or hospital. The result was that 92 were pronounced negative, 40 were deferred for further examination, 14 were questionable, while 11 were positive. The remaining 39 refused re-examination.

Cardiac Problem. Another distinctly medical problem about which little definite data seems available is the prevalence of heart disease in childhood. The medical inspectors in Boston reported 3091 children with heart disease among the 118,781 examined. It is the custom of the Department of School Hygiene, when a case of heart disease is recorded by the medical inspector, to cause the nurse to make a personal visit to the home rather than to send a written notification, as in affections of the eye, ear, teeth, skin, etc. The result of this follow-up by the nurses shows that out of the 1997 pupils in the public schools recorded as having cardiac affections 1064 were diagnosed as organic and 933 as functional. These pupils were investigated further, and 793 were placed in care of the family physician, 419 were under treatment at the hospital, 706 were pronounced free from cardiac disease, while 79 parents deferred further treatment. Special arrangements are made at the school for each positive case, in order that the daily program of school life may not derange a compensating heart.

Mentally Defective. The problem of the mentally defective child is without exception one of the most important in the long list of medical problems in education. It is accepted generally that 2% of the school children are mentally defective. A large proportion of this class is of the *moron* type, *i.e.* border line cases or between five and twelve years mental age development.

In Boston this work has been under the special care of Dr. Arthur C. Jelly, to whom all credit is due for its organization and sytematization. There are at present 42 classes, each with one or more units of 15 pupils under a teacher specially trained in the work. The pupils are first selected by the grade teacher. The feebleminded and low-grade mentalities are easily recognizable. The higher types require time and repeated observation. Three years' retardation without any obvious cause, *e.g.* illness, migration, recent immigration, is accepted as *prima facie* evidence that there is something present more serious than backwardness or slow mentality. These children are referred to Dr. Jelly for study and classification.

The special classes have done a great good and are indispensable as a clearing house for all retarded children. But they do not diminish mental deficiency nor prevent feeble-mindedness. Mental defects are not remedial nor removable. Once mentally defective always mentally defective is an accepted axiom today. The idiot never reaches school age; the imbecile barely reaches five years of age mental growth; the moron never exceeds the twelve-year-old standards. Many imbeciles and nearly all morons may be made self-supporting in community life. Whether the training of these pupils should be undertaken in the same schools with normal children is a very important problem. Whether they should mingle freely with the general public when they reach the age of procreation is the basic problem in the prevention of crime, pauperism, insanity, and allied conditions. Compulsory laws on school attendance hold the child until the age of puberty only.

All authorities agree that from 65% to 80% of feeble-mindedness is hereditary. The reduction of insanity and the elimination of feeble-mindedness will be possible only when the medical profession recognizes the importance of combating these evils as we see them in the public school. Today the greatest interest centers about the *moron* type. Many of these are border line cases that the Binet tests do not diagnose. This is made much more difficult if the child has been trained in school work in the special classes. Here the Binet tests should be regarded as corroboratory only of the clinical and school history of the child. In these morons, however, we must remember that the difference is one of degree only and that each has its true mark of imbecility if searched for.

Neurosis and Other Nervous Diseases. That there is much nervous instability present among pupils who are mentally normal is easily demonstrated in any large grouping of students. Many are over bright mentally. It is beyond question that the emotions, the worry, the anxiety, and the over-excitement exert an influence on the ductless glands, especially the thyroid, which is manifest in the physical and nervous condition of the pupil. So evident was this influence that public basket-ball and athletic competition among girls, of high school age especially, was discontinued.

Enlarged thyroid is not so uncommon among girls of high school age as text-books would seem to imply. The problem of Basedow's disease, myxedema, dementia precox, Huntington's chorea, status lymphaticus, and mild epilepsy is a field in education needing serious study.

Hearing and Vision. The annual testing of hearing and vision is required by law in this state. The testing must be done by the teacher. Instruction is given at the Boston Normal School so that each grade teacher may be prepared to do this work and in order that the testing may be uniform.

Since 1907 more than 700,000 tests have been made: 22,320 children have had defective vision corrected, 4170 have had defective hearing corrected, while 1220 have had obstructive adenoid or tonsillar enlargement removed. These corrections have resulted in lowering the percentage of defective hearing and vision as follows:—

	Percentage of Defective Vision.	Percentage of Defective Hearing.
1907	31.50	8.13
1908	23.97	7.69
1909	22.71	4.94
1910	19.83	5.39
1911	14.95	3.09
1912	15.03	3.09
1913	14.39	3.63
1914	11.45	2.59

The number of children wearing glasses has been reduced from 8535, in 1909, to 6027 in 1914. Among the latter, 3569 have been given normal vision by glasses.

The defective vision by grades is as follows:—

Grades.		High Schools.	
II	18%	1st year	20%
III	19%	2d year	20%
IV	20%	3d year	22%
V	20%	4th year	23%
VI	16%	5th year	23%
VII	19%	6th year	26%

A study by sex shows that girls have a much higher percentage of defective vision than boys of the same age and from the same homes, viz:—

Elementary Schools.

	Grades.							
Girls.	II.	III.	IV.	V.	VI.	VII.	VIII.	Total.
No. tested	1432	1286	1037	1184	849	1098	769	8011
Per cent. defective	21.09	25.35	27.31	25.43	27.13	21.59	21.33	25.48
Boys.								
No. tested	1191	1272	1338	1263	1113	1063	787	8037
Per cent. defective	13.69	17.46	16.67	15.23	17.35	14.37	13.73	15.61

Latin High Schools.

	Years.				
Girls.	I.	II.	III.	IV.	V.	VI.
No. tested	61	33	189	143	108	100
Per cent. defective	14.76	21.28	17.99	23.08	19.45	25.20
Boys.						
No. tested	87	128	216	293	40	61
Per cent. defective	14.96	7.04	20.48	18.44	20.0	14.76

Dental Problem. The International Medical Congress at London last year gave this problem a medical as well as an educational rating as a factor in ill health. After much study and investigation among the pupils in the Boston public schools, it was decided to consider every child as having dental defects of some degree. The parent was asked to coöperate in a campaign for better teeth. Circulars of instruction on the care of the teeth were sent into the homes, and teachers and nurses were instructed to talk dental hygiene at every opportunity.

The result of last year's work shows that 23,250 children had their mouths put in healthful condition. Contrary to many existing opinions on the subject, the office of the family dentist did not decrease by reason of the work in the schools. On the contrary, 15,565 of the pupils were cared for by the family dentist, and 7,685 were treated, at a nominal cost, at the infirmaries.

That it is possible to get the coöperation of

parents in attacking the problem in the early grades is shown by these data:—

		GRADES.							
	Kgn.	I.	II.	III.	IV.	V.	VI.	VII.	VIII
Number corrected by family dentist	568	1549	1411	1582	1828	2035	2083	2063	2298
Number corrected by infirmary	154	805	716	997	1103	1181	993	849	634
Total	722	2354	2127	2579	2931	3216	3076	2912	2846

Carriage and Posture. The importance of correct posture and carriage is now a recognized factor in preventive medicine. The numerous types of spinal, joint, and bone malformations and the different degrees of ptosis seen in hospital and private clinics all testify to the great need for the closest attention to this subject.

The school is naturally the place where one would expect to find the trouble in its beginning. Here we find 19.6% of the country's total population living under artificial conditions of life which are most conducive to faulty posture and carriage. Muscular activity is the great characteristic of the growing child. The average class-room enforces a discipline that enjoins restraint. Considerable of the faulty posture and carriage is due to muscular fatigue and consequent lack of tone. Structural bony changes are the exception.

It is generally agreed that scoliosis varies from 25% to 40% in the different grades. In Boston efforts have been made to correct the various forms of faulty posture and carriage by a course in physical education fitted to the growth of each group or grade. These exercises insist on the fundamentals of proper standing, sitting, walking, breathing, and marching. The straight foot position is advocated even in the military drill. The result has been most gratifying. Six years ago, knock ankle and low shoulder and hip were very noticeable in our various grades. Today knock ankle (pronated feet) is rarely seen.

Many schools have a rest period at the end of each hour when a complete change of position is enforced. A ten-minute daily setting-up drill is carried out at the middle of each session in high schools. Children are seated in accordance with physical growth only. Adjustable seats and desks are supplied to all new buildings and have replaced fixed furniture in 87% of old buildings.

Athletics. Medical supervision of athletics is one of the pressing problems in education. This is particularly true in high schools on account of the unstable physical condition at that period incidental to puberty and rapid growth.

The problem of athletics for high school girls is almost wholly one of medical supervision and control. Each pupil in our high schools is required to qualify in specified athletics and water events graded to the development of each group. A credit for diploma is awarded for fulfilling these requirements. No public competition of girls is permitted. No boy is allowed to compete outside his classification and may compete in only two events at each season of the year. A physical examination of each competitor is required before each contest.

The classification of boys for competition runs from 4 feet 6 inches in elementary grades to 5 feet 5 inches and over in high schools. No boy under sixteen years of age may compete in a quarter mile or greater. No boy under seventeen years of age may compete in the half mile. No greater distance run is permitted. All boys over nineteen years of age are eliminated from school contests.

Statistics on football show the relative dangerousness of the different players, viz:—

Number of high school boys playing rugby.....2540
Number of high school boys injured at rugby.... 154

Half back	49
End	26
Guard	23
Tackle	22
Fullback	13
Quarter	11
Center	11
Center	10
	154

Among 35,000 boys playing soccer, there have been no serious injuries.

Health of Teachers. This is the key to many of the health problems in education. The health of the teacher is of paramount importance. Healthy teachers mean much for the class-room. In Boston, health is a *sine qua non* for entrance into the Normal School. The physical examination of these candidates begins in the high school, second year, and is carried out personally by the director of school hygiene. The parent of each pupil is required to be present.

The pupil-teachers in the Normal School are given instruction in vision and hearing tests, and each group is shown cases of common ailments of children, *e.g.*, scabies, impetigo, tinea, pediculosis, enlarged tonsils, rickets, malnutrition, anemia, chorea, mentally defective.

The Problems and the Medical Profession. The prevention, as well as the eradication, of many of the medical problems in education rests directly upon the medical profession. These problems differ somewhat from those that are due to communicable diseases chiefly; they affect the individual primarily and the community secondarily. The education of the public, however, is fully as essential as in the campaign against communicable diseases.

Some one has said that the people of today are forty years behind the medical profession in their knowledge of the causes of diseases and the possible means of prevention. The same condition prevails in a still greater degree concerning many medical problems in school life.

Several of our medical schools are equipped today to furnish trained leaders competent to point out the way. The chief responsibility, however, rests with the family physician; he has opportunities and influences far in excess of any public authority; he can bring support and confidence into the work more easily and effectively. It is a duty he owes to the medical profession as well as to his patient. Unless the medical profession makes these problems its own, the present state of affairs will continue.

Philanthropists, sociologists, economists, and lay organizations are consulted today by national, state, and municipal authorities when such problems as tuberculosis, pure milk, better housing, infant morbidity and mortality, juvenile delinquency, degeneracy, pauperism and crime, are under consideration. These are medical problems almost wholly. The public is anxious for authoritative education on them all.

In Boston alone there are forty well organized associations of parents with a membership of fully six thousand in addition to a corps of more than 3000 class-room teachers. They are vitally interested because each person has a personal and intimate relationship with the children in the schools. If this meeting brings about active coöperation between these groups and the medical profession, much progress will result in combating medical problems in education.

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Original Articles.

NOTES ON THE SECOND ANNUAL CONFERENCE ON THE MEDICAL AND SOCIAL WORK OF THE PSYCHOPATHIC HOSPITAL, BOSTON, MASSACHUSETTS.

I. The Duty of the State to the Psychopathic Hospital. Walter Channing, M.D., Chairman, Boston State Hospital Trustees.
II. Progress of the Psychopathic Hospital on the Prophylactic Side of Mental Hygiene. E. E. Southard, M.D., Director of the Psychopathic Department, Boston State Hospital.
III. The After-Care Program and Results of the Psychopathic Hospital, Boston, 1913-1914. A. Warren Stearns, M.D., Assistant to the Executive Officer, State Board of Insanity.
IV. Further Notes on the Economic Side of Psychopathic Social Service. Mary C. Jarrett, Chief of Social Service.
V. High-Grade Defectives at the Psychopathic Hospital During 1913. Thomas H. Haines, M.D., Ph.D., First Assistant Physician.
VI. Genetic Factors in 100 Cases of Psychoneuroses, Donald Gregg, M.D., Assistant Physician, Out-Patient Department.
VII. The Point Scale: A New Method for Measuring Mental Capacity. Robert M. Yerkes, Psychologist to the Psychopathic Hospital; and J. W. Bridges, formerly Interne in Psychology, Psychopathic Hospital.
VIII. Variations in the Sensory Threshold for Faradic Stimulation in Psychopathic Subjects: First Note. G. Philip Grabfield, Interne, Psychopathic Hospital.
IX. Experience with the Lange Colloidal Gold Test in 125 Cerebrospinal Fluids. H. C. Solomon, M.D., Interne, Psychopathic Hospital; and H. O. Koefod, A.B., Interne, Psychopathic Hospital.
X. Cases to Illustrate Symptomatic Psychoses of Cardiorenal Type. Frankwood E. Williams, M.D., Secretary Massachusetts Society for Mental Hygiene.
XI. The Margin of Error in Psychopathic Hospital Diagnoses. E. E. Southard, M.D., Director Psychopathic Department, Boston State Hospital; and A. Warren Stearns, M.D., Assistant to the Executive Officer, State Boad of Insanity.
XII. On the Systematic Control of Salvarsan Therapy, Based on the Rapidity of Arsenic Excretion. H. M. Adler, M.D., Chief-of-Staff, Psychopathic Hospital.

I.

The Duty of the State to the Psychopathic Hospital.*

By Walter Channing, M.D., Brookline.

The Boston City Hospital has just held its fiftieth anniversary. The chairman of the trus-

* Being Contributions from the Psychopathic Hospital, Boston. Number 51 (1914.17). This paper was read (with the eleven following papers) at the Second Annual Conference on the Medical and Social Work of the Psychopathic Hospital, held June 26, 1914. (*Bibliographical Note.*—The previous contribution was by H. M. Adler, entitled "A Note on the Increase of Total Nitrogen and Urea Nitrogen in the Cerebrospinal Fluid in Certain Cases of Insanity with Remarks on the Uric Acid Content of the Blood," published in the Boston Medical and Surgical Journal, Vol. clxxi, No. 21, November 19, 1914.

[illegible] that it treated about 800 patients its [illegible] year. The Psychopathic Hospital admitted [illegible] patients its first year. While the number [illegible] is naturally increasing at the Boston City Hospital, so that it treated many more than fifty [illegible] as many the fiftieth year as the first, we in this hospital expect our growth to be in quality rather than in quantity, though in the second year the admissions have far out-numbered those of the first year. There is no branch of medical work where quality counts for more and quantity for less; yet naturally the more of the best quality of work that can be done, the better. A psychopathic hospital, so organized that each of a large number of cases can be thoroughly and effectively studied is bound to produce more valuable results than a hospital where an occasional case can be so studied, and here, I believe, we have the exact differentiation between a psychopathic hospital and an ordinary state hospital. In the former, intensive study of many cases; in the latter, of a comparatively small number. Massachusetts should have psychopathic departments attached to several of the already existing hospitals. Through them should pass most of the admissions, and they should have doctors, nurses, and equipment enough to carefully study and record each case, and here I would like to call attention to the fact that a psychopathic department does not necessarily need a new building, though a separate one would be desirable. It rather means that some portion of the hospital should be set apart and organized for such a department.

When all is said and done, however, the probabilities are, that for some years at least this institution must set the pace and do the most advanced and scientific work. Here, under the director, there must be a concentration of all such scientific forces as are available to hunt down the facts of mental disease and find out what they mean. The facts have always been available and even obvious, for that matter, and yet who knows what they mean? The twos and twos in mental disease have, so far, never footed up four, and it is high time they should. It can be done, and is being done, in part here, but the problems are numerous and very complicated, and the handicaps of a nature to block the path of progress and achievement,—a pretty serious condition of affairs, when we realize that success in this field means the understanding of the causes of insanity and its partial prevention at least. A scientist, engaged in research work must, of course, first of all have material of the right kind to work on. This being provided, he must have all the facilities required to do it in as thorough-going a way as possible. One missing link in the chain will mean failure. At this hospital there can be no question of the abundance of material; the trouble comes in the lack of facilities. The legislature of the present year unfortunately reduced the appropriation asked for for the Boston State Hospital, which meant a material reduction for the Psychopathic Hospital. This has seriously hampered the investigations planned by the director for the current year. To save a few thousand dollars, work has been delayed which may mean the loss of tens of thousands of dollars to the public at a later date. To get results, which may be of vast economic importance to the state in the future, the Psychopathic Hospital should not be dealt with in a niggardly manner. Mayor Curley, in his remarks at the fiftieth anniversary meeting of the Boston City Hospital, set a good example for the state in this respect. He is reported to have said: "If I am compelled to practise economy in every branch of the city service in order to provide the money that is necessary in order to make this institution the best of its kind in the country, I am prepared to do it, and," he went on to say, "if the trustees will map out a definite program for the next 20 or 30 years, I shall make it my business next year to provide the necessary money." This attitude is very broad-minded in the Mayor, and he is entitled to the thanks of every resident of the city of Boston. Our state authorities should be equally broad-minded in their treatment of the Psychopathic Hospital, which in a different field has a duty to perform to the public, hardly second in importance to that of the City Hospital. Give the director money enough so that he will not have to live scientifically from hand to mouth, or beg his scientific bread on the streets. Let him go ahead free and unhampered, and we shall see the results already attained materially augmented.

A great work is being done here to which I can attest of my own knowledge as one of that genus, neither fish, flesh, nor fowl, called "the trustee." Looked at from the broadest point of view, it is an effort to render social service to the community organized on a scientific and medical basis. Through its social workers it can ascertain many facts needed to explain the early history of cases of mental break-down, and through the same workers it can apply methods which have been worked out at this hospital for combating the development of border-line cases and educating the people to a better knowledge of how mental disease is caused. Last year I was skeptical when an estimate was made by Miss Jarrett, our head social worker, that, judging by the admissions to the in- and out-patient departments of the hospital, at least eight social workers were necessary. On careful consideration, the conclusion has been forced on me that this number is none too large, if we are to make a deep and lasting impression on the public, which eventually must tell on the increase of insanity.

The state launched a great enterprise when it built this hospital, but that was only a first step. It has put its shoulder to the wheel, and if it clearly understands what can be accomplished by not hampering the hospital by withholding appropriations, can we not expect it to show

the same generous spirit that Boston shows in backing up its city hospital?

II.

Progress of the Psychopathic Hospital on the Prophylactic Side of Mental Hygiene.*

By E. E. Southard, M.D., Boston,

Director of the Psychopathic Department, Boston State Hospital.

I wish to call attention today to but three components of our recent progress on the prophylactic side of mental hygiene. The fourth component, viz., the out-patient department, with its after-care technic, I leave to other speakers. Nor shall I deal with these three components, viz., (*a*) the so-called temporary care service of the Psychopathic Hospital; (*b*) our voluntary admissions, and (*c*) the admissions which prove to be "not insane," with any attempt at completeness. These topics will, in point of fact, be treated more comprehensively in a paper to be published in the *Journal of the American Medical Association* embodying statements made before the Nervous and Mental Section of the American Medical Association at the Atlantic City meeting (1914), where was held a symposium on the prevention of insanity. That symposium was held yesterday morning and provoked a lively discussion. Resolutions were forwarded by the section asking that the American Medical Association's Council on Public Health and Instruction be requested to take up this matter as a recognized constituent of its otherwise most comprehensive program.

The advantage which the mental hygiene movement is now showing is the advantage of concrete proposals backed by increasing statistical evidence. As Mr. Clifford W. Beers is fond of saying, "It is difficult to keep the mental hygiene propaganda from 'turning into a letterhead.'" I believe that the beginnings of progress which the Psychopathic Hospital here in Boston has made will go far to scotch the letterhead tendency. What I shall now try to do is to state as briefly as possible the main conclusions of the longer paper read before the Section of Nervous and Mental Disease of the American Medical Association.

A. The first great advance in the prophylaxis of mental disease in which the Psychopathic Hospital may be said to have taken a leading part, is an advance of which Massachusetts alone can, I believe, at present boast, since it depends upon the remarkable law giving temporary care to persons suffering from mental derangement which was passed in 1911 (Acts of 1911, Chapter 395).† I do not need to rehearse the law in detail and will merely mention that as all physicians and social workers now know, it is possible for any physician, a member of the board of health, or police officer in a city or town, an agent of the Institutions Registration Department of the City of Boston, or member of the district police, to request the superintendent or manager of any hospital for the insane to receive for a period of seven days and care for any person needing immediate care and treatment because of mental derangement. Under this law, the old judicial procedure is not employed. I must emphasize that the law is not open to the charge that the individual liberty of the prospective patient is interfered with to any extent; for, although various persons who may request such care for a prospective patient may not be experts in mental disease, yet it remains optional with the superintendent or manager of the hospital whether he shall receive or not receive the person in question as a patient. The law has been of untold benefit to hundreds upon hundreds of patients.

I am tempted to think that the passing of such a law and the establishment of hospital facilities with which to operate the law are measures of primary importance in the mental hygiene movement so far as that movement can be mechanized by public institutions. Parenthetically, I would say that I feel that the success even of privately endowed mental hygienic measures (out-patient departments, reference bureaus and the like) will be in the long run dependent upon having in the background properly constituted public institutions to which certain cases may be referred.

Of course such temporary care cases may be admitted to all hospitals for the insane and the passing of such laws greatly stimulates state hospitals to provide proper facilities for the reception of these patients. These facilities may

* Being Contributions from the Psychopathic Hospital, Boston. Number 52 (1914.18) read in abstract at the Second Annual Conference on the Medical and Social Work of the Psychopathic Hospital, Boston, Mass., June 26, 1914. (*Bibliographical Note.*—The previous contribution, Number 51 (1914.17), was by Walter Channing, entitled "The Duty of the State to the Psychopathic Hospital," published in the Boston Medical and Surgical Journal, Vol. clxxi, No. 23, December 3, 1914.

† An Act Relative to the Reception and Temporary Care in Certain Institutions of Persons Suffering from Mental Derangement.

Be it enacted, etc., as follows:

The superintendent or manager of any hospital for the insane, public or private, may, when requested by a physician, by a member of the board of health or a police officer of a city or town, by an agent of the institutions' registration department of the city of Boston, or by a member of the district police, receive and care for in such hospital as a patient, for a period not exceeding seven days, any person who needs immediate care and treatment because of mental derangement other than delirium tremens or drunkenness. Such request for admission of a patient shall be put in writing and filed at the hospital at the time of his reception, or within twenty-four hours thereafter, together with a statement in a form prescribed or approved by the state board of insanity, giving such information as said board may deem appropriate. Such patient who is deemed by the superintendent or manager not suitable for such care shall, upon the request of the superintendent or manager, be removed forthwith from the hospital by the person requesting his reception, and, if he is not so removed, such person shall be liable for all reasonable expenses incurred under the provisions of this act on account of the patient which may be recovered by the hospital in an action on contract. The superintendent or manager shall cause every such patient either to be examined by two physicians, qualified as provided in section thirty-two of chapter five hundred and four of the acts of the year nineteen hundred and nine, who shall cause application to be made for his admission or commitment to such hospital or, provided he does not sign a request to remain under the provisions of section forty-five of said chapter five hundred and four, to be removed therefrom before the expiration of said period of seven days. Reasonable expenses incurred for the examination of the patient and his transportation to the hospital shall be allowed, certified and paid as provided by section forty-nine of said chapter five hundred and four, as amended by chapter four hundred and twenty of the acts of the year nineteen hundred and ten, for the allowance, certification and payment of the expenses of examination and commitment.

briefly stated as the facilities of a general hospital plus those of a hospital for the insane. These are precisely the facilities which the Psychopathic Hospital in Boston has to offer, with strong merits for research added thereto and its work greatly aided by the out-patient department and the extramural activities of the social workers connected therewith.

After the passage of the temporary care law (Chapter 395, Acts of 1911) there came to Massachusetts institutions 92 persons under the act during 1911. These admissions were then approximately at the rate of 200 per annum. This rate was impressively increased during 1912 to 416; the opening of the Psychopathic Hospital upon June 24, 1912, was of course, a tremendous stimulus to this increase and for this year we have to report the almost astounding figure of 897 such admissions. Five hundred and ninety of these 897 admissions during 1913 were to the Psychopathic Hospital alone, the other 309 to other state institutions. As to the advantage of passing a patient through this seven days' period of temporary care, I need not elaborate the obvious, except to say that whether or not the patient is committed or discharged, he must possess the feeling that he has been given a fair chance to prove the suspicion of mental derangement (entertained by his relatives or by experts) to be right or wrong.

B. Perhaps it would be difficult to convince the law-makers of less civilized communities that the judicial procedure ordinarily in vogue could be safely suspended and replaced by a law like our temporary care law in Massachusetts, but, at all events, our experience with respect to voluntary admissions is so voluminous and cogent, that certainly no legislature of any state, not now possessing laws concerning the voluntary admission of insane persons to public hospitals, could fail to be convinced of the value of some such voluntary admission law. There are, however, many states in the Union which do not possess such laws, and many of the states which do possess them do not permit the public support of voluntary patients, so that the operation of the law is not extensive enough to prove of great value to the community. The law in Massachusetts has in fact been upon the statute books since 1881, but there was no especial stimulus to the voluntary admissions until the year 1905 when the State Board of Insanity's interest in this matter caused the law to be amended so as to permit public support of voluntary admissions.* Thereafter the admissions rose gradually from 5% of the total intake (such intake being defined as composed of the regular commitments plus the voluntaries) in 1906 to 8% in 1912. The figures were not so impressive numerically during those years as they are impressive from the percentile standpoint, in view of the fact that in 1906 there were only 125 such voluntary admissions and in 1912 only 282. Now, however, we have to report the astonishing fact that during 1913 there were 636 persons who were either admitted under the voluntary law or became voluntary patients later. This amounts to 16% of the total intake for 1913, which was 4051 patients in Massachusetts. As a whole, this leap from 8 to 16% voluntary admissions within a single year is indicative of what the establishment of proper facilities in a community means. I have no doubt that it is safe to assert that the large increase has been greatly determined both by the public effect which the Psychopathic Hospital in Boston has exerted and by the endeavor which the Psychopathic Hospital officers have had fully in mind to get all patients registered under the voluntary law so far as possible. Yet I would not leave you with the impression that we have registered persons under the voluntary law who were unable to understand their status as such. In point of fact, the State Board of Insanity has rightfully been very jealous lest persons should be registered as voluntary patients when they did not understand their status. Accordingly, if a patient does not understand his right to secure discharge from the institution within three days of his application in writing for such discharge, the authorities take steps to have the patient's status changed. Of course certain voluntary patients pass through intervals of confusion or excitement or deep depression during which it may be difficult to elicit statements from them concerning their status. Here a certain amount of latitude may well be allowed in the curable group of patients. Nor do I understand that the Board of Insanity desires us to change the voluntary status in such episodic cases.

The extent to which the temporary care law and the voluntary admission law are reducing the court commitments may be stated as follows, on the basis of the Psychopathic Hospital admissions for 1913. There were 1391 admissions which were not under the regular court commitment law during 1913. Most of these were under the temporary care or voluntary admission laws, although there were 394 under the Boston police law, Chapter 307, Acts of 1910, a law resembling in many respects the temporary care law. Into the special features of Chapter 307, I do not care to go in this place, since the law which we would like to see enacted by other states is rather an improved temporary care law (Chapter 395, Acts of 1911) than an improved Boston police law (Chapter 307, Acts of 1910). The point I wish to make here is that of the 1391 admissions under various special laws (exclusive of all regular court commitments) 665 were for various reasons spared the process of regular court commitment, that is to say, almost one-half, or 48%,

* Section 45. The superintendent or manager of any institution, [illegible] or person to which an insane person may be committed, [illegible] and receive therein as a boarder and patient any person [illegible] desiring himself to treatment, and who makes [illegible] application therefor and whose mental condition is such as to warrant his admission to make the application. Such person shall not be detained for more than three days after having given notice in writing of his intention or desire to leave the institution. The charges for the support of such person in a state institution shall be governed by the provisions of law applicable to the support of an insane person in such institution, provided the approval of the state board of insanity shall be obtained in writing.

of the total intake under various special laws were spared the stigma and expense of such commitment.

C. With this brief statement, I will dismiss the matter of temporary care and of voluntary admissions, and will proceed to the matter of the "not insane" discharges at the Psychopathic Hospital. I think it will astonish even the specialists in this field to learn that of the first 2500 discharges from the Psychopathic Hospital, involving a period from the opening of the hospital, June 24, 1912, to March 20, 1914, no fewer than 570 cases were discharged as "not insane." This figure warrants our saying that the Psychopathic Hospital in Boston, operating under certain laws favorable thereto, almost deserves the term "mental and nervous clinic." In Germany, many institutions resembling in scope the Psychopathic Hospital in Boston, receive the name "Psychiatrische und Nervenklinik." We had not hoped so soon in Boston to arrive at such a combination of psychiatric and neurological interests. I will not go into the diagnoses of these 570 cases at all in detail at this time, but will call attention to the fact that no fewer than 179 of these cases were determined to be mentally deficient, and that perhaps one-third or more of these mentally deficient cases were delinquent or potentially delinquent persons. The result of this situation is that, beyond question, the Psychopathic Hospital can aid in the solution of some of the problems of criminology, if we are willing to admit that the alienist has anything to contribute in the direction of criminology. This, I believe, we must admit, both on general grounds and on the special ground of recent work, of which I need only mention that of Dr. William Healy at the Juvenile Psychopathic Institute in Chicago. Nor will I mention in detail the somatic as well as more strictly neurological cases that for one reason or other came to the Psychopathic Hospital and were discharged as "not insane." I wish to speak more emphatically at this time of the 100 cases belonging in the group of psychoneuroses. The question for us to decide is, *should there be a public institution having the function of a preventorium to receive these psychoneurotic patients?* Further experience will be necessary before we can assert on statistical grounds that such a preventorium is necessary, although I am willing to go so far as to say that, in my opinion at the present time, the number of convalescent mental cases is almost sufficient, taken in conjunction with the psychoneurotics, to warrant the establishment of such a hospital, provided that funds are forthcoming. The question, it is true, was answered in the negative some years ago by the commission appointed by Governor Draper to inquire into this matter. However, at that time, the commissioners had not the experience of an institution like the Psychopathic Hospital to draw from. It must be then one of the concrete tasks of the immediate few years to determine the desirability of such a preventorium and convalescent home and to work out the proper features and best site of such a hospital.

What we can safely say at the present time is that an institution like the Psychopathic Hospital in Boston is no deterrent to the resort of psychoneurotics. In many of these cases there is evidence such as legitimately to warrant the suspicion of their mental derangement. The operation of the temporary care law, of the voluntary admission law, and even to some extent of the Boston police law (Chapter 307, Acts of 1910) has been to tap society in a new stratum which I believe has not hitherto been tapped to any extent by public institutions; but to operate these laws most effectively an institution like the Psychopathic Hospital is necessary. Massachusetts' experience should be utilized by other states in the direction of the enacting of such laws and the establishment of such psychopathic hospitals and wards as are now available and operative so successively in our commonwealth. It can conservatively be stated that these measures will go far toward the abolition of the stigma of insanity and the stimulation of earlier resort to public and private institutions. In point of fact, through the operation of various causes, of which the laws mentioned and the Psychopathic Hospital are but symptoms, the stigma of insanity is passing both in the public practice of institutions and in the private practice of physicians. It will not be many years before practitioners known as alienists will have prospective patients flocking to their doors much as such patients now flock to the Psychopathic Hospital, and indeed I find that psychiatrists, formerly masquerading as general practitioners and neurologists, are now more willing to admit that they are really psychiatrists. They do not find that this admission operates to turn prospective patients away. The close atmosphere of the courts is being replaced by the bracing atmosphere of the modern clinic.

I will sum up briefly by saying that the prophylactic division of mental hygiene can safely claim to be far more than a letter head or a propaganda and that, whatever its legal and public institutional sides, the prophylactic division of mental hygiene has as concrete measures:—

1. The stimulation of proper temporary care of persons suffering from mental derangement under the conditions of general hospital and private practice.

2. The stimulation of voluntary admissions to existing and future hospitals for the insane.

3. The establishment of psychopathic hospitals in proper centers, having proper medical and social arrangements for the highest forms of intramural and extramural individual and community service. If you are tempted to state that the term "psychopathic" somewhat resembles that blessed name "Mesopotamia" in its drawing powers, as Mr. Frank B. Sanborn once insisted, yet I venture to hope that its extension to

people both the legally insane and the great variety of other mental cases including psychoneuroties, mentally deficients, and criminalistic and possibly other types of mental disorder, will tend to abolish the use of the term "insane" by physicians, except under court conditions. The term "insane" is rightfully considered a legal and not a medical term. One of the greatest features of a mental hygiene propaganda will be to convince and to persuade the world of this fact.

III.

The After Care Program and Results of the Psychopathic Hospital, Boston, 1913-14.*

By A. Warren Stearns, M.D., Boston.

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The after care program at the Psychopathic Hospital has been one of gradual evolution. Each case has been handled according to individual needs and, in this way, system has grown up during the past year. As the whole work is in a new field there was no chance to use the experience of others in forming a plan at the start, and so at this time, in looking back over the year's work, we see, not how any given program has worked, but how good a program has been developed. On account of the gradual development of the out-patient department, changes have been made from month to month, making an accurate statistical study for the year difficult or impossible. However, Chart No. 1 shows the work of the year, and also the relation of the after care problem to that of the whole out-patient department. Of the 1031 first visits during the year, 236, or 22.8%, are former house patients, while of the 4,244 total visits, 1,032,† or 24.3%, were of after-care. Thus it appears that after-care is from one-fifth to one-fourth of the entire work of the out-patient department.

During the past year, 1,796 patients have been dismissed from the wards of the hospital. Their disposition is shown in chart No. 2. Only those discharged or on visit are possible after-care material. Their number is 1,083, or 55% of the total discharges. Of these 1,083 patients, 236, or 22%, have subsequently reported to the out-patient department. This percentage is altogether too small, but it will be seen by Chart No. 1 that during the first three months of the year but 7 patients reported. The rapid increase from September marks the beginning activity of the social-service department. Also, many patients are deported, or leave the state, and many are but transients in Boston and cannot come back. A few resent being brought to the hospital and will not return. All of these factors account for the small proportion who come back for after-care. It is gratifying to know that of the 236 who have reported, 142 are still in touch with the hospital.

Some patients are interviewed shortly before discharge, but practically all upon leaving the hospital pass through the out-patient department. At this time the work of after-care is explained and they are asked to report in one week.‡ Every effort is made to make this visit voluntary, and each patient is assured that no attempt at compulsion is being made. They are urged and advised to come back, but not coerced. If the patient is recovered, advice is given as to possible prevention of a recurrence; if not, the family is instructed in means of home-care. One of the most helpful means of getting patients back has been the possibility of continuing hydriatic treatment, already instituted in the hospital. Friends and relatives welcome advice, but the patients themselves wish to know what actual treatment can be given.

As no selection of cases has been made, it is interesting to see what types of disease have been most desirous of and best adapted for after-care. The list of diagnoses follows with number of each. Table No. 3.

Clearly the largest problem has been the care of the alcoholics, there being 73 cases, or 31%. As far as after-care is concerned, there is no difference between alcoholic hallucinosis, delirium tremens and alcoholism, as all are recovered when discharged. Two tasks confront us in all of these, the one to maintain abstinence, the other to find employment. Both are difficult and conditions have not been ideal for their accomplishment. We have been especially handicapped by not being able to admit relapses to the house for a few days. Frequently patients who have begun to drink again come to the hospital begging admission, only to be told that we are not allowed by law to admit alcoholics as such. Monthly meetings have been held, the "Men's Club," as an additional means of keeping in touch. It is useless to try to keep a patient well and to help him maintain his self-respect and position in society if he is not able to support himself. This class of patients needs aid in securing employment other than that afforded by employment agencies, and so a special worker is needed to take up this work. Nevertheless, there are many patients who have maintained abstinence for many months, and not a few are working in places found by the department. One might ask why there are 33% of alcoholics in the out-patient department and but 11% in the house. The difference seems to show that alcoholics need and wish after-care more than any other class of patients. These facts show the need of a hospital for the care of alcoholics in Boston.

* Being Contributions from the Psychopathic Hospital Number 63 [illegible] for the Second Annual Conference on the Medical and Social Work of the Psychopathic Hospital, Boston, Mass., June 7th, 1914. [illegible] Editorial Note.—The previous contribution, Number [illegible], was by E. E. Southard, entitled "Progress of the Psychopathic Hospital on the Psychiatric Side of Mental Hygiene" 1914 (as published in the Boston Medical and Surgical Journal, Vol. clxx, No. 23, December 3, 1914.

† Figure is misleading for eight months. This number 1032, is the total for 12 months at same rate as given.

‡ This practice has been in operation but a short time and has helped materially in getting patients back.

The next group in size is that of dementia precox, there being 33 cases, or 14%. The problem here is more home-care than after-care. A few are able to work and a few benefit by hydriatric treatment, but in the vast majority of cases the duty of the out-patient department is to advise friends as to their care. There have been a few notable exceptions to this in cases having a considerable degree of insight. Several are getting along quite well in the community.

The third group, the psychoneuroses, 31 in number, perhaps need active treatment more than any other group. Their affairs are frequently entangled, they need advice and reassurance and they furnish work for social-service, besides requiring psycho- and hydrotherapy. There is urgent need of sanitarium accommodation for these patients.

Of the 17 manic-depressive, 8 were manic and 9 depressed. The manics were all recovered and it seems that a maniacal patient probably always needs hospital care. Most of the depressives were recovered, or nearly so. In this disease we are called upon to advise in order to prevent a recurrence. Unfortunately so little is known of the etiology of manic-depressive insanity that this is a difficult task. However, in individual cases, there are frequently what seem to be exciting causes, and so advice can be given which is of advantage to the patient. As, in the depression, suicide is the most serious accident to be guarded against, families can often be instructed so that home care is not only possible but desirable.

One of the smaller groups, the delinquents, 11 in number, has proven of especial interest. Six of these showed no measurable intellectual defect, while the other five were defective but not enough so to warrant classification as feeble-minded. After-care in this group has been a combination of the work of a physician and a probation officer. The group is not large enough to allow any general conclusions to be drawn, but the six cases with "no defect" are worth mention. These are all young adults of good mental capacity who have repeatedly committed offences with no motive. This is a type of case rarely seen by the psychiatrist, and it is an encouraging sign to have the public send such individuals to a doctor instead of having them immediately arrested.

The only other group which offers anything new is that of the syphilitics. There have been six of these whose treatment has been followed through the out-patient department, a very important undertaking.

In concluding, the following points may be made:—

1. Importance of social-service in after-care.
2. Prominence of alcohol problem.
3. Need of aiding patients in finding employment.
4. Opportunity for psychiatrists to enter the field of criminology.
5. Possibility of caring for large numbers of mental cases at home with out-patient supervision.

Appended are tables illustrating the out-patient work of the Psychopathic Hospital.

TABLE I.

	Total New Patients.	New After-Care Patients.	Total Visits.	Total After-Care Patients.
June	71	5	231	
July	49	1	125	
August	73	1	221	
September	84	16	168	
October	71	24	241	50
November	83	29	346	44
December	82	31	393	65
January	96	22	416	75
February	95	23	482	67
March	119	26	582	81
April	100	30	522	118
May	108	28	517	188
Total of year	1031	236	4244	688

For 3-Month Periods.	For 8 Months.
Jan. Feb. March 7	1032 for year at same rate.
April, May, June 69	
Oct., Nov., Dec 84	
236	

TABLE II.

SHOWING DISCHARGES FROM HOSPITAL FROM JUNE 1, 1913, TO MAY 30, 1914.

	M.	F.	T.
Dismissed during the year	958	838	1796
Discharged	537	438	975
Committed to other hospitals	203	149	352
Returned to other hospitals	3	2	5
Transferred to other hospitals	6	8	14
Transferred to main hospital	133	161	294
Visit	55	53	108
Escaped	1	—	1
Died	20	27	47

TABLE III.

SHOWING DIAGNOSES IN OUT-PATIENT CASES.

Dementia precox	33
Delirium tremens	31
Alcoholism	27
Hysteria	11
Manic-depressive insanity	17
Epilepsy	8
Feeble-minded	7
Psychasthenia	7
Delinquent	6
General paralysis	6
Defective delinquent	5
Neurasthenia	3
Cerebral syphilis	3
Syphilis	3
Fractured skull	3
Hyperthyroidism	3
Tabes	2
Multiple sclerosis	2
Sub-normal	2
Korsakow's psychosis	2
Senile dementia	2
Morphine hallucinosis	1
Exhaustive psychosis	1
Stokes-Adams' disease	1
Psychopathic personality	1
Cerebral arteriosclerosis	1
Migraine	1
Paraphrenia systematica	1
No mental disease	4
Unclassified	27

IV.

FURTHER NOTES ON THE ECONOMIC SIDE OF PSYCHOPATHIC SOCIAL SERVICE.*

BY MARY C. JARRETT, BOSTON.

Chief of Social Service.

THE object of this year's work has been to discover the nature and size of our problem.

The nature of the problem is best shown by what we have done in the last twelve months. This represents the work of two persons, one for ten months and the other for four months, supplemented by help from volunteer workers.

Two hundred and forty-three persons were dealt with by the social service, 83 of whom are still under care. The 160 whose cases have been closed were assisted as follows: 11 were under supervision, 22 were helped to make suitable arrangements so that they might be discharged, 33 were referred to the proper agencies to assist them, 53 were advised, the history needed by the doctors to make the diagnosis was secured in 28 cases; the remaining 14 were not classified.

About one-third of these patients were insane, one-fifth alcoholic, one-tenth feeble-minded, one-tenth psychoneurotic, one-tenth syphilitic, one-twentieth not insane, one-twentieth delinquent.

In addition, a beginning has been made along three other lines of social service: (1) the Men's Club for discharged alcoholic patients, (2) a systematic attempt to secure examination and treatment (if necessary) for the family of every syphilitic patient. In four months, 66 families have been looked up; 23 failed to respond. Of the rest, 76 persons have been examined, and 17 have been under treatment. (3) A system of following every patient who comes to the outpatient department, so that any patient who should return for further examination or treatment and fails to is first written to and then visited. In six months of this work, 512 patients were followed, and as a result 108 have been kept in attendance at the clinic, 67 had a legitimate reason for not returning, 65 failed to return, and 93 came back of their own accord. The remaining 178 have been discharged or are not yet due. This work has been done entirely by one volunteer who gives every morning to it.

The size of the problem we have studied carefully and believe we can outline in the main. The common idea of a social service agency is that it is a sieve—the more workers you put into it the faster they sift out among the inexhaustible number of cases waiting at the door, and the more therefore, you need. Certainly it is possible to estimate the need and consequent cost of social service in psychopathic and insane hospitals on the basis of 100 admissions as a unit.

In a further effort to estimate the cost of an adequate social service staff for this hospital, another study was made similar to the one reported at the annual meeting last year. At that time the cases of 100 out-patients and 100 house patients were considered, indicating a need of social service work on the part of the hospital in about one-half of the house cases, and one-third of the out-patient cases, a larger proportion of which are in the care of social agencies. This year we have studied patients admitted to the hospital, under the three main forms of admission, through which nine-tenths of our patients came last year: (1) voluntary cases, (2) temporary care cases, that is, sent for seven days' observation, (3) Boston police cases brought for observation because found by the police to be acting in a dangerous manner; 100 consecutive admissions from each group beginning March 1, being taken for study.

It might be assumed that every patient admitted needs social service, but after taking into consideration that about 15% of our house cases are already in the care of social workers from other agencies, there still remains the fact that about 25% appear not to require social service care, the majority being patients committed to insane hospitals, who have no one dependent on them or whose families have already become adjusted to their mental condition; others have families able and intelligent enough to do for them all that can be done; a few are unmarried people who habitually wander, so that it is impossible to keep in communication with them.

The results of this year's study are in close agreement with the estimates made last year. Out of the 300 cases, 64% show the need of our care,—against 52% in last year's study; but this increase is explained by the facts that actually we have a larger proportion of temporary care cases than voluntary admissions and police cases; and that the voluntary cases show the greatest need of social service, 77 out of 100; also a larger proportion of the temporary care cases was getting social service care from the agencies that referred them, 20 in 100, while only 3 police cases and 11 voluntary patients were entirely cared for by social agencies.

So that it seems safe to conclude on the basis of the agreement of the estimates made last year and this year that the problem we have to meet is social service in one form or another for between 50 and 60 patients in every 100 admitted to the hospital.

In a similar study made at the Boston State Hospital, 54 patients in 100 consecutive admissions show the need of social service work, which indicates that the custodial institution will require about the same number of social workers in proportion to their admissions, as a hospital of this type.

As to the different types of social work re-

* Being Contributions from the Psychopathic Hospital, Number 54 (1914 200), read at the second Annual Conference of the Medical and Social Work of the Psychopathic Hospital, Boston, June 26, 1914. *Bibliographical Note.* The previous contribution, Number 53 (1914 194), was by A. Warren Stearns, entitled "The After-Care Program and Results of the Psychopathic Hospital, Boston, 1913-1914," published in the BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. clxxi, No. 23, December 3, 1914.

quired, the estimates of last year and this year and also the statistics of the work done during the year are in substantial agreement. There are some variations which seem readily explained. By the estimates, *one-third* of all patients needing social service from the hospital should have supervision, actually, only *one-fourth* of the cases we dealt with received supervision; about *one-fourth* show the need of a history from outside sources, while such a history was secured in only *one-tenth* of the cases dealt with. As supervision and history getting are the forms of work that consume most time, it is natural that with a limited staff a smaller proportion of these cases was handled.

The conclusion as to the amount of social service work needed in this hospital seems to be fairly definite, and is,—that in every 100 admissions there will be about,

20 patients who need supervision;
24 patients who need advice;
13 whose history should be looked up;
10 for whose families prophylactic work is needed;
3 who need arrangements made for their discharge;
5 who need to be referred to other agencies.

The amount of social work required for each 100 admissions on the basis of a calculation made last year (which I still believe to be a fair estimate), that is, 50 cases a year under supervision to be carried by one worker or 150 cases for investigation and other forms of service, would be two-thirds of the time of one worker. As the hospital had 1500 admissions last year, we needed ten social workers for the care of the house patients.

In the out-patient department during the last financial year there were 636 patients exclusive of 187 house patients who became out-patients after discharge; 241 of the 636 were in the care of the agencies who referred them. Assuming that another 25± do not require social service, and reckoning that one-third of the remaining 236 out-patients need supervision and the rest history or miscellaneous services, a need of two social workers is indicated for the out-patient department at the present rate of admissions.

So that both departments of the hospital needed last year twelve social workers to carry all of the social service work. The reason that this estimate is higher than that made last year, which was eight workers for 2100 admissions, is partly because there have been more admissions and partly because this year's count has gone more carefully into the nature of the cases and allows for a larger proportion of cases under supervision, which average three times as much time as other cases.

In addition to intensive work in the care of its patients, the social service of a psychopathic hospital has certain extensive or community responsibilities which may be classified as follows:—

(1) Coöperation with physicians, hospitals, and social agencies in cases about which they are concerned. There were 355 cases of this type during the year in which general advice or information was given. More can be done as the possibilities of this coöperation become better known.

(2) Social research. Special studies of large groups of cases to throw light on such questions as, the effect of environmental conditions in dementia precox, and the possibilities for people with mild mental and nervous diseases to be self-supporting.

(3) Educational work. The constant opportunity of the social worker familiar with mental troubles to instruct the families, and friends, and employers of the patients has a tremendous value in spreading a reasonable understanding of mental defect, and overcoming the popular idea that insanity is something uncanny. Social workers in schools, courts, churches, settlements and charitable societies naturally look to a psychopathic hospital as a means of acquiring greater familiarity with mental abnormalities.

In connection with the relation of the hospital to the work of social agencies, a beginning has been made on a study of 100 of our cases that were known to social agencies. The first 100 cases known to social agencies admitted either to the house or the out-patient department in 1913 were taken. These 100 patients were known to 304 agencies,—relief agencies, 107; children's societies, 84; hospital social service departments, 47; other types being represented in smaller numbers. This is an average of 3 social agencies for each patient. Less than half, 43, had been referred by social agencies.

1 case was known to 11 agencies;
2 cases were known to 9 agencies;
7 cases yere known to 7 agencies;
3 cases were known to 6 agencies;
4 cases were known to 5 agencies;
9 cases were known to 4 agencies;
17 cases were known to 3 agencies;
37 cases were known to 2 agencies;
20 cases were known to 1 agency.

Three had been known to some social agency 20 years or more, 6 between 10 and 20 years, 14 between 5 and 10 years, 31 under one year.

These figures indicate a decided interlocking of the work of the hospital with that of the social agencies of the Metropolitan District, to an even greater extent than is indicated by the percentage of cases referred by them, 15% to 18%. In the study of 300 cases mentioned above, although only 54 were referred by social agencies, 114 had been known to some agency previous to admission.

One way of meeting the demand for greater familiarity with mental disorders on the part of social workers is the clinic held every Monday afternoon during the winter, with an average attendance of over 40 at each meeting. A patient who is a social problem is presented, after

... history has been read: and his case is discussed after he has left the room. Special care is used in selecting the patients to be presented, and it has been found that instead of being a severe ordeal, as it has seemed to some of the social workers who have attended, the experience is in reality beneficial to the patient, who is buoyed by the interest of so many people to contrast his own mental difficulties and is put on his mettle to do what he can to overcome his limitations.

Other means of spreading familiarity with our cases are (1) short periods of work in the hospital for social workers, (2) longer periods of training for inexperienced volunteer workers, 3) a course in psychopathic social service, including lectures and field work, which we hope to offer another year.

Some of you may be surprised that the number of social workers required for this hospital is so large; but undoubtedly we shall see the time when it will cause no more surprise to hear that such a hospital needs 12 social workers than to hear that it needs 18 doctors and 56 nurses.

V.

High-Grade Defectives at the Psychopathic Hospital During 1913.*

By Thomas H. Haines, M.D., Ph.D., Boston,

First Assistant Physician.

The total admissions at the Psychopathic Hospital for the year ending Sept. 30, 1913, were 1523. Of this number 329 were under twenty-five years of age and are, for present purposes, considered adolescents.

One hundred and seventy of these were insane and distributed as follows:—

Dementia precox (34 under 20 years)	102
Manic depressive insanity (3 under 20 years)	23
Unclassified	34
Alcohol and morphine psychoses	7
Epilepsy with deterioration	2
Puerperal psychoses	1
Tuberculous meningitis	1
	170

One hundred and fifty-nine were not insane and classified as follows: —

Various physical disorders	6
Congenital syphilis	8
Epilepsy	8
Hysteria	10
Constitutional defect or psycho-neurosis.	15
Defect in personality (defective delinquent)	68
Feeble-minded (intelligence of less than 12 years)	44
	159

* Being [illegible] from the Psychopathic Hospital, Number 34, 1914 [illegible] at the Second Annual Conference on the Mental Hygiene Survey in the Psychopathic Hospital, Boston, June 26, 1914. [illegible] and Note. The previous contribution, Number 34, 1914 [illegible] Mary C. Jarrett, entitled "Further Notes on the Educational Side of Psychopathic Social Service," published in the Boston Medical and Surgical Journal, Vol. clxxi, No. 23, December 3, 1914

About one-third of the total number of adolescents were dementia precox.

Nearly one-half of the number were not insane.

Thirteen per cent. of the whole number are feeble-minded or show an intelligence development of less than 12 years (44).

Thirty-three per cent. of the whole number were higher defectives (congenital syphilitics, epileptics, hysterics, constitutional defects and defective delinquents) (109).

Twenty per cent. are defective delinquents (68).*

Incidence of syphilis in feeble-minded and defective delinquents:—

Of forty-four feeble-minded, 35 had sera tested, and 14% (5) gave positive or doubtful Wassermann reaction.

Of 44 feeble-minded, 35 had sera tested, and 14% (5) gave positive or doubtful Wassermann reaction.

With the 8 congenital syphilitics = 30% (or 20 out of 68).

Incidence in all patients tested at the Psychopathic Hospital = 14.7%.

Comparison of males and females as to age of admission:—

Twenty-one males. Average age = 17 years.

Twenty-three females. Average age = 18 years.

Largest number of males at a given year of age = 5 at 18 years.

No males at 19, 20, or 21 years; 3 at 22 years.

Largest number of females at a given year of age = 5 at 20 years.

Twenty-five of the 32 feeble-minded tested by Binet-Simon tests were 9 years or more.

Of 68 defective delinquents: 25 males, average age = 14.3 years (male F.M. = 17).

Forty-three females, average age = 18.1 year (female F.M. = 18).

The delinquent boy makes trouble earlier than the feeble-minded by three years.

The delinquent and feeble-minded (moron) girl blossoms out into her anti-social tendencies at the same time, 18 years.

The much larger number of delinquent girls than delinquent boys dealt with is significant.

Origins of the defective delinquents (68):— Nativity: 20% (6 males and 8 females) were foreign born. Nativity of parents: 65% (14 males and females) had one or both parents foreign born.

Heredity from insane and feeble-minded: 36% (7 males and 18 females) had some one closely akin insane or feeble-minded. Mostly brothers, sisters or parents, and in many cases several persons.

Heredity from alcoholics: 29% (4 males and 16 females) had one or both parents alcoholic.

Relations to social uplift agencies: 8 had been

* Defective Delinquent is here used much as defined by Dr. Walter Fernald in his address before The Massachusetts Medical Society, June 12, 1912. "A special class of defectives where the mental lack is relatively slight, though unmistakable, and the criminal tendencies are marked and constant."

NUMBERS OF PATIENTS ADMITTED AT DIFFERENT YEARS OF AGE.

Years of age	8	9	10	11	12	12	4	5	2	6	0	0	1	1	1	1	0
Male	1	2	0	2	4	1	14	15	16	17	18	19	20	21	22	23	24
Female	0	1	1	0	0	1	1	3	5	4	5	8	4	6	2	0	2

or were State minor wards; 7 came from various children's aid associations, 24 had been at Lancaster, Sherborn, or Tewksbury; 10 (8 males) came from juvenile courts; only 3 are known to have come from good homes; only 3 of the females claimed to be or to have been married, though 31 of the 43 were seventeen years old, and there are reasons to doubt these claims of marriage.

OFFENSES AND PECULIARITIES OF DELINQUENTS.

	Number of Males.	Number of Females.	% of 68.
Sex offenses	0	28	41%
Running away	7	8	22%
Thefts	13	9	32%
Lying and unreliability	4	9	19%
Cruelty	2	1	4%
Destructiveness, fires and fights	11	4	22%
Threat or attempt at suicide	2	11	19%
Emotional defect, sullen, irritable, etc.	14	18	47%
Unmanageableness	7	15	32%
Drinking or smoking	5	7	18%
Masturbation	4	2	9%

Larceny, destructiveness, and running away stand out as the relatively more frequent offenses of the male, and they practically cease to come in at sixteen years of age.

Irritability, sullenness and other temperamental defects are more mentioned in the male, but it is the leading characteristic of the group,—47% of the whole number.

Sexual irregularities and threats or attempts at suicide are the offenses of the female.

FIFTY-THREE PSYCHOLOGICAL EXAMINATIONS OF DEFECTIVE DELINQUENTS BY BINET-SIMON AND PERFORMANCE TESTS.

Large numbers exhibit character defects and defective emotional organizations. We expect, therefore, no light upon the nature of the defect from intelligence tests. Performance tests so far in use can be of little service in analyzing this type.

Tabulating the results, however, of various psychological tests as good, fair, and poor, one's attention is at once drawn to the following:—

MENTAL PROCESSES IN WHICH DELINQUENTS ARE DEFECTIVE.

	Good.	Fair.	Poor.
Voluntary attention	16	8	14
Judgment and logical memory	9	5	10
Discrimination and analytical ability	10	3	14
Concept formation	1		6
Moral discrimination	6	2	13

SIMPLER MENTAL PROCESSES IN WHICH DELINQUENTS SHOW PROFICIENCY.

	Good.	Fair.	Poor.
Motor co-ordination	12	7	5
Perception	14	4	5
Visual memory span	23	12	3
Interpretation of pictures.	10	8	1

PROCESSES IN WHICH DELINQUENTS OCCUPY A MIDDLE GROUND.

	Good.	Fair.	Poor.
Learning ability	16	4	7
Constructive imagination	16	11	8
Resistance to suggestion	26	10	9

These figures confirm one in the position that the defective delinquent is defective in the organization of his character,—that with him the socialization process has been curtailed. He is on a mental level with those barbarous societies who manage themselves by means of very definitely prescribed customs, which cover most of the details of behavior. Of such prescription the defective delinquent stands in need. He is

He lacks the ideals, the self-[illegible] the conscience, and the will-power of a civilized modern. But society gives him the liberty of an adult, civilized man. He therefore runs amuck.

Whether the characteristic defect,—the lack of control or poor socialization, is the result of a congenital incapacity to develop in the higher realms of the mind, or whether it is due to improper management of the environment, these examinations cannot be expected to decide. That the latter fact is etiological, one must allow in many cases, when one considers the large numbers who have had poor homes, and many who have been wards of the state from infancy.

The therapeutic test would prove the point, if it worked. If one enabled the individual to hold consistently and persistently to worthy aims, by securing for him ideal social surroundings, one would prove that the poor organization was not due to congenital defect. Unhappily, many social agencies are meeting with disappointments every day, in the application of this test. There are other cases in which no fault can be found with the home or the training. Such is the case of a twenty-year-old teacher in a good position, who was president for two years of her normal school class and came from a "good New England family." This girl suddenly took to drinking and sexual promiscuity, and contracted gonorrhea and syphilis. She was not insane and was not feeble-minded.

To the psychiatrist, the defective delinquent presents a problem which is near neighbor to his own peculiar problems. The defective delinquent is not insane, but he is possessed of an abnormal mental constitution. Some have called him a psychopathic personality. Others call it "moral insanity." Moral deficiency or inadequacy would be a better term. Many of this group have been committed to institutions for the care of the insane. The heavy incidence of syphilis in the group here studied indicates psychiatrical and neurological problems.

To the psychologist, the defective delinquent presents a concrete problem in character analysis and development of personality. He is often delinquent, but always defective. The offenses against society are really offenses against himself. They are due to shortsightedness,—defect in the higher reaches of intelligence, which we find it easier to state in emotional and volitional terms. We look to psychology to supply descriptive terms for this defect in higher psychical or moral development.

To the social worker, who looks to the biology of the situation, the defective delinquent is a fact, who, by reason of moral deficiency, calls for a specialized environment, where he may not run amuck, and where he may not transmit his defect. For the defect, where congenital, is non recoverable, and perhaps subject to the principle of Mendelian heredity.

VI.

GENETIC FACTORS IN 100 CASES OF PSYCHONEUROSIS.*

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THE cases were gathered from the out-patient department of the Boston Psychopathic Hospital and consisted of three classes: Those discharged from the hospital that were subsequently followed up in the out-patient department; those brought to the clinic by various organizations, by court order, charity agencies, etc.; and those coming of their own initiative, alone or with friends. The cases were selected from 1500 new cases that were seen.

An analysis of the cases, from the point of view of Dubois, who wrote ten years ago, "Nervousness arises from two factors: the one, essential and variable, viz., natural psychopathic tendencies (hereditary or acquired in fetal life); the other, contingent and polymorphic, viz., provocative agents," showed that in 56 cases congenital causes seemingly existed, for the psychoneurosis subsequently developed, *i.e.* psychopathic tendencies of an hereditary nature or acquired in fetal life. Of the 44 cases shown in which no congenital causes were found, 70% of them were of foreign stock, which means in a majority of instances, inability to give intelligent and inclusive family history or histories of early life.

The most interesting point on analysis is the cases showing the average age at which symptoms occurred in different groups. The cases were grouped as those of luetic, insane, alcoholic, neurotic, tubercular, or miscellaneous stock. Assuming that the symptom age bears some relation to the potency of the genetic factors involved in the production of the psychoneuroses, among the congenital factors luetic, insane, neurotic, and alcoholic defects of forebears are potent in the order named.

An analysis of further data showed that, given a psychopathic inheritance, an individual is likely to show symptoms of a psychoneurosis sooner when harassed by somatic than by environmental difficulties. The most common symptoms were found to be of a somatic nature. Cases showing symptoms of a single group averaged 4 years in duration, cases with symptoms of two groups averaged 6.7 years, and cases of

* Being Contributions from the Psychopathic Hospital, Boston, Number 56 (1914,22). This contribution is a brief statement of work to be published more fully in the *Journal of the American Medical Association*, as read at the Atlantic City meeting of the American Medical Association in 1914. The present contribution was read at the Second Annual Conference on the Medical and Social Work of the Psychopathic Hospital, Boston, June 26, 1914 (*Bibliographical Note*. The previous contribution, Number 55 (1914,21), was by Thomas H. Haines, entitled "High-Grade Defectives at the Psychopathic Hospital During 1913," published in the BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. clxxi, No. 23, December 3, 1914.

three or more groups averaged 7 years. In other words, it was found that the longer the psychoneuroses existed, the more numerous became the symptoms.

The conclusions drawn from this analysis of 100 cases of psychoneurosis are as follows:—

First. In the majority, if not in all cases of psychoneurosis, there exists an essential factor, viz., a natural psychopathic tendency, hereditary or acquired in fetal life.

Second. If the age at which symptoms occur among psychoneurotic individuals may be considered an index of the potency of the essential factor at work, luetic, insane, neurotic, and alcoholic defects among forbears are of importance in the order named in the production of psychopathic tendencies.

Third. Among psychoneurotic individuals, somatic difficulties tend to induce symptoms earlier than do difficulties of environment.

Fourth. The longer a psychoneurosis exists, the more numerous will the symptoms probably be.

Fifth. Prophylaxis against the psychoneuroses can be furthered by early diagnosis, and by the elimination of the provocative agents of somatic and environmental difficulties with the aid of medical treatment, psychoanalysis, and psychotherapy, but no prophylaxis can be effective that fails to consider the essential factors in the production of the psychoneuroses.

VII.

The Point Scale: A New Method for Measuring Mental Capacity.*

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To meet the needs of the Boston Psychopathic Hospital and of those individuals and institutions whose function it is to consider the mental status of socially troublesome individuals, we have developed a system of mental measurements which we call the Point Scale. This scale is designed to take the place of the Binet Measuring Scale of Intelligence and to furnish a more definite and accurate index of the mental capacity of individuals than can be obtained by the employment of the Binet method. Examination by the Point Scale is supposed to be preliminary to and preparatory for a more detailed, specific and thoroughgoing mental examination.

The Binet Scale, which has been in general use for several years, has proved itself conveniently serviceable in this institution, and it has been applied to a large number of individuals with reasonably satisfactory results. We object to it not so much because of the possible inaccuracies of its results as because we are convinced that the same amount of time devoted to examination by a wholly different method might be made to yield far more detailed as well as more accurate information than is ordinarily obtained by the use of the Binet Scale. Our desires and efforts in the development of our new method have been wholly constructive. It was not our intention to attempt to transform, injure, or destroy the Binet method, but instead, to devise a system of measuring mental capacity which should be of greater service.

The Huey Point Scale was our starting point, for it suggested to us the possibility of using a single series of measurements and of giving credit according to the merit of a subject's response. The scale proposed by the late Dr. Huey proved unsuited to our needs, and we therefore undertook to give his ideas expression in a method which should be at once serviceable and capable of improvement.

In this methodological task, it was our primary aim to discover a method which should be fairly simple and easily used and which should yield, as the result of not more than thirty minutes of the examiner's time, a general knowledge of the subject's mental capacity which should serve as a safe guide to further and more special examinations. We appreciated the desirability of obtaining a series of mental measurements which should include the chief varieties of intellectual function. We desired that the measurements should be reasonably accurate and that a system of evaluating reactions might be devised which should be superior to the all-or-none method employed in the Binet Scale. The possibility of a simple means of expressing the result of a Point Scale examination was also considered. And finally, last but by no means of least importance, we strove to develop a method which should be readily modifiable as possibilities of improvement appeared, and which should increase in value with the accumulation of data for the construction of norms.

We shall be able in this presentation most briefly and clearly to exhibit our aims and the characteristics of our method by contrasting them with those of the Binet scale. Of course, only the principal points of difference between the two scales can be considered.

The Binet scale makes use of two important principles, that of the grouping of tests according to age, and of full credit or none. The first of these principles rests upon the assumption that mental development is fairly constant with respect to the order and time of appear-

* Being Contributions from the Psychopathic Hospital, Boston. Number 57 (1914.23). This contribution was read in abstract at the Second Annual Conference on the Medical and Social Work of the Psychopathic Hospital, June 26, 1914. Some account of its conclusions was given at a meeting of Harvard Summer School students in Psychology and Education, July 22, 1914, at the Psychopathic Hospital. (*Bibliographical Note.*—The [illegible] Number 56 (1914.22), was by Donald Gregg, entitled "Genetic Factors in 100 Cases of Psychoneurosis." [illegible] Boston Medical and Surgical Journal, Vol. [illegible], No. [illegible], December [illegible], 1914.

of various processes or capacities. We find ourselves unable to accept this assumption as a safe working hypothesis for those who have to deal psychologically with all stages and conditions of human mentality. Consequently, instead of using different series of measurements for individuals of different ages, we have selected a single series of measurements to be made on each individual who is examined. The advantages of the single, as contrasted with the multiple, series method will appear as this account progresses.

In the Binet procedure, the all-or-none method of evaluating responses is employed. As might readily be anticipated, this frequently results in large errors of observation. We have rejected it, and, instead, in the Point Scale, credit for responses is given on the basis of certain definite rules, in accordance with the merit of the response. Thus, the individual may receive no credit, partial credit, or maximum credit, according to his performance. It would seem unnecessary to argue in favor of the desirability of this procedure as contrasted with the method of the Binet scale.

Variations and irregularities in the use of any measuring system are to be expected. But it has seemed to us that the possibilities, and even the incentives to variation, in the use of the Binet scale are needlessly great. It is a matter of history, not merely our opinion, that the scale has been used in markedly different ways, as well as with minor differences in procedure and in the evaluation of results, from examiner to examiner. Thus, some prefer to begin with the tests appropriate to the year of the subjects's age and to work systematically, either forward or backward, through the remainder of the scale until they have discovered which group of tests the subject is capable of satisfactorily passing. Others prefer to give all of the tests for and in advance of the subject's age and to credit the individual with a certain fraction of a year for each test successfully passed. In a word, and without entering into any such details as may be gleaned from the abundant literature on the Binet method, the scale is so variously used, misused, and abused, that its results are only roughly comparable. We feel that our Point Scale offers fewer and less tempting opportunities for irregularities of procedure, and that by dint of insistence upon uniformity of method and thorough simplicity or requirement, we should be able to attain much more reliable uniform, and comparable measurements than those heretofore made.

It follows as a necessary consequence of the arrangement of measurements in age groups that individuals differing in age are not strictly comparable in terms of their Binet ratings. Thus, for example, a child of seven years is tested by being asked: (1) to point out its right hand; left ear; (2) to describe a picture; (3) to execute three commissions; (4) to tell the cost of three two-cent and three one-cent stamps; (5) to name the colors, red, blue, yellow, and green. Whereas, the child of nine years is measured by the following tests: It is asked (1) to give the proper change from a quarter if four cents is due; (2) to define certain terms in a manner superior to use; (3) to name the various pieces of American money from the penny to the ten dollar bill; (4) to name the months of the year in order, in fifteen seconds; (5) to understand and make proper reply to three questions involving judgment. At a glance it is apparent that these two groups of tests, the one supposed to be suitable to the seven-year-old stage of mental development, the other to the nine-year-old stage, measure different mental functions or different aspects of those functions. It is therefore impossible to compare the mental capacity of the two individuals.

While admitting freely Binet's claim that the mental life develops fairly regularly, we must contend that comparability of data can be attained only by selecting for measurement processes which exist in varying degrees from early childhood to senility. In the Point Scale, we have striven to arrange a series of tests which may be presented to individuals between three and fifteen years. It is, of course, to be expected that the young child will receive little if any credit in most of these tests. We are convinced, however, that the results of our method are more safely comparable than are those of the Binet scale.

Obviously open to adverse criticism is the method by which the Binet series of tests was constituted. They were tried out, according to the author's statements, on groups of school children in Paris, and the arrangement depends chiefly upon the results obtained with about two hundred individuals. In the light of our experience, we deem this an entirely inadequate basis for a method which has been accepted as scientifically valuable and practically serviceable. To be sure, the scale of Binet and Simon has been modified in certain important respects during the past few years: various tests having been promoted or degraded, others having been eliminated, and yet others modified. But with all these changes in mind, we are still fearful that the scale is unsafely based, and rather than attempt to help to bolster it up, we have chosen to develop our method in a manner which entirely avoids the necessity of the grouping of measurements according to age.

Of minor scientific significance, and yet of considerable importance because of convenience, is the possibility of expressing the final result of a mental examination numerically. The results of the application of the Binet scale are expressed in terms of years of age. A given subject whose actual age is eight years may gain a Binet rating of nine and three-fifths years. But, as must appear to any thoughtful reader, the significance of this rating depends wholly upon the reliability of the claim that the tests selected for the eight-year-old individual really

constitute a fair and accurate measure of the ability of individuals of that age. If the tests are too easy, the individual in question will have been over-rated. If they are too difficult, he will have been under-rated.

We have chosen to express the mental capacity of an individual, as measured by the Point Scale, in terms of points. A total score of 50 points gained by an individual indicates that he has achieved just one-half of the possible number of credits in the scale. His mental capacity, as compared with other individuals of the same or of different age, of the same or of the other sex, of the same or of another race, of like or of contrasted social status and educational opportunities, may be determined and definitely stated in terms of norms established for use in connection with the Point Scale. The application of the scale itself to an individual yields merely a certain total of points which is entirely meaningless to the inexperienced examiner, except in the light of norms. In this respect, our Point Scale differs radically from the Binet measuring scale of intelligence, for the latter is self-contained and complete in itself, demanding no norms nor any other sort of accumulation of information as the basis for its intelligent use, nor indeed for the interpretation of its results. The scale is by intention an age scale. From the first, the tests were arranged in accordance with age, and from first to last, the results have been ratings of the individual's intelligence in terms of years of development.

From the above paragraph, it is clear that whereas the results of the application of the method are of tremendous importance for the Point Scale, they are of relatively little importance for the Binet scale. As results accumulate, and norms in greater and greater variety are more and more accurately calculated, the serviceableness and the reliability of the Point Scale will steadily increase. Nothing of the sort can be in the same sense or in the same measure claimed for the Binet scale. We propose to interpret our results in the light of norms for age groups, for the sexes, for the various races, or geographically isolated bodies of individuals, for the various social levels, and, as need arises, for occupational and other environmental conditions which may serve as a basis for grouping.

We have now indicated, rather too briefly perhaps, for the sake of clearness and convincingness, the chief grounds for our rejection of the Binet scale, and the relations of our proposed method to that scale. It remains, before we enter upon the discussion of the results obtained with our method, to enumerate, in review, the chief characteristics of the new scale.

It has been constituted with a view to simplicity and uniformity of use, for measuring a variety of the aspects of mental capacity. The scale consists of a single series of tests, all of which are supposed to be applied to the individual under examination. For each test, credit is given according to the merit of the subject's response, and the name Point Scale is fitting because the subject achieves a varying number of points of credit, according to his mental ability. The method provides for the comparability of the measurements made on individuals differing in age, since a large number of the mental functions which are considered, exist in varying degrees in all of the individuals examined. Finally, the Point Scale contains in itself the provision for improvement, and for increase in the value of its results, since the series of tests may at any time be thoroughly revised in the light of the results obtained, and since the calculating of norms will inevitably increase the possibilities of interpreting results and of exhibiting any given individual in his relations to any group or collection of groups in which he belongs, and in comparison with whose mental status he should be considered and treated.

The present Point Scale is to be regarded as a preliminary to the development of a universally applicable scale. We have intentionally restricted the applicability of the initial scale to the ages of three to fifteen, inclusive. When the tests were chosen, we believed that they would not be of any considerable value beyond the age of twelve, but we have found reason to revise that estimate. The scale has been constituted by selecting twenty measurements, some of which are single, whereas others consist of a number of parts. These twenty measurements cover, with a reasonable degree of thoroughness and inclusiveness, visual, auditory, and kinesthetic perception, reproductive and creative imagination, simple ideation, judgment, reasoning, and rather unsatisfactorily, suggestibility. Instead of attempting to devise new tests or methods of measuring these various aspects of mental capacity, we have instead selected from among the relatively simple tests already in use, those which, as judged by their results, are most valuable and best adapted to the needs of our system. It was natural that we should choose the majority of our tests from the Binet scale. When we did so, we had in mind the comparison of results of our own method with those obtained by Binet examiners. Without hesitation, we have modified the Binet tests as seemed desirable, and we have supplemented them by the acceptance of other methods.

The general nature of the Point Scale is apparent from the record blank which is herewith reproduced. This blank presents twenty-one instead of twenty tests, since after its original inclusion in the scale we became doubtful concerning the value of results yielded by Test 16 (suggestibility) and decided that it would be safest for us to introduce immediately a substitute test. This is numbered 16a and is a test of judgment and reasoning instead of suggestibility. As it happens, it is one of the tests, extremely simple and easy to administer, which promises to be of great value.

We shall briefly enumerate the various tests and characterize each, not with a view to giving

YERKES AND BRIDGES POINT SCALE.

BOSTON STATE HOSPITAL.

PSYCHOPATHIC.

AGE

EXAMINER

NAME DATE OF BIRTH NATIONALITY CREDITS

TESTS.

1. Describes in three Binet pictures: enumeration, (1 each); description (2 each); interpretation (3 each)
   (a) Man and boy
   (b) Man and woman
   (c) Man
2. Repeats: (a) It rains. I am hungry. (2)
   (b) His name is John. It is a very fine day. (2)
   (c) It is not necessary to hurt the birds.
   It is night and all the world rests in sleep. (2)
3. Memory span for digits.

(a)	374.	581.	(1)
(b)	2947	6135.	(1)
(c)	35871.	92736.	(1)
(d)	491572.	516283.	(1)
(e)	2749385.	6195847.	(1)

4. Compares, twice: (a) Lines, 5 and 6 cm. (1)
   (b) Weights, 3 and 12 grams. (1)
   (c) Weights, 6 and 15 grams (1)
5. Copies (on back of this sheet) (a) square (2); diamond (2)
6. Defines in terms of use (1 each); superior to use (2 each).
   (a) Chair
   (b) House
   (c) Fork
   (d) Baby
7. Chooses, twice, prettier of two pictures. (1 each)
8. Sees picture lacks: (a) arms; (b) nose; (c) mouth; (d) eyes. (1 each)
9. Gives words for three minutes: 30-45 (1); 46-60 (2);
   61-75 (3); 76- (4). 1st half minute 2d
   3rd 4th 5th 6th
10. Compares: (2 each)
   (a) Apple and banana
   (b) Wood and glass
   (c) Paper and cloth

YERKES AND BRIDGES POINT SCALE.

Boston State Hospital.

PSYCHOPATHIC.

RECORD BLANK FOR MENTAL MEASUREMENTS (SECOND THOUSAND)

MENTAL AGE

SCHOOL GRADE . TOTAL CREDITS

CREDITS

TEST

11. Counts backward: 20-1 (4); 15-1 (3); 10-1 (2); 5-1 (1).

12. Comprehends questions: (2 each)

(*a*) Missed train

(*b*) Someone unkind

(*c*) Action versus words

(*d*) Forgive easier

13. Writes (on back of this sheet) sentence containing Boston, money, river. Three words in two (2); three words in one (4).

14. Arranges weights: two trials. All correct but one (1); correct (2); Trial 1. Trial 2.

15. Sees absurdity: (1 each)

(*a*) Three brothers

(*b*) Swinging cane

(*c*) Unfortunate cyclist

(*d*) Last car

(*e*) Guide post directions

16. Resists suggestions: (1 for each resistance)

16*a*. Comparison of letters (3)

17. Defines: (*a*). Obedience (2)

(*b*) Justice (2)

(*c*) Charity (2)

18. Analogies: (1 each)

(*a*) Oyster is to shell as banana is to

(*b*) Arm is to elbow as leg is to

(*c*) Head is to hat as hand is to

(*d*) Truth is to falsehood as straight line is to

(*e*) Storm is to calm as war is to

(*f*) Known is to unknown as present is to

19. Draws (on back of this sheet) designs from memory, after 15 sec. exposure: (2 each)

20. Puts dissected sentences together: (2 each)

(*a*) My teacher

(*b*) A good dog

(*c*) We started

scription of the test and of the method of use, it which shall enable the reader to apply the same. [illegible] in order to place the tests, historically, and to give due credit.

Test 1 is taken directly from the Binet series, and makes use of the three pictures employed by Binet. Credit is given for this test according to the following rules: for the simple enumeration of the parts of a picture, 1 point; for a connected description of a picture, 2 points; for interpretation above, or in addition to enumeration and description, 3 points. For this test, the maximum obtainable credit is, therefore, 9 points, and the observer may gain anything between 0 and 9 points.

Test 2, also, is taken from the Binet series, with adaptive modifications. In this test, perfection in the repetition of the sentences is demanded, and no credit otherwise is given.

Test 3 has long been in use and appears in the Binet as well as among other collections of tests. One point credit is given for the correct repetition of each group of digits, from 3 to 7.

Test 4 is a combination of two of the tests from the Binet scale.

Test 5 is taken directly from the Binet, and credit is given according to the character of the reproduction of the square and the diamond.

The suggestion for Test 6 is taken from the Binet, but the words have been chosen and arranged in the light of our experience.

Tests 7, 8 and 9, likewise, are taken directly from the Binet.

Test 10 is modified from the Binet, as is also Test 11.

Test 12 employs modified forms of the questions employed in the Binet series, and Test 13 differs from the corresponding Binet only in the particular words used.

Test 14 has been adopted from the Binet.

The constitution of Test 15 is radically different from the corresponding tests of the Binet scale because of the elimination of what seemed to the writers undesirable materials, and a substitution of forms of statement better adapted to use in America.

Test 16, taken from the Binet, is of doubtful value, and as yet we are not ready to decide whether it shall be retained in our scale or eliminated from it. But in any event, Test 16a is at hand as a possible substitute.

The suggestion for Test 17 comes from the Binet scale, but we have chosen the words to be defined in the light of our experience.

Test 18 has been arranged on the basis of Wyatt's[1] discussion of the use of analogies.

Tests 19 and 20 are also modified from the Binet series.

It is, in our opinion, entirely undesirable to present in this place a detailed description of the scale and of the method of using it, since we propose, in the light of one thousand examinations which have already been made, to revise before publishing it in convenient form for use.

[1] Wyatt, Stella: The Quantitative Investigation of Higher Mental Processes. British Journ. of Psychol., 1913, vol. 6, p. 116.

This paper is merely a presentation of the general points of method in contrast with those of the Binet scale, and of results which justify several of our expectations concerning the method.

As has already been stated, the Point Scale was devised primarily in the interest of the Psychopathic Hospital and similar institutions. Since the development of the method demanded the examination of a large group of presumably normal individuals ranging in age from four years to at least twelve or fourteen, we have had recourse to the public schools of the state, and we wish here, to make grateful acknowledgment to the authorities of the Cambridge public schools, in which, during the first half of 1914, we were permitted to examine about eight hundred children. About seven hundred of these children were assembled in one grammar school. The remainder constituted the kindergarten and first grade population of another school. The examining in these schools, which was at best a very tedious affair and demanded a certain amount of inconvenience and extra labor of the school authorities, was in every way facilitated by them, and we wish to give evidence of our appreciation by this acknowledgment. Our standard for the normal child was therefore obtained in the schools of Cambridge. At the same time, the Point Scale was used in the examining of a variety of subjects in the Hospital, and at present our records in School and Hospital total about one thousand. We thus have a reasonably large mass of material for the calculation of preliminary norms and for the provisional evaluating of our method.

In this report of results, the school population alone will be considered. Since it consisted of both boys and girls and since these groups are rendered heterogeneous by the fact that some of

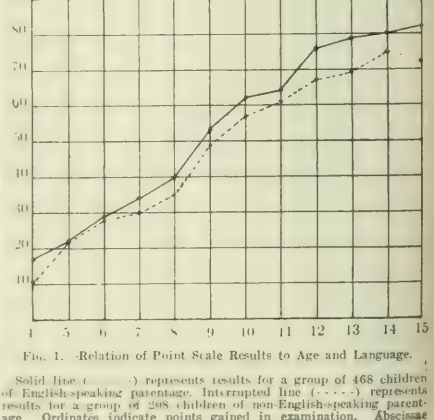


FIG. 1. Relation of Point Scale Results to Age and Language.

Solid line (——) represents results for a group of 468 children of English-speaking parentage. Interrupted line (- - - -) represents results for a group of 208 children of non-English-speaking parentage. Ordinates indicate points gained in examination. Abscissæ indicate age in years.

the children were born to English-speaking parents and others to non-English speaking parents, we have from the first classified according to the language difference. The distribution curves of Figure 1 represent the average credit achieved by the various age groups in the two language groups. Thus, the continuous line distribution curve indicates the average number of points scored by the boys and girls, four hundred and sixty-eight in all, born to English-speaking parents. Naturally, these individuals have been grouped according to age. The four-year group includes individuals between three years seven months and four years six months. The four-year-old and the fifteen-year-old groups are small in comparison to the others. The distribution curve indicates that the average number of points gained by this group of children increases steadily and fairly regularly from four years to fifteen years. For the former age it is 17, for the latter it is 82. Allowing for the influence of differences in the number of sub- and supernormal individuals at the various ages and for the relatively small number of individuals in each age group, it is safe to say that this distribution curve would, in all probability closely approximate a straight line between four and twelve or thirteen years, if the group of individuals were more homogeneous and the number of individuals for each age were the same and not less than one hundred.

The interrupted distribution curve represents the average scores for each year of age of the two hundred and eight children born to non-English speaking parents. That the average number of credits achieved by these individuals is smaller than that gained by the members of the other group, is not surprising. But it is somewhat surprising that the difference is not greater than our results indicate. Thus, it appears from the curves that the five-year-old individuals of the two groups averaged 22 points, and that the maximal difference for the two distribution curves is only 10 points (at the age of thirteen). It seems highly probable that the comparison of the four-year-old and fifteen-year-old groups is of little value because of the small number of individuals therein.

Had we chosen to consider all of these children in a single group, we should, of course, have obtained a distribution curve intermediate between those of Figure 1. By treating alone the Point Scale results for the four hundred and sixty-eight individuals born to English speaking parents and by grouping these results according to sex, we obtain the distribution curves of Figure 2, from which it appears that the sex differences in mental capacity between the ages of four and fourteen are not great. The maximal difference indicated by the curve is 5 points, the advantage being in favor of the girls at twelve years and of the boys at thirteen years. We present these curves at this time not because we consider them reliable indications of sex differences in mental capacity, but because they indicate one of

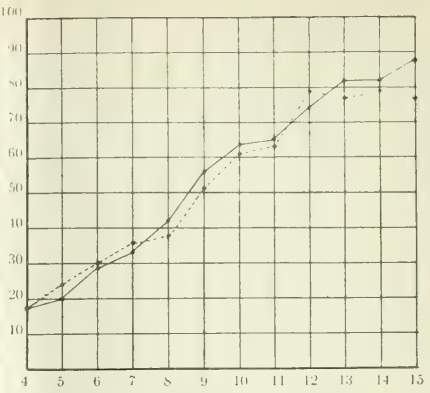


FIG. 2.—Relation of Point Scale Results to Age and Sex.

Solid line (———) represents results for a group of 268 boys. Interrupted line (- - - - -) represents the results for a group of 200 girls. All individuals were born to English-speaking parents. Ordinates indicate points gained in examination. Abscissae indicate age in years.

the most important possibilities of our Point Scale, namely, the development of sex norms, for it seems to us quite probable, although the fact does not appear in these particular results, that at certain periods of life the differences in mental capacity for the sexes are sufficiently important to necessitate the use of separate norms. Indeed, we should go so far as to suggest that the distribution curves of Figure 2, constructed from the average score of each group of individuals, without any attempt to eliminate individuals distinctly subnormal or supernormal in capacity, are in certain respects misleading.

In support of the above statement, we wish to present the data upon which Figure 3 is based. We have constituted, as a single group, for the construction of the curves of Figure 3, all of the individuals, male and female, born to English speaking and to non-English speaking parents, who belong in the ten-year group, or in other words, whose age is between nine years seven months and ten years six months. In order to construct a reasonably condensed distribution curve for this group, we have classified the scores by the following method. All between 35 and 39 points fall into what is indicated below the base line of the figure as the 35-point class. All between 40 and 44 points fall into the 40 point class, and so on, up to the 80-point class, which marks the upper limit of ten-year-old achievement for this group. The several curves of the figure indicate the number of individuals which belong in each of the several score classes. To consider, first, the continuous line distribution curve, we note that two individuals obtained a score between 35 and 39 points; seven, a score of between 40 and 44; fourteen, a score of between 55 and 59, and so on. Of primary significance for us is the fact that this distribution curve for the group of

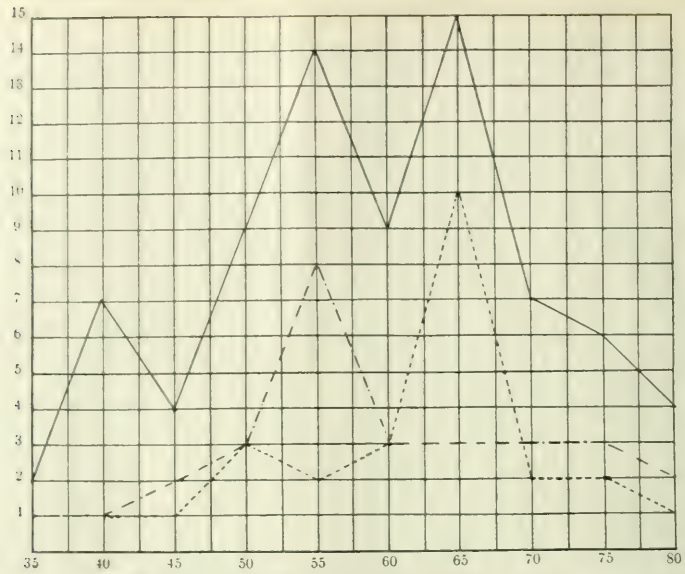


FIG. 3.—Distribution of Results for a Group of 77 Children Five Years Old.

Solid line (———) represents results for the entire group. Regularly interrupted line (- - - - -) for the boys. Irregularly interrupted line (— . — . —) for the girls. Ordinates indicate number of individuals. Abscissae indicate scores arranged in five-point classes. The class designated 35, *e.g.*, includes scores ranging from 35 to 39 points.

seventy-seven ten-year-old children is markedly trimodal. Its configuration forces the question, "Why should three such distinct modes appear from the results of a group of measurements which might naturally be assumed to be large enough to yield a fairly regular curve?" The answer to this question is readily obtained through an analysis of the group into its constituent elementary parts.

By eliminating the children of the non-English speaking parents, we eliminate also the first mode, namely, the 40-point mode, without essentially changing the other features of the curve. By eliminating, next, the girls of the group, we get rid of the second mode, namely, that for 55 points. Or, by eliminating, instead, the boys of the group, we get rid of the third mode, namely, that for 65 points. It is, therefore, evident that the trimodality of our curve is due to heterogeneity of the ten-year-old group and that the group must be resolved into four sub-groups in order that norms at all reliable as standards of comparison shall be obtained.

In the same figure, 3, we have plotted in the regularly broken line the distribution curve for the group of boys born to English-speaking parents. And similarly, in the irregularly broken line, we have indicated the distribution of the corresponding group of girls. These groups, although not large, exhibit unexpectedly pronounced modes, that for the girls being constituted by the 55-point class as in the case of the distribution curve just discussed, and that for the boys being constituted by the 65-point class. It would appear from these curves that at ten years of age the difference in mental capacity between boys and girls is very great, much greater indeed than the curves of Figure 2 indicate, for they show a difference of only 3 points, whereas the modes for the two sexes in Figure 3 are separated by 10 points.

It is doubtless reasonable to object that we ought not to attempt to establish norms by averaging an entirely unselected group of individuals, but that instead in addition to selecting, or at least classifying according to sex, age, and race, we should in some way strive to eliminate those who are distinctly subnormal and those who are, to a corresponding degree, supernormal. This claim having been admitted, the question arises, "But how can such elimination be safely and satisfactorily accomplished?" How, in other words, can one eliminate in equal measure those who are inferior and those who are superior to the normal? This question, we believe we can satisfactorily answer, while at the same time illustrating the application of our method.

We shall deal, in discussing this matter of elimination for the sake of obtaining a reliable norm or average, with the children of English speaking parents from the ten-year group, fifty-four in all, and we shall consider the sexes separately. Now in case of any such group, the

obvious danger is that there may be more mentally inferior individuals than there are correspondingly superior individuals and that the average may, therefore, be lower than it should be. Or, on the other hand, the opposite may be true, and the average will be higher than it should be. We propose to test our averages for the groups of boys and girls ten years of age.

For the ten-year-old boys, the average by the point scale, or the mean value obtained, is 64 points. The range of the scores obtained is from 44 to 84 points, or simply expressed, 40 points. The mean variation of the scores is 7.1. The mode is the class 65.

For the corresponding group of girls, the mean is 61 points, the range 39 to 83 points, that is 44 points, the mean variability 9.3, and the mode the 55 point class.

In order to ascertain whether the numbers of subnormal and supernormal individuals are equal in each of these groups, we arbitrarily eliminated, for the sake of our further calculations, all of those individuals whose scores departed by more than 2 of the 5-point classes, from the mode. As a result of this process of elimination, we obtained a group of nineteen boys and a group of nineteen girls. The statistical values for these two groups follow: the mean for the boys was 66 points; the range 56 to 78 points, that is, 22 points, the mean variability, 4.0. For the girls, the mean was 57 points, the range 47 to 67 points, that is, 20 points, and the mean variability, 4.5.

Comparing these statistical values with those yielded by the non-selected groups, we obtain the following significant data. The elimination of the extremely high and the extremely low scores in the case of the boys raises the average by 2 points, while diminishing the variability by 3.1 points. This indicates that in the boys' group, there were more subnormals than supernormals and that the average was therefore somewhat lower than it should be. For the girls, the average as the result of elimination became 57 as contrasted with 61. It, therefore, was lowered by 4 points. Its variability was diminished by 4.8 points. This indicates that in the non-selected group of girls, there were more supernormals than subnormals, and that, consequently, the average was too high.

Whereas the difference in the intelligence of the boys and girls as indicated by the means of our non-selected groups is only 3 points, the difference becomes 9 points, when, by an obviously fair but arbitrary method, those who exceed a certain limit of intellectual strength or weakness are eliminated.

We willingly admit that the number of individuals dealt with in the above illustration is too small to yield convincing results. But we are confident that the main indications from these results are reliable and that the calculating of norms without the use of some such method of guarding against the undue influence of inferiority on the one hand, or of superiority on the other hand, is sure to be dangerous. We propose, therefore, in the use of our Point Scale, to rely upon norms from safely homogeneous groups, and to provide ourselves with a sufficient number of norms, in order safely and satisfactorily to compare a given individual with the various groups in which he may belong and for one or another interest or practical purpose be significant.

As has been indicated by the above statements, we are at present in the possession of preliminary norms which enable us to use the Point Scale. But is it obvious that its value cannot surpass that of the Binet scale until thousands of examinations have been made and the results carefully translated into norms. We propose that these norms, so far as the use of age is concerned, be constructed for each year of age and that an individual shall be described in the light of the distribution of results for a group of one hundred, or preferably as many as one thousand, individuals of the same sex and year of age. Thus, the examiner would be enabled to say that the subject in question is of average or usual mental capacity, or that he deviates by so many points from the expected capacity. Similarly, modes should be determined for the two sexes in their various periods of development, for the chief races of mankind, and for the various social and occupational conditions. With these varied norms in hand, the examiner should be able to interpret the point scale score in a valuable manner.

Again, we wish to call attention to the fact that the scale which constitutes the basis for this paper is merely a preliminary point scale. It is our desire and expectation to develop a universally applicable scale which can be used alike for measuring the mental capacity of individuals from three years of age to mental maturity. We are convinced of the possibility of such a scale, as well as of its extreme value, as a preliminary method of mental examining.

Finally, it remains to suggest the natural applications of such a method of evaluating intellectual capacity as we have presented. There is, first, the obvious importance in our public school system, if not also in institutions of high-grade, such as colleges. The applications in hospitals, especially for psychopathic cases, in reformatories, prisons, and, indeed, in all institutions of similar nature, are obvious enough. Personally, we are convinced that vocational bureaus will find abundant use for the scale, although if they rely upon it alone, they will doubtless find it disappointing. We present our method to the medical profession because we believe that it is most intelligently interested in and concerned with obtaining and making general use of methods of evaluating the mental status and of thus approaching educational as well as medical diagnoses.

A detailed description of our method with directions for its use and a report of the results of its application to about one thousand individuals

will be published in book-form early in 1915, by W[illegible] & and York, Baltimore.

Grateful acknowledgment is hereby made to the Massachusetts State Board of Insanity for the defraying of part of the expense of the clerical work of this investigation.

[The remaining articles on this Conference (VIII-XII) will appear in next week's issue of the JOURNAL.]

Book Reviews.

Laboratory Studies on Tetanus. By EDWARD FRANCIS WASHINGTON: Government Printing Office. 1914.

This monograph, published as a bulletin (No. 95) of the hygienic laboratory of the United States Public Health Service, records the author's investigation into conditions surrounding tetanus spores artificially implanted into vaccine virus and the behavior of tetanus spores injected subcutaneously into guinea-pigs and white mice. It also presents a series of miscellaneous observations upon tetanus. He believes that occasional tetanus infections following vaccination are due not to contamination of the vaccine, but to local and individual conditions and errors of technic.

Acute Abdominal Diseases. Including Abdominal Injuries and the Complications of External Hernia. By JOSEPH E. ADAMS, M.B., M.S., Lond.; F.R.C.S., Eng.; Senior Assistant Surgeon, East London Hospital for Children; Demonstrator of Anatomy, St. Thomas's Hospital Medical School; and MAURICE A. CASSIDY, M.A., M.D., B.C., Cantab.; F.R.C.P., Lond.; Physician with Charge of Out-Patients, St. Thomas's Hospital. New York: William Wood and Company. 1913.

A moderate sized volume, a little less than seven hundred pages. It is based on the experiences of the authors as senior assistant surgeon, and physician to out-patients in St. Thomas's Hospital. Their "object has been to discuss, compare and contrast all the various acute diseases and injuries to which the abdomen and its contents are liable, treating these conditions from the point of view of both physician and surgeon."

In considering the book, it must be remembered that its scope is restricted to abdominal diseases and to those which are acute, although the authors admit that they have had "considerable difficulty in deciding on a frontier between acute and chronic disorders." Within these limits, the field is thoroughly covered, not only from the standpoint of the surgeon, but also of the physician. There are seventeen chapters, beginning with anatomy, the investigation of cases, laparotomy, peritonitis, obstruction, and going on to the abdominal contents, divided upon an anatomical basis; concluding with chapters upon vascular diseases, complication of hernia and injuries,

Glancing through the book, certain features are apparent. It is essentially English, making few citations from the French, German or American authors. Its abdominal topography is still the almost obsolete "nine regions and planes"; the description, however, both of organs and of lesions, are thorough and concise. The writers seem to have no fear of the increased mortality due to chloroform as an anesthetic, and are somewhat lukewarm in regard to the use of rubber gloves. We look in vain for the name of Fitz in the fifty pages devoted to appendicitis. Upon the whole, the book is to be recommended to students; the double viewpoint of physician and surgeon is valuable. The illustrations are fair; the printing is good.

Pain, Its Origin, Conduction, Perception and Diagnostic Significance. By RICHARD J. BEHAN, M.D., Former Associate Professor of Physiological Diagnosis, Western Pennsylvania Medical College, etc. With 191 illustrations and many diagnostic charts. New York and London. D. Appleton and Company. 1914.

The author of this book has made the somewhat ambitious attempt to approach various problems in medicine from the standpoint of a single important symptom, pain. It is not to be questioned that the interpretation of pain is one of the most difficult matters in diagnosis, because it is non-objective and therefore depends wholly upon the consciousness and temperament of the individual, although often having a definitely organic basis. In the makeup of the volume after a general consideration of sensation, the nature of pain, its distribution, its perception, its classification and the significance of its intensity are considered in detail. The following chapters are concerned with pain as it appears in diseases of the nerves, brain and spinal cord. Other portions and systems of the body are considered in similar manner as well as the significance of pain in disease of the organs of special sense. Naturally a considerable space is given to abdominal pain and of the intestine in general with the organs related to it. This extensive subject matter is discussed in a painstaking manner with liberal reference to published articles. In fact the bibliography, printed in somewhat large type, covers over sixty pages and constitutes a very valuable feature of the book. The illustrations are excellent, partly photographic and partly diagrammatic and in general the plan of the arrangement of the book should appeal to those seeking means of ready reference in the manifold conditions in which pain is a symptom. We commend the book not only as unique in its scope but also as a practical guide for physicians in any department of medicine.

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TWO AMERICAN HOSPITALS IN EUROPE.

IN the issue of the JOURNAL for Oct. 15 we commented editorially on the American Ambulance Hospital at Neuilly (Paris), and quoted the statement of Sir Frederick Treves and of another observer of its work. Apparently this institution has been winning golden opinions for efficiency from all who come in contact with it. The hospital was established at the outbreak of the European war with funds raised among American residents of Paris, later augmented by liberal subscriptions from this side of the Atlantic. The early history of this undertaking has been sketched by Mr. Robert Bacon, former United States Ambassador to France, in a letter from New York on Oct. 30.—

"There existed already in Paris an American hospital which, in charge of Dr. Winchester Dubouchet, Dr. A. J. Magnin, Dr. Gros, Dr. Turner, and others, had acquired an international reputation for efficiency. With this excellent institution as a starting point it was decided to organize a military hospital which should be in charge of American surgeons and nurses and supported by American contributions.

"Since that time the record has been one in which we all should take pride. A committee of business men prominent in the American colony in Paris devoted themselves to the business administration of the hospital and they have worked untiringly. To their efficient management is due much of the success of the hospital.

"Supplies were got together and the most modern equipment was donated, so that when the first wounded were received the French and English surgeons frankly expressed their amazement. Sir Frederick Treves, surgeon major to the King of England, and other high authorities, have declared the hospital to be of the finest type.

"In a few days a fund of about $120,000 was raised among Americans who were in Paris. To their generosity and zeal is due the fact that this hospital is one of the best equipped that has ever cared for the victims of war. An x-ray plant was donated. Sterilizing plants for water, both for drinking purposes and for use in dressing wounds, were installed on every floor, where all dangers of infection from this source were removed by ultra-violet rays."

An adequate motor ambulance system and a chain of field hospitals were also planned in conjunction with the base hospital.

The American Ambulance Hospital was thus established at Neuilly, near Paris, in the buildings of the Lycée Pasteur, which were assigned by the French government for this purpose. These buildings would accommodate 1000 beds, but thus far less than 500 have been maintained, owing to insufficiency of funds. It is estimated that $500,000 are needed to put the hospital at its maximum of efficiency, and another $100,000 to maintain it for a year. These sums seem large, but should be forthcoming from American generosity to secure the fullest development of this institution, which is a credit to American medicine as well as to American charity.

While the American Ambulance Hospital has been rendering abundant and efficient service in France, another American hospital has been established for similar service in Germany by Americans resident at Munich.

"In the beginning of August a number of Americans held a meeting, at which Consul General St. John Gaffney presided, at the Hotel Bayerischer Hof in Munich for the purpose of expressing their sympathies for the German people and at the same time establishing an American Red Cross Hospital in that city. Mrs. Dr. Nordhoff-Jung of Washington, a member of the Red Cross Central Committee at Washington, D. C., gave a very interesting lecture on that occasion and succeeded in rousing the cooperation of the large and enthusiastic audience."

With the funds thus raised, and with the cooperation of the American Red Cross, the American Hospital at Munich was organized and established, and began its work early in the war.

"The new American Hospital is centrally located in the former Pension Zierhut in Prinz Ludwigstrasse 9. A large American flag floating over the entrance and the emblem of the Red Cross on the building indicate its purpose. All the rooms of the four upper stories have been arranged and equipped for the treatment of the wounded soldiers. These rooms are large and airy and contain usually two or three beds and are very commodiously furnished. Besides these there are rooms for the nurses, bathrooms on every floor, and an operating and surgeon's room. The ground floor contains lounging-rooms for reconvalescents, a reception-room, reading, dining and smoking-room and an office for the military officer. The kitchen and the storerooms are in the basement. The entire building is steam-heated and lighted by electricity. A lift facilitates the access to the different floors. Instead of the usual bare courtyard so common with Munich houses there are a large and beautiful park and spacious garden immediately adjoining the hospital in the rear which have been generously placed at the disposal of the wounded soldiers by the proprietors, Prince George of Bavaria and Privy Councillor Hesselberger."

Especial interest has been taken in the hospital by Prince Ludwig Ferdinand, of Bavaria, who is himself a physician. The hospital is in immediate charge of Dr. Franz A. R. Jung, of Washington, D. C.

At present, the American Hospital at Munich has accommodation for only 70 patients. A much larger number could to advantage be cared for, if sufficient funds were available, and for these again a confident appeal is made to the generosity of the American people. The credit for this enterprise of medical charity and relief rests, as does that of the American Ambulance Hospital, with Americans resident abroad, who have already done more than their share, and whose efforts, both in personal service and in money contributions, should be at least abundantly seconded by Americans in security at home.

It should be remembered by all who are disposed to subscribe, that the service of both these American hospitals in Europe is rendered to the wounded of all nations engaged in the war, without distinction.

THE PAST AND PRESENT OF THE BOSTON DISPENSARY.

THE recently published one hundred and eighteenth annual report of the Boston Dispensary records the work and progress of that institution during the fiscal year ended Sept. 30, 1914. During this period, 112,000 visits were made by patients to the Dispensary, over 16,000 visits were made by district physicians to patients in their homes, and 299 patients were cared for in the hospital for children. This year has been notable also for the successful establishment of self-supporting evening clinics in genitourinary and eye diseases, and of local health centres in East Boston and South Boston as a means of economizing the labor of district physicians. The details of this plan in East Boston were described in the issue of the JOURNAL for November 12. The report also discusses the pecuniary situation of the Dispensary.

"The financial stress through which the community is now passing, due largely to the European war, demands serious thought by all who are interested in charitable work in Boston. To whatever extent financial depression should increase unemployment, lower wages, or otherwise affect working people, there will necessarily be a corresponding increase in the number of those who cannot pay for adequate medical service for themselves or their children, and who, therefore, must turn to hospitals and dispensaries. Any material curtailment of a service of such magnitude as ours, reaching 40,000 individuals a year, would be a serious matter for the community. After making every reduction in our budget for the year now opening we shall require at least $26,000 in contributions for the fiscal year ending Sept. 30, 1915."

The publication of this report recalls the discovery in February, 1912, of some interesting old papers relating to the early history of the Dispensary. These documents were found in a wooden chest in the attic story of the Dispensary building, where they had evidently been stored at the time of its construction in 1883. The Dispensary was founded in 1796, and in its first year treated 80 patients. The report of the first committee states that through the Dispensary "the sick without being pained by separation from their families may be attended and relieved in their own houses, and those who have seen better days may be comforted without being humiliated." Boston then had a population of only 20,000. The first office of the Dispensary was at 92 Washington Street, where the compounding of prescriptions was performed by Oliver Smith and Thomas Bartlett.

At first the work of the Dispensary was conducted by a single physician; but in 1802, the city was divided into three districts, south, middle, and north, which were assigned respectively

to Dr. John Fleet, Dr. James Jackson, and Dr. Samuel Hunt. Many eminent Boston physicians have since served as district doctors for the Dispensary, among them Dr. Oliver Wendell Holmes. One of the most valuable of the old documents discovered in the wooden chest above mentioned was a letter from Dr. Jacob Bigelow recommending Dr. Holmes for this position.

"Dr. Holmes is pre-eminently qualified for this station by his deep knowledge of medical science, aided by thorough practical experience in European hospitals, and a zealous devotion to the duties of the medical profession."

In 1856, with a legacy of $90,000 left for the purpose by Benjamin Dearborn at his death in 1838, the Dispensary acquired two houses at its present site on Bennet Street. Thither it removed from Washington Street, and there its work has continued and grown to the present day. A new building was erected in 1883, and in 1886 the Boston Instructive District Nursing Association was organized in conjunction with the Dispensary. For 118 years this oldest medical charity in America has continued alertly progressive, and is today not only serving the needs of the community but leading in the development and demonstration of new methods of medical efficiency.

THE EPIZOÖTIC OF FOOT AND MOUTH DISEASE.

The epizoötic of foot and mouth disease in the Central and Eastern states is now apparently well under control, though as yet far from being eradicated. On Nov. 23 the quarantine against livestock from Canada was raised, and the United States Department of Agriculture issued the following statement of its work, policy, and prospects.

"There are grounds for the belief that quarantines already declared have been sufficient to stop the movement of infected cattle, and that the disease can now be held within the limits of the areas already quarantined.

"At present the states most seriously affected are Ohio, Illinois, Indiana and Pennsylvania. Outside this belt the states of Connecticut, Rhode Island and Massachusetts are perhaps the subject of the greatest concern. Although the actual number of cattle already infected is comparatively small, it will probably be some time before any of the quarantines can be lifted in this region.

"The situation in New York, Delaware and New Jersey seems to be well in hand. The hope is expressed that a portion at least of the latter two states may be released from quarantine shortly.

"The greatest encouragement of all, however, is probably found in Michigan. The outbreak originated in Michigan, and it first spread fast. Now, however, it is believed that all infected stock has been buried, and the state, it is hoped, is really clean. To make certain of this, however, a farm-to-farm inspection is now being made in all regions previously infected.

"Although the spread of the disease into areas previously uninfected seems to have been in a great measure checked, it is estimated that it will take at least six months to stamp out all traces of the infection. In this work, it will be of great assistance if snow comes quickly. Quarantines of whole or parts of states will be lifted as rapidly as safety permits."

On Nov. 23 another case of the disease was discovered at North Attleboro, and on Nov. 24 others at Shrewsbury, Worcester, and Lowell, Mass. Infected animals were slaughtered at Worcester, Grafton, Swansea and Westport. No new cases were reported on Nov. 25. The cost of the epizoötic to Massachusetts alone is already estimated at $25,000.

No further human cases of the disease have been discovered. The United States Department of Agriculture has issued the following statement regarding the infectivity of meat from infected cattle:—

"In the case of meat, as in the case of milk, it must be remembered that all herds which actually show the disease are quarantined and neither livestock nor meat from the sick animal can be sold. Sixty per cent. of the meat used in this country is produced in the nearly 900 federally inspected slaughtering and packing establishments located in 240 cities. In these establishments no animal is slaughtered unless it has passed an ante-mortem inspection and also a most rigid post-mortem inspection by a veterinarian at time of slaughter. After slaughter, its meat cannot leave the establishment until it has been carefully examined and stamped 'U. S. inspected and passed.' In all these establishments no animal showing any symptoms whatever of foot-and-mouth disease is allowed to go to slaughter, and no meat which, on post-mortem inspection, shows any suspicious symptoms of this complaint, can be shipped out of the establishment. All meat suspected of coming from an animal suffering with this complaint is sent, under government seal to the tanks to be rendered into fertilizer. The Federal inspection stamp on meat, therefore, means that it is entirely safe.

The federal government, however, has no jurisdiction over local slaughter houses which do not ship meat outside the state in which it is slaughtered. If, however, meat from such an animal [illegible] escape from one of the local slaughter houses which are purely under state or municipal control, all danger of its communicating the disease to human beings would be removed when it was thoroughly cooked and sterilized. Those who are located near an infected region and wish to be absolutely certain of the safety of their meat, should cook it thoroughly."

On Nov. 26, 222 more infected animals were slaughtered at Dracut, Mass., but no new cases were reported.

MEDICAL NOTES.

ACTIVITIES OF THE PUBLIC HEALTH SERVICE.—A statement has recently been issued by Mr. Martin I. Wilbert, of the United States Public Health Service, relative to the frequency of suicide by corrosive sublimate poisoning.

"The number of cases of suicide from the use of mercuric chloride is out of all proportion to what might have been expected under normal conditions, and the period of time is coincident with that during which newspapers of the country gave unusual publicity to the use of this substance as a poison, so that it seems quite probable that the increase is due to suggestions given the morbidly inclined by the suicide items in the papers.

"It is practically impossible to make poison regulations fool-proof, and it is admittedly impracticable to dissuade the person intent on self destruction from accomplishing his end.

"For more than a year corrosive mercuric chloride has had the undesirable distinction of being one of the most commonly used poisons for self destruction because of the fact that it was most frequently mentioned and most actively discussed of the available toxic substances. It is possible that no one article of poisonous nature ever attracted greater attention than was accorded to mercuric chloride in the daily papers of the country during the past year.

"A national poison law on which food and drug officials, postal officials, the dealers and the consumers alike could agree, would go far toward bringing about effective measures for controlling the sale and use of poisons and poisonous drugs in all parts of the country."

This comment on the evils of sensational newspaper publicity might well be applied to many other medical subjects.

The Public Health Service has also recently issued a circular of 64 questions in vital statistics illustrating the knowledge of demography that is expected of officers entering the service.

Report from San Francisco on Nov. 23 states that Dr. George M. Converse of the United States Public Health service, who has recently returned from a three-years' detail in Peru, reports that the Iquitos of that country are extensively infected with yellow fever and uncinariasis and have an annual death rate of 50 per 1000.

EUROPEAN WAR NOTES.—An unauthenticated press report from Geneva by way of Paris on Nov. 19, states that a styptic preparation, coagulen, prepared by Dr. Theodor Kocher of Berne, has been found of great value in the military hospitals for checking hemorrhage from fresh wounds

On Nov. 19 the American Red Cross issued its second official report of its activities in the European War.

"On the outbreak of the European War the American Red Cross offered to the several countries involved surgeons, trained nurses, surgical equipment, including bacteriological and sterilizing outfits and hospital supplies. This offer was gratefully accepted. At that time the sailing of all the ocean steamers was so uncertain that at the suggestion of Robert Lansing, counsellor of the State Department and chairman of our Red Cross International Relief Board, the War Department was asked for the loan of an army transport to carry the personnel and supplies.

"The pressure of the Government to provide transportation for American refugees was so great that the department was itself negotiating for ships and reserving transports for such use, so that this request could not be granted. Congress, therefore, passed a special act permitting the Red Cross to charter a ship, fly the Red Cross and American flags, and receive temporary American registry. By this means, and under the protection of the Treaty of The Hague, the Red Cross ship could proceed promptly and safely on her mission.

"Through the press the American Red Cross appealed for a suitable vessel. Only two were offered, one by the Hamburg-American line and the other by the Austrian-American line. The former was accepted and chartered for sixty days. The war insurance on the ship and cargo cost $10,000. The vessel was officered by retired American naval officers, and carried 156 surgeons and nurses, surgical equipment, and very large quantities of hospital supplies for their own use and for the use of the American Ambulance Association in Paris. The Serbian unit of fifteen persons went by a Greek steamer.

"As they were about to sail unexpected objection was made on the part of the British and French governments to the personnel of the crew. A change of crews became necessary, involving delay and expense. To send 171 Red Cross surgeons and nurses abroad, to buy for them proper equipment, with uniforms and other necessities; to pay their traveling expen-

ses by land and sea, both in the United States and in Europe; to pay their salaries for six months and to bring them home to the United States, will cost about $1200 per capita, including the cost of the Red Cross ship. Additional surgeons and nurses are being equipped to send to Europe.

"Up to this date the American Red Cross has purchased 232,800 pounds of absorbent cotton, 87,800 pounds of non-absorbent cotton, 485,400 yards of absorbent gauze, 10,000 yards of starched gauze, 46,300 pounds of bandages, 20 surgical equipments of the United States Army standard, including bacteriological and sterilizing outfits; 4,800 pounds of chloroform and ether, ten cases of drugs and chemicals, forty gallons of tincture of iodine, 5,000 typhoid vaccine treatments, and many cases of surgical supplies, such as ligatures, ice caps, alcohol, etc. Scores of boxes containing stretchers, thousands of hospital garments, sheets, pillow cases, blankets, etc., have also been sent.

"The Red Cross has forwarded some 7,500 pairs of blankets for Belgian refugees. For the American Ambulance Hospital in Paris it has purchased and shipped 264,440 pounds of absorbent cotton, 110,000 pounds of non-absorbent cotton, 150,000 yards of absorbent gauze, 50,000 yards of starched gauze, and 9,000 stretchers.

"It has remitted in cash $155,000 to the European Red Cross societies, to the Bureau of Prisoners at Geneva, to Belgian relief, to Ambassador Herrick's Emergency Committee in Paris, and to the American hospitals in France, Germany and England; $55,000 has been paid up to date for surgeons' and nurses' salaries, outfits, and transportation of personnel and supplies.

"The administrative expenses are paid entirely by the American Red Cross, and are not charged against the relief funds. All funds forwarded for relief work in Europe are transmitted through the State Department or by the American Express Company without any charge against the relief funds.

"Of the $850,000 which have been contributed to date, a balance remains of $415,000 including $123,000 owed on purchases made at the request of the American Ambulance Hospital in Paris. Against this balance must be charged $150,000 for the maintenance of the personnel of surgeons and nurses for six months, and their return, which is held in reserve, leaving a balance of $265,000 to meet the future calls of the war. Europe may ask for more surgeons and nurses. It certainly will call for more medical supplies."

On Nov. 21 two more American Red Cross units for service in Serbia sailed from New York aboard the *Finland*. Their personnel is as follows:—

"Serbian Unit No. 2, to which 12 nurses have been assigned, will be directed by Dr. Ethan Flagg Butler of Washington, assisted by Dr. S. H. Hodge of Knoxville, Tenn., and Dr. James F. Donnelly of New York. Serbian Unit No. 3 will be under the direction of Dr. Ernest P. Magruder of Washington, whose assistants will be Dr. Clapham P. King of Annapolis and Dr. Morton Pullane of New Orleans.

"Dr. Dean F. Winn of Atlanta, Ga., was assigned as an additional Red Cross surgeon for the units in Russia.

"Two of the nurses assigned to duty with the Serbian units are to be supported by the New Hampshire Chapter of the Red Cross Society. Four others will be supported by Kansas City and one by Princeton University.

"Hospital supplies for Red Cross work in Serbia were also shipped on the *Finland*. Included in these medical materials are 10 tons of absorbent cotton, 20,000 yards of gauze, a ton of bandages, 100 pounds of chloroform, 10 gallons of iodine, two barrels of alcohol, one gross of ligatures and 12 boxes of hospital garments."

The new Serbian units will first land at Patras, Greece, then re-embark for Saloniki, and thence proceed to Nish or Belgrade.

Report from Basel, Switzerland, on Nov. 22 states that two deaths from Asiatic cholera have occurred in Prussia and upper Silesia.

Report from Paris on Nov. 23 states that the French relief hospital of 200 beds, equipped and maintained by Mrs. Harry Payne Whitney, of New York, has been established at Juilly, near Compiègne.

On Nov. 24 the total of the New York German relief fund amounted to $160,000, the Chicago German relief fund $154,127, and the Baltimore German relief fund $101,535.

On Nov. 28 the total of the New England Belgian relief fund amounted to $111,034.82, the Massachusetts Red Cross fund $81,758.80, and the Boston branch of the American Ambulance Hospital $34,633.63.

BOSTON AND NEW ENGLAND.

Deaths from Methyl Alcohol Poisoning in Vermont.—The press service of the New York Committee for Prevention of Blindness has issued the following statement relative to the recent group of deaths in Vermont from methyl alcohol poisoning.

"The recent tragedy in Vermont, in which 14 persons were killed and a number of others blinded by drinking whiskey adulterated with wood alcohol, brings forcibly to mind the fact that legal provisions throughout the country are inadequate to prevent wood alcohol poisoning. The Vermont incident is an example of what happens every little while in other states.

"A very recent instance is that of a number of Armenian rug weavers in New York City who were poisoned by drinking anisette, consisting largely of wood alcohol. Three of the men died, and two were blinded. As the groceryman who

sold the anisette and the man who manufactured it have no property, it is not possible to secure damages for those who were blinded, nor for the widows of the men who died. These cases may be prosecuted by the district attorney and small fines imposed, the payment of which would simply enrich the state, but in all probability have little or no effect upon the problem as a whole.

"The difficulty goes further back than even the small manufacturer,—that is, to the producers of wood alcohol, who rectify this poison so highly that it cannot be distinguished from grain alcohol, known to the trade as Cologne spirits. This rectified wood alcohol, possessing all of its original poisonous qualities and closely resembling grain alcohol, is put on the market under various misleading names, among them being Colonial spirits. As Cologne spirits and Colonial spirits look, smell, and taste alike, we cannot wonder that the poisonous alcohol is sometimes used instead of the non-poisonous spirit.

"The Vermont druggist maintains that he ordered, and thought he was using, Cologne spirits, but that he was actually sold the poisonous Colonial spirits.

"During the last session of the New York State Legislature, the Committee for the Prevention of Blindness endeavored to have passed a law designed to prevent wood alcohol poisoning. At the public hearing on this bill, the danger of confusing Cologne and Colonial spirits was emphasized by the president of the State Pharmaceutical Association. He described a case in which a druggist ordered Cologne spirits, or grain alcohol, to use in preparing his tinctures, extracts, etc. In response to his order he received a five-gallon can labelled 'Col. spirits.' For some reason this druggist analyzed the contents of the can, and found it to be wood alcohol, the 'Col. spirits' evidently being used as an abbreviation for both Colonial and Cologne spirits. Since as little as a teaspoonful of wood alcohol has caused blindness, this man's precaution evidently averted such a tragedy as has occurred in Vermont.

"In spite of the abundance of such evidence as this concerning the dangers of allowing wood alcohol to be sold under present conditions, those interested in the manufacture of this product were successful in their efforts to have the committee's bill defeated.

"The New York City Department of Health has recently amended its sanitary code to require all forms of wood alcohol to be labelled "wood naphtha" and to bear a poison label, together with the skull and crossbones. This is the most definite step that has thus far been taken in this country toward preventing wood alcohol poisoning from imbibition. This requirement, however, will be effective only in New York City, and will have no bearing upon poisoning following the inhalation of wood alcohol fumes in the industries.

"Throughout the state of New York the combined provisions of the State Liquor, Pharmacy, and Agricultural laws are at present inadequate to prevent death and blindness from swallowing and inhaling wood alcohol.

"When by state law or through rulings made by the state department, all forms of wood alcohol are labelled poison, as is required by the New York City department of health, and wood alcohol in the industries is replaced by industrial (denatured) alcohol, we shall cease to hear of these pathetic and wholesale disasters."

BOSTON ASSOCIATION FOR THE RELIEF AND CONTROL OF TUBERCULOSIS.—The eleventh annual meeting of the Boston Association for the Relief and Control of Tuberculosis was held in Boston on Nov. 20. The principal addresses were by Dr. Charles J. Hatfield, Dr. Arthur K. Stone, and Mr. Seymour H. Stone. The following officers were elected for the ensuing year:—

"President, Arthur K. Stone, M.D.; vice-president, Babson S. Ladd; treasurer, George S. Mumford; clerk, Mrs. William H. Lothrop; council, Henry Abrahams, George S. C. Badger, M.D., Walter C. Bailey, M.D., Gerald Blake, M.D., William Bloom, Vincent Y. Bowditch, M.D., Miss Ida M. Cannon, Herbert C. Clapp, M.D., James N. Clark, Mrs. Ernest A. Codman, Mrs. Charles A. Cummings, Michael M. Davis, Jr., Rev. Charles F. Dole, Carroll W. Doten, John H. Fahey, Mrs. William Faxon, Jr., Cleaveland Floyd, M.D., Henry C. Greene, John B. Hawes, 2d, M.D., Henry L. Higginson, Mrs. John Homans, Miss Isabel F. Hyams, Elliott P. Joslin, M.D., Mrs. Mary Morton Kehew, Babson S. Ladd, Horatio A. Lamb, Rt. Rev. William Lawrence, Mrs. William H. Lothrop, Roger I. Lee, M.D., Harry Linenthal, M.D., Edwin A. Locke, M.D., Charles E. Mason, Miss Ida Mason, Rev. P. J. McCormack, Louis Mendelsohn, M.D., James J. Minot, M.D., George S. Mumford, Mrs. John C. Munro, Robert B. Osgood, M.D., Edward O. Otis, M.D., Robert Treat Paine, William H. Pear, Joseph H. Pratt, M.D., Miss Julia C. Prendergast, Milton J. Rosenau, M.D., Miss Lilian V. Robinson, Robert Saltonstall, Arthur K. Stone, M.D., Mrs. Paul Thorndike, Henry P. Walcott, M.D., Nathaniel K. Wood, M.D., Mrs. Robert A. Woods; executive committee, Mrs. Ernest A. Codman, James N. Clark, Miss Isabel F. Hymans, Babson S. Ladd, Rev. P. J. McCormack, James J. Minot, M.D., Mrs. William H. Lothrop, Charles E. Mason, George S. Mumford, Edward O. Otis, M.D., Robert Treat Paine, Miss Lilian V. Robinson, Arthur K. Stone, M.D."

NEW ENGLAND PEABODY HOME FOR CRIPPLED CHILDREN.—The annual meeting of the corporation of the New England Peabody Home for Crippled Children was held in Boston on Nov. 24. Addresses were made by Dr. Robert W. Lovett and Dr. Eben Fiske. The treasurer reported receipts of $16,879.32 and expenditures of

$15,917.83. The following officers were elected for the ensuing year:—

Honorary president, Mrs. H. M. Peabody; president, Mrs. Herbert A. Joslin; vice-presidents, Mrs. Robert Bleakie, Mrs. Gilbert C. Brown, Jr., Miss Sarah P. Eastman, Mrs. Warren Ward; treasurer, Mrs. Edward B. Kellogg; secretary, Mrs. Albion S. Whitmore.

Cases of Infectious Diseases reported to the Boston Board of Health for the week ending Nov. 24, 1914: Diphtheria, 107, of which 3 were non-residents; scarlatina, 42, of which 5 were non-residents; typhoid fever, 12, of which 1 was non-resident; measles, 109, of which 1 was non-resident; tuberculosis, 49. The death-rate of the reported deaths for the week was 13.75.

Diphtheria in Boston.—During the month of November 410 cases of diphtheria were reported in Boston, with 18 deaths. This is a larger number than has occurred in any previous month this year.

NEW YORK.

Health Conditions.—At the anniversary meeting of the New York Academy of Medicine, on Nov. 19, George McAneny, president of the Board of Aldermen, who is the son-in-law of Dr. A. Jacobi, a former president of the academy, made an address in which he pointed out the present improved health conditions in the city. If the rates for deaths and serious illness, he said, had been the same in 1913 that they were in 1880, there would have been 70,000 more deaths and 700,000 more cases of such illness last year than actually occurred. He referred particularly to the reduction in the mortality among infants and from diphtheria and malarial disease, and stated that there were now in the service of the city no less than 1632 physicians, of whom 982 gave their services without pay.

Physical Examination of School Children.—The city health department announces that, in accordance with a suggestion made by the committee on hygiene of the Board of Education, two districts of the borough of Manhattan have been selected in which to carry on an experimental study relative to the possible desire of parents to have their children examined physically by their own physicians. If these examinations of children entering school for the first time should be made in any considerable numbers by private physicians, it will allow the school medical inspectors of the department additional time in which to make examinations of children in the upper grades. Should this experiment prove a success, the system may be put into operation throughout the city.

Work in Venereal Diseases.—The health department gives, in its *Weekly Bulletin*, tables showing the department's work in venereal diseases during the second quarter of 1914, and calls attention to the fact that approximately three-fifths of the cases of syphilis reported are reported through the results obtained in its serological laboratory. The number of specimens sent to the laboratory, it is stated, is steadily increasing, showing that this diagnostic aid is appreciated by physicians. The *Bulletin* also publishes a table giving figures concerning dog-bites, rabies and glanders, in the second quarter of the year, and states that the large number of cases of rabies emphasizes the need of the muzzling ordinance recently adopted by the Board of Health.

Exhibition of Street Cleaning Apparatus.—On the evening of Nov. 23 Street Cleaning Commissioner Fetherston formally opened, in one of the city armories, an exhibition of street cleaning apparatus, among the features of which are daily demonstrations, lectures, moving picture shows, and band concerts. City Chamberlain Bruere also made an address, in the course of which he said: "New York must eliminate the open refuse can, the open collection cart, the open water-front dumps, and the open disposal methods—all nuisances of many years' standing." In the afternoon there was a parade of 1000 "white wings," with a display of new model wagons, sprinklers, scrapers and other apparatus, which ended at the armory, where it was reviewed by the mayor and other officials, and prizes were awarded.

Mortality for Week Ending November 21, 1914.—The week just passed has been one of exceedingly low mortality, the rate going down to 11.62 per 1000 of the population, which is equivalent to a relative decrease of 199 deaths if compared with the corresponding week in 1913.

The mortality from most of the infectious diseases was at a very low ebb, indeed only two deaths were reported from measles and whooping cough. Typhoid fever caused only seven deaths as against seventeen in the corresponding week of last year. Cerebrospinal meningitis was also below the average. The mortality from pneumonias, organic heart and kidney diseases, also contributed to this large decrease in the rate.

All age groups participated in the general reduction, noticeably so between the ages of five and sixty-five years. The borough of The Bronx had a death-rate of almost 10 per 1000 of the population.

As the year draws towards the end, it is found upon investigation of the figures that the rate for the entire year gives fair promise of being the lowest in the history of the city, the forty-seven weeks having passed with a rate that approximately stands at 13.05 as against 13.07 during the corresponding period of 1913.

Current Literature

MEDICAL RECORD.

NOVEMBER 14, 1914.

1. FISHER, E. D. *Toxic Diseases of the Nervous System, with Report of Cases.*
2. HEISER, J. B. *Cholera in the Philippines During 1913.*
3. SHAW, J. B. *The Faculty of Medicine in the Original University of Louvain, 1426-1797.*
4. LUSK, W. C. *A Case of Thrombo-Angiitis, Whose Wassermann Was for a Long Time Negative but Is Now Positive.*
5. FISCHER, C. I. *The Necessity for Broader Conceptions in Gastroenterology.*
6. RICHTER, G. *Mistakes Made in Taking and Interpreting Blood Pressure Readings.*
7. PARKER, G. M. *Neurosis and Purpose.*
8. *KAPP, M. W. *Painless Parturition.*
9. DURRAH, F. F., AND WHITE, G. W. *Recovery from Bichloride of Mercury Poisoning.*

8. Kapp recommends the use of heroin for the relief of excessive pain in labor. He gives 1/12 grain hypodermically and repeats in three hours if necessary. His idea is never to have more than 1/12 of a grain in the circulation at one time. He finds that this does not retard labor, it is perfectly safe for mother and child and can be used outside of hospitals, even in country practice. The patient is perfectly conscious throughout and is able to assist uterine contractions with voluntary effort. On the other hand, she suffers little pain and, being drowsy, obtains real rest between pains. The writer claims that this method accomplishes more simply, more surely, and more safely all that is claimed for scopolamine-morphine anesthesia. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

NOVEMBER 14, 1914.

1. FOWLER, R. S. *Exophthalmic Goitre.*
2. PROESCHER, F. *Artificial Cultivation of the Rabies Virus.*
3. BABCOCK, W. W. *The Topical Employment of Tuberculin.*
4. ELLIOTT, G. R. *The Operative Treatment of Contracted and Deformed Hands in Multiple Arthritis.*
5. SOLIN, D. L. *The Psychic Complex in Congenital Deformity.*
6. HUND, J. *Remarkable Case of Double Compound Fracture.*
7. LICHTENSTEIN, P. M. *Narcotic Addiction.*
8. MAYS, T. J. *Fancies, Facts and Consumption.*
9. SAWYER, J. P. *A Study of Methods of Lavage.*
10. *TICE, F. *The Present Situation in Tuberculosis.*
11. RUBENSTONE, A. V. *Meningococcic Empyema.*

10. Tice discusses the present situation in tuberculosis and the present status of tuberculin in diagnosis and treatment. He concludes that tuberculin reactions, either positive or negative, are of no material assistance in diagnosis. The degree of skin sensitiveness is no measure of the activity or latency of the tuberculous infection. Tuberculin as a therapeutic agent is rapidly losing repute. The important determination in any case is the amount of immunity, as estimated by laboratory and biological methods. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

NOVEMBER 14, 1914.

1. GRAVES, W. W. *Some Factors Tending Toward Adequate Instruction in Nervous and Mental Diseases.*
2. FRONCZAK, F. E. *Present-Day Public Health Activities.*
3. HURTY, J. N. *Disease and Poverty.*
4. KNOPF, S. A. *Tuberculosis as a Cause and Result of Poverty.*
5. *HARRIS, W. *Some Experiences with Alcohol Injection in Trigeminal and Other Neuralgias.*
6. BIERRING, W. L. *The Relation of Physical Therapy to the Hospital Patient from the Point of View of the Internist.*
7. *BUCHOLZ, C. H. *Six Years' Experiences at the Medico-mechanical Department of the Massachusetts General Hospital.*
8. DUBLIN, L. I. *County Health Organization in the United States.*
9. BALDWIN, L. B. *A Review of Current Hospital Topics.*
10. SMITH, A. J., MIDDLETON, W. S., AND BARRETT, M. T. *The Tonsils as a Habitat of Oral Entamebas. Possibility of Systemic Complications of Oral Entamebiasis.*
11. JENKINS, C. L., AND PENDLETON, A. S. *Crotalin in Epilepsy.*
12. VEDDER, E. B., AND BORDEN, W. B. *A Comparison of the Wassermann and Luetin Reactions in 744 Individuals.*
13. FISHER, J. W. *The Diagnostic Value of the Sphygmomanometer in Examination for Life Insurance.*
14. GRINKER, J. *The Neurologic Examination of Mental Cases.*
15. TIVNEN, R. J. *Blindness Caused by Ophthalmia Neonatorum.*
16. MCCLANAHAN, H. M. *Management of Delicate and Premature Infants in the Home.*
17. SHUMAN, J. W. *Intracranial Hemorrhage in the Infant, with History and Necropsy Report of a Case.*

5. Harris' article is very clearly written and is very frank in showing clearly the dangers and unfortunate results to be expected with certain injections even with the cure of the neuralgias. In injections of the Gasserian ganglion, anesthesia of the eye ball very often follows and the lids must be sewn together to prevent keratitis. Loss of sensation of taste is another accompanying symptom with injection of the the third division at the foramen ovale. Harris has had marked success from injecting chronic fibrositis of the shoulder, buttock, forearm and foot. He believes that post-herpetic neuralgia should never be treated by alcohol injection.

7. Bucholz sets forth very clearly the great advantages of a medico-mechanical department of a large hospital. He speaks of the great advantage of active as well as passive motions in stiff joints. The especial value in the treatment of fracture is in those near joints, in restoring function. He does not believe that exercise alone is ever able to cure flat foot. In severe hysteric convulsions great and rapid benefit has been produced by massage. One class of cases which receives particular benefit is that of paralytic cases, epecially if they can be started on treatment soon after tendon transplantation or other corrective procedures. This article should be read by the general practitioner in order that he may appreciate the value of this method. [E. H. R.]

NOVEMBER 21, 1914.

1. *CHURCHILL, F. *The Wet Nurse in Hospital Practice.*
2. *FREEMAN, R. G. *Urinary Analysis in the Diag-*

nosis and Treatment of Diseases of Infancy and Childhood.

3. DeBuys, L. R. *Amœbic Dysentery in Children.*
4. Price, W. H. *A Year's Experience with Contagious-Disease Nurses.*
5. Mills, C. K., and Weisenburg, T. H. *Cerebellar Symptoms and Cerebellar Localization, Including Kinematographic Observations on Cerebellar Phenomena.*
6. Kellert, E. *Carcinoma, Syphilis and Tuberculosis Coexistent in the Same Patient, with Report of a Case.*
7. Babbitt, J. A. *The Reconstruction of the Nasal Septum after the Submucous Operation.*
8. Iglauer, S. *Value of Roentgenography in Diagnosis of Diseases of Larynx and Trachea.*
9. *Street, J. P. *The Feeding Value of Sanatogen Compared with Commercial Casein with Respect to Maintenance and Growth.*
10. *Rosenow, E. C. *Bacteriology of Cholecystitis and Its Production by Injection of Streptococci.*
11. *Joslin, E. P. *End-Results in Cases of Gastric and Duodenal Ulcer.*
12. Smithies, F. *Gastric Cancer in the Young. A Study of Sixteen Instances in Patients under the Age of Thirty-one.*
13. Fisher, E. D. *Landry's Paralysis. Report of a Case.*
14. Trask, J. W. *Morbidity Reports and Statistics. A Discussion of the Provisions of the Model State Law for the Report of Controllable Diseases.*
15. Gordon, A. *Unfavorable Complications Following an Intradural Injection of Neosalvarsan.*
16. Schoenenberger, F. J., and Schapira, S. W. *Application of Radium in the Bladder for Carcinoma, with Report of Two Cases.*
17. DeSautelle, W. T. *A Case of Bacillus Dysenteriae Septicemia.*
18. Roberts, P. W. *Hygroma of the Groin.*

1. Churchill finds that although breast feeding or partial breast feeding has not reduced the total mortality over a period of three years in a large infants' hospital, yet in certain groups of very sick children a diet of one-half breast milk gave a mortality of 3%, while a similar group with less than half breast milk gave a 50% mortality.

2. Freeman points out the great importance of urinary analysis in infants, especially for the detection of acidity acidosis, *i.e.* diacetic acid or acetone, and for intestinal intoxication.

9. Street could find no advantage in feeding of sanatogen over commercial casein.

10. Rosenow from experimental evidence is led to believe that in man streptococci are the cause of cholecystitis far more frequently than believed and serves to explain the good results reported by some as following cholecystectomy in cases of myocarditis, arthritis and other conditions.

11. Joslin gives figures but draws no conclusions in his paper. [E. H. R.]

The Lancet.

October 31, 1914.

1. *Powell, R. D. *The Harveian Oration on the Advances in Knowledge Regarding the Circulation and Attributes of the Blood Since Harvey's Time.*
2. Gordon, M. H. *Traumatic Tetanus.*
3. Russ, C. *Further Results in the Electrolysis Treatment of Cystitis.*
4. Highet, H. C. *Smallpox, Vaccination, and the New Vaccination Law in Siam.*
5. Davies, H. R. *Periosteal Whitlow.*

1. In the second part of the Harveian oration, Powell discusses the various attributes of the blood, such as oxygenation and coagulation, the chemistry of the blood and its relation to internal secretion. He discusses in considerable detail the defensive attributes of the blood, and describes the establishment of immunity, and the theories on which vaccine methods of treatment are based. [J. B. H.]

British Medical Journal.

October 31, 1914.

1. *Jones, R. *On the Treatment of Arthritic Deformities.*
2. Rowell, H. S. *Mechanical Considerations of the Human Foot, with Special Reference to Flat Foot.*
3. Webb-Johnson, C. *The Soldier' Feet and Footgear.*
4. Shipley, A. E. *Insects and War—Mites: The Harvest Mite.*
5. Hernaman-Johnson, F. *A Simple and Rapid Method of Localizing Bullets.*
6. Heald, B. *The Medical Care of Lines of Communication at Home.*
7. Parker, R., and Bennett, F. D. *Pinewood Sawdust as a Surgical Dressing.*

1. Jones, in a short article illustrated with a few poor photographs and a few diagrams, discusses in general the treatment of arthritic deformities. He believes that such deformities are preventable if the surgeon is acquainted with the natural course of the disease. In children, most deformities can be corrected by manipulation, and operative treatment is rarely required. [J. B. H.]

Obituary.

WILLIAM HENRY BAKER, M.D.

Dr. William Henry Baker died of heart disease at his home in Waltham, Mass., on November 26, 1914. Dr. Baker was born in Medford, Mass., on March 15, 1845. He was graduated from the Harvard Medical School in 1872 and then served as house officer at the Boston City Hospital and at the Woman's Hospital in the state of New York. Coming to Boston, he made a specialty of gynecology, and in 1875 established the Free Hospital for Women in East Springfield Street, modeling it after the Woman's Hospital. In this year he became clinical instructor in gynecology at the Harvard Medical School, and from this position advanced through the grades, becoming professor of gynecology in 1882 and retiring, after twenty years of service, in 1895.

At the time of his death he was surgeon emeritus to the Free Hospital for Women, now housed in its handsome building in Brookline, Mass., obtained largely through his efforts.

Dr. Baker established in Boston the teaching of the diseases of women in clinics, and he taught the medical profession of New England the principles of gynecology as he had learned them at the Woman's Hospital under Emmet, Thomas and Boyeman.

He was a Fellow of The Massachusetts Medical Society, a member of the American Medical Association, the American Gynecological Society, the Boston Society for Medical Improvement, the Boston Medical Library, the Massachusetts Medical Benevolent Society and the Harvard Medical Alumni Association.

He is survived by a widow and two sons, one of whom is also a physician.

RUDOLF EMMERICH, M.D.

DR. RUDOLF EMMERICH, who died at Munich on Nov. 17, was born in 1852. As a youth he fought in the Franco-Prussian war of 1870, and thereafter studying medicine, became especially interested in the incipient science of bacteriology. He soon became assistant professor in this subject at the University of Leipzig, and in 1895 was appointed, with Professor von Pettenkofer, by the Sultan of Turkey, to investigate the sanitary conditions at Constantinople during the epidemic of Asiatic cholera in that year. His work here made him an expert in the knowledge of this disease. In 1902 he was called to become professor of bacteriology at the University of Munich, where he remained till his death, one of the world's foremost bacteriologists. He was an abundant writer, his best known work being his "Handbook of Domestic Hygiene."

JAMES SULLIVAN HOWE, M.D.

JAMES SULLIVAN HOWE, M.D., a leading dermatologist of Boston, died at his home in Brookline, Mass., on November 21, 1914, aged 56 years.

Dr. Howe was born in Norwood on July 7, 1858, and was graduated from Harvard College in 1878, and from the Harvard Medical School in the class of 1881. Then he studied dermatology in Vienna, returning after a year to settle in Boston, where he had an office for over thirty years. He was dermatologist to the Boston Dispensary and for ten years had been professor of dermatology at the Tufts College Medical School.

He was a Fellow of the Massachusetts Medical Society, a member of the American Dermatological Association, the Massachusetts Medico-Legal Society, the Boston Medical Library, and the Boston Dermatological Society. Dr. Howe is survived by a widow, a son and a daughter.

Miscellany.

TIPPERMALLUCH'S RECEIPTS.

Two centuries are a long time, yet it is hard to believe that such medical fallacies and superstitions could have survived to so recent a date as are found in the "Receipts" of that "worthy and ingenious gentleman," John Moncrieff of Tippermalluch, first published at Leith, Scotland, in 1712. The second edition of this remarkable work, published and 1775 and sold by William Coke, was recently reviewed in the *Lancet*. Many of the prescriptions here recorded are remarkable examples of medieval pharmacology, and must probably be of great antiquity.

"'The heart of a wolf eaten or drunken, cures the epilepsy.' Again, 'a wolf's skin worn about the middle' preserves from this disease. 'For an hysterical passion, take the powder of the flesh of a wolf and wear a piece of the said flesh salted always about you.' The last wolf is supposed to have been killed in Scotland in 1680, hence these remedies may be said to date from a period long prior to the eighteenth century. Others are concerned with amulets and charms. A ring set with a topaz is held to be a cure for 'running of the reins.' The root of satyron held in the hand is an aphrodisiac. The hairs of a white dog hung round the neck are prone to mitigate epileptic fits, while coral and saffron 'rolled in the skin of a bladder' and hung round the throat cure a semi-tertian fever, as does an emerald worn in the same way. Plague may be cured by hanging the roots of the pimpernel round the neck, or by carrying about a carbuncle, ruby, garnet, hyacinth, sapphire, or agate. A man's own urine and feces, passed through a cloth and drunk, are another remedy for the plague, while for fistula 'a man's dung burnt, adding thereto powder of pepper, passeth all other kinds of cures.' A 'cancerous fistula' is cured by 'ashes of a dog's head burnt.' Goats' dung takes away pain and swelling. Dung is of constant use; this points back to the time when savages believed that excrement, urine, blood, and so forth, contained the immortal element in man. Akin to the foregoing usages is Tippermalluch's recipe for a wound in the breast: 'Cause the patient suck the milk of a woman's breast, and also make injections of the same in the wound.' Human milk is prescribed in the same way for consumption. The remedies are mostly older than the age of signaturism, and surprising as they appear there is a factor common to many of them—namely, the idea that the humours and excrements of the body are of medicinal value. As a rule, the old chap-books, printed in the South, are shy of appearing too openly superstitious, but in this work a long section is openly devoted to the subject of 'mischievous acts, and putting of devils to the flight.' St. John's work, known as *fuga demonum*, hung in a house hinders these last. And we are further told that 'whoever carries upon him eringo roots shall be preserved from witchcraft. The loadstone keeped upon a man removes disorder between man and wife. A pyot roasted speedily recovers the sick to health and relieves all who have been enchanted from their birth.'"

REPORT OF PUBLIC HEALTH SERVICE ON FRIEDMANN TREATMENT OF TUBERCULOSIS.

On Nov. 6, the United States Public Health Service published at Washington, D. C., an abstract of the report of its investigation into the so-called Friedmann treatment of tuberculosis exploited in this country in the spring of 1913. The commission finds that 25% of all cases treated at that time by Dr. Friedmann, or under his observation, subsequently developed open tuberculous lesions at the point of inoculation:—

"This remedy was so widely heralded by sensational newspaper notice, that it seems safe to say that there could hardly be a person of adult years in the country who did not hear something about it, or a victim of tuberculosis who did not experience a thrill of hope of speedy and complete cure. The report naturally does not deal with the pitiful and sordid details of the scenes ensuing upon Dr. Friedmann's advent, of the crowds of invalids, many of them penniless, battling for a chance to take the treatment, of the greedy exploitation of hopeless cases who happened to have money, and the turning away of those who did not.

"The report details merely the medical observations made on certain patients, the laboratory studies on the culture used by Dr. Friedmann, and refers to the moral peculiarities of the doctor, only sufficiently to make it clear that it was his own fault that the investigation was not continued longer and upon a greater number of suitable cases.

"It is pointed out that the manner in which Dr. Friedmann presented his claims before the Berlin Medical Society made them tantamount to a contention that he had discovered at last the sovereign cure for tuberculosis in all its forms, provided, of course, that the disease had not already progressed beyond all hope of recovery. These claims the report takes up in detail, and then draws the deadly parallel between them and the results of the application of the treatment to patients under the observation of the service doctors. Whereas the claims are based on cases which always seem to get well, or at least to show phenomenal improvement, after one or two injections, the cases which reacted in this manner among the test series, were conspicuously few.

"The report does not commit itself as to whether the improvement noted in these few cases was due to the treatment, or to the stimulus of a great hope, or to unassignable causes which work improvement in some cases of every large series; but it does point out distinctly that if any one prefers the first explanation he must in justice attribute also to the treatment the very distinct and unusual deterioration in the condition of certain other patients which progressed in some of them to a speedy death."

RESUSCITATION FROM ELECTRIC SHOCK AND GAS POISONING.

Some while ago, the United States Bureau of Mines appointed the following committee of physicians to investigate and report on the most efficient methods of resuscitation from electric shock and poisonous gases: Dr. W. B. Cannon, chairman, professor of physiology, Harvard University; Dr. George W. Crile, professor of surgery, Western Reserve University, Cleveland, Ohio; Dr. Joseph Erlanger, professor of physiology, Washington University, St. Louis; Dr. Yandell Henderson, professor of physiology, Yale University; and Dr. S. J. Meltzer, head of the department of physiology and pharmacology, Rockefeller Institute for Medical Research.

This committee has recently made its report, and among its recommendations may be noted the following:—

"In case of electric shock, break electric current instantly. Free the patient from the current with a single quick motion, using any dry non-conductor, such as clothing, rope, or board, to move patient or wire. Beware of using any metal or moist material. Meantime have every effort made to shut off current.

"Attend instantly to the victim's breathing. If the victim is not breathing, he should be given manual artificial respiration at once.

"If the patient is breathing slowly and regularly, do not give artificial respiration, but let nature restore breathing unaided.

"In gas cases, give oxygen. If the patient has been a victim of gas, give him pure oxygen, with manual artificial respiration.

"The oxygen may be given through a breathing bag from a cylinder having a reducing valve, with connecting tubes and face mask, and with an inspiratory and an expiratory valve, of which the latter communicates directly with the atmosphere.

"No mechanical artificial resuscitating device should be used unless one operated by hand that has no suction effect on the lungs.

"Use the Schaefer or prone pressure method of artificial respiration. Begin at once. A moment's delay is serious.

"Continue the artificial respiration. If necessary, continue two hours or longer without interruption until natural breathing is restored. If natural breathing stops after being restored, use artificial respiration again.

"Do not give the patient any liquid until he is fully conscious.

"Give him fresh air, but keep his body warm.

"Send for the nearest doctor as soon as the accident is discovered."

Correspondence.

A NEGLECTED DUTY OF THE MEDICAL PROFESSION.

BOSTON, November 23, 1914.

Mr. Editor: While lunching with a friend at the State House last winter, a member of the legislature of the same name inquired where he could obtain some reliable information upon the antivaccination question that was soon to come before them. He was honest, well-meaning, wanted to do the right thing, but did not know the merits of the case in hand. He then and there received the main points in the situation and his next morning's mail contained official evidence that would convince any intelligent, fair-minded person of the great benefits to be derived from vaccination, as well as of the deplorable results of its neglect. He should have been informed upon this important matter before entering the swirl of the legislative session.

The medical profession in Massachusetts has an important duty to perform along these lines. Every legislator should be interviewed by members of our profession and given sane and sound ideas and information upon all topics relating to public health matters likely to come before them, and especially upon this persistent, annual agitation against vaccination. The proper time to do this is previous to the opening of the session and before they are swamped with cartloads of log-rolling literature upon all sorts of subjects of which they can be expected to know but little. They should be given official information upon the conditions relating to the prevalence of smallpox before and since the enactment of the law requiring vaccination upon entering the public schools of the state. The contrast between the two periods is so startling, that any one fit to make our laws can readily comprehend the great value of vaccination.

The object of this letter is to urge the public-spirited members of the medical profession to seek personal interviews with the senators and representatives in their respective districts and give them the benefit of rational, common-sense ideas on public health matters, laying especial stress upon the necessity of letting the mild compulsory vaccination law alone. They should be convinced that the medical profession has no axes to grind, no personal ends to gain, but that our efforts are made solely in the welfare of the public.

The undersigned will gladly furnish any one with official evidence on the benefits to be derived from vaccination.

GEORGE W. GAY, M.D.

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY.

The list of meetings as planned for the coming year is as follows:

Dec. 9, 1914. Special.
12 o'clock noon. Boston Medical Library.
Dr. E. A. Codman, Boston.
"Forms of Dyspepsia in Which Surgical Treatment is Indicated."

Jan. 13, 1915. Regular Mid-winter Meeting.
12 o'clock noon. Boston Medical Library.
Dr. John Lovett Morse, Boston.
"Remarks on Infant Feeding, and the Disturbances of Digestion in Infancy."

Feb. 10, 1915. Special.
12 o'clock noon. Boston Medical Library.
Speaker and subject to be announced later.

March 10, 1915. Special.
12 o'clock noon. Massachusetts General Hospital.
Dr. Richard C. Cabot, Boston.
"A Diagnosis-Autopsy Hour."

April 21, 1915. Annual Meeting.
11 o'clock A.M. American House, Boston.
Business meeting at 11.
Annual Address at noon.
Dinner at 1 P.M.
Dr. William C. Hanson of Cambridge, orator.
Subject to be announced later.

July 21, 1915. Regular Mid-summer.
Time and place of outing to be announced.

LYMAN S. HAPGOOD, M.D., *Secretary.*

APPOINTMENTS.

BOSTON DISPENSARY.—The following appointments have recently been made: *Dr. James S. Stone*, consultant surgeon, surgical department; *Dr. Martin Hendemann*, assistant to the surgeons, genito-urinary department; *Dr. George Binney*, assistant to surgeons, surgical department; *Dr. Robert C. Cochrane*, assistant to surgeons, surgical department; *Dr. Mark E. Wentworth*, district physician, East Boston; *Dr. Roger P. Dawson*, assistant physician, medical department; *Dr. J. Lurier*, house officer and district physician.

BOSTON CITY HOSPITAL.—*Dr. John J. Dowling*, of Boston, has been appointed superintendent of the Boston City Hospital, to take office on Jan. 1, 1915.

RECENT DEATHS.

DR. ALBERT BARNES DORMAN, a practising physician of Winthrop, Mass., for thirty-five years, died at his home Nov. 22, 1914, aged 59 years. He was born in North Brookfield, Mass., and was a graduate of the College of Physicians and Surgeons, Boston, in 1892. He was a Fellow of The Massachusetts Medical Society from 1900 to 1914 and a member of the American Medical Association. He was a Mason, an Odd Fellow, and a member of the Royal Arcanum and the Elks. He had been chairman of the Winthrop board of health for nearly 15 years. Dr. Dorman is survived by a widow and by two daughters.

DR. ANDREW J. JACKSON of Matawan, N. J., died on November 17, at the age of 72. He was born in Poughkeepsie, N. Y., and was graduated from the medical department of the University of Buffalo in 1872.

BOOKS AND PAMPHLETS RECEIVED.

Urgent Surgery, by Felix Lejars. Vol. I. William Wood & Co. 1914.

Rose and Carless' Manual of Surgery. Ninth Edition. Revised by Albert Carless. William Wood & Co. 1914.

Animal Experimentation and Medical Progress, by William W. Keen, M.D. Houghton Mifflin Company. 1914.

Essentials of Physiology, by F. A. Bainbridge, M.D., and J. Acworth Menzies, N.D. Longmans, Green and Co. 1914.

The Cancer Problem, by Dr. William Seaman Bainbridge. The Macmillan Company. 1914.

Transactions of the American Gynecological Society. Vol. 39. Year 1914.

Case Histories in Obstetrics, by Robert L. DeNormandie, M.D. W. M. Leonard, Publisher. 1914.

Original Articles.

THE ACTION OF LECITHIN UPON TUBERCLE BACILLI AND THEIR RELATION TO EXPERIMENTAL TUBERCULOSIS.*

By Ernest Zueblin, M.D., Baltimore,

and

Friedrich Proescher, M.D., Baltimore.

[From the University of Maryland Hospital, Baltimore, and the Pathological Laboratory of the Allegheny General Hospital, Pittsburgh, Pa.]

Koch's discovery of tuberculin opened a new field for a specific treatment of tuberculosis, although the expectations that were aroused were not fulfilled completely. After a time of skepticism and discouragement, many investigators pursued the line of thought expressed by their master, so leading up to new ideas and a better understanding of the aims of a specific treatment. In the course of the passing years we have learned about the complex nature of the tubercle bacillus. As seen from the work of Deycke and Much (*Muench. med. Wochenschr.*, 1909, No. 39; *Med. Klinik*, 1908, No. 40); Much, (*Muench med. Wochenschr.*, 1912, p. 685) the tubercle bacillus is thought to consist of four different substances, namely proteids, fatty acids and lipoids, neutral fat and the toxin itself, which substances have all an important influence in the course of the tubercular infection. Various authors in following Much's indications have succeeded in the attenuation of virulent tubercle bacilli by treating these organisms with lecithin (Much, *loc. citat.*), cholin, neurin (G. Deycke, *Muench. med. Wochenschr.*, 1910, p. 633, No. 12; Much, *ibid.*, 1910, p. 1093, No. 20; Ditthorn, *Berl. klin. Wochenschr.*, No. 34, 1910; Lindemann, *Ztschr. f. Immun. Forsch. u. Experiment. Therap.*, Vol vii; Leschke, *Beitr. z. Klin. d. Tuberculose*, Vol. xx, H. 3, 1912; K. Meyer, *Ztschr. f. Immun. Forsch. u. Experiment. Therap.*, Vol. xv, H. 2-3; *Muench. med. Wochenschr.*, 1912, p. 379). According to these investigators even a complete bacteriolysis was obtained. Compounds of cholin, borcholin (enzytol) had a similar effect (H. Mehler and Ascher, *Muench. med. Wochenschr.*, 1913, p. 748, No. 14). Trichlorethylene besides neurin, as well as other strong basic ammonia compounds (Aronson, Berl. Medic. Soc., July 7-13, 1910, ref. *Muench. med. Wochenschr.*, 1910) also caused a bacteriolysis, as well as organic and inorganic acids (Much, *Muench, med. Wochenschr*, 1911, p. 597; E. Leschke, *ibid.*, p. 598; *Beitr. Klin.* d. *Tuberculose*, Vol. xx, H. 3, 1912). The latter substances were found more suitable for the immunizing action of the split products obtained.

* Read at the fifteenth annual meeting of the American Therapeutic Society, held at Albany, N. Y., May 28, 29, 1914.

In a previous study upon the influence of fresh and autolyzed organ extracts on experimental tuberculosis (Charles William White and E. Zueblin, *Jour. Infect. Dis.*, Vol. viii, No. 2, March, 1911) we reached the conclusion that bovine tubercle bacilli underwent an attenuation when treated with autolyzed organ extracts. This action was especially noticeable with lung extract, less for liver extract. It was also possible to demonstrate in the autolyzed fluid the presence of cholin (a split product of lecithin). At the same time tubercle bacilli left in extract with the autolyzed fluid lost their acid fastness and became granular.

The present report is a continuation of our study and deals with the morphological and biologic changes of the tubercular virus when treated with lecithin. Our study can be divided into categories:—

(*a*) The staining properties of human, bovine and avian tubercle bacilli treated with mixtures of lecithin.

(*b*) The biological qualities of human and bovine tubercle bacilli after treatment with lecithin.

Staining properties of human, bovine and avian tubercle bacilli treated with mixtures of lecithin. In the report the following technic was resorted to.

1.5 gr. tubercle bacilli were mixed together in a sterile mortar with 2 ampules of lecithin (Billon). The mixture was subdivided in 3 equal parts into sterile ampules. These ampules were kept for one-half hour at 70 respt. at 50° in the water bath. After that time they were incubated with the 3d unheated portion at 37° and left in the thermostat for three successive days. After the lapse of that time one 0.7 c.c. of each ampule was injected intraperitoneally as recorded in the second part of our experiment. Before this was done, untreated tubercle bacilli were stained according to the usual laboratory method and compared with smears made from the contents of the ampules. The staining method consisted briefly in the following:

1 c.c. carbol gentian violet with 4 c.c. of carbol fuchsin were mixed, and with that stain the preparation on the slide was steamed for two minutes. The excess of stain was then thrown off, the slide immersed into Lugol's solution, left in contact a few minutes, then the slide was decolorized with a mixture consisting of alcohol 50%, aceton 50%, nitric acid 3%. After the decolorizing had been carried out to the point that all excess stain was removed, the slide was washed in running water and counterstained with methylin blue.

The slides were also stained according to Ziehl's method with the same result. It seemed, however, that with the above-mentioned carbol gentian violet and fuchsin stain the morphological and tinctorial changes were more distinct.

Normal, untreated human tubercle bacilli treated in that way showed the characteristic fast properties of the bacillus without the presence of any degenerate forms as the granules indicated by Much.

In the preparation, however, made from the lecithin mixtures such degenerate forms were found, particularly in the human tubercle bacilli, so f.i. H 37 on several slides presented a few normal stained red bacilli. Most of the remaining organisms, however, presented a loss in the acid-fast quality. In some instances only unstained protoplasm remained, which surrounded the thick granules occupying the centre of the organisms. At a later stage the pink color had changed into purple, and even a few purple granules were the only remnants of the tubercle bacilli. Such a character was found more pronounced in the slides prepared from H 50. These changes were more pronounced a few days later from the smears prepared from the mixtures incubated.

Bovine tubercle bacilli treated in the above indicated manner presented at a temperature of 37° not such pronounced changes. The majority of the organisms maintained their acid-fast character; only a few granular or purple stained forms could be noticed. That change was more pronounced on the slides prepared from B. 50, but compared with the human strain treated similarly the changes were never so pronounced. Avian tubercle bacilli were treated in a similar manner and they also presented the granular aspect.

From a comparison of the human tubercle bacilli with the bovine strain it would seem that the human form is more readily affected by the lecithin. This effect is more marked if the mixtures are kept at a higher temperature, and the longer they remain in contact with the lipoid substance. A portion of the lecithin human tubercle bacillary emulsion was treated with 5% antiformin solution, then washed with ether. The solution containing the fatty substances retained an acid-fast stain, whilst the bacilli did not retain the carbol fuchsin.

It seemed of interest to inoculate these lecithin mixtures into guinea-pigs, which reacted as follows:—

B. BIOLOGICAL QUALITIES OF HUMAN AND BOVINE TUBERCLE BACILLI AFTER-TREATMENT WITH LECITHIN.

CONTROLS FOR BOTH SERIES—(A AND B).

Guinea-pig No. 13, control. Infected with 0.1 gm. human tubercle bacilli, weighed 320 gm. lived 50 days and lost 40 gm.

Post-mortem showed: Peritoneum thickened, of granular aspect, injected parietal peritoneum presents several tubercles in tubes and ligamentum, mensentery gland enlarged, several miliary and conglomerate tubercles in liver, spleen considerably enlarged with many tubercles; diaphragm, interior surface many big tubercles; lungs, several tubercles scattered over all lobes; pleura clean, bronchial glands enlarged.

Guinea-pig No. 14, control. Weighed 550 gm. when injected with .01 gm. human tubercle bacilli. It lived 31 days and lost 125 gm.

Animal was much emaciated and presented at the post-mortem a caseous mass (abscess formation in the abdominal wall of hickory nut size), surface of peritoneum uneven, granular with scattered fine tubercles. Mesentery glands, inguinal glands enlarged, no fluid in the abdominal cavity, intestines, diaphragm free from tubercles, liver hyperemic with 5 caseous tubercles, spleen granular border, a few small tubercle nodules, kidneys hyperemic, glistening surface, no tubercles; lung, both upper lobes present numerous single and conglomerate tubercles; a few tubercles in the right middle lobe, single and conglomerate tubercles along the upper border of the lower lobes; pleura free from tubercles; bronchial glands enlarged, thymus enlarged, presents a few white tubercles.

(A) HUMAN TUBERCLE BACILLI.

1. *Human Tubercle Bacilli* 70° + *Lecithin.*

Guinea-pig No. 1. Before first reinfection gained after 3 weeks 115 gm., then showed slight loss in weight, 45 gm. during the first week, which loss was overcome in the following weeks. After the second reinfection an increase in weight until 2 weeks prior to exitus was noted, then a rapid loss of 250 gm. took place. The animal outlived the two control animals 110 days, and after infection remained alive 258 days.

Post-mortem: Lymph glands not enlarged, with the exception of the mesentery glands which were increased in size. Diaphragm, heart, pleura, peritoneum free from tubercular involvement. Liver enlarged, shows several yellowish and anemic patches. Tubercle infection at the border of the right lung; spleen large, hyperemic. Lungs, left lobe hyperemic, slight emphysema. Numerous patches in the right middle and upper lobe. Uterus enlarged, hyperemic, dry white fleshy lobule (2-mm.); dry, small lobule on the right corn, remaining adnexa free from tubercle involvement. The animal seemed very well, only a few weeks prior to its exitus a general decline could be noticed.

Guinea-pig No. 2. Lived 214 days, was reinfected twice, little affected by the first treatment, increased in weight 180 gm. after the first reinfection lost 60 gm., after the second reinfection became pregnant, which condition reached its normal time, but immediately afterwards a rapid decline could be noticed, and after reinfection died in 71 days. It outlived the control animal 40 days, but did not show any tubercle lesions.

The post-mortem showed the abdominal wall smooth, slightly injected peritoneum, broad ligaments and spleen, diaphragm, heart, lungs, kidneys and liver absolutely free from tubercle infection.

2. *Human Tubercle Bacilli* 50° + *Lecithin.*

Guinea-pig No. 3. Weight 490 gm., when injected with the emulsion, it lived 135 days. It was reinfected twice with .01 gm. human untreated tubercle bacilli on the 4th of March and on the 12th of June resp. It lost 40 gm. during the first two weeks following the first treatment, then gained in weight 20 gm.; after the first infection a slight decline in weight (15 gm.) was observed in 2 days. After the second reinfection the animal died (shock or pneumonia?). The tubercle lesions were less pronounced than in the control animal.

Post-mortem findings: Abdominal cavity contains a few c.c. of a cloudy hemorrhagic fluid and

a few yellow lumps; a fibrinous deposit over the large intestine and the great omentum were observed. Spleen and liver normal, lungs, a few spots of pneumonia in the middle and lower lobes and a few whitish yellow spots on both sides of the diaphragm; a few tubercles are found in both testicles (these organs were already enlarged several weeks preceding death. The tunica vaginalis propria shows several tubercles.

Guinea-pig No. 4. Weight when treated with the bacilli emulsion 500 gm. The animal was little affected by the first treatment, gained in weight 65 gm. After first reinfection loss in weight of 60 gm. during the first 3 weeks; on the following 55 days gained in weight, then declined until time of second reinfection, when a deficit in weight of 55 gm. was noticed. After the second reinfection up to his death lost ground, declined in weight (115 gm.) and died 67 days later. It remained alive 200 days after the first treatment, but 37 days after the control animal and the second reinfection. The anatomical lesions were not very much different from those observed in the control animal.

Post mortem: Animal much emaciated, vessels of the abdominal wall injected, miliary tubercles scattered over the abdominal peritoneum, over ligamentum latum, conglomerate large tubercle noticed; peritoneal fluid clouded, hemorrhagic, a few nodules in mesentery, mesentery glands enlarged, left kidney small with smooth surface, one tubercle in the medullary substance. Right kidney of larger size, pale in aspect, two tubercles in medullary, one tubercle in cortical substance. Spleen enlarged, contains many white spots and tubercular infarction at the border. Liver, several gelatinous patches on the surface, no distinct tubercles found. The diaphragm shows a few granular spots on the abdominal surface; a few scattered tubercles on the pleural aspect; a few white nodules on the pericardium, no changes in the myocardium. Lungs show big conglomerate tubercle, a few tubercles scattered over the lower lobes and particularly along the medial border; a few tubercles in the upper lobes. The bronchial glands are enlarged; the costal pleura seems free from tubercles.

3. *Human Tubercle Bacilli* 37° + *Lecithin.*

Guinea-pig No. 5. Initial weight 695 gm., when first treated, lived 288 days; loss in weight before reinfection was hardly noticeable; during the first reinfection the difference was 16 gm., after the second reinfection a slight gain took place, then a slow decline of 110 gm. It outlived the first reinfection 158 days, and it outlived the second control 128 days.

At the post-mortem the peritoneum shows injection but no tubercles; no tubercles in the intestines; the testicles are enlarged and present a few caseous tubercles, mesentery glands enlarged, mesentery itself free from tuberculosis. Liver enlarged, shows miliary tubercles of pinhead size, surface of the organ is irregular. Spleen enlarged with tuberculous infarction; kidneys, parenchymatous nephritis; diaphragm, abdominal aspect several white nodules in left pleural cavity, thickened irregular granular surface with adhesions with left lower lobe of the lung, particularly posteriorly where a big conglomerated caseous tubercle is found (cherry-size); several tubercles in the other lobes are present besides hyperemia; the right lung shows less involvement and few tubercles.

Guinea-pig No. 6. Initial weight 565 gm., lived in all 197 days; was infected once and showed: Gain in weight after the first treatment without any apparent symptom of disease at the moment of the first injection. It showed only a slight difference with the initial weight, after the only reinjection a slight increase in weight, and though apparently in good health, 61 days later suddenly declined, lost 345 gm. and died 63 days after the reinjection, or 33 days after the second control animal.

Post mortem: Showed few changes, namely—only enlargement of the inguinal glands, no fluid in the abdominal cavity and no signs of tuberculosis.

If any conclusions from the preceding experiments with human tubercle bacilli after treatment with lecithin are permitted it would seem that the organisms undergo some loss in virulence. Guinea pigs after treatment with these emulsions may be reinfected once or twice with .01 gm. untreated human tubercle bacilli; they outlive the control animal several months. These animals gain in weight and no clinical symptoms of tubercular involvement or a few pathological changes of chronic tuberculous results may be found at post mortem. The attenuation of the tubercle virus seems more complete if the lecithin and tubercle mixtures are kept at a higher temperature of 70°. The immunity against tuberculosis so acquired may be influenced by different extrinsic factors.

Overtaxing of the animals and loss of their reserve strength, repeated pregnancy at short intervals, may lower the resistance against a tubercular infection to such an extent that the animal dies from exhaustion. As seen later on, the bovine tubercle bacillus is more resistant towards lipoid bodies than the human strain.

(B) EXPERIMENTS WITH BOVINE TUBERCLE BACILLI + LECITHIN.

1. *Bovine* 70° + *Lecithin.*

Guinea-pig No. 7. Initial weight 630 gm., lived 56 days, during the first treatment the animal gained 16 gm. in weight. Infected 47 days after the first injection with .01 gm. bovine tubercle bacilli, a steady decline in weight took place, the animal lost in all 80 gm. when it died, 9 days after reinfection.

The post-mortem showed: Peritoneal wall injected, of granular surface with many tubercles, few cbm. of a cloudy fluid noticed, over left hypochondrium an adherent mass is found measuring 3 cm. x 1.5 x 0.5 cm. of yellowish aspect with peripheric injection of the capillaries. The large intestine is adherent with that mass. Another tumor is found in the hypochondrium measuring 8 x .5 cm. composed of granular tissue adherent with large omentum. The mesentery shows many tubercles. Liver presents several pin-head size tubercles and a few fibrinous threads. Spleen not enlarged but presents a few white spots. The diaphragm of granular aspect, a few white elevations noticed. Pleura, fluid in both sacks, in the lungs a few gelatine spots and few gray elevated yellowish tubercles scattered over the surface.

Guinea-pig No. 8. Initial weight 540 gm., outlived first treatment 77 days; it was reinfected only

same as the same time as No. 7. During the first period, before reinfection, a gradual increase in weight of 80 gm. was noticed; after reinfection with .01 gm. bovine tubercle bacilli the animal declined rapidly and died 30 days after the reinfection, total difference in weight from beginning 10 gm. Unfortunately no post-mortem of that animal could be made.

2. *Bovine Tubercle Bacilli* 50° + *Lecithin.*

Guinea-pig No. 9. Lived 72 days after first treatment, was reinfected once, initial weight 620 gm.; after the first treatment the animal lost in weight 60 gm.; when it was reinfected, 33 days later, with .01 gm. bovine tubercle bacilli a slight increase in weight took place during the following first two weeks, then the animal declined rapidly, and at his death, 72 days after the first, 39 days after the second infection, the total loss was 190 gm.

Post-mortem: Animal much emaciated, in peritoneal cavity fluid present, peritoneal surface glistening, omentum thickened with a few granular nodules, inguinal and mesentery glands enlarged with a few yellowish white nodules, general hyperemia of the organ; liver of granular surface (cirrhotic) with many yellow fatty spots and tubercles. Diaphragm, several tubercles on both aspects. Lungs, many tubercles in left lobe, in the middle and lower right lobe with more pronounced involvement along the medial aspect; the right lobe shows less involvement, the trachial glands are enlarged, a few yellowish spots are noticed in the mesentery; kidneys congested but no macroscopic tuberculosis found.

Guinea-pig No. 10. Was treated in the same way as the previous number, reinfected 33 days after the first injection with .01 gm. bovine tubercle bacilli. During the first period the animal, after at first considerable loss in weight (50 gm.), remained at the same weight. After reinfection the animal increased again, and 84 days after beginning of the experiment that animal presented its initial weight. Owing to unfortunate circumstances further observations of the animal were impossible.

3. *Bovine Tubercle Bacilli* 37° + *Lecithin.*

Guinea-pig No. 11. Weighed 865 gm. when it was injected with the emulsion. It lived 151 days in all. It became pregnant two weeks after reinfection and gained in weight in consequence. After parturition the animal could not be reinfected; it lost steadily and at its death weighed only 410 gm., 151 days after the first treatment.

The post-mortem showed considerable emaciation, in the abdominal cavity, cloudy hemorrhagic fluid, yellow nodules covering the anterior and posterior wall; the large omentum thickened, a few nodules in the mesocecum in the mesoovarium and ligamentum latum; the kidneys pale and anemic without any tubercles on the surface nor on section. The suprarenal glands enlarged, a few gray yellowish nodules on the mesentery, liver studded with tubercle, areas of anemia on the surface and on section. Many small tubercles on the surface and on section of spleen, general hyperemia of the organ. Diaphragm presents several nodules on both aspects especially on the abdominal side, surface thickened and granulated; several tubercles in the mediastinum, on the right ventricle one yellowish white nodule noticed. Lungs, lower lobe studded with tubercles, involvement was marked in the upper lobe.

Guinea-pig No. 12. Weighed 455 gm. when first injected; after a small loss during the first three weeks the animal surpassed its initial weight; 32 days later when the first infection with .01 gm. bovine tubercle bacilli took place the animal lost in weight during the first four weeks, became pregnant, after the full term the animal lost again, dropped down to 370 gm., three months after reinfection it gained again, became pregnant, which pregnancy reached its term, then the animal declined rapidly and died 218 days after the first treatment, 172 days after the reinfection, total loss in weight amounted to 35 gm. compared with its initial weight.

The post-mortem of the animal showed enlarged inguinal glands, enlarged mesentery glands, peritoneum free from tuberculosis, spleen contains many tubercles and a few tubercular infarcts. Liver enlarged with fatty degeneration, anemic discoloration shows a few miliary tubercles, diaphragm shows two white nodules; kidneys free, lungs small miliary tubercles with more involvement of the left lung, enphysema, intestines and stomach are free from tuberculosis.

From this series of experiments with bovine tubercle bacilli it would seem that these animals are more susceptible to the disease; even if the animals survive the first treatment, they succumb to the infection at an earlier period. Pregnancy and weakening seem to have a predisposing rôle. The animals with 50 and 70% bovine bacilli died even earlier than those treated with bovine 37%+ lecithin.

In previous series with human tubercle bacilli in most instances two reinfections brought fatal results, and in the bovine series one reinfection was sufficient to develop a fatal tuberculosis. The non-reinfected animal (No. 11) finally died, although it outlived the control for a considerable time and showed a considerable outspread of tuberculosis. In one instance no tubercle lesions were found (No. 8) but it cannot be denied that in 77 days after the first treatment, and 30 days after the reinfection, death occurred as a consequence of the treatment.

Since these experiments were started (January, 1911) several reports have been published upon the favorable influence of the immunizing effect of lecithin and allied substances upon tubercular infection. So Ditthorn (*loc. citat.*) in his experiments with neurin was unable to produce experimental tuberculosis in guinea pigs without any trace of that disease nine weeks after infection. He at the same time noticed the production of complement-binding substances in the blood serum against tuberculosis, and the bacilli treated did no more develop upon the ordinary media used for such purposes. Meyer (*loc. citat.*) in his experiments noticed that antibodies were present, but that they were of a much milder action than those resulting from the treatment with the proteid antigens of

the tuberculous virus. Momose (*Deut. med. Wochenschr.*, No. 22, 1913; *Muench. med. Wochenschr*, 1913, No. 23, p. 1283) noticed that the animals were more resistant against tubercular infection. Perhaps we may be permitted to quote the impression of Deycke and Much and Leschke, who think that lecithin, neurin, cholin may exert such a destructive influence upon the tubercle bacillus, that the other antigens freed from the bacillus and of a more delicate nature may be destroyed by that treatment, so that only a partial immunity may be started, which at further infection may not be efficient enough to fight the new bacillary invasion. Although we are aware that the present observations are only a small contribution to the present problems of immunization, which of course requires more extensive animal experiments, we believe that the human tubercle bacilli are more accessible to attenuation than the bovine type, as observed from the stained preparations and from the course noted in the infected guinea-pigs.

NOTES ON THE SECOND ANNUAL CONFERENCE ON THE MEDICAL AND SOCIAL WORK OF THE PSYCHOPATHIC HOSPITAL, BOSTON, MASSACHUSETTS.

(*Concluded from page 800*)

VIII.

Variations in the Sensory Threshold for Faradic Stimulation in Psychopathic Subjects: First Note.*

By G. Philip Grabfield, Boston.

Interne, Psychopathic Hospital, Boston; Student, Harvard Medical School.

Up to the present time our determinations of sensory disturbances have been vaguely qualitative. Through the lack of an accurate method our determinations have depended almost altogether on the intelligence and accuracy of the patient and have varied with the technic of each examiner. Dr. E. G. Martin[1] has devised a method for accurately recording the shocks delivered by the secondary coil of an inductorium by which one is enabled to check the replies of the patient and which rules out the variations in technic. The possibility of the practical application of this method was suggested by the observation that there is a constant value of the sensory threshold in normal human subjects.[2] This threshold value has been found to be in the neighborhood of 100 Beta units varying from 60 to 140 in different individuals at the same time and through a lesser range in the same individual at various times of the day. The purpose of this series of observations was merely another step in discovering the possibilities of variation in the sensory threshold, which it was hoped might be found among pathological subjects.

The quantitative method depends upon the well known fact that the strength of the "shocks" delivered by the secondary coil of an inductorium depends upon its relation to the primary coil—in this method the distance of the secondary coil from the primary on the slide on which it can be moved,—the maximum shock being obtained when the secondary is directly over the primary. The point at which the maximum shock is delivered is considered the zero position. The operator, who sits in a separate room from the patient to be tested, begins with the coil at a point where it will deliver the minimal shock and gradually moves the secondary towards the primary, breaking the current at short intervals. The patient places the second and third fingers of his left hand into two electrodes, which consist of two tubes containing 15% salt solution overlying a small layer of mercury, which lies in contact with two platinum electrodes connected with the secondary of the coil. He is instructed to press a telegraph key whenever he feels a pricking sensation in the fingers tested. This signals to the operator. As soon as the patient has signaled, the operator throws 10,000 ohms resistance into the secondary circuit and again approaches the zero position until the patient signals. This is repeated with 20,000 and 30,000 ohms in the secondary circuit, thus obtaining four readings of the position of the secondary of the coil. The resistance of the patient's skin is taken as 2100 ohms, as repeated observations have shown that this is almost constant. The resistance of the coil itself is 2900 ohms, making the four readings with the five, fifteen, twenty-five and thirty-five thousand ohms in the secondary circuit. The primary current used was 0.3 amperes. From the above data the absolute value of the threshold stimulus in Beta units is derived by certain formulae. The operator has a definite check on the patient, as he can try and retry any position to make sure that the patient is responding properly. The responses even from the psychopathic individual are remarkably constant.

In this series we have obtained 196 observations on 135 cases selected at random from the admissions to the hospital. The purpose of this series was to determine whether the quantitative method can be applied to practical psychiatry. The cases naturally fall into certain large groups, together with a large number of scattering observations on single cases.

* Being Contributions from the Psychopathic Hospital, Boston, Number 58 (1914.24), read at the Second Annual Conference on the Medical and Social Work of the Psychopathic Hospital, Boston, June 26, 1914. (*Bibliographical Note.*—The previous contribution, Number 57 (1914.23), was by Robert M. Yerkes and J. W. Bridges, entitled "The Point Scale: A New Method for Measuring Mental Capacity," published in the Boston Medical and Surgical Journal, Vol. clxxi, No. 23, December 3, 1914.

	Cases.	B Units.
Delirium tremens	20	235
Acute alcoholic hallucinosis	8	158
Korsakoff's psychosis	4	405
Unclassified alcoholic	8	285
Dementia precox:		
Hebephrenic	2	760
Catatonic	8	232
Paranoid	8	131
Other forms	6	191
Syphilitic cases	13	192
Unclassified	18	219
Defective	7	189
Manic depressive insanity:		
Manic phase	5	127
Depressed phase	4	190
Neurasthenia, psychoneurosis, etc	8	120
Senile and presenile	5	314
Epilepsy	4	138
Huntington's chorea	2	308
Hypopituitarism	1	125
Hyperthyroidism + alcohol	1	183
Drug psychosis	1	158
Involutional psychosis	1	233
Normal, not insane	4	103
The average of all observations		223
Number of patients whose test proved invalid	4	
Patient whose threshold was above the calculable value	1	

In general, then, the threshold of the psychopathic individual tends to be high. As to what shall be considered a pathological threshold it is very difficult to say. Any figure must be arbitrary. Any figure over 175 is definitely pathological as far as present experience with normal thresholds has shown. A threshold that on repeated observation is over 140 is probably pathological, though such a value would necessarily mean very much less than the higher figures. It is to be remembered that we are compelled to test many of our cases after partial recovery. Of course, in the thresholds between 140 and 175, the higher the value the greater is the probability of it being pathological. It is a significant fact that we have remarkably few observations under 100 B units, in marked contrast to a similar series on normal subjects. In the total number there are only 23 such observations. Two patients answered so irregularly or had such high thresholds that the value could not be determined.

Alcohol appears to be a definite factor in raising the threshold. In the 40 cases of alcoholic psychoses of various types, the average threshold was found to be 252,—higher by 29 B units than the average of the total number of observations. The highest of this group is found to be the cases of Korsakoff's psychosis, the lowest the acute alcoholic hallucinoses. The former group show a tremendous variation,—as is to be expected. In this group, we have comparatively many observations on a few cases. These observations are absolutely irregular, but apparently consistent with the clinical picture. The acute hallucinoses, on the contrary, show much less variation, being in the doubtfully pathological class but none the less always high.

The most interesting results were obtained in the series of 20 cases of delirium tremens. In this series the average was 235, ranging from 85 to 493. Only 7 observations in this series were found to be under 200, and these were, in every case, late in the course of the disease. One case in this series was tested two days after admission and responded so irregularly that the determination was impossible. One week later, ten days before discharge, this same patient had a threshold of 129. This is a fair example of how the thresholds varied with the second and third observations on these cases. The lowest threshold of this series (85) is interesting in view of the fact that this patient was also taking morphine. The highest threshold of the series was taken on the day of admission. One case of senile dementia that was also alcoholic, showed a high threshold when first tested. This value came down to the level of the other senile cases after a short stay in the Hospital, in other words, after withdrawal of the alcohol. A similar result was obtained with one alcoholic case of dementia precox. Such results are obtained with every alcoholic case except the Korsakoff cases. In other words, the longer after the withdrawal of alcohol the threshold was tested, the nearer normal it became.

The 21 cases of dementia precox showed an average threshold of 232. Upon analysis, one very interesting fact is evident: Contrary to expectation, the catatonic form shows an average threshold of only 232 as against 760 for the hebephrenic form. The paranoid form shows a normal threshold of 131, while the remaining types show an average of 191. Thus we find in this series that paranoid dementia precox shows a normal threshold, whereas all the other forms show an abnormal threshold.

The cases of manic-depressive insanity fall naturally into two groups. As is to be expected, the patients in the manic phase show a distinctly lower threshold than those in the depressed phase, the former averaging well within normal limits, the latter being definitely pathological. One very interesting case, first observed two years ago at the end of a depression, showed at that time a threshold of 318, which gradually came down to 106 as the depression wore off. Recently he has returned, complaining of the same symptoms of depression, lassitude, loss of weight, etc., and his threshold was found to be 227.

The other large group of cases is, of course, the syphilitic psychoses. The results in this group are absolutely inconclusive. The variation is tremendous and no correlation is possible. The average is again found to be high (192).

The group of psychoneuroses show a normal threshold in every way. The percentage of those under 100 B units is higher than any other group and is practically that found in normal human subjects. The only high threshold in this group is in a case in which the diagnosis is doubtful.

In the unclassified cases the variation is naturally very great, but here again we find a general tendency to high values. Again in this group, the cases with which the use of considerable alcohol is associated show a high threshold.

The senile dementias show a definitely pathological threshold, the highest being found in an alcoholic, before mentioned.

The epileptic cases are found to have a normal threshold, as do the remainder of the cases which we have tried, with the exception of two cases of Huntington's chorea and one involutional psychosis.

Three cases showed a difference between the reflexes on the two sides. In each of these the threshold was found to be distinctly lower on the side upon which the reflexes were livelier. This is rather significant evidence about the nature of the threshold we are determining. Just which of the many possible thresholds this method determines has never been worked out. It is our hope to test a case in which the sensory impulses are dissociated and so procure more evidence on this point.

No other correlations than those heretofore mentioned are evident in this series. We have attempted to work out such correlations with blood pressure, pupillary reactions, hallucinations, delusions, emotional tone, and orientation. A depressed patient appears to have a high threshold, but many patients who are not depressed or even euphoric have as high or higher thresholds.

We have, then, merely accumulated evidence to show that the quantitative method provides a means of determining a sensory threshold in psychopathic individuals, that these individuals show a decided tendency to have a higher threshold than normal subjects, and that the excessive use of alcohol appears to exert a definite influence in raising the sensory threshold. Clinically, this method appears to have a certain value in demonstrating improvement or recovery in certain cases, especially the alcoholic psychoses. It is possible that we may find in this method a means of accurately determining the difference between the reflexes of the two sides when such difference exists. Many more data will have to be gathered before any definite conclusions can be drawn. This series, however, seems to show that conclusions of practical and scientific value can be arrived at from further work and that the determination of the sensory threshold by the quantitative method will find a place in psychiatric and neurological examinations.

CONCLUSIONS.

1. The new Martin test (1908 *et seq.*) for variations in the sensory threshold for Faradic stimulation has been used in an orientation study upon 135 psychopathic subjects, ranging from the psychoneuroses to cases of coarse brain disorder. Repeated observations have been made in many cases.

2. The Faradic threshold in psychopathic subjects of almost all kinds tends to be high, and in fact averages 223 Beta units, as against 140, considered to be the highest range of normal subjects under ordinary circumstances, and 175, considered to be definitely pathological.

3. The average threshold for alcoholic cases was 252, and among alcoholic cases the polyneuritic or Korsakoff cases ran highest.

4. Upon withdrawal of alcohol and in convalescence the threshold falls, and the method may even have practical value in gauging the degree of progress toward recovery in the delirium tremens group.

5. Interesting figures are available for cases of dementia precox, indicating that the paranoidal forms have a normal threshold, whereas those classed as catatonic and hebephrenic have pathologically high thresholds. It is remarkable that the hebephrenic cases tested (two in number) showed some of the highest thresholds calculable (760). Eight catatonic cases averaged 232 (paranoid 131).

6. The manic phase of manic depressive insanity shows a normal threshold, the depressive phase a pathologically high threshold. One case observed at intervals for two years seems to show a high threshold ranging down to normal with the variations of his depression down to a normal emotional state.

7. Beyond a high threshold average, it is impossible to ascribe to the syphilitic group more than a tremendous variation in different cases.

8. The psychoneurotics seem to have normal thresholds,—hence there may be an immediate practical value diagnostically, when the diagnosis is in doubt as against the frank psychoses.

9. The normal thresholds of the four epileptics tested are interesting, but further work is necessary here.

10. The field of threshold work in cases with unilateral lesion and with sensory "dissociation" has been touched merely.

11. It is in some ways to be regretted that the technic of this test is delicate and the calculations a bit tedious, so that the employment of the test outside hospitals is not soon likely to be extensive. But under hospital conditions it seems clear that this method is likely to add data of great interest and considerable practical value to the objective psychology of psychopathic patients.

REFERENCE.

[1] Martin, E. G: American Journal of Physiology, 1908, 1909, 1910, 1911.
[2] Martin, Porter, and Nice: American Journal of Physiology, 1913.

IX.

EXPERIENCE WITH THE LANGE COLLOIDAL GOLD TEST IN 135 CEREBROSPINAL FLUIDS.

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THE Lange colloidal gold test is intended as a laboratory diagnostic method in the study of spinal fluid in cases of disease of the central nervous system. The reaction depends on the presence of an excess of albuminous material or abnormal albumen constituents in the fluid, and has its basis in the work of Zsigmondi,[1] who showed that albuminous substances may be differentiated through their reactions with colloidal gold solutions. This differentiation is due to the property, possessed by albumens in different degrees, of preventing the throwing down or "Ausflockung" (flaking out) of the gold particles by electrolytes.

In the case of cerebrospinal fluid it is found that in certain disease conditions the colloidal gold is thrown down by addition of the fluid as it would be by an electrolyte. It is known that while proto- and hetero-albumoses protect the colloidal metal, that deutero-albumoses act in this respect like electrolytes. We are not prepared to draw any conclusions or comparisons, however.

Details of the technic may be found in Lange's[2],[3] original contributions or in any of the articles mentioned below. Briefly the test is performed as follows. Ten tubes are set up in a rack. To the first tube 1.8 c.c. of a 0.4% salt solution is added and to each of the following tubes 1c.c. Then to the first tube 0.2 c.c. of the spinal fluid to be tested is added, making a dilution of 1/10. From this tube 1 c.c. is pipetted into the second tube and so on to each tube, the extra c.c. from the last tube being thrown away. This gives dilutions of spinal fluid of 1/10, 1/20, 1/40, 1/80, 1/160, and so on to 1/5120 in the last tube. Five c.c. of gold reagent is added to each tube. After a number of hours the results are read.

By a positive reaction is meant a flaking out of the gold and this causes a color change which varies with the intensity of the reaction. The color changes from the original red through red blue, blue red, violet or dark blue, light blue, to clear, and the color changes are represented by 1-5 plusses.

By charting these results and comparing them with the clinical and laboratory knowledge of the cases, certain conclusions have been offered by several workers. It is claimed that the reaction will in general give a characteristic curve in syphilitic disease of the central nervous system, differing from that found in the septic meningitides and in at least some cases of tubercular meningitis, and that non-inflammatory disease will give a negative test. Syphilitic disease gives a reaction in the lower dilutions, that is, the color change is most marked in the tubes with dilutions from 1/10-1/160. General paresis characteristically gives a "Five" reaction beginning on the first tube and running through a number. Tabes and cerebrospinal syphilis give weaker reactions and usually do not give as strong reactions in the first tube as in the second or third. The septic meningitides give strong reactions running through the middle and high dilutions. Tubercular meningitis tends to cause the reaction in the high dilutions.

Reports of the test have been given by Lange,[2],[3] Jaeger and Goldstein,[4] Eicke,[5] Grulee and Moody,[6] Sippy and Moody,[7] Kaplan and McClelland,[8] Kaplan,[9] Miller and Levy,[10] Lee and Hinton.[11] As our evaluation of the test must depend upon a comparison of results where the diagnosis is fairly substantiated by other tests or by autopsy, we are giving our results in full with the clinical diagnosis, the Nonne test for globulin, the Mestrezat test for albumen, the cell count and the Wassermann reaction in serum and fluid. (Wassermann reactions marked "c" mean positive only with cholesterin-reënforced antigens.)

It will be seen from Table I that the cases of general paralysis give fairly constant and characteristic reactions. There are 25 cases with 28 spinal fluids diagnosed from the clinical and laboratory findings as general paralysis or cerebrospinal syphilis. The characteristic paretic reaction, *i.e.*, 5 plus change beginning in the first tube and continuing through a number of dilutions was typically given in 20 cases.

Of the five atypical reactions, one, L. M., No. 96, is very suggestive, and the fluid taken again two weeks later, during which time four intravenous injections of salvarsan were given, is quite typical. This case is not a typical general paretic. The symptoms are optic atrophy of about two years' duration, paralysis of one external rectus, nystagmus, ankle clonus and very little if any mental change. The second case, J. R., No. 114, giving a very slight reaction, was under salvarsan therapy and has shown a remission of mental symptoms and the laboratory signs have all returned to near normal. The third atypical result is in the case of A.De., No. 140, with ten cells per c.mm., and Wassermann

* Being Contributions from the Psychopathic Hospital, Boston, Number 59 (1914.25), read in abstract at the Second Annual Conference of the Medical and Social Work of the Psychopathic Hospital, Boston, June 26, 1914. The sincere thanks of the writers are extended to Dr. H. M. Adler for permission to carry out these tests, most of whom were executed with Psychopathic Hospital material. Thanks are also due Dr. I. C. Walker of the Peter Bent Brigham Hospital who courteously furnished them with several fluids. Certain tests marked X were performed at the Psychopathic Hospital by Drs. Ward H. Cook and Ivan R. Burkett, whom the writers wish to thank also. *Bibliographical Note.*—The previous contribution, Number 58 (1914.24), was by G. Philip Grabfield, entitled "Variations in the Sensory Threshold for Faradic Stimulation in Psychopathic Subjects: First Note," published in the BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. clxxi, No. 24, December 10, 1914.

TABLE I. GENERAL PARALYSIS, CEREBROSPINAL SYPHILIS AND CEREBRAL SYPHILIS.

Name.	No.	1/10	1/20	1/40	1/80	1/160	1/320	1/640	1/1280	1/2560	1/5120	Glob.	Alb.	Cells.	W. R. Ser.	W. R. Fl.	Diagnosis and Remarks.
E. G.	11	5	5	5	5	5	4	3	1	0	0	+	+	35	+	+	G. P.
W. R.	12	5	5	4	4	3	3	2	1	0	0	+	+	27	+	+	G. P. or C. S. S. (treatment)
"	70	5	5	5	5	5	5	4	3	0	0	+	+	+	+	+	One week later "
"	97	3	3	5	4	4	4	2	1	0	0	+	+	+	+	+	One month later "
G.	13	5	5	5	5	5	3	1	0	0	0	+	+	35	+	+	G. P.
F. K.	15	5	5	5	5	5	3	1	0	0	0	+	+	37	+	+	G. P.
R. D.	32	5	5	5	5	5	5	4	3	2	0	+	+	135	+	+	G. P.or C. S. S.
A.	55	5	4	4	4	4	4	3	3	3	0	+	+	+	+	+	G. P.
C.	75	5	5	5	5	5	5	4	3	1	0	+	+	113	+	+	G. P.
J. H.	95	5	5	5	5	5	5	5	5	1	0	+	+	29	+	+	G. P.
A. D.	119	5	5	5	5	5	5	5	5	3	1	+	+	225	+	+	C. S. S. or G. P.
C. D.	130	5	5	5	3	3	2	0	0	0	0	+	+	67	+	+	Taboparesis
M. O.	149	5	5	5	5	5	5	4	2	1	0	+	+	13	+	+	G. P.
S. S.	155	5	5	5	5	5	5	5	5	3	2	+	+	28	+	+	G. P.
A. Da.	165	5	5	5	5	5	5	2	0	0	0	+	+	41	+	+	G. P.
W. S.	166	5	5	5	5	5	5	5	4	2	0	+	+	42	+	+	G. P. or C. S.S.
C. M.	171	5	5	5	5	5	5	3	1	0	0	+	+	33	+	+	G. P.
W. D.	172	5	5	5	5	5	3	2	1	0	0	+	+	140	+	+	C. S. S. or G. P.
W. A.	204	5	5	5	5	5	5	4	3	2	0	0	+	+	+	+	G. P.
J. B.	201	5	5	4	4	4	4	2	1	1	1	1	+	+	7	+	G. P.
J. M.	196	5	5	5	5	5	5	5	5	3	1	1	+	+	44	+C	+ G. P.
P. H.	193	5	5	5	5	5	5	5	4	2	1	0	+	+	32	+C	+ G. P.
M.	51	0	0	0	1	2	2	1	0	0	0	0	N	0	+	—	C. S.
L. M.	96	4	4	3	1	1	2	2	0	0	0	+	+	10	—	+	C. S. S. or G. P.
L. M.	110	5	5	5	3	3	2	1	0	0	0	+	+	25	—	+	C. S. S. or G. P. Interval, two weeks
J. R.	114	0	0	1	1	1	1	0	0	0	0	+	+	4	+C	—	G. P. improved under treatment
J. A.	135	3	4	3	2	2	1	0	0	0	0	+	+	164	+	+	G. P. or C. S. S.
A. De.	140	1	1	1	1	0	0	0	0	0	0	+	+	10	+C	+C	G. P.
N. S.	24	2	1	1	3	5	4	2	1	0	0	+	+	100	+	+	G. P. or C. S. S. Repeated different reaction each time

TABLE II. TABES.

Name.	No.	1/10	1/20	1/40	1/80	1/160	1/320	1/640	1/1280	1/2560	1/5120	Glob.	Alb.	Cells.	W. R. Ser.	W. R. Fl.	Diagnosis and Remarks.
C.	46	0	2	2	2	2	1	0	0	0	0	+	+	9	+	+	Tabes
C.	47	0	1	1	2	2	2	1	0	0	0	+	+		+	+	" Interval several
C.	48	0	1	1	2	2	2	1	0	0	0	+	+		+	+	" days with in-
C.	49	0	1	1	2	2	2	1	0	0	0	+	+		+	+	" traspinous
C.	50	0	0	1	2	2	2	2	1	0	0	+	+		+	+	" treatment
S.	40	0	0	0	1	2	1	0	0	0	0	+	+	6	+	+	"
S.	41	0	0	0	1	1	1	0	0	0	0	+	+		+	+	" Interval several
S.	42	0	0	0	1	1	2	0	0	0	0	+	+		+	+	" days with in-
S.	43	0	0	0	2	2	2	0	0	0	0	+	+		+	+	" traspinous
S.	44	0	0	0	0	1	1	0	0	0	0	+	+		+	+	" treatment
S.	45	0	0	0	2	2	2	1	0	0	0	+	+		+	+	"
J. C.	17	2	1	1	3	3	3	0	0	0	0	+	+	2	+C	+C	Tabes?

TABLE III. CONGENITAL SYPHILIS.

Name.	No.	1/10	1/20	1/40	1/80	1/160	1/320	1/640	1/1280	1/2560	1/5120	Glob.	Alb.	Cells.	W. R. Ser.	W. R. Fl.	Diagnosis and Remarks.
F. M.	1	0	2	4	3	3	2	2	1	0	0	+	+	110	+	+	Juvenile paresis
F. S.	2	0	0	0	0	0	0	0	0	0	0	0	N.	0	+	—	Cong. syphilis, age 21
F. Sh.	3	0	0	1	0	0	0	0	0	0	0	0	N	0	+C	—	" " optic atrophy
E. C.	79	0	0	0	1	1	0	0	0	0	0	0	N	0	—	—	" " (?) treatment
L. N.	89	0	0	0	0	0	0	0	0	0	0	0	N	0	+C	—	" "
B. N.	2x	0	—	—	—	—	0	0	0	0	0	0	N		+C	—	" Sisters
M. N.	3x	0	—	1	1	1	1	—	0	0	0	0	N	22	+	+C	" "
G. F.	160	1	1	1	1	1	0	0	0	0	0	0	N	3	+C		" "
J. K.	157	0	0	0	0	0	0	0	0	0	0	0	N	0	+C	—	" "
M. F.	1x	0	0	2	2	1	0	0	0	0	0	0	N	8	—	—	" "
J. Mc.	5x	0	0	1	2	1	1	—	1	0	0	0	N	0	+C	—	" "
No. 4G.	209	0	0	0	0	0	0	0	0	0	0	0	N		+	—	Syphilitic meningitis

TABLE IV. WASSERMANN REACTION POSITIVE IN SERUM OR FLUID DIAGNOSIS OTHER THAN SYPHILIS OF THE NERVOUS SYSTEM.

Name	No.	1 10	1 20	1 40	1 80	1 160	1 320	1 640	1 1280	1 2560	1 5120	Glob.	Alb.	Cells.	W. R. Ser.	W. R. Fl.	Diagnosis and Remarks.
A. K.	90	0	0	1	1	1	0	0	0	0	0	0	N	2	+C	—	Chronic alcoholism
M. K.	105	1	1	1	1	2	1	0	0	0	0				+C	—	Dementia praecox
A. H.	118	1	0	0	0	0	0	0	0	0	0	0	N	0	+	—	Tertiary syphilis and dementia praecox
M. P.	150	0	0	1	1	1	0	0	0	0	0	0	N	2	+C	—	Dementia praecox
J. C.	151	0	0	1	1	0	0	0	0	0	0	0	N	2	+C	—	Defective delinquent
M. L.	173	1	1	1	0	0	0	0	0	0	0	0	N	2	+C	—	Manic depressive or dementia praecox
N. D.	176	0	0	1	2	2	1	0	0	0	0	0	N	0	+C	—	Manic depressive
G. S.	198	0	1	1	1	1	0	0	0	0	0	0	N	2	+	—	Korsakoff
J. M.	199	0	0	1	1	1	1	0	0	0	0	+	+	2	—	+C	Arterio sclerosis with cerebral hemorrhage
E. A.	4	0	0	0	0	0	0	0	0	0	0	0	N	0	+C	—	Dementia praecox
A. S.	16	0	0	0	0	0	0	0	0	0	0	0	N	0	+	—	Unclassified
C. A.	61	0	0	0	0	0	0	0	0	0	0	0	N		+C	+C	Chronic alcoholism
M. C.	62	0	0	0	0	0	0	0	0	0	0	0	N	0	—	+C	Dementia praecox
L. M.	63	0	0	0	0	0	0	0	0	0	0	0	N	0	+C	—	Anemia
M. J.	69	0	0	0	0	0	0	0	0	0	0	0	N	0	+C	—	Defective
C. C.	76	0	0	0	0	0	0	0	0	0	0	0	N	0	+C	—	
M. K.	71	0	0	0	0	0	0	0	0	0	0	0	N	0	+C	—	Involution psychosis
A. S.	83	0	0	0	0	0	0	0	0	0	0	0	N		+C	+C	Syphilitic cerebral endarteritis with old hemiplegia
L. S.	84	0	0	0	0	0	0	0	0	0	0	0	±	7	+	—	Manic depressive
P. C.	91	0	0	0	0	0	0	0	0	0	0	0	N	0	+C	—	Defective delinquent
F. G.	92	0	0	0	0	0	0	0	0	0	0	0	N	0	+C	—	Unclassified
C. H.	99	0	0	0	0	0	0	0	0	0	0	0	N	0	+C	—	Epilepsy
M. S.	117	0	0	0	0	0	0	0	0	0	0	0	N	2	+C	—	Manic depressive
S. P.	118	0	0	0	0	0	0	0	0	0	0	0	N	2	+C	—	Hysteria
J. M.	133	0	0	0	0	0	0	0	0	0	0	±	+	—	+	—	Alcoholism
M. G.	131	0	0	0	0	0	0	0	0	0	0	0	N		+C	—	Dementia praecox
M. D.	139	0	0	0	0	0	0	0	0	0	0	0	N		+	—	Manic depressive
F. v. E.	141	0	0	0	0	0	0	0	0	0	0	0	N	6	+C	—	Dementia praecox
P. C.	144	0	0	0	0	0	0	0	0	0	0	0	N		+	—	Drug psychosis
C. C.	118	0	0	0	0	0	0	0	0	0	0	0	N		+C	—	Syphilitic periostitis
M. C.	127	0	0	0	0	0	0	0	0	0	0	0	+	1	+C	—	Psychasthenia
M. Mc.	23	0	0	0	0	0	0	0	0	0	0	±	+	2	+C	—	Unclassified
J. G.	205	0	0	0	0	0	0	0	0	0	0	0	N	1	—C	+	Unclassified

TABLE V. WASSERMANN REACTION NEGATIVE IN BOTH SERUM AND FLUID.

Name	No.	1 10	1 20	1 40	1 80	1 160	1 320	1 640	1 1280	1 2560	1 5120	Glob.	Alb.	Cells.	W. R. Ser.	W. R. Fl.	Diagnosis and Remarks.
W. L.	30	0	0	0	1	0	0	0	0	0	0	0	N	2	—	—	Alcoholic hallucinosis
C. W.	81	0	0	1	1	0	0	0	0	0	0	0	N	1	—	—	Alcoholic hallucinosis
W. F.	194	0	0	2	2	2	1	0	0	0	0	0	N	0	—	—	Alcoholism
C. C.	197	0	0	1	2	2	1	0	0	0	0	—	+	0	—	—	Korsakoff
A. Mc.	5	1	1	3	3	2	2	1	0	0	0	+	+	6	—	—	Unclassified
M. W.	147	0	0	0	1	1	0	0	0	0	0	+	N	2	—	—	"
M. N.	18	0	0	0	0	0	1	0	0	0	0	+	+		—	—	"
C. L.	88	0	1	1	2	1	0	0	0	0	0	0	N	2	—	—	Multiple sclerosis
J. W.	111	5	3	4	3	3	2	1	0	0	0	+	+	8	—	—	" "
J. W.	192	5	5	5	5	4	3	2	0	0	0	+	+	7	—	—	" " 5 months later
W. C.	203	0	0	1	1	0	0	0	0	0	0	0	N	3	—	—	Defective delinquent
W. M.	202	2	2	2	2	2	1	1	1	0	0	0	N	0	—	—	
R. S.	31	0	0	0	1	1	1	0	0	0	0	0	+	0	—	—	Cerebral hemorrhage
J. R.	77	0	0	0	1	1	1	0	0	0	0	0	+	0	—	—	Fracture base of skull ? cerebral hemorrhage
E. B.	93	0	0	0	1	1	1	0	0	0	0	±	+	2	—	—	Mastoiditis. ? brain abscess
F. C.	106	0	0	0	1	0	0	0	0	0	0	±	+	1	—	—	Organic dementia
L. B.	109	0	0	0	0	1	0	0	0	0	0	0	N	2	—	—	Paralysis agitans
C. F.	146	2	1	1	1	0	0	0	0	0	0	0	N	0	—	—	Optic atrophy, age 15
W. B.	87	0	1	1	2	2	2	1	0	0	0	0	+	1	—	—	Epileptic deterioration
M. C.	159	1	1	1	1	1	0	0	0	0	0	0	N	1	—	—	Dementia praecox
J. A.	7	0	0	0	0	0	0	0	0	0	0	0	+	3	—	—	Chronic alcoholism
H. D.	14	0	0	0	0	0	0	0	0	0	0	0	±		—	—	Delirium tremens
J. B.	20	0	0	0	0	0	0	0	0	0	0	0	N		—	—	Alcoholism and paraphrenia
O'C.	102	0	0	0	0	0	0	0	0	0	0				—	—	Alcoholism and feeble-minded
McG.	103	0	0	0	0	0	0	0	0	0	0	0	0	N	0	—	— Delirium tremens
J. G.	110	0	0	0	0	0	0	0	0	0	0	0	0	N	0	—	— Alcoholism

TABLE V.—(*Continued.*)

Name.	No.	1 10	1 20	1 40	1 80	1 160	1 320	1 640	1 1280	1 2560	1 5120	Glob.	Alb.	Cells.	W. R. Ser.	W. R. Fl.	Diagnosis and Remarks.
J. L.	121	0	0	0	0	0	0	0	0	0	0	0	N	0	—	—	Alcoholic hallucinosis
A. Y.	138	0	0	0	0	0	0	0	0	0	0	0	N	3	—	—	Alcoholic hallucinosis or dementia praecox
T. D.	167	0	0	0	0	0	0	0	0	0	0	0	N	0	—	—	Delirium tremens
W. H.	206	0	0	0	0	0	0	0	0	0	0	+	+	2	—	—	Alcoholism
C. K.	122	0	0	0	0	0	0	0	0	0	0	0	N		—	—	Dementia praecox
M. F.	128	0	0	0	0	0	0	0	0	0	0	0	N		—	—	" "
J. B.	132	0	0	0	0	0	0	0	0	0	0	0	N	0	—	—	Dementia praecox or manic depressive
A. L.	134	0	0	0	0	0	0	0	0	0	0				—	—	Dementia praecox
L. B.	113	0	0	0	0	0	0	0	0	0	0	0	N		—	—	Manic depressive
J. V.	6	0	0	0	0	0	0	0	0	0	0	0	+	3	—	—	Unclassified
E. L.	9	0	0	0	0	0	0	0	0	0	0	0	N	2	—	—	"
J. F.	18	0	0	0	0	0	0	0	0	0	0	±	N	1	—	—	"
J. M.	78	0	0	0	0	0	0	0	0	0	0	0	N	2	—	—	"
J. H.	80	0	0	0	0	0	0	0	0	0	0				—	—	"
C. H.	104	0	0	0	0	0	0	0	0	0	0	0	N	0	—	—	"
C. G.	123	0	0	0	0	0	0	0	0	0	0	±	N	0	—	—	"
J. L.	158	0	0	0	0	0	0	0	0	0	0	0	N	3	—	—	"
C. J.	8	0	0	0	0	0	0	0	0	0	0	0	N	2	—	—	Multiple sclerosis
F. H.	21	0	0	0	0	0	0	0	0	0	0	0	N	0	—	—	Hypopituitarism
A.	52	0	0	0	0	0	0	0	0	0	0	0	N		—	—	Serous meningitis
L. C.	53	0	0	0	0	0	0	0	0	0	0	0	N		—	—	Echinococcus cyst
V. Y.	72	0	0	0	0	0	0	0	0	0	0	0	N	0	—	—	Nervous
J. P.	107	0	0	0	0	0	0	0	0	0	0	0	—	4	—	—	Cerebral hemorrhage
W. M.	108	0	0	0	0	0	0	0	0	0	0	0	N	2	—	—	Imbecile
K. M.	129	0	0	0	0	0	0	0	0	0	0	0	N	2	—	—	Sex pervert
P. F.	136	0	0	0	0	0	0	0	0	0	0	0	N		—	—	Organic dementia
N. S.	189	0	0	0	0	0	0	0	0	0	0	0	N	0	—	—	Hysteria
No.8Y.	208	0	0	0	0	0	0	0	0	0	0	0	N		—	—	Brain tumor

TABLE VI. TUBERCULAR MENINGITIS.

Name.	No.	1 10	1 20	1 40	1 80	1 160	1 320	1 640	1 1280	1 2560	1 5120	Glob.	Alb.	Cells.	W. R. Ser.	W. R. Fl.	Diagnosis and Remarks.
B.	54	0	0	0	0	1	2	3	3	2	0	+	+	500	+	+	Tubercular meningitis
C.	101	0	0	0	0	1	2	2	1	0	0	+	+		+	+	Miliary tuberculosis
																	Ventricular fluid P.M.
M. M.	88	0	0	0	1	3	2	0	0	0	0						Tubercular meningitis
In.	208	0	0	0	0	0	1	2	2	1	0	+	+		—	—	Tubercular meningitis

reaction in serum and fluid positive only with cholesterin reënforced antigens. The fourth case, J. H., No. 135, may be either paresis or cerebrospinal syphilis from the clinical picture. The fifth case for some unknown reason in five trials gave different results each time.

As we are not certain in many of these cases whether the diagnosis is paresis or cerebrospinal syphilis, we are unable to draw any conclusions from these tests as to the value of the method in differentiating the two. Only further experience with autopsy check will tell us. One case with the clinical diagnosis of cerebral syphilis gave a reaction typical of syphilis and differing markedly from general paresis.

The fluids from the three cases diagnosed tabes dorsalis give reactions very different from the paretic fluids. They are particularly interesting in that the fluids were obtained at short intervals during intraspinous treatment, and that the result of each test is so similar to the preceding test.

In order to test the effect of salvarsan injected in this way into the spinal canal, amounts of salvarsan somewhat in excess of the amount injected by the intraspinous method were added in vitro to the gold reagent. A reaction occurred, but if spinal fluid from a normal case in any dilution up to 1/5120 were added it served to protect the reagent and no color change occurred.

As the intensity of the color change has been reported to become less as a patient improves under treatment from paresis and tabes, we attempted to see if there were any differences in the reactions that could be looked upon as indicative of the severity of the process. The fluids were tested in dilutions of 1/1, 1/2, 1/4, 1/8, and also compared at the other end of the scale, but no general relation was found in these reactions either as to the duration of the disease or the clinical symptoms.

Of the twelve cases of congenital syphilis, only one gave a marked reaction and that a case of juvenile paresis. The diagnosis in each case was made with the aid of the family study. These results are quite different from those reported by Grulee and Moody, as they got fairly

reactions in nine of ten cases, but all these patients were under six months of age, while ours ranged from three years to over twenty years of age. An interesting result is obtained in the case of M.F., No. 5x. This child aged four, of syphilitic parents, born while mother was under anti-syphilitic treatment, is unable to talk, or feed itself, is barely able to walk, shows athetoid-like movements and general mental deficiency. With the exception of a border line number of cells in the fluid all tests except the colloidal gold are entirely negative, and yet it seems that there can be little doubt but that the child is syphilitic.

There are 33 cases giving positive Wassermann reactions which are diagnosed as other than syphilis of the central nervous system. Of these, 10, or 30.3%, give some reaction in the syphilitic zone, mostly very slight. At first sight this would seem to suggest that we here have an important indication of the involvement of the central nervous system by the syphilitic virus. But when we find that of the fifty-three cases giving a negative Wassermann reaction and no other indication of syphilis, 18, or 33.9%, give reactions mostly in the syphilitic zone, the validity of the former assumption is shaken. A number of these latter cases show increase in globulin and albumen by other tests, so it is to be expected that a reaction would occur with the gold reagent. It is possible in the cases that show no reaction with the cruder tests that the colloidal gold gives us a more valuable test for the presence of abnormal substances.

Of the non-syphilitic cases the case of multiple sclerosis, J. W., Nos. 111 and 192, gives a reaction such as is characterisitic of paresis. Kaplan and McClelland have reported a similar finding. A second case of multiple sclerosis gives a reaction in the syphilitic zone, while a third case is quite negative.

Very interesting is the case of C. F., No. 146, whose gold reaction is suggestive of syphilis. The patient is aged 15. He has had optic atrophy since the age of 5 of no known etiology. There is marked nystagmus, paralysis of one external rectus, no reaction of the pupils, absent abdominal reflexes, knee jerks and ankle jerks obtained only on reënforcement. Patient is feeble minded and recently has had attacks of *petit mal*. The clinical diagnosis of syphilis was made, but all tests for syphilis are negative. The father denies infection and gives a negative Wassermann reaction, as does the patient's brother.

Four cases of tubercular meningitis gave reactions not to be confounded with syphilitic disease, as the change takes place in the higher dilutions. Two of these cases are of extreme interest in showing the great value of the test. B. No. 54, presenting the clinical picture of a terminal stage of general paresis; serum and spinal fluid positive by the Wassermann test, globulin increased and 500 cells per cmm. in the fluid, was given intraspinous treatment with the result that the cell count fell rapidly but the patient died. Autopsy and inocualtion showed this to be a tubercular meningitis. A second case 6, No. 101, with an almost identical clinical picture and laboratory findings showed at autopsy miliary tuberculosis with involvement of the brain. The ventricular fluid obtained post mortem gave a reaction similar to the other tubercular fluids. It would seem then that in these two cases the colloidal gold test was the only one of any real diagnostic value.

CONCLUSIONS

1. The test requires very small quantities of fluid, is rapid, easy and cheap, but must be done with great care.

2. Paresis gives very typical reactions, but cases of undoubted paresis may give atypical reactions, and cases not paresis may give the type reaction.

3. We are unable to offer any conclusion as to its value in the differentiation of cerebrospinal syphilis and paresis.

4. Tabes gives a reaction quite different from paresis, fairly characteristic of syphilis, but not in itself diagnostic of tabes.

5. It is of no certain value in cases of congenital syphilis showing no other signs of central nervous system involvement.

6. Non-syphilitic cases give at times reactions in the so-called syphilitic zone.

7. In view of the above statement it can be maintained that, a reaction in the syphilitic zone in cases of syphilities does not necessarily argue syphilitic involvement of the central nervous system, all other signs being negative.

8. It would seem to offer a differentiation of tubercular meningitis, and is here at times more valuable than any other test.

9. New avenues of speculation and investigation are opened which must lead to increased knowledge of the spinal fluid and other body fluids through their reactions with colloidal solutions.

10. We feel that it is a most valuable and important addition to our laboratory equipment of diagnostic aids.

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X.

Cases to Illustrate Symptomatic Psychoses of Cardiorenal Type.*

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It is becoming more and more clear that we cannot trust entirely to purely clinical pictures for the diagnosis of mental diseases. It is well known that the Kraeplinian diagnoses dementia precox and manic-depressive insanity are hardly to be so easily differentiated as it seemed when these diseases were first formulated. It has often been shown that general paresis is a disease which cannot be safely diagnosticated from the mental symptomatology and that even the characteristic neurological symptoms of general paresis are not entirely pathognomonic.

Study in psychiatric clinics and psychopathic hospitals of the so-called *symptomatic psychoses* is aiding in the above-mentioned tasks of differential diagnosis. Certain cases belonging in the group of symptomatic psychoses markedly simulate such conditions as manic-depressive insanity, dementia precox, various alcoholic psychoses (including Korsakoff's psychosis) and even general paresis. The following paper presents a brief clinical analysis of certain cases of the group. The chemical side of these other groups of mental disease is being investigated upon the more modern lines by Dr. H. M. Adler,[1] whose first publication on the topic appeared in The Boston Medical and Surgical Journal as Psychopathic Hospital Contribution No. 50 (1914.16). Credit is hereby given Dr. Adler for suggestion of this topic of investigation, and the names of the physicians and internes who have carried out the tests are given below.

Mentally, in these groups of cases are found disorders of orientation, clouding of consciousness, frequently with confabulation, delusions of both a grandiose and persecutory nature, with a strong tendency towards systematization, hallucinations, frequently auditory or visual, less frequently olfactory and gustatory, disturbance in the fields of association, incoherence in thought, emotional instability, distinct euphoria, more or less deep depression, disturbances of judgment and will, negativism, cerea flexibilitas, stupor, excitement.[2]

Neurologically, there have been observed tremor, ataxic disturbances, stumbling and hesitating speech,[3] disturbances of the cranial nerves,[2] isolated disturbances of the eye muscles,[3] paralysis of the facial nerve,[3] pupillary changes—unequal pupils and pupils which react but sluggishly and within narrow limits to light[2] or not at all,[3] tendon reflexes increased,[4] diminished or absent,[5] the presence of a Kernig,[6] and a Babinski,[3] aphasia,[7] paraplegia,[8] and hemiplegia.[9]

Bonhoeffer has termed these cases symptomatic psychoses.[2] Their etiology is frequently obscure, but they are "thought to be essentially due to certain infectious diseases, certain conditions of exhaustion, certain organic non-nervous diseases, and certain constitutional disorders."[10]

A number of these cases have passed through the hospital in the last year, and from the group I have selected two which are representative of the class and instructive because of their close similarity to other conditions.

Case 1. No. 3042. Male. Age, 16 years. Nothing is known of the family except that the mother has been committed three times with a diagnosis of manic-depressive insanity.

Previous History of Patient. Always rather morose, solitary, and totally lacking in courage. Never well nor strong. Of an introspective, melancholy temperament. Two years ago, while carrying a heavy basket, had a sudden pain in his back and testicles and thought he "had ruptured himself." He ascribes all his illness to this, and says that he has never been well since. In March, 1913, was told he had kidney trouble and was sent to a hospital for three weeks. Feet are said to have been swollen at this time. Said to have been discharged fairly well. In August, 1913, feet and abdomen became markedly swollen again and he entered another hospital where he remained seventeen weeks. During that time the edema entirely cleared up, but he grew constantly weaker and steadily lost weight, weighing only seventy pounds when discharged. Until April 7, 1914, he remained under the care of his mother. He remained constantly in bed—became progressively weaker. His diet, during this time, consisted entirely of egg noggs and brandy. On April 7, had four fainting spells and was taken to a neighboring hospital where a provisional diagnosis of inanition was made, later changed to nephritis. Shortly after entrance, mental symptoms developed. The patient was seen in consultation, and the mental study then begun was continued at the Psychopathic Hospital after the patient's transfer on June 6, 1914.

Mental Condition. There were periods of excitement alternating with stupor. When in stuporous condition, could occasionally be aroused to give name, age, and address, but that was all. Usually did not attend to questions. During the periods of excitement, attention could seldom be gained. Visual hallucinations were present. Spontaneous speech was rambling in character, loose in construction, more or less incoherent, and had to do with his hallucinations and various plans on going home; was frequently negativistic; exhibited marked cerea flexibilitas at times. Frequently had to be fed. Soiled. Had one to two clonic convulsions almost daily. Mental diagnosis previous to entrance: catatonic dementia precox.

Physical Condition. Inspection suggests that the patient is suffering from some severe constitutional disorder. Skin is sallow, pale, and very edematous,

* Being Contributions from the Psychopathic Hospital, Boston, Number 60 (1914.26), read at the Second Annual Conference on the Medical and Social Work of the Psychopathic Hospital, June 26, 1914. (*Bibliographical Note.*—The previous contribution, Number 59 (1914.25), was by H. C. Solomon and H. O. Koefod, entitled "Experience with the Lange Colloidal Gold Test in 135 Cerebrospinal Fluids," published in the Boston Med. and Surgical Journal, Vol. clxxi, No. 24, December 10, 1914.

... swollen. Feet and ankles are markedly ... Fluid in the flank. Heart not enlarged; ... systolic murmur at apex. Pulse weak, but regular. Lateral nystagmus. Biceps, triceps, abdominal, cremasteric patellar, Achilles reflexes not obtained. ... Babinski, Gordon nor Oppenheim reflex.

Blood Examination. Hemoglobin 80%, R. B. C. 4,000,000, W. B. C. 20,000, Neutro. 91½, large mono. ... small mono. 4½, reds not remarkable. The ... cyte count fell gradually in the course of a few days to 10,000.

Urine Examination. A series of urine examinations showed specific gravity varying from 1010 to 1016, small amounts of albumen, a few hyaline casts, granular casts fairly abundant.

Renal Function Tests. (1) 1 hr., no specimen; 2 hrs., 30%. (2) 22%, 25%—47% total. (3) 41%, 22% ... 63% total.

Chemical Study of Blood. A series of examinations showed; 37 mg., 30.1 mg., 31.6 mg., 27.7 mg. per hundred cc. of non-proteid nitrogen.

CASE 2. No. 12,810. Male. Age, 52 years. Contractor and builder. Family history negative except that mother, who died at 77, was rather childish during the latter years of her life, and a sister died at 48 of uremic poisoning.

Mental Makup and Character. Very cheerful; no depression; social, never seclusive. Even-tempered. Fond of his home. Somewhat demonstrative. Reserved, in general. Self-reliant. Got on well with people. Widely interested. No alcohol. No tobacco, except rarely a cigar. No drugs. Married. Married life very happy. Children: A son 25, who at one year had one convulsion, followed by what the physician called "hysteria"; a son 9, always well; no miscarriages. Life has been uneventful. Has been prosperous.

Medical History. Not known to have had any venereal disease. Typhoid fever 19 years ago. In earlier years, somewhat subject to headaches and vomiting. About 6 years ago, applied for life insurance and was rejected because of "too much albumen in the water." At that time, was advised to diet, but did not do it. Last winter had a mild attack of whooping cough.

Present Illness. Informant (wife) dates present trouble from August, 1913. At that time patient was in Baltimore in exceedingly hot weather. Took several cold baths each day; when he returned home he had severe headache and complained of not feeling well; was thought to have gout. In September, had slight frontal headache, and continuous nausea, without vomiting. Dr. C. was consulted. In October, patient went to Philadelphia on business, and while there became worse, without much change of symptoms. Came home with "high fever." Consulted Dr. H. who told him, informant says, that he had enlargement of the prostate gland, which would sometime require an operation of so serious a nature that not more than one out of a hundred survived. After this, the patient seemed worried, and immediately began to talk about his financial affairs, and to make arrangements as if he expected to die. At about this time, he was in bed for two weeks, with some fever; was very sleepy. Finally got better and was able to do some work. He then made a claim on the Health and Accident Association (in which company he is insured) for his illness. This necessitated a medical examination, and Dr. H. was sent by the company for the purpose. Dr. H. gave the patient medicine, which, informant says, proved to be "regular dope." He took the medicine for at least two weeks, and during that time would sleep almost continuously from 20 to 24 hours. In February, Dr. L. was called. He found a slight trace of albumen in the urine. At this time, patient was in the house for five weeks, but not on a diet. At the suggestion of Dr. L. in February, Dr. V. was consulted, who said there was slight kidney trouble, but found nothing serious. The blood pressure was said to be practically normal. Lost his sexual power a year and a half ago. Has drunk large quantities of water for some time, as many, sometimes, as eighteen glasses within an hour. Incontinent urine. In November, 1913, began to be extremely irritable; continually found fault with the behavior of his younger child. Began also, to be very small about money matters. Wanted to save. After giving his wife an allowance, would charge against her account any trifle he bought for her. Then again at Christmas time became very generous. Until within a month, there have been no tremor, no speech defect, no convulsions. Loss of memory has been evident for some months. About three weeks ago, his speech became thick, and at about the same time he began to drag his feet. At times has not known his wife. Said that his mother (who is dead) had visited him; that he had talked with her and with his sister and brother. Has had considerable time disorientation. Made meaningless movements. Dressed and undressed several times when getting ready for bed. For about ten days has been unable to see; walks like a blind person. A day or two ago got down on the floor to look for a glass. Occasionally had clearer periods when he knows what he has been doing.

Mental Examination. When visited on ward rounds the morning after admission, patient recognized the chief-of-staff, whom he had known well during the early days of the hospital.* He knew where he was and remarked that he had never expected to be a patient in this hospital. Later in the day, he became excited and tore his blankets and sheets into strips; soiled the floor. The strips of blanket and sheet he tied about his feet in a fantastic manner. When visited, he was found without clothing, wandering about the room, evidently much confused. Asked why he had so bundled up his feet, remarked that he had walked so fast he had frozen them. He was oriented for person. The time he gave as March, 1915; place as the Naval Hospital, Philadelphia. Asked if he were not in the Psychopathic Hospital, said no—that the Psychopathic Hospital was a part of the Naval Hospital, but was located on the corner of Broad and Main Streets, while this hospital was on Susquehanna and Broad. When asked the name of the building across the way (House of the Good Shepherd), said it was the Psychopathic Hospital and that he built it.

There was marked loss of memory for both remote and recent times. Gave the year of his birth as 1814, his age at 34; date of his marriage as June 23, 1914; named his children incorrectly. Remembered the names of the architects who drew the plan for the Psychopathic, and the approximate cost of the building, but could recall practically no other detail of the building. At times said he had finished the building six months ago, at other times that it was not yet finished. Could not name the superintendent, the director, nor the chairman of the Board of Trustees. When the various names

* Patient was closely associated with the building of the Psychopathic Hospital.

were given to him, he did not place them correctly. The gaps in his recent memory he filled with fabrications.

Q.—When did you come to the hospital? A.—I just arrived this morning. (Had come the day before.) Q.—Who came with you? A.—I came by myself. (Was brought by his son.) Q.—What are you doing here? A.—Why I came to look after the construction and the dedication. Q.—But why haven't you your clothes on? A.—Well, they took them away from me. Q.—Why was that? A.—Well, there was a question about the broken bones. Q.—What bones? A.—A bone in my leg. Q.—Which leg? A.—One of the laborers,—then the question of my sickness came up; the doctor wanted to know about the blood on the floor. I told him I had been having a nose bleed. He said, "Well, you must have bled quite a bit." I said yes, a good deal. Then he wanted to know how long that had been going on, and I said, well, for quite a time, ever since I started to construct the building; I've been bleeding from the nose and the mouth quite a bit, oh, for four or five years, I guess. Q.—What was the name of the doctor who saw you? A.—Oh, Dr. Chase, wasn't it? No, I think it was Dr. Channing. Q.—Where did you spend last night? A.—Well, I was stopping with friends in town. Q.—With whom did you have your supper? A.—With Dr.—oh, that's funny, I can't think of his name; the girl's father that died. Q.—When were you in Boston last? A.—Oh, about two months ago. Q.—Did you say you just came this morning? A.—Yes, I just arrived; I'm going out tonight.

He thought the examiner was a reporter and spoke of an article describing the hospital, which he said was in the morning's paper. Said the reporter was up to see him yesterday and he gave him an account of the building and let him take some pictures.

Has delusions of grandeur. Says he built all the buildings around here. Magnifies considerably the amount of his wealth, the number of his servants, and automobiles. Says he does not own an aeroplaine, but rents one occasionally as he needs it.

Definite evidence of hallucinations has not been obtained.

Emotionally,—he is self-satisfied, contented with his surroundings, slightly euphoric. Is restless; keeps walking about and busies himself picking up small things; such as lint, about the room.

Since this examination, mental condition has remained much the same. Occasionally, for a few hours at a time, he has been oriented as to place, but never as to time. The defects in memory and the confabulations have been as marked as on entrance. He has talked less and has become more inaccessible. Has failed to recognize his wife and children. He has become more and more careless in habits; does not like to keep his clothes on; lies about exposing his person; soils. Is drowsy a good deal of the time. When walking, carries about with him carefully the corner of his bathrobe, which he smooths out and studies intently. Says it is a blueprint. Is quite contented and more or less happy.

Physical Examination. Patient is a well-developed, well nourished, middle-aged man, of large frame. Inspection shows little except that the face is flushed, while the skin of the rest of the body is a somewhat pasty color. Very slight edema over the feet and lower shins. External examination of eyes and ears negative. Neck negative. Respiratory system negative. Circulatory system negative, except that all heart sounds are distant, but clear. No murmurs. Pulse rate of good quality. Blood pressure 150. Digestive system negative, except that breath is foul; edges of the tongue appear frayed as though bitten. The lesion is old. Tongue is a deep red and there is a deep fissure down the middle. Genito-urinary system negative.

Neurological Examination. Eyes,*—pupils are central; right somewhat larger than the left; both somewhat irregular; react to direct and consensual light stimulation sluggishly and only within narrow limits; react to accommodation. Extra-ocular movements are well performed. No ptosis, nystagmus, nor strabismus. Sensations,— light touch is felt throughout; localizes well. Distinguishes easily the point from head of a pin. No areas of anesthesia or hyperesthesia. Sense of motion and position good. Gait and station normal. No pain on palpation over the deep nerve trunks. Reflexes, biceps and triceps, radials and ulnar jerks present, equal on the two sides. Umbilical and cremasteric reflexes not obtained. Knee jerks very prompt and equal on the two sides. No Babinski, Gordon, or Oppenheim, no ankle clonus. Considerable tremor of fingers on extension, and tremor of fingers in finger to nose test, with some inaccuracy.

Since this examination, patient has grown weaker; gait and station have become more unsteady. Eye signs have remained the same. Tendon reflexes have become diminished.

Laboratory Studies. X-ray examination of the head negative. Examination of the fundi on two different occasions negative.

Blood Examination. Hemoglobin 80%; white count 8200; red count 4,720,000.

Differential: Neut. 50%; lymph. 31%; transit. 18%, eosin. 1%.

Wassermann reaction on the blood negative (several examinations). Wassermann reaction on the spinal fluid negative (two examinations).

	First Examination.	Second Examination.
Cells in spinal fluid.....	2 cells	2 cells
Alb. in spinal fluid.....	N.	+
Glob. in spinal fluid.....	0	0

Colloidal gold test on spinal fluid, negative for syphilis.

Urine Examinations. On admission, nothing noteworthy except a low specific gravity. A series of examinations showed, however, a specific gravity ranging from 1009 to 1036, but usually low. The amount has ranged around 1700 c.c. for 24 hours. Reaction always acid—no sugar. Albumen, usually slight trace. Sediment, occasionally leucocytes and squamous cells, and a few hyaline casts.

Renal function tests were performed on two occasions; the first showed a return of 18%—the second 15%.

1. Total nitrogen in 24-hr. urine specimen 9.47 gms.
2. Total nitrogen in 24-hr. urine specimen 634. gms.
   Urea ..... 5.74 gms.

Chemical Examination of the Blood:

May 13	Total uric acid....	4.37 mg.	per 100 gms.
May 29	" uric acid....	4.0	" " " "
June 17	" non-proteid N.	79.6	" " " "
	" urea	28.	" " " "
June 25	" non-proteid N.	56.5	" " " "
	" urea	28.6	" " " "
	" uric acid.....	4.0	" " " "

* Examination by courtesy of Dr. Holbrook Lowell.

Chemical Examination of Spinal Fluid:

May 19	Total non-proteid N.	30.1	mg. per 100 c.c.
	" urea	23.5	" " " "
May 27	" non-proteid N.	40.	" " " "
	" urea	23.5	" " " "
June 22	" non-proteid N.	28.4	" " " "
	" urea	15.7	" " " "

Hydrogen Ion Concentration:

July 14	24-hr. specimen (not receiving alkali)	6.4
July 15	4.30 A.M., single specimen (not receiving alkali)	5.0
	5.00 A.M., 4 grams bicarbonate of soda administered	
	6.00 A.M., specimen	4.9
	7.00 A.M., specimen	5.9
July 17	10 grains soda bicarb. every hour for 7 hrs. beginning at 6.00 A.M.	
	3.35 P.M., specimen	5.0
	4.00 P.M., specimen	5.2
July 18	25 grains soda bicarb. 6.00 A.M., 12 M., 6.00 P.M.	
	2.00 P.M., specimen	7.5
	5.00 P.M., specimen	8.7
July 19	Alkali same.	
	3.00 P.M.	7.4
	5.00 P.M.	6.7
	11.00 P.M.	6.7
July 20	Alkali same.	
	9.00 A.M.	8.0
	9.00 P.M.	8.6
July 21	Alkali same.	
	9.00 A.M.	6.9
	4.00 P.M.	6.7
	9.00 P.M.	7.8
July 22	Alkali same.	
	9.00 A.M.	7.4
July 23	25 grains soda bicarb. at 6.00 A.M. and 11 A.M.	
	9.00 A.M.	5.9
	5.00 P.M.	7.4

These figures are of interest in view of the recent work of Folin and Denis[11] on the uric acid, urea, and non-proteid nitrogen content of human blood, and the work of Henderson and Palmer on the hydrogen ion concentration in urine,[12] and the presence of an acidosis in cases of nephritis.[13] Folin and Denis obtained results which led them to believe that "from 1 to 2 milligrams of uric acid per 100 grams of blood" to be within the normal variations, although, as they state, these figures may not represent "the full variations." The amount of urea in normal human blood varied, in their studies, from 11 to 13 milligrams per 100 grams blood, the total non-proteid nitrogen from 22-26 milligrams per 100 grams blood.

Mestrezat[14] considers the physiologic limit of urea in the spinal fluid to be 1 gram, or less, per 100 c.c.; the presence of 2 or more grams to be indicative of a "uremic" condition of considerable severity; the prognosis in the presence of 3 grams to be grave. He quotes the work of Widal and Froin,[15] who found in the spinal fluid of "uremic" patients amounts of urea varying from 3.73 to 4.48 grams. In two of these cases no increase of urea was demonstrated in the blood.

In a study of urine acidity, Henderson and Palmer[12] concluded that "normal urine seems to range from a concentration of ionized hydrogen of about 4.82 to one of about 7.45," with an average of 6.03. In a further study[13] upon the effect on the urine acidity of the administration of alkali, they found that the administration of 4 grams of the bicarbonate of soda produced in the normal individual a marked reduction of the acidity in an hour, with the maximum effect in a little over an hour; that the average degree of alkalinity reached after the intake of alkali was 7.60, the average change 1.67. They further concluded that a "condition of acidosis may be assumed to exist when the administration of a quantity of alkali equivalent to one litre of tenth normal solution fails to produce a diminution in the acidity of the urine."

In summary, then, we have on the negative side: (1) no signs of a current infection; (2) no signs indicating increased intra-cranial pressure, as by a tumor; (3) no localizing signs indicative of a cerebral arteriosclerosis; (4) all tests for syphilis negative; (5) spinal fluid findings negative for general paresis or cerebrospinal syphilis.

On the positive side: (1) urinary findings usually associated with chronic interstitial nephritis; (2) apparently poorly functioning kidneys; (3) a retention of nitrogenous products; (4) the presence of an increased amount of nonproteid nitrogen and urea in the blood; (5) an increased amount of non-proteid nitrogen and urea in the spinal fluid; (6) a lack of response to administered alkali, such as is said to be present in an acidosis.

The only fair conclusion that can be made at this time in these cases is that physically they present certain cardiorenal or renal conditions; that mentally, though they closely simulate respectively, catatonic dementia precox, general paresis, or Korsakoff's psychosis, they remain as yet unclassified; but, though they remain without a definite mental diagnosis, a different prognosis and a vastly different treatment is indicated.

In at least one case the patient was saved the stigma of an alcoholic or syphilitic diagnosis

(Chemical studies in the first case from the Peter Bent Brigham Hospital laboratory, Dr. Sallie; chemical studies in the second case by Benjamin H. Ragle, Hilmar O. Koefod, William A. Manuel,—Psychopathic Hospital laboratory.)

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XI.

The Margin of Error in Psychopathic Hospital Diagnoses.*

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The margin of error in the diagnosis of mental disease is a matter of social importance. For upon the medical diagnosis of mental disease hangs the legal decision as to insanity. It is notoriously unsafe to say that a man is insane unless the particular form of mental disease producing his insanity can be specified. To be sure, we often hear that such a man is insane.—but "what kind of insanity" cannot be specified. It is a question, however, whether there are any "kinds" of insanity, at least any kinds corresponding to the forms of mental disease. A man is insane, or he is not insane, or, if there be the so-called demi-insane, the new group either represents an eventual improvement in legal definitions (*e.g.* of grades of responsibility) or else the term demi-insane represents an impossible endeavor to break up the legal term "insanity" into the medical subdivisions of mental disease. Although strictly speaking, the medical man has no more than the ordinary citizen's right to assert insanity, yet practically speaking, the medical man (or as a rule, two medical men speaking as one) has much to say, since his medical diagnosis "mental disease" *may* mean the legal decision "insanity."

If then there are mental diseases from the medical standpoint which are not equivalent to the legal status of insanity, it is clear that the diagnosis of the form of mental disease may rise into a social function of the greatest delicacy. Studies of the error of diagnosis as to form of mental disease should accordingly be made from time to time in properly managed clinics and particularly in those which have the advantage of dealing with numbers of psychopaths (*i.e.* victims of mental disease) that are determined to be not insane.

We accordingly make no apology for the present orientation study of the problems of medical diagnosis at the Psychopathic Hospital, Boston, since it would be difficult to find a clinic more representative of the entire range of psychiatric problems and since a major function of the institution (with its intake running close to 2000 patients a year) is the diagnostic function. Moreover, the time-relations are such, particularly under the provisions of the Massachusetts seven days' "temporary care" law, that rapid diagnosis is a desideratum. Where rapid diagnosis is not merely the usual godsend to the patient, but becomes an official necessity, conditions are particularly favorable to the study of our present day powers in the field of psychiatric diagnosis.

Distributing patients as the Psychopathic Hospital does (under conditions prescribed by the State Board of Insanity), to a number of state institutions, each with its own well-defined traditions in diagnosis, the Psychopathic Hospital has the advantage of having its work controlled by a number of minds.

We should not, however, leave the impression that what we are studying is the accuracy of "snap" diagnoses. The average stay of patients at the Psychopathic Hospital is between two and three weeks, and legal devices are such that in most instances difficult cases can be kept indefinitely for diagnostic or therapeutic purposes. Hence the diagnoses recorded at the hospital are as a rule not snap diagnoses. They are diagnoses made as rapidly as diagnostic devices will permit, under standards intended to be as high as those of the best general and insane hospitals.

Readers who do not know their Massachusetts might believe that the state institutions to which our patients are sent would accede too readily to Psychopathic Hospital diagnoses and hence tend artificially to lower our percentage of error. Those who know the individualistic and fighting spirit of Massachusetts will not fear this diagnostic artifact.

Our point of view in this study is, therefore, to scrutinize the diagnostic results of the Psychopathic Hospital, determine the preventable errors in diagnosis, delimit the region of

* Being Contributions from the Psychopathic Hospital, Boston, Number 61 (1914.27), read at the Second Annual Conference on the Medical and Social Work of the Psychopathic Hospital, June 26, 1914. (*Bibliographical Note.*—The previous contributions, Number 60 (1914.26), was by Frankwood E. Williams, entitled "Cases to Illustrate Symptomatic Psychoses of Cardiorenal Type," published in Boston Medical and Surgical Journal, Vol. clxxi, No. 24, December 10, 1914.

greatest error, and discover the region in which research should best proceed.

Studies of somewhat similar scope had been carried out with Danvers State Hospital material, utilizing, however, autopsied cases and the staff meeting diagnosis as the basis of analysis.

In 1910 it was shown that, *without* the use of the Wassermann reaction, the accuracy in diagnosis of general paresis might be variously stated as from 85% to 90%.

Orton has published a similar study from Worcester, and Dr. Myrtelle M. Canavan has given us similar figures from the Boston State Hospital. These are embodied in the following table:

TABLE SHOWING ERRORS IN DIAGNOSIS OF GENERAL PARESIS WHERE THE WASSERMANN REACTION WAS NOT EMPLOYED.

	Clinical Diagnoses. Paresis.	Histological Not Paresis.	Diagnoses Not Any Form of Neurosyphilis.
Southard, 1910...	41	6	3
Orton, 1913.....	60	9	8
Canavan, 1914 ...	18	3	2
	119	18	13

Thus general paresis was wrongly ascribed to 18 cases in 119, or in 15%. Neurosyphilis (*i.e.* not merely general paresis, but also other neurosyphilis) was wrongly ascribed to 13 cases in 119, or 11%.

	Clinically Not Paresis.	Proved Paresis.
Southard, 1910.....	186	2
Orton, 1913.....	116	1
Canavan, 1914.....	106	1
	408	4

General paresis has already turned up in 4 cases in 408 cases in which the diagnosis of paresis was never even remotely entertained. A more intensive examination of a number of these 408 would probably somewhat increase this percentage of error.

In 1910, also, another Danvers study was published showing a surprisingly low percentage (66%) of accuracy in the diagnosis of senile dementia, counting as correct such diagnosis in cases having either brain atrophy or coarse brain lesions due to arteriosclerosis. The effect of this study was to point out the existence and numerical importance of senile psychoses which were consistent with normality of brain or with merely microscopic or chemical changes not resulting in visible destruction of brain tissue.

From a third Danvers study of 1910 may be reproduced three tables illustrating the general accuracy of state hospital diagnoses.

TABLE I.

	Cases
Cases at daily clinics, 1904-8, later autopsied....	250
Clinical diagnoses unanimous.....	184
Revised on autopsy data.....	21
Opinions divided or doubtful.....	66
Every opinion incorrect as shown by autopsy.....	7.
Remain as yet obscure.....	10

DIAGNOSTIC ACCURACY.

	Cases
89% with all agreed.....	184
74% some one correct.....	66
85% some or all correct.....	250

TABLE II.

	Cases
Unanimous diagnoses	184
General paresis, clinically.....	42
General paresis, anatomically.....	36
General paresis, errors.....	6
Organic and senile dementia, clinically.....	80
Brain atrophy or cortical arteriosclerosis.....	62
Tumor, lues, porencephaly, *general paresis*.....	4
Total organic, anatomically.....	66
Errors—senile acute psychoses.....	14
Total errors, general paresis.....6+1=	7
Total errors, senile psychoses.....	14

TABLE III.

Doubtful or obscure cases.....		66
One or more diagnosticians right.....		49
Organic and senile dementia	19	
Acute psychoses.....	14	
General paresis.....	9	
Brain tumor.....	4	
Miscellaneous	3	
No diagnostician right.....		7
(One case of each general paresis, cortical arteriosclerosis, organic dementia, streptococcus septicemia, epilepsy, streptococcus meningitis, cerebellar abscess.)		
Obscure, both clinically and anatomically.....		10
Acute psychoses (?).....	6	
Alcoholic insanities (?).....	2	
Deliria (?).....	2	

Similar studies from other state institutions are, so far as we are aware, not available, nor is the present study as accurately controlled as these Danvers and Worcester studies, since we here supplant the autopsy diagnoses with clinical diagnoses. It is upon the background of such a study as this, however, that future controls by extensive autopsy studies can be most effectively made.

In many cases the Psychopathic Hospital officers failed to make a diagnosis, terming the case "unclassified," meaning thereby "psychopathic" in some sense, as a rule also "insane" in the sense of certifiable, but as not capable of further specification. That the officers of the Psychopathic Hospital should not be unwilling thus to confess ignorance was all the more likely on account of the fact that three of its officers (the writers and the chief-of-staff, Dr. H. M. Adler) had been trained at Danvers Hospital, where the habit of leaving cases "unclassified" had become ingrained. The following table shows this:—

Undiagnosticated Commitments.

	In Massachusetts Hospitals.	In Danvers Hospital.	
1904.....	91	26	(29%)
1905.....	93	34	(37%)
1906.....	58	28	(48%)
1907.....	81	18	(22%)
1908.....	92	39	(42%)
1909.....	93	30	(32%)
1910.....	102	44	(43%)
1911.....	119	50	(42%)
1912.....	137	34	(24%)
1913.....	247	41	(16%)
	703	204	(29%)

That this habit of confessing ignorance has been maintained can be seen from tables published in 1913 report of the Psychopathic Hospital, where are given the following figures:—

Temporary Care Group.

Cases	1022	
Unclassified	247	(24 per cent.)
Males	522	
Unclassified	110	(21 per cent.)
Females	500	
Unclassified	137	(27 per cent.)

Analysis shows that the sex-difference is due to the easy resolution of the many more alcoholic and paretic cases among the males which far more than offsets the larger number of "not insane" women in the temporary care group.

Voluntary Group.

Cases	362	
Unclassified	68	(19 per cent.)
Males	186	
Unclassified	32	(17 per cent.)
Females	176	
Unclassified	36	(20 per cent.)

Analysis of the voluntary group shows a similar state of affairs to that in the temporary care group. If we combine these figures we arrive at 315 cases unclassified among 1382 diagnoses, *i.e.* 23%.

Of these "unclassified" mental cases, some are to be later resolved through the development of the disease or the accession of new facts, some will remain unresolved through passing prematurely out of observation, some were actually diagnosticable on available facts, and some are essentially not classifiable in the present stage of psychiatry.

We have studied the fate of a group of "unclassified" cases of 1912-1913 as transferred to the institutions receiving the largest number of our cases.

Unclassified Cases Among Those Sent from Psychopathic Hospital to Various Institutions, 1912-1913.

	All Cases Sent.	Unclassified.	Remained Unclassified.	Added Unclassified.	Total Remaining Unclassified.
Boston	305	30	3	13	16
Westboro ..	136	40	2	5	7
Taunton ...	91	20	6	2	8
Worcester .	72	23	2	0	2
Danvers ...	29	7	2	3	5
	633	120	15	23	38

It is somewhat curious that the residuum (38 cases) remaining "unclassified" after review by two hospitals should represent 6% of the total. It may be remembered that the Danvers cases of "obscure" mental and anatomical diagnosis (later worked up by L. B. Alford) were 10 in number, representing 4% of the total of autopsied cases then reviewed.

The percentage of cases sent unclassified from the Psychopathic Hospital was in this group 19%, somewhat less than the 23% stated above for the official tables for 1913. The two case-groups are not identical, though they overlap.

Let us now approach the special problems of change of diagnosis in the separate institutions; we will dismiss the "unclassified" group (except for incidental mention) and study the differences of opinion which are definite and presumably based upon differences in observation or interpretation (omitting merely nomenclatural differences so far as possible.)

	Cases All Sent.	Altered Diagnosis.	%	Cases Minus Unclassified.	Altered Diagnosis.	%
Boston	305	89	29	275	62	23
Westboro	136	62	46	98	24	24
Taunton	91	34	37	85	28	33
Worcester	72	31	43	53	12	23
Danvers	29	14	45	22	5	23
	633	2300	36	533	131	25

That is to say, omitting the 19 and 23 cases out of every hundred in which the Psychopathic Hospital fails to make a diagnosis and considering only those in which a definite diagnosis is made, we find that in 25 of every such 100 a change in diagnosis is made.

The later diagnoses have every chance of being more nearly correct than the earlier, but possibly they should not stand so much chance of being better, as these figures might indicate.

Special analyses for the above five institutions may be made as follows:—

The group of cases sent from the Psychopathic Hospital to the main wards of the Boston State Hospital is an important group by virtue of its size and frequent opportunities of interchange of views by members of the Psychopathic and main staffs.

There is a superficial discrepancy of opinion as to 89 in 305 cases (1913), *i.e.* 29%. In 27 of these 89 cases the psychopathic staff was unable to render an opinion other than "unclassified," by which term some form of insanity is meant. These are failures to diagnose rather than errors, so that true discrepancy of opinion is found in 62 cases in 278 where both staffs arrived at some conclusion, that is, in 22%. In 7 cases one of two Psychopathic Hospital diagnoses was pitched on as correct, so that absolute error cannot be laid at the door of the Psychopathic Hospital. This leaves 55 cases to be considered.

A striking feature of this remainder is that the Psychopathic Hospital diagnosis of manic-

depressive insanity is practically never changed to dementia precox. There was one instance, 11589, regarded as involutional melancholia rather than manic-depressive insanity at the main hospital. The case was one of mania at the course of a pneumonia, and perhaps should be called a symptomatic psychosis, pneumonic type?).

On the other hand, the Psychopathic Hospital diagnosis of dementia precox was altered by the main hospital to manic-depressive insanity in some 16 instances. Here possibly there is evidence of two different points of view.

One hundred and thirty-six cases were transferred from the Psychopathic Hospital to the Westborough State Hospital in 1913. In 62 of these 46% a change of diagnosis was made, but in 38 of these, the change was merely from "unclassified" to a definite diagnosis. Actual differences, therefore, were registered in 24 out of 98 cases (24). But, as in 5 of these the diagnosis became again "unclassified" we are left with 19 cases in which definite diagnoses were rendered by both staffs and disagreement existed (20%).

Among these 19 cases of disagreement there were five which are of special interest, being alterations from manic-depressive insanity to dementia precox (v. below). There was but one case of the converse change—from dementia precox to manic-depressive insanity (10974)—a fact rather surprising at first blush when the changes of diagnosis at Boston Hospital are considered. Dementia precox was altered to hysteria (10736,—10810), to alcoholic (10938), to imbecile (10972), and to not-insane (10720). Besides the five alterations from manic-depressive insanity to dementia precox, there were four other alterations in the same direction (10625 from general paresis, 10930 from alcoholic, 10,950 from senile dementia [new facts!], 11033 from imbecility). In this connection it is interesting to note that 13 unclassified cases had diagnoses altered to dementia precox, as against 7 unclassified to manic-depressive insanity. Two cases of supposed alcoholic insanity were determined to be manic-depressive (10800, 10824); 10835 became from senile dementia a case of Korsakoff's psychosis; 10903 was altered from organic to senile dementia.

Of 91 cases transferred to Taunton State Hospital, 34 yielded alterations in diagnosis (37%). But 6 of these were from "unclassified," so that the more definite error may be set at 28 in 85 cases (38%). There are four instances in the Taunton review of alterations of our diagnosis of manic-depressive psychosis to dementia precox.

Seventy-two cases were transferred from the Psychopathic Hospital to the Worcester State Hospital in 1913. In 31 of these (or 43%), a change of diagnosis was made, but in 19 of these the change was merely from "unclassified" to a definite diagnosis. Actual differences of opinion, therefore, were registered in 12 out of 53 cases (or 23%). There were no instances in this Worcester Hospital group of alterations from a definite diagnosis to "unclassified."

There were some alterations from one organic group to another, as 28451 (general paresis to tabes and tuberculosis), 28456 (senile to organic dementia), 28395 and 28491 (organic to senile dementia). Two were from dementia precox to imbecility (28150, 28227).

The small group sent to the Danvers Hospital shows a superficial discrepancy of opinion in 14 of 29 cases, or 45%. But, as in the case of Westborough diagnosis, a larger part of the discrepancy comes from the "unclassified" group. There were but 22 cases in which the Psychopathic Hospital risked a diagnosis, and there was a change of diagnosis in 5 of these (23%).

From the above analysis it is easy to conclude that the most difficult field in classification is that of dementia precox. It is not, as might be supposed, that the Psychopathic Hospital officers have a bias in one direction. At first we thought that there was a bias. For we found that the Boston Hospital officers had altered our diagnosis of dementia precox in 16 instances, as stated above; and upon review of the cases we saw good ground for the change in at least 11 of these cases. And, when we found that our diagnosis of manic-depressive psychosis had been altered but once (and then in a case in which the two diagnoses might conceivably be identical), we felt that the Psychopathic Hospital had a true bias against the, as a rule, more optimistic diagnosis of manic-depressive psychosis.

Upon continuing our reviews, however, we found at Westborough that but one case of such an alteration was met with, but that there were 5 instances of alteration of our diagnosis of manic-depressive psychosis to that of dementia precox. At Westborough, too, we found four other cases altered from various diagnoses to dementia precox.

Among the 131 alterations of diagnosis we find the largest single group of alterations to concern the diagnosis of dementia precox or manic-depressive psychosis (42 cases, or 32%). Thirty-five of these cases show a shift of diagnosis from one to the other of these two diagnoses, viz., 20 from dementia precox to manic-depressive and 15 in the reverse direction. Boston yielded four-fifths of the former alteration, and the latter was about evenly divided between Westborough, Taunton and Worcester.

Upon review we consider doubtful or (for external reasons) no longer determinable the issue in 14 cases, leaving 20 which we have more intensively reviewed. In these 20 cases we are inclined to concede the state hospital diagnoses at present.

Eleven of these 20 cases seem to have been excited cases, or cases in which agitation was a feature. We are inclined to believe that the diagnosis of agitated cases is more difficult than that of akinetic cases. It is proposed to throw this problem open in forthcoming diagnostic studies at the Psychopathic Hospital.

Appended are a few condensed histories which struck us as of particular interest.

Three of the five Westborough cases of alteration of Psychopathic Hospital diagnosis of manic-depressive to dementia precox were examples of over-hasty diagnosis at the Psychopathic Hospital. One (10793) should probably not have been diagnosticated at all, as to form of insanity. Another (10634) was partly a language difficulty. A third (10657) illustrates what is so frequently illustrated—the importance of close observation as to hallucinosis.

These three cases may be briefly summarized as follows:—

J. P., Westborough, 10,793 (Psychopathic Hospital 1421) should be placed among unclassified. The case was observed for four days at Psychopathic Hospital, and three days at Westborough before deportation. The diagnosis of the form of insanity must still remain doubtful, although a form of paranoid dementia precox may be suspected. The Psychopathic Hospital diagnosis of manic-depressive insanity was based upon euphoric loquacity, possible flight of ideas, busy interference with all affairs, distractibility. The history secured by Westborough, however, suggests the beginning of a paranoid dementia precox.

A second case might also better have remained unclassified.

S. B., Westborough 10,634 (Psychopathic Hospital 1471), was an illiterate Sicilian, 27 years old, off work six months, said to have been jilted, apathetic, apparently depressed, was thought to show (manic-depressive) retardation during his seven day's observation at Psychopathic Hospital. The *"retardation"* was suspected at the time to be due to difficulties with the interpreter, who did not understand the Sicilian dialect fully. The *apathy* might of course have been that of hebephrenic dementia precox.

In the absence of schizophrenic symptoms, the diagnosis dementia precox has not been favored at the Psychopathic Hospital. It would have been better probably to have left the case unclassified. At Westborough descriptions were obtained of scenic, dreamlike hallucinations (combined visual and auditory), ideas of reference, delusions involving love affairs and religion, as well as a history of previous spells of excitement. It is still difficult to obtain indubitable evidence of schizophrenia (partly dialect difficulty). To sum up, a Psychopathic Hospital error of diagnosis due to erroneous diagnosis of retardation and lack of ability to get history of hallucinations.

The question of the form of diagnosis must take into account hallucinations of God talking "ever since he (patient) was born," telling him always to "walk straight and harm nobody"; and visions of a church burning up with God on the altar, and the Virgin behind God, and of the Virgin unable to fly to heaven although she wished to; or again of a church, with priest saying mass, and his sister playing the organ and angering him, saying, "Why don't you buy a new suit?"

Possibly this case belongs in Kraepelin's dementia paranoides gravis (1913). The lesson appears to be that hallucinosis is the key-symptom for study, and that apparent manic-depressive features should not be urged as basis for a definite diagnosis.

J. H., Westborough, 10,657 (Psychopathic Hospital 1085), was a case in which seven days' observation at Psychopathic Hospital was not enough to establish hallucinosis or interpret a certain amount of resistivism, as well as refusal to eat. Resistivism, mutism, negativism, verbigeration, constrained postures, hallucinosis, delusions of being killed or burned, developed at Westborough within three months. At times tube-fed, at other times patient could be got to eat when told not to eat. After seven months mutism became fixed, and has remained so till present writing.

Two further cases may possibly be examples of two of Kraepelin's newer groups, viz., simple depressive deterioration (11062) and the circular excited form (10988). These cases may be abstracted as follows:—

L. B., Westborough 11,062 (Psychopathic Hospital 2100), gave a history of long, gradual onset (four years from Oct. 29) with worry and crying spells over distasteful work, and with some sex-coloring, perhaps a history somewhat more consistent with the diagnosis dementia precox than with that of manic-depressive insanity. Then came ideas of reference, "must be married tomorrow" to a certain man, "heart down in abdomen," etc. There was an appearance of apathy which the Psychopathic Hospital officers thought might be unreal. At Westborough impulsive acts, persistent covering up with bed-clothes, persistent closure of eyes, silly smiling, and persistence of delusion about heart with exhibition of further sexual-religious delusions (married by Jesus to a Portuguese by proxy; identification of female patients as boys whom she had borne in some unusual way).

This case has much in common with Kraepelin's new simple depressive (or stuporous) deterioration, a form of dementia precox. The case has not been stuporous and has the insidious onset of the non-stuporous form of simple depressive deterioration, as described by Kraepelin. But characteristic terminal mental impairment has not yet set in (8 months after the acute outbreak). The case shows the prodromal character change of (four) years' duration described by Kraepelin. Hypochondria, auditory hallucinations, delusions of persecution, crying spells, sexual excitement, general conduct disorder, are also characteristic. Negativism has now developed, but there is not, as yet, any stuporous tendency like what Kraepelin states to occur in about one-third of cases in this subgroup.

M. H., Westborough 10,988 (Psychopathic Hospital 1873) is a case in which the Psychopathic Hospital diagnosis, after seven days' observations, rested on loquacity, playfulness and general appear-

[illegible] there was at times an appearance of [illegible] and there were occasional state- [illegible] being called names. Patient wove [illegible] remarks into talk, but would not make [illegible] replies to questions. An idea that "dope," [illegible] and tasting like plaster, is falling from [illegible] walls, might have suggested a paranoid form of dementia precox.

After seven and a half months at Westborough, patient was allowed to leave hospital on furlough with husband. Patient exhibited resistivism, negativism (fell limp on being told to hold stiff), apparently unmotivated laughter and smiling, acts of moderate violence (question of motive), spells of excitement speedily quieted by warm, wet packs (often asked to be kept in pack), hallucinosis (two months after transfer) apparently persistent for four months.

It is possible that this case belongs in the circular excited group of Kraepelin's edition, 1913. The onset was with delusions of persecution, probably on a basis of auditory hallucinosis. Patient was first medically observed in the excited phase which warrants her inclusion in the new group. Distractibility and assimilation of adjacent talk and happenings form a feature suggestive of manic-depressive mania; but these are combined with negativism, impulsive acts, and aimless shifting of attention so as to suggest dementia precox.

Kraepelin states that more than one-half of these cases (53%) have remissions, but these as a rule appear after the initial depression, not as in this case, after a fairly long excited phase. The total course (exclusive of remissions) is rarely as long as two years. The question of diagnosis will probably be resolved shortly.

At this point it is well to consider the single case in which a Psychopathic Hospital diagnosis of dementia precox was altered by Westborough to manic-depressive insanity.

J. B., Westborough 10,974 (Psychopathic Hospital 1858). This diagnosis of dementia precox was erroneous because the remnants of alcoholic hallucinosis (or of delirium tremens, it is not certain which), superimposed on what was probably a manic-depressive excitement gave the impression of dementia precox, especially as conversation, at first relevant, would tail off into irrelevance and incoherence, which taken by itself gave at times a little of the impression of schizophrenia. A history of chancre complicated the picture. In the second month at Westborough patient had an excited attack or exacerbation of excitement *without* hallucinosis and in four more months was about ready to go home recovered. The error might not have been made, had the extent of the patient's previous alcoholism been known (he afterward told of a still previous touch of delirium tremens), and had the picking of imaginary particles from his arms and hands, shortly after entrance, been given due attention.

Six Worcester cases touch dementia precox problems. Three deserve especial study as being alterations from manic-depressive insanity to dementia precox, thus comparable to five instances in the Westborough Hospital group.

L. J., Worcester Hospital 28,191 (Psychopathic Hospital 386), was at Psychopathic Hospital (1) Oct. 19-Nov. 27; (2) Dec. 3-Feb. 6 (becoming a voluntary patient Dec. 7; (3) Feb. 16-17 (Boston police case) receiving both times the diagnosis of maniacal manic-depressive insanity. A period of mutism at first, and in the last residence grimacing incontinence during the prodromal period, persistent and assumption of grotesque attitudes, might have given rise to the suspicion of dementia precox. The serum was positive to the Wassermann test at first, later negative; there seems to have been no clinical evidence of syphilis. Patient, while at Worcester, once gave an account of what were possibly auditory hallucinations of a religious coloring, which, she said, came through a ventilator at the Psychopathic Hospital. Patient was committed to Worcester Feb. 17. In March patient had periods of confusion in the midst of continuous excitement, and had numerous superficial abscesses. Comparative quietude and insight until July, when excited. Another excited spell in August (untidy). Apparent blunting (facial expression) and lack of insight. Scattered thinking. Discharged on trial visit Sept. 24, 1913, "improved." March 27, 1914, mother regarded her as well.

A. B., Worcester Hospital 28,963, has mother who has had several depressions, twice in Westborough Hospital. Patient had four attacks of excitement of about three months each between 18 and 35; as well as numerous depressions, not well remembered, and a tendency to hyperreligiosity. At 43 came the fifth attack of excitement (Psychopathic Hospital), in which the most suggestive symptom which might be regarded as one of dementia precox was drinking sputum from another patient's cup. At onset he cut up his clothes with a razor, walked about naked at a friend's house, and did other similarly odd things. Upon commitment to Worcester, stated that he had no passage in his bowels, later that he was a dead man, and expressed various delusions. The Worcester staff thought at first that the case was manic-depressive (possibly dementia precox) but in the course of five months altered the diagnosis to dementia precox. There seems to be no evidence of hallucinosis at any time, or of characteristic catatonia. The delusions remind one of involution-melancholia.

XII.

On the Systematic Control of Salvarsan Therapy Based on the Rapidity of Arsenic Excretion.*

By H. M. Adler, M.D., Boston,

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Attention has recently been focused upon the treatment of syphilitic diseases of the nervous system, both because a new treatment has been

* Being Contributions from the Psychopathic Hospital, Boston, Number 62 (1914.28), read at the Second Annual Conference on the Medical and Social Work of the Psychopathic Hospital, June 26, 1914. (*Bibliographical Note.*—The previous contribution, Number 61 (1914.27), was by E. E. Southard and A. W. Stearns, entitled "On the Margin of Error in Psychopathic Hospital Diagnoses," published in the Boston Medical and Surgical Journal, Vol. clxxi, No. 24, December 10, 1914.

proposed by Ehrlich for diseases which until recently have seemed outside the reach of older methods, and also, largely because therapy in nervous diseases, and especially in mental diseases is very restricted in amount.

With the introduction of salvarsan therapy, and especially with the general use of intradural injections of salvarsanized serum as proposed by Swift and Ellis, it has seemed a comparatively simple matter to treat syphilis of the nervous system, and the first reports apparently confirmed this idea. It did not take long, however, for some opposition to arise, and unfavorable reports appeared in the literature, which were explained in various ways by different authorities. Thus, Ehrlich explained the failure of salvarsan to cure, even after repeated injection, cases of syphilis of the central nervous system as general paresis, by the consideration that there were within the body certain dead spaces which were not reached by drugs circulating in the blood stream. One of these dead spaces, according to Ehrlich, is the subarachnoid space. And Ehrlich supposes that the spirochaetae that are located here, escape the effect of salvarsan and thus continue to cause local disease, and form the foci for a spread of new infection.

Swift and Ellis, on the other hand, have attacked this so-called dead space by direct injection of salvarsan in such a fashion that its extreme toxic effects do not ensue.

All of the methods employed have been based upon the original statement of Ehrlich that a single large dose of salvarsan could suffice to kill all the spirochaetae that could be reached by the drug, and the only reason for repeated injections in syphilis of the nervous system is the existence of these dead spaces in which the spirochaetae lurked.

It would seem then, that a single injection into the cerebrospinal fluid should effectually kill off all organisms not reached by the blood path. Apparently the results of the Swift-Ellis method are that the syphilitic processes in the ependyma are improved or cured but no effect is had upon those organisms which are within the cerebrospinal axis itself.

It has seemed worth while, however, to determine whether the salvarsan when injected in these ways acted in a specific and rapid fashion, or whether there might not be certain conditions affecting the assimiliation and excretion of the salvarsan, which, while having no bearing upon the specificity of the drug, might yet impair its efficacy.

Several methods for determining arsenic in organic combinations or in the presence of organic substances are known, and all are characterized by apparent simplicity and extreme delicacy. They are so simple that they tempt even the beginner, and they are so delicate that they yield quantitatively astonishing results when applied to material that might be supposed to be arsenic-free. This fact has given rise both to a literature which is remarkable for its discrepancies, as well as to a certain skepticism on the part of the more careful workers toward reports on arsenic findings.

The methods adopted in this investigation were R. L. Emerson's modifications of the Marsh and Gutzeit test. The chemical determinations were carried out by one of us (Arthur Wetmore) in careful training under the personal supervision of R. L. Emerson, Assistant Chief of the Bureau of Chemistry, Washington, D. C.*

The determinations were 153 in number. Of these 15 were performed upon cerebrospinal fluid withdrawn twenty-four hours after the injection of salvarsan intravenously. Fifteen determinations were made upon the blood of patients before they had received salvarsan treatment. One hundred and twenty-three determinations were performed upon the blood of patients at different intervals after injection of salvarsan. The number of patients tested in one way or another was 24. Of these seven cases were examined as controls. The number of cases in which the determinations were made before and after treatment was 17. There were from two to 30 determinations upon each patient.

Two were done without any previous intravenous injection of salvarsan. Ten were done 24 hours after intravenous injection. One was done 48 hours after intravenous injection, and one at 15 days. One had 48 hours after intravenous injection and 24 hours after intraspinous treatment. No As_2O_3 was recovered from any one of these.

The arsenic was found absent in the blood as early as 24 hours after intravenous injection. The majority of cases were found to be arsenic-free in from 36 to 48 hours after salvarsan injection. The longest interval after injection that arsenic was recovered from the blood was 16 days in one case.

In view of the interest existing in the Swift-Ellis method of injecting salvarsanized serum, the following may be noted:

The average amount of As_2O_3 per gm. of blood at end of one hour after .6 gm. of salvarsan=3.248 mmg.

3.248 x 2.07=6.73 mmg. of salvarsan.

6.73 x 12 (cc. of serum injected)=70.76 mmg. salvarsan in 12 cc. of serum. This follows if the salvarsan is equally distributed between serum and formed elements.

* The details of these methods have not yet been published and may be obtained from Dr. R. L. Emerson, Bureau of Chemistry, Washington, D. C.

TABLE I.

Time after Last Dose of Sodium Iodide.	Dose of Sodium Iodide.	No. of Patients.	Maximum Yield of As_2O_3 expressed in mmg.	Minimum Yield of As_2O_3 expressed in mmg.	Average.
30 seconds	.25	2	33.3 mmg.	7.5 mmg.	20.4 mmg.
"	.3	14	20.8	2.34	10.44
"	.6	8	26.78	8.9	16.82
30 minutes	.3	1			2.08
"	.6	12	9.3	8.33	8.81
1 hour	.3	7	2.85	1.47	2.208
"	.6	12	4.166	2.33	3.248
3 hours	.3	2	0.553	.25	.401
24 "	.3	8	2.5	.0	.398
"	.6	3	.272	.0	.157
30-31 hrs.	.2	7	1.0	.5	.21
"	.3	1			.0
33-36 hrs.	.2	1			.0
"	.3	1	1.0		1.0
"	.5	1			.0
"	.6	2	2.	1.	1.5
45-53 hrs.	.3	4	.083	.0	.0208
"	.6	5			0.
72 hours	.3	6	.214	.0	.035
"	.6	6	.16	.0	.05
4 days	.3	1			.5
"	.6	2	1.5	1.	1.25
5-6 days	.2-.3	5	.625	.0	.0125
"	.5-.6	4			0.
7 days	.25-.3	14	.285	.0	.038
"	.6	8	.5	.0	.101
7+days	.3	6	.174	.0	.029

INTERVAL OF 30 MINUTES.

No.	Name.	Dose.	As_2O_3 in mmg.	
102	W. R.	.6	26.78	
116	"	.6	26.7	
121	"	.6	19.5	
128	"	.6	16.6	
139	"	.6	17.04	
136	C. D.	.3	10.09	girdle sensation
145	"	.3	5.5	
89	M. M.	.3	8.92	
114	"	.3	10.9	
126	"	.3	2.34	
91	J.M.	.3	7.81	
93	M. B.	.25	7.5	
95	J. B.	.25	33.3	
97	L. M.	.3	3.6	
108	"	.6	10.00	
123	"	.3	10.000	
132	"	.6	9.09	
143	"	.6	8.9	
100	F.S.	.3	9.72	
111	"	.3	14.5 .	
125	"	.3	10.9	
130	"	.3	15.6	Fainted
134	H. F.	.3	15.6	
141	"	.3	20.8	Vomited
117	W. R.	.6	9.3	
109	L.M.	.6	8.33	
112	F. S.	.3	2.08	

INTERVAL OF 1 HOUR.

17	W. R.	.9 n.	3.166
29	"	.9 n.	2.33
33	J. R.	.45 n.	2.5
16	C. D.	.45	2.85
13	A. D.	.45	1.47
27	"	.45	1.78
31	C. D.	.45	2.72
35	F. H.	.45	2.14
15	M. C.	.45	2.0

INTERVAL OF 24 HOURS.

No.	Name.	Dose.	As_2O_3 in mmg.	
38	W. R.	.9 n.	0.272	
71	A. S.	.3 s.	0.000	
37	J. R.	.45 n.	0.222	
36	A. D.	.45 n.	0.0454	
39	C. D.	.45 n.	0.285	
50	F. H.	.45	0.142	
75	J. R.	.6 s.	2.000	Vomited
76	A. C.	.3 s.	2.5	Chills
70	M. M.	.3	0.000	
138	H. F.	.3	0.000	

INTERVAL OF 30-31 HOURS.

54	W. R.	.3	0.000	
55	J. R.	.3	0.000	
56	F. D.	.2	0.000	
63	"	.2	0.5	
57	A. S.	.2	0.000	
62	"	.2	0.000	
58	B. B.	.2	0.000	
61	"	.2	1.000	

INTERVAL OF 33-36 HOURS.

60	W. R.	.5	0.000	
72	"	.6	1.000	Malaise-thrombus
73	J. R.	.6	2.000	Sick
64	C. C.	.2	0.000	
74	"	.3	1.000	Chills

INTERVAL OF 45-51 HOURS.

50	W. R.	.9 n.	0.000
83	"	.6	0.000
150	"	.6	0.000
49	J. R.	.3	0.083
81	"	.6	0.000
51	C. D.	.3	0.000
148	"	.3	0.000
82	C. C.	.3	0.000
149	L. N.	.6	0.000

INTERVAL OF 72 HOURS.

84	W. R.	.6	0.000
104	"	.6	0.0953
119	"	.6	0.16
140	"	.6	0.000
142	H. F.	.3	0.000
146	C. D.	.3	0.000
144	L. M.	.6	0.000
87	J. M.	.3	0.214
147	F. S.	.3	0.000
105	L. M.	.3	0.000
106	F. S.	.3	0.000
118	"	.6	0.05

INTERVAL OF 4 DAYS.

80	W. R.	.6	1.000
78	J. R.	.6	1.5
79	C. C.	.3	0.5

INTERVAL OF 5-6 DAYS.

46	W. R.	.9 n.	0.000
47	J. R.	.45	0.000
65	W. R.	.6 (5 or s.)	0.000
59	J. R.	.5	0.000

No.	Name.	Dose.	As_2O_3 in mmg.
48	C. D.	.45 n.	0.0625
67	F. D.	.25 s.	0.000
66	J. R.	.6	0.000
68	A. S.	.2	0.000
69	C. C.	.2	0.000
	INTERVAL OF 7 DAYS.		
7	W. R.	.9 n.	0.000
28	"	.9	0.111
102	"	.6 s.	0.000
115	"	.6 s.	0.000
120	"	.6	0.100
32	J. R.	.45	0.000
30	C. D.	.45	0.285
26	A. D.	.45	0.000
86	A. S.	.3 s.	0.000
85	M. M.	.3	0.000
88	"	.3	0.000
113	"	.3	0.000
127	"	.3	0.000
129	W. D.	.6	0.5
92	M. D.	.25	0.000
94	J.B.	.25	0.000
107	L. M.	.6	0.000
122	"	.6	0.000
133	"	.3	0.000
110	F. S.	.3	0.000
124	"	.3	0.000
131	"	.3	0.24 Fainted
	INTERVAL OF 7 DAYS.		
52	W. R.	27	.9 n. 0.000
53	J. R.	27	.3 s. 0.000
5	C. D.	16	.9 n. 0.174 Upset
8	"	20	.45 0.000
137	"	63	.3 s. 0.000
90	J. M.	10	.3 0.000

Basing our therapy upon these findings, we determine in cases presented for treatment what the interval is between injection of salvarsan and the disappearance of arsenic from the blood, and repeat the dose of salvarsan at the end of the shortest interval thus determined.

If the blood is arsenic-free 24 to 48 hours after the injection of salvarsan, we have found it convenient to repeat the injection of salvarsan at intervals of three days. In the occasional case in which the arsenic disappears at a slower rate from the blood, this interval must be increased. We have found that salvarsan therapy thus controlled is borne well by the patient, and we have so far not obtained any of the unpleasant symptoms of salvarsan in diseases of the nervous system.

The cases which show the untoward symptoms after inhibition of salvarsan (such as the Herxheimer skin reaction, temperature rise, fainting, epileptic convulsions) are precisely the cases which show a delay in the excretion of the arsenic.

The major portion of the arsenic is excreted the first few hours after injection, and apparently the size of the dose has no effect upon the period of excretion. Increased tolerance to salvarsan seems to run parallel to increased rapidity of excretion.

We add a table showing examinations of cerebrospinal fluid for arsenic at varying intervals after injection of salvarsan intravenously. It is interesting to note that each examination resulted negatively. The significance of this cannot be discussed here beyond the statement that it corroborates Ehrlich's findings and is in accord with his statement to the effect that the sub-arachnoid space cannot be reached by injection of salvarsan into the blood stream.

TABLE.

Date.	No.	Initial.	Interval.	Dose.	Result.
Mar. 15, '14	G.	R. G.	48 hrs.	.0	0
Mar. 15, '14	2	W. R.	48 hrs.	.9 neo.	0
Mar. 16, '14	3	W. R.	24 hrs. intersp.	.10 c.c.	0
Mar. 28, '14	22	W. R.	24 hrs.	.9 neo.	0
Mar. 28, '14	23	W. R.	24 hrs.	.9 neo.	0
Mar. 15, '14	4	C. D.	15 days	.45 neo.	0
Mar. 21, '14	20	C. D.	24 hrs.	.45 neo.	0
Mar. 28, '14	44	C. D.	24 hrs.	.45 neo.	0
Mar. 20, '14	12	A. D.		.0	0
Mar. 21, '14	25	A. D.	24 hrs.	.45 neo.	0
Mar. 28, '14	41	A. D.	24 hrs.	.45 neo.	0
Mar. 21, '14	18	C.	24 hrs.	.45 neo.	0
Mar. 21, '14	24	J. R.	24 hrs.	.45 neo.	0
Mar. 28, '14	42	J. R.	24 hrs.	.45 neo.	0
Mar. 28, '14	45	F. H.	24 hrs.	.45 neo.	0

Book Reviews.

Plain Rules for the Use of Tuberculin. New York: William Wood and Company. London: R. Allan Bennet.

This small book of forty-eight pages, attractively published, will prove of great value to a small group of physicians, chiefly to those in the sanatoria and other institutions, who wish to take up the use of tuberculin in diagnosis and in treatment.

The print is large and clear. There are wide margins and the subject matter is divided into paragraphs and headings. There are ten illustrated charts.

As the author says, "This small book is written simply as a guide to those who are intending to work out for themselves some of the problems of tuberculin treatment." As such, it will be of distinct value.

A Manual of Biological Therapeutics. Detroit, Michigan: Press of Parke, Davis and Company. 1914.

This book presents, from a commercial standpoint, the therapeutics of sera, bacterins, phylacogens, tuberculins, glandular extracts, and antitoxins. It is illustrated by a number of full-page plates, many of which are colored.

Stedman's Medical Dictionary. By THOMAS L. STEDMAN, A.M., M.D., Editor of the *Medical Record*, etc. Third edition. Royal 8vo., 1079 pages, illustrated. New York: William Wood and Company. 1914.

A third edition of this dictionary has appeared during a period of three years. The explanation of this success is not difficult to understand when one considers the admirable form in which it is published as well as its succinct and adequate subject matter. In the rapidly changing nomenclature of modern medicine, new terms are continually being added and these it is the function of a lexicographer to appraise, accept or reject. In this laborious work the author has found it necessary to increase the size of the book by thirty pages. As a matter of fact, it was necessary to destroy the old plates and to revise the entire book. We cordially commend this dictionary to physicians and all others who find it necessary to use medical terms.

The Pharmacy Handbook. By F. W. CROSSLEY-HOLLAND, F.C.S. London: Henry Frowde, Hodder and Stoughton. 1914.

This volume in the series of Oxford Medical Publications aims to present, in form convenient for ready reference, "information upon matters which come within the purview of the practising pharmacist." It is not a manual of technical pharmacy, but rather a guide to the art and ethics of drug dispensation. Though particularly adapted to the conditions of pharmaceutical practise in England, its suggestions are equally applicable, *mutatis mutandis*, to the United States. There is an excellent terminal bibliography.

Chemistry for Nurses. By REUBEN OTTENBERG, A.M., M.D. New York: The Macmillan Company. 1914.

This new manual of elementary chemistry is designed to supply to nurses such knowledge of that science as is needful for an intelligent appreciation and application of the principles of materia medica, physiology, and dietetics. The subject has often hitherto been neglected in the instruction in training-schools, yet its importance is obvious, and is evidenced by the appearance of questions in chemistry on examination papers for nurses' registration in 22 states of the Union. The book represents the author's lecture-course to pupil nurses at the Mount Sinai Hospital, New York. It is simple, clear, and straightforward in style, and describes only such fundamental experiments as can readily be performed before a class, or by individuals, with a minimum of equipment. It is a convenient, brief compendium and should prove of definite value in the teaching of nurses.

Diseases of the Bones and Joints. By LEONARD W. ELY, Associate Profesor of Surgery, Leland Stanford, Jr., University, San Francisco, Cal. New York: Surgery Publishing Company.

This book of some two hundred pages by Ely is an important contribution to medical literature. It does not aim to be exhaustive and is in no sense a text-book. Its consideration of certain important subjects is meager and sketchy, if one may use the word. With many isolated statements, moreover, one does not necessarily agree, but one cannot fail to be convinced that the author is expressing views based on personal experience and careful observation, both clinical and microscopic. This certainly is a rare combination. There is a stimulating freshness in the author's point of view, and the style is vigorous, concise, and frequently almost epigrammatic.

The first chapter, on the Anatomy, Physiology, and Pathology of Bones and Joints is admirable, and one reads to the end of the work wishing frequently that the author would expand his views more fully, but never wearied by diffuseness.

The convictions expressed regarding the nature of tuberculous disease of the bones and joints seems to be well supported by pathologic proof. The bearing which they have on operative and conservative therapy is important. The illustrations are many and comprise both photomicrographs and illustrations of methods of treatment. We commend the book highly and trust that it may have a wide reading, not only by orthopedic surgeons, but by the medical profession generally.

Surgical Diseases and Injuries of the Genito-Urinary Organs. By J. W. THOMSON WALKER, M.B., C.M., Ed.; F.R.C.S., Eng.; Hunterian Professor of Surgery and Pathology, Royal College of Surgeons of England (1907); Surgeon to the Hampstead General and North-West London Hospital; Assistant-Surgeon to St. Peter's Hospital for Stone; Urinary Surgeon to the Radium Institute. With 24 colour and 21 black-and-white plates, and 279 illustrations in the text. 8vo. 790 pages. New York: Funk and Wagnalls. 1914.

This book presents its material from the anatomical point of view as to arrangement and its eleven parts, each containing a number of chapters, have the following headings: 1. The Kidney. 2. The Ureter. 3. The Bladder. 4. The Urethra. 5. The Prostate. 6. The Seminal Vesicles and Cowper's Glands. 7. The Testicle. 8. The Tunica Vaginalis. 9. The Spermatic Cord. 10. The Scrotum. 11. The Penis.

In his preface the author explains this point of view as follows: "I decided to retain the anatomical classification for the reason that this work lays no claim to be a purely scientific treatise on the diseases of the genito-urinary organs, but is intended to serve as an aid to clinical work; and my personal experience of using text-books arranged in the anatomical and in the pathological classification is that it is easier to refer to the former in an obscure case, than to the latter."

The subject matter is presented in simple language and contains the knowledge of this large field of surgery brought up to the present moment. The book is essentially a practical book written by a working surgeon, and this fact is constantly manifest even in such portions of the work as so often receive scant attention in books of this kind. The pathology, for instance is presented from the operating-room point of view and not from that of the autopsy room, while the illustrations, x-ray pictures, cystoscopic drawings, etc., are for the most part taken directly from cases and not from other books. The author has shown wisdom as well as wide knowledge in the presentation of his subject, and he has presented existing facts and beliefs of the day with great completeness, at the same time leaving no doubt in the reader's mind of his (the author's) own opinion on any point at issue. This is not only a valuable book, but is a most satisfactory and attractive one, for the orderly mind and pleasant pen of its author present his mature experience, both as a surgeon and as a teacher, in a way which cannot fail to give the contents their greatest value. The index is carefully compiled, and the paper and type are adequate.

The Clinics of J. B. Murphy, M.D., at Mercy Hospital, Chicago. April, June, August. 1914.

These three bi-monthly volumes, in a familiar form, are as interesting as ever. In the April number there are twelve chapters, including one on the Thyroid; one upon Bleeding Hemorrhoids, with a discussion on Anemias by Dr. Charles L. Mix, and one on Duodenal Ulcer. The June number contains fourteen articles. One of these articles is described as being Dr. Murphy's Clinical Talks on Surgical and General Diagnosis: this contains Dr. Murphy's idea of radical operation of cancer of the breast; also an article on surgery of tendons, and a series of bone cases. The August number is a little larger than the others. It includes among its sixteen topics: Arthroplasty of Hip, Facial Paralysis, Spinofacial Nerve Anastomosis, Hysterectomy, Cerebellar Tumor, and Recurrent Luxation of Left Patella. These volumes as usual well repay examination by the operating surgeon.

Physiologie Normale et Pathologique des Reins. Par L. Ambard, Chef du Laboratoire de Chimie de la Clinique des Maladies des Voies Urinaires a l'Hôpital Necker. Paris: F. Gittler. 1914.

Manuel de Cystoscopie. Par E. Papin, Chef de Clinique des Voies Urinaires a l'Hôpital Necker. Preface par M. le Professeur F. Legueu. Paris: F. Gittler. 1914.

Notions Pratiques D'Electrothérapie Appliquée à L'Urologie. Par Le Docteur Denis Courtade, Ancien interne des Hôpitaux, Chef de Laboratoire à la Faculté de Médecine, Membre de la Société de Urologie, Lauréat de l'Institut. Paris: F. Gittler. 1914.

These books, each containing from two hundred to three hundred pages, are three of the five volumes which have recently been published (June, 1914) from the "Clinique des Maladies des Voies Urinaires de Necker."

The first volume deals with various experimental physiological problems connected with normal and pathological kidneys, chiefly from studying their urines. It then classifies the various types of nephritis, discusses their prognosis and their influence upon other body functions, and ends with a valuable chapter containing studies of renal function in surgical cases.

Volume two devotes itself to cystoscopy—its history, technic, armamentarium, and its usefulness in the field of diagnosis. It presents little which is new or individual, although it portrays our knowledge of cystoscopy with completeness; but the detail of its descriptions is so carefully carried out both in the text and in the illustrations as to make the book of real value, especially to the student.

The third book might well be, and probably is, a series of lectures on electro-therapy as applied to genito-urinary diseases. After introductory chapters which consider the various forms of electrical currents and batteries, the main body of the book concerns itself with the usefulness of electricity in the treatment of conditions both functional and organic which involve the genito-urinary organs. The book contains much to interest the urologist, but those whose work is largely developed along the lines of major genito-urinary surgery will be perhaps disinclined to share the author's ideas as to the value of electrical treatment in such conditions, as for example, hypertrophy of the prostate and stricture of the urethra.

All three volumes are properly presented. The type and paper are good and the illustrations are for the most part both excellent and original, and are, as a whole, better than such hospital reports ordinarily contain.

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MEDICAL STATUS OF THE UNITED STATES NAVY.

THE recently published annual report of Dr. W. C. Braisted, Surgeon General of the United States Navy, records the medical status of this service for the fiscal year 1914. During the year 1913 the health of the navy was good and showed a satisfactory improvement over the preceding year. The total sick days in 1913 showed a slight increase over 1912, but the death rate in 1913 was only 3.82 as against 4.08 in 1912. Among the diseases of special interest, comment is made on malaria, diphtheria, small-pox, typhoid fever, tuberculosis, venereal diseases, appendicitis, alcoholism and mental disorders. A slight increase in the incidence of malaria is accounted for by the sojourn of vessels in Mexican waters. Although the admission rate of diphtheria had increased there were no deaths from this disease. The outbreak of small-pox on the Ohio, which was described in contemporary issues of the JOURNAL caused a total of twenty-nine cases and five deaths. The number of typhoid fever was only twenty-two, with four deaths, a total rate of 0.33 per thousand, the lowest annual rate yet recorded in the service. All the cases which occurred were in men who had not received antityphoid inoculation or in whom the inoculation had not been complete. There were 367 cases of tuberculosis during the year. The incidence of all the venereal diseases has shown a steady decrease since 1911, presumably attributable to the required employment of venereal prophylaxis. There were 168 cases of appendicitis with no deaths. Alcoholism is also steadily on the decline in the navy, the incidence rate per thousand in 1913 being only 3.45. There was a slight increase in mental disorders whose rate was 4.11 in 1913 as against 3.97 in 1912. A method is under consideration for more accurate detection of mental defectives on enlistment in the navy with a view to excluding such individuals at the recruiting stations and thereby reducing the cost at the naval prisons and hospitals.

Detailed consideration is given to sanitary measures and conditions afloat, ashore, and in general. The navy ration is discussed, and, though considered excellent in quality and sufficent in quantity, is criticised as excessive in meat and fats, especially for tropical service, where an increase of vegetables and fruits would be desirable. The white uniforms also are criticised as particularly disadvantageous in war, when khaki or forestry green would be preferable, as well as more serviceable at all times for wear aboard ship. First aid instruction has been given to all enlisted men by division officers, but might, it seems, be more satisfactory in the hands of the medical corps. It is suggested that a paymaster should be added to the complement of officers on hospital ships, who should also act as commissary.

A larger number of hospital ships is urgently necessary, at least one for each fleet. A plan is being perfected for the rapid transformation of merchant ships for this purpose.

Special reports are made of sanitary conditions at the Annapolis Naval Academy, at the naval stations at Guam, Guantanamo, and Samoa, at the Philadelphia Navy Yard, and at the various naval hospitals. In general it is felt that an abundance of recreation and liberty is advantageous for the welfare of the enlisted man. Athletic exercises are particularly encouraged. Systematic education of the enlisted personnel of the hospital corps is undertaken, especially in anatomy, physiology, emergency surgery, bandaging, field and personal hygiene and sanitation. A detailed description is given of the activities of the navy medical corps during the United States occupation of Vera Cruz

beginning on April 21, 1914. A field hospital was located in a frame building at one of the piers and the ambulance party so divided as to render effective aid to the different companies. Members of the hospital corps and stretcher bearers were highly commended in orders for efficiency and courage under fire.

During the year ended June 30, 1914, twenty-eight medical officers were admitted to the corps and ten were lost by death, retirement and resignation, leaving the total strength at 311 with 36 vacancies. The services of officers of the medical reserve corps were utilized at recruiting stations and on several ships. There are thirteen vacancies in the navy dental corps, which has proved itself of great value. The hospital corps consist of twenty-four pharmacists, 285 hospital stewards, and 1128 hospital apprentices, a total of 1437. Even this number, however, is inadequate properly to man the hospitals, ships and stations of the service even in times of peace. A hospital corps training school has recently been established at Newport, R. I., to teach newly enlisted apprentices. During the year, 43 nurses have been appointed to the naval nurse corps and 38 have left the corps. At Guam and Samoa gratifying progress has been made in the instruction of native women and nurses.

The medical department of the United States Navy seems, therefore, in a creditable state of efficiency and preparation to meet the demands of a peace footing. Whether it would be able, without greater appropriations, to extend its activities rapidly and adequately in the event of war is a question involved in the entire problem of our general national status of naval efficiency.

THE EPIZOÖTIC OF FOOT AND MOUTH DISEASE.

On Monday of last week, Nov. 30, certain counties of Wisconsin, Illinois, and Iowa were, by order of the United States Department of Agriculture, freed from some of the restrictions of the federal livestock quarantine for foot and mouth disease.

"All the counties in Wisconsin are released with the exception of Green, Rock, Walworth, Kenosha, Racine, Dane, Jefferson, Waukesha, Milwaukee, Lincoln and Langlade.

"In Iowa all counties are released except Mitchell, Greene, Blackhawk, Buchanan, Delaware, Dubuque, Tama, Benton, Linn, Jones, Jackson, Poweshiek, Iowa, Johnson, Cedar, Clinton, Scott, Keokuk, Washington, Louisa and Muscatine.

"The following counties in Illinois are released: Calhoun, Madison, Bond, Fayette, Effingham, Jasper, Crawford, St. Clair, Clinton, Marion, Clay, Richland, Lawrence, Monroe, Washington, Jefferson, Wayne, Edwards, Wabash, Randolph, Perry, Franklin, Hamilton, White, Jackson, Williamson, Saline, Gallatin, Union, Johnson, Pope, Hardin, Alexander, Pulaski and Massac."

The release order provides that cattle for immediate slaughter may be shipped from these counties in interstate commerce, and that cattle may be received for feeding purposes, but may not be shipped for feeding elsewhere.

Thus far during the course of the epizoötic a total of 1800 infected animals has been slaughtered in Massachusetts,—424 cattle, 1267 fowl, 104 swine, 2 sheep, 2 oxen, and 1 goat. About 600 more infected animals remain to be slaughtered in this state.

On Nov. 30, four new cases of foot and mouth disease among cattle were discovered at Pelham, and one at Amherst, N. H.; and 7 cases at Groton City, near Ithaca, N. Y. On Dec. 1 another case was found at South Warren, and on Dec. 2 others at Swampscott, Mass. More infected cattle were slaughtered at Medford, Mass., on Dec. 2. The cost of the epizoötic thus far to this Commonwealth is now estimated at $150.000.

TWO MORE AMERICAN HOSPITALS IN EUROPE.

In last week's issue of the Journal we commented editorially on the two American hospitals established respectively at Paris and Munich by Americans resident in those cities. Report from Petrograd and London now announces the opening on Nov. 27 of another American hospital of 50 beds at Warsaw, Poland, in the presence of the governor-general and the consuls of friendly nations. The money for this enterprise was raised in Chicago under direction of the Polish-American Society. On Nov. 28 another American hospital of 40 beds, equipped by Americans resident at Petrograd, was opened in that city with addresses by Mr. Marye, the United States ambassador, by the mayor of Petrograd, and by other Russian offi-

These two new American hospitals in Europe, like those at Munich and at Paris, deserve the cordial and generous financial support of Americans at home, for their work stands not only to the credit of American charity but also to the advancement and honor of American medical science abroad.

MEDICAL NOTES.

OBSERVANCE OF TUBERCULOSIS DAY.—By appointment of the National Association for the Study and Prevention of Tuberculosis, Sunday, November 29, was appropriately observed throughout the United States as Tuberculosis Day.

POLIOMYELITIS IN OCTOBER. — During the month of October, 30 cases of poliomyelitis were reported in Massachusetts, 11 in Virginia, 10 in Wisconsin, and 9 in Mississippi. Of the Massachusetts cases, 5 were in Haverhill and 4 in Boston.

AMERICAN PUBLIC HEALTH ASSOCIATION.—The annual convention of the American Public Health Association was opened at Jacksonville, Fla., on Nov. 30 and continued through Dec. 4. Among the principal speakers were Dr. William C. Woodward, of Washington, D. C., president of the association; Dr. Frederick R. Green, of Chicago; Dr. Charles V. Chapin, of Providence; and Dr. George H. Shaw, of the United States Department of Agriculture. On Dec. 2 a joint session was held with the National Mouth Hygiene Association, at which addresses were made by Dr. Harvey W. Wiley and Mr. Frederick L. Hoffmann. On Dec. 4 Prof. William T. Sedgwick was elected president for the ensuing year. The meeting of 1915 will be held at Rochester, N. Y.

TYPHOID FEVER IN SPAIN.—Report from Paris on Nov. 25 states that a severe epidemic of several thousand cases of typhoid fever is now prevalent at Barcelona, Spain.

EUROPEAN WAR NOTES.—On Dec. 1, the Chicago Red Cross fund amounted to $104,000. The total amount of money thus far raised in that city for European war relief is $427,000.

On Dec. 5, the total of the New York Belgian relief fund amounted to $597,250.90, the New York Red Cross fund to $368,752.91, and the American Ambulance Hospital fund to $184,056.98.

On Dec. 6, the total of the New England Belgian relief fund amounted to $126,670.90, the Massachusetts Red Cross fund to $83,027.43, and the Boston branch of the American Ambulance Hospital fund to $40,549.95.

As a result of the appeal recently made, contributions of money and clothing have been received for the American Hospital at Houlgate, France. Further quantities of medical and surgical supplies are to be forwarded to this institution by steamer sailing on Dec. 12.

BOSTON AND NEW ENGLAND.

AWARD OF JOHN HARVARD FELLOWSHIPS.—The John Harvard Fellowships in the Harvard Medical School for the present year were formally awarded at a meeting in the Administration Building on Wednesday, Dec. 2, at 5 P. M. There was an address by Professor Theobald Smith, after which awards of the fellowships and of honorable mention were made by the Dean, Dr. Edward H. Bradford. Following the presentation of fellowships, an informal reception was held by the Harvard Medical Students' Association.

PREVALENCE OF DIPHTHERIA IN BOSTON.—During the month of November there were 408 cases and 18 deaths of diphtheria in Boston, much larger numbers than in any preceding month this year.

SOCIETY FOR THE PREVENTION OF CRUELTY TO CHILDREN.—The thirty- sixth annual meeting of the Massachusetts Society for the prevention of Cruelty to Children was held Tuesday, December 1, 1914, at the Hotel Vendome, Boston. Mr. C. C. Carstens, Secretary and General Agent of the Society, announced that the Society had investigated 4,848 cases in the last twelve months and had under its protection 12,513 children during the same time,—more than 1,000 children a month. 965 cases were prosecuted in the courts on behalf of 2,636 children. In the Boston office alone, 144 parents were prosecuted for non-support and neglect of their minor children, while 40 people were brought to justice for sex crimes against young girls.

In addition to the central office at 43 Mt. Vernon Street, Boston, the Society has branches at each of the following places: Amherst, Beverly, Brockton, Fall River, Greenfield, Haverhill, Ipswich, Lawrence, New Bedford, Northampton, Pittsfield and Worcester. Mr. John H. Sturgis, the treasurer, announced that the Society had closed its fiscal year with a deficit of $9,086.53. At the public meeting, Lieutenant Governor-elect Grafton D. Cushing, president of the Society, presided and Dr. Richard C. Cabot spoke on "The Root and Branch of Social Work."

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending Dec. 1, 1914: diphtheria, 112, of which 8 were non-residents; scarlatina, 41; typhoid fever, 8, of which 1 was non-resident; measles, 109; tuberculosis, 38. The death rate of the reported deaths for the week was 15.84.

Case of Smallpox in Boston.—Another case of smallpox, in a 16 months baby, was discovered at Boston on Nov. 25 among Italian immigrants held in detention at quarantine from aboard the steamer *Cretic*, on which occurred the case reported last week.

A Vigorous Centenarian.—Richard Kimball Powers, of Lancaster, Mass., who is said to have been born on Nov. 26, 1810, at Sterling, Mass., celebrated recently his supposed 104th anniversary by chopping the wood necessary to cook his Thanksgiving dinner. He attributes his vigorous longevity to hard work, honesty and abstemiousness.

Bequest for Medical Science.—The will of the late Dr. Charles Sedgwick Minot, Stillman professor of comparative anatomy at the Harvard Medical School, was filed on Nov. 27 in the probate court at Dedham, Mass. It contained a bequest of $1000 for the improvement and increase of the embryological collection which he established at the Harvard Medical School, to which he has also left his scientific apparatus, books and pamphlets.

NEW YORK.

Public Instruction in Prevention of Tuberculosis.—In coöperation with the division of public health education of the Department of Health, the Board of Education recently arranged for a week of public instruction of the adults of the city in the prevention and care of tuberculosis, and this campaign of education was the most comprehensive of its kind ever undertaken. Some sixty illustrated lectures were given by physicians and nurses of the Health Department during the week beginning Nov. 29, in the public school buildings of the various boroughs; ten or a dozen lectures on each evening of the week except Sunday.

Mortality for Week Ending November 28, 1914.—During the week ending Nov. 28, 1914, there were 1389 deaths with a death rate of 12.98 as against 1288 deaths and a death rate of 12.51 during the corresponding week last year. This increase is due to the greater number of deaths from diphtheria and croup and diseases of the respiratory tract. The deaths from diarrheal diseases were slightly lower than those of last year, in spite of the fact that there were 26 more deaths of infants under one year than during the corresponding week last year.

The weekly rate is affected by so many factors that the slight weekly fluctuations in the number of deaths are of little importance. The important point is that the death rate for the first 48 weeks of 1914 is lower than that of the corresponding period in 1913.

Current Literature

Medical Record.

November 21, 1914.

1. Hecht, D. *The Public and the Profession: A Criticism.*
2. Holmes, B. *A Plea for a Research into the Possibility of the Cure of Dementia Precox by the Use of Serum Containing the Defensive Ferment.*
3. Lilienthal, H. *The Relation of Gynecology and Urology to General Surgery.*
4. *Fischer, L. *The Association of Follicular Tonsillitis with Acute Gastric Fever: A Clinical Study.*
5. Williams, E. H. *The Sexual Significance of Recent Fashions.*
6. Cunningham, W. P. *Face to Face.*
7. Amsden, H. H. *Vincent's Angina.*
8. Voorhees, I. W. *A Case of Acute Thyroiditis.*

4. Fischer asserts that the clinical association of benign follicular tonsillitis with gastric fever—loss of appetite, acetone breath, fever, meteorism, constipation—is very common. If a child presents these symptoms the tonsils should be carefully inspected and if hypertrophied treated as diseased tissue and a focus for future infection. He advises for these cases an alkaline laxative and locally one application of tincture of iodine to the throat. [L. D. C.]

New York Medical Journal.

November 21, 1914.

1. Gordon, A. *Insanity and Divorce.*
2. Pedersen, V. C. *Teratoma Testis with Tubercle Bacilli in the Urine.*
3. Waitzfelder, E. *Implantation of Pituitary Gland.*
4. Madigan, P. S. *The Solution of the Problem of Criminal Abortion.*
5. Berghausen, O. *Intraspinous Medication.*
6. Holland, A. L. *Hyperchlorhydria.*
7. Kauffer, H. J. *A New Method of Hastening Repair after Fracture.*
8. Jackson, J. A. *Need of More State Hospitals for the Insane.*
9. *Wainwright, J. M. *Rôle of the Cecum in Chronic Disorders in the Right Lower Abdomen.*
10. Gardner, J. A. *Tuberculosis of the Kidney.*
11. Cooke, C. H. *Early Pulmonary Tuberculosis.*
12. Lackner, R. J. *A New Poison-Containing Bottle.*
13. Loevenhart, A. S. *Certain Aspects of Vital Oxidation.*

9. Wainwright calls attention to the importance of the cecum in the causation of chronic disorders in the right lower abdomen. It is rarely justifiable, he says, to limit any operative interference to simple removal of a supposed chronic appendix unless the other organs in the right abdomen are carefully examined and found normal or unless the appendix itself shows unmistakable gross signs of disease. It will avail little to remove a normal appendix, if a dilated and movable cecum is left behind. [L. D. C.]

The Journal of the American Medical Association.

November 28, 1914.

1. Putnam, J. J. *Services to be Expected from the Psychanalytic Movement in the Prevention of Insanity.*

2. *Gregg, H. *Genetic Factors in One Hundred Cases of Psychoneurosis.*
3. Southard, E. E. *Notes on Public Institutional Work in Mental Prophylaxis, with Particular Reference to the Voluntary and "Temporary Care" Admissions and the "Not Insane" Discharges at the Psychopathic Hospital, Boston, 1912-1913.*
4. *Lowenburg, H. *Efficiency of Sodium Chlorid in the Therapeutics of Bright's Disease. A Further Clinical Study.*
5. Thomas, B. A. *The Rôle of Functional Kidney Tests and Preoperative and Postoperative Treatment in the Reduction of Prostatectomy Mortality.*
6. Lespinasse, V. D. *The Relief of Sterility by Means of Permanent Epididymostomy, with the Formation of an Artificial Sac for the Storage of the Sperm.*
7. Jackson, C. *The Direct Method of Intralaryngeal Operation.*
8. Curtis, H. H. *Indirect Intralaryngeal Method for Removal of Benign Neoplasms.*
9. Skillern, R. H. *Method of Suspension (Killian).*
10. Forsythe, W. E. *Health Services in American Colleges and Universities.*
11. Jobling, J. W., and Petersen, W. *The Therapeutic Effect of Iodin.*
12. Orenstein, A. J. *Contribution to the Study of the Value of Quininization in the Eradication of Malaria.*
13. McGuigan, H. *A Colloidal Compound of Strychnin and Its Pharmacology.*
14. Ogilvie, H. S. *The Intraspinal Treatment of Syphilis of the Central Nervous System with Salvarsanized Serum of Standard Strength. Report of Cases.*
15. Richardson, D. L. *The Prevention of Communicable Diseases in General Hospitals.*
16. Levy, R. L. *Oil of Chenopodium in the Treatment of Hookworm Infections.*
17. Bray, A. *Congenital Phthisis Bulbi, with Report of a Case.*
18. Swasey, E. *A Severe Case of Exophthalmic Goiter, with Complete Recovery without Operation, Rest or Medication.*
19. Copeland, G. G. *Traumatic Rupture of the Healthy Aorta without External Signs of the Cause of Death.*
20. Clark, O. *Exophthalmic Goiter as a Clinical Manifestation of Hereditary Syphilis.*

2. Gregg finds that in psychoneurosis there practically always exists as an essential factor an acquired or hereditary tendency. Luetic, insane, neurotic, and alcoholic defects, in the order named, are the essential factors in the production of these tendencies.

4. Lowenburg finds that sodium chlorid neither produces nor increases water retention in either the nephritic or non-nephritic. It is curative in cases of edema from any cause provided the kidneys are not too severely damaged. It does not cause edema in marantic infants. When combined with an alkali and plenty of water it exerts a beneficent influence on all the symptoms of nephritis. It is dangerous to introduce a solution of an alkali under the skin as it is liable to produce sloughing. It is best administered by rectum or intravenously. [E. H. R.]

THE JOURNAL OF EXPERIMENTAL MEDICINE.

NOVEMBER 1, 1914.

1. *Rous, P. *The Influence of Diet on Transplanted and Spontaneous Mouse Tumors.*
2. Jobling, J. W., and Petersen, W. *Bacterial Antiferments. Studies on Ferment Action.*
3. Jobling, J. W., and Petersen, W. *Lipoids as Inhibitors of Anaphylactic Shock. Studies on Ferment Action.*
4. Pappenheimer, A. M. *Further Experiments upon the Effects of Extirpation of the Thymus in Rats, with Special Reference to the Alleged Production of Rachitic Lesions.*
5. Morgulis, S., and Gies, W. J. *The Calcium Content in Bones and Teeth from Normal and Thymectomized Albino Rats.*
6. Fleisher, M. S., and Loeb, L. *The Influence of Various Substances on the Growth of Mouse Carcinoma.*
7. Fleisher, M. S., and Vera, Miguel, and Loeb, L. *Immunization against the Action of Substances Inhibiting Tumor Growth.*
8. Leighton, W. E. *Do Substances Inhibiting Tumor Growth Exert a Retarding Influence on the Regeneration of the Skin?*

1. Rous found that large growths of certain strains of transplanted rat and mouse tumors were checked by underfeeding the host upon a special diet or in some cases by simple underfeeding. On the other hand, diet gave varied results in the case of spontaneous growths and the inhibition of growth in these tumors seemed rather attributable to a gradual malnutrition than to the diet. Consequently, at present at least, the work seems to have no direct clinical significance. [R. I. L.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

NO. 32. AUGUST 11, 1914.

1. *Schmincke, A. *The Cause of Hemorrhoids.*
2. Sathoff, V. L. *The Necessity of Uniform Temperature Measurements, and the Range Between Normal and Pathological Temperatures.*
3. Wegenes, E. *The Sex Specificity of Abderhalden's Reaction and the Effect of Narcotics on the Test.*
4. Porter, A. E. *The Distribution of Ferments Which Split Fat and Lecithin in Various Organs.*
5. Chilaiditi, D. *The Technic of Gynecological Roentgen Ray Treatment.* L
6. Greincher, H. *The Ionometer and Its Use in Measuring the Dosage of Roentgen Rays.*
7. Geigel, R. *An Improvement in Illuminating for Fluoroscopy.*
8. *Grimm, K. *Taenia Saginata in Infancy.*
9. Heidenhain, L. *Operation or X-ray Treatment?*

1. Schmincke describes the anatomy, histology and physiology of the area supplied by the hemorrhoidal plexus of veins. Normally, he believes, dilatation of the veins in this region must occur with defecation on account of the distribution of the blood vessels. Such physiological dilatation increases with age and becomes especially marked in individuals of constipated habit. The pathological condition known as hemorrhoids occurs when the feces press on the hemorrhoidal veins to such an extent as to interfere with proper emptying. At the same time the venous stasis is exaggerated by the increased abdominal pressure induced by the passage of a constipated stool.

The first abnormal anatomical change noted is hypertrophy of the walls of the veins to compensate for the increased venous pressure. Finally the veins become insufficient, edema and subsequent infection occur, and the clinical hemorrhoid is formed.

8. Grimm reports a case of taenia saginata in an infant ten and a half months old. The chief interest in the paper lies in Grimm's review of the literature dealing with similar cases. Taenia of different types have been noted in several infants, but the disease is by no means common. Two cases have been reported in which taenia were found in infants five days old. [R. F.]

NO. 33. AUGUST 18, 1914.

1. *Meyer, E. *Clinical and Experimental Studies on the Action Obtained by Salvarsan upon Congen-*

ital Syphilis of the Fetus through Treatment of the Mother.
2. Dessauer, F. *Artificially Induced Gamma Rays.*
3. Köck, E. *Non-diphtheritic Laryngeal Stenosis in Children.*
4. Tobias, P. *The Relapsing Colic of Children.*
5. Pasini, A. *The Toxic Manifestations of Embarin.*
6. Rigler. *The Quadratograph. An Apparatus to Assist X-ray Work.*
7 *Sternberg, W. *An Esophagotherm for the Treatment of Stenosis.*
8. Müller, C. *Operation or Ray Treatment?*

1. Meyer believes that the clinical examination of the mother affords no indication as to the existence of a fetal lues. Therefore in a suspected case, the syphilis must be treated during the entire pregnancy in order to obtain a viable child. Mercury alone has not afforded much protection against congenital syphilis. Better results have been obtained by the intensive treatment of the disease made possible by salvarsan. Since the outlook for obtaining a healthy child improves with the thoroughness of treatment, Meyer advises a course which includes at least 1.5 grams of salvarsan combined with .5 grams of salicylated mercury. Finally, the children of syphilitic mothers, even though they show no clinical or serological signs of the disease, must be treated for a considerable period after birth.

7. Sternberg has devised a bougie through which an electrical current passes, thus allowing the direct application of heat to an esophageal stricture. Sternberg considers this instrument of great advantage in the treatment of esophageal stenosis or spasm. Because of the hyperemia induced by the heat at the point of disease, a serous exudate is induced which quickly softens the infiltrated or scarred region and as a result a rapid dilatation is made possible

[R. F.]

No. 34, August 25, 1914.

1. Romberg, E. *The Clinical Diagnosis of the Type of Pulmonary Tuberculosis.*
2. Hess, O. *Results with the Phenolsulphonephthalein Test for Renal Function.*
3. Weiner, S. *The Granular Form of the Virus of Tuberculosis.*
4. Schanz, F. *The Cause of Far-sightedness.*
5. *Happich, C. *Insomnia.*
6. *Wechselmann, W. *A Critical Study of the Causes of Death Following Injections of Salvarsan.*

5. According to Happich's views disturbances of sleep are centered in the brain. Sleep depends on a passive hyperemia with diminished vascular tone, in contrast to the active hyperemia with increased vascular tone which occurs during mental effort. Sleeplessness, therefore, may depend on anatomical changes in the brain tissue which disturb the normal blood supply, or may be due to functional disturbances in the cerebral vaso-motor system.

To treat sleeplessness successfully, each individual case must be studied. The fundamental principle of treatment depends on re-educating the patient to sleep automatically, and thus the medicines used must vary according to the etiology of the symptom. For instance, in cerebral arteriosclerosis hypnotics are often without effect, while strophanthin or diuretin may induce sleep, and in toothache or rheumatic pain aspirin may be of value when other drugs are not.

It must be remembered that all hypnotics are variable in action and that immunity to any one is quickly obtained. Thus a series of different drugs in rapid succession should be tried, rather than an increasing dose of any one. Finally, one of the most satisfactory methods of using hypnotics is to give them in small and repeated doses during the day, rather than in a single large dose at night.

6. Wechselmann discusses "hypersensitiveness" to salvarsan as a cause of sudden death following the injection of the drug. He believes that it is more important to study the functions of living organs than to dispute about "idiosyncrasy" after death. In salvarsan treatment, the kidney is a most important organ. Acute infections, mercury, or alcohol may injure it to such an extent functionally that it cannot excrete arsenic and as a result, poisoning may occur. Hepatic or polyglandular insufficiency is rarer but may occur. Thus on the whole, Wechselmann advocates a careful functional study of salvarsan cases. If this is carried out, "hypersensitiveness" will be met with rarely.

[R. F.]

Obituary.

CHARLES SEDGWICK MINOT.

Dec. 23, 1852—Nov. 19, 1914.

In America anatomy has long been taught as an adjunct of surgery. Only recently has it been recognized as an independent and growing science, requiring for its successful pursuit rare natural gifts not less than genius. In Europe, on the contrary, it has always held an honored place, and great anatomists have appeared in almost every country. In 1909, with a civic celebration, the city of Neuss dedicated a monument to "her greatest son," Theodor Schwann, famous for his researches in microscopic anatomy; and in 1900 Johannes Müller was similarly honored in Coblenz. Since that recent time, both His and Kölliker have ended their studies which have become an integral part of anatomical science. But in this particular field, America, until the present day, has produced no peer of these great men. The rarity in this nation of such achievement as that of Charles Sedgwick Minot brings home to us the profound importance of his work, which has now been completed. Even while oppressed by recent bereavement, we can trace with just pride the career of this eminent American anatomist.

Dr. Minot was born in Boston. His parental home is described as comprising "about thirty acres of land, sheltered by large trees and abundant shrubbery, including also some acres of swamp . . . It stood on the edge of the Great Forest, which then stretched to the Blue Hills and the Great Ponds in Canton and Braintree on the south." On this estate and in the surrounding country, he laid the foundation for his future scientific work by becoming "a good amateur naturalist." His first scientific publication was a brief description of the male of *Hesperia metea*, a small butterfly captured in Dorchester, of which species only the female had previously been recorded. This paper, presented to the Boston Society of Natural History on Feb. 24, 1869, was quickly followed by other studies of insects, including descriptions of new species. Later, in 1875, we find him at the Col-

... France studying the microscopic anat... ... water-beetle, *Hyrdophilus piceus,* under the direction of Ranvier. Subsequently ... described the histology of the locust and cricket (1880), together with the anatomy of the cotton-worm (1884), for the Entomological Commission at Washington. Finally, as a reminiscence of his early interest in insects, he published in 1901 certain notes on the larvae and pupae of Anopheles, made in 1879. At that time these mosquitoes were of no medical interest, but the curious habits of their larvae had attracted his attention, and he reared many of them to maturity.

After Minot had obtained the degree of Bachelor of Science from the Massachusetts Institute of Technology and had made his early studies of insects, he undertook physiological investigations with Dr. Henry P. Bowditch, then assistant professor at the Harvard Medical School. They published jointly in this Journal (May 21, 1874) a paper on the effects of anesthetics on the vaso-motor centres. Influenced no doubt by Professor Bowditch, for whom he had always the warmest friendship and the highest regard, he visited the physiological institute at Leipzig; and under the direction of Carl Ludwig, who had been Bowditch's teacher, he studied the production of carbonic acid in resting and active muscle. Thirty years later he referred to Professor Ludwig as the greatest teacher of the art of scientific research whom he had ever known. After returning to America he conducted an extensive series of experiments on tetanus, published in 1878, and in that year he received from Harvard University the degree of Doctor of Science, for his work on the physiology of muscular contraction. This marked the end of his strictly physiological studies. Although well trained in chemistry and initiated in physiology by Bowditch and Ludwig, morphology appeared to him as even more attractive.

While in Leipzig, Minot studied also in the zoölogical laboratory under Leuckhart, completing an investigation of the turbellarian worms begun at Würzburg under Semper. He had mastered the latest methods of microscope technic and had caught the spirit of the German universities. In his paper on the study of zoölogy in Germany (1877), he wrote:—

"The universities, unlike many of our colleges, are not mere high-schools, but are the centres of intellectual activity. The distinguishing feature of them is their organization, which gives to original research the highest rewards, and makes everything else subordinate to investigation . . . The rigid adherence to this system has made the German universities the home of the highest science."

Realizing how little the American schools had contributed toward equipping him for his life work, which he was now ready to undertake, he later said:—

"In regard to our schools there prevails the miserable delusion that they are good . . . Can we not plan a system of school education in which science shall have its place, and by which our children shall acquire some information about themselves, the world around them, and at the same time be disciplined in observation and reasoning?"

It was to the great task of raising the standards of higher education in America, particularly in his own field, that Dr. Minot had committed himself when, in 1880, he was appointed Lecturer in Embryology at the Harvard Medical School. He took charge of the department of histology, which was then equipped with 18 Hartnack microscopes and supported by an annual appropriation of fifty dollars. From this beginning, with incessant labor on his part and later on the part of his assistants, he has seen his hopes realized, until the opportunities for study and investigation now provided in his laboratories are scarcely equalled. Especially notable is his wonderful collection of over nineteen hundred embryos of various animals, cut into many thousands of sections, each of which is numbered and catalogued. He has described this collection as "a sort of cyclopedia of vertebrate embryology to which one can turn at any time and get the desired information as to the principal features of development of any structure whatsoever." Already it has been used by Professor Minot and many others for important investigations.

At the same time the instruction of beginners in embryology has been facilitated by preparing one hundred and fifty complete series of sections of pig embryos of a stage most interesting to students of human anatomy. The use of mammalian embryos, rather than those of chicks, was an innovation, and called for the preparation of a special *Laboratory Text-Book of Embryology.* This was issued in 1903, many years after Minot had begun to use pig embryos, and being the first text-book of its kind, it has led to a more general laboratory study of mammalian embryology both in colleges and medical schools. Knowing that the book was in preparation, Professor Minot's assistants and pupils supplied him freely with reconstructions, often made on their own initiative. These were very acceptable, since he himself never cared to pursue this rather mechanical method of investigation. He spent the spring of 1914 in preparing a third edition of the text-book, which was left nearly ready for the printer.

A far more important book, which placed Minot at once in the front rank of embryologists, was his well-known *Human Embryology,* published in 1892,—the "result of ten years' labor." This was an ambitious attempt to present in one large volume a summary of all that was then known concerning human development, with exact bibliographical references to every paper cited (nearly a thousand). It in-

cluded also numerous contributions based upon the author's personal observations, especially in the chapters on the placenta and embryonic membranes. When this work was issued in its German edition in 1894, Professor His described it as substantial throughout, with the facts everywhere in the foreground. "Minot's work," he wrote, "is at present the fullest embryology of man which we possess, and it will retain its value as a bibliographical treasure-house even after its contents in many parts have been superseded." By exposing the numerous gaps in embryological knowledge, and by challenging many current opinions it served as a great impetus to further research. A revision was never undertaken.

Of Professor Minot's briefer papers none perhaps is more characteristic than his treatment of "sinusoids." Like other embryologists he had been familiar with the lacunar vessels in the embryonic liver, Wolffian body and elsewhere, and they had in fact been figured in his *Human Embryology* (1892). It remained for him to bring them together as a class in 1900, under a new name, and to describe them in a paper bearing the rather startling title,— "On a hitherto unrecognized form of blood circulation without capillaries in the organs of Vertebrata." For the first time the striking and important differences between slender capillaries imbedded in connective tissue layers and wide lacunar blood spaces closely applied to the parenchyma of an organ, were adequately presented, and they are now well known. This publication, like many others by Dr. Minot, did not require special stains or the use of rare material. It illustrates what Lowell has described as "the divine faculty to see what everybody can look at," and the observations have both anatomical and physiological significance.

A series of studies in which Professor Minot took the greatest interest were concerned with the nature of growth. They began in 1879 with a paper on "growth as a function of cells," in which it is stated that during growth "two fundamentally different processes display themselves: the gradual *senescence* which continually hinders and delays the multiplication of cells and their vital acts, at last supressing them altogether at the moment of death; before senescence conquers, the sexual products are thrown off and effect the process of *rejuvenation.*"

Senescence and rejuvenation were studied by tabulating the weights of guinea-pigs from birth to old age, and of rabbit embryos up to the time of birth, using weight as a measure of growth. The conclusion was drawn that the fertilized ovum is endowed with an enormous power for growth, over ninety-eight per cent. of which has been lost at the time of birth. The remaining two per cent. is largely exhausted in infancy. Therefore he concludes that "senescence is at its maximum in the very young stages and the rate of senescence diminishes with age." He protests against "the medical conception that age is a kind of disease," chronic and incurable, of any such nature as intestinal intoxication or arterio-sclerosis. On the contrary he finds that it has a cytological cause, equally operative in the lower animals which have neither intestines or arteries and in man; and he ascribes senescence to the increase and differentiation of cytoplasm as compared with nucleoplasm.

In 1901 he proposed "the new term *cytomorphosis* to designate comprehensively all the structural alterations which cells, or successive generations of cells may undergo from the earliest undifferentiated stage to their final destruction." His latest works on this subject, aptly characterized as "thoughtful and suggestive," refer to cytomorphosis as a most promising field for further study, and at the time of his death, plans had been made for careful investigations to test the validity of his cytomorphic hypothesis concerning age.

Altogether Professor Minot published no less than one hundred and eighty scientific notes and papers, including a considerable number of presidential and other addresses. The latter have been collected and issued in German translation under the title "*Die Methode der Wissenschaft und andere Reden*" (Jena, 1913). Their wide scope is indicated by such subjects as "Ideals of Medical Education," "The Embryological Basis of Pathology" and "The Problem of Consciousness in its Biological Aspects." His addresses and lectures were delivered with characteristic ease and dignity, commanding at once respectful attention.

Appreciating the value of scientific societies in promoting research, he was deeply interested in the organization and development of those in America, and at different times was chosen president of the Naturalists, the Anatomists and the American Association for the Advancement of Science. He was a member of many others, including the National and American Academies and learned societies in Belgium, England, France, Germany and Italy. Honorary degrees were conferred upon him by Yale in 1899, Oxford (1902), the University of Toronto (1904) and St. Andrew's University in Scotland (1911).

Every anatomist in America will find his work facilitated by what Minot has done in inventing microtomes, developing the means of publication, and encouraging research through societies and funds, of which the small Thompson Fund entrusted to him may serve as a model for the administration of much greater foundations. It was altogether fitting that, as exchange professor to Berlin, he should appear as the official representative of anatomy in America, to present the results of American investigations made during the past decade. Our interests were in the hands of a friend and skilful advocate, who showed that a good beginning had been made,

...expressed reasonable hopes for a great fu-...

After returning from Europe, failing health prevented the energetic activities of earlier years, but we find the same interests as in boyhood. As president of the Boston Society of Natural History, where his first paper had been presented, he continued to direct the transformation of the old collections into those which are creditable to the city, showing how much may be accomplished with inadequate endowment, if wisely managed. He took great delight in this society and in all that it stands for. He was interested also in horticulture, and in his gardens in Milton he cultivated rare varieties of peonies with unusual success. All these were kindred interests—the natural diversions of a genuine biologist. Retaining the broad outlook of the earlier naturalists, he devoted himself intensively to a narrow field of scientific inquiry, and has made an impressive contribution to his chosen science of anatomy. "Great professors make a great school" as Professor Minot once said, and he has given to the Harvard Medical School an international renown.

FREDERICK T. LEWIS.

Correspondence.

FOOT AND MOUTH DISEASE AND MILK.

BOSTON, Nov. 27, 1914.

Mr. Editor: In your editorial on Foot and Mouth Disease in your issue of Nov. 26th, we notice on page 828 the statement: "The Boston Board of Health adopted an order recommending the sterilization by boiling of all uncertified milk supplies before they are used as food for human beings." This is a very inaccurate paraphrase of the orders passed by the Board of Health and carries a meaning very different from that of the order passed. The order passed by the Board of Health is as follows:

"BOARD OF HEALTH.

"Boston, November 16, 1914.

"At a meeting of the Board of Health held this day it was voted that

"On account of the prevalence of the foot and mouth disease, and for the safety of milk users, the Board of Health recommends that for the present all supplies of raw milk be boiled before used as food.

"A true copy. Attest: H. F. SLACK, *Secretary.*"

Yours truly,

C. F. WHITING.

Miscellany.

HERTER LECTURES.

Under the auspices of the Herter Foundation of the University and Bellevue Hospital Medical College a series of lectures will be given on December 10, 11, 14 and 15, at 4 o'clock, at the Carnegie Laboratory, 338 East 26th Street, by Professor Lafayette B. Mendel, Ph.D., of Yale University, on the subject "Aspects of the Physiology and Pathology of Growth."

HARVEY SOCIETY.—The fifth lecture in the current series before the Harvey Society will be given at the New York Academy of Medicine, on Saturday evening, Dec. 12, by Prof. L. J. Henderson, of Harvard University, on "The Excretion of Acid in Health and Disease."

RECENT DEATHS.

DR. CLINTON WAGNER, a retired New York physician of prominence, died in Geneva, Switzerland, on November 27. He was born in Baltimore, Md., in 1840. During the Civil War he served as surgeon-in-chief of the fifth corps, Army of the Potomac, and after the war spent two years in the study of laryngology in London, Paris and Vienna. Dr. Wagner was the founder of the New York Laryngological Society, stated to be the first of its class in the world, and he established the Metropolitan Throat Hospital. He was also largely instrumental in the organization of the American Laryngological Society, and in 1882 he became the first professor of laryngology and rhinology in the New York Post-Graduate Medical School. He contributed much to the literature of his specialty, in which he was recognized as an authority in Europe, as well as in America. He is survived by his widow.

DR. CHARLES WOOD MCMURTRY, of New York, died on November 24, after an operation for appendicitis. He was a native of Pittsburg, and was graduated from the Harvard Medical School in 1897. He was a promising specialist in diseases of the skin, and at the time of his death held positions at the Vanderbilt Clinic and the dermatological clinic of St. Luke's Hospital.

DR. ROBERT MCNEILLY, a well-known New York practitioner, died on November 26, at the age of 83. He was born in the North of Ireland and was graduated from the medical department of the University of Pennsylvania in 1863. During the Civil War he served as assistant surgeon of an Ohio regiment.

DR. FRED VAN MAGNESS, of Chelsea, Mass., a graduate of the Harvard Medical School in 1904, died of pneumonia at his home in Everett, Mass., on Nov. 30, 1914, aged 34 years. He was supreme medical examiner for the Knights of Pythias. He was born in Boston on Sept. 24, 1880.

DR. WARREN MORRIS BABBITT, who died of pneumonia on November 26 in South Braintree, Mass., was born at Taunton, Mass., in 1832. During the Civil War he served as assistant surgeon of the Fifty-fifth Massachusetts Regiment, and later as surgeon of a New York regiment. He is survived by two daughters.

DR. JAMES TRUMAN, who died on November 26 at Philadelphia, was born in 1826. He was a former dean of the dental department of the University of Pennsylvania, and had edited a number of dental publications.

BOOKS AND PAMPHLETS RECEIVED.

A Text-book of Diseases of the Nose and Throat, by D. Braden Kyle, A.M., M.D. W. B. Saunders Company. 1914.

The Heart in Early Life, by G. A. Sutherland, M.D. Oxford University Press. 1914.

Precis de Chirurgie de Guerre par Edmond Delorme. Masson et Cie, Editeurs. 1914.

Mellon Institute of Industrial Research and School of Specific Industries. Smoke Investigation. Bulletin No. 9. Papers on the Influence of Smoke on Health. Edited by Oskar Klotz and Wm. Charles White. University of Pittsburg, Pittsburg, Pa. 1914.

Address.

THE SIGNIFICANCE AND EFFECT OF PAIN.*

By John M. T. Finney, M.D., Baltimore,

Professor of Clinical Surgery, Johns Hopkins Hospital.

For the great honor of being invited to deliver the Ether Day Address for the year 1914, I wish first to express my sincere thanks and appreciation to the trustees and officers of the Massachusetts General Hospital. Returning, as I do, after the lapse of a quarter of a century, my mind is filled with memories of the time so pleasantly and profitably spent as a house pupil in the wards of this hospital, just twenty-five years ago. As a member of the old West Side surgical staff, it was my great privilege to serve under those master-surgeons, John Homans, Charles B. Porter and Arthur T. Cabot, and to have the opportunity to observe the work of their equally illustrious colleagues on the East Side, H. H. A. Beach, Maurice H. Richardson and John Collins Warren. I should be untrue to myself, and ungrateful indeed if I failed at this time and in this place to acknowledge the debt that I owe to these distinguished men, and their associates upon the staff of this hospital, for the stimulus received from them toward high ideals in thought and work; for kindly admonition and advice; for encouragement when sorely needed; and best of all, for that unconscious aid and instruction so freely imparted and received in that intimate personal association which always characterizes the relationship between the true teacher and his pupils. The Massachusetts General Hospital, in the value of its scientific achievements, and in its long roll of illustrious names, has contributed much to American medicine. From its earliest beginnings, it has always stood for the best things in medicine and surgery, and in many respects has served as a model for others to follow. But illustrious as is its past, and glorious as are the promises for its future, for me at least, it can never be quite the same as it was twenty-five years ago. For I miss the presence of those, my teachers and friends, who by their strong personalities, made this hospital what it was, to us who were fortunate enough to have been in any way associated with them. Recurring visits to these venerable halls from time to time, have been saddened by the loss, one after another, of these familiar faces, until now but one remains, full of years and of honors richly deserved and honestly won. Long may he live, and never grow older, to enjoy the fruits of his abundant labors, and the affectionate regard of his friends and former pupils.

Upon this occasion, when we are gathered together to celebrate what Dr. Mitchell has so happily termed the "Death of Pain," it is fitting that we should stop for a moment to consider, as best we can, just what it would mean if this designation were literally true. Would that it were! But, as a matter of fact, the field of usefulness of ether, large and important as it is, does not extend far beyond the confines of the operating-room. Here, it has through its beneficent influence, largely robbed surgical operations of their terrors, both for the patient and the surgeon, for in these days, the performance of a major surgical operation upon a conscious, suffering patient, is almost inconceivable. They were indeed giants in the surgical profession in those pre-anesthetic days; men of iron nerve and indomitable will, who could bring themselves to inflict such untold anguish upon their fellow men, even in the hope of ultimate relief. And what of the patient? This is but a marked illustration of the impelling power of pain, for it requires but a bad enough pain for a long enough time to break down all barriers, and to cause the sufferer to submit willingly, yes, eagerly, to anything at all, even death itself, that offers hope of relief.

We have tried with but ill success to picture in our mind a world that was literally free from pain. What a Paradise it would be! Suppose that such a thing as the abolition of pain were possible. This, of necessity, would almost mean the abolition of disease, for it is quite impossible to think of pain apart from disease or injury, the two have been for so long a time, so intimately associated in the human mind. For what is the meaning of the term disease, *disease*, but the opposite of comfort, and what is that in its commonest form but pain? Rob ill-health of the pain it causes, and its chief terror is gone. But try for a moment to form some sort of a mental picture of the conditions that would exist under such circumstances. Would the world be better off or not? In other words, is the existence of pain of any distinct benefit to the human race, or is it not? In what ways is it harmful, how beneficial? Every one who has been obliged, from any cause, to experience it, or who has witnessed its effect upon others, can well appreciate what a boon to humanity its abolition would be. To be relieved of the mental anguish, the awful fear and dread of a recurrence of an attack of pain through which one may have passed, means almost as much as to be relieved of the pain itself. Think what all this would mean to suffering humanity. It cannot be estimated!

On the other hand, is there anything that would be lost that is of real advantage? This suggests the thought that after all, pain may have its uses, and a definite value both to the patient and to the surgeon. What are they? What are its effects,—good as well as bad? We may hope, perhaps by observation and investigation to gain some insight into these effects, and learn something of its clinical significance.

* Delivered at the Massachusetts General Hospital on Ether Day, October 16, 1914.

It is to this phase of the subject that I wish particularly to direct your attention.

These questions must, I am sure, have come with especial emphasis to every thoughtful surgeon, accustomed as he is, from the nature of his work, to the sight and sounds of pain; called upon, as he is, to inflict pain that relief may follow, to witness daily its effects and results, and to try to find out and remove its causes. They must also have come, and with even greater force, to one who has been called upon, himself, to lie upon a bed of suffering, and has counted the hours as they dragged wearily and endlessly through the long night watches; or who, while keeping sleepless vigil by the bedside of some loved one, has listened helplessly to the stifled cries and groans, or, harder, still, has witnessed in the agonized countenance the mute evidences of intense pain. He must, many times, have wondered at it all, and asked himself the question, "Why must it be so?" Why should human beings be called upon to suffer as some of them are, the innocent along with the guilty? Because the fathers have eaten sour grapes, why should the children's teeth be put on edge?

Ever since that evening in the Garden of Eden, when the curse of sorrow and pain was placed upon our first parents, these as yet unanswered queries have lingered in the minds of their descendants,—and I fancy that they will continue to arise in the minds of succeeding generations, and will fail of a satisfactory answer, until the dawning of that blessed day to which reference is made in the inscription carved upon the monument, erected to commemorate this happy event, which stands in yonder Public Garden. "Neither shall there be any more pain."

The mystery of pain! Has anything in the way of human experience given rise to more wonder or speculation than this? The passions, love and hate, have at times, perhaps, stirred to greater action or deeper feeling. Religious zeal has aroused and lifted the thoughts and emotions to higher planes, patriotism and the martial spirit have ever spurred to deeds of heroism and valor, but I doubt whether any other human experience has been more universal or more controlling than that of pain. The pursuit of pleasure in some of its manifold forms has occupied the mind more continuously, perhaps, but the avoidance of pain, and the institution of measures to relieve it, have ever occupied a not inconsiderable share of its attention, and will continue to do so until the end of time.

Most of the important epochs of a life time are intimately associated with pain or are greatly influenced by it. The beginning of life and the end of it are occasions that are rarely dissociated from pain. We speak of the pains of labor in such a way that the two terms are almost synonymous, and one rarely thinks of the one without the suggestion of the other. This is likewise true of the other extreme of life, but not to the same extent. The "pangs of death" is an expression used by the poets but, nevertheless, an intimate association of ideas is thereby expressed which, while more fanciful than real, perhaps, has its effect upon the human mind. Few experiences, indeed, there are that are really worth while that are not, in some way or other, intimately associated with or influenced by human suffering. Pain is such a universal experience that it has been felt, in a greater or less degree, by everyone. Indeed, psychologists tell us that we never have a sensation or an idea which is not felt with some degree of pleasure or pain, and so it is that the study of it has excited interest in many minds and in all ages. But its cause, and the reason why, remain a mystery still.

"What will implacable, beyond our ken,
Set this stern fiat for the tribes of men!
This none shall 'scape who share our human fates:
One stern democracy of anguish waits
By poor men's cots,—within the rich man's gates.
What purpose hath it? Nay, thy quest is vain:
Earth hath no answer: if the baffled brain
Cries, 't is to warn, to punish—Ah, refrain!
When writhes the child beneath the surgeon's hand,
What soul shall hope that pain to understand?
Lo! Science falters o'er the hopeless task,
And Love and Faith in vain an answer ask,
When thrilling nerves demand what good is wrought,
Where torture clogs the very source of thought."

(Weir Mitchell.)

It is a difficult task that we have set ourselves, the discussion of the significance and effect of pain. The subject is a very broad one, too broad, indeed, to do full justice to in the limited time at our disposal. It is many sided, and we can do no more than indicate and briefly discuss some of the phases that are of particular interest and real significance to the surgeon.

The cause of pain is one thing, its significance another. But in order the more fully to understand the one, we must know something about the other. Indeed, it is absolutely essential to be more or less familiar with the results of recent investigations in order to be able to understand many of the phenomena observed. As is usually the case in every live subject, the observations and opinions of investigators in this field do not entirely agree. Nevertheless, certain fundamental facts have been established, a brief summary of which will aid us to a better understanding of our subject.

In the preparation of this paper, we have consulted many authors,—Hilton, Lennander, Mackenzie, Ross, Head, Sherrington, Meltzer, Hertz, Schmidt, Howell, Behan, Crile, Cannon and others, and we wish here to make acknowledgment of the free use made of their opinions and results.

The anatomy and physiology of the pain-conducting apparatus has been carefully studied by many observers, but as yet no very satisfactory results have been obtained. They tell us that "Pain is probably the sense that is most widely distributed in the body. It is present through-

out the skin and, under certain conditions, may be aroused by stimulation of sensory nerves in the various visceral organs, indeed in all the membranes of the body."

Experimental studies upon the exposed brains of living animals, as well as clinical observations upon conscious patients in the course of surgical operations giving rise to extensive explorations into the tissues of the brain itself, lead to the belief that it is insensible to pain. Cushing was the first to show that the dura also was insensible to the ordinary stimuli for pain. The adequate stimulus here seems to be, as in the intestine, tension in some form.

"For cutaneous pain, at least, the evidence is very strongly in favor of the view that there exists a special set of fibres which have a specific energy for pain. It would appear that the pain sense has a punctiform distribution in the skin. Histological examination of these pain points indicates that they have no special end organ, the stimulus taking effect upon the free end of the nerve fibres" (Howell). Any of the usual forms of artificial nerve stimuli may affect these endings, and if of sufficient intensity, can give rise to pain. Until comparatively recently, it has been taken for granted that the sensory phenomena of disease could be explained only on the assumption that the viscera were well supplied with nerve fibres which could convey impulses leading to the sensation of pain (Hertz). Although as early as seventeen hundred and fifty-three, Haller, as pointed out by Hertz, had failed to obtain any evidence that the pleura, peritoneum, lungs, liver, spleen or kidneys of animals were sensitive to pain, the first real doubt was cast upon prevailing belief, when it was observed that during the second stage of a colostomy, the manipulation and cutting of the walls of the colon in a patient perfectly conscious were unattended by pain, indeed were entirely without sensation. The subject then became the basis of wide interest and investigation. The publications of different observers, notably Hilton in his classical lectures on "Rest and Pain," and the investigations of Ross published in eighteen hundred and eighty-eight, stimulated interest and further work in the study of the nature and methods of transmission of pain.

In his investigations of visceral diseases, Ross divided pain into two forms, splanchnic and somatic. His ideas were very similar to those which had been previously expressed by Hilton and Lange. He thought that "The impulses produced by irritation of the peripheral terminations of the splanchnic nerves were conducted by the posterior roots to the posterior horns of the spinal cord, where they diffuse to the roots of the corresponding somatic nerves, and thus cause an associated pain in the territory of distribution of these nerves." This work of Ross opened up a large field for investigation and stimulated the splendid work of Head and McKenzie, who still further corroborated the observations of Hilton and Ross, and on the weight of their authority, these ideas became generally accepted. Head's work dealing with the areas of cutaneous hyperalgesia occurring in visceral disease, by demonstrating that they are identical with the areas which receive their sensory nerve fibres from the spinal segments to which the afferent fibres from the diseased viscera pass, proved conclusively the soundness of the earlier deductions. Divergent views were held by McKenzie and Ross as a result of their experiments. The former had observed that in visceral disease in addition to the tenderness in the skin, as mapped out by Head, there was a similar sensitiveness in the muscles and parietal sub-peritoneal tissue, supplied by the corresponding spinal segments. He, as a result of his observations, came to the conclusion that all pain in abdominal disease originates in the peripheral structures. Ross, on the other hand, adhered to the idea of splanchnic or visceral, and somatic or referred pain. Since this time, much additional work has been done, and published records of investigations by many observers have accumulated. From this mass of work, several facts stand out prominently: (1) That any nerve ending may be sensitive to some one form of stimulation which has been called "the adequate stimulus," but insensitive to all others. The failure to take this fact into account, explains a great many of the discrepancies which have occurred in the reports of the work of earlier observers. The adequate stimuli for pain vary for different regions and structures of the body,—for instance, those for visceral pain are not of the ordinary tactile or thermal types to which the skin and mucous surfaces so promptly respond, but are tension in some form or other. It must not be forgotten, however, that while these other forms of stimuli may not be capable of exciting specific receptors in the intestinal walls, nevertheless they are capable of inducing motor reflex activities which in turn cause contraction, and those contractions which cause tension to mount to the deep sensibility threshold, result in pain. A great deal of discussion has been given to the question as to the channels through which intestinal pain is transmitted, but that pain is actually felt in lesions of the intestinal canal cannot be doubted. (2) That the threshold of pain, that is, the point at which pain, as a result of any form of stimulation begins to be felt, may be raised or lowered, according to certain established conditions. (3) That tension in some form or other, is the commonest, perhaps the sole cause of visceral pain. Meltzer in the course of his investigations attempted to explain all forms of colic as due to a disturbance of what he called "The law of contrary innervation," which is the name he gave to the well known physiological law of the intestine, namely, that contraction in one place is always associated with relaxation just below. Interference with this law due to organic disease, or to

direct or reflex spasm, giving rise to tension as a result of traction upon the parietal attachments, or distention of the intestinal wall, produces visceral pain in some of its protean manifestations. Hertz and others insist that this is the sole cause of true visceral pain. This pain, in turn, is referred to the peripheral structures in accordance with the views expressed above.

From my own clinical observations made in the course of surgical operations upon conscious patients, I am convinced that Ross is right in his contention that there are two forms of pain, splanchnic and somatic, and that in a number of conditions at least; such, for instance, as the common forms of colic, visceral pain alone is present. It is not always easy, indeed not possible, to distinguish between these two forms of pain, for they are not infrequently both present at the same time.

As against the idea that pain can originate in the viscera, has been urged the fact of the patient's inability accurately to localize it. The same is true, of course, of the skin, as it is well known that cutaneous irritation of certain parts of the trunk cannot be localized within wide limits. The argument is advanced that if the pain of gastric ulcer, for instance, is produced in the ulcer itself, it should move when the stomach moves, but, as a matter of fact, the pain remains stationary. This phenomenon is explained by Hertz on the ground of average localization, that is, the pain is referred to the point on the surface of the skin under which the stomach should normally lie. He would give this as the reason why visceral pain is most accurately localized in those viscera which move the least, as the gall-bladder, duodenum and esophagus, and is least accurately localized in the more mobile portions, that is, the large and small intestine.

Cutaneous pains are, as a rule, located more or less accurately at the point stimulated, whereas in the case of pain arising in the internal organs, this is not the case. Here are observed what have been designated clinically as "referred pains." Head, in his classical studies of this subject has shown very conclusively that the different visceral organs have a more or less definite relation to certain areas in the skin. With painstaking accuracy, he has marked these out and determined their association with the different spinal segments. The misreference of pain observed is ascribed to a diffusion in the nerve centres. This diffusion, Head explains on the ground that in the case of a painful stimulus applied to a part of low sensibility in close central connection with a part of much higher sensibility, the pain produced is felt in the latter rather than in the former, to which the stimulus was actually applied. It is generally accepted by physiologists that the afferent neurones from the viscera have a common path of entry into the cord from the posterior root. The theory of "referred pain" then is that "somewhere in this common path the excitement of the splanchnic afferents is transmitted to the somatic afferents, and that the cerebral centre for these being stimulated, the mind suffers an illusion and refers the source of the irritation out to an area of skin" (Harris).

A knowledge of these few facts will aid materially in the understanding of that large and interesting group of reflected or referred pains, with which every surgeon of experience is familiar. It is often difficult enough to determine, with any degree of accuracy, the cause and significance of a pain in the part directly affected. Take, for instance, a pain occurring in the upper right hand quadrant of the abdomen. A great many possibilities at once suggest themselves to anyone familiar with the pathological anatomy of this region. When, however, the pain is referred to some part of the body far distant from its point of origin and is accompanied by no appreciable symptoms suggestive of this fact, the difficulties in the way of an accurate diagnosis are multiplied many fold.

For example, some years ago, I was called in consultation to see a youth of seventeen who the day before, while returning from a chestnutting expedition, and after having eaten very freely of the raw nuts, was suddenly seized with a severe pain in the lower right side of the abdomen. There was no history of similar previous attacks. I found the boy in bed, his right leg drawn up. He looked sick, complained of pain referred to the lower part of the abdomen. Temperature and pulse both elevated; nausea and vomiting. Examination showed tenderness over the lower part of the abdomen on both sides. No muscle spasm. Attempts to straighten the leg increased his pain. Hip joint negative, slight pain on urination. There had been no chill. There was present a cough which bothered him greatly. Expectoration was considerable, whitish. Examination of chest was negative, except for a few coarse râles. Diagnosis uncertain, probably appendicitis. Immediate removal to the hospital was advised and declined until the next day, when the patient entered the Johns Hopkins Hospital and was seen in consultation with several members of the staff. By this time, the sputum had become slightly blood tinged. His cough caused a good deal of pain, especially in the lower right side of the abdomen. Examination of the chest showed only evidence of slight bronchitis. Abdomen fairly soft and permitted deep palpation everywhere, except low down over the symphysis and on the right side, just above Poupart's ligament. Pressure here gave pain, and a slight muscle spasm was present. The right thigh still remained flexed and could not be extended without pain. No tenderness to be made out about the hip joint or surrounding structures. Examination otherwise negative. Leucocytes 19,500, temperature 104, pulse 120. It was then learned for the first time that the patient had been exposed to typhoid fever, which fact influ-

enced our opinion somewhat toward a possible typhoid, although the widal was negative. A central pneumonia with diaphragmatic pleurisy could not be excluded. Abdominal symptoms referred to the region of the psoas muscle were also not satisfactorily explained. Two days later the patient was seen by Dr. Osler who dictated the following note: "Suspicious spots in right flank suggesting rose spots, definite dicrotism of pulse, some piping râles over right base, some impairment in left axilla; there is an indefinite mass just above the symphysis pubis, palpable and tender." Dr. Osler concurred in the diagnosis of possible typhoid fever. No appreciable change was observed in the patient's symptoms during the next two days, when suddenly a swelling appeared in the upper part of the thigh. Synchronous with the appearance of this swelling, the abdominal pain and tenderness markedly improved. The diagnosis was then changed to acute epiphysitis with osteomyelitis of the upper end of the femur. The swelling was at once incised, and a considerable quantity of pus evacuated. The patient improved considerably after this and was apparently on the road to recovery, when he developed a right-sided pneumothorax to which he quickly succumbed.

The most striking symptom in this case had been from the beginning, intense pain in the lower part of the abdomen, but accompanied by such slight local tenderness and muscle spasm as to make us doubtful of the existence of any definite inflammatory lesion in the abdomen, and for this reason operation had been declined. And yet it was impossible to determine definitely as to the nature of his trouble, until the appearance of the swelling in the upper part of the thigh rendered certain the diagnosis.

One could multiply instances of the confusing and misleading effect of referred pain, the pain in the knee from hip disease, in the ear from cancer of the tongue, in the abdomen in Pott's disease, in the absent member after amputation, in the shoulder in gall-bladder disease, and in the arms in angina pectoris, but it will suffice to direct attention strongly to the fact that pain is not infrequently referred to localities far removed from the seat of the causative lesion; and in cases where local signs do not correspond with those usually observed in pain arising in that locality, a thorough search should be instituted for a possible explanation existing elsewhere. In doing so, it is well to bear in mind Hilton's axiom, namely, that "Pain felt in any part must be expressed by the nerves supplying the part."

There is a definite psychology of pain difficult to understand, perhaps, but nevertheless well recognized by every intelligent observer. Some one has said that pain is the resultant of two factors, the lesion and the patient, and in order to arrive at an intelligent appreciation of its true significance, both must be thoroughly understood.

The mental state of the sufferer varies greatly in different individuals, and at different times. Frequently he will unintentionally deceive the physician by his inability accurately to describe his sensations; especially is this true of pain, which is purely subjective. Again he may do so intentionally, by false statements as to its character, location and intensity. In some, pain brings out the heroic, often to a very unexpected degree. In others, it develops the hitherto unsuspected "yellow streak." It does not always follow that because a patient bears what appears to be a great amount of pain with remarkable fortitude, that that individual is more deserving of credit, or shows greater self-control than the one who does not; for it is a well established fact that pain is not felt to the same degree by all individuals alike, some are much more tolerant of it than others. Indeed, cases have been reported of individuals naturally analgesic, who do not seem to suffer pain at all. The analgesia of hysteria is also well known and usually easily recognized.

What may cause intense suffering in one, will produce little effect upon another. I was struck with this fact not long since, while reducing a Pott's fracture in the case of a young man who was in other respects in excellent health. I suggested giving him an anesthetic, but he requested that I proceed with my manipulations without it. I did so and with considerable difficulty and the exercise of some necessary force, succeeded in satisfactorily reducing the fracture. During the whole procedure, he had sat up in bed and watched what was being done, with great interest and with little evidence of suffering. After it was over, he declared that while it had not been an altogether agreeable sensation, he had suffered no pain of any consequence. On the other hand, it is a not infrequent occurrence to hear a patient declare, and with every evidence of truthfulness, that he or she was suffering extreme agony, when there was no demonstrable physical or pathological basis to lead one to believe that such was the case. What is known as temperament, plays a great part in the ability of an individual to bear pain. Just what this is, it would be difficult to state in words. The old idea of the knowledge of the constitution of the patient supposed to be possessed by the family doctor has something to commend it.

Being but a subjective symptom, it is at times hard to estimate the degree of pain, or indeed whether or not it is present at all, as it is easy to feign. There are certain signs, however, which denote intense suffering and which, when present, are usually unmistakable, the pinched features, the knotted brow, the rolling eyes with widely dilated pupils, the ashen countenance, the cool and clammy skin, the thready pulse, the increased blood pressure, the hands alternately clenched and opened, grasping wildly at surrounding objects or persons, or perhaps pressed firmly over the painful area, add to this the

cries and groans, the bodily contortions and writhing so frequently seen in this connection, and a picture is presented so definite and unmistakable that it cannot fail to be recognized. But it is not always thus,—one sees now and then exhibitions of wonderful fortitude in the bearing of suffering, when not a groan escapes the sufferer nor any evidence of the existence of pain, save that indefinable expression of countenance so well understood by the initiated. Is there or can there be anything more sublime or more inspiring in its effect upon others than such an exhibition of self-control? Pain may be so intense as to notably depress the heart's action, even to temporary arrest. If of great intensity it may be complete, and death may follow.

The fear of pain plays a large part in its psychology. So terror stricken, indeed, may an individual at times become as to seek self-destruction, in order to avoid a repetition of some dreadful experience. It also exercises a markedly deterring effect in various ways upon conduct, thus preventing, through fear of painful consequences, many foolish actions.

The wearing effect of pain upon one's powers of inhibition must have attracted the attention of every surgeon. So often does one see the defenses, one after another, broken down by continued and recurring pain,—the individual whose fortitude in the beginning may have been surprising, may gradually, owing to this peculiar effect, become, in the course of time, the whining, complaining creature, shrinking and crying aloud at the slightest touch, a sore trial and an object of pity alike, to everyone with whom he comes in contact.

Others may become embittered and hardened, their dispositions soured, their whole mental attitude and their outlook upon life in general, changed and rendered thoroughly pessimistic by suffering.

There is, upon the other hand, perhaps no burden which humanity is called upon to bear, unless it may be grief, which itself is looked upon as a form of mental pain, that may have so refining and ennobling an influence, or may bring out more forcibly the higher qualities of head and heart, or develop nobler traits of character. How forcibly is this fact now and then brought home to all of us as we have looked into the face of some patient sufferer, purified and rendered truly beautiful by the discipline of pain, and how much it has increased our admiration and respect for human kind.

Owing to the inability of the sensory apparatus to transmit two strong impressions at the same time, the stronger of the two for the moment will monopolize the attention of the individual. The newspapers nowadays are filled with thrilling accounts of valorous deeds performed upon the battlefields by brave soldiers who themselves severely wounded, in the enthusiasm of the moment, and unmindful indeed for the time being, unconscious of their own suffering, have rescued some more seriously wounded comrade, and then after this has been accomplished, for the first time conscious of their own pain, have collapsed.

Not long since, I was interested and not a little amused to observe in the crowd of yelling, dancing students, who swarmed upon the field at the end of a closely contested game of football, a patient of mine, a student in the victorious college, who not long before had severely injured his knee while playing in a practice game, and since which time on account of severe pain had been able to go about only with the aid of crutches. He was careering as madly as the nimblest among them, one crutch had been discarded, the other was waving frantically in the air over his head,—for the moment, at least, in the exuberance of joy in the success of his team, he appeared utterly oblivious to pain. The next day when I saw him, it is needless to say, he was paying the penalty.

Certain sensations which are not ordinarily associated with pain may, when of sufficient intensity, or when long enough continued, gradually merge into it,—for instance, those of fullness and emptiness accompanying an over-distended or an empty stomach. To one who has survived the starvation treatment of typhoid fever as practised in this hospital twenty-five years ago, the pangs of hunger are no figment of the imagination, but a real pain that leaves a lasting impression upon the mind of the sufferer. I speak feelingly. So also with heat and cold, and with certain forms of local stimulation, chemical and otherwise, of the tissues of the body, at first, perhaps grateful, even pleasurable, later and almost unconsciously, as the intensity increases, becoming painful. So, too, everyone who has experienced a severe pain or has had the opportunity to observe its effects upon others, must have noticed with satisfaction, after its subsidence, the sensation of well-being amounting at times and especially in individuals of certain temperaments, almost to exhilaration. This is peculiarly so in women after the completion of a hard and painful labor. One can readily appreciate and understand the philosophy of the little darkey when he said, he "sho' did like to git kicked on de shins, cause dey felt so good, after dey stopped hurtin'."

"Every pain has its distinct and pregnant signification if we will but carefully search for it." This sentence quoted from that classical work by Hilton entitled "Lectures on Rest and Pain," expresses better than can I in any other words, the idea that I had in mind in choosing the subject for this address. If this be true, then it follows of necessity that the surgeon when consulted by a patient for the relief of his pain, will not have performed his whole duty toward his patient if he has not made use of every means in his power to discover just what is the peculiar significance of this particular pain. It does not necessarily follow that even by careful searching this significance can always be found

out, but this fact does not relieve the surgeon of the obligation to make a bona fide effort to discover it. This search in turn may involve some very complex and far-reaching problems. It presupposes upon the part of the surgeon the requisite amount of knowledge and training, coupled with the ability, the willingness and the facilities necessary to carry out the examination and investigation, in order to obtain the necessary data; then more important than all is the judgment with which properly to interpret the findings. For in diagnosis, symptoms are of value only when we are able to interpret them in terms of the particular disease under consideration. This is especially true in the case of subjective symptoms, where so much reliance has to be placed upon the word of the patient.

A study of pain by itself is of interest and value to the physician from a diagnostic standpoint. But when taken in connection with other symptoms its proper interpretation is rendered far easier. In attempting, then, to determine the significance of a certain pain, it is advisable not to dissociate it from its attendant clinical phenomena,—thus a pain in the epigastric region of a youth, when accompanied by tenderness and rigidity of the right rectus muscle in its lower half, a rise in pulse-rate and temperature, and an increase in the leucocyte count, would very strongly suggest an acute appendicitis rather than any other acute abdominal affection. This statement would seem elemental and almost self-evident. But the frequency with which one sees the mistake made of failing to recognize this fact, prompts the reference to it. Says Maurice Richardson: "Alone, pain indicates danger in general; in combination with other signs, it indicates danger in particular and guides the surgeon's hand to its source." But it alone cannot always be relied upon in estimating the nature and extent of the causative lesion. Many authors have dealt with this particular aspect of our subject. Mackenzie, especially, has drawn attention to the valuable aid to diagnosis afforded by a careful study of pain and the nervous phenomena which accompany it. In our effort to elicit the more obscure symptoms that arise from disordered functions of diseased viscera, it has sometimes happened that insufficient attention has been paid to the commoner and more obvious symptoms. The laboratory methods of clinical diagnosis, the so-called special tests, are of the utmost importance, and any attempt to decry them should be deprecated. Yet, it cannot be denied that to the general practitioner at least, who is the one who sees the patient first, and who largely determines the course of treatment to be thereafter followed, the practical value of these methods is small, as compared to the information to be gained by the recognition and proper understanding of the symptoms arising from reflex stimulation of the nervous system. We must not shut our eyes to the fact that it is only in a small proportion of cases which the general practitioner sees, that the more intricate methods of examination are of use or are available. In the great majority of cases the reflex symptoms lie ready to hand, if only they are recognized, and it is on these alone that he has often to rely for early diagnosis and treatment. How important it is then that the commoner symptoms, such as pain, should be carefully studied, so that their message may be correctly interpreted,—for it is upon the recognition of the early stages of disease that so much depends. This fact needs to be especially emphasized at the present time, when owing to the ease and comparative safety with which an abdominal exploration can be performed, the tendency in some quarters is setting so strongly toward recourse to this easier and shorter method, rather than to a careful and painstaking examination and analysis of the symptoms presented. As a result, many operators (I use the word advisedly, all operators are not surgeons) have no clear idea in their minds with regard to the nature and origin of many easily recognized evidences of disease. Especially is this true of the so-called reflex phenomena of visceral disease. Of these, pain is, of course, the most constant and most important factor. It is easy to satisfy the patient by calling his pain a neuritis or a neuralgia. But before doing so, the conscientious physician will consider most carefully the possibility of the existence of some other cause, perhaps of visceral disease, and will take immediate steps to eliminate it as a possibility, or to establish its presence as a certainty. It is of the utmost importance that the true significance of these common symptoms, of which pain is the most constant, should be recognized.

Do not discard the old and well recognized symptoms and methods for the new exclusively, but a study of the common and easily ascertained facts by newer methods, will throw a new light upon them and allow of advances that can be made in no other way. At the same time it should not be forgotten that clinical contributions to our knowledge in this direction, constitute research work just as truly when made in the wards, by the bedside of the patient, as when performed upon animals in the laboratory.

Pain as a diagnostic factor is of the utmost importance. It has been estimated that 90% of all diseases either begin with it or are at some time or other in their course, accompanied by it. In some cases it forms the all-important factor, in others it is only an incident. The character of the pain may be of great assistance in determining its significance. Certain terms are used by patients so constantly in describing pain arising from certain structures or pathological conditions that they have come to have a definite diagnostic value. For instance, pain arising in inflammatory processes, particularly of bone, is described as "boring" or "throbbing" or "jumping" in character. Nerve pains are con-

sistently described as burning, shooting or stabbing, while I have been struck with the frequency with which the terms "stinging" or "sticking" have been used by patients to describe the painful sensations experienced fairly early in cancer of the breast. While these and other descriptive terms cannot be said to be of any absolute value, they certainly are suggestive.

The relation that pain may bear to certain events is of great assistance at times in differentiating between various conditions. Can anything be more characteristic than the pain of gastric or duodenal ulcer coming on, as it frequently does, at a definite interval after the ingestion of food? Or, more striking still, the pain of an anal fissure beginning shortly after defecation, increasing for several hours until the acme of intensity is reached, then gradually decreasing until it entirely disappears and leaves the patient in perfect comfort until this experience is repeated after the next stool?

Pain seems to be affected by the time of day. It is notoriously worse at night. How often, for instance, does one meet with a patient suffering from an inflammatory bone lesion who gives the history of inability to sleep at night because of the pain, boring in character, which begins in the latter part of the afternoon and gradually increases in intensity through the night until towards daylight, when it rather suddenly decreases to such an extent that sleep becomes possible.

Weather conditions undoubtedly have their effect upon pain. Especially is this true in the changes from good to bad, which not infrequently increase the pain to such an extent as to enable the patient to predict their occurrence with remarkable accuracy. This has been attributed to changes in atmospheric pressure, which affect the nerve mechanism in much the same way as changes in the blood-pressure. This is probably the reason why pain is more noticeable at night, although the quiet and the absence of other things to distract one's attention, undoubtedly have their effect. It may be that the senses are more acute, and so perceive slighter irritation than by day. The recumbent posture, and in the case of certain organs, *e.g.* bladder or stomach, their being more full or more empty than by day, may make a difference.

Racial characteristics are of importance. Those of the so-called phlegmatic type bear pain better than others.

Sex is a factor not to be disregarded. One observer as the result of his investigations insists that the well-known ability of women to endure pain is due to the fact that their sensibility to painful stimuli of all sorts, is appreciably less than that of men.

An important fact to be borne in mind is that abdominal pain is usually accompanied by spasm of the muscles overlying the painful area,—the viscero-muscular reflex of Mackenzie. Especially is this true of the recti, which have the power of segmental contraction over the area of inflammation, and thus may strongly simulate tumors and swellings of various sorts.

A striking instance of the protective action of pain is seen in the case of the various inflammations of the serous surfaces. Here, as Crile points out, the infections which are associated with pain are those in which the trouble may be made more widespread by muscular activity, hence the tendency toward localization of the inflammatory process which is encouraged by the fixation of the parts due to the muscular rigidity which always accompanies to a greater or less degree inflammations of serous surfaces.

The absence of pain where it may be reasonably expected to be present, or its sudden cessation in the course of certain diseases are frequently of the greatest diagnostic significance. Take, for instance, a tumor of the breast that has been discovered accidentally, without previous warning of its presence in the nature of uncomfortable sensations, is much more apt to be of a serious nature than one which has given rise to pain and discomfort. I am conscious always of a sense of relief when a woman who has presented herself with a tumor of the breast tells me that she has suffered great pain in it, as this usually means that it is benign.

On the other hand, the history of the sudden cessation of pain in the course of an acute inflammation in the right side of the abdomen, for instance, may be of the gravest import, particularly if not associated with a corresponding drop in the temperature, pulse-rate and leucocyte count. Under these circumstances, it is an unfailing index of gangrene or rupture of the appendix, or of the sudden breaking down of the protective barriers between an abscess and the general peritoneal cavity, a catastrophy which, unfortunately, is not infrequently misunderstood and unrecognized by the uninitiated.

As pointed out by Mayo, in one of the previous Ether Day addresses, medicine owes a great debt to surgery. Recent accumulated observations upon the operating table have laid the foundation of a true pathology of the living, and have enabled us to recognize that there is a definite anatomical cause for many well recognized groups of symptoms which had hitherto been regarded as functional in origin. Through the medium of surgical operations now performed with great frequency and safety, but which were formerly regarded as quite out of the question, we have been taught the true significance of many of the symptoms which hitherto have been universally misunderstood. Especially is this true with regard to the affections that have to do with the abdominal viscera, for here abdominal operations have added enormously to our knowledge of the significance of pain by demonstrating both its immediate and its contributing causes.

But although the significance of certain painful sensations may be thus understood, their

actual cause is in many instances as obscure as ever. The difficulty lies in trying to understand the origin of pathological sensations so long as the degree of sensibility of healthy or diseased organs to various stimuli remains largely unknown.

Pain is probably the most generally present as well as the most trying of all symptoms and, therefore, the most important as an aid to diagnosis, and as a monitor in directing and fixing the attention of the patient to the fact that there is something wrong. To this extent, it is distinctly beneficial. So it is, then, that pain is not always wholly harmful in its effects upon the individual or the race and, as such, is a not unmixed evil, at times, even a real blessing in disguise.

The especial value of pain to the patient lies in the fact that in most pathological conditions, if it is not the first index of existing trouble, it is, nevertheless, the first whose warnings are heeded.

Incidentally, pain is a good friend to the doctor as well. It, more than any other factor, brings him patients. For while other and sometimes even more significant symptoms may have existed unheeded for a long time, it is only a matter of a bad enough pain when every one is driven to seek relief at the hands of his doctor. Failing in this he now willingly, yes, eagerly, seeks the formerly dreaded surgeon. Indirectly, pain may serve the patient a good turn, through the medium of his doctor, for it is unquestionably true that the surgeon, who has himself been operated upon, as a result thereof is apt to display a more intelligent and sympathetic interest in his patient's comfort. In his hands unnecessarily rough manipulation of sensitive structures, and too tight bandages, are apt to be of infrequent occurrence.

In these latter days when, owing to the predominating influence of certain individuals or schools of medicine, the trend of medical teaching has set so strongly toward therapeutic nihilism, one is apt to forget that the duty of the physician or surgeon does not end with the completion of an exhaustive and scientifically accurate physical examination and diagnosis, but that it is just as much a part of it to treat the ills, physical and mental, real or imaginary, of his patient. Indeed, it not infrequently happens that the treatment of the case may require a far greater exercise of knowledge and of judgment than the diagnosis, which in many cases can be made in the laboratory without even seeing the patient. It is not my purpose to belittle in any way the value to the physician of diagnostic ability of the highest order, far from it,—but I do wish to emphasize the necessity of paying greater attention to the complaints of the patient, especially to his history of pain,—failure to relieve which, upon the part of the doctor, is so apt to be followed by a resort to the charlatan and the quack. Recognition of this fact, aided greatly by the untiring efforts of a member of the medical staff of this hospital, Richard Cabot, is slowly gaining headway. The profession, largely due, I am constrained to believe, to a misconception of its duty in this regard; to faulty teaching, and as a reaction against overdosage and the blind administration of drugs, has neglected its duty in this respect. I shall never forget an incident that happened early in my professional career and which made a lasting impression upon me. An elderly physician, a type of the old school family physician, was ill with angina pectoris from which he suffered paroxysms of intense pain. He was attended by the foremost physician of the city, a leader in his profession, a professor of medicine in the local school. Realizing the desperate and hopeless character of his malady, little had been done for the patient save careful nursing and rest in bed. I happened to be present upon the occasion of one of the attending physician's characteristic visits, a cheery greeting, a jolly, a glance at the chart, a momentary examination of the chest, a whispered conversation with the nurse, a skillful interruption of attempted statements, or parrying of questions upon the part of the patient, a short adieu and a rather hurried exit, which, in this instance was delayed somewhat by a vehement outburst upon the part of the patient of righteous indignation that no apparent steps had been taken toward the relief of the intense pain from which he was suffering. Turning to me, the patient exclaimed: "What's the use of having the best doctor in the city if he does nothing but make a diagnosis and give you a jolly? I am suffering agonizing pain and I want some relief. I had rather have a fifth-rate doctor who relieved my pain, than the best doctor in the country who does nothing but make a diagnosis." It is only fair to add that this plea brought the desired relief in the shape of a p.r.n. order for a hypodermic of morphia.

It must not be forgotten that the good effects of pain occur early in the course of the disease. Later, and the longer it is continued, the more injurious it becomes. This fact should materially modify its treatment. In the beginning and until the diagnosis has been made, or at least until the possible causes of the pain have been, as far as possible determined, the effect of the pain, by calling attention to the existence of trouble and helping to locate it, is distinctly beneficial. During this period, anodynes and analgesics, except in extreme cases, should be withheld. But as soon as the pain has ceased longer to be of service, and by its continuance can only do harm by reducing the patient's resistance and exhausting his nervous energy, then it is that relief, adequate and complete, is urgently indicated. But just here is required the exercise of that sine qua non for the proper carrying out of all surgical procedures, namely, good judgment. It is essential to the successful treatment of any case where pain is a prominent feature, to know when to withhold anodynes so

[illegible] mask the clinical picture, and when [illegible] administer them. For upon the full recognition of this fact, will not infrequently rest success or failure. Just here a word of warning and protest ought to be sounded against the practice which is far too prevalent, namely, the indiscriminate use of drugs of all sorts, either with or without the recommendation of a physician. My attention was directed to this only recently when I was called to see a girl of thirteen who had been suffering greatly from recurrent attacks of headache, and for which her mother told me she had, upon her own authority, been giving the child for some time doses of gr. xx of aspirin three times daily, the ill effects of which were very apparent in her condition. Far too great risks are thus incurred of establishing the drug habit in susceptible individuals.

The desired results may usually be obtained by the competent and conscientious surgeon, while at the same time safeguarding the best interests of the patient.

The proper use of drugs directed toward the relief of pain may be productive of great good in materially lessening its ill effects, by robbing disease of its greatest terror, by rendering far less formidable surgical operations and shortening convalescence through the conservation of physical and nervous energy. There are many agencies at our disposal in addition to drugs to be used for this purpose. Hilton early called attention to the great therapeutic value of physiological rest. The x-rays and radium are useful in relieving the pain of inoperable carcinoma. Crile with his anoci-association has made a distinct addition to our armamentarium. But among them all, and their name is legion, ether is easily the first and, all things considered, has, for general use, no real rival.

Fortunately the beneficent effect of ether is most felt in that large group of cases in which pain accomplishes no good purpose. The pain of a surgical operation can be of no possible advantage either to the patient or the surgeon. On the contrary, it greatly exhausts the nervous energy of the patient, lowers his resisting powers and so delays convalescence, while it interferes very materially with the operations of the surgeon not only physical, but mental. For no human being, and I have found surgeons as a class intensely human as well as humane, can do his best, knowing that he is inflicting untold suffering upon his patient; and no patient, under the stimulus of such intense physical pain, can remain sufficiently quiet to permit the surgeon to do his work under satisfactory conditions.

While in its immediate or its after-effects it may not be an ideal anesthetic, nevertheless when properly administered, as it should always be by expert hands, either alone or when preceded by or in combination with other drugs, as practiced in certain clinics, the good effects of ether are so pronounced and its ill effects so reduced to the minimum, while, at the same time, the risks are so infinitesimal, as to make it altogether the greatest boon ever given to suffering humanity. No wonder, then, that the Trustees of the Massachusetts General Hospital should have instituted the custom of meeting annually to commemorate the first public use of ether in the performance of a surgical operation in this hospital sixty-eight years ago. All honor to the great names of Morton and Warren, and to this noble Institution, for their respective parts in that epoch-making event.

Original Articles.

COMMUNITY HEALTH.*

BY GEORGE M. KATSAINOS, M.D., BOSTON.

I FELT much honored at being invited by His Excellency, the Secretary of Immigration, and my friend, Dr. George Tupper, to address you today. For some time I was at a loss as to what subject I should choose. When a stranger went to Athens and undertook to address the Athenians on some subject which seemed to him to be original, but which in reality was known to the Athenians, the latter were wont to make light of him with the saying, "He brings an owl to Athens." That is to say, "He brings wisdom to the seat of wisdom." Although coming from the ancient Athens to the new Athens, I hesitated to introduce a new subject here, for fear I might run the risk of being considered as bringing an owl to the new Athens. However, I shall take a chance, in the hope that whatever befalls me, I shall be able to contribute something toward the promotion of the common health.

But what is my subject? My practice as a physician being limited to venereal diseases and especially to the treatment of syphilis, I shall call your attention to this subject because I consider it the most essential and the most important of all. Somebody else, not being a physician and therefore not initiated into the mysteries and the catastrophies of syphilis, would have considered an important subject for the meeting an address on such things as tuberculosis, or the "white plague." But already more than enough has been written and said by many people on the subject of tuberculosis. For this reason, I considered it more advisable for me to take up the subject of the "black plague," as I call syphilis.

From statistics so often published and so freely advertised, we know the number of victims of tuberculosis; but what is the number of those known to be suffering and dying with syphilis? None, absolutely none. Have you

* Read at a meeting of the Community Service Conference, Oct 16, 1914.

ever heard of a death attributed to syphilis? I, at least, as a physician and a specialist in this line, have never certified one. Does this mean, then, that there are no such victims?

Have you ever inquired as to the number of insane people treated in public and private asylums and hospitals? Ninety percent. of these insane are victims of syphilis. Do you know how many there are who suffer from locomotor ataxia? One hundred percent. of these have syphilis. How many there are who are affected with amaurosis! Nearly all of these are syphilitic. How many paralytics, how many criminals, how many epileptics, how many with cancer of the tongue? Seventy-five percent. of these either are victims of syphilis or children of syphilitic parents.

Who ever busied himself in learning how many miscarriages take place in the commonwealth? How many early births, or how many normal births of stillborn or of short-lived children? Many of these are the result of syphilis. We know how many feeble-minded are in the country, but as yet we have not taken pains to find out how many of these are offsprings of syphilitic parents. Nothing but syphilis associated with alcohol is responsible for this. That is to say, Venus together with Bacchus gives birth to the feebleminded, to the idiots, to the criminals, to the insane, to the epileptics; that is, to those who are the burden of society — the creatures whom both society and state, with sincere and paternal interest, try to instruct and save, and struggle in vain to uplift to the common level of ordinary men. But have the syphilitics up to this time been given due attention? Not by any means.

What other disease than syphilis is there which so attacks the human race, which is spread so widely, and is the cause of the most painful and the most dangerous operations on women; which renders men and women sterile, and fills asylums and street corners with the unfortunate blind from birth? That other disease is gonorrhea. In Copenhagen, according to Ehlers, 16 to 20% of the young men from 20 to 30 years of age are infected with venereal diseases; that is, one in every five or six. One in every eight has gonorrhea, and one in every 55 has syphilis.

In Christiania, 13% are infected with all venereal diseases, and 4% with syphilis. In Berlin, writes Blaschko, 200 young men out of every 1000 between 20 and 30 years of age are infected with gonorrhea, and 4% with syphilis. Erb believes that 12% of the population of Berlin are syphilitics. Audry writes that 18% of the lower classes of the population of Toulouse are syphilitics. Fournier says that 15% of the Parisians suffer from syphilis. In London, 20% of the population is syphilitic. As to Vienna, syphilis and gonorrhea are considered the first mutual wedding gifts of the newly married.

You have heard from the mouth of a physician what are the awful results of these two dreadful diseases; and you know better than I how great a burden of expense is imposed upon the Commonwealth for the construction and upkeep of hospitals for the insane, of prisons, and of asylums for incurables and the crippled, and for the support of so many idle people who are unable to work, and the loss to business on account of the idleness of so many unfortunate beings. I say no more on that point. But despite this great expense, and despite the enormous spread of the dreadful disease with its awful consequences, society and state, through their self-deception, forebearance, and saddest of all, through their false modesty, ignore the terrible condition of affairs, pretending either that they do not know of the existence of these diseases, or, although they recognize them as existing, they refuse to investigate the matter and better the condition because they consider it shameful and a result of vice.

We smile on reading that the old Egyptians would not kill the crocodile which was doing so much damage, and that the Indians of today do not kill the reptiles which poison them, because both the nations consider the animals holy. But at the same time we do not blush when advising what measures should be taken to care for the insane or for the blind without taking any steps to prevent blindness and insanity. But it is time to find out how the disease can not only be cured, but entirely rooted out of the community. It is time to look for means to destroy the double-headed monster of syphilis and gonorrhea. The means must be preventive and curative: First, the prophylaxis of those who have not yet been infected; and second, the permanent cure of those who have already been infected.

My intention, in the first place, is to suggest preventive measures; and the first of these is, recognition of prostitution. In this, I am sure I shall stumble on the ever present difficulty of individual freedom and the opinions already given on this subject by Englishmen and Americans. Limiting myself to what others very much more experienced than myself have written, and confirmed by official statistics, I give here a brief extract from the statistics of a great teacher of France,—and, let me say, of the whole world,—Professor Alfreud Fournier.

Professor Fournier showed by means of statistics taken on venereal diseases in the different European armies, how terrible are the consequences of a free clandestine and unbridled prostitution. In Germany, out of 1000 soldiers, 6 are attacked by syphilis; in France, including Algeria, there are 7 per 1000 soldiers. In Belgium, there are 7 per 1000; in Bavaria, 9 per 1000; in Russia, 12 per 1000; in Italy, 13 per 1000; in Roumania, 16 per 1000; in Austria, 19 per 1000. In England, while in London there are 75 per 1000, the number of soldiers affected by syphilis in the colonies is 139 per 1000.

From these official figures, we see that the Germans have the smallest percentage, and that the English have the largest. Does the astound-

ing difference in the figures lead us to conclude that the regulation and the legalization of prostitution is superior to any other measure in limiting and diminishing the infection of syphilis?

Not many years ago, the former mayor of Boston published a document saying that in this city there is no prostitution; and yet the same day, we had in the Out Patient Department of the Massachusetts General Hospital ten fresh gonorrheal infections. A confrère from Lowell has told me that "there is no prostitution in America," at the same moment contradicting the statement himself as he lay on my operating table being treated for gonorrhea. "And one who says that there is does not know what he is talking about, or he is intentionally slandering the country." "Prostitution, I answer him then, is a tree, and the fruits of this tree are the venereal diseases you are suffering with now." Is there much difference between this confrère and the old Egyptian and Indian?

Since this means that regulation of prostitution is not possible here, let us see what other means there are to prevent infection. We can teach the young men and young girls as best we can in the home and in the school, to be temperate, and disclose to them all the dangers of the venereal diseases and the dreadful consequences of them. But is it possible to ask of the younger men today the same temperance which we used to ask of the younger men of a few years ago without the fear that the young people of today will resort to self abuse?

In Boston, while the population is increasing, the number of churches is decreasing, many of them changing to moving picture theatres. In America, while in a good many cities the amusements are modest, and many of the statues in the public gardens are little draped not to show the naked legs, nevertheless living legs are seen not only on the stage but on the streets too. It is a case of "straining at a gnat and swallowing a camel." The theatre in the olden time was instructive and educative; today, with its cheap entrance and its presence in every district and on every street, and its only purpose voluptuousness, it invites, excites, and corrupts. The former family unity, austere and imposing, by a gradual slackening of its ties by over-abuse of the ill-understood American individualism, has ceased to exercise on its own members the old beneficent influence. The children going out of the house are like the young birds flying from their nest. Marriage is the only safe means of prophylaxis, and the only thing which promises happiness. The family hearth in a short time will cease to exist. Look at the newly built houses with their apartments consisting of one or two small rooms like pigeonholes and a small kitchenette, and tell me if those are intended to shelter families. And the ever increasing number of restaurants and lunchrooms; do they signify the growth of family life or its decay?

In every commonwealth and society where the individual looks to the theatre, and the corrupted one, to alcohol, and to amusement away from home as his only pleasure at the close of his day's work, and escape loneliness and isolation; where the family finds refuge in the hotel in order to avoid all the annoyance and work of keeping house, taking meals in restaurants; where a woman is so poorly remunerated for her daily work that she is compelled to resort to selling the most precious thing in her possession, namely, her honor, in order to secure sufficient means of livelihood and proper food and clothing; where the theatre is preferred to the church, where religion ceases to exercise a salutary and elevating influence on the individual; and where many of the daily readings, instead of making one moral, are constantly corrupting,—it is impossible for prostitution not to exist, and unbridled too. And it is impossible for the parent of today to demand the same temperance from his child that his own father asked of him in earlier days. There is one means of salvation through which we can influence, and this is the school. Through the school then let us endeavor to teach the young men and the girls, not only grammar and spelling, but hygiene and temperance.

Since prevention is very difficult, let us see what we can accomplish by the treatment of these diseases. But are most of those suffering with syphilis and gonorrhea in America being treated? No, I say; and that is because besides very few hospitals in the large cities and very few physicians who conscientiously and sincerely treat those who seek their aid, and fewer still who are sufficiently acquainted with the disease to know where to start and when to finish treatment, the majority of doctors all over the world consider the cure and the treatment of those diseases out of their line, and accordingly confine themselves to a superficial examination of the patient and to a prescription of some internal or external medicine, and nothing more.

In one of his works, entitled "En guerit-on?" Professor Fournier writes to laymen and sufferers as follows: "When syphilis remains incurable, three causes are responsible: the disease, the sick man, and the physician." The disease by itself, according to him, is the least responsible. "One sees very few severe cases that are beyond relief of art and treatment; such cases are not only rare, but they are exceptionally rare. I have not observed more than half a dozen such cases in all my scientific career; that is, more than 45 years spent in the three big theatres where all the monstrosities of syphilis are met: the hospitals of Midi, St. Louis and Lourcine." Accordingly we must acknowledge that the responsibility lies, besides the patient, in the doctor. Yes, we must confess there are cases of syphilis which remain uncured because of the fault of the doctor. This most certainly happens unconsciously; oftentimes it is because of an insufficient knowledge of syphilis; and who can boast that he knows all about it, as Professor Fournier has said?

Because sometimes the disease is not recognized until it has reached the advanced stages, when it is too late for advantageous interference, prejudice and false dogmas have arisen. But besides these experienced physicians, there are others who, without any study, treat syphilis, not for science's sake, but for the sake of the money they can make. Under the influence of civilization, the methods of criminals have changed, but in reality there are criminals even today who act in the same way they used to in primitive society. The individual who a few generations ago, would have been a highway robber, lying in ambush to rob his victim, today may be the young professional man waiting for some social opportunity to fall upon his neighbor without incurring the penalty of the law. Both the old, rough robber and the modern skilful one are of the same nature. For lack of public urinals in this country, American quacks, or deceivers, to advertise themselves as they did in Europe, are using the yellow American press and all the newspapers printed for the foreign population. All the Italian, all the Syrian, all the Greek, the Armenian, the Hebrew, the Polish, and the Portuguese newspapers are filled with advertisements of those rascals. They print photographs of themselves and advertise in heavy type, promising to cure diseases of every description. With the gradual decrease of patients with tuberculosis, these rascals are making a living by abusing in most inhuman, savage, and murderous ways foreigners who suffer with venereal diseases.

And who is responsible? Where can the root of the evil be found? In my opinion, in society. Is, then, society responsible; and why? Four years ago, I published a work on this subject, under the title, "Prophylaxis and Treatment of Syphilis," and here is an extract: "Society is responsible because it has named these diseases shameful; because it considers the syphilitic patient a social outcast; and because it is not taking care of the problem properly. American society not only does not ask the syphilitic to be treated in the hospitals, but it does not even allow its members to mention the name of syphilis, and it even forbids the newspapers to mention its name. The syphilitic in America is considered as a bag of straw, as an incurable to be kicked from doctor to doctor, a creature from whom every extortion is permissible. According to American law in a few states, a man attacked by syphilis or gonorrhea is considered a creature unworthy of trust and he is forced to pay for his treatment in advance, although a doctor is obliged to attend a patient suffering from any other disease whether he pays him or not. What a shame! How inconsistent for the law to oblige us to treat a patient suffering from pneumonia contracted after a debauch without the right to ask to be paid before the end of the treatment. If a man while attempting to rob a house, falls and hurts himself, and comes to us for help, the law orders us to treat him without having the right to ask him if he is going to pay us. By the same law, we have the right to shut our door to every syphilitic. We have a right to refuse him help, no matter how severely he suffers, no matter how great a need he has for immediate treatment. The patient suffering from syphilis and gonorrhea must first pay and then ask for treatment. He is not considered a sick man, but as a dishonest person who must be compelled to pay for aid and so be punished.

When syphilis first appeared in Europe, those afflicted with the disease were scarcely differentiated from the lepers, with whom Europe was filled at that time. If the syphilis disfigured the victim by mutilation and so resembled leprosy, they were treated as real lepers. In spite of themselves they were led to the church, where the awful ceremony of separation of the living from the living was performed. The syphilitic or the leper stood in the centre of the church, covered with a black cloth, and the crowd sang to him his funeral rites, by which was indicated to him and to his relatives and the others around him that he was altogether separated from the society of the living. At the end of the ceremony, they threw earth upon him with a shovel and read aloud to him all the restrictions to which he must conform in the future. His dwelling must be the leper-house, composed of small wooden huts in the outskirts of the town or monastery. His dress must be a long gray or red garment, falling to his feet, and on this must be painted pictures of a goose and its tracks. On his head he must wear a large hairy round hat in order to cover his dreadful disfiguration. His entrance into towns or cities was forbidden, and also his approach to wells and to public springs and roads. He was obliged to ring a bell when he was walking so as to make his presence known to passers-by in order that they might avoid meeting him. He was never allowed to touch anything when in need of it, but must ask for it, or trace it on the ground with his cane, and it would be given to him.

It is known that on the 22d of September, 1498, the King of Scotland, James IV, published a proclamation whereby all the syphilitics were ordered to leave Edinburgh and go to a small island for treatment, and any syphilitic found in the city was sealed on his cheek indelibly, and everybody knows how lepers are treated in America today, in spite of the progress of science and of civilization, and in spite of the slight chance of contagion from leprosy. We well know what was the fortune befalling the consumptives a few years ago. They were considered scapegoats. And it is better known what good care, treatment, and attention they receive now. The trembling public used to avoid the victim of consumption. It was considered a disgraceful disease, and any one afflicted with it was ashamed to tell of his affection, and he was considered condemned to death. But today the consumptive receives the greatest sympathy, and

ably instructed as to how he should take care of himself, is without danger of communicating the disease to his neighbor. He receives universal care and consideration, and sees his days growing longer though painful; and dying, is offered all the comfort of ending his life in peace.

And when will the happier days arise for the syphilitic? When will he also not be ashamed, as the consumptive was once ashamed, to confess his disease and to enjoy all the consolation he deserves because he is a patient whose brain suffers as well as his skin. When will society try to snatch the victim away from the hooks and teeth of the society harpies and of the unskilled and rascally doctors, and put him into the hands of true science and under the care and treatment of good, conscientious physicians? Fancy for a moment, one of the young men among you, a child of a decent family, going wrong and contracting syphilis. Imagine this same unfortunate young man after the manifestation of the ulcer and other signs of the disease, sick at heart, without hope, unwilling to confess his condition to his parents, ashamed, and trembling lest he be found out through this or that sign by those around him, going to the first rascal whose advertisement he reads in the venal newspapers, deceived by him, inefficiently and criminally treated by him for a few weeks or months only, until the manifestations of the disease disappear, and being led by this quack to believe he has been entirely cured. Follow him and see him attacked after a lapse of a few years by apoplexy, made blind, hemiplegic, paralytic, suffering from locomotor ataxia, or driven insane, and then be present at the awful confession of this incurable sufferer to his family, to the family doctor, and to the neurologist, as to when and how he was infected; where, by whom, how, and for how long a time he was treated; and tell me if society is or is not responsible for the disability of this special syphilitic.

If I should try to bring before you historical facts corroborating the above statement, I could write a whole book, for there is no physician to which this awful tragedy is not repeated daily. "A young and beloved confrère of mine, during our studies contracted syphilis, which through shame he concealed from our professors and from his relatives. He was treated very inefficiently by another college mate of his. Nine years later, after he had become a husband and father he was attacked by cerebral syphilis, and died in the prime of his life, at the height of his power, and with the best of hopes for the future."

"A student of law, a townsman of mine, during his second year in the university, through a servant became syphilitic. He was treated by a schoolmate of his and a friend for a few weeks only. Fifteen years later, he was attacked by progressive general paralysis or syphilitic insanity, and died after many vain attempts for treatment. During his attack he went to the prime minister of Greece and asked him to use his power to protect him from his imaginary foes, and he was sent by the prime minister to an asylum for the insane. If this young man had confessed to his parents his disease when first attacked, they, wiser than Ulysses and Penelope, would have sent him to a skilled physician and he might have been entirely cured."

"A very famous state attorney of Greece, one of the highest of his profession, while at the zenith of his useful career, became insane and was sent to an asylum. The cause of his insanity was syphilis, which he contracted while a student and which was never treated, as he did not tell his splendid family of his condition."

And how many women suffering with venereal diseases know the nature of their ailment? How many of them know what it is that is called syphilis or gonorrhea, and what the consequences are? How many married women who are operated on for affections of the tubes, or of the ovaries, or of the uterus, know what they are operated for? How many mothers know the reason for the blindness of their newly-born children, or ophthalmia neonatorum, or the cause of their own sterility after the first born? How many know the cause of so many, many miscarriages, or the cause of so many still-born children, or the cause of the death of so many children after the first few days or weeks or months of their poor little lives? How many doctors lie to these poor women in order to cover up the husband's faults, deceiving them with all sorts of explanations, and so mocking them?

"Compared with the knowledge of the diseases possessed by men," says the English doctor, Shillitoe, in the "System of Syphilis," very many women are absolutely innocent and altogether ignorant of the serious nature of their complaint. Indeed, it not infrequently happens that we are asked to, and do, treat a woman through the whole course of the disease without perhaps, once mentioning the word "syphilis" or giving her any inkling as to the true nature of the ailment from which she is suffering. In by far the majority of cases, it is impossible to discuss the conditions in the same open way as with the men."

"Twenty per cent. of my private syphilitic female patients," writes Fournier, "are married into respectable families in ignorance of the disease, and are infected by their husbands; and I have included in this figure only those women whom I am sure received the infection through their husbands."

And how dangerous are the women who are suffering from syphilis is evident from the observations of the same Fournier, who says that in 11,000 syphilitic patients, 1000 are women and 10,000 men, or one to ten; that is to say, that one woman is enough to infect ten men. But what is the proportion in relation to gonorrhea? Here, there is no comparison because a woman suffering from gonorrhea, and remain-

ing without treatment, is able to infect every man who will come in contact with her. And yet in none of the American hospitals,—and when I say that, I emphasize and repeat it, in none of the American hospitals are women treated for gonorrhea. "Where there were altars there were gods, and where there were no altars there were no gods," so the ancient sophists used to say. So "if there are women infected with gonorrhea, there should be places to treat such women, and as there are no such places for treatment, it must indicate that there are no women infected with gonorrhea." Sophism or Americanism, what a beautiful synonym!

But, to make a long story short, I do not hesitate to recommend less hypocrisy, less false modesty and a clear understanding of things, and more common sense. But any one only superficially acquainted with these facts and not having a knowledge of medicine, would consider that the only measure necessary would be a public declaration of these diseases, as is done, for example, with tuberculosis. There could be no greater mistake because if this is done, syphilis "will disappear from the face of the earth," to use the words of Dr. Hugh Cabot. And this will come to pass, not because no one will be infected,—on the contrary, the increase of infection may be enormous,—but because those who are infected, in order to avoid declaring themselves and the consequent humiliation, will go to the rascals of all nationalities who advertise themselves as practicing medicine, though they do so illegally and without any scientific knowledge.

In other words, the same thing will happen that is going on today in connection with illegal abortions, which are done by tens if not by hundreds daily. It is very rarely that knowledge of these illegal operations reaches the authorities. There are houses under the name of "hospital," run by men under the title of "doctor," that are making large incomes by performing illegal abortions under the cloak of their supposed profession. Do you, then, wish to classify syphilis and gonorrhea in the same class with these practices if we should expose them?

Sublata causa tollitur effectus, "If the cause is taken away, the effect will be removed." If those now infected are efficiently treated and permanently cured, the disease will be eliminated. Syphilis today is treated very well with 606, or salvarsan, besides the mercury. With this mixed treatment, it is possible to thoroughly eliminate any possibility of infecting others because the medicine destroys and washes off all syphilitic filth, heals every syphilitic manifestation, dries up every syphilitic excretion, and makes the sufferer, man or woman, no longer dangerous to those about him.

I do not hesitate then to recommend: The establishment of well organized evening clinics for the treatment of those who work during the day, and first of all differentiation between the destitute and the false destitute; the direction of these clinics to be placed in the hands of scientific and conscientious men, and to lead to the building of large hospitals for resident and outpatient treatment of women afflicted with gonorrhea and syphilis; above all, the throwing off of the veil of hypocrisy, of false modesty, and of fantasy; the teaching of the young of both sexes in the schools, disclosing to them all the dangers of these diseases.

I would recommend a wider and more thorough teaching of these diseases in the different medical schools, and consequently an increase in the number of good specialists in these diseases for exact diagnosis, early recognition, and regular treatment of the infection; disclosure to all patients,—male and female, young and old, rich and poor, aristocratic and plebian,— of the nature of the disease; the distribution of printed matter clearly exposing the horrors of the venereal diseases; muzzling the mouths of the venal newspapers, through the pages of which are advertised all the quacks; putting an end to the treatment of these diseases by correspondence; even a partial restriction of unbridled prostitution by the arrest and obligatory treatment of those young women infected with the disease who are ignorant and destitute.

I would recommend patronizing decent theatres; the limitation of the Viennese operetta in which the shameful amuses; and the investigation and clearing of the numerous suspicious houses existing under the name of hotels or "Rooms to let," and the payment of better wages to the working woman so that she may not be forced by need to sell herself for the means of livelihood, and thus be ruined.

CRITICAL DEFERVESCENCE IN TYPHOID FEVER.

By Edward J. Wood, M.D., Wilmington, N. C.

Lysis has for so many years been counted one of the typical manifestations of typhoid fever that reference to crisis as a form of termination of temperature elevation in this disease would at once to most observers suggest the probability of error in diagnosis. Whether crisis is more prevalent in typhoid in one section than another remains to be proven, but certainly its occurrence in North Carolina is not unrecognized.

Thoinot and Ribierre in their treatise on typhoid fever say that it is very rare and quote Jaccoud in saying: "This fall in temperature is accompanied by complete transformation in appearance. The tongue cleans rapidly, organic restoration takes place without a cloud and the phase of repair reduced to a minimum is confounded, as a matter of fact, with that of convalescence."

Jaccoud, Brouardel and Curschmann fre-

quently observed irregularities in the course of the temperature during the fastigium. It was noted that suddenly during the height of the fever there would occur a drop which Curschmann called "pseudo-collapse" and which was unattended by any alteration in the rate or character of the pulse. There is another type of temperature fall frequently mentioned by the French under the name *crise hypothermique* which is attended by symptoms of collapse and is followed by a return of temperature to the original position. This condition was studied by Wunderlich, whose name has since been prominently connected with it. For this condition no satisfactory explanation has yet been given, though it is more generally believed to be due to a result of the action of the typhoid toxin on the myocardium.

McCrae in the first edition of Osler's Modern Medicine presents a chart in which the temperature fell by crisis on the fourteenth day of the disease from 102.2 to 97.8. He says that the occurrence is rare, occurring only twice in fifteen hundred cases in the Johns Hopkins Hospital.

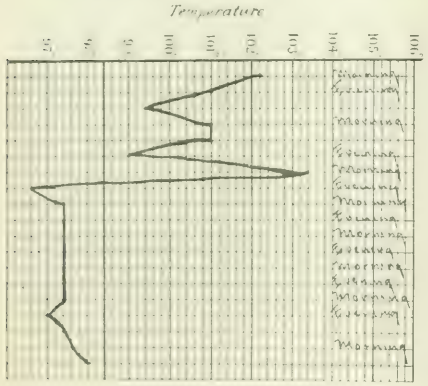


FIG. A.

Carl Meyer* in 1907 published a paper on this subject and presented two temperature charts which are herewith reproduced. It will be noted that the crisis is no less typical than that seen in croupous pneumonia. It will be noted that these drops in temperature were sudden and unattended with any signs of collapse or secondary rise. Here, as above mentioned, the crisis marked the termination of the disease. Meyer cautions against considering this an abortive type of typhoid and says it must not be confuse with any complication, but is truly a definite phase of the disease.

In such a consideration it is essential at once to exclude all other possible sources of sudden fall in temperature which are so numerous in typhoid.

* Meyer, Carl: Temperaturverlauf bei Typhus Abdominalis. Inaugural Dissertation, der med. Fakultät der Kaiser-Wilhelms-Universität. Strassburg. 1907.

In every case hemorrhage was suspected and carefully watched for but in no case of the series was there any change in the pulse indicating shock nor the subsequent passage of blood. Perforation was excluded by the absence of pain, by the absence of leucocytosis, and also by the absence of shock and subsequent peritonitis. The possibility of central pneumonia was always held in mind and dismissed with more reservation than the other possibilities. But it would seem to be justified in the absence of chill, cough, rusty sputum and physical signs. In none of the cases was pneumonia suspected even after the occurrence of definite crisis.

Relapsing fever was considered as a possible source of error but its exclusion seemed justified by the absence of this fever in this section, at least, and the absence of relapse.

The series consisted of two hundred cases, all of which were patients in the James Walker Memorial Hospital in Wilmington, North Carolina. Of this series nine, or 4.5%, terminated by crisis. It will be seen that this percentage is much higher than that usually observed. The more frequent occurrence of crisis in typhoid in this section has been noted by several of my colleagues, which led me to undertake this paper to determine the true proportion.

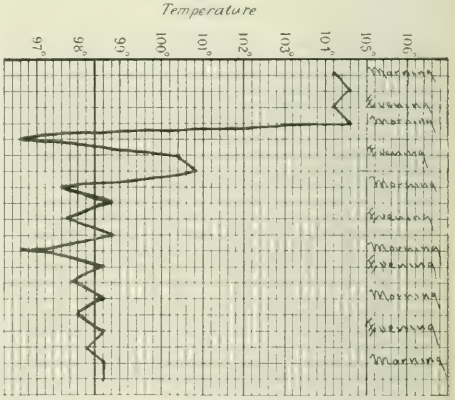


FIG. B.

CASE 1. On the fourteenth day the temperature reached 104.4, and on the sixteenth had fallen to 98. The pulse dropped from 100 to 80. The respirations remained at 20 throughout the fall in temperature. See chart.

CASE 2. Had been sick for some time before admission. On the sixth day the temperature reached 103.1 and on the next day had dropped to 96.6. There was no depressive effect on the pulse or respiration.

CASE 3. Had been running a temperature curve of broad variation generally called "steep curves." On the twenty-eighth day the temperature reached 103 and in nine hours had fallen to 97.6 with a

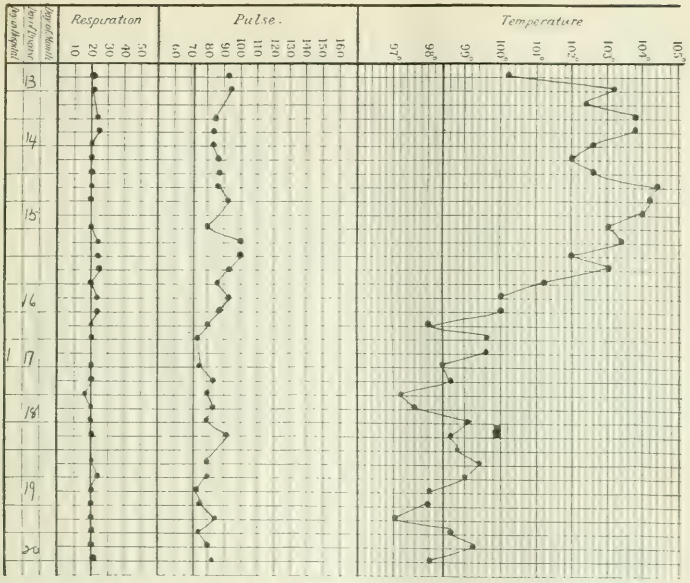

Respiration
Pulse.
Temperature
13
14
15
16
17
18
19
20

Fig. 1.

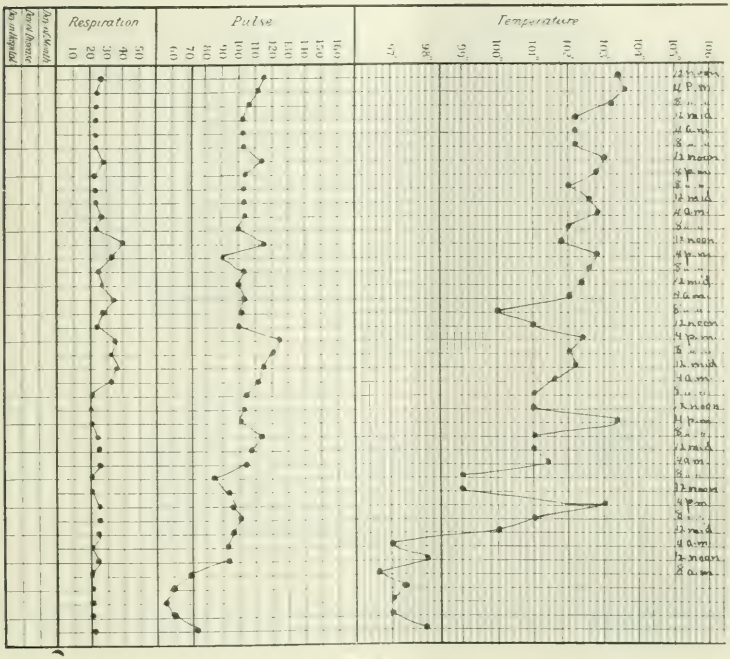

Respiration
Pulse
Temperature

Fig. 2.

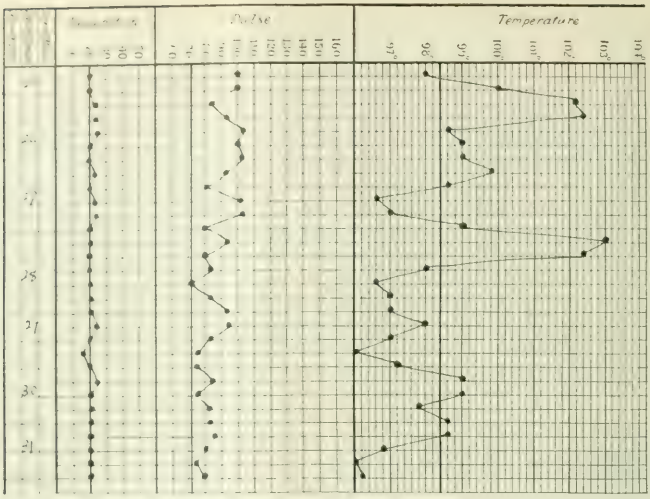


FIG. 3.

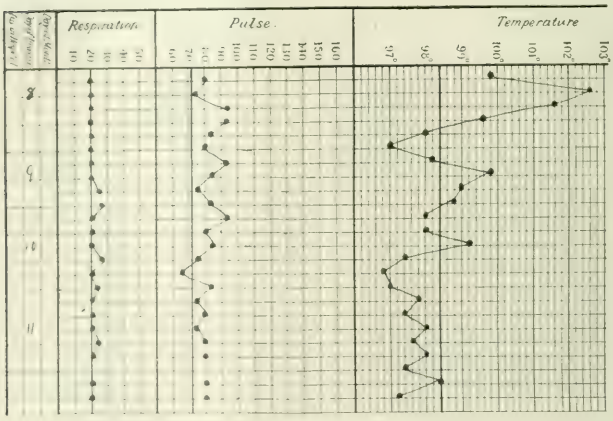


FIG. 4.

favorable effect on the pulse and no effect on the respiration.

CASE 4. This patient had been sick for 18 days before admission. On the ninth day after admission which was the twenty-seventh day of the disease there occurred a drop from 102.6 to 97 without effect on pulse or respiration.

CASE 5. Patient had been sick for two weeks before admission. The chart is not characteristic of typhoid and would not have been so classified except for a positive Widal. The accompanying chart shows a drop from 103 to 99 with a later rise to 100.4 and on the day following a fall to 98 without any further febrile activity. This cannot be counted a typical crisis in all respects.

It is obviously impossible to determine the exact day of the disease in many cases of typhoid because of the class of patient usually seen in the wards of general hospitals who come in with the disease and are unattended by anyone able to give any sidelights on the history. The dulled sensorium in such cases makes the patient's statement of little value.

My attention was first attracted to his condition in the fall of 1905.

The patient was a clergyman, 25 years of age. The attack of typhoid was unusually mild until the end of the second week when the temperature mounted up. The whole aspect of the case was

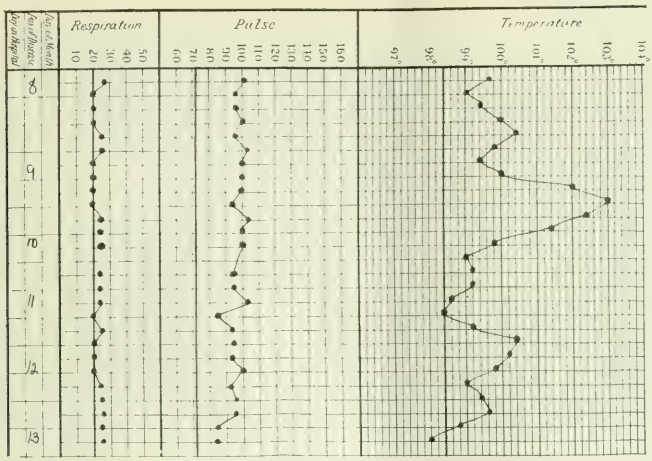


Fig. 5.

changed and all evidences of profound toxemia were present: subsultus, muttering delirium, extreme tympany and rapid pulse. In the third week he had an inconsiderable hemorrhage which was not repeated. The temperature remained high (105+), the delirium was extreme and the heart began to flag. Things went from bad to worse with no response from any kind of bath and with no lessening of toxemia until finally the temperature reached 106 and the condition appeared hopeless. All of one night I sat at his bedside and watched his pulse as his temperature fell from 106 to 99 in twelve hours. At no time did his pulse show signs of weakening but on the other hand there was a gradual improvement in quality and decrease in rate. The body was covered with perspiration and the sleep became deep and quiet. He awoke from this sleep fully recovered from the disease and never suffered a set-back. All possible sources of error were eliminated in this case. There was nothing either in symptoms or physical signs suggestive of pneumonia.

Another case of considerable interest was that of an architect's draftsman who had not been gravely sick though the toxemia was more than in the average case. In the third week after several days of quiet delirium and a temperature range of from 103.4 to 104 there was a sudden fall to below normal. He was seen by the surgeon, Dr. T. M. Green, in consultation but we were unable to find any pathologic cause for the change in temperature. There was no subsequent rise of temperature and the patient made an uneventful recovery.

During the summer of 1913, in a girl of 16 years, I saw a fall in temperature from 104 to 99 in one day. This occurred on the twenty-sixth day after a fearful attack. It seemed improbable that recovery could occur in her case so that this crisis was as much of a boon as crisis in a bad lobar pneumonia usually is. This patient made an uneventful recovery after this fall and it was demonstrated that there was no complication causing the alteration in the disease picture.

SUMMARY.

In unfavorable cases of typhoid fever allowance should be made for the possibility of crisis in giving a prognosis, though I should repeat that my experience may have been modified by geographical conditions.

Crisis in typhoid is not to be dreaded for it is unattended with any dangerous depression and leaves the patient in good condition.

Crisis usually occurs after a high run of temperature in cases of severe toxemia and always arouses suspicion of one of the accidents. This difficulty is enhanced by the fact that it usually occurs at that period of the disease when accidents are more prone to occur.

THE PRESENT STATUS OF CROTALIN IN THE TREATMENT OF EPILEPSY.*

By D. A. Thom, M.D., Palmer, Mass.

Perhaps this is not an inopportune time to summarize as briefly as possible in what must necessarily be a very general way, the results obtained in this country and abroad from the use of the hypodermic injections of snake venom in the treatment of epilepsy.

It is not my purpose to discuss any particular series of cases which have received this treatment. To reach conclusions which will be more worthy of your consideration, I have added to my own personal work, which I will briefly

* Read before the New England Society of Psychiatry, Concord, N. H., Sept. 29, 1914.

summarize, the data gathered from those who have been working along this line, and simply record the end results.

In a previous paper written early in 1913 I opposed stubbornly the foundation upon which this treatment was based. That is the definite relation between convulsions and the rapidity of the coagulation time in the blood of epileptics. After selecting 203 cases free from any clinical evidence of organic brain lesions I followed the technic as described by Roger Lee and Paul White of Boston and began to study the coagulability of the blood in epileptics. Blood was taken for this purpose before, during, and after convulsions; 92% of these cases fell within normal limits, 5.5% was less than the minimum limit, and 2.5% over the maximum limit. I became convinced there was no relation between the coagulation time of the blood and convulsions in epileptics.

Later I reported fourteen cases of idiopathic epilepsy which were selected and started on crotalin with the intention of continuing for three months. Again with your permission I will briefly summarize the results.

Upon three of these patients it was necessary to suspend treatment: in the first case because of the development of hysterical attacks; in the second the convulsions were so markedly increased in frequency and severity that at the patient's request treatment ceased; the third case exhibited such violent local and systematic reactions that I did not feel justified in continuing the injections. Of the remaining eleven cases which were kept on treatment for the three months, six became worse, that is the convulsions were either increased in frequency and severity or some unusual mental disturbance made itself manifest; four showed no change whatsoever; and one, a typical case of hystero epilepsy, showed improvement, undoubtedly the psychological effect of the administration rather than the drug being the cause.

In obtaining data from other workers in epilepsy I was rather surprised when I noted the difference in the reception which the treatment received in this country and abroad. In England, so far as I could learn, hardly an institution had used the drug; while in Germany, although Dr. Fachenheim had opened an institution in Cassel and claimed remarkable results, the medical profession had given it but very little consideration.

In this country almost every epileptic institution had given it a fair trial, and although much of my information came in such form that it was quite impossible to use for a statistical table, there was no difficulty in understanding the reputation it enjoyed.

Usually the letter contained some such remark as "perfect fake," "find it to be a flat failure," "no curative effect on true epilepsy," "cannot see that we have obtained any results." These are a few of the phrases abstracted from letters received. From Pennsylvania, Virginia and Michigan, with my own personal work, I gathered fifty-eight cases and recorded them in tabulated form.

Of these fifty-eight cases, six or less than 10%, showed improvement, twenty, or more than 35%, became worse and three cases died while treatment was being carried out. The remaining twenty-nine cases were apparently unaffected by the drug.

Surely there is nothing in such a record to recommend a treatment so radical and much to condemn it.

Anyone who has used the drug to any extent will not deny that they have obtained some very unusual reactions. There seems to be no relation between the amount of the drug given and the local and systematic reactions even in the same person. This may be accounted for in one of several different ways:

1. By contaminated preparations. Anderson has reported that 38.8% of a total of 95

	Cases Treated	Improved	No Change	Worse	Died	Remarks
Pennsylvania	16	0	8	5	2	One case developed intolerant toxic symptoms.
Virginia	6	0	6	0	0	Termed as a "perfect fake."
Michigan	22	5	8	7		One case became insane. Sent to asylum.
Massachusetts	14	1	4	8		lepsy.
					1	Improved case. Typical hystero epi-
Total	58	6 10%	26	20 35%	3	Deaths not attributed to use of drug.
New York	Several					"Without any apparent result."
Ohio	"Have made quite extensive tests."					"Find it to be practically a flat failure."
Kansas	Several					"Cannot see we have obtained any benefit."
Texas	400 for a period of one year					No curative effect on epilepsy. Physiological effect good.
New Jersey	Not used.					Was not willing to subject patients to treatment without more definite hope.
Missouri	Not used.					

ampules was found to contain one or more organisms (usually anaerobic) and that 100% of the tablets were affected in the same way.

2. By previous injections destroying the bactericidal properties of the blood—as shown by the work done by Ewing and Welch, and later confirmed by Flexner and Noguchi.

3. By the impossibility of obtaining a standard solution. Noguchi has shown that the loss of weight in drying of the crude venom is from 25 to 50%.

One can easily see that any of the above named causes might produce serious bodily harm or death. They are surely grave dangers.

It is hardly necessary to call your attention to the marked contrast between this report and the brilliant results claimed by Dr. Ralph Sprangler of Philadelphia. The work has been carried on independently by a number of workers sufficiently large to make it worthy of consideration. It has not been influenced by mercenary motives or sensational press notices.

In conclusion I would say that I do not feel justified in using a drug whose chemistry and physiological action are still in so much doubt; while the clinical record it has left behind shows it to be strewn with dangers, void of hope, and without any logical reason for its use.

Clinical Department.

TRAUMA TO THE KIDNEY RESULTING IN NEPHRECTOMY. REPORT OF TWO CASES.

By Willis E. Hartshorn, M.D., New Haven, Conn.

Traumatic accidents involving the kidneys are not uncommon to both adult and early life. The following two cases, however, each ending in nephrectomy, and a final recovery deserve to be briefly reported owing to questions presented of interest from the diagnostic standpoint. They occurred in a comparatively short time of each other and were of rather unusual character, the ages of the patients being respectively thirteen and eighteen years.

The following parallel conditions were presented: First, two operations on each patient. Second, in both cases there was the history of trauma followed by the occurrence of a large indefinite mass in the left upper quadrant of the abdomen, extending anteriorly well toward the outer border of the rectus. The extent of this led to an abdominal incision in each case, though in Case 1 a dorsal puncture of the accumulated fluid was made through a small incision. Third, persistent drainage from the dorsal wound in Case 1 and from the abdominal wound in Case 2. Fourth, a secondary operation intended primarily to secure better drainage in Case 1 but ending in a nephrectomy in both cases owing to the pathological condition of the kidney found on its free exposure.

Case 1. On April 6, 1914, while rapidly roller skating on the sidewalk the patient, a boy aged thirteen years, fell, striking on the left side. Following the fall there was pain in the abdomen, referred to the left upper quadrant, and a moderate grade of shock accompanied by vomiting. The physician called to attend the case, noted pain in the region of the left kidney on palpation, and on examining the urine found blood in it. The patient gradually recovered from the shock of the accident, and the blood disappeared from the urine. On the third day following the accident the symptoms appeared more acute. There was a distinct mass to be palpated which extended well toward the median line, and was gradually increasing in size. As the condition of the boy was becoming more serious, on April 11, five days after the injury, he was transferred to the hospital. At this time a mass could be palpated extending from the tip of the twelfth rib to the crest of the ilium and nearly to the outer border of the left rectus muscle. An operation was performed by the attending surgeon on May 12, an abdominal incision being made over the mass which, on incising the peritoneum, was found to be extra-peritoneal, This incision was then closed. The patient was turned on the right side and a small dorsal opening was made of sufficient size to expose the mass which was found to contain a large amount of bloody urine and pus. A silver trocar, one-half a cm. in diameter, was passed to the point from which the fluid appeared to come and the wound closed with drainage. Urine and pus drained freely from the trocar for one week following the operation and the patient seemed to improve. At this time the trocar slipped from the wound and the drainage ceased. There was at once a rise in temperature to 102.5 degrees which persisted for two days until the trocar was replaced, when it returned to normal. On the twelfth day the trocar slipped from the wound, and it was found impossible to replace it, owing to the tortuous nature of the sinus. The large extra-peritoneal tumor at once recurred. Drainage of urine from the wound ceased, and the patient rapidly became septic. Temperature 104.5 on the eighteenth day, 104.2 on the nineteenth day, 104 on the twenty-first day. The writer was called to see the case on the eighteenth day and found it impossible to replace the drainage to what was evidently the pelvis of the kidney. Patient very septic, rapidly losing ground. He was passing on the average 600 c.c. of urine in twenty-four hours. The mass in the left lumbar region was about 20 cm. long, by 15 cm. in transverse diameter reaching well toward the middle line. The ureters were not catheterized or a functional test made, as it was necessary, in order to save the patient's life, to operate at once.

Operation. A lumbar incision was made from the tip of the twelfth rib. This at once exposed a large perinephritic cavity, filled with bloody fluid and pus. On palpating the kidney which could be readily felt at the bottom of the wound, it was found to be markedly enlarged and was removed at once as its ruptured condition was very apparent. Fig. 1 shows a photograph of the specimen mounted in Russian oil. The patient made an uninterrupted recovery and had a normal temperature on leaving the hos-

[illegible] days after the operation. A small sinus in the lumbar region had not entirely closed at this time.





Case 2. The patient, a young man eighteen years of age, while wrestling on Mar. 30, 1914, fell across his opponent's knee, striking on his left side, the force of the fall coming in the region of the left kidney. Pain was complained of at once but the patient was able to return to his home where the family physician was called. Suspecting an internal injury owing to rigidity in the upper left quadrant of the abdomen, he advised rest in bed and local applications. The patient improved somewhat during the next week but for nearly a month was unable to leave his bed and seemed to be gradually getting worse. The rigidity in the left kidney region persisted. As an indefinite mass could be palpated, extending well toward the median line, he was then transferred to an out-of-town hospital, where an exploratory operation was performed. An abdominal incision was made to the outer border of the left rectus, exposing considerable clotted blood in the region of the spleen. The wound was closed with drainage. The drainage continued for thirteen weeks. The patient was first seen by the writer at this time in the Griffin Hospital, Derby, Conn., to which he had been transferred. As the odor from the dressings was decidedly uriniferous in character, methylene blue was administered by mouth and in twenty-four hours appeared on the dressings. A probe passed into the sinus in the lower angle of the abdominal wound passed toward the left kidney for a distance of 15 cm.

Inspection showed the patient to be septic, emaciated and very anemic. The temperature curve was not high. The abdomen was moderately distended. Palpation revealed an indefinite mass which could be felt in the region of the left kidney. This extended anteriorly nearly to the border of the left rectus and below to the anterior superior spine. The examination of the urine was negative. In twenty-four hours the amount passed per urethra averaged about 750 c.c.

Operation. An incision was made in the left lumbar region from the tip of the twelfth rib. On separation of the muscles an extraperitoneal mass was exposed, extending from the twelfth rib to the anterior superior spine. This mass presented fluctuating areas which, on being opened, contained a large amount of pus. It proved to be a markedly hypertrophied kidney filled with pus cavities, Fig. 2. The patient made an uninterrupted recovery.

CONCLUSIONS.

The removal of a kidney, always an undesirable procedure except when absolutely necessary, becomes even more undesirable in young patients. The two cases above reported both presented difficult points in diagnosis, but the conditions found at operation amply justified the means employed to effect relief.

In the first case the trauma evidently resulted in a rupture of the kidney in such a location as to permit an escape of urine at the point of the lesion and this was followed by a secondary systemic infection which caused the sepsis.

In the second case, how the infection occurred is more difficult to decide, but as the kidney was completely riddled with abscess cavities (see Fig 2) it is possible that it was caused primarily by the trauma, which weakened the resistance of the kidney tissue and permitted ready access of pus organisms, possibly through the abdominal wound, as no evidence of tuberculosis existed in the patient himself.

Book Reviews.

A System of Surgery. Edited by C. C. Choyce, B.Sc., M.D., F.R.C.S., Dean of, and Teacher of Operative Surgery in the London School of Clinical Medicine; Surgeon to the Seamen's Hospital, Greenwich; Surgeon to the Great Northern Central Hospital. Pathological Editor, J. Martin Beattie, M.A., M.D., C.M., Professor of Bacteriology in the University of Liverpool, and Bacteriologist to the City of Liverpool. In three volumes. Vol. III. Illustrated. New York: Funk and Wagnalls Company. 1914.

The first and second volumes of this system, which is completed by this third volume, were reviewed in this Journal in August, 1913. It will be recalled that Vol. I was mainly surgical pathology and general surgery, while Vols. II and III consider systematically surgical diseases of organs, and of regions. Only diseases of the eye and skin are omitted, a tendency which we have already noticed in other English works.

Vol. III, like the others, is in reality a series of monographs by well-known Englishmen. In this final volume we find articles on The Cardio-Vascular System; The Lymphatic System; the Neck; The Nose and Accessory Sinuses; The Ear, Pharynx, Naso-Pharynx and Larynx; Direct Examination of the Lower Air-Passages and Esophagus; The Lungs and Pleura; The Nerves; The Scalp, Skull and Brain; The Spine and Spinal Cord; The Jaw; The Skin and Subcutaneous Tissues; Muscles, Fasciae, and Tendons; Bursae; Diseases of Bones; Fractures and Separated Epiphyses; The Joints; Orthopedic Surgery.

The work completed in this volume represents the middle course between single volume surgeries, and the six volume systems, such as Keen's or Bryant's; and if we are to accept the surgery practiced by a large number of authors, it would seem that a sufficiently comprehensive statement of principles and detail might be collected in three volumes of approximately one thousand pages each. As to size, therefore, the three volume standard is to be recommended.

There are to be found, as usual, certain features which seem to be treated too briefly, and others at perhaps a greater length than warrants by relative importance. For instance, the entire subject of "Aneurysm" comprises less than 27 pages, out of a total of more than 2,500; and the "Lmyphatic System," on the other hand, has almost 50 pages, although it is true that some so-called blood diseases are included in this latter chapter. But, on the whole, the subjects are accorded spaces which they fairly deserve, in spite of occasional individual exceptions.

The chapter on "Fractures" is excellent: we notice that the use of wire in open operations is still advocated; and in the treatment of the os calcis:—"An anesthetic should be given, and an attempt made to restore the arch of the foot. The heel being fixed, the anterior part should be forcibly plantar-flexed." This is better than the advice given in most books, though not yet up to the most modern treatment, as advocated by Cotton.

There is a particularly interesting chapter on the "Joints" in which all joint lesions, whether traumatic or pathological, are considered, and the grouping is as interesting as it is unusual.

Throughout this book the illustrations are exceptionally good; the color plates, the half-tones, and the diagrams are excellent; the paper, the printing, and the binding, as we have come to expect in English books, also deserve the highest praise.

In the bibliographies, appended at the end of most of the monographs, a considerable amount of attention is devoted to American writers, and particularly to the work of surgeons living in the United States.

This system of surgery appeals most strongly as a convenient and sufficient reference work, rather than as a textbook: and as a record of the opinions held by liberal English surgeons who are awake to progress throughout the world.

Surgery: Its Principles and Practice. For Students and Practitioners. By Astley Paston Cooper Ashhurst, A.B., M.D., F.A.C.S.; Instructor in Surgery in the University of Pennsylvania, Associate Surgeon to the Episcopal Hospital and Assistant Surgeon to the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases. With 7 colored plates and 1032 illustrations in the text, mostly original. Philadelphia and New York: Lea and Febiger. 1914.

A single volume of eleven hundred pages, well printed and exceptionally well illustrated, written by a young surgeon, son of a well known surgeon of the same name. In his preface, Dr. Ashhurst declares: "It is the function of a work such as this to furnish the foundation on which a knowledge of surgery is to be built. Every text-book, however, has its limitations. At best it can but teach the student to know; it cannot teach him to do." As the title shows, the book includes Principles and Practice, together with such topics of Gynecology and Orthopedics as may be considered to be in the field of the general surgeon. The book, as a whole, makes a very favorable impression upon the reviewer. It is excellently condensed, yet without material omissions, and shows signs of persistent and extensive study and observation; a wide familiar-

ity with most recent literature and a willingness both to learn and quote from the past; a maturity of judgment which characterizes both the good surgeon and the man who has thought as well as studied. The book is not encyclopedic after the manner of Da Costa's single volume and, as a result of this, it both gains and loses. Upon the whole, it is a material addition to the text books which help teachers to instruct students, and it may be cordially recommended both to teachers and to students.

The Care of the Sick Room. By ELBRIDGE GERRY CUTLER, M.D. Cambridge: Harvard University Press. 1914.

This small volume is one of the series of "Health Talks," being the substance of a public lecture given under the auspices of the Harvard Medical School and published by the university. Dr. Cutler lays down in clear fashion certain plain facts regarding the management of the sick room in a way that cannot fail to be helpful. The lecture is a worthy companion of those by Morse, Folin and White, already published.

Handbook of Pharmacology. By CHARLES WILSON GREENE, A.B., A.M., Ph.D., Professor of Physiology and Pharmacology, University of Missouri. With seventy illustrations, including many new and in colors. New York: William Wood and Company. 1914.

The author presents pharmacology in a new and not unpleasing manner. No time is wasted on chemical composition of drugs nor on the various pharmacopeial preparations. The query is ever before him what will this or that substance accomplish when employed on the normal individual or animal, and he proceeds in a remarkably clear and lucid manner to enunciate such actions. The work might well be called a physiological pharmacology. When a drug has several actions, as most do, these are given briefly in a résumé after serial discussion of each activity. The sequence toward practical application, though not stated by the author, seems to be: know the action of a drug on the normal individual, learn what functions are impaired in the diseased and then employ that medicinal agent which would produce the opposite effect in the normal; in other words, a lever which would raise a stone at the top of a wall could be equally well employed when the stone has fallen to the ground. This method has one advantage in that it disabuses the student's as well as the physician's mind of the fact so commonly held, that a drug exists for every disease and that an agent is to be employed to combat a disease as such rather than its underlying pathological basis. It is surprising to find under the author's treatment of their activities how few drugs we actually need to accomplish every purpose possible with such agencies. A more careful statement of exact doses of medicaments, especially when speaking of action on humans, would add to the value of the work, for eventually the majority of medical students expect to practice medicine and not to demonstrate the action of drugs to students or to experiment with them and, if the instruction within these pages is to lead to practical therapeutics, dosage is extremely important.

Tuberculosis: Its Cause, Cure and Prevention. A Revised Edition of "The Great White Plague." By EDWIN O. OTIS. New York: Thomas Y. Crowell Company.

This now well-known book of Dr. Otis' appears again in a new form. Dr. Otis is to be congratulated on the change of title, which is infinitely superior to that of the first edition, and on the increased attractiveness of the book. The illustrations, in particular, are excellent. It is a pity that many of the pages are uncut, which the reviewer feels sure will detract from the usefulness of the book.

The book has been brought up to date in every way, although, as might be expected, there is comparatively little change in the subject matter.

The Practice of Surgery. By JAMES GREGORY MUMFORD, M.D., Lecturer on Surgery in Harvard University, Surgeon to the Clifton Springs (N. Y.) Hospital, Fellow of the American Surgical Association, Recently Visiting Surgeon to the Massachusetts General Hospital, etc. With 683 illustrations. Second edition, thoroughly revised. Philadelphia and London: W. B. Saunders Company. 1914.

Dr. Mumford says he has carefully gone through the text of his first edition and revised it "so far as seemed necessary to keep it abreast of progress." Dr. Mumford's preface is dated June, 1914, Clifton Springs, New York, and the volume is, therefore, the last to be published before the author's untimely death on October 18. The volume is still wisely limited to one thousand pages and, as was noted in the review of the original edition, it is well illustrated and well printed.

It is to be remembered that this book is a clinical surgery and, as Dr. Mumford expressly states, it does not concern itself with the principles of surgery. In other words, it presents to the reader in excellent English those facts and methods which Dr. Mumford had found of value in his own experience. It is an interesting volume for those who knew its author personally, and of value to the student for supplementary reading rather than as a class textbook.

Appendicitis: A Plea for Immediate Operation. By Edmund Owen, F.R.C.S., D.Sc. (Hon.), Surgeon to the French Hospital, Consulting Surgeon to St. Mary's Hospital, and to the Hospital for Sick Children, Great Ormond Street, London. New York: William Wood and Company. 1914.

This little volume is apparently the outgrowth of a paper read on Feb. 10, 1913, by Mr. Owen before the Medical Society of London. In the paper a strong plea was set up for immediate operation in appendicitis. The book is of interest to the American surgeon chiefly as giving Owen's personal ideas upon the subject; it is true that all of it has been accepted for years, without question, in this country; but if one may judge from the general trend of this volume, immediate operation is not indicated in the average medical opinion in England. In his preface, Mr. Owen writes, "I said nothing new, nothing which has not been said over and over again by many other surgeons,"—and this is true. The reviewer cannot refrain from an expression of amazement that a volume of two hundred pages could be published in 1914 on the subject of appendicitis without any reference to the work of Reginald Fitz, nor even a single mention of his name. Let us express the hope that Owen's plea for immediate operation will bear fruit in England one hundred fold.

What Men Live By—Work, Play, Love, Worship. By Richard C. Cabot, M.D., Assistant Professor of Medicine, Harvard University. pp. xxi-341. Houghton, Mifflin and Company. 1914.

This is unquestionably a notable book. The virility, earnestness, and enthusiasm of its author for the deeper things in life are everywhere apparent in its pages. Dr. Cabot has tried the experiments in practical living of which he writes, and has found them workable. He appeals in no uncertain language to others to follow in his footsteps. Whether or not he has solved or even approached a solution of the fundamental problems of life, each reader must decide for himself, and there will naturally be much diversity of opinion, but that the book is helpful and stimulating no fair-minded person will be inclined to deny. Its dogmatism both repels and attracts. To many readers who have pondered such matters it may appear presumptuous to have the springs of action dissected and analyzed in so trenchant and final a fashion; to others the very assurance of statement will come as a relief and a welcome solution of many difficult problems. As a matter of fact, the charm of the book lies in its wide appeal. Its platitudes are at least delightfully expressed, and its insight into the fundamentals of life not less so. Through it all appears the unique and forceful personality of its gifted author.

Cabot finds as a result of his observation and experience that men actually live by work, play, love and worship. His interpretation of these recognized elements in life is likely to arouse various antagonisms. Those circumscribed by the tenets of dogmatic religion will take issue, for example, with many statements regarding prayer and worship; the more materialistic will see in the book a somewhat visionary and impractical idealism; the man of the street will find it fanciful and, in places, sentimental;—but all this is of small account if the book succeeds in stimulating discussion, helping toward a saner outlook, and increasing the practical efficiency of life. This we have no doubt it will, in large measure, accomplish.

A Clinical Study of the Serous and Purulent Diseases of the Labyrinth. By Dr. Erich Ruttin, Privatdocent in the Otological Clinic, University of Vienna. With a foreword by Prof. Dr. Victor Urbantschitsch. Authorized translation by Horace Newhart, A.B., M.D., Instructor in Otology, University of Minnesota; Otologist and Rhinologist, Northwestern Hospital; Fellow American Academy of Ophthalmology and Oto-laryngology; Fellow American College of Surgeons, etc. With 25 textual figures. New York: Rebman Company, 1914.

In his monograph on diseases of the labyrinth Ruttin has written a very timely book. It consists of 232 pages, 98 of which deal with serous and purulent labyrinthitis, while the remaining 134 are given up to detailed histories of cases. In the translator's preface, Newhart describes the book accurately, saying,—"Both otologists and general practitioners who are not familiar with recent progress in the diagnosis and treatment of labyrinthine complications will find it a practical treatise upon the subject, which should prove a useful guide in dealing intelligently with those cases of labyrinthine involvement which are constantly appearing in practice, but which until very recently have often been unrecognized or misinterpreted." Urbantschitch, whose assistant Ruttin is, writes a foreword in which he says very much the same thing. The book is pleasantly small, well printed, and adequately illustrated. Labyrinthine diseases have been long enough under observation, and the recent theories of labyrinthine function have been discussed and tested sufficiently for a summary of results now to be possible. This book of Ruttin's is such a summary. It is what the writer of this review has been waiting for. If he is not mistaken many others have been waiting for it, and they also will welcome this clinical study. The book is a splendid guide for bedside work in the hospital. Beginners are fortunate to have a book of this stamp with which to begin their study of the labyrinth.

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EFFECT OF THE WAR ON IMMIGRATION.

RECENTLY some of the local newspapers have called attention to the poor conditions at the port of Boston in regard to the Immigration Station. The opinion seems to be unanimous that it is not a sanitary lodging house for the number of detained aliens, that it may be considered a fire trap, that the lack of means of separating the criminal and diseased from the healthy while in detention is not all that may be desired. Occasionally some one asks why it is not a focus for the spread of disease.

Any detention station must be watched from the standpoint of disease, as carriers may be and probably are constantly admitted. This is recognized at the local station, and the doctors are constantly on the alert for danger signals.

From time to time Boston has been advertised as about to have a new station, and once the government went so far as to purchase a piece of land and about five years later advertised for bids to build a station on the land purchased in East Boston. But unfortunately the lowest bid was higher than the money allowance appropriated and matters again stopped. The war in Europe at present seems to loom up like a black cloud in the way of immediate improvement. This has been the excuse for many things, from an increase in the price of sugar (which somehow dropped again although the war is not over), to a cut in federal efficiency at this port by reducing the number of civil service employees.

In the natural course of events the number of passengers arriving at the port of Boston in the winter is less than in the summer. The best boats run in the summer, also conditions of comfort and pleasure are much better during the warm months. Under normal conditions the physical and mental types of arriving aliens are usually better in the summer than in the winter. Possibly the fact that during the cold months the rates are usually lower, the steamship companies have less numbers to select from, or maybe a poorer class to select from in regard to their chances of being admitted to the United States may be a factor.

War or panic always affect immigration, and the present war is no exception. Distinct changes may be noticed in both the physical and mental types arriving. It is a case of the survival of the fittest, and the poorer have to move first. Some of the regular liners that ply between European ports and Boston have either been taken by their home governments for use as transports or interned by act of war, necessarily limiting the chances of the immigrant to travel. The ships that can be used by their owners are bringing about their normal number for this time of year. As the number of ships have diminished, so the total number of arriving aliens diminished in like proportion. Changes are also due to the fact that eligibles for military service from the war zones are not likely to be allowed to leave. While the number may vary from thirty to fifty per cent. less for the season, a noticeable increase is found in the number of females and children; of the males, more will be found above the age of forty and below twenty than between these ages.

During the month of November, 1914, about 2262 passengers arrived at the port of Boston, and nearly every nation of Europe was represented. While the steerage fell off the cabin arrivals showed an increase over the previous year.

Medical inspection has to be carried on with utmost caution as a large proportion are borderline physical types. Instead of the husky peasant country type, it may be noticed that most are from more congested districts, from the mills and like places, where may be found a class of people not noted for high grade mental or phys-

ical capacity. From the country districts the larger percentage are old men, children and women. These people feel the pinch of hard times keenly and naturally migrate to countries where work in their line may be obtained.

Immigration is a delicate barometer of economic conditions, and the ebb and flow is far more controlled by conditions of the labor market than laws made to restrict. Yet it is at this time that our laws are of the utmost value and should be most carefully enforced. Every immigrant should be carefully examined, to prove that beyond a reasonable doubt he is entitled to land in this country, and when doubt exists his case should be thoroughly investigated.

The arrival of a steamer recently at Boston from Italy with smallpox on board shows that vigilance must not be relaxed or sentiment allowed to sway officials from the duty owed to the country at large. Cholera and plague have been reported from different parts of Europe, as well as other enteric diseases, and it must not be forgotten that the carrier is more dangerous than the person showing outwardly evidence of the disease. The community may be easily protected from the latter, but the carrier, showing no sign of disease, is able to spread it and may baffle the best experts for a long time.

This country went through the same period during the Boer war and the panic of 1907, for a war or panic makes its influence felt the world over. It is important now to prepare for what is to come and protect the country at present from an influx of diseased, as well as criminal persons, and also to protect our public institutions, already filled to overflowing, from more public charges of foreign birth. At such times as these it would be well for the government to investigate the number of inmates of institutions receiving public funds throughout the country who are amenable for deportation under the law. This might give some valuable statistics as to the amount of public funds necessary to support aliens, and would be valuable in framing legislation to stop the leaks if any exist.

The question of deportation during war time is a serious one. The irregular sailing of ships and the impossibility of deporting aliens to districts in the war zone means that until the war is over our immigration stations must keep and care for a goodly number of diseased and defectives who cannot be returned at present. This is also a reason why Boston should not be neglected in the way of better station facilities in order that the trachoma cases may be treated and protect the others from infection. The moral defectives should also be protected from their normal fellows who do not recognize their condition or are willing to take advantage of it. Also, any afflicted with venereal disease may be treated, thereby protecting the well from any accidental infection. In order to do this the station must have proper facilities, and while it may be understoood that war decreases the number of arriving aliens, it does not mean that we should relax our vigilance, cut down the efficiency of the stations, or relieve the United States of the responsibilities in protecting the desirable young men and women who arrive during such a period.

Each alien pays $4.00 head tax, and the question arises: is this fund for revenue or to cover the cost of immigration inspection?

It is safe to assume that our immigration stations have as a majority of their inmates aliens detained on account of some disease, and a goodly proportion are trachoma, either held with a hope of cure or waiting such time as they may be safely deported to their homes. Every ship arriving is adding a few more, for as fast as ships can be relieved from transport duty they are resuming passenger and freight service. Immigration is going to continue. While Boston is getting about 500 per week, New York is getting about 3000 per week, and as long as steamship routes are kept open this may be about the average to expect for the winter. Those of experience believe that now is the time to prepare for the end of the war, for it is believed that there will be a large increase in immigration at its conclusion.

MYXEDEMA AND INSANITY.

Mental dullness has long been recognized among the numerous and varied manifestations in advanced hypothyroidism. It was one of the prominent characteristics in the first case of myxedema which Hertoghe of Antwerp, the eminent authority on thyroid deficiency, diagnosticated, and a very graphic and interesting report of which he gave in his lectures when visiting this country last spring. The patient was the wife of a prominent citizen, who had been treated for Bright's disease and considered incurable. Among the notable symptoms present

drowsiness, heaviness of the limbs, clumsiness, lassitude and drowsiness. The activity of the brain had become diminished, and mental effort dulled. He was much puzzled at finding a case of Bright's disease which had reached the stage of threatened uremia practically without change in the urine, but when five days of this state of perplexity had passed, "chance, the Providence of doctors," as he naively describes, came to his assistance (in a manner which it is unnecessary to relate here), and he was enabled to arrive at the conclusion that his patient was suffering from myxedema. This diagnosis was abundantly confirmed by the result of the systematic administration of thyroid extract, which exceeded his hopes,—complete recovery following. Both myxedema and cretinism are associated with deficiency of thyroid secretion, and conditions somewhat similar to these are produced by the surgical removal of the gland; while the symptoms are alleviated or cured by the employment of its extract. On the other hand, enlargement of the thyroid, accompanied by increase in its secretion, produces evidences of nervous excitation, and similar manifestations are caused by excessive administration of thyroid. From these observations it is inferred, as Harrower states, that the secretion contains hormones, which not only help to regulate the nutrition of the body, but serve to stimulate the nervous system, to the performance of the higher functions of which they appear to be essential. As Gley expresses it, "The genesis and exercise of the highest faculties of men are conditional upon the action, purely chemical, of a product of secretion."

Although cases of pronounced thyroid deficiency are commonly characterized by more or less mental impairment, it is very rare that there is derangement sufficient to necessitate the removal of the patient to an institution for the insane. It seems probable that more cases of the kind would occur were it not for the fact that appropriate treatment of the myxedema is instituted before the mental trouble has reached a stage calling for such a measure. At a meeting of alienists and neurologists held during the past summer under the auspices of the Chicago Medical Society, E. F. Leonard presented the report of a case of "myxedema allied to the infective exhaustive group" (*Medical Record*, November 28), which he states was the first of its kind ever admitted to the Jacksonville State Hospital. The patient was a male school-teacher thirty-two years of age, previously healthy, whose illness began five years before his entrance, February 11, 1913. His body presented the characteristic features of myxedema, due to general infiltration of the tissues, and he was in a weak and exhausted state. Among the evidences of mental derangement were confusion, delusions, hallucinations, and defective orientation and memory, including memory of the immediate past. Although his retention was poor, his school knowledge and calculation were good. Blood examination showed red cells 3,790,000, leucocytes 10,400 in February; and in March, red cells 3,220,000, leucocytes 6000. At first the patient would not eat, and became so weak that he had to be placed in bed. After persuasion, however, he began to take food, and he was given five grains of thyroid extract three times a day, in addition to iron and arsenic. The thyroid was gradually increased to thirty grains a day, but as with this dosage the red blood cells and the hemoglobin decreased, the amount was reduced to twenty grains a day. Under the treatment the bulky appearance of the body gradually disappeared, the skin lost its rough and scaly condition, the nails became normal, fine, soft hair began to come in, the intellect cleared, and the gait and speech improved.

Although cases of myxedema are usually classed under the heading of the intoxication psychoses, Leonard believes this case to be allied to the infective exhaustive group, on account of the physical exhaustion, anemia, low percentage of red cells, confusion, hallucinations, changeable delusions, disorientation, clouding of consciousness, and changeable emotional reaction. It is gratifying to learn that the patient made a complete recovery. When last heard from, in June, 1914, he was in good health and teaching school in the South. He was then taking two grains of thyroid daily. Professor Hertoghe insists on the necessity of the continuous administrations of small doses of thyroid in all cured cases of hypothyroidism, and mentions a number of instances of recurrence of myxedema as the result of neglect of this precaution. The amount required varies in different individuals, and he advises that the doses should be slightly increased in winter and diminished in summer.

SMALLPOX AT FRANKLIN.—Dean Academy, Franklin, Mass., was quarantined on Dec. 13 on account of a case of smallpox occurring in one of its students.

THE 1914 INFANT WELFARE CAMPAIGN IN NEW YORK STATE.

For some time past the remarkable fact has been shown that the infant mortality rate in New York City, notwithstanding its vast tenement population and over crowded state, has been decidedly lower than in the rest of the state, largely composed of rural districts. With all due allowance for meteorological and other external conditions, it is acknowledged by all that in the city the decline in the mortality in the last few years is indubitably due to the organized and systematic efforts of the health department with the coöperation of numerous other agencies working in various ways for the promotion of infant welfare. In the rest of the state the immense importance of organized work in this direction was for the most part not properly appreciated until much later. This is now no longer the case, and the recent work of the State Department of Health is showing very encouraging results.

Health News, the monthly bulletin of the department, states that it is now possible to gain some information as to the effect of the infant welfare campaign which was started last May. In 1913 there were twelve localities where such work was carried on, while during the past summer the number was increased to thirty-two. A comparison of the vital statistics of the state outside of New York City, for the months of June, July, August and September in the two years, indicates that this campaign has resulted in the saving of many lives. The infant mortality recorded, based on the ratio of deaths under one year to 1,000 living births, was 141 for these months in 1913, while for the same period in 1914 this rate was reduced to 117, a decrease of 24 per 1000. During the four months in 1913 the deaths from diarrheal diseases, naturally one of the chief preventable causes of death, numbered 2268, while this year the number fell to 1744. There are two factors which might tend to effect a reduction of the infant death-rate of 1914 as compared with that of 1913: the comparatively mild summer and the vigorous efforts which have been made to secure more complete birth registration. A comparison of the statistics for New York City with those for the rest of the state shows, however, that these factors can account for only a portion of the reduction actually recorded. A great improvement in the registration of births has, indeed, been noted, 32,631 having been reported in the four months of 1914, as against 31,179 in 1913,—an actual increase of 1452; but in the city also there was an increase in the births reported for the four months: 47,723 in 1914, as against 45,273 in 1913. In the city, as in the state outside, the increase amounts to about five per cent., a change too small to materially affect the mortality rate.

A comparison of the infant mortality in the city and in the rest of the city shows that, while for the four summer months the rate in the former fell in 1914 twelve points below the record of 1913, the reduction in the state outside amounted to no less than twenty-three points. The city is still in the lead, but the work of the past summer marks a rapid gain for the state as a whole. The effect of work for the reduction of infant mortality is, as *Health News* very truly says, cumulative. If the campaign so efficiently carried on this season is kept up, a day may be looked to with confidence when the infant death-rate in the rest of the state will be lower than in New York City. With the natural advantages in the summer of the country and of small towns over metropolitan conditions (with due allowance for the large cities of the state), this certainly ought to be the case. Meanwhile it may be noted that the reduction indicated by the statistics for this first four months of active work under the present administration amounts, with allowance for the increase of births, to a saving of over seven hundred infant lives.

THE NEW MASSACHUSETTS ADVISORY HEALTH COUNCIL.

On Wednesday of last week, Dec. 9, Governor Walsh nominated, and the executive council, under suspension of the rules confirmed, the following six members to constitute the newly established advisory council to the state health commissioner: Professor George Chandler Whipple, of Cambridge; Professor William T. Sedgwick and Dr. William J. Gallivan, of Boston; Dr. Milton J. Rosenau, of Brookline; Dr. David L. Edsall, of Milton; and Dr. Joseph E. Lamoureux, of Lowell. Professors Whipple and Sedgwick are appointed for three year terms, Drs. Gallivan and Rosenau for two years, and Drs. Edsall and Lamoureux, for one year each.

The members selected to compose this new

council are already well known to most of the profession. Mr. Whipple is Gordon McKay professor of sanitary engineering in Harvard University and chairman of the Cambridge sanitary commission. Mr. Sedgwick is professor of biology and public health at the Massachusetts Institute of Technology and a member of the advisory board to the hygienic laboratory of the United States Public Health Service. Dr. Gallivan is one of the present commissioners of the Boston board of health and chief of its division of child hygiene. Dr. Rosenau is professor of preventive medicine and hygiene in Harvard University, and director of the school for health officers. Dr. Edsall is Jackson professor of clinical medicine in Harvard University, and a member of the staff of the Massachusetts General Hospital. Dr. Lamoureux is a member of the staff of the Lowell Hospital and deeply concerned with civic affairs.

Dr. Allan J. McLaughlin entered upon his service as state commissioner of health on Nov. 1 of this year. With the constitution of this advisory council, the new health administration of this Commonwealth is completed and ready to pursue its work. The system is new, but the method not untried; and the men who are to execute it are experts of known qualifications. Dr. McLaughlin and his associates have the confidence and united support of the Massachusetts medical profession. It is not to be questioned that the difficult problems before the new health board will be met in a liberal and progressive spirit, which must lead to definite accomplishment. We believe we voice the feeling of the profession in expressing our most cordial encouragement and good wishes for its success.

MEDICAL NOTES.

American Red Cross Meeting.—The tenth annual meeting of the American National Red Cross Society was held in Washington, D. C., from Dec. 9 to 12, inclusive. At the opening session Mr. Lansing, of the United States Department of State, presented the report of the international relief board, of which he is chairman:—

"Never since the creation of this board have calls for active service been so many and so far reaching. For the first time, and we may hope the last time, the misfortunes of war rather than those of disaster have occupied most of its activities."

The report showed that more than 180 surgeons and nurses have so far been sent to Europe and said more were urgently needed.

"It is a satisfaction amid so much misery and distress to know that through the medium of the Red Cross and with the spirit of neutrality and humanity, we are enabled to aid in the relief of the untold suffering caused by this world-wide tragedy."

Surgeon-General Gorgas, U.S.A., presented the report of the war relief board, and Miss Mabel Boardman that of the national relief board.

Asiatic Cholera in Austria and Germany.—Report from Rotterdam by way of London on Dec. 9 states that during the month of November, 36 cases of Asiatic cholera occurred in Germany. During the first week of November, 844 cases of cholera occurred in Galicia, Austria, with 331 deaths. During the same week, there were 532 cases of the disease in Hungary, and 90 deaths from it in Vienna.

Red Cross Seal Funds Not for War Relief.—None of the proceeds from the sale of Red Cross Christmas seals, which are being sold widely throughout the United States for the benefit of the anti-tuberculosis movement will be used for war relief purposes. Ernest P. Bicknell, National Director of the American Red Cross, issued on Dec. 7 the following statement:

"The American Red Cross is deeply appreciative of the sympathetic interest which has inspired the suggestion from various parts of the United States, that a certain percentage of the Red Cross seal sales fund, which has been used for the last six years exclusively for the prevention of tuberculosis in the United States, be expended this year to aid the European war sufferers. While the Red Cross is trying very hard to raise a large war relief fund and is anxious to secure contributions that will increase this fund, we do not feel justified in adopting any policy which will tend to cripple the tuberculosis work in this country, which is dependent for its support to so large an extent on the sale of Red Cross Christmas seals. The announcement that a percentage of the Red Cross seal money would go to our war relief fund might possibly increase the sale, but, in our opinion, the final results would show a distinct loss in that part of the proceeds going for tuberculosis work.

"At the present time there are over one thousand anti-tuberculosis societies distributed over nearly every state in the Union, and even in Vera Cruz, the Canal Zone and Hawaii, which are dependent almost entirely upon the receipts from the Red Cross seal sale for their work during the year 1915. The people of the United States must support this local war against tuberculosis, which annually kills 200,000 people."

Epizoötic of Foot and Mouth Disease.—Report from Ithaca, N. Y., on Dec. 4 states that the border towns of Groton, Dryden, and Lansing, in Tompkins County, have been placed under federal quarantine on account of the discovery last week of cases of foot and mouth disease among cattle in the adjacent town of Summer Hill, in Cayuga County. In Massachusetts new cases were discovered on the same day at Granby and Rehoboth. On Dec. 5, 39 infected cattle were killed at Marblehead, Mass.

On Dec. 7 the Western quarantine was modified to permit shipments of livestock from unquarantined areas into Indianapolis, East Buffalo, and other cities of Indiana, New York, Iowa, and Michigan. The United States Department of Agriculture has already spent $900,000 in dealing with the epizoötic, and has destroyed stock valued at nearly $2,250,000. It cost only $300,000 to suppress the outbreak in 1908.

On Dec. 10, 2000 infected pigs were slaughtered at Rehoboth, Mass.

European War Notes.—Report from Paris on Dec. 3 states that Dr. Albert Calmette, director of the Pasteur Institute at Lille, France, and inventor of the tuberculosis test which bears his name, is now a prisoner of war at Munster, Westphalia.

Report from London on Dec. 4 states that 164 cases of typhoid fever have occurred recently among the Belgian troops. An isolation hospital for these cases has been established at Calais.

On Dec. 5 the total of the British Imperial relief fund of New England amounted to $12,558.06.

On Monday, Dec. 7, the Massachusetts Red Cross Society opened a new business headquarters at 603 Boylston Street, Boston, Room 64, to which all inquiries should be addressed.

On Dec. 12, the total of the New England Belgian relief fund amounted to $133,211.05, the Massachusetts Red Cross fund to $88,057.43, the Boston branch of the American Ambulance Hospital to $43,869.95, and the Russian relief fund to $5,310.00. Appeals have also been made for funds for the American hospitals at Lyons and at Beaulieu, France.

On Dec. 12 the total of the New York Belgian relief fund amounted to $647,584.00, the New York Red Cross fund to $398,563.00, and the American Ambulance Hospital fund to $195,000.

BOSTON AND NEW ENGLAND.

Immigrant Diphtheria Carriers.—Owing to a number of cases of sore throat that occurred in the Boston Immigration Station lately, cultures were taken of the throats of sixty or more detained aliens and three cases that were in apparent good health were found to have positive cultures of diphtheria. All the cases of tonsillitis were found to be negative. The food and sanitary conditions were carefully watched and the disease was soon checked.

An Undesirable Alien.—On the steamer *East Point*, that recently arrived in Boston from Liverpool, was found a stowaway, a native of Wales about thirty years of age. This man was found soon after the ship left port, and worked about with no complaint. The immigration doctor noticed his manner and peculiar way of holding one shoulder. Examination showed a good-sized carbuncle, and further examination showed the man to be insane. He was transferred to the Psychopathic Hospital for treatment.

Smallpox Among Immigrants.—The steamer *Cretic* arrived in Boston from Naples last month with one case of smallpox in the steerage. The ship's surgeon found the case in an early stage in a Greek and promptly isolated him and vaccinated the passengers and officers on the ship. When the ship arrived in Boston all the passengers and crew were carefully inspected again and all the passengers that had been in the section with the sick man at the time of embarkation were held at Galloup's Island until any danger had passed and their belongings disinfected. A short time later a sixteen months' old baby at the Boston Immigration Station began to show symptoms resembling the prodromal signs of measles. It was isolated and the day following began to develop a mild smallpox rash. This case came in the second cabin. The family were isolated and the station thoroughly cleaned, the family removed to the quarantine station, where all the inmates were vaccinated, and health officers, in every community to which the 800 passengers were going, were notified for their information, with statement of precautions taken.

A Living Centenarian.—Mrs. Ruth Case Williams, of Hartford, Conn., who is locally reputed to have been born on Dec. 2, 1814, celebrated her supposed centennial anniversary recently. She is the sole survivor of a family of 11 children, and has been a widow since 1880. She walks out daily and is able to read without glasses.

Cases of Infectious Diseases reported to the Boston Board of Health for the week ending Dec. 8, 1914: Diphtheria, 85, of which 2 were non-residents; scarlatina, 72, of which 10 were non-residents; typhoid fever, 18; measles, 162; tuberculosis, 56, of which 3 were non-residents. The death-rate of the reported deaths for the week was 15.40.

New England Belgian Relief Fund.—The New England Belgian Relief Fund Committee has opened headquarters at 426 Boylston Street, Boston (Berkeley Building), and is devoting all its time and energy to filling a special ship for Holland to carry food and clothing for Belgian refugees, and Belgian sufferers in their own

[illegible]. Food and supplies can be sent here free of expense. Every one in New England who can help should do so at once. Ship sails about Christmas.

NEW YORK.

MORTALITY FOR WEEK ENDING DEC. 5, 1914.—The mortality for the week just passed was noteworthy by reason of the increase in the infant mortality of infants under one year of age as compared with that of the corresponding week in 1913, there being twenty-five more deaths reported at this age group. A comparison of the infant mortality according to cause of deaths shows that this increase was due in a great measure to the increase in the deaths from the acute respiratory diseases,—especially that of bronchopneumonia,—and from measles. This increased mortality at this age group accounts for the increase in the absolute figures of the deaths from all causes at all age groups, there having been 1385 deaths from all causes reported during the past week as against 1372 for the corresponding week in 1913. On the other hand, taking the increase in population into consideration, there was a relative decrease in the mortality of 41 deaths, the death-rate being .38 of a point less.

The mortality at the age groups 5 to 15 years, 15 to 25 years, 25 to 65 years, and 65 years and over showed very little change in either direction.

The death-rate from the infectious diseases, including pulmonary tuberculosis, showed a much decreased mortality, with one exception, and that is diphtheria and croup, the mortality from this cause being much higher than in the corresponding week in 1913.

The death-rate for the first 49 weeks of 1914 was 13.44 per 1,000 of the population, as against a rate of 13.76 in the corresponding period of 1913, a decrease of .32 of a point, which if maintained during the remaining three weeks of the year will be equivalent to a saving of 1786 lives.

PUBLIC HEALTH EDUCATION.—In its latest issue the *Monthly Bulletin* of the State Department of Health publishes a letter from President Charles W. Eliot in which he commends in the most emphatic terms the public health education work of the department, stating that every other state in the Union may now learn a profitable lesson from New York in regard to the effective means of promoting the health, happiness and efficiency of the population.

MEDICAL CAUSES OF DEATH.—*The Bulletin* gives the following literal transcript of cause of death as recorded on a death certificate in one of the towns of the state: "La grippe, general bronchitis, pernicious anemia, valvular disease of the heart, dropsy, Bright's disease, enlarged liver, cancer of the pylorus and stomach." How long the unfortunate patient had survived under these complicated pathological conditions is not mentioned.

AN IMPORTANT EUGENIC DECISION.—On Dec. 7 an important decision was rendered by the supreme court of New York in a case in which a recently married wife sued for divorce on the ground that her husband had concealed from her prior to marriage the fact that he was tuberculous. The justice ruled that this was adequate cause and awarded an annulment of the marriage contract. In rendering his decision the judge said in part:—

"The defendant in this action was treated for tuberculosis prior to his marriage. The plaintiff has testified that he represented to her prior to marriage that certain symptoms were manifestations of a cold. It furthermore appears that within a few days his condition was such as to require the attention of a physician, who diagnosed his case as tuberculosis. Thereafter the plaintiff separated from him. There are no children of the marriage. The physician has stated that in his opinion the defendant's disease is incurable.

"No case has been brought to my attention in this state, nor can I find any which directly determines this question. As a general proposition, the rule may be stated that any misrepresentation of a material fact incidental to the contract of marriage is sufficient to void it.

"Children of persons with tuberculosis, while not born infected, are born with strong predisposition to becoming infected, and succumb with greater readiness."

Current Literature

THE LANCET.

NOVEMBER 7, 1914.

1. ROSS, R. *The Huxley Lecture on Recent Advances in Science and Their Bearing on Medicine and Surgery.*
2. POWER, D'A. *The Wounded in the War: Some Surgical Lessons.*
3. MART, W. D. *The Intratracheal Administration of Chloroform.*
4. JONES, R. L. *Ether Anesthesia by the Intratracheal Method: A Report on Forty-nine Cases.*
5. ALEXANDER, R. C., AND ROMANES, A. *Accessory Spleen Causing Acute Attacks of Abdominal Pain.* (*Illustrated.*)
6. BOSE, J. C. *The Action of Drugs on Plants.* (*Illustrated.*)

NOVEMBER 14, 1914.

1. *TIRARD, N. *The Bradshaw Lecture on Some Clinical Contributions to the Study of Glycosuria.*
2. GROVES, E. W. H. *Some of the Problems of Gunshot Fractures.*
3. STRICKLAND, C. *The Incidence of Plague in Europe, with Special Reference to the Rôle Played by the Rat.* (*From the Malaria Bureau, Kuala Lumpur, F. M. S.*)
4. WESTMACOTT, F. H. *Oculo-motor Paralysis of Otitic Origin.*

5. Swan, R. H. J., Jones, I., and McNee, J. W. *The Occurrence of Acute Emphysematous Gangrene (Malignant Edema) in Wounds Received in the War.*

1. Tirard, in the Bradshaw Lecture on Glycosuria, discusses by means of graphic records the nature of this condition, the relative influence of diet and of various drugs, such as codeine, sodium salicylate, sodium bicarbonate, and others. He takes up the relation between loss of sugar and weight, and loss of sugar and urea. He discusses cases with suppuration or gangrene, and the relation of glycosuria to gangrene. He calls attention to the intimate connection between glycosuria and disorders of the pancreas, and hopes that some day a suitable toxin may be developed which will favorably affect disorders of the pancreas, which in his opinion are largely responsible for cases of glycosuria. [J. B. H.]

November 21, 1914.

1. *Cheyne, W. W. *An Address on the Treatment of Wounds in War.*
2. Whipham, T. R. C. *Splenomegalic (Hemolytic) Jaundice Associated with Bile Pigment in the Urine. Report of a Case in Which Splenectomy Was Performed. (With Remarks by H. W. Carson.)*
3. Little, E. G. *Pityriasis Rosea of Gibert.*
4. Taylor, L. H. *Traumatic Rupture of the Liver; Laparotomy; Recovery.*
5. Wilson, H. R. *Morphological Types of Bacilli as an Element in Prognosis in Pulmonary Tuberculosis.*
6. Makins, G. H. *Note on the Wounds Observed During Three Weeks' Fighting in Flanders.*
7. Jacobs, C. *The Position of Belgian Doctors and Pharmacists.*

1. Cheyne, in a long article, discusses in a general way the treatment of various kinds of wounds received in war. This article contains much of interest, but can hardly be adequately reviewed. [J. B. H.]

British Medical Journal.

November 14, 1914.

1. Rankin, G. *The Borderland of Disease.*
2. *Mamourian, M. *Our Present Knowledge of the Thyroid Gland. With a Preliminary Report on a Case of Thyroid Grafting.*
3. Donaldson, R. *Nicolle and Blaizzot's Vaccine in the Treatment of Gonorrhea.*
4. Dimond, L. *Blood Platelets in the Treatment of Disease.*
5. Shipley, A. E. *Insects and War: Ticks. (Illustrated.)*
6. Pim, A. A. *Epidemic Poliomyelitis.*
7. Page, C. M. *The Treatment of Certain Cases of Appendix Abscess.*
8. Milligan, W. *Some Practical Considerations in the Diagnosis and Treatment of Abscess of the Cerebellum.*
9. Fullerton, A. *On the Treatment of Vesical Papillomata by the High-frequency Current.*
10. Wheeler, W. I. DeC. *Operative Treatment of Abdominal Aneurysm.*

2. Mamourian, in a somewhat general article, describes the development, anatomy, and physiology of the thyroid gland, discusses the pharmacology and therapeutics of the gland extract, and then he takes up the pathology and treatment in various abnormal conditions of this gland, such as myxedema, malignant disease of the thyroid, goitre, and exophthalmic goitre. [J. B. H.]

November 21, 1914.

1. Cheyne, W. W. *The Treatment of Wounds in War.*
2. Caird, F. M. *The Principles of Wound Treatment as Established by Lister and the Subsequent Modifications in Treatment.*
3. Rankin, G. *The Borderland of Disease.*
4. Law, W. F. *Treatment of Tetanus.*
5. Broadbent, W. *The Treatment of Enteric Fever.*
6. Whiting, M. H. *Anesthetics in Eye Work.*
7. Caskie, W. A. *Hematuria Complicating Pregnancy.*

The Practitioner.

November, 1914.

1. Syme, W. S. *The Diagnosis of Nasal Accessory Sinus Disease.*
2. *Howell, A. *Diffuse Scleroderma. An Account of Two Cases, with Some Comments. (Illustrated.)*
3. *Miller, H. C. *The Psychic Factor in Insomnia.*
4. Norbury, L. E. C. *Pruritus Ani.*
5. Blumfield, J. *Recent Work on Anesthesia.*
6. Jex-Blake, A. J. *Recent Work on Diseases of the Lungs.*
7. McKendrick, J. S. *Anemia, with Enlargement of the Spleen: Splenectomy: Cure.*
8. Cuble, D. *Studies in the Etiology and Prevention of Rickets.*
9. *Fox, R. F. *The Choice of Winter Health Resorts.*
10. Tirumurti, T. S. *Rhinosporidium Kinealyi. (Illustrated.)*
11. Graves, W. E. *Case with Comments. Congenital Transposition of the Stomach in the Left Side of the Chest.*

2. Howell, in a long and complete article illustrated with four excellent plates, discusses the diffuse scleroderma with the details of two cases. He gives a good bibliography.

3. Miller discusses in a very interesting manner the psychic factor in insomnia. First, any physical cause for insomnia must be sought for, and if possible removed. If this has been done, insomnia is probably due to psychic causes. The patient's responsibility for his insomnia must be clearly demonstrated, because all methods which draw his attention to the insomnia are likely to defeat their own ends. Drugs may be used much more freely for insomnia than is usually supposed to be wise, if the establishment of a sleep habit is kept in view. Miller never allows his patients to lie awake. He always gives them some suitable occupation, as he believes this is far better than doing nothing.

9. Fox presents for discussion the subject of the choice of winter health resorts. Although naturally this article refers very largely to resorts in England and on the Continent, this paper is of distinct value. [J. B. H.]

Edinburgh Medical Journal.

November, 1914.

1. Shennan, T. *Introductory Lecture Delivered at the Opening Meeting of the Class of Pathology in the University of Aberdeen on Oct. 31, 1914.*
2. Fleming, R. A. *Notes on Four Cases Treated with Beraneck's Tuberculin.*
3. Cullen, G. M. *The Passing of Vesalius. II.*
4. Cathcart, C. W. *Simple Form of Dressing Sterilizer.*
5. Sym, W. G., and Miles, A. *A Case of Intracranial Traumatic Arterio-venous Aneurysm Affecting Both Eyes.*

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 32. AUGUST 6, 1914.

1. GROBER. *The Treatment of Threatening Symptoms in Acute Myocarditis, Endocarditis, or Pericarditis.*
2. RIEDEL. *Cystic Tumors of the Neck, Especially Tubercular Tumors Possibly Originating from the Thymus Gland.*
3. KISSKALT, K. *The Extirpation of Diseases of Filth.*
4. HIRSCHFELD, L., AND KLINGER, R. *A Coagulation Reaction in Lues.*
5. ANDREE, H. *Operations for Corrective of Defective Tibiae.*
6. PERS, A. *The Operative Treatment of Hour-glass Stomach.*
7. *NITZESCU, J. J. *Protective Ferments Against the Albumin of Maize in the Blood of Patients with Pellagra.*
8. BORCHARD, H. *The Use of Calcium in Internal Medication.*
9. MEYER, R. *Larosan in Adults, Especially for the Treatment of Gastric Ulcer.*
10. SCHIROKAUER, H. *The Phenolphthalein Test for Occult Blood, According to Boas.*
11. BOAS, I. *Reply to the Above Paper.*
12. KATZ, G. *Heral in Gynecology.*
13. FRITSCH, G. *The Resorptive Action of Iodozitin.*
14. FLATAU, G. *Mechanical Means for the Treatment of Impotence.*
15. ROEDDANSZ, W. *The Adjustment of Syringes.*
16. ENGELEN. *An Apparatus for the Electrical Light Treatment of the Lungs.*

1. Grobel discusses the treatment of various symptoms in acute endocarditis, pericarditis and myocarditis. He places great confidence in the action of salicylates upon acute endocarditis and myocarditis. His results with specific sera have not been beneficial, especially in those cases in which positive blood cultures were not obtained. He has found hydro-therapy valuable in those cases complicated by hyper pyrexia and restlessness and has often used, with good effect, the coal tar derivatives such as pyramidon or acetanalid. Cold applications or counter irritants applied to the chest wall are indicated in acute pericarditis. He describes the points of election for tapping the pericardium. Finally, he emphasizes the importance of the free use of morphia as a means to secure absolute rest in acute inflammations which involve the myocardium, pericardium or endocardium.

7. Nitzescu has applied Abderhalden's method to the study of pellagra, using maize albumin as substrata. In 56 cases of pellagra the reaction was positive; in two cases of old pellagra which had been treated for a considerable time, the reaction was negative. Nitzescu argues from these results that Abderhalden's test affords an excellent means for the diagnosis of pellagra and that the experiments quoted offer additional evidence for the close relation which exists between pellagra and maize. [R. F.]

No. 33. AUGUST 13, 1914.

1. *GROBER. *The Treatment of Threatening Symptoms in Angina Pectoris.*
2. KLEINER, O., AND HEIMANN, F. *The X-ray Treatment of Carcinoma.*
3. KOSMINSKI, E. *The Treatment of Amenorrhea with Hypophyseal Extract.*
4. *NEUMANN, A. *Embarin in the Treatment of Nervous Diseases.*
5. GORDES, M. *The Technic of Embarin Therapy.*
6. BASCH, J. *The Treatment of Tape Worms.*
7. DEUTSCH, A. *The Prevention of Infant Mortality.*
8. BRUCK, F. *The Paternal Transmission of Syphilis.*
9. *NEISSER, A. *Venereal Disease Among Troops.*

4. Embarin is a soluble mercurial preparation for subcutaneous use, made by the firm of Heyden in Radebul. The particular advantages claimed for it are that it is quickly absorbed and that it causes no pain after injection. Neumann has used this drug in a series of cases of syphilis of the nervous system. He supports the contentions of the manufacturer and believes that embarin is a valuable drug in early syphilis, and that it is well borne by women and elderly patients who are unable to take other forms of medication.

9. Neisser discusses the problem of venereal disease among fighting soldiers. The least harmful and most feared disease is syphilis. The symptoms do not usually incapacitate the soldier, and the treatment can be carried out in the field. Neisser advocates a mixed cure of mercury given intramuscularly and of salvarsan given intravenously. The treatment should be begun as soon as possible. Doubtful cases of soft chancre should be treated on the assumption that syphilis exists. Soft chancre is a disease more likely to prevent soldiers from fighting on account of symptoms occurring at the onset, and by a later bubo. The important detail in the treatment of this disease is the immediate sterilization of the ulcer with crude carbolic acid and application of iodoform or Peruvian balsam. If a bubo develops it must be aspirated and injected with iodoform vaseline. Acute gonorrhea is the most difficult venereal disease to treat in the field and is most likely to render men unfit for work. Absolute rest should be given to such cases and active treatment with protargol instillations. If severe complications develop, time is saved for the patient by enforcing rest in bed. Finally, prophylactic rules should be carried out as far as possible among both camp followers and soldiers to prevent the unnecessary spreading of these diseases. [R. F.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 35. SEPTEMBER 1, 1914.

1. *ZUCKERKANDL, O. *Cystography.*
2. GLAUBERMANN, J. *Experiments upon the Effect on Blood of Serum Treated with Roentgen Rays.*
3. *KOELSCH, F. *A New Industrial Disease in Connection with the Employment of Calcium and Nitrogen.*
4. ERDT, V. *A Case of Poisoning from Chinconal.*
5. SCHNÉE, A. *Results of Treatment with Schnée's Degrassator.*
6. HESS, O. *Results with the Phenolsulphonephthalein Test for Renal Function.*

1. Cystoscopy does not always give as detailed a picture of the bladder as is desirable. Zuckerkandl advocates cystography in certain cases. He fills the bladder with 2% collargol and makes an x-ray plate, then empties the bladder and fills it with air. A second x-ray plate is made. In this way fine distinctions of shadow are brought out, and it is possible not only to photograph bladder stones and to differentiate infiltrating tumors of the bladder wall from polypoid tumors, but also to obtain important knowledge in regard to the effect of different types of prostatic hypertrophy or tumor on the bladder and ureters.

3. In certain electro-chemical factories a combination of calcium and nitrogen is used, in the preparation of which calcium-cyanamid is handled. The workers with this substance inhale a considerable amount of cyanamid dust, and are exposed to a peculiar train of symptoms. These begin immediately after any alcohol is drunk, but are brought on by very small amounts, such as a sip of beer. The upper part of the body becomes congested, the conjunctivae are injected, the breathing is increased, there is slight cough, a rapid pulse, the blood pressure is usually lowered, no morphological change is noted in the blood. There is no fever. The patients complain of a sense of oppression in the chest. The attack usually lasts for one or two hours and is not followed by any permanent

ill effects. There is slight personal idiosyncrasy, and no immunity is developed. The attacks are more severe among those people working in the dustiest atmosphere. Koelsch attributes the complex to cyanamid. The prophylaxis is obvious; the dust must be avoided by improved factory conditions, alcohol must not be consumed. There is no especial treatment. [R. F.]

No. 36. September 8, 1914.

1. *Abderhalden, E. *The Experimental Evidence for the Presence of Protective Ferments under Various Conditions.*
2. Rullmann, W. *The Differentiation of Cladothrix, Streptothrix, and Actinomyces.*
3. Gröbrer. *Spinal Anesthesia.*
4. *Pohrt. *The Cause of Death in Aneurysm of the Aorta.*
5. Müller, H. *The Prophylactic Treatment of Soft Chancre by Salvarsan.*
6. Schmidt, A. *The Prophylaxis and Treatment of Dysentery in the Field.*
7. Lobenhoffer. *Blunt Wounds of the Intestine.*
8. Mayer, A. *Field Regulations against Tuberculosis.*
9. Graser, E., and Kirschner, M. *The Basis of Treatment for Gunshot Wounds.*
10. Brauswetter. *Carbon-dioxid Poisoning on a Lloyd Steamer.*
11. Hammer, F. *Scobitost, a New Powder for Wounds.*
12. Werner. *The Use of Rubber Sponges in Checking Hemorrhage from Gun-shot Wounds.*

1. Abderhalden reviews the history of his test, describes in brief the original method and the subsequent technical improvements which have been developed. Finally he discusses the important objections to the test. He feels that since the reaction is specific, the weakness at present is that there is no chemical or physical method by which the specificity of the substrata can be tested. He is convinced that the paradoxical results reported are not due to faulty dialysis tubes, but rather to imperfect organ extracts. In conclusion he states that the problems to be solved by the use of the method are of great clinical importance. He warns against sweeping conclusions based upon insufficient data, and emphasizes that the more careful and critical the work is, the more valuable are the results.

4. Pohrt has analyzed the cause of death in the fifty cases of aortic aneurysm autopsied in Fraenkel's clinic in Hamburg between 1908-1913: 24% of these cases died of rupture, 34% of cardiac insufficiency, 18% of compression of the organs of the chest, 18% of intercurrent infection, and 6% of pulmonary infection from stasis in the pulmonary circulation. Pohrt brings out two points of interest. First, that death from compression is not imminent so long as the organs of the mediastinum are not involved. Second, that death from circulatory failure is not to be feared until a relative aortic insufficiency develops. Otherwise, his statistics agree in the main with those reported by other observers. [R. F.]

Deutsche Zeitschrift für Chirurgie.

Band 130. Heft 5-6. August, 1914.

1. Pollag, S. *The Pathology of the Hernial Content.*
2. *Kepler, W., and Herzberg, E. *The Diagnostic Importance of Luetin with Special Reference to the Disease Forms Meeting the Surgeon.*
3. Graf, P. *The Surgical Treatment of Hemolytic Icterus.*
4. Pohl, W. *Mediastinal Dermoids.*
5. *Iwasaki, K. *Experimental Investigations on the Mechanical Disposition of the Lung Apices for Tuberculosis.*
6. Fründ, H. *Gas Formation in the Free Peritoneal Cavity.*
7. *Asch, R. *Lingual Struma, with a Case Contribution to Myxedema and the Question of Postoperative Tetany.*
8. Pans, N. *Cystic Kidney with Symptoms of Renal Rupture.*
9. Matti, H. *Clamps, with a New Lever Transmission and Ratchet Release.*
10. Borchard. *Double Lingual Carcinoma in Psoriasis of the Tongue.*

2. The authors, working with material from Bier's clinic at Berlin, believe that a positive luetin reaction is diagnostic, but that a negative reaction is undecisive.

5. Iwasaki, from elaborate x-ray studies in Kaufmann's pathologic institute at Göttingen, cannot confirm Bacmeister's conclusion as to the mechanical predisposition of the pulmonary apices to tuberculosis.

7. From Anschütz's surgical clinic at Kiel, Asch reports a case of lingual struma, which he believes represents not only thyroid but parathyroid tissue. [R. M. G.]

Archiv für Klinische Chirurgie.

Vol. 105. Part 2.

12. Stida, A. *Further Experiences with Puncture of the Ventricle, Particularly in Epilepsy, Idiocy and Allied Conditions.*
13. *v. Haberer. *Further Experiences with Thymus Reduction in Basedow's Disease and Struma.*
14. Habs. *The Problem of Therapy by Means of Radio-active Substances.*
15. Rolly, F., and Appelb, O. *Spur Formation on the Os Calcis and Olecranon.*
16. Feoell, A. *The Origin of Foreign Bodies in the Knee Joint, with Particular Reference to the So-called "Osteochondritis Dissecans."*
17. Sievers, R. *The Significance of the Acromial Joint in the Pathology of Subcutaneous Shoulder Injuries.*
18. Friedrich, P. L. *Operative Treatment of Lung Tuberculosis by Removal of Ribs and Operative Paralysis of Phrenic and Intercostal Nerves.*
19. Borchard. *Surgery of Injuries of the Spine and Cranium.*
20. *Pribram, E. E. *New Experiments in the Diminishing of Peritoneal Adhesions.*
21. Heile, B. *Surgical Treatment of Internal Hydrocephalus by Drainage of the Cerebrospinal Fluid into the Abdomen or the Pleural Cavity.*
22. Heincke, H. *Implanting of Nerve in Muscle.*
23. Fritsch, K. *Practical Uses of Abderhalden's Carcinoma Reaction.*

13. von Haberer reports 16 cases of Basedow's disease operated by him, in which he removed a part of the thymus gland as well as part of the thyroid. His results were so excellent that he advises reduction of the thymus in every case of Basedow's disease. The combined operation, done through the same incision, gives much better results than either one alone. Cases of Basedow's disease without hyperplasia of the thymus do occur, but if there is increase of the thymus, the combined operation gives the best result. v. Haberer says that the late results are good, and that thymus reduction does not hinder the development of the patient.

20. Pribram has attempted to lessen the formation of intra peritoneal adhesions by the injection of the vitreous humor of calves' eyes. This he obtains under sterile precautions. It will keep sterile and should be used within two or three days after being obtained. This slippery, mucoid fluid coats the intestines and as a result of peristalsis and movements of the animal, becomes distributed throughout the abdomen. No ill

...ceeds of toxic symptoms were observed; on the contrary in cats, dogs and rabbits it materially decreased the number of adhesions. In case of infection or of severe chemical injury to the peritoneum, it did not prevent adhesion formation. [G. G. S.]

Vol. 105. Part 3.

24. Keppler, W., and Erkes, F. *The Treatment of Extracapsular Fract in the Neck of the Femur.*
25. Halsted, W. S. *The Partial Occlusion of Large Arteries.*
26. Speese, J. *The Fenestrated Plaster Cast as a Means of Local Congestion.*
27. Brind, Z. *The Cause and Treatment of Fracture of the Calcaneum and Its Effect on the Ability to Earn a Living.*
28. Kelling, G. *Concerning Tumors Which May be Diagnosed by Means of Sensitized Embryonic Cells of the Same Type.*
29. Barth, *Surgical Treatment of Purulent Meningitis.*
30. *Zondek, M. *Diagnosis of Horse-shoe Kidney.*
31. Zondek, M. *Study of Nephrolithiasis; Diagnosis; Other Factors; Pyelotomy.*
32. Hoffeck, O. *Fracture of the Head of the Femur.*
33. Riedel *Extirpation of the Tuberculous Hip Joint; Reposition of Head of Femur.*
34. Oehlecker, F. *Extirpation of Second Spinal Ganglion in Occipital Neuralgia, with Remarks upon the Relations of the Phrenic Nerve to Cervical Neuralgia.*
35. Kohler, A. *Lessons in Military Surgery from the Past*

30. Zondek's article on the diagnosis of horse-shoe kidney is based on a study of the relations of the long axis of the kidney to the long axis of the spine. From a study of conditions in the embryo, Zondek shows that the larger the fetus, the less obtuse is the angle formed by the long axes of the two kidneys. In other words, their upper poles tend to approach and their lower poles to become more widely separated, unless the lower poles are bound together by the bridge which forms the "horse-shoe kidney." If this bridge can be palpated, as is occasionally possible, the diagnosis is easy; if not, one must depend upon the use of the radiograph catheter and pyelography to show the location and relations of the ureters and pelves. X-ray renders further assistance by showing the position of the kidney as a whole, and it is through the study of this position that Zondek arrives at a diagnosis of fetal or "heterotopic" kidneys, and horse-shoe kidneys. [G. G. S.]

Obituary.

WILLIAM TERENCE CAROLIN, M.D.

Dr. William Terence Carolin died at his home in Lowell, Mass., on Nov. 21, 1914. Dr. Carolin was born in Lowell on June 2, 1852; he was graduated at the Harvard Medical School in the class of 1877, and after a post-graduate course of three years in Europe, he returned to his native city, where he practiced until the time of his death. He was trustee of the state hospitals of Massachusetts for fourteen years and later served on the board of trustees that planned and constructed the State Sanatorium at Rutland; he was one of the incorporators of the Lowell General Hospital. Dr. Carolin was a Fellow of The Massachusetts Medical Society and a member of the American Medical Association. He was unmarried.

Miscellany.

BRITISH VITAL STATISTICS BEFORE THE WAR.

The following British vital statistics for the second quarter of the current year, abstracted in a recent issue of the *British Medical Journal*, are quoted in the issue of *Science* for Nov. 20. They represent the last prior to the disturbance created by the present war, and may hereafter be taken as a basis of comparison in computing the demographic effects of the war on Great Britain:—

"The birth-rate last quarter was 2.3 per 1000 below the average for the corresponding period of the ten preceding years, and 0.4 per 1000 below the rate in the second quarter of 1913. The birth-rates in the several counties ranged from 16.7 in Rutlandshire and 17.1 in Cardiganshire, to 29.8 in Glamorganshire and 32.3 in Durham. In 97 of the largest towns the birth-rate averaged 25.5 per 1000, and ranged from 13.1 in Hastings to 34.4 in Middlesbrough; in London the rate was 25.2 per 1000. The excess of births over deaths during the quarter was 101,879, against 105,808, 102,293 and 105,620 in the second quarters of the three preceding years. From a return issued by the Board of Trade it appears that the passenger movement between the United Kingdom and places outside of Europe resulted in a net balance outward of 7,930 passengers of British nationality, and a balance inwards of 13,566 aliens. Between Europe and the United Kingdom there was a net balance inward of 19,308 British and of 15,887 aliens. Thus the total passenger movements resulted in a net balance inward of 41,731 persons. The deaths registered in England and Wales last quarter numbered 124,134, and were in the proportion of 13.3 annually per 1000 persons living; the rate in the second quarters of the ten preceding years averaged 13.9 per 1000. The lowest county death-rates last quarter were 8.8 in Middlesex and 10.2 in Rutlandshire; the highest rates were 16.1 in Lancashire and 16.7 in Merionethshire. In 97 of the largest towns the death-rate averaged 13.8 per 1000; in London the rate was 13.1. The 124,134 deaths from all causes included 3 from smallpox, 307 from enteric fever, 2677 from measles, 645 from scarlet fever, 2658 from whooping-cough, 1122 from diphtheria and 1428 from diarrhea and enteritis among children under two years of age. The mortality from whooping-cough and diphtheria was approximately equal to the average; that from scarlet fever was slightly below the average; and that from enteric fever and measles was about two-thirds of the average. The rate of infant mortality, measured by the proportion of deaths among children under one year of age to registered births, was equal to 88 per 1000, or 10 per 1000 less than the average proportion in the ten

preceding second quarters. Among the several counties the rates of infant mortality last quarter ranged from 45 in Buckinghamshire and in Rutlandshire to 110 in Merionethshire and 111 in Lancashire. In 97 of the largest towns the rate averaged 93 per 1000; in London it was 79, while among the other towns it ranged from 36 in Bath to 143 in Middlesbrough. The deaths among persons aged 1 to 65 years were equal to an annual rate of 7.6 per 1000, and those among persons aged 65 years and upwards to a rate of 79.8 per 1000 of the population estimated to be living at those ages."

During the half year preceding the outbreak of the war, both the marriage-rate and the birth-rate of Great Britain had declined below even the low average of the preceding ten years.

FREQUENCY OF SUICIDE IN THE UNITED STATES.

IN a recent issue of the New York *Spectator*, Mr. Frederick L. Hoffman has commented on statistics collected by insurance investigators as to the relative frequency of suicide in men and women:—

"The investigators have compiled a table showing the comparative rate of suicide in 100 American cities, indicating both the average for the decade which ended with 1912 and the average for the year 1913. Some rather startling facts are shown in the table.

"Of the 100 cities, 19 are in Massachusetts and 27 are in New England. In view of the large proportion of Massachusetts cities which appear, it is comforting to note that in all but six of them there was a decrease in the ratio of suicides last year from the average of the preceding 10 years, although Worcester, New Bedford, Cambridge, Malden, Pittsfield and Newton show an increase.

"It is striking, too, that of the cities which have a very large ratio of suicides, San Francisco is at the top with a rate which stood at 49 to 100,000 of population per year for the 10-year period, and at 45 to 100,000 last year, and that of the first seven cities five are in California. In the case of San Diego, it may be that the actual ratio is a little smaller because of the presence there of a large floating population due to the forthcoming exposition.

"The state of New Jersey has 11 cities in the suicide table and New York has 8. Of the whole 100 cities, 49 showed an increase in the suicide rate last year over the average and 51 showed a decrease. But in a general way there was no alteration in the relative position of the cities with reference to the frequency of suicides. Boston is about midway in the list and has decreased its ratio by three in 100,000, coming down from 16 to 13.

"Chicago and Manhattan and the Bronx are above Boston in the table, while Philadelphia and Brooklyn are below.

"In another computation the investigators have ascertained that the rates of suicide for cities of more than 250,000 population and for those of less than 250,000 are almost identical. This is declared to be 'rather remarkable in view of the greater stress and strain of life in the large centres of population.' Moreover, and the conclusion is supported by the results of life investigations recently concluded in Saxony, not only is the rate the same practically for small cities as for large ones, but the tendency toward an increase in the rate is more pronounced even in communities of small size.

"The statistics show also that in 1908 the maximum suicide rate for American cities was reached when it stood at almost 22 for each 100,000 of population. Last year the rate was the lowest on record since 1903, with the exception of 1906. Based upon the facts ascertained it is declared that 'a diminishing suicide rate may be fairly assumed to reflect in a general way an improvement in the social and economic condition of the country.'"

In conclusion Mr. Hoffman says of suicide as a preventable disease:—

"In the United States there are approximately 15,000 deaths a year from suicide. The corresponding number of deaths from typhoid is 16,000. While much is being done through associated effort to diminish the mortality from this preventable disease, practically nothing is being done to promote a wholesome and necessary reaction of public opinion against the most indefensible of all crimes, the wrongful act of self-murder."

PREJUDICE AGAINST LOCAL TUBERCULOSIS HOSPITALS.

CONSIDERABLE difficulty has recently been experienced in this state in carrying out the provisions of the law for the establishment of local tuberculosis hospitals, on account of the objections made by residents in that locality of a community where such an establishment is proposed. The following letter on this important subject in the daily press seems to deserve republication:—

"The objection on the part of residents to the establishment of a tuberculosis hospital in their neighborhood has occurred in so many communities throughout the country that the National Association for the Study and Prevention of Tuberculosis has made an exhaustive study of the matter.

"The conclusions of this study are somewhat as follows:

"1. A tuberculosis hospital in itself is not a

[illegible] health of those living near it. In [illegible] case has the National Association [illegible] to find evidence that would indicate [illegible] infection from a hospital to those who live on surrounding property. The infection of healthy employees in a well regulated sanatorium is almost unknown.

"2. A second conclusion is that, except in rare instances, a tuberculosis institution does not diminish the value of surrounding property.

"The suggestion that communities might combine in establishing a hospital, is a good one. But this is already feasible, and is amply provided for in the law which requires every city to establish a tuberculosis hospital.

"The part of the law relating to this reads as follows:

" 'If in the opinion of the boards of health of two or more adjoining cities or towns, or a city and an adjoining town or towns, such hospitals can advantageously be established and maintained in common, the authorities of the said cities or towns may, subject to the approval of the state board of health, enter into such agreements as shall be deemed necessary for the establishment and maintenance of the same.'

"These municipal hospitals, by the way, are necessary, if we expect to make ample provision for those ill with tuberculosis. The state has an excellent and well defined policy, namely, that the state sanatoria shall eventually provide for the early stage cases and the cities for the advanced cases. The municipal tuberculosis hospitals of the cities of Cambridge and Somerville are at the present time boarding patients from surrounding cities and towns.

"At the present time the state is caring for all kinds of cases, in consequence of which there is a very long waiting list at each institution, so long, in fact, that it takes from two to three months for a patient to obtain admission.

"If the cities will only do their share in providing for these sick patients, the waiting lists at the state sanatoria will be relieved and the spread of infection by patients returning to their homes will be prevented.

"It should be noted that the state, to encourage cities and towns in the construction of hospitals, will pay $5 per week board for each patient admitted to such an approved hospital, provided certain requirements are complied with.

"S. H. STONE,
Secretary Boston Association for Relief and Control of Tuberculosis.
"Boston, Dec. 7."

A TRIBUTE TO DR. BAKER.

THE following obituary notice of the late Dr. William Henry Baker, by Dr. William P. Graves, appeared in the daily press on Nov. 28:—

"By the death of Dr. W. H. Baker passes another of the famous surgeons who a generation past made Boston renowned as a centre of operative surgery. In the medical profession, Dr. Baker will probably be remembered chiefly as the founder in this city of gynecology as a special branch of medical science.

"After a preliminary education at the Harvard Medical School and Boston City Hospital he went to New York and worked under Marion Sims and Emmett at a time when these two great men were at the height of their powers. Filled with the enthusiasm which he derived from these inspiring masters, he returned to Boston to introduce in this community the new methods which he had learned for the relief of suffering womankind. He was the first in this city to execute successfully several operations which are now daily performed in all the surgical hospitals. He will be remembered also as one of the pioneers in developing the technic of abdominal surgery to the great efficiency which it has at the present day. He was second only to Dr. John Homans in the courage and vigor with which he worked in a new field of surgery against bitter popular and professional opposition. He was especially remarkable for the way in which he adapted himself to new surgical methods and in the expertness and rapidity with which he learned to carry them out.

"Dr. Baker's chief monument is the Free Hospital for Women, which he founded in 1875, partly for the purpose of creating a hospital where indigent women could receive the best of surgical care, and partly for the purpose of establishing an institution in which the science of gynecology could be practically taught to the medical profession. Both of these projects he accomplished successfully, for not only did he establish a large clinic, but by his appointment to the professorship of gynecology in the Harvard Medical School, which he held for many years, he was able to impart his knowledge gained from wide experience to medical students. Starting with a modest equipment, Dr. Baker, by his industry, skill and business sagacity, fostered the Free Hospital for Women until it became a flourishing institution of great usefulness.

"Although Dr. Baker's many talents contributed to the building up of the Free Hospital, he liked to believe that its success was due chiefly to the skilful care which he rendered the patients. He was undoubtedly right in this belief, for he was a surgeon of rare skill and accuracy. Those who have had the fortune to be associated intimately with him in his work can cordially testify to the stern lessons that he inculcated, not only in surgical technic, but in the extreme attention to every possible detail which might make for the patient's comfort and welfare before or after the operation. His patients were quick to recognize his conscientious care of them, and this personal characteristic, coupled with a kindly, sympathetic nature, explains the extraordinary hold which he had on the affections and

loyalty of those whom he treated. Hundreds of his patients will mourn his death and always hold his name in most grateful remembrance. Dr. Baker kept up his connection with the Free Hospital for Women as Surgeon Emeritus and maintained an active surgical practice till a few days before his death."

Correspondence.

A NAUTICAL CLINIC.

31 Massachusetts Avenue,
Boston, Dec. 8, 1914.

Mr. Editor: In a recent number of the Journal, Dr. Robert M. Green gave us an interesting sketch of Tobias Smollett, one of the most famous novelist physicians of all time. In connection with this the following quotation from Roderick Random, perhaps his greatest work, is of interest. It is well known that Roderick Random is a description of Smollett's own life, part of which was spent on ship-board as surgeon's mate, and it is almost certain that the incident quoted was from his actual experience. Fortunately for medicine and patients alike, it was, in all probability, an exceptional case.

"In the morning after the Captain came on board, our First Mate, according to custom, went to wait on him with a sick list, which, when this grim commander had perused, he said with a stern countenance, 'Blood and oons! 61 sick people on board my ship!' The surgeon's mate received a message from the surgeon to bring a sick-list on the quarter deck, for the Captain had ordered all the patients hither to be reviewed. The first was a poor fellow just free of a fever, so weak he could hardly stand. Mr. Mackshane (the new surgeon), having felt his pulse, protested he was as well as any man in this world and should receive a round dozen for counterfeiting himself sick. The next patient labored under a quartan ague, and, being in his interval of health, discovered no other symptoms of disturbance than a pale, meagre countenance and emaciated body, upon which he was declared fit for duty, but being resolved to disgrace the doctor, died on the forecastle next day, during his cold fit. The third complained of a pleuritic stitch and spitting of blood, for which Dr. Mackshane prescribed exercise at the pump to promote expectoration, but whether this was improper for one in his situation or that it was used to excess, I know not, for in less than half an hour, he was suffocated with a deluge of blood that issued from his lungs. A fourth, with much difficulty, climbed the quarter deck, being loaded with a monstrous ascites or dropsy, which invaded his chest so much, he could scarce catch his breath. But his disease being interpreted into fat, occasioned by idleness and excessive eating, he was ordered with a view to promote perspiration and enlarge his chest, to go aloft immediately. He actually arrived at the puttoc shrouds, but when the enormous weight of his body had nothing else to support it than his weakened arms, either out of spite or necessity, he quitted his hold, and plumped into the sea and would have been drowned had not a sailor who was in a boat alongside saved his life, by keeping him afloat until he was hoisted on board by a tackle. On the whole, the number of sick was reduced to less than a dozen."

Very truly yours,

Wm. Pearce Coues, M.D.

A CORRECTION AND COMMENT.

Boston, Dec. 7, 1914.

Mr. Editor: On page 876 of the Journal (December 3, 1914) you have reviewed "Tippermalluch's Receipts." I do not wonder that your painstaking, pious proofreader allowed near the end of the review the word "work" to supplant "wort". It is worthy of the pen of Philip Hale, for I cannot do it justice. St. John's work certainly drove out devils but "Sinjinswort" never did.

It would be *à propos* to inquire if the brilliant color of the flowers might counteract the 'blues' of the 'bedevilled.'

In this connection I learned from a very learned friend, the other day, that he exorcises his blue devils with a spinthariscope!

Edmund D. Spear, M.D.

MEDICAL EXAMINER, INDUSTRIAL ACCIDENT BOARD.

Boston, Dec. 11, 1914.

Mr. Editor: In view of the importance to the medical profession, of the appointment of a Medical Examiner to the Industrial Accident Board of the Commonwealth, it has seemed to us, who have had to do, almost since the beginning, with the medical affairs coming before this board, as members of the informal advisory committee the board asked to help them,—it has seemed to us that it might be well to have a statement go to the public, as to the conditions under which this appointment was made.

For a couple of years, seven of us have put in a good deal of time and work in attempting to unravel the difficulties arising out of the administration of the Employers' Liability Act, particularly the difficulties in which the medical profession is involved. During this time, a good deal has been done in the way of laying down principles of adjudication in these cases, so far as the medical side is concerned, and in straightening out, so far as possible, the matter of compensation of physicians. Beyond this, something has been done through the Industrial Accident Board, who have consistently backed up their medical committee, in the securing of amendments to the act, which while they are imperfect, represent considerable advance. In all this work, onerous and uncompensated, Dr. F. D. Donoghue of the committee has been consistently interested and devoted, and has done routine work far in excess of that which the other members of the committee found it possible to perform. Accordingly, when it became possible to appoint a Medical Examiner for the board, under the law, the natural choice of the board was Dr. Donoghue.

This letter is written to inform the medical public that Dr. Donoghue was the choice of the board, not primarily the choice of the Governor, and that it was a logical and not a political appointment. We wish further to bespeak for Dr. Donoghue, in view of these facts, and in view of his interest and competence, the coöperation of the profession. This act is a very important one, which touches us all; not only personally in a direct way, but in the enormous influence it is evidently going to have in shaping the surgical care of the injured in this Commonwealth, and it is particularly important that the profession should, so far as possible, work together in furthering the best possible administration and development of this law.

We write not as officially representing the committee, but as individuals who chance to have knowledge of the circumstances.

Yours truly,

F. J. Cotton,
F. W. Anthony.

RESUSCITATION FROM ELECTRICAL SHOCK AND GAS POISONING. A CORRECTION

CHICAGO, Dec. 11, 1914.

Mr. Editor: In looking over your JOURNAL for Dec. 3 I note on page 877 an article on Resuscitation from Electrical Shock and Gas Poisoning, which states that the United States Bureau of Mines appointed a committee to investigate these two subjects. Permit me to correct you on this point. There were two distinct commissions appointed, each of them by the Council on Health and Public Instruction of the American Medical Association. The first, Commission on Resuscitation from Electrical Shock, was appointed three years ago at the request of the National Electric Light Association and was made up of members selected from the American Medical Association, the National Electrical Light Association and the American Institute of Electrical Engineers. The Commission was financed by the National Electric Light Association and its report was published in the *Electrical World*, of New York. It has since been issued in pamphlet form, translated into many foreign languages, and is regarded as a standard on this subject all over the world.

Following the report of the Commission on Resuscitation from Electrical Shock, Dr. Joseph E. Holmes, Director of the Bureau of Mines of the Department of Labor, suggested that a similar commission be appointed to take up the question of Resuscitation from Mine Gases. Accordingly, the medical members of the Commission on Electrical Shock were appointed on the second commission and additional members added, making the personnel of the commission as stated in your article. The report of the Commission on Resuscitation from Mine Gases has recently been published by the Department of Labor as a special bulletin.

Very truly yours,

FREDERICK R. GREEN,

Secretary, Council on Health and Public Instruction, American Medical Association.

[NOTE. The information, upon which the JOURNAL'S statement was based, was derived from the issue of SCIENCE for November 6, 1914.—EDITOR.]

NOTICES.

The surgeon-general of the army announces that preliminary examinations for appointment of first lieutenants in the Army Medical Corps will be held on January 11, 1915, at points to be hereafter designated. Full information concerning these examinations can be procured upon application to the "Surgeon-General, U. S. Army, Washington, D. C." The essential requirements to secure an invitation are that the applicant shall be a citizen of the United States, shall be between 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training as an interne, after graduation. The examinations will be held simultaneously throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received, in order to lessen the traveling expenses of applicants as much as possible. In order to perfect the necessary arrangements for the examinations, applications must be completed and in possession of the Surgeon-General at least three weeks before the date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present twenty vacancies in the medical corps of the army.

HARVARD MEDICAL STUDENTS' ASSOCIATION.—Professor Charles T. Gorham, of Harvard College, will give a reading, under the auspices of the Harvard Medical Students' Association, in the Administration Building of the Harvard Medical School, on Friday, December 18, at 5 P.M. Physicians and others interested are cordially invited.

RECENT DEATHS.

DR. F. OSCAR HOWLAND, who died on Dec. 6 in Gloucester, Mass., was born at Whitefield, N. H., in 1855, and had practised dentistry in Gloucester for over 25 years. He graduated from Boston Dental College in 1886. He is survived by his daughter.

DR. STEPHEN C. PETTIT, of New York, died in Brooklyn on Dec. 3 of septicemia from a prick received while operating on an infected patient last October. He was born in 1872 and graduated from Long Island College Hospital in 1895.

DR. WILLIAM TERENCE CAROLIN died at his home in Lowell, Mass., Nov. 21, aged 62 years. He was born in Lowell, June 2, 1852, was educated at the Rotunda Hospital, Dublin, Ireland, and at the Children's Hospital in London after graduating from the Harvard Medical School in 1877. He was one of the first board of trustees of the Rutland State Sanatorium. He was a Fellow of The Massachusetts Medical Society and an incorporator of the Lowell General Hospital.

DR. GEORGE DEXTER BULLOCK died at his home in East Weymouth, Mass., on Dec. 6, aged 55 years. He was born at Taunton, Mass., on Dec. 6, 1859, the son of a physician. He was a graduate of the Jefferson Medical College, Philadelphia, in 1886, and had been a Fellow of The Massachusetts Medical Society since 1896. He is survived by his widow and by one daughter.

DR. ADELINE WILKINS WILDES, a graduate of the Boston University School of Medicine in 1881, died at Roxbury, Dec. 6, aged 74. She is survived by one son.

DR. BALDWIN GARDNER COOKE, of New York, died on Dec. 7, in his 59th year. He was graduated from the College of Physicians and Surgeons, New York, in 1879, and for nearly twenty years served as an inspector in the city health department.

BOOKS AND PAMPHLETS RECEIVED.

Child Training as an Exact Science, George W. Jacoby, M.D. Funk & Wagnalls Co. 1914.

State Board of Insanity, 1913. Massachusetts.

Intensive Treatment of Syphilis and Locomotor Ataxia by Aachen Methods, by Reginald Hayes, M.D. Baillière, Tindall & Cox.

The Salvarsan Treatment of Syphilis in Private Practice with Some Account of the Modern Methods of Diagnosis, by George Stopford-Taylor and Robert William Mackenna. Rebman Company. New York.

Some Unsolved and Debatable Problems in Tuberculosis, by Edward O. Otis, M.D. Reprint.

Artificial Pneumothorax in Advanced Unilateral Cases of Pulmonary Tuberculosis, by Edward O. Otis, M.D. Reprint.

Pulmonary Tuberculosis and Syphilis, by Edward O. Otis, M.D. Reprint.

Hygienic Laboratory-Bulletin, No. 99, October, 1914. The Friedmann Treatment for Tuberculosis. By John F. Anderson and Arthur M. Stimson.

Public Realth Reports. Vol. 29, No. 50. Dec. 11, 1914.

Musculo-Capsular Advancement Operation, with Report of Cases. By David W. Wells, M.D., and Joseph E. Sternberg, M.D. Reprint.

Original Articles.

FORLANINI'S ARTIFICIAL PNEUMOTHORAX. (A STUDY.)

Parts III and IV.

By Gerardo M. Balboni, M.D., Boston.

Assistant Physician to Out-Patients, Massachusetts General Hospital, Boston, Massachusetts.

(Parts I and II appeared in the Boston Medical and Surgical Journal, Nov. 5, 1914.)

PART III.

AVOIDABLE ACCIDENTS AND COMPLICATIONS.

In the production of an artificial pneumothorax, the gas used may be sterile air, oxygen, or nitrogen. Nitrogen is usually used because it is the least absorbable of the above-mentioned gases. It is injected into the pleural cavity by means of a special apparatus. There are various apparatuses used, operators having devised them according to their own ideas. Deneke[38] has devised an apparatus with which he first introduces oxygen and follows with nitrogen when he is satisfied from the character of the excursions on the manometer that the gas is flowing into the pleural cavity. In this country Dr. Samuel Robinson, a surgeon of the Massachusetts General Hospital, devised one of the best and simplest. The needle used is one modified by the author and may be had in different sizes, preference being given to the smallest caliber needle, as it makes a very small wound and it is not necessary to cut the skin for its easy introduction. The object of this paper is to set forth the avoidable accidents and the complications that have been encountered.

1. Hemorrhage due to puncture of the lung. In the first attempts to enter the pleural cavity, especially if the pleura is adherent, one is liable to puncture the lung. After a first insufflation of nitrogen into the pleural cavity and a pneumothorax is produced, subsequent injections will be easy and there should be no danger of puncturing the lung. Whenever possible after a first insufflation, an x-ray should be taken, as it will demonstrate what has been accomplished and in what manner the lung is collapsed. In a recent communication, The Development of Modern Artificial Pneumothorax,[39] I have dwelt on the value of the Roentgen fluoroscopic and plate examination.

2. Subcutaneous emphysema: The predominating causes are:—

(*a*) Large wound (large needle).
(*b*) Injection of nitrogen at a high pressure.
(*c*) Lack of tensity of the tissues.
(*d*) Excessive thinness of the subject.
(*e*) Paroxysm of coughing following an injection.

The use of a small calibre pneumothorax needle, avoidance of excessive pressure in the introduction of the nitrogen, and application of pressure over the puncture will usually prevent it. An emphysema necessarily prevents further treatment until it has been absorbed. A subcutaneous emphysema ordinarily does not cause any pain or serious disturbance. A sensation of fullness of the affected part and crepitus on pressure are practically the only symptoms. The emphysema may be localized about the site of puncture, or may become diffuse, involving both the chest and abdomen.

3. Pneumothorax from puncture and rupture of the lung is a serious accident. This, however, is unlikely to happen unless the needle is moved laterally while in the lung tissue. Trevisan[40] reports a case where at a primary puncture, the patient, regardless of the directions given, held herself rigidly on inspiration. While the needle was being inserted, she became agitated and backed onto the needle. The needle was thus suddenly thrust deep into the lung. Air was immediately heard rushing from the lung perforation into the pleural cavity. She complained of sudden severe pain in the shoulder. A spontaneous pneumothorax had formed, as was evident on physical examination. Fortunately there were no sequelae and treatment was later continued by the injections of nitrogen. Such an accident probably would not have happened if the place of puncture had been previously anesthetized. At secondary injections, the breaking of an adhesion on the visceral side with the consequent tearing of lung tissue might, of course, have this result. Hornung.[48]

4. Deep or mediastinal emphysema is produced when the nitrogen is injected in large amounts into the lung. When nitrogen is so injected it moves into the air passages either completely or partially. In the latter case it may reach the root of the lung along the peribronchial and perivascular connective tissue and thus lead to a mediastinal emphysema and the consequent deep pressure symptoms. This pressure sensation, which more frequently follows the injections of large amounts of nitrogen into the lung, develops within a few hours after its introduction. The patient may complain of a bubbling sensation on the injected side; later tightness, stiff and sore neck and shoulder, sore throat and difficult deglutition. In some cases the nitrogen was tasted. These symptoms last from a few hours to a few days. X-rays taken soon after showed no evidence of a pneumothorax, proving absolutely that no nitrogen had entered the pleural cavity. The chest on the injected side will be tympanitic and respiration feeble, but never absent. As the nitrogen is dissipated, tympany disappears and respiration returns to its former volume.

Such introductions are dangerous, for the needle may irritate or injure pulmonary branches of the vagus nerve and give rise to serious disturbances or even death. Nitrogen in-

ported into the lung may cause a rupture of lung substance and blood vessels, and may result in the introduction of nitrogen into the circulation, as in Case 15, causing gas embolism. A thorough knowledge of the technic is essential for properly understanding the workings of the manometer.

5. Pleural reflex. Much has been written by French and Italian writers about pleural reflexes, such as eclamptic attacks, loss of consciousness and sudden death. I doubt very much if these reflexes will occur if a preliminary subcutaneous injection of morphia is given, as advised by Brauer and Saugman, or anesthesia of the part is produced by the injection of a solution of novocain-adrenalin. I favor the stand of Brauer and Quinke that the described cases of pleural shock in artificial pneumothorax are really air embolism or a spreading thrombosis from the pulmonary veins. Recently a case of sudden death at a secondary injection was reported.[41] This writer believes that death was due to pleural shock. This is rather unusual as the pleural reflex or shock has been noted at a primary puncture and not at later ones where a partial pneumothorax presumably existed, and the needle was in the pleural cavity.

Fagiuoli reports the following case of pleural shock. After the injection of 300 c.c. nitrogen, the patient fell back on the bed, the eye-balls turned to the left, the pupils were dilated and rigid, the lips blue, pulse small, 180, breathing slow and shallow, with fibrillation of the muscles and partial unconsciousness. Under heart stimulants, artificial respiration and massage, the patient recovered. The attack lasted ten minutes.

Jacoud, in a case where he had introduced the nitrogen at a high pressure, says there was almost total blindness for fifteen minutes. There are reports in the literature of cardiac respiratory failure, convulsions, coma, paralysis and even death following exploratory puncture of the pleura or lung. In these cases there was no preliminary injection of morphia or anesthesia of the part. These accidents attributed to exploratory punctures have been made the subject of extended studies by Roch,[42] Cordier[43] and Sears.[44]

The experiments of Brodie and Russell[45] and of Cippa and Lewis[46] seem to throw some light on it. Russell believes these phenomena are due to afferent impulses conveyed to the medulla along the vagus nerve visceral fibres, rendered unduly sensitive by compression or inflammation, are irritated by the needle. Cippa[46] considers the fibres of the visceral pleura as well as the pulmonary fibres sources of the impulse. Death may be immediate or may be preceded by several days by unconsciousness and convulsions. These depend upon the reflex vagus paralysis, cardiac inhibition and the subsequent lowering of the blood pressure.

6. Shock from increased toxemia? Acute dilatation of the heart?

CASE 35 of my series died two days later, following the insufflation of 200 c. c. of nitrogen into the left pleural cavity. This was a far advanced bilateral case with very extensive process throughout the left lung. For months she had been running a temperature of 101 to 102. Respiration 30. She entered the Channing Home where for two weeks she was kept under observation. During this time she ran a temperature 101 to 103. Pulse 120 to 130. Respiration 35 to 40. She had daily chills, night sweats and vomiting; took little nourishment and coughed much, the sputum being mucopurulent and blood-tinged.

The general condition was very poor. A preliminary injection of morphia given with the local anesthetic. The needle was introduced into the sixth interspace midaxillary line on the left. Marked negative oscillations were noted on the manometer. Then 200 c.c. of nitrogen were introduced very slowly. No untoward symptoms at the time except a tired feeling. Four hours later the temperature dropped from 103 to 98 and later became normal. The pulse from that time rose from 130 to 145, became feeble, of poor quality and dropped again to 120. The respirations rose from 40 to 60 and remained high until the end. There were no convulsions or paralysis.

This was a very septic, hopeless case whose end was hastened by the injection. Practically moribund patients should not be attempted for treatment.

7. Gas embolism ought to be absolutely avoided. No gas should ever be introduced unless the characteristic respiratory pleural oscillations are obtained. Only then can the operator feel sure of having entered the pleural cavity. At a secondary injection where a partial pneumothorax exists, the needle penetrating the lung, may injure a pulmonary vein; part of the injected air may reach the latter and lead to air embolism in the larger blood vessels. This may happen very easily in certain parts of the lung where the veins are kept open by the tuberculous infiltration of the tissues and so can exercise the power of suction.

CASE 15. Chronic advanced bilateral tuberculosis, active process in both lungs, more marked on the left. The patient received considerable benefit from the treatment which was commenced in May, 1912. Treatment was then interrupted for two months. When the patient returned for treatment in October, two months later, the lung was found on physical examination to be fully expanded. An x-ray examination showed no evidence of pneumothorax. Injection of nitrogen into the left pleural cavity was then again attempted.

The pneumothorax needle was introduced as usual into the left fifth interspace inside midaxillary line. Even respiratory excursions were obtained on the manometer. Two hundred cubic centimeteres of nitrogen were introduced without any change in the respiratory excursions, which were of an even amplitude of three centimeters. Stopping the introduction of gas, I opened the manometer key, and noting the excursions, I gradually withdrew the

needle. The manometric excursions continued until I had withdrawn ½ cm. of the needle, when they suddenly stopped. I attempted to again obtain respiratory excursions by reinserting the needle, but with negative result. I then withdrew the needle. Immediately the patient complained of feeling queer, of a peculiar sensation in the epigastrium, then faintness. He soon became unconscious and rolled from the table to the floor. Then he had general convulsions, involving all the limbs and facial muscles. The pupils were dilated, breathing was deep and heavy. He was not cyanosed, the pulse was full, slow and regular. The unconsciousness and convulsions continued for three-quarters of an hour, the latter decreasing in intensity and gradually ceasing altogether. I gave 1-30 strychnia subc., massaged the heart and did artificial respiration. Then consciousness returned. He was able to answer questions, but unable to move. The pupils continued dilated; he felt confused, but was able to tell his name, where he was and the number of the street where he lived. When he first came out of the convulsions, I asked him what he had felt and he said: "I felt as if I was going to die." That same night he had a second general convulsion, lasting about half an hour, after which he lapsed into semi-consciousness. The next morning he was unable to see and was somewhat dazed, but could answer questions intelligently. He felt very weak and was unable to use his limbs. He complained of a severe headache. The rectal temperature was 102, pulse 72 and respiration 18. Calomel was given for catharsis; potassium bromide for the restlessness; and an ice cap for the headache. He passed a comfortable night and slept well. The next morning he felt much better, could plainly see, but felt very weak. From that time on he had an uninterrupted convalescence.

I think that this was a case of gas embolism or a spreading thrombosis from pulmonary vein. When the needle was withdrawn, there was blood in it. There is no doubt from the character of the respiratory excursions, that the point of the needle went through the lung tissue and that the point was either in a bronchiole or a small cavity. Some blood vessel was injured during the injection. Either a minute quantity of the nitrogen was sucked into the circulation, or it was due to a spreading thrombosis. This patient is still under observation. He has a moderately active process.

8. Infection of the pleura from without:

a. From the instruments used.
b. From the local anesthetic.
c. From the nitrogen or air used.
d. From the breaking of the needle.
e. From the skin.
f. From the hands of the operator.

These sources ought to be excluded by a scrupulous technique.

Infection of the pleura from within by puncture of a diseased focus, though of rare occurrence is a possibility. This danger increases, if a serous effusion exists. There are cases reported which ended fatally where a serous effusion was infected. Hamon and Sloan,[47] Montgomery and Speese,[48] and Case 12 of this series.

9. Serous Pleural Effusion. The recognition of the development of a pleural effusion during the treatment is of great importance. It may develop any time after the induction of the pneumothorax when the lung is wholly or only partially collapsed. In some cases the effusion developed after the patient had begun to feel the beneficial effects of the treatment, either during the first few weeks or after many months. In this series the early appearance of an effusion has been of bad prognostic significance. Fourteen of the cases developed effusion.

In case 53 the effusion developed without any subjective symptoms. In other cases a few days before its onset, especially after a nitrogen injection, the patient began to complain of general malaise, slight headache, gastric disturbances, soreness and pain on the operated side. There may be a slight or rapid rise in temperature, sudden chill, increased cough and expectoration, a feeling of increased tension throughout the chest. In most cases these symptoms gradually subside within two or three weeks. In the cases where the temperature and cough persisted the disease in the non-compressed lung progressed unfavorably.

Case 8. C. G. Advanced chronic process, marked infiltration throughout the left lung. Cavity in upper lobe. Healed process on the right. Ambulatory. Has kept at his work during treatment. Left lung completely collapsed except the apex which is adherent. Serous effusion twelfth month of treatment. This patient had been slowly improving and attending to his work in a store. The effusion developed rapidly and with alarming symptoms, *i.e.* sudden chill, fever, increased cough and expectoration, difficult breathing, a feeling of constriction about the chest, pain in praecordia and a sense of impending death. The symptoms gradually subsided after about three weeks. Some months later the effusion took on the character of tuberculous empyema. This was partially aspirated and nitrogen injected to maintain the lung collapsed.

Case 12 M. D. Advanced chronic process two years' duration; extensive infiltration throughout the right lung, activity on the left. Ambulatory. Kept up and about. Partial collapse, lung adherent posteriorly, adhesion anteriorly. Serous effusion sixth month of treatment. Infected from breaking hypodermic needle and its remaining imbedded in the lung.

Case 20. P. C. Far advanced bilateral, extensive on the left. Up and about. Partial collapse on account of adhesions. Serous effusion second month of treatment. Increased activity in non-compressed lung.

Case 24. E. M. Far advanced bilateral process, extensive on left; cavity. Partial collapse on account of adhesions. Serous effusion fourth month of treatment. This case is discussed in the previous article, (Part 2.)

Case 27. J. F. Advanced process marked on the right; cavity. Ambulatory. Complete collapse. Effusion gradually absorbed. Patient married, suspended treatment. Process quiescent.

Case 7. P. E. Extensive process throughout the right lung. Slight process on the left. Partial thorax on account of adhesions. Serous effusion sixth month of treatment. Good compression. Case 24. Effusion gradually absorbed in six months. Lung re-expanded; treatment suspended. It was impossible to inject nitrogen into the pleural cavity as the visceral and parietal pleura had become adherent. Except for the first two weeks of treatment, patient continued at his work. Process active.

Case 36. L. C. Bilateral process, advanced process marked on the left. Only a partial pneumothorax on account of adhesions. Small serous effusion fourth month of treatment. Increased activity in non-compressed lung. Treatment suspended.

Case 42. M. K. Bilateral process, advanced process marked on the left. Complete pneumothorax. Serous effusion sixth week of treatment; gradual absorption of the effusion. Patient refused to continue treatment. Reëxpansion of lung. Process active.

Case 44. C. L. Bilateral process, advanced process marked on the left; cavity hemorrhages; bedridden. Partial collapse on account of adhesions. Serous effusion second week of treatment. After effusion became a light tuberculous empyema which was aspirated and replaced by nitrogen. Treatment kept up for nine months; the lung allowed to re-expand. Process quiescent. General condition markedly improved.

Case 53. N. G. Advanced process on the left. Complete collapse. Serous effusion the sixth month of treatment. No disturbance. Gradual absorption ninth month; lung fully reëxpanded; treatment suspended; process arrested. X-ray chest: Left chest contracted and less radiant than right. Heart and great vessels displaced to the right. Dense mottled process at left apex with bands extending across chest. Few small mottled areas, upper lobe.

Case 59. T. O. Far advanced bilateral, extensive on the left; cavity; bedridden. Slight pneumothorax on account of adherent lung. Serous effusion third week of treatment. Disease progressive.

Case 60. A. M. Bilateral process, advanced process extensive on the left. Complete pneumothorax. Serous effusion third week of treatment. The effusion was aspirated and not replaced by nitrogen; the lung re-expanded. The disease became progressive.

Case 61. Process in right upper lobe. Recurring hemorrhages. Complete pneumothorax. Serous effusion sixth month of treatment; slight discomfort; gradual absorption of fluid; pneumothorax maintained by nitrogen injections. Patient in excellent condition. Working.

Case 70. F. Advanced process marked on the left; cavity; old process on the right; partial pneumothorax on account of adhesions. Serous effusion third month of treatment. Gradual subsidence of symptoms.

Cases 36, 43, 44 and 59 developed the effusion while they were still abed; the other cases were more or less active, being up and about. The Roentgen plates in 53 and 60 showed no evidence of adhesions. As the effusion developed late in both these cases, chilling and the repeated trauma to the pleura from the punctures may be considered important factors in its production. In the other cases high intrapleural pressure and the breaking of adhesions were the probable chief factors.

In four of these cases the fluid was aspirated and examined by Professor Wolbach of the Harvard Medical School, and found to contain tubercle bacilli. Microscopically the predominating cells were lymphocytes. If the fluid is not absorbed, the longer it remains it gradually loses its clear character, becomes cloudy, thicker and richer in morphological elements, and has all the appearance of a tuberculous empyema. In cases 8 and 12 where the effusion had become of this character, tubercle bacilli were readily found in a stained specimen.

I consider these effusions to be unfavorable complications in that the presence of a large number of tubercle bacilli in the pleural cavity increases the absorption of toxins; nevertheless they must be interfered with as little as possible unless they become too large, or show continued unfavorable symptoms, such as continued pyrexia, marked distress and disturbance to the adjacent organs, or its character changes from serous to purulent. Danger of infection becomes greater at secondary injections, as the fluid is an excellent culture medium.

At regular intervals it is well to measure the intrathoracic pressure and if it be found excessive to remove some of the fluid. If, on the other hand, the pressure is too low, the required amount of nitrogen should be introduced to maintain the lung compressed. Every case is a problem in itself, to be studied and judged separately.

10. Purulent effusion — Tuberculous empyema.

A serous effusion may be transformed into a purulent one by the introduction at the subsequent injection of pathogenic germs from a faulty technique. It may also be due to some intercurrent infection, appearing as a sequela of a tonsillitis, the rupture of an adhesion on the visceral side or following a perforation of the lung.

Repeated injuries to the lung at subsequent injections may bring about in the injured part a localized tuberculosis and if the injury should take place where a tuberculous focus exists this may break and its secretion products be thrown into the pleural cavity, and may give rise to a purulent effusion. Puncture of a cavity wall may do the same.

Pleural adhesions are in general composed of tuberculous infiltrated tissue. In breaking these, they may be transformed from a closed to an open tuberculous focus. The surface of the pleura may become a tuberculous ulcer, and its

secretion products be thrown into the pleural cavity. A certain danger is therefore encountered in breaking these adhesions by pressure.

Hornung[49] mentions two cases (one proving fatal) where the breaking of an adhesion on the visceral side caused a perforation of the compressed lung with a resulting spontaneous pneumothorax. In the second case the perforation closed in a few days and was followed by an exudate serous in character and rich in lymphocytes.

Parker[50] in 1882 treated certain tuberculous empyemas by the withdrawal of the fluid and subsequent injections of filtered air. Forlanini[51], Vasquez[52], Potain[17], and Kuss[53], have treated some tuberculous empyemas and recurring serous effusions in this way.

11. Pain due to separation of the pleural surfaces and the stretching of adhesions.

The pain may be referred to the scapular region or to any part of the operated side. Sometimes it is referred to the other side. This may be accounted for by the stretching of adhesions, as the lung expands and may be accentuated by the respiratory movement and by the movements of the arm on that side. Very small amounts of nitrogen have sometimes caused considerable pain (especially at the first insufflation) necessitating morphia. I have often been surprised, however, to see cases with adhesions which were entirely free from pain. In one case, whenever a positive pressure above 3 cm. was obtained, the patient had a great deal of pain throughout the left chest front and back, which was also referred to the right.

Four cases which complained of pain before the induction of the pneumothorax, were free from pain after a few insufflations. The pain may be considerable at the time of the injection. Often times the pain will be more marked an hour or more after the injection. In two cases it was necessary to give morphia to relieve the intense pain. In some cases the pain was localized in the lower part of the chest and made worse with each respiratory act and cough. In other cases there was a general feeling of discomfort and a drawing sensation throughout the opposite lung. The treatment for the pain is absolute rest, chest swathe and as a last resort morphia.

12. Weight: At first most patients lose weight. Oftentimes there is a marked loss, especially whenever a severe reaction has taken place following an injection, or from the onset of an effusion. At first the weight may only vary a few pounds; then as a general improvement takes place there is a slight gain. There was no gain in weight in the advanced cases, while the pneumothorax was maintained.

Case 27, a young woman with bilateral disease, an extensive process throughout the left lung, during the first three months of treatment lost 20 pounds; then the weight remained stationary, but Case 61, a unilateral case with recurrent hemorrhages, having no cough or fever, gained 30 pounds in six months under artificial pneumothorax treatment.

Case 69, a young woman with bilateral disease, extensive on the left, under strict rest treatment, had gained 20 pounds in weight, but as the disease was slowly progressing, artificial pneumothorax treatment was undertaken and has been kept up for the last 22 months. Since commencing treatment she has lost 20 pounds but her general condition has improved. For the last eleven months she has been up and about, taking moderate exercise and maintaining her present weight. She has no cough or fever; there is no activity in the non-compressed lung; her general condition is good.

Loss of weight may be accounted for by the fever, the reaction following an injection, namely, increased amount of toxins liberated into the circulation causing general malaise, gastro-intestinal disturbances, rapid pulse and pain. Not keeping at rest. Displacement of liver and stomach, giving rise to digestive disturbances. Any one of these factors interfere with the intake and increase metabolism. Brauer lays emphasis on nervous dyspepsia due to pressure on the vagus nerve. It is important that patients undergoing treatment should keep as quiet as possible, especially when running a temperature or high pulse. Ultimately when treatment is suspended and while the pneumothorax is absorbing, there is a steady and considerable gain in weight in most cases. When the lung has fully expanded the gain is most marked in the absence of complications.

Dyspnoea following an injection or from the onset of a pleural effusion may be an urgent symptom, this being especially true in cases with bilateral involvement either from too high a pressure interfering with the function of the non-collapsed lung or from cardiac embarrassment. In two cases nitrogen had to be withdrawn to relieve the condition.

The effect on the non-collapsed lung and on the heart has been discussed in Part II.

PART IV.

THE RESULTS OF THE PNEUMOTHORAX TREATMENT.

In judging the results of the treatment it must be understood that in the majority of the patients the disease was in the third stage and many of these were accepted for treatment simply to see how much could be done in the relief of symptoms, realizing beforehand that they were beyond hope on account of the extent of the disease in the better lung. Except in a few of the cases the treatment had to be carried on in the home and some came to the office. The latter I strongly advise not to do except in the rarest occasions.

Covering a period from April, 1911 to December, 1914, the number of patients receiving

treatment has been seventy, and the number of punctures made about 900. The greatest number of injections given one patient has been 55. The highest amount of nitrogen injected into the pleural cavity at one time has been 1800 cc. The youngest patient was 16 and the oldest 55.

In ten patients it was impossible to enter the pleural cavity after several attempts had been made. Eight of these have since died.

Of the remaining sixty patients that received treatment, five received one injection; of these, three have since died.

One patient received two injections and two three injections for the purpose of controlling severe hemoptysis, being successful in two. I have lost track of one of these, the other, a young Italian farmhand in Arlington has enjoyed perfect health for the last three years.

Of the patients treated fourteen lost tubercle bacilli from their sputum.

In thirty-one cases we succeeded in forming a partial pneumothorax, which was effective in twenty-four cases. In these twenty-four hopeless cases, a very favorable effect was produced in the reduction of the fever, cough and sputum; a more hopeful outlook and a general sense of well being. Thirteen of these have since died—one from infection. The remaining eleven are still under observation. Nine are able to work, and in six of these, the disease is arrested. Two cases are still under treatment.

A partial pneumothorax, then, will in many cases bring symptomatic relief, and occasionally an arrest of the disease.

Forlanini says: "To obtain the curative effects from the pneumothorax, it must be of a definite volume and tension and be kept at that volume without material variation or interruption, so as to maintain the immobilization of the lung during the whole period of treatment. A pneumothorax that does not completely fulfill these conditions will fail in its object. A recurrence of respiration or of the pathological sounds during the treatment necessarily brings about a persistence or renewal of the destructive process." Such a pneumothorax can be obtained only where the pleural cavity is free or where the adhesions can be readily reduced by the pressure and then only where the other lung is and continues practically sound or existing lesions remain inactive or retrogress. The number of such cases will naturally be very limited at the present time.

In twenty-one patients it was possible to form a complete pneumothorax which was effective. One of these was an incipient case; five were moderately advanced cases; two were non-tuberculous, namely a bronchiectasis and a lung abscess. The remaining thirteen were third stage cases with bilateral involvement. Two of these have since died and one, two years after suspending treatment, having gone back to his work of brass polisher, the disease became active. The other, a boy of sixteen, died three months after suspending treatment from intestinal tuberculosis.

Three cases suspended treatment of their own accord, the disease being quiescent.

In three cases treatment had to be discontinued on account of increased activity of the process in the better lung.

Four cases are still under treatment; case 69 has had a complete pneumothorax for twenty-two months and has been free from symptoms for eleven months. Case 61 is a young man who had severe recurring hemoptysis before commencing treatment. The diseased lung will be maintained compressed a full year.

Case 62, a patient of Dr. Leslie Spooner, maiden lady of 34, with bilateral disease extensive throughout the left with a cavity between the second and third rib. In spite of rest treatment for one year the disease progressed. She entered the Samaritan Hospital in May, 1914, where artificial pneumothorax treatment was given through the kindness of the hospital staff. There has been steady gradual improvement in all her symptoms from the start. We believe that the combined treatment will eventually completely arrest the disease in this otherwise hopeless case.

RE-EXPANSION OF THE COMPRESSED LUNG.

The determination of the point at which to suspend the nitrogen injections and allow the lung to re-expand, is a grave problem. The time varies according to the nature of the lesions, not only in the compressed lung, but also in the "other lung" and the general condition of the patient. When we consider the gravity of tuberculous lesions, especially in advanced cases of phthisis (and also of the non-tuberculous lesions in lung abscess and bronchiectasis) it is apparent that the pneumothorax must be kept up for a long time. In some cases months; in others years; and perhaps, as Forlanini says, sometimes indefinitely on account of the anatomical changes that have taken place. To specify a period applicable to all cases is impossible, so much do conditions vary. Saugman believes in erring on the side of keeping the lung compressed a longer rather than a shorter time, so that the treatment does appear wearisome, troublesome and expensive; but this is also true of other treatments.

Whenever the lesions in the non-compressed lung show signs of diffusion, or increased activity, or dyspnea becomes an urgent symptom, it is best then to suspend the injections and it may even be well to aid re-expansion by the withdrawal of some of the nitrogen. This latter course may be of rare occurrence, but is to be resorted to in case of hemorrhage or of any serious involvement of the non-compressed lung. It will always be problematical how much can be done in any particular case, even with a properly created pneumothorax (for other factors play an important part) and perhaps the process might have progressed without the pneumothorax.

In the following seventeen cases treatment was suspended and the lung was allowed to re-expand gradually by the absorption of the nitrogen:—

Three of these cases were non-tuberculous cases. Of the remaining fourteen cases, one was an incipient case, six were moderately advanced cases and seven were third stage cases.

Case 1. A married woman, 29 years old, with a moderately advanced unilateral active disease, having cough, fever, night sweats, loss of weight and strength and tubercle bacilli in the sputum. The pneumothorax was maintained for one year. She has had a fully reëxpanded lung for two years. Has no symptoms, is 25 pounds heavier and doing all her housework.

Case 2. A married woman of 29, with a moderately advanced bilateral process similar to Case 1, but with a slight process in one apex and blood streaked sputum. Pneumothorax maintained for four months. Then she moved into the country. Has had a fully reëxpanded lung for three and a half years. No symptoms. General condition excellent. Has given birth to one child since.

Case 4. A young woman 20 years of age with incipient phthisis, cough, fever, general weakness, loss of weight. Pneumothorax maintained for six months. Meanwhile married. Lung fully reëxpanded the last three years. In excellent condition and has had two children since.

Case 11. A young man with advanced process in right upper lobe, small cavity, blood spitting, loss of weight and strength. T. B. sputum. Pneumothorax maintained for eight months. Improvement in all symptoms, gain in weight and strength. Kept up and about during treatment. Married and suspended treatment. One year later active sign of disease in reëxpanded lung. Treatment was suspended too early. Patient is in good general condition, although there is active disease in right apex. Working.

Case 14 A young farmer, 32 years of age, with severe uncontrollable hemoptysis of 14 days' duration. Hemorrhage from left lung. Control of hemoptysis. Lung completely reëxpanded for the last three years; general condition excellent; free from symptoms. Working.

Case 15. A man of 41 with extensive process throughout the left lung; moderate infiltration of the right apex. Pneumothorax maintained for only three months. Lung has been fully reëxpanded for two and one-half years. Disease moderately active. Treatment in this case suspended too early.

Case 21. An Italian laborer with a non-tuberculous abscess in right upper lobe of six months' duration. Pneumothorax treatment kept up for five months. Lung has been fully reëxpanded for the last two years. Is in good general health and free from symptoms. Working.

Case 22. A man 40 years of age with bronchiectasis of the left lung. Ill one year and for three months unable to sleep lying down on account of cough and large amount of sputum coming up into his mouth. Loss of weight and strength. Pneumothorax maintained for one year. Relief in all symptoms. Kept up and about except for two weeks during the whole period of treatment. Lung has been fully reëxpanded for one year. Free from symptoms. General condition is excellent. Clinically well.

Case 23. A young Italian girl of 20 with bilateral disease of six months' duration, marked infiltration throughout the left, slight at the right apex, having cough, fever, night sweats, loss of weight and strength, T. B. sputum. Complete collapse of the left lung was maintained for nine months when in the absence of symptoms and general improvement treatment was suspended. She has had a fully expanded lung for a year and a half, with no signs of disease; has gained 27 pounds in weight and is enjoying perfect health.

Case 25. A young man 25 years of age, bilateral active process, extensive on the right. Ill one year. Pneumothorax of right lung maintained for eight months. Rest treatment continued all together for 20 months. Lung reëxpanded now one and a half years. Disease arrested. Sputum free of T. B. General condition excellent and marked gain in weight. Working.

Case 26 A young man 23 years of age with a moderately active process in right upper lobe. Cough, fever, night sweats, blood spitting, loss of weight and strength. Pneumothorax maintained for four months. Lung has been fully reëxpanded for the last three and a half years. Free from symptoms. Gain in weight and strength. Working. Clinically well.

Case 33. A young woman with bilateral process, marked infiltration throughout the left lung. Slight activity in the right. Loss of weight and strength. Vesperal fever, cough, T. B. sputum. Partial effective pneumothorax maintained for eight months. Lung reëxpanded; disease arrested; general condition good.

Case 44. A young man of 30 with a chronic active bilateral process of three years' duration. Cavity, large amount of foul sputum, severe cough, fever, night sweats, blood spitting. T. B. sputum. General condition poor. Partial pneumothorax which was fairly effective, later pleural effusion developed, which maintained compression. Partial compression of left lung for six months with rest treatment. A hopeless case in which the compression has improved the general condition of the patient; gaining all the time; sputum still contains T. B. Present outlook favorable. Compression should have been maintained much longer, but it was impossible to do so on account of the distance the patient lived.

Case 53. A woman of 40 years of age with marked infiltration of the left lung. Fever, a distressing, harassing cough, sputum with T. B. General condition poor; disease progressive. Pneumothorax and hydropneumothorax maintained compression for nine months. General improvement. Lung fully reëxpanded. Disease arrested; free from symptoms. General condition good.

Case 14. A woman of 44 with an active bilateral process, marked throughout the left; disease [illegible] beginning laryngeal involvement. Pneumothorax maintained for 11 months. Improvement in the general condition; sputum free of T. T. Treatment suspended too early. Lung reexpanded; process active. As long as the pneumothorax was maintained, the general condition remained good.

Case 15. A young woman with progressive disease throughout the left lung. Pneumothorax maintained for one year. This case was disappointing, as the improvement was not what one would expect. The patient runs a little temperature. Present condition is good: perhaps the disease might have progressed without the pneumothorax; certainly the treatment has done her no harm.

Case 16. A man of 37 with chronic diffuse bronchiectasis of the right lung and to a lesser extent in the left lower lobe. Symptoms of cough and a large amount of foul sputum since childhood. Symptoms progressive. An effective partial pneumothorax was maintained for seven months. Treatment was then suspended. Marked symptomatic relief. Present condition of the patient is best described by himself, seven months after suspending treatment:—

"Regarding my condition, I am weighing 138 pounds. My expectoration is about 1-5 what it was previous to treatment by artificial pneumothorax and I weigh now seven pounds more. I can now go in comparative comfort in public, can now sleep nights—a thing I hadn't done in three years; the collapse has practically left a great blessing—except at times when it is only slightly noticeable. My complexion has cleared and all my friends are constantly remarking my changed appearance."

In all the cases with few exceptions, the treatment was carried out under trying circumstances in the patient's home. It will be readily understood that if the treatment is to be carried out properly, it must be done in a hospital or sanatorium, where complete control of the patient is to be had; the combined treatment will then give the best results.

It is to be hoped that with the necessary wisdom which comes with experience, the method will be applied on a larger scale combined with sanatorium treatment, earlier in cases where the disease shows a progressive tendency and not wait to apply artificial pneumothorax as a last resort.

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THE ACTION OF PITUITRIN UPON ACUTE HEART FAILURE AND INCOMPENSATE HEART LESIONS.*

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Impressed by the valuable results of pituitrin in gynecological and obstetrical work,[1] and based upon the marked physiologic action of pituitrin upon the unstriated and striated muscular fibres, I undertook the present clinical study, especially in cases where, with a failing heart, immediate action becomes necessary, and where the usual remedies at hand, digitalis, strophanthus, etc., require a certain time until their action becomes noticeable, and where a more expedient remedy is much desired.

Before entering upon the discussion of the clinical observations and physical actions of pituitrin, a brief extract of the physical findings of patients treated may precede. So far as my knowledge goes, pituitrin had not yet been tried in the category of cases upon which I am to report.

Case 1. Jan. 3, 1914. Incompensate endocarditis, general anasarka. P. R., age 62, widower.

When first seen patient was short in breath, propped up in bed, pulse accelerated, irregular, easy depressible; heart limits: apex beat in fifth inter-

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costal space one and one-half inches outside from mammillary line, two inches to right side from sternal border to upper border of third rib. Soft blowing systolic murmur over mitralis, transmitted to left axilla, accentuation of second pulmonic, first aortic sound indistinct, second accentuated, soft systolic murmur over tricuspid, liver enlarged, spleen just palpable. Blood pressure—126 systolic, 82 diastolic, pulse 68.

One injection (1c.c.) of pituitrin in the evening subcutaneously, next morning (Jan. 4) patient more comfortable, heart dullness one-half inch to right side of sternal border, apex beat in mammillary line, lower border of third rib. The heart sounds and murmurs are more distinct. Pulse 84, stronger and fuller, intermittency not so marked, occurring between 16-17 beats. Edema disappeared, blood pressure 154 systolic, 86 diastolic.

On Jan. 5, pulse 84, blood pressure—systolic 156, diastolic 82. Heart limits remained the same, the character of the murmurs did not change. After reduction of the size of the heart, patient was started on digitalis medication (tincture) of which he partook irregularly, min. x. 3 times a day. The patient then, on account of lack of food and lack of understanding, gradually became drowsy and at times even delirious, so that removal of the patient from his home to the hospital was ordered. He remained there about ten days and died under the symptoms of cardiac and renal insufficiency and pulmonary edema. During that short time of observation the size of the heart had not changed, but probably the heart muscle was too exhausted for complying with its normal physical duties.

A post-mortem was not granted. It may be concluded that in this instance the volume of the heart was rapidly reduced in the transverse diameter, at the base the difference amounted to 2-3 inches, at least in height the diminution was about ½ inch. At the same time with the increased pulse-rate, the irregularity (arrhythmia) disappeared, an increase in the systolic pressure of about 28, an increase of the diastolic pressure of about 4 mm. was observed.

It may be hinted to the possibility that added to the denutrition, the general arteriosclerosis, renal insufficiency, the pituitrin might have unfavorably influenced the cerebral circulation and venous stasis so that in cases past a certain age the use of pituitrin may not act as efficiently as desired.

Case 2. I. H. C., age 33. Diagnosis: acute dilatation of heart, nephritis and lues. Patient an anemic, poorly nourished man, laborer, in sitting position with marked dyspnea, general anasarka, examined on Jan. 13, 1914.

Precordial region bulging, apex beat in 7th interspace anterior axillary line extending 5¾ inches outside to left of midsternal line and 3 inches to the right of midsternal line, upper limits in 3rd interspace, absolute dullness reaches the right sternal border, the upper border of the 3rd rib, and coincides with the apex beat, at oscultation a double blowing murmur is heard over the mitral and tricuspid area, accentuated 2nd pulmonic sound, first sound replaced by a soft murmur, the same condition is found over the aortic area. Pulse 115, respiration 30, one ampule of pituitrin, 1 c.c., injected subcutaneously.

Jan. 14. Apex beat inside of anterior axillary line, absolute dullness left sternal border, relative dullness right sternal border. The heart sounds are more distinct, also the murmurs. Pulse 95, respiration less accelerated, blood pressure on the first day 140 systolic, 70 diastolic; on the 15th, 150 systolic and 90 diastolic. The patient feels more comfortable and shows marked improvement. After the pituitrin the patient was given a course of tincture of digitalis, min. x t. i. d., and a gradual improvement became noticeable. During the entire observation small traces of albumen, hyaline and a few granular casts were found. Wassermann reaction markedly positive, luetin slightly indicated.

The heart of the patient in the further course of observation did not show any more dilatation, pulse was still accelerated but gradually came down to 70 regular beats per minute. The blood pressure showed a slight decrease, 130 systolic, 100 diastolic, about one month after the one dose of pituitrin was given.

In this instance we are also impressed with the rapid diminution of the size of the cardiac dullness within the first 24 hours after the pituitrin medication. The difference in the transverse diameter was at least 2½-3 inches, the height of the cardiac dullness seemed to be not much influenced. No change in the systolic blood pressure, a slight increase of 20 mm. in the diastolic blood pressure could be noticed, also a slight reduction in the pulse rate.

Case 3. Patient M.L., age 43, female. Diagnosis: Chronic endo- and myocarditis after rheumatism. Several recurrences of myocarditis since 1905, examined on Mar. 17, 1914; bulging precordial area, apex beat in anterior axillary line, heart action very forcible, cardiac dullness 5¾ inches to left, 2¾ inches to right from midsternal line, upper border of 2d rib, transverse diameter 8½ inches.

Patient was given one ampule of pituitrin subcutaneously on Mar. 18; the cardic area was found: Apex beat inside of anterior axillary line 1 inch outside of right sternal border. The heart action was less irregular, the difference in the transverse diameter of the heart was about 1½ inches. Another injection of pituitrin was given on the same day, and on Mar. 19 the following measurements were obtained:

Apex beat 4½ inches to left, ⅜ inch in the right of midsternal line, oblique diameter 6 inches, height 3 inches; the dullness, found on the previous day, in the 4th interspace in the left pleural sinus, had cleared up, respiration became more distant. Pulse intermittent every 5-6th beat. Pulse-rate on Mar. 17, 86 to 85, on the 18th, 84 to 90, on the 19th, 87 to 80.

Blood pressure before pituitrin medication 130 systolic, 110 diastolic. On the 20th 110 systolic and 70 diastolic. Before pituitrin medication was administred, the patient received strophanthin subcutaneously, but no improvement could be noticed, also digitalis medication seemed to have no beneficial effect whatsoever, on the contrary, the patient presented a higher and more irregular pulse-rate and complained of digestive disturbances.

The urinary output on the 17th was 720 c.c. compared with 1000 c.c. intake. On the 18th, output 320, input 480; on the 19th, output 960, input 1000

c.c. That figure was maintained during the next few days of medication.

After the described pituitrin medication the patient did not receive any further medicine. She went through a period of relative well-being. The urinary secretion was as follows:

	oz.	Col.	React.	Sp. gr.	Sug.	Alb.	Urea	Sediment
May 1, 1914	16	Dark straw	Acid	1025	0	0	8.64	Leucocyte
May 2, 1914	14			1024	0	tr.	7.8	
May 4, 1914	30		Acid	1025	0	0	—	Ur. acid
May 5, 1914	30	Dark straw	Acid	1025	—		18.0	Epith. cells
May 6, 1914			Acid	1022	—	tr	21.6	Leucocytes
May 7, 1914	20		Acid	1023	—	tr.	12.0	

On May 10 the blood pressure gave systolic 110, extra systolic 115 and diastolic 70. Then the patient had a violent vomiting spell, the reason of which could not be properly ascertained, consequently the patient on May 16 entered into a new relapse of myocardiac insufficiency, cyanosis became apparent, and the physical heart findings were as follows:

Apex beat in 6th interspace in anterior axillary line 7¼ inches to the left of midsternal line, the heart extended to the right 2 inches outside of the midsternal line. The height was 5½ inches, the oblique diameter 11 inches, the pulse-rate was 92, systolic blood pressure 118 (auscultatory) diastolic 78, liver extends 3 fingers below costal margin and 3½ inches to the left of midsternal line. The patient received another dose (1 c.c.) of pituitrin; two hours later the systolic blood pressure was 124, diastolic 80, the pulse-rate was 85. Two days later (May 18) the heart extended in its transverse diameter 8½ inches, in its oblique diameter 9¾ inches and 2 fingers from the right sternal border. The difference with two days previous ¾ inch for the transverse, 1¼ inches for the oblique diameter. The following day (May 19) the transverse diameter of the heart amounted to 6¼ inches, 7 inches for the oblique diameter, 4½ inches for the height.

The right relative heart dullness was found inside from the right sternal border, pulse 78, systolic blood pressure 118, diastolic blood pressure 76.

As compared with the previous urinary secretion there was a slight increase of 10 oz. to be observed during the three following days after the pituitrin medication. The patient felt very comfortable until the next relapse. On June 6 the systolic blood pressure was 120, on the ninth a marked arrhythmia of the heart and indistinct quality of the murmurs over the mitral area was noticed.

On the 10th the heart presented the following size: Transverse diameter 5½ inches to the left, 1¼ inches to the right (total 6¾ inches), 8½ inches for the oblique diameter and 4¾ inches for the height was recorded. Previous to the administration of 1 c.c. pituitrin the systolic blood pressure was 124, the diastolic blood pressure 90; the pulse was rated at 80 of irregular quality with extra systolis. Two hours after the pituitrin was given the blood pressure was 125, the diastolic blood pressure 90, pulse was 78 and was a little more regular than previously. On the next day (June 11) the transverse diameter was 6½ inches, the oblique 8 inches, the height 5 inches. The absolute cardiac dullness reached as far as one finger to the right of the left sternal border; the relative dullness extended one finger outside of right sternal border. The heart sounds were still indistinct, distant, the murmurs were found of lesser intensity. The pulse 78, more regular, but not very well sustained. The patient subjectively felt considerably relieved. As a precaution she still remained in bed. On the 13th patient passed a restless night on account of a decayed tooth. The heart condition maintained itself satisfactorily, so the patient on the 17th was permitted to rest in the chair for one-half hour. Following this change, the pulse and respiratory rate became increased. On the 18th the patient was allowed to walk five yards, which exercise resulted in a considerable increase of pulse and respiration. On account of a slight discomfort and hypersensitiveness over the cardiac area, the patient remained quiet. The heart examination on the 20th again showed an increased size of that organ, namely: Transverse diameter in 6th interspace 6½ inches to the left, 3 inches to the right of midsternal line, oblique diameter 10½ inches, upper limits extending to upper border of the third rib, height 6½ inches. The heart action is forcible, gallop rhythm, marked arrhythmia with extra sytolic contraction. Rate of apex contraction 111, radialis pulse 84, veinous pulsation synchronous with apex beat. Soft double murmur over mitralis area, marked accentuation of second pulmonic sound recorded. Liver extends 3 inches below right mammillary line with enlarged left liver lobe, 3½ inches to left of median line, 2 inches below xyphoid process. Liver very tender on touch, spleen just palpable below costal margin.

The patient was given another ampule of pituitrin on the same date. The systolic blood pres-

sure was 120, diastolic 90, pulse pressure 32; 24 hours after the pituitrin injection the systolic blood pressure amounted to 138, diastolic 100; pulse pressure 38. Patient felt much more comfortable, the heart showed the following size:

Apex beat sixth interspace 1 inch inside of anterior axillary line, transverse diameter 6¼ inches to the left, 1¼ inches to the right of midsternal line (total 7½ inches), oblique diameter was reduced to 9¼ inches the height to 5¼ inches. Absolute cardiac dulness ⅛ of an inch inside of right sternal border, upper border of third rib, relative dulness one finger outside of right sternal border. The heart murmurs are more distinct, rate of apex beat 117, radialis pulse 117, pulse better sustained, fuller, slight dicrotism noted, not to the same extent as previous to the pituitrin medication.

Liver dulness is one finger below costal margin in right mid clavicular line. The left liver lobe is smaller, extends to 1½ inches outside to left of midsternal line.

Hyperesthesia noted on skin over cardiac and hepatic region. Patient objectively feels more comfortable.

Judging from this brief observation it would seem that also in this instance the pituitrin acted favorably in reducing the size of the cardiac muscle. This reduction amounted to 1½ inches within 24 hours; within 48 hours it reached 3¼ inches in the first instance.

During the second relapse, which happened 60 days later, the transverse diameter diminished in 24 hours ¾ inches, within 48 hours 3 inches. The oblique diameter differed in 24 hours 1¼ inches, in 48 hours 4 inches; the height in 48 hours amounted to 1 inch less (4½ inches).

During the third relapse, which happened 81 days after the first pituitrin medication and 21 days after the second pituitrin dose, the transverse diameter diminished in 24 hours ¼ inch only, for the oblique ½ inch; for the height hardly any difference could be noted. It must be said that the heart had not dilated so much as when examined on the previous occurrences.

During the fourth relapse, which happened 91 days after the first, 31 days after the second, 10 days after the third attack, and which was associated with a considerable dilatation, the reduction within 24 hours amounted to 2 inches in its transverse, 1¼ inches in the oblique diameter and 1¼ inches in the height.

It is our opinion that digitalis being not well borne, and strophanthus not producing the desired results, pituitrin was the only means to allow the patient to rally.

The blood pressure (systolic) showed a slight decrease of 20, and the remarkable reduction of 40 in the diastolic reading at the first instance.

During the second relapse the systolic blood pressure was increased for 6 points only, and then returned to the same rate as previously. The diastolic blood pressure showed a slight decrease of 2 points, then became a little lower than at the beginning.

During the third relapse the systolic blood pressure being relatively high, did not differ, nor did the high diastolic blood pressure change.

During the fourth relapse the systolic blood pressure showed within 2 hours an increase of 10, and still increased during the next 24 hours. The diastolic blood pressure also increased.

It will be noticed that during the third relapse the difference between apex beat and radialis pulse disappeared, and that the extra systoles became less evident. The general impression of this case as far as prognosis is concerned is unfavorable. The short intervals between the relapses corroborates such an opinion. The first reduction in the size of the heart was most marked, in the subsequent observations the heart was reduced but not to the same extent. The systolic blood pressure although increased, showing a pulse pressure from 30-38, did not change materially. The pulse did not undergo a considerable change in rate. It is very likely that the reserve strength of the heart muscle has become exhausted, and if pituitrin in such an advanced condition is to give an immediate relief and change, this improvement is very likely not of a long duration. It may be further mentioned, that after some improvement was noticeable after the last pituitary treatment, the patient again became tolerant for strophanthus medication, which before did not act favorably.

Case 4. I. H., carpenter, 66 years of age. Diagnosis: aortic stenosis.

Patient when examined on March 17 presented precordial bulging, apex beat in sixth intercostal space outside mammillary line, 5½ inches to left from midsternal line, 2¾ inches to right from midsternal line, 4½ inches in height and 7½ inches in oblique diameter. Muffled mitral sounds with systolic blow, over aorta systolic murmur, over pulmonalis soft diastolic murmur, over tricuspid soft systolic murmur. Hepatic dulness not increased. Patient received one ampule of pituitrin; next day he presented the following heart limits:

Transverse diameter at apex 4½ inches to left, ¾ inches to right from midsternal line. Height, 4 inches, oblique diameter 6 inches. The heart sounds and murmurs are more distinct and of a higher pitched character. Pulse before pituitrin medication was 78, after the pituitrin it came down to 70 and remained at that rate during the patient's stay at the hospital for the next few days.

Blood pressure: Before pituitrin 150 systolic, 110 diastolic; after the pituitrin medication it came down to 140 systolic, 100 diastolic two hours after pituitrin was given. The patient improved rapidly and considerably and was even able to leave the hospital a short time after the pituitrin medication was given.

From this case we have the impression that a considerable reduction in the size of the heart dullness could be observed, namely, 3 inches in the transverse diameter, ½ inch in height and 1½ inches in the oblique diameter. The pulse did not undergo any considerable change, the systolic as well as the diastolic blood pressure showed a slight reduction.

Case 5. O. R., 60 years of age, bookbinder. Diagnosis: chronic myocarditis, general arteriosclerosis, chronic nephritis, anasarka.

Entered observation March 17, 1914; presented marked dilatation of the heart to 7 inches to the

[illegible] to the right from mid-sternal [illegible] sounds very distant, double murmur [illegible] and tricuspid area, accentuated second [illegible] sound, patient under ordinary digitalis [illegible] strophanthus medication, did not improve, nor did the subjective and objective symptoms, pulse remained [illegible]. Patient rapidly declined, so on March 25, 1914, pituitrin medication was tried. The cardiac dullness on that day was found to be 5¼ inches to the left, 3½ inches to the right from mid-sternal line, height to upper border of third rib 5 inches, oblique diameter 9 inches. Collection of fluid in left pleural sinus up to the fourth interspace. Patient was very dyspneic, restless and excitable. Pulse 100-115, irregular, easily depressible. Blood pressure amounted to 150 systolic, 110-115 diastolic. Albumen and granular casts present at urine examination; 24 hours after the pituitrin medication the limits of the heart presented themselves as follows:

Four and three-fourths inches to left, 1¾ inches to right from midsternal line, height 5 inches, oblique diameter 7½ inches. Blood pressure: 120 systolic, 90 diastolic; pulse 80-82; respiration 28. Patient, besides the reduction in the volume of the cardiac muscle, presented some apparent improvement, although it was not very marked; then he declined and died two days after the pituitrin medication. Pulse did not change materially, nor was it possible to control the blood pressure in the suffering patient.

In this case we notice that, notwithstanding the advanced condition, the ad maximum dilated heart showed a reduction of 2¼ inches in the transverse, and 1½ inches in the oblique diameter within 24 hours after the pituitrin medication. It is possible that if the patient would have had more reserve strength his heart would have been able to rally, but as conditions were, the lack of vital energy must be made responsible for the fatal result.

Case 6. I. C., age 19, farmer. Diagnosis: chronic polyarthritis, acute endocarditis with acute dilatation of heart and serous pleurisy.

Heart examined on April 6. Apex beat in mid-axillary line, transverse diameter 8½ inches, height 5 inches, oblique diameter 8½ inches. Temperature 101.3-104.8-98.5; pulse 120, 110; systolic blood pressure 90, diastolic 60. A blowing systolic murmur over mitralis inside of mammillary line, diastolic murmur over aorta, double murmur over tricuspid, split and accentuated second pulmonic sound. Patient received on that date one ampule of pituitrin. Immediately preceding the pituitrin medication systolic blood pressure 90, diastolic blood pressure 60; two hours after pituitrin injection, systolic 110, diastolic 90. The following day the heart extended 6 inches in the transverse diameter, 5 inches in height and 8 inches in the oblique diameter. The systolic blood pressure was 110, the diastolic 100, the pulse rate was unchanged, also the temperature. The patient, who on the previous day had been very cyanotic and troubled with precordial pains and dyspnea, when examined on April 7 seemed comfortably propped up, the heart sounds had become much louder in character. At a later examination (after two weeks) the patient, having received no other heart medication whatsoever, presented the following measurements:

Transverse diameter 4⅝ inches, height 3½ inches, oblique diameter 5⅝; the different murmurs noticed had not changed in character.

In this instance we also have the impression that the patient, very close to an acute fatal cardiac failure, escaped such a complication, and with the rapid reduction in the volume of his heart, he was able to rally. The difference in diameter in this instance within 24 hours can be summed up as follows:

Transverse diameter 1¾ inches, oblique 2¾ inches, height—no difference. The difference in diameter observed within the first 24 hours after the pituitrin medication amounted for the transverse diameter to 1¾ inches, for the oblique diameter to 2¾ inches, whilst no difference in the height could be noticed. These differences still increased, namely: for the transverse diameter 3⅝ inches, for the oblique 3⅛ inches, for the height 1½ inches.

It seems that the beneficial action of the pituitrin was not transitional. Rest, of course, must have contributed to a favorable result. Rest alone, however, seemed not to have been sufficient for the reduction in the volume of the heart. At the present time, six weeks after the one pituitrin dose, the patient seems well, is able to walk around without any symptoms of cardiac failure.

Case 7. W. H. M., age 61. Previous history: malaria, rheumatism, patient very irritable, auditory hallucination, insomnia, constipation, piles, Examined Jan. 23, 1914. Colitis mucipira, cardiac arrhythmia, extra systole, both tricuspid and aortic valves diseased (tricuspid insufficiency, regurgitation and aortic obstruction), enlargement of the heart to right and left, apex beat 5¼ inches to left from midsternal line, upper border of third rib one inch outside to right from midsternal line, oblique diameter 7½ inches. Absolute dullness reaches one finger inside of right sternal border, relative dullness two fingers of right sternal border. Over mitralis a rumbling first sound is heard, over tricuspid and midsternal line in fifth interspace a double murmur is heard, over aorta a soft systolic blow, which is transmitted towards pulmonalis, marked, accentuation of both second aortic and pulmonic sound. Systolic blood pressure 154, diastolic 98. Patient is given 1 c.c. of pituitrin subcutaneously; the succeeding examination shows apex beat 3⅝ inches outside of midsternal line in sixth interspace, oblique diameter 5⅝ inches, relative dullness lower border of third rib and middle of sternum, absolute dullness one finger to left from left sternal border. The murmurs quoted are more intense. During that time the patient was given besides pituitrin sodium nitrite; subjectively the patient is much improved. Arrhythmia is still present, pulse ranges between 81 and 90, systolic blood pressure 154, diastolic 82. Pulse pressure 72. The maximal intensity of the murmur is located mostly over the right sternal border in the second intercostal space with propagation towards the large vessels and downwards to the tricuspid valve. Also in this case we meet with a striking diminution in the diameters of the heart, namely 2⅝ inches in the transverse, 1⅝ inches in the oblique diameter, and a slight reduction of the diastolic blood pressure.

ANATOMICAL AND PHYSIOLOGICAL REMARKS ON THE PITUITARY GLAND AND ITS CHEMICAL SUBSTANCES.

The pituitary gland and hypophysis are situated in the sella turcica. Composed of different parts, the adenohypophysis, eventually still found in connection with the pharyngeal hypophysis, develops from the entoderm,—also called the pituitary body. The second constituent is the neuro-hypophysis, or the hypophysis proper, and develops from the nervous system. (Wiedersheim,[2] Steudel.[3]) Only within the last few years our conceptions of the physiological importance of that organ have become better defined. So since Marie's[4] description of acromegalia and the discovery by Marinesco[5] of the tumor of the pituitary gland in 1891, the interests for the functions of that organ have been aroused. The removal of the pituitary body itself in the animal experiment, causes rapid death and is preceded by muscular tremors, slow pulse and respiration, and fall of temperature. The section of the hypophysis and its extirpation is also fatal, according to R. Hoffman[7] by important changes in the spinal fluid, whilst other investigators (J. E. Street and C. R. Allen[8]) consider the hypophysis of no vital importance, but this operation caused pathological changes in the pancreas, atrophy of the testicles, gain in weight. In young animals the absence of the pituitary gland favors retarded growth, persistency in infantile characters, hypertrophy of the thyroid, atrophy of the gonads, diminution of libido, accumulation of fat in the omentum and in the retroperitoneal tissue, as recorded by Benedict and Homans.[9] There has within the last few years accumulated quite a considerable literature on that interesting chapter, for the discussion of which I would refer to a publication on the way of preparation. Only a few may be mentioned (Cushing[10, 11] R. A. Schaefer,[12, 13, 14] Schlimpert,[15, 19] Gavin,[16] Mackenzie,[17] Noel Paton and Watson,[18] Paulesco.[19]

Among the other manifestations following the lack of the pituitary gland, the lack in gain of weight, thickening of the skin, tendency to alopecia, adiposity (hypophysary), lack of development of the gonads, drop of temperature, disturbance of heat regulation, decrease in the heart and respiratory rate will be remembered. Also a considerable decrease in the exchange of carbon dioxide could be demonstrated.

Since we know that special diseases ascribed to disturbances of internal secretion are closely related to the function of the pituitary gland, as pregnancy (W. Holde,[20] Roessle,[21] Ashner,[22] and others), castration, and thyroidectomy (Zuckermann[23]) called for hypertrophy of the organ, and as thyroid and pituitary gland have a compensating effect upon each other, we must admit that the function of that organ can have no small importance for the well-being of the individual. The activity of the gland seems to start at an early period of developing life (Schlimpert[24]), and according to the anatomomicroscopical and chemical findings, changes from the normal gland take place all the time (Kohn Stumpf, Toelken, Vogel, Ashoff[25]), which acccording to sex show many differences (Erdheim, Ashoff[26]).

This view is also supported by the chemical analysis of the different substances obtained from that organ and by clinical observation. We have not reached a complete understanding in that matter as yet and the future may bring new material to our knowledge. The first experiments with the extract of the hypophysis were undertaken by Oliver and Schaefer in 1895.[27] They reported, after the intravenous injection, a considerable rise in blood pressure. This discovery was followed by the effect of the substance upon the uterus by H. H. Dale[28] in 1906. The active principles were obtained from the posterior part of the organ (neurohypophysis) and called hypophysin, whilst the extracts obtained from the glandular portion should have no such effect. Schickele,[29] H. Fuehner,[30] Oliver and Schaefer explained the effect obtained by the action of the extract upon the arterioles, which effect is quite different from that observed when adrenalin is given in different ways (chemically, biologically). This difference since then has been confirmed by various writers (P. Rohmer,[31] Kepinow,[32] Froelich and Pick,[33, 34] Nimulescu,[35] Matthes,[36] etc.). Chemically, hypophysin or pituitrin or pituglandol (M. Winkel[37]) is a substance insoluble in ether and in alcohol. It can be dialyzed and does not undergo destruction by heat and reducing agents. Whilst in mammals these effects were confirmed, in birds, instead of a vasoconstriction a vasodilatation resulted from the injection, which dose repeated within one-half to one hour caused a constriction of the vessels (Howell[38]). A similar fact was observed by O. Pankow[39] on rabbits; first depression followed by a rise in the pressure. Also mentioned by Schaefer and Herring[40] in their experiments. So the existence of two different substances was supposed, one acting as a dilator, the other as a constrictor. This fact was established by Popielski,[41] who in using separate extracts from the glandular, as well as from the posterior part, succeeded in the separation of two different substances, namely, the so-called vasohypertensin and the vasodilatin. The former was found to act intermittently upon the pulse action and upon blood pressure. We have to go even further in the differentiation of the effects upon the different vessels, as in mammals hypophysin has been found a dilator upon the renal artery, and a vasoconstrictor upon the coronary arteries. Fuehner,[42, 43] in his experiments isolated not more than eight different substances from the infundibular part of the gland, which are represented as crystallized basic substances (hypophysin Hoechst, B. A. Houssay[44]). The effect of hypophysin, studied by Klotz,[45] and Pankow,

can be subdivided into a rise of pressure, for a short period only, which is to be succeeded by a longer lasting, sometimes deep depression, which usually is followed by the characteristic and durable rise of blood pressure. This has also been confirmed by Fuehner[42] and substantiated by interesting charts and curves. Hypophysin attacks the smaller vessels, which answer by a contraction, and cause a rise in the pressure and so favorably influence the heart. Pankow[39] in his paper also noticed symptoms of anaphylaxis. Whilst this fact remains not confirmed, Houssay in a second injection did obtain a lesser effect than with the first application. According to the same author the substances contained in the posterior part of the gland are very powerful and last much longer in their vasoconstrictor effect than any other substance with local effect. The effect of pituitrin upon the heart muscle itself is not yet fully understood. It is generally admitted that we have to deal with a direct action upon the heart muscle itself (Pankow[39]), the effect of which is not changed by an intact or a severed pneumogastric nerve. Different from adrenalin, vagotomy followed by pituitrin does not cause acceleration of the pulse rate. Hypophysin seems to act upon some structures peripherally, through the endings of the augmentor nerves, stimulated by adrenalin. According to Watson and Noel Paton,[45] adrenalin acts not upon the heart muscle itself, but hypophysin stimulates the ventricles. Such action seems plausible in analogy to the experimental results obtained with uteri studied under the action of pituitrin (H. H. Dale,[28] Report Russ. Congr. o. Gynecolog. and Obstetrics,[46] Malinowski,[47] Fuehner, Senge,[48] P. S. Pittenger,[49], F. E. Stewart,[50] etc.). In birds, in the absence of the augmentor fibres and their terminations, hypophysin increases the contraction of the ventricles.

A further action of pituitrin upon the respiratory organs should not be forgotten (Pankow,[39] Froehlich and Pick[51]), where in rabbits after the intravenous injection of hypophysin a transitory check of the respiration could be observed. The inspiration ceased entirely, the expiration was spasmodic. Bronchial spasm with acute distention of the lungs in guinea-pigs was also reported, which condition could be relieved by stimulation of the pneumogastric nerve (atropin). These manifestations were attributed to the stimulation of the respiratory center in the medulla oblongata, under the influence of the vasotonic effect upon the vessels supplying that section of the nervous system. Hypophysin in its action upon the pupil of the enucleated eye ball of the frog, resembles that obtained with adrenalin. As a stimulant to the motor function of the intestine, the work of Ott and Scott,[51] Musser,[52] and Udaondo[53] may be cited. As a diuretic the observations of Magnus and Shaefer, Schaeffer and Herring, and R. v.d. Velden[54] must be mentioned. This action is attributed to a dilatation of the renal vessels, which is followed by an increase in the size of the kidneys. Likewise, the pitutirin and allied products from the hypophysis increase the tonicity of the bladder in dogs. The action upon the uterus is partly attributed to the direct stimulation of the muscular fibres, but also explained by a stimulation of the motor pelvic nerves, those that supply the motor impulses to the uterus, namely the hypogastric nerves. The action of pituitrin upon the milk glands is still under discussion, but from the papers at hand metabolism, normal and pathological, is also influenced by pituitrin. With regard to the proteid catabolism, a marked emaciation can be observed (Manson and Johnson, Falta, Crowe,[55] Cushing,[10] and Homans). Hyperglycemia and glycosuria (Borchardt, Cushing and Goetsch[56]; not endorsed by all authors,—Musser[52]) may be briefly mentioned. Further, there can be observed an increase of the respiratory quotient (Falta). Subcutaneous injection of pituitrin, according to Elfer,[75] does not seem of harmful influence upon the proteid metabolism, but favors a transitory retention of phosphor, magnesia and calcium compounds. With regard to disturbed metabolism the papers of B. A. Houssay,[44] R. v. d. Velden,[54] Römer,[58] are of interest, namely in the instance of diabetes insipidus. The latter author in animal experiments and in human patients was able to demonstrate that the extract of the intermediate part of the pituitary body decreases diuresis, which fact draws an interesting light upon the possible etiology of the disease as an insufficiency of the intermediate part of the gland. His therapeutic results obtained with that isolated product seem to vindicate such a hypothesis, which, however, will require more experimental confirmation before being generally accepted. The pituitary body, under the influence of general infections seems also to suffer. At least in diphtheria, human and experimental, several facts seem to speak in favor of the harmful action of the toxin upon that organ (H. Creutzfeld and R. Koch,[59] R. Koch[60]); also the favorable action reported on pituitrin medication in cases of rheumatic arthritis (C. Wallace and F. S. Childs)[61] would suggest a relationship of that organ to these and other infectious diseases. As seen from this summary review of the physiology and pharmacology of the pituitary gland we may conclude that that organ certainly has some if not a great importance for the human beings.

With regard to our subject under discussion, we may ask whether any definite contraindications exist as to the use of pituitrin and hypophysin. The obstetricians were the first to put up a list of cases where from a general standpoint these remedies should not be used without incurring dangerous or fatal conditions. The following authors did not think it advisable and cautioned against such conditions:—

In heart diseases, Hofstätter,[62] Malinowski,[47] Puppel[63]; compensate and incompensate diseases

of the valves, Hofstätter[62]; coronary sclerosis and stenocardia, Vogt,[64] Wagner.[65]

In arteriosclerosis, more or less advanced, Hofstätter, Vogt.[64]

In nephritides, Vogt,[64] Malinowski,[47] Wagner,[65] Puppel.[63]

In hypertension, exceeding 140 mm. pressure, Vogt.[64]

In very nervous, hyperexcited individuals, Hofstätter.[62]

Puppel's caution as to the use of pituitrin in eclampsia does not tally with the statement of Schlossberg,[66] who in these conditions obtained good results with pituitrin.

In reporting my observations on the action of pituitrin on the heart muscle, I am fully aware of the difficulty to judge the situation as yet. As a casuistic contribution to our therapeutical aims, the question is at least of interest. If from seven partly very serious cases with decompensated heart cases, two terminated fatally, whilst the other five could be successfully helped, it would seem that pituitary medication would at least be worth a further study. With regard to the two fatal cases, notwithstanding their too far gone condition, their advanced age, and possible arteriosclerosis of the vessels, nephritis, probably in connection with the venous stasis, and in the first case the possible uremic condition, the chances for recovery were very small. But still the question remains to be answered by more clinical observation, when and under which circumstances do we safely prevent a worse condition in giving pituitrin. It would be not wise to abstract from a few observations clinical laws for the future. From the preceding remarks on the pharmacology of pituitrin we may learn that a too extensive dose of pituitrin in advanced age may result in a sudden harmful rise of pressure. Of course the sudden change may be undesirable for the vessels of the brain and may be complicated with hemorrhage and apoplexy. In a weakened and tired-out myocardium it is evident that we will rapidly reduce the distended organ to a more normal size; the one difficulty remains to be found out to what extent has the reserve strength of the heart muscle become exhausted. In these cases even with little reserve strength left, there remains a possibility that pituitrin may help the immediate needs and that after the diminution of dilatation has become noticeable, the patient, before intolerant to the ordinary cardiac stimulation, may again be able to stand a careful test with these routine remedies. In doubtful cases, where we have reason to admit sclerotic changes, especially sclerosis of the coronary vessels and stenocardia, we do well to remember that pituitrin may hasten a fatal result. This is based on clinical observation, where a prolonged spasm of the coronary vessels, which in their aspect show obstructive endarteritis, an ishemia of the heart muscle would call for the symptoms of stenocardia.

Clinically and experimentally the problem of pituitary medication seems to be of great interest. I am aware that besides the clinical bedside study the entire arsenal of diagnostic means of cardiac lesions should be called for, including electrocardiagram, sphygmobolometry, etc., (Th. E. Satterthwaite[67]) in order to draw some more light upon the fine biological and pharmacodynamic affinity between pituitrin and the heart muscle. Under present circumstances such studies were impossible, so the present paper has to be limited to the clinical recommendation of pituitrin in acute heart failure with acute dilatation. Our studies with our material of cardiovascular patients, upon which pituitrin is used, is still going on. This seems justified by the results observed and also in order to circumscribe the indications, and when and where pituitrin can be safely recommended without inflicting serious harm to the patient. In connection with pituitrin medication, on a series of patients we may remember the work done in this line by Musser.[52]

It seems that pituitrin may be helpful in other pathological conditions than the heart. I would only briefly allude to cases of chronic asthma and hayfever, in which the attacks persisting for years and years, resisting all therapeutic medication have ceased entirely for months. Although encouraged by these surprising results with the combination treatment of adrenalin and pituitrin, I do not feel justified to hasten with an extensive report on these cases I have treated successfully, before more time has passed in which to judge the situation. The combination of adrenalin and pituitrin is favorably endorsed by different authors (Houssay,[44] Kepinow,[32] Froehlich and Pick,[33] Nimulescu,[35] Matthes,[36] P. Rohmer[31]). The latter author in a recent paper reaches similar conclusions to mine in the use of pituitrin in cardiac diseases. Among other experiences with pituitrin I would also briefly allude to the result of my present study of pituitrin in cases of typhoid fever. In instances of tympanites uncontrollable by any other means, and where overdistention increased the danger for hemorrhage and perforation, pituitrin 1 c.c. injected subcutaneously, relieved such a condition in a few hours. We resorted to the same medication in two cases of intestinal hemorrhage in typhoid. Rapid disparition of the blood from the stools was the result; the patents rallied and made a normal recovery. It is my impression that in these few instances the pituitrin medication saved a precarious situation, and if we had not taken the chances of a yet untried application, these cases would have to figure on our death records.

LITERATURE.

(The literature on the pituitary body, its pharmacodynamic properties, and indications has within a few years become so extensive, that in the present paper only some of the chief references can be given. The subject will be dealt with later in a more complete manner.)

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Clinical Department.

MASTITIS IN PREGNANCY, WITH REPORT OF A CASE.

By B. R. Whitcher, M.D., West Somerville, Mass.

While mastitis, with its etiology, pathology, symptoms, prophylaxis and treatment, is fully discussed in text-books of obstetrics as a disease of the puerperium, the chance of its occurrence in pregnancy, with its prophylaxis and treatment, is completely ignored, although some text-books do mention the care and cleanliness of the nipples during the last weeks of pregnancy as a prophylactic measure against infection after labor and during the puerperium.

However, in rare cases mastitis does occur in pregnancy, and sometimes seems to baffle every effort to prevent or check the process, as this case, which I shall speak of later, will show, and especially call attention to the necessity for prophylaxis.

The text-books usually treat of three different pathological forms of breast abscess, viz.; (*a*) Parenchymatous, where the infection takes place and the abscess forms in the acini, and the milk-forming cells are involved, and break down. (*b*) Interstitial, where infection place and abscesses form in the fatty and connective tissue between the acini, the abscesses often forming a chain connecting with each other; and (*c*) subglandular, where the abscess forms in the submammary fascia. Both of the first two forms mentioned were found in this case.

In regard to the etiology, the main reason why mastitis is so much more common in the puerperium than in pregnancy is that the acini are so liable to become, and often are, infected through lack of proper care of the nipples and areolae in nursing. Trauma of some sort or other may also cause mastitis, on account of the tenderness and lowered resistance of the tissues, so that, even though the best care may be taken in regard to the nipples and areolae, if the patient is below par physically, and the glandular tissues are injured by trauma, inflammation and abscess may occur on account of the weakened resistance of the injured tissues to the organisms which may be present in the blood, and which would have no effect on sound healthy tissue, but which are on the alert for a point of lowered resistance. Moreover, where the breast has been injured previously to the pregnancy, the changes in the parenchyma and surrounding tissues make the tissues already injured all the more susceptible to infection. So where mastitis occurs during pregnancy, trauma is much more apt to be the underlying cause, especially in a primipara, than infection through the nipple.

On Feb. 2, 1913, Mrs. L— called at my office complaining of a soreness in her right breast. Patient a woman slightly built and rather poorly nourished.

of a nervous and hysterical temperament, subject to attacks of dyspepsia and costiveness, for which she had previously been coming for treatment, and which were greatly improved.

She had been married the previous November, and on the night she was married, she had a fall, in which she struck her right arm against the breast, and ever since then, a certain place in it felt sore and tender to the touch, especially at the time of the menses. A hard, nodular lump was felt in the central portion of the breast, to the inner side of and almost underlying the nipple. For treatment, I gave ichthyol and belladonna ointment, to be applied to the affected breast.

The breast symptoms were greatly relieved as a result of using the ointment, and in November she became pregnant, her last catamenia ceasing Oct. 10. On Jan. 29, 1914, she called at the office with an abscess of her finger, which was laid open and a small amount of thick gummy pus evacuated. The wound was dressed with a mild bichloride dressing, and healed rapidly.

In the meantime, her signs of pregnancy were becoming more marked, and by March she was feeling the fetal movements very strongly.

On April 19, she called at the office complaining of coryza and sore throat, with attacks of coughing resembling those of whooping cough which it proved to be. In a week she was nearly well of the coryza and cough, but it was then that she began to complain of a tense, brawny lump on the inner side of the right breast, very painful to the touch. Applications of ichythyol and belladonna ointment were used, it being hoped that the inflammation would thus be drawn away, but the lump became more tender and painful the next day, so, as it was suspected that the pain might be due to early lactation aggravating the old trauma, the breast pump was used, which drew off half an ounce of milky fluid and gave considerable relief. There was no pain or discomfort at all in the other breast and the nipples of both breasts were in good condition showing no fissures or erosions. The use of the breast pump was discontinued after a couple of days, and both breasts were bandaged firmly with a Y-bandage, cold compresses of lead and opium wash were also applied to the affected breast. Meanwhile the patient seemed to run no fever, the temperature at its highest only running to a fraction over 99°. Atropine, gr. 1/100, was also given morning, noon and night, to partially diminish the breast secretion and thus lower the tension.

For a few days the patient experienced some little relief, but in spite of these measures, the lump began to gradually increase in size and become redder and more brawny, and by May 9, there seemed to be small protrusion of the mass, near the nipple, as though the abscess were coming to a head. So operation was advised, and on May 10, under ether, an incision into the mass was made near the areola, and nearly three ounces of pus were evacuated. Introduced forefinger, protected by a sterile rubber glove, into abscess cavity, breaking up adhesions and pus pockets that might be present and made a second opening at the distal end of the cavity, for free counterdrainage, syringed out abscess cavity with boric acid solution, introduced sterile adrenalin gauze wicks, and applied moist bichloride dressing, for the first day, then afterwards applied moist boric acid dressing. Diagnosis: Circumscribed parenchymatous mastitis.

The patient was greatly relieved, the discharge rapidly ceased, the cavity and sinuses grew steadily smaller, so that by May 24, the wicks were no longer needed as the sinuses were now so small, they could scarcely admit a small probe, and by the 26th, the sinuses were all filled in with granulation tissue, and the wounds were covered with healthy granulating scabs. One more boric acid dressing was applied, then the wounds were dressed with dolomol-aristol powder, as a cocoon dressing, and by June 5, they were entirely healed.

Meanwhile no change had occurred in the pregnancy, which was running a normal course.

On May 12, however, when I called to dress the breast, I found the patient had been having a dizzy spell with an attack of temporary blindness, which made me suspect a mild attack of eclampsia, but with prompt treatment in the way of calomel, bowel irrigations, and diuretics, the condition cleared rapidly, and the patient had no more attacks of the sort.

On June 8 I was called to see the patient again as she was complaining of pain and tenderness in the same breast that had been affected before, but this time the pain was on the outer aspect, there being no pain or tenderness where the former abscess had been. The breast was firmly bandaged, cold wet compresses of lead and opium wash and ice bags were applied, and saline catharsis was instituted, but in spite of all that was done to abort the inflammation, the pain and tenderness persisted, and, by the 11th, two hard painful lumps, each the size of an almond appeared, one on the outer side, in a direct horizontal radius from the nipple, and the other in the upper outer quadrant. The ice packs, and astringent compresses and bandaging, as well as the saline catharsis, were continued so that there was some diminution of the pain, but as the masses continued to grow larger, I deemed it best to operate, and arranged to do so on the 14th.

The operation had to be deferred, however, because labor set in, and I was sent for at 4.30 A.M. The labor was perfectly normal and at 8.45 the patient was delivered of a six-pound girl. In the evening the mother and baby were doing very well and the former's breast seemed much relieved, with less tension.

But on the following afternoon, the breast pains started again, and were much more intense, so, under ether anesthesia, two incisions were made in the outermost abscess and a third a little below the nipple, which released a considerable amount of pus, some of it having worked in a semicircle around and below the areola. The upper abscess was also incised, but very little pus could be found at the time. This infection was found to be of the diffuse interstitial type. The abscesses were syringed out with boric acid solution, gauze wicks were inserted, and a moist boric acid dressing was applied.

The patient was considerably relieved. The following day, however, she felt some pain in the left breast, on account of lactation, but the nurse massaged it, which relieved her greatly, and with massage and local applications of belladonna ointment and saline catharsis, the left breast was entirely relieved in a few days, and the milk was dried up, as I deemed it best to put the baby on the bottle, it being inadvisable for the mother to risk nursing the baby on the sound breast on account of her general physical condition, as well as the infection of the right breast.

Two days later two other small incisions had to be made under cocain, in order to facilitate the drainage, as there was a very large amount of pus

breast, and the patient felt some soreness in the upper outer quadrant, so one of the incisions was made in a direct radius from the nipple, over the abscess in the upper outer quadrant, nearer the periphery, and that not only released some of the pus, but afforded free counter-drainage for the abscess on the outer side, as there was a deep sinus of communication through the interstitial areolar tissue between the two abscesses, which was clearly demonstrated on syringing out the sinuses with hydrogen dioxide and boric acid solution, which, if injected into the outermost abscess, found a free exit at the incision in the upper outer quadrant. Every day the abscesses were syringed out with dioxide and boric acid solution, and dressed with gauze wicks and moist boric acid dressings, the amount of pus steadily decreased, and by the 25th, had entirely disappeared, and the wicks were omitted. The following day the upper sinus was filled in with clean, healthy granulation tissue, and the other sinuses were filling in. The two lowermost wounds were a little slow in healing, as compared with the other wounds, on account of the oozing of milk, but this was gradually stopped by dressing with dry powdered boric acid and alum and belladonna ointment was applied to the lower part of the breast. In the meantime the other sinuses were all filled in with healthy granulation tissue, and by July 7 the lowermost wounds were covered with clean dry scabs and the mother made an uneventful recovery.

On July 1, the patient caught a slight cold and complained of intense shooting pains across the affected breast, but these proved to be due to intercostal neuralgia, and no more signs of abscess appeared in the breast tissues. Within three days the pains were all gone, and after that, the patient had no more pains in her breast.

Dr. John T. Williams[1] reports a case of antepartum mastitis during the eighth month of pregnancy in a mother of five children. She had a painful, tender swelling in her left breast, which she had been rubbing with warm sweet oil, and also had fever and general malaise. She was treated with ice packs, bandaging and saline catharsis, but the lump grew larger and more brawny and painful, so in four days it was incised and the pus evacuated. Improvement immediately followed, with temperature falling to normal, but five days later the opposite breast became hard and painful, and the temperature rose to 102.5°. Under ice and salts this breast softened up rapidly, but in two days the left breast again became "caked," with a rise of temperature. Ice was again applied, which this time brought about a rapid subsidence. Within a month the patient was delivered, and on the fifth day the left breast again became inflamed, but quieted down rapidly under ice and saline catharsis and gave no more trouble since. She was nursing the baby on both breasts, although the amount of milk was somewhat scanty, so that supplementary feeding was required.

Fleck[2] reported a case of mastitis in a primipara, in the ninth month following a case of facial erysipelas, both breasts becoming red, swollen, and painful, an abscess developing in the right breast the first day after labor, which was opened, and the patient recovered, the left breast subsiding without operation.

Callman[3] reported a case of double mastitis during the sixth month of pregnancy following eczema and impetigo of the nipples. Fluctuation developed, first in the right breast, which was opened and pus evacuated, and fifteen days later in the left, which was also opened, but only a turbid fluid was obtained. Patient recovered and was delivered of a breech at full term by manual extraction.

Davis[4] reported the case of a primipara who developed a breast abscess after being accidentally scalded by hot coffee. This abscess was incised and pus obtained, from which a pure streptococcus culture was developed. She recovered and later passed through a normal labor.

In each of these last three cases, as well as in the first one, the child had to be fed by the bottle.

The general etiology of breast abscess has already been discussed. In the first case the underlying cause of the abscess was the old trauma, the parenchymatous tissues on the inner side of the breast having been bruised in the fall, and the cells, most severely injured, had never fully regained their normal healthy condition, but were in a state of lowered resistance. Then, as the patient was rather ill nourished, she may have had some pyogenic organisms in her blood, since she had the abscess in her finger, and, with her general bodily resistance lowered by her attack of whooping cough, it gave the pus organisms a most favorable chance to multiply and find an excellent breeding ground in the breast tissues, already weakened by the old trauma and engorged with an extra amount of blood preparatory to lactation, and in that way the abscess formed, in spite of all measures taken to prevent or abort it.

In Dr. Williams' case the infection in all likelihood entered through the nipple by way of the milk ducts, as no history of trauma could be obtained in this case, the hot applications and massage further enhancing the abscess formation.

In Fleck's case it is likely that the nipple may have been the port of entry although the blood stream cannot be ruled out, and it is very likely that, with such an infection as facial erysipelas, the blood would be filled with organisms which would find an excellent nest for infection in the engorged breast, especially where the general bodily resistance had been lowered by the previous disease.

In Callman's case it is most likely that infection took place through the nipples, since they were involved in the impetigo and eczema, but there was a possibility of the organisms travelling through the dense network of lymphatics rather than through the ducts. In Davis's case there was no visible solution of continuity at the site of the burn, and it is most likely in this case that the streptococcus was already present in the

milk ducts, and attacked the tissues when their resistance was lowered by the burn.

Unfortunately no cultures were taken, except in Davis's case, which showed pure streptococcus. Rubeska[5] has shown the staphylococcus aureus and albus as the most frequent cause of breast abscess, the streptococcus being relatively rare. Köstlin[6] found the staphylococcus albus on the nipple in each of 100 pregnant women. In 23 of these the staphylococcus aureus, 25 the streptococcus, 14 sarcinae, 3 staphylococcus citreus, and in 2 the micrococcus tetragenus were also present. He examined the fluid from the breast in each of these cases and found it to be sterile in 14%. In the other 86% the staphylococcus albus was present, and in 2% the staphylococcus aureus as well.

The fact that in 3 out of 5 cases trouble was present in the opposite breast, shows that breast engorgement is an aid in the formation of breast abscess during pregnancy.

Therefore, the occurrence of mastitis in pregnancy is as follows: In the majority of women organisms are present on the nipples and in the milk ducts in greater or less number, according to the patient's habits of cleanliness and care of the nipples, or else in some women they may be present in the blood stream, according to the patient's general physical condition. These organisms are ordinarily innocuous, especially in a good general condition of bodily resistance, but when engorgement occurs, conditions favorable to their growth are developed, and when the breast tissues have been injured before or during the pregnancy by trauma, and their resistance is thus further lowered or when more virulent organisms are present, the tissues are attacked and suppuration takes place.

The prophylaxis of breast abscess during pregnancy is the same as during lactation, *i.e.* scrupulous cleanliness of the nipples, and bathing with alcohol and boric acid solution, and the prompt treatment of any soreness or tenderness by ice packs, cold astringent compresses of lead and opium wash, firm bandaging and saline catharsis.

CONCLUSIONS.

1. Organisms are present on the nipples in 100% and in the milk ducts in 86% of all pregnant women.

2. When the tissues have been injured by trauma and their resistance lowered, or the breasts have become more engorged, or the organisms are of unusual virulence, they attack the tissues and produce inflammation.

3 The prophylaxis of breast abscess in pregnancy consists in:—

(*a*) Absolute cleanliness of the nipples, and avoidance of injury to the breasts.

(*b*) Prompt treatment of mastitis by bandaging, ice packs, cold astringent compresses, and saline catharsis.

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Reports of Societies.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of Wednesday, October 28, 1914, at 8.30 p. m.

The President, Dr. William Duffield Robinson, in the chair.

Dr. William S. Newcomet exhibited a case of sarcoma of the jaw treated with radium with entire disappearance of the mass.

ABDOMINAL PAIN: ITS SIGNIFICANCE AND DIAGNOSTIC VALUE.

Dr. John B. Deaver: Perhaps no better definition of pain has ever been given than the picturesque statement of Agnew, that, "Pain is the language of a suffering nerve." In order to diagnosticate disease we must be able to read the language. At least 90 per cent. of all diseases begin with pain or give rise to it at some time in their course. Ordinarily pain is the result of undue stimulation of nerve fibres by mechanical, chemical or thermal agents. Such pain is objective. There is a type of pain which has no external physical basis. It is a product of disordered mental action. This is subjective pain and is illustrated in the phenomena of hysteria. Such pain belongs to the domain of the neurologist. It is a confession of ignorance to give to pain a name which has no pathological significance. All the various "algias" should be replaced by terms conveying an understanding of the underlying processes. The surgeon has found the abdomen to be a veritable Pandora's box of troubles which, however, fly away when the box is opened. No more stimulating example of the discovery of the hidden cause of pain can be imagined than the recent demonstration of duodenal ulcer as the source of a frequent type of gastric pain. The first great obstacle to the appreciation of the significance of abdominal pain has been the belief that the majority of pain in this region was the result of disordered function. The so-called neuroses figured largely in abdominal diagnoses, but the surgical era has driven these into a very small field destined to be further circumscribed. The second great difficulty in abdominal diagnosis is the inability of the nervous system accurately to localize sensations received from visceral areas. For the understanding of peculiar manifestations of faulty pain localization we must be familiar with certain modes of nerve action. It is well to bear in mind that pain in the abdomen is *per se* no evidence that the lesion is in the abdomen. Abdominal pain associated with

or pneumonia, particularly in children, is probably of a reflex nature. Angina may give rise to intense epigastric pain simulating acute surgical disease of the upper abdomen. It is necessary to be familiar with the various types and degrees of pain that disease of the organs of the upper abdomen may cause. It is in the milder forms and beginning of disease that the location of pain is of the greatest value. Of all the organs in the abdomen, the stomach presents the greatest variety of symptoms and the most difficult to analyze. If gastric disease of the stomach is excluded, gastric symptoms should prompt a careful and systematic search of the abdominal organs. Grossly insignificant chronic disease of the appendix may set up pylorospasm with pain, retention, fermentation and secondary gastritis. It is of the utmost importance to investigate by history and examination of the right iliac fossa, every case presenting epigastric symptoms commonly referred to the stomach. The diseased gall bladder frequently masquerades as a gastric affection. To make an impression upon students I often say, "Fair, fat and forty, belching gas—gallstones." While a trifle dogmatic, the diagnosis is remarkably often justified. Adhesions are of two types, congenital and acquired. Omental or other adhesions I do not hesitate to sever when found in unusual positions. More extensive operative work involving an interference with a poorly understood physiology and for other indications than obstructive symptoms is rash surgery. Nature is the most wonderful artist in the removal of adhesions. Obstructive symptoms in any case following operation or which is believed to have abdominal adhesions calls for immediate surgical operation. Adhesional pain should never be treated with narcotics. At least a year should elapse before operative relief of post-operative adhesions is advised, except in the case of serious symptoms. There is too much morphia used as a routine measure after abdominal operations. When pain makes its appearance on the second or third day or later following operation the conditions chiefly to be considered are simple distention, peritonitis and obstruction. The most important single feature in differentiation is the character of the pain, whether wave-like and intermittent, or steady and associated with tenderness. The pain of distention and obstruction is, as a rule, colicky and wave-like; that of peritonitis, more steady, diffuse and unremitting. I realize more and more the difficulty of attempting to classify and systematize abdominal pain in its relation to visceral lesions. There is a rough parallelism sufficient in most cases to warn us of the presence of a pathological process and which often gives as much information as to its nature. Often, however, we are obliged to rely upon experience and our knowledge of the probabilities.

DISCUSSION.

DR. JOHN B. MCALISTER, Harrisburg: Why should I direct to this audience how little I know about abdominal pain? Perhaps I can best speak on the subject by citing some cases. Not so long in the past I was called to see a lady suffering severe abdominal pain. I tried to follow the instructions of my teachers in making a careful and accurate diagnosis by placing my hand upon the various parts, asking whether the pain were of such and such character. Finally the patient replied rather testily, "No, it's not that kind of a pain; it's a damned bad pain; give me something to relieve it." While that may appear to be a rare character of pain,—one not mentioned in Dr. Tyson's text-book, and probably not mentioned by Dr. Deaver, in public at least, it is not really such a rare pain. When we are called to see a patient between midnight and morning it is pretty often that kind of a pain we have to deal with. We often go home not able to interpret the language of these pains and feel that the patient has pretty well described the pain in the abdomen. In spite of all our knowledge of anatomy and pathology in the abdomen, notwithstanding all our landmarks, exploratory operations for diagnostic purposes will be made. I know of no way of recognizing the referred abdominal pain occurring at the beginning of pneumonia except by careful diagnosis. Not long ago I was called to see a lady at a bridge whist party taken suddenly with severe pain which I felt sure was caused by kidney stone; the pain was as characteristic as that of any renal colic I have seen. Operation revealed a fibroid tumor with considerable colloid degeneration. The woman had been in apparently good health until that attack of pain. I could not account for the severe pain except that there may have been a twisted pedicle. Another pain in the upper abdomen which is of supreme importance is that of acute pancreatitis or hemorrhagic pancreatitis. It has been my sad fate to see four of these cases. In the first and second cases the diagnosis was made upon the autopsy table. In the third and fourth the diagnosis was confirmed upon the autopsy table. All were in adults and without history of previous ill-health. Acute sudden pain seems to me one of the greatest tragedies in abdominal conditions. I should be glad if in the discussion we may be instructed how we can more definitely from the character of the pain distinguish between gastric and duodenal ulcer and pancreatic disease.

DR. JOSEPH SAILER: As Dr. Deaver has suggested, the abdomen has almost ceased to be the domain of internal medicine. Pain is a subjective affair, something felt by the patient, which we cannot measure; and, while experience may give us a proper estimate of the patient's manifestation of pain, we may be deceived by those who exaggerate or underestimate its degree. I agree with Dr. Deaver that the use of the various "algias" should be discarded, and that with remarkable frequency, pain in the epigastrium means disease elsewhere. It is astonishing how often patients with valvular heart disease and with tuberculosis of the lungs, come to the physician complaining of gastric symptoms. Only by the most careful physical examination can we detect the true underlying lesion. Acute endocarditis in the early stages may so simulate abdominal conditions that operation may seem imperative. The amount of literature at the present time upon the subject of intestinal stasis with the extravagant claims made by some surgeons is appalling to the internist. The evidence, however, is purely superficial and upon such evidence, surgical treatment is unjustifiable.

DR. WILMER KRUSEN: I would emphasize the necessity of a bimanual examination in all cases of appendicitis to determine whether the appendicitis is coexistent with pelvic disease or whether all the symptoms are due to salpingitis. The pain of ectopic pregnancy is of such gravity that physicians should be mindful of its possibility in cases of ab-

dominal pain. Then to be considered are the pains associated with neoplasms. In fibroid tumors there is pain due to pressure conditions. In no condition of gynecology would pain be so beneficent as in malignancy. The surgeon would welcome the fact that a woman with beginning cancer had pain.

Dr. A. C. Morgan: It is very important that we differentiate between acute and chronic pain. In a large percentage of cases acute pain constitutes a surgical condition calling for prompt action for the saving of the patient's life. I have come to regard the term "dyspepsia" as a very dangerous one, because in the light of our present knowledge we know this condition is not present, but that the stomach is giving us warning of trouble elsewhere. The man who is content with the routine treatment of "dyspepsia" with nux vomica, etc., is careless or ignorant and is not a credit to the medical profession in 1914.

Dr. James Tyson: I was called yesterday to see a case of abdominal pain, paroxysmal in character and with history of traumatism. The attacks of pain were of slowly increasing severity resulting in collapse. The patient's abdomen was swollen and to my inquiry of the location of pain he replied that it was general. Passing my fingers in the region of the appendix I found evident tenderness, yet there was nothing that was distinctive any more than in the numerous cases of pain which have been described suggesting gastric ulcer or pancreatic disease or duodenal ulcer. I came here wishing to get some light, which illustrates the propriety of meetings like this. I have not yet made a diagnosis of this case and should be very glad if those who are here would help me out.

Dr. Damon B. Pfeiffer gave a lantern demonstration of some of the important points of Dr. Deaver's paper.

Dr. S. Solis Cohen: I would like to reiterate the plea of Dr. Deaver that we do not attempt to hide our ignorance by the use of the various "algias." I would not eliminate functional disturbance of the viscus from among those conditions giving rise to pain in the abdomen. That too often organic disease is overlooked from want of careful examination is true, but when careful study has been made, and the evidence points to the so-called functional disturbance, then the physician is justified in carrying out medical measures. Several times in my experience I have been unable to exclude appendicitis, gall stones or gastric ulcer without exploratory operation. A better understanding of the great sympathetic nervous system would give us more light upon such cases. Just as this system gives rise to reflexes such as pylorospasm, so it gives rise to pain referred to the same areas to which it would be referred without the viscus disease. The disease, however, is not in the viscus, but in the nervous system supplying it. There is such a thing as hysteria, but 99 cases out of 100 called hysteria are something else. In such cases I would advise exploratory operation. I want to thank Dr. Deaver for his reference to the comparative frequency with which acute pancreatitis expresses itself in epigastric pain. I have known cases in which death occurred prematurely because the significance of the pain was not realized. To make a diagnosis one must not study pain or any other symptom alone, but must study thoroughly his patient.

Book Reviews.

Diseases of the Rectum and Colon, and Their Surgical Treatment. By Jerome M. Lynch, M.D., Professor of Rectal and Intestinal Surgery, New York Polyclinic; Attending Surgeon, Cornell Dispensary; Attending Proctologist, St. Mary's Hospital, Hobooken, N. J.; Attending Surgeon, Red Cross Hospital, New York; etc. Illustrated with 228 engravings and 9 colored plates. Philadelphia and New York. Lea and Febiger. 1914.

This is an excellently illustrated book of six hundred pages; most of the pictures being new. In his preface, Dr. Lynch explains that the "present work is not intended to be an encyclopedia, or a book for the specialist, nor for the student, but is addressed to practitioners who have not yet attained well-rounded experience in rectal and colonic surgery." The subjects are discussed in full detail and the book includes the preparation of the patient, after-treatment and complications. Dr. Maxwell-Telling has written a chapter on Diverticula, Dr. G. Reese Satterlee on Vaccines, Dr. A. Judson Quimby on X-ray. On the first page Dr. Lynch deplores the neglect of adequate instruction upon rectal diseases which characterizes the American Medical School. He says there are but two undergraduate schools in the United States "which have on their teaching staff a man experienced in rectal diseases, and not a single medical college has a recognized specialist as a professor of proctology." This is a surprising statement and goes far to explain the ignorance upon such matters which Dr. Lynch has so frequently encountered. The only noticeable omission which we have discovered in the book is that of a chapter upon anatomy. Embryology and malformations are considered and in various places there are excellent plates showing blood supply and nerve supply, etc. But a single cohesive chapter on anatomy is lacking. Since the book is addressed to general practitioners and students, this will, we trust, be added in the second edition. Advice as to treatment, particularly as to thoroughness of examinations, description of operative methods, illustrations, pathological conditions, are all extremely good. We notice that Dr. Lynch recommends incision as the only operative treatment of fissure; he says that divulsion should have no place. He gives adequate description of the various major operations for cancer of the rectum and finishes the book with chapters upon x-ray in which the plates are obviously untouched. Within the limitations which the author has outlined for himself, the book may be cordially recommended.

Qualitative Chemical Analysis. A Laboratory Manual of Qualitative Chemical Analysis. By

A. R. Bliss, Jr., M.D., Ph.G., Professor of Chemistry and Pharmacy in the Birmingham Medical College. Octavo of 244 pages, with working tables. Philadelphia and London. W. B. Saunders Company. 1914.

The above work differs but little from dozens of others which deal with qualitative analysis. The advantage of putting instructions for such analyses in a volume by themselves is unquestioned, but the short sharp staccato commands to the student, much like the orders to a company of soldiers, divided by numerals running to 622, make the text very jerky and have no special advantage. We are told to write so that he who runs may read, but minute division of the text does not aid the reader unless used as in newspaper headlines. Every step in the analysis is stated with the most absolute clearness, additional or rather unprinted pages are offered for the notes of the students and at the close of a process, under comments, reasons for each step are clearly given. One wonders often whether it would not be better to instruct the student to put substances and definite reagents together and then give his own impressions of what takes place rather than to be told what should occur, much as in the problems in algebra, of which only the teacher is supposed to hold the key. At the close of the description of the reactions of each metal or acid, or as the newer chemistry prefers to call them, cations and anions, there is an enumeration of the pharmacopeial preparations in which they occur with no description, which is about as valuable as the list of ships that came to Troy for memorizing and equally as useful. The most emphatic impression produced on the mind is, that a host of unused and probably useless articles are still carried in that honorable but antiquated volume. The press work and binding are up to the standard set by the publishers, equalled by few and surpassed by none.

The Practitioner's Visiting List. 1915. Thirty Patients per Week. Philadelphia and New York: Lea and Febiger. 1914.

This visiting list appears in similar form to its predecessors. It contains upwards of thirty pages of significant and important medical facts and particularly of those which have to do with emergencies and are apt to escape the physician's mind. The visiting list is certainly also to be recommended as a ready means of keeping account of daily work.

The Medical Record Visiting List or Physician's Diary for 1915. Newly revised. New York: William Wood and Company.

This visiting list appears in its usual attractive form and binding of flexible leather. Its capacity is sixty patients a week, which should be sufficient for a practitioner in active practice. As heretofore, about thirty pages are taken up with lists of doses, antidotes for poisoning, and similar facts of practical interest to the physician. We recommend this visiting list as we have its predecessors.

The Intensive Treatment of Syphilis and Locomotor Ataxia by Aachen Methods. By REGINALD HAYES, M.R.C.S., pp. 63. London: Baillière, Tindall and Cox. 1914.

This small book of sixty-three pages is devoted to an elaboration of treatment by mercurial inunction. By Aaachen methods the writer means inunction of mercurial ointment by the bare hand of skilled rubbers, together with the use of sulphur water as administered at Aachen. The book is a strong plea for the use of mercury, particularly as given by this means. It should be of particular interest at this time of possible overenthusiasm for salvarsan.

The Salvarsan Treatment of Syphilis in Private Practice. By GEORGE STOPFORD-TAYLOR, M.D., and ROBERT WILLIAM MACKENNA, M.D. pp. 90. New York: Rebman Company. 1912.

The authors have placed on record the results of three years' use of salvarsan in private practice. The book, therefore, has value as a statement of personal experience. In addition to this it reviews in brief fashion our knowledge of the general subject since the discovery of the causal spirochete of syphilis. In general, the experience of these observers has been that of others, namely, the very great benefit which Ehrlich's discovery has proved in the treatment of this devastating disease. A series of photographs are introduced at the end of the book, illustrating various syphilitic lesions.

Abdominal Operations. Volume I and Volume II. By SIR BERKELEY MOYNIHAN, M.S. (London), F.R.C.S., Leeds, England. Third edition, revised, fully illustrated. Philadelphia and London. W. B. Saunders Company. 1914.

In the preface of this third edition Mr. Moynihan says that the second edition having been long out of print "considerable revision has been necessary and certain chapters have been rewritten." He has described in detail only methods which he himself uses. To those not familiar with the book, it is necessary to say that the title is a trifle misleading. The two handsome volumes, beautifully illustrated in addition to being admirably printed, do not contain descriptions of gynecological operations, operations on the kidney or bladder, nor operations for hernia. Within these limitations, the book

is of great interest; it is complete and thorough, and is very generous in its acknowledgments of contributions made by American surgeons on operative and abdominal surgery. Among other things, we find Monk's work on the mesenteric circulation and intestinal localization reproduced with most of the pictures and much of the text. No reference is made to mechanical appliances, buttons, bobbins, or other aids to intestinal suture. The author states that he believes these have served their term "and that their interest is now only historical." It is to be regretted that Mr. Moynihan has not included operations on the genito-urinary system; for whatever may be the feeling of the specialist in the work, it will continue to be done in large part by the general surgeon. On page 39, under the head of "Preparation of the Patient," Mr. Moynihan states that—"It is supremely important that the skin should not be roughened or chapped and that no irritative rash should be caused. Over-preparation to the extent of damaging the skin is almost as bad as no preparation at all." If we read the two preceding paragraphs, we will be driven to believe that such skin preparations as he apparently uses as routine would roughen and irritate the abdomen of many American patients. No allusion is made to the iodine preparation. Mr. Moynihan's ability as an operator is too well known to need comment. In this book, as well as in other volumes, we find his own personal views stated without either arguments to prove their validity, nor criticisms of others who would differ from him. It is his personal contribution to the art of operations on the abdomen.

Manual of Surgery. For Students and Practitioners. Ninth edition. Revised by Albert Carless, M.B., M.S., Lond., F.R.C.S., Professor of Surgery in, and Surgeon to, King's College Hospital, London; formerly Examiner in Surgery to the University of London, Glasgow, Manchester, Liverpool, and Leeds. New York: William Wood and Company. 1914.

The first edition of this Manual of Surgery appeared in 1898, and at present the ninth edition is published. Besides these, it has been translated into Hungarian, Chinese, and Arabian. Further testimony as to the popularity of the book is superfluous. Mr. Carless says that "The triennium which has elapsed since the issue of the eighth edition of this manual has been characterized, not by the discovery of any revolutionary or wonder-working novelty, but by the steady elaboration of ideas and methods which had already been introduced, and require time for their investigation. Salvarsan and radium in particular may be mentioned as subjects to the consideration of which a vast amount of work has been devoted." Mr. Carless mentions also the progress of research and treatment by heat, light, electricity, etc., for which a new chapter has been provided. It is most satisfactory to learn that although new illustrations and plates have been added, there are the same number of pages in this as in previous editions, and that owing to the use of thinner paper the weight of the volume has actually decreased. Paper, printing, and illustrations are excellent. The book includes a chapter on "Affections of the Nose and Naso-Pharynx," and another "Affections of the Ear," leaving, therefore, as a strict specialty omitted from this volume only "Affections of the Eye." We note in the treatment of compound fractures recommendations to drain, as a rule. American surgeons probably do not approve of drainage for compound fractures, except in occasional cases. In fractures of the patella Mr. Carless does not mention suturing; in operative treatment he recommends the use of silver wire, which in this country at least is believed to be undesirable. The book is a most excellent manual. It is unusually complete and it continues to hold the very highest rank among English textbooks in surgery.

Quain's Elements of Anatomy. Eleventh edition. Edited by Sir Edward Albert Schäfer, LL.D., Sc.D., M.D., F.R.S.; Johnson Symington, M.D., F.R.S., and Thomas Hastie Bryce, M.A., M.D. In four volumes. Vol. II, Part II. Splanchnology. By J. Symington. With 349 illustrations. London: Longmans, Green and Company. 1914.

This latest volume of the latest edition of Quain's Anatomy, by Symington of Belfast, deals with the topographical anatomy and morphology of the digestive, respiratory, and genito-urinary systems, and of the ductless glands. The original text has been revised and rewritten, and many excellent new illustrations have been added. The chapter on the peritoneum is by Mr. P. T. Crymble. In its new form, this old Scottish anatomy retains its individuality, and adds other merits to those which first made it one of a few authoritative standards among English-speaking students and anatomists.

Medical Jurisprudence. A Statement of the Law of Forensic Medicine. By Elmer D. Brothers, B.S., LL.B. St. Louis: C. V. Mosby Company. 1914.

This volume is based on the author's lectures of the past twenty years. Though intended for medical students, it would seem to be of more interest to students of law, since it is concerned rather with medical aspects of the law than with legal aspects of medicine. Nevertheless, its study should be of value to physicians giving expert testimony or otherwise engaged in medico-legal work.

York: William Wood and Coompany. 1914.

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HEALTH CONDITIONS AMONG RURAL SCHOOL CHILDREN.

THE results of joint investigation by committees of the National Council of Education and the American Medical Association show that physical defects are much more common among country school children than those of the cities. Curvature of the spine, tuberculosis, ear troubles, defects of vision, enlarged tonsils and adenoids, were all more than three times as prevalent in the rural as in the city children. (*Monthly Bulletin*, New York State Department of Health, September-October, 1914.)

As these defects are practically all preventable, the obvious inference would be that the low standard in the country schools is largely due to lack of medical inspection and supervision. That such inspection is very badly needed is evidenced by the report of Dr. Charles L. Bailey of the United States Public Health Service, concerning the health conditions of the rural schools of East Tennessee and Northern Georgia. (*United States Public Health Report*, December 4, 1914.)

In these rural schools there is practically no sanitary supervision of the buildings and no medical inspection of the children. Disease and physical defects, such as dental caries, adenoids, enlarged tonsils and cervical glands, errors of refraction, defective hearing, trachoma, malnutrition, and heart disease, were prevalent conditions.

Lack of air space and a chance to exercise in the open were never factors in causing any of the above conditions, for the area of the yards of the country schools investigated, ranged from a third of an acre to five acres. While many of these playgrounds were well graded and clean, others were more or less covered with rubbish. In some of them the shade from the trees was sufficiently great to interfere with the admission of a proper amount of sunshine. In very few yards were there paved, wooden, or gravel paths from the road to the school, so that a great deal of mud was carried in on the children's feet, and in some the privies were situated on higher grounds than the wells, the surface drainage flowing directly towards the latter. The condition of the privies themselves was almost universally bad. Practically all of them were without vaults of any kind, and were open at the back, thus permitting the free entry of animals and flies. The buildings were often filthy, the seats and floors being soaked with urine and excreta so that the odor was unbearable. Only one school out of 183 visited was equipped with a septic tank privy. Many schools were without toilet facilities of any kind, thus compelling the use of secluded spots in the near-by fields and woods, and making the infection of the soil with intestinal parasites an absolute certainty.

Wells and springs were the source of the drinking water. The springs were not protected from surface drainage or fenced in to prevent their use by cattle, and the wells did not have adequate covering or troughs to carry off the refuse water, which consequently drained back into the well. The method of drinking the water was not quite so universally unsanitary as the source itself, because a little more than one-half of the schools visited had discarded the common drinking cup or dipper. Some advance had also been made in the subject of lighting, as many of the newer schoolhouses had the windows placed on one side only, usually to the left of the pupils, thereby avoiding bad cross lights and simplifying the proper placing of blackboards. In the old schoolhouses the illumination was not so good. Many of these were so arranged that the pupils were compelled to sit facing the light, thus increasing the danger of contracting eyestrain.

The majority of the schools were heated with wood or coal stoves, the area immediately around the stove being very hot, while the rest of the room was cold. There is on the market

a jacketed stove with a flue drawing fresh air from the outside of the building into the jacket, where it is warmed, and escapes at the top, thus maintaining a practically uniform temperature in all parts of the room. Though this stove is efficient and inexpensive, not one was seen in use.

Very few schools were over-crowded but many were over-heated and poorly ventilated. Only four of 164 schoolhouses heated by coal stoves attempted to supply the moisture so necessary for health and comfort, by the simple expedient of placing vessels of standing water on the stoves.

Provisions for washing faces and hands were seldom made, and where there was an attempt in this direction, the common towel was almost always the method provided for drying. Not one school was equipped with adjustable seats, and many pupils were using desks entirely too large for them. A great many schoolhouses were swept at recess, with doors and windows closed, and often with the children partaking of their lunch while the sweeping was going on.

The foregoing array of conditions in the rural schools of Tennessee and Georgia is certainly a sad commentary on the advance of hygienic knowledge in the country districts of those states. When we consider the fact that in the year 1910 the census reports for the state of Tennessee showed that 600,000 of its 734,478 children of school age were living in the country districts, these bad sanitary conditions become a matter of graver concern than is at first apparent. Surely the medical supervision and inspection of school children is needed in the country fully as much as in the town. In the whole matter of the public school question we Americans are too apt to believe our politician orators when they tell us that in our free country we have the finest school system in the world. In this connection the article of Price Collier in November *Scribner's* is illuminating. Speaking of Norway and their school system, he says, "Every child must appear before both dentist and physician and must submit to being kept in as healthy a condition as possible. This sound and sensible schooling, with the dentist and physician at the entrance gates, with bathing and gymnastics to follow, and with sewing, cooking and handicrafts, is compulsory upon all pupils in Norway and Sweden."

If one desires to see some of the far-reaching practical results of such a system he should compare the longevity statistics of countries like Norway and Sweden with those of other countries, where less attention is paid to the health of the young generation. It will be found that such measures are among those which have added ten years to the average life of the Norwegian as compared to that of our own people.

LIFE INSURANCE AND ALCOHOL.

At the recent annual meeting of the Association of Life Insurance Companies in New York a report of much interest from a bureau of investigation was presented by Mr. Arthur Hunter, chairman of the bureau. This report embodied the results of careful investigation, just completed, into the causes of premature deaths, during the last twenty-five years, among the 2,000,000 policy holders of forty-three leading life insurance companies; its special object being to enable the companies to arrive at a better estimate as to which classes of applicants can be insured at regular rates, which should be required to pay extra premiums, and which should be refused. Naturally, alcohol is a very prominent cause of mortality, and the report states that among the persons who admitted that they had occasionally drunk to excess in the past, but whose habits were considered satisfactory when they were insured, there were 289 deaths; while had this group been made up of insured lives in general, it was computed that there would have been only 190 deaths. The excess mortality was, therefore, over 50%, equivalent to a reduction of over four years in the average lives of these men. Among the fourteen subdivisions of those engaged in trades connected with the manufacture or sale of alcohol it was found that there was only one class in which there was a normal mortality, and that was the distillery proprietors. Among saloon proprietors, whether they personally attended the bar or not, there was an extra mortality of 70%, and the recorded causes of death indicated that a free use of alcoholic beverages had caused many of the deaths. Hotel proprietors who attended the bar either occasionally or regularly had as high a mortality rate as the saloon keepers; life being reduced about six years, on the average, on account of their occupation. As an illustration of the good results which would ensue from ab-

...n from alcohol the report refers to the ... saving of human life that will be ac... the Russian government estab... permanent prohibition. The loss of 500,... as the result of the present war, it is ..., could be made good in less than ten years ... complete abstinence from alcoholic bev... by all the inhabitants of Russia.

AID FOR BELGIAN PHYSICIANS.

IN another column of this issue we present in detail an appeal for aid for Belgian physicians and surgeons. At such a crisis as this the suffering and privation in devastated Belgium is general, but the position of the physicians should peculiarly arouse our sympathy and stimulate our efforts to help their desperate situation. As appears from Professor Jacob's statement, the physicians have lost, not only their houses, but also the very instruments and other necessities with which to carry on their work. For the benefit of the destitute people, as well as for the physicians themselves, assistance is most urgently demanded, in order that the practice of the physicians remaining may be facilitated in every possible way. We need only to call attention to these facts to excite, we trust, a generous response to the appeal which Sir Rickman Godlee has addressed to certain surgeons of the United States and which has resulted in the appointment of a committee to collect funds for the specific relief of Belgian physicians. Dr. Frank F. Simpson, 7048 Jenkins Arcade Building, Pittsburgh, Penn., has consented to act as treasurer of the committee, and will gladly receive contributions, either personally, or indirectly, if sent to the editor of the *Journal of the American Medical Association, The Medical Record, Surgery, Gynecology and Obstetrics*, or the *Boston Medical and Surgical Journal*, respectively.

MEDICAL NOTES.

AMERICAN SANATORIUM ASSOCIATION.—The annual meeting of the American Sanatorium Association, held at Middleborough, Mass., on Dec. 15, was attended by delegates from all parts of the United States and Canada. Papers were read by Dr. Lawrason Brown of Saranac Lake, N. Y., Dr. George W. Branch of Walker, Minn., and Dr. Sumner Coolidge of Lakeville. Dr. V. Y. Bowditch of Boston presided. Resolutions were adopted urging the Massachusetts General Court to authorize some commission to detain tuberculous patients at state institutions as long as there is danger of their infecting others with their disease.

LONDON DEATH-RATES IN OCTOBER.—Statistics recently published show that the total death-rate of London in October was only 14.1 per 1000 inhabitants living. Among the several districts and boroughs, the highest rate was 21 in Southwark, a populous southern slum, and the lowest was 9.3 in Stoke Newington, a more open region on the north.

TUBERCULOSIS IN GERMANY DURING THE WAR.—State care of the tuberculous in Germany has not ceased on account of the European war. "At the outbreak of the war Germany had 149 sanatoriums for adults and 32 for children. There were also 108 hospitals, containing 20,000 beds, for weak and scrofulous children. In addition, there were 1819 dispensaries and 115 forest homes (*Walderholungsanstalten*), and 19 large institutions, with 1496 beds, for cases of tuberculosis of the bones and joints. Further, there were several institutions for the treatment of lupus. When the war broke out most of the physicians and nurses attached to these hospitals volunteered for active service, and the hospitals being temporarily closed were put at the service of the army medical staff. The risks entailed by this precipitate abandonment of work among the tuberculous were, however, soon realized."

EUROPEAN WAR NOTES.—On Dec. 21 the total of the New England Belgian Relief fund amounted to $143,523.72, the Massachusetts Red Cross fund to $90,263.22, the Russian relief fund to $7,829.50, the Polish relief fund to $5,700.71, the New England British Relief fund to $14,101.52, and the Boston branch of the American Ambulance Hospital fund to $46,017.95.

In a recent issue of the *British Medical Journal*, Sir William J. Collins records some of his surgical experiences in a tour of military hospital inspection in West Flanders. At Furnes he visited a field hospital established in a convent. "This is the nearest hospital to the fighting line. We could hear the guns and at night see them flashing in the distance from its windows. More than once it has been under shell fire. Yet here in two wards are some seventy beds fully occupied by well-tended wounded Belgians, with an occasional German. Here is a good improvised operating theatre, and here excellent conservative surgery is being carried on under many difficulties. Plated fractures of humerus and femur, resection of intestine, suture of intestinal bullet wounds, extraction of shrapnel, balls and bullets, amputations and trephinings had been carried out with excellent results. Here, as elsewhere, nearly all wounds are septic from the first; suppuration is the rule.

One is reminded of Hueter's saying of old time that 'suppuration is an epidemic spread over the whole world.' Any attempt to isolate the aseptic from the foul is out of the question.

"Outside in the courtyard of the chapel are parked up a fleet of Red Cross motor ambulances awaiting the next call to the front. They are mostly converted cars, and they leave something to be desired. The heavy roads need at least 20 h.p. chassis, and many of them are of only 15. They are mostly arranged for two stretcher cases on the left-hand side and three or four sitting cases on the right. This causes a list to the right, intensified on highly cambered roads, especially when passing commissariat convoys or ammunition trains. On the Continent, of course, the rule of the road is to the right instead of to the left, and in converted cars the projection of the stretcher side of the ambulance to the left of the driver obscures the latter's vision of any vehicle overtaking him on the road."

Later, speaking of conditions at Dunkirk, Sir William says:—

"Most nights, between 10 and 12 o'clock, a gruesome scene was to be witnessed in the sheds at the station. The ambulance train (of the cattle truck variety) brought in the wounded from the front. A sort of clearing hospital had been improvised in one of the huge station sheds. Some 200 beds had recently been installed. To these the stretcher cases from the train were borne. Many of them had not been dressed for two or more days, and were intensely septic. Cases of gas gangrene, of severe compound fracture needing immediate amputation, huge black lacerated wounds from shrapnel or shell casing, some few clean bullet wounds, bad head injuries, and a traumatic aneurysm were among the 125 grave cases evacuated from the train in one night."

Reduced Cost of American Radium Production.—In his recent annual report, submitted at Washington on Dec. 14, Joseph A. Holmes, director of the United States Bureau of Mines, states that an improved process has been devised for the extraction of radium from ores on a large scale.

"Through this process," says Dr. Holmes, "it is possible that the cost of radium to the consumer will be reduced to one-third of the present price. The process is to be patented and dedicated to the public."

"With radium now selling at $120,000 a gram its reduction in price to $40,000 will result in many hospitals throughout the country being able to purchase a supply. The process devised by the bureau's chemists has been already tested with success in the plant of the National Radium Institute, which is under the supervision of the mechanical staff of the Bureau of Mines."

American Association for the Advancement of Science.—The sixty-sixth annual meeting of the American Association for the Advancement of Science will be held at Philadelphia from Dec. 28 to Jan 2, under the presidency of Dr. Charles W. Eliot. It is expected that over 1500 delegates will be present. The retiring president Dr. Edmund B. Wilson, will deliver an address on "Some Aspects of Progress in Modern Zoölogy."

"At the same time more than a score of affiliated organizations will hold their annual conventions. Among these are the American Society of Bacteriologists, Entomological Society of America, American Association of Economic Entomologists, Botanical Society of America, American Phytopathological Association, American Psychological Association, American Society of Naturalists, American Microscopical Society, American Physical Society, Geological Society of America, Paleontological Society of America and American Folklore Society."

The Epizoötic of Foot and Mouth Disease.—In his recent annual report, submitted at Washington on Dec. 10, Secretary Houston of the United States Department of Agriculture requests an additional emergency appropriation of several million dollars on account of the recent epizoötic of foot and mouth disease.

"The department has pursued its former policy of purchasing diseased and exposed cattle at an appraised value and of slaughtering them and burying them. It has established a very strict quarantine. The expense will be very great and it will be necessary to ask Congress for an emergency appropriation of several millions. The interests at stake are vast and justify any reasonable expenditure."

On Dec. 14, the federal quarantine in Iowa was raised, except in the following counties:

"Benton, Blackhawk, Buchanan, Cedar, Clinton, Delaware, Dubuque, Greene, Iowa, Jackson, Johnson, Jones, Keokuk, Linn, Louisa, Mitchell, Muscatine, Poweshiek, Scott, Tama and Washington.

"From the following-named counties live stock may be shipped for immediate slaughter at points where federal meat inspection is maintained:

"Benton, Blackhawk, Buchanan, Delaware, Dubuque, Keokuk, Linn, Louisa, Muscatine, Poweshiek, Scott, Tama and Washington.

"In addition, after previous inspection and certifications by federal inspectors, live stock may be shipped out for immediate slaughter from the following-named counties:

"Greene, Mitchell, Cedar, Iowa, Jones, Johnson and Clinton, except from territory within five miles of infection premises. Jackson County remains in absolute quarantine."

In Massachusetts, it is believed that the epizoötic is at an end. All infected animals have been slaughtered.

"The estimated value of the animals killed is $106,820.75, and the incidental expense of dis-

[illegible] [illegible]s, etc., will probably amount to [illegible] One half of the total expense will be borne by the federal government.

"Thirty-eight herds were killed and buried. There were 1099 cattle, 2 oxen, 2360 swine, 1683 fowl, 4 turkeys, 9 sheep and 4 goats."

MEDICO-HISTORICAL LOAN EXHIBIT.—At the Jefferson Memorial Building, St. Louis, there has been on exhibition since Dec. 4 a most interesting collection of rare and valuable books in Latin, dating from the fifteenth and sixteenth centuries, as well as paintings, engravings, medals and autograph letters. Contributors outside of St. Louis are Dr. Edward C. Streeter, of Boston, Army Medical Museum and Library, Washington, D. C., Rush Medical College, University of Pennsylvania Medical School, and John Crerar Library (Nicholas Senn Collection), Chicago. The exhibit covers a wide range of the history of medicine and graphically illustrates the interest manifested today in this important subject. The exhibit will close Dec. 24.

BOSTON AND NEW ENGLAND.

A PHYSICIAN ON THE BOSTON SCHOOL COMMITTEE.—At the municipal election on Dec. 15, Dr. Frederick L. Bogan of Charlestown, Mass., was elected a member of the Boston School Committee. Dr. Bogan received the degree of M.D. from the Tufts Medical School in 1905, and is a Fellow of the Massachusetts Medical Society.

DIPHTHERIA AND SCARLET-FEVER IN MALDEN.—Report from Malden, Mass., on Dec. 16 states that, on account of the continued prevalence of diphtheria and scarlet-fever in the Prince school district of that city, this school has for the second time been ordered closed until Jan. 4.

POLIOMYELITIS IN MARLBOROUGH.—Report from Marlborough, Mass., states that on Dec. 9 a case of poliomyelitis was discovered in that city. The house where it occurred has been quarantined.

DIPHTHERIA IN QUINCY.—Report from Quincy, Mass., on Dec. 10 states that, on account of the recent occurrence of several cases of diphtheria in the city, two of the local schools have been ordered closed and fumigated.

INVESTIGATION OF POLIOMYELITIS IN VERMONT.—Report from Burlington, Vt., on Dec. 11 states that arrangements have been made for a comprehensive study of poliomyelitis in Vermont by the State Board of Health in coöperation with Dr. Simon Flexner of New York and Dr. Robert W. Lovett of Boston. "Dr. Flexner is to send his assistant, Dr. H. L. Amoss, to aid in the experimental work to be conducted at the University of Vermont for the purpose of learning to what extent 'carriers' spread the disease. The treatment of children left cripples by infantile paralysis will be under the general direction of Dr. Lovett, assisted by some Vermont physician to be appointed later."

A CLERICAL CENTENARIAN.—The Reverend Sedgwick W. Bidwell, who died at Middlebury, Vt., on Dec. 13, is said to have been the oldest clergyman in the United States. He is reputed to have been born on Dec. 6, 1809, and continued active in the ministry until the age of 100.

A LIVING CENTENARIAN.—Mrs. Polly Johnson, of Somerville, Mass., who is said to have been born on Dec. 16, 1810, at Malone, N. Y., celebrated recently her supposed 104th anniversary. Her health is excellent, and she can still read without the aid of glasses.

FREE PUBLIC LECTURES ON MEDICAL SUBJECTS.—In accordance with its recent annual custom, the Faculty of Medicine of Harvard University offers a course of free public lectures, to be given at the Medical School, Longwood Avenue, Boston, on Sunday afternoons, beginning Jan. 3 and ending May 9, 1915. The lectures will begin at four o'clock and the doors will be closed at five minutes past the hour. No tickets are required. The following is the schedule of lectures:—

Jan. 3. Dr. Reid Hunt, "Drugs."
Jan. 10. Dr. John Lovett Morse, "The Care and Training of Older Children."
Jan. 17. Dr. J. L. Goodale, "Susceptibility and Resistance in Diseases of the Nose and Throat."
Jan. 24. Dr. Alexander Quackenboss, "Cataract; Its Nature and Treatment."
Jan. 31. Dr. William P. Graves, "Heredity."
Feb. 7. Dr. S. A. Hopkins, "Mouth Hygiene as a Factor in Sickness and Health."
Feb. 14. Dr. Harris P. Mosher, "Catarrh."
Feb. 21. Dr. George S. Derby, "The Preservation of the Eyesight."
Feb. 28. Dr. Franklin W. White, "Food in Health and Disease. 'Food Fads,' 'Health Foods,' 'Vegetarianism.'"
March 7. Dr. E. G. Martin, "Fatigue and Rest."
March 14. Dr F. S. Newell, "Modern Obstetrics." (To women only.)
March 21. Dr. G. S. C. Badger, "Common Colds."
March 28. Dr. Percy Brown, "The Use of X-rays as an Aid to Our Knowledge of Disease in the Stomach and Bowels."
April 4. Dr. R. B. Osgood, "The Cause and Prevention of Chronic Rheumatism."
April 11. Dr. C. A. Porter, "What Surgery Can Do for Chronic Indigestion."
April 18. Dr. Paul Thorndike, "The Bladder Ailments of Man in Later Life." (To men only.)
April 25. Dr. E. H. Place, "What May We Do in Diminishing the Dangers of Contagious Disease?"
May 2. Dr. E. E. Southard, "Sex Differences in the Human Brain."
May 9. Dr. W. B. Lancaster, "Lighting. Good and Bad Lighting; Its Effects on the Eyesight."

UNION DENTAL MEETING.—On the evening of Dec. 16 there was held in Boston a union dental meeting of the American Academy of Dental Science, the Harvard Odontological Society, Tufts Dental Alumni Association and the Metropolitan District of the Massachusetts Dental Association. Dr. Waldo E. Boardman, of Bos-

ton, presided and there was an attendance of 230 members and delegates. The guest of honor was Dr. John P. Buckley, professor in the University of Chicago Dental School, who made an address on "The Treatment of Hypersensitive Dentine and Other Diseases of the Dental Pulp." This is the seventh union meeting which these organizations have held.

Cases of Infectious Diseases reported to the Boston Board of Health for the week ending Dec. 15, 1914: Diphtheria, 97, of which 8 were non-residents; scarlatina, 65, of which 5 were non-residents; typhoid fever, 11, of which 4 were non-residents; measles, 86; tuberculosis, 46, of which 2 were non-residents. The death-rate of the reported deaths for the week was 19.79.

NEW YORK.

Mortality Statistics.—The weekly reports of the health department show that during the month of November the mortality in the city represented an annual death-rate of 12.15, as against 11.14 in October and 12.36 in November, 1913. Among the diseases in which there was an augmented fatality were the following: The weekly average of deaths from measles increased from 1.5 in October to 2.25 in November; the weekly average from scarlet fever, from 1.75 to 2.75; from diphtheria and croup, from 18 to 21; from tuberculous meningitis, from 8.75 to 10; from pulmonary tuberculosis, from 140.5 to 159.5; from acute bronchitis, from 8.25 to 13.25; from pneumonia, from 55.75 to 87.5; from bronchopneumonia, from 45.5 to 69.25; from apoplexy and softening of the brain, from 21.5 to 26.5; from organic heart diseases, from 164.75 to 191; from appendicitis and typhlitis, from 10.75 to 12.5; from cirrhosis of the liver, from 14 to 17; and from Bright's disease and acute nephritis, from 81.5 to 106.25. Among the diseases in which there was a diminished mortality were the following: The weekly average of deaths from typhoid fever declined from 9 to 8; from whooping-cough, from 6 to 3.25; from epidemic cerebrospinal meningitis, from 4.25 to 3.5; from diarrheal diseases under five years, from 79 to 35.75; and from hernia and intestinal obstruction, from 11 to 9. Usually the death-rate is lower in November than in October, but, while the showing for November is very favorable, the rate was exceptionally low in October this year—being much under the average.

Disinfection of Premises by Fumigation.—Early in the autumn the health department decided to discontinue fumigation of premises after all cases of infectious disease, with the exception of smallpox, in the boroughs of the Bronx, Richmond and Queens. District nurses were instructed, on termination of any case by recovery, removal or death, to visit the premises and give all necessary directions regarding cleansing and disinfection by the occupants or by the owner in cases where the premises were vacant. In case of refusal, formal notice to be issued and enforced by the department. The nurses were also instructed not to remove the departmental placards from the door until satisfied that the necessary cleaning and disinfection had been carried out; nearly all authorities agreeing that such renovation, comprising repapering or repainting of walls, repainting of woodwork, and thorough cleaning of the floors, constitutes the most efficient means of disinfection of an apartment. The results are reported to have been most satisfactory, and, encouraged by these, the department determined to limit still further the disinfection of premises by fumigation during the coming year. Consequently, the budget for the Bureau of Infectious Diseases for 1915 dispenses with the services of one disinfector at $1050 per annum, sixteen disinfectors at $900, and seven at $750. In the coming year it is purposed to discontinue routine fumigation for infectious diseases in the borough of Manhattan, as well as in the Bronx, Richmond and Queens; so that a comparison of the 1915 morbidity rates in the borough of Brooklyn with those of former years will enable the department to determine whether any rise or fall in the morbidity in the other boroughs is due to discontinuance of fumigation, or would have occurred under any circumstances.

Greater Supervision of Stables.—The health department has for some time appreciated the need for a greater supervision of stables in the city, with a view to improving their general sanitary condition and of reducing the nuisance which may exist on their account, particularly as regards the breeding of flies. Until recently the limited number of sanitary inspectors restricted all regular inspection of stables to those maintained in cellars, as these were most likely to violate sanitary principles. In order better to control the fly nuisance, the director of the Bureau of Infectious Diseases suggested early last spring that the permit requirement should be extended to all the stables in the city, and with this object in view the department requested the Bureau of Municipal Research to make a study of stable conditions in New York and submit a report embodying recommendations. This bureau complied with the request, and among the recommendations made were the following: That a complete census of all stables be taken at once; that a thorough inspection be made twice a year; that the health department require all manure to be sprayed with iron sulphate solution when collected from stalls, and that disinfectants be used in stalls; that manure be kept covered, and removed at least every second day; that receptacles for manure be disinfected with lime or other effective disinfectant when emptied; that stables not complying with these rules be refused a license. The department regards green vitriol so corrosive as to render borax or lime a

[illegible] as far as practicable, the other recommendations were acted on. As a consequence of this work, and that to be performed in the next spring, the department looks forward to a great reduction in the number of house flies and entertains the hope that this will favorably influence the infant mortality of next summer, as well as the prevalence of typhoid and infectious diseases generally.

NEW HOSPITAL, HUNTINGTON, L. I.—Miss Cornelia Prime of Huntington, Long Island, has given a site and building for the new hospital which the residents of that town have long desired to establish. It is also reported that she may endow the institution in the future. The site presented comprises two acres, and the large house on it will answer for hospital purposes when remodeled. In addition to the land, Miss Prime has also contributed for the work of reconstruction.

RELIEF FUND FOR BELGIAN PHYSICIANS.—A national committee, the secretary of which is Dr. H. Edwin Lewis of New York, has been organized to obtain funds for the relief of physicians and their families who are destitute in Belgium. Among the other New York physicians interested in the movement are Col. Charles E. Woodruff, U. S. Army Medical Corps, retired, and Drs. William Seaman Bainbridge, Parker Syms, Louis F. Bishop, J. Wallace Beveridge, Smith Ely Jeliffe, and H. Sheridan Baketel.

SAFETY AND SANITATION EXHIBITION.—The second annual safety and sanitation exhibition was formally opened on Dec. 14 by President McAneny of the Board of Aldermen, representing the mayor. In an address on the occasion by Arthur Williams it was stated that in this country 75,000 lives were annually lost through accidents, and that 35,000 of these were in the industrial world. In New York alone 3600 fatal accidents occur each year.

POST MORTEM CESAREAN SECTION.—A case is reported from the Beth David Hospital in which a living child was delivered, by Cesarian section, three minutes after the sudden death of the mother from cardiac disease.

BEQUEST TO ST. LUKE'S HOSPITAL.—Among the charitable bequests in the will of Mrs. H. LeRoy Jones, a daughter of the late Ambrose Kingsland, a former mayor of New York, is one of $75,000 to St. Luke's Hospital.

HOSPITAL BUREAU OF STANDARDS AND SUPPLIES.—The recently published fifth annual report of the executive committee of the Hospital Bureau of Standards and Supplies records the activities of this organization for the year ended Sept. 30, 1914. At the present time 33 hospitals and charitable institutions are associated with this body and 68 agreements for the purchase of hospital supplies are in force. As a result of the five years of its operation the executive committee concludes that its methods promote hospital efficiency, not only by economy of purchases, but by the coördination of experience in the establishment of standards of economic administration.

MORTALITY FOR WEEK ENDING DECEMBER 12, 1914.—The most noteworthy feature of last week's mortality as compared with that of the corresponding week in 1913 was the large increase in the deaths from acute respiratory diseases, especially lobar pneumonia, there having been 149 deaths reported during the week as against 86; the deaths from bronchopneumonia increased from 81 to 95. This increase in the mortality from the acute respiratory diseases occurred in each of the boroughs of the city, and probably was due to the atmospheric conditions prevalent during the past fortnight.

The number of deaths reported during the past week was 1338 with a death-rate of 12.50 per 1000 of the population as compared with 1343 deaths and a death-rate of 13.04 for the corresponding week of last year, a decrease of 5 deaths and of .54 of a point in the rate, equivalent to a relative decrease of 58 deaths.

Viewed from the point of age grouping, infants under one year of age and between one and five years showed an increased mortality; between five and sixty-five years the mortality was approximately the same, whilst that at sixty-five years and over was considerably lower.

The death-rate since the first of January up to and including Saturday, Dec. 12, was 13.42 per 1000 of the population as against a rate of 13.75 for the corresponding period of last year, a decrease of one-third of a point.

Current Literature

MEDICAL RECORD.

NOVEMBER 28, 1914.

1. *ABBE, R. *Radium Beta Rays. The Efficient Factor in Repressive Action on Vital Cells.*
2. MORTON, W. J. *Imbedded Radium Tubes in the Treatment of Cancer. With Report of a Case of Sarcoma Remaining Cured Nine Years after Radiation.*
3. SAVINI, C. *Microscopical Traumatic Lesions of the Mucosa Found in Some Recent Cases of Appendicitis.*
4. LEONARD, E. F. *Report of a Case of Myxedema Allied to the Infective Exhaustive Group.*
5. SIMPSON, C. A. *Annular Serpiginous, Bullous Eruption Complicating Vaccination.*
6. STONE, W. B., AND FAY, A. S. *Acute Myelogenous Leukemia.*
7. WAUGH, W. F. *The Load Our Students Bear.*
8. EHRLICH, S. D. *A Case of Retroperitoneal and Extensive Subcutaneous Emphysema Following Intratracheal Anesthesia, with Recovery.*

1. Separated beta rays from radium, says Abbe, are demonstrated to be the efficient force most active against living cells. These rays are electrons or particles discharged from the radium atom, each being a charge of negative electricity. What the force is which actuates living cells is unknown, but it adds one link to the chain of facts to know that a charge of negative electrons carried into certain types of disorderly growing cell tissues reduces them to orderly growth. The permanence of this checking force is established. [L. D. C.]

December 5, 1914.

1. Ewing, J. *Precancerous Diseases and Precancerous Lesions, Especially in the Breast.*
2. Wright, A. B. *Heredity and Predisposition in Life Insurance.*
3. Robinson, W. J. *Chronic Prostatitis and Its Treatment by the General Practitioner.*
4. Barber, W. L., Jr. *The Question of Intestinal Stasis.*
5. Knipe, W. H. W. *Twilight Sleep in Practice.*
6. North, J. *"Back to the Soil." The Relation of Pulmonary Tuberculosis to Soil Formation.*
7. Unger, M. *A New Combined Head-Mirror and Face Protector.*

New York Medical Journal.

November 28, 1914.

1. Roe, J. O. *Phlegmons of the Upper Respiratory Tract.*
2. Robinson, B. *Intestinal Stasis.*
3. Fischer, L. *Convulsions During Pertussis.*
4. Forbes, A. M. *Sciatic Pains.*
5. Cunningham, W. P. *Epithelioma Varium.*
6. Reilly, T. F. *Parageusia and Its Treatment.*
7. Voorhees, I. W. *Voice Fatigue in Singers and Speakers.*
8. Gardiner, J. *Post-Partum Hemorrhage and the Treatment.*
9. *Faught, F. A. *An Aid to the Auscultatory Blood Pressure Test.*
10. Jennings, W. B. *Garcia Fernandez.*
11. Groszmann, M. P. E. *The Determination of Exceptional Development in Children.*

9. Faught describes a bracelet which he has found very useful for keeping the stethoscope bell in position in taking blood pressure by the auscultatory method. It has the further advantage of doing away with annoying crepitus and other adventitious sounds in the arm. [L. D. C.]

December 5, 1914.

1. *French, T. R. *Tonsillotomy versus Tonsillectomy.*
2. Buerger, L. *Unusually Large Ureteral Calculi.*
3. Ogilvy, C. *Backache.*
4. Hartshorn, W. E. *Fracture of the Clavicle.*
5. Comstock, A. *The Intravenous Treatment of Arthritic Processes.*
6. Knight, C. P. *Local Anesthesia in Hernia Operations.*
7. Klein, S. R. *Urinary Findings in Various Pathological Conditions of the Alimentary Canal.*
8. Bardes, A. *Intracranial Diseases from the Ear.*
9. Diefendorf, B. *The Technic of Vaccination.*

1. French believes that in tonsil operations it is desirable to leave the capsules in the tonsillar fossae whenever possible. At least 80% of enlarged tonsils do not contain foci of infection and therefore do not need to be completely removed. Extensively diseased tonsils should of course be enucleated. [L. D. C.]

The Journal of the American Medical Association.

December 5, 1914.

1. *Dennett, R. H. *The Use of Boiled Milk in Infant-Feeding.*
2. Ostheimer, M. *Fragilitas Ossium.*
3. Shurly, B. R. *Preventive Otolaryngology.*
4. Kennedy, F. *Acute Insular Sclerosis and Its Concomitant Visual Disturbances.*
5. Krotoszyner, M. *Differential Diagnosis of Nephrolithiasis and Renal Tuberculosis by Roentgenography.*
6. *Hinman, F. *The Operative Treatment of Tumors of the Testicle, with Report of Thirty Cases Treated by Orchidectomy.*
7. Lower, W. E. *Diverticula of the Urinary Bladder, with Report of Cases.*
8. Loeb, V. *Acute Parenchymatous Glossitis.*
9. *Gilmer, T. L., and Moody, A. M. *A Study of the Bacteriology of Alveolar Abscess and Infected Root Canals.*
10. *Billings, F. *Mouth Infection as a Source of Systemic Disease.*
11. *Mayo, C. H. *Mouth Infection as a Source of Systemic Disease.*
12. Rosenow, E. C. *Mouth Infection as a Source of Systemic Disease.*
13. Craig, C. B. *Peridental Infection as a Causative Factor in Nervous Diseases.*
14. Campbell, A. E. *Some Important Phases of Railway Sanitation.*
15. *Hertzler, A. E. *Local Anesthesia in the Prevention of After-Pain and Shock.*
16. Wherry, W. B., and Lamb, B. H. *Discovery of Bacterium Tularense in Wild Rabbits and the Danger of Its Transfer to Man. Preliminary Note.*

1. Dennett claims that the prolonged use of boiled milk, if properly administered, does not necessarily cause nutritional disturbances, such as rickets, anemia, malnutrition or poor musculature. Scurvy may be avoided by the use of orange juice in conjunction with boiled milk. Boiled milk does not cause digestive disturbances in normal infants and is therefore no more difficult to digest than unboiled milk. It often aids in overcoming digestive disorders. The change from boiled to unboiled may or may not cause digestive disturbance.

6. Hinman states that orchidectomy cures 15 to 20% of teratoma testis, but only when the testicle is removed before the onset of glandular or other metastases. A cure cannot be assured till nine years have elapsed. He describes the technic of the radical operation, in which the glands along the aorta to the pelvis of the kidney are removed.

9, 10, 11, 12. This symposium on mouth infections gives a good review of the subject but is not suited to abstract.

15. Hertzler does not believe with Crile that local anesthesia in addition to general will prevent shock in grave abdominal or many other operations.

[E. H. R.]

December 12, 1914.

1. Lee, F. S. *The Relation of the Medical Sciences to Clinical Medicine.*
2. Rehfuss, M. E., and Hawk, P. B. *Gastro-Intestinal Studies. IV. Direct Evidence of the Secretion of a Gastric Juice of Constant Acid Concentration by the Human Subject.*
3. *Hayhurst, E. R. *The Prevalence of Occupational Factors in Disease, and Suggestions for Their Elimination.*
4. Holmes, E. M. *Clinical Classifications of Ethmoiditis.*
5. Shambaugh, G. E. *Pathology of the Ethmoid Labyrinth.*

6. [illegible] W. C. *I. The Section on Stomatology: Its Origin, Its Duties and Its Opportunities. II. The Field of Stomatology.*
7. [illegible] G. V. I. *The Section of Stomatology as a Factor in the Evolution of Dental and Medical Science.*
8. [illegible] W. M. *Continuous Painless Renal Hemorrhage and Its Treatment.*
9. [illegible] E. *Extraperitoneal Rupture of the Bladder. Its Surgical Management.*
10. [illegible] E. G. *The Mechanics of a Plaster-of Paris Cast in Lateral Curvature of the Spine.*
11. [illegible] W. G. *The Three Cardinal Clinical Signs of Fracture into or Near Joints.*
12. [illegible] J. H. *Prophylactic Vaccination Against Epidemic Meningitis. A Supplementary Note.*
13. [illegible] R. L. *Tracheotillomania.*
14. [illegible] W. W. *Dermatolysis, with Report of Two Cases.*
15. [illegible] C. H. *A Bicornate Uterus Which Contained Three Pregnancies.*
16. [illegible]SON, C. F. *The Thyroid Gland in Pellagra.*
17. [illegible] W. *A Tack in the Epartcrial Branch of the Right Main Bronchus.*
18. JOHNSON, T. A. *A Case of Cardiospasm, with Improvement in Method of Dilatation.*

3. Hayhurst from a considerable study makes the following interesting and vitally important observations and statement: Occupied persons other than agriculturists suffer an enormous mortality (figures show 74 [illegible] from well recognized preventable and prematurely degenerative diseases. From one-fourth to one-third of the medical afflictions of trades persons are due in whole or in great part to industrial health hazards. Specific occupational diseases, such as lead poisoning, are not recognized in more than one out of three or four instances, more especially the chronic cases. Too much importance is given to alcoholism, with a failure to appreciate that subjection to industrial health hazards in itself induces and promotes stimulantism.

S Spitzer makes the following decisive statement in regard to so-called essential hematuria. The changes found in the kidneys of essential hematuria are identical with those found in passive congestion and are therefore caused by passive congestion. The bleeding is due to passive congestion, the kidney being an organ so constructed that it must of necessity bleed in the presence of passive congestion. It is erroneous to ascribe the bleeding to nephritis, as there are no cardinal symptoms or urinary findings indicative of nephritis, nor can the latter be unilateral. Still it is admitted that if the bleeding continues, the pathologic changes in the kidney would be the same as in chronic interstitial nephritis. The passive congestion occurring in one kidney only is due to some interference with the outflow of blood which comes from a twisting of the kidney on a short pedicle. Operative interference is warranted only when it becomes necessary to save the patient's life because of an increasing secondary anemia. Bisection of the kidney for cure of this condition is contraindicated, and likewise dangerous. [E. H. R.]

THE ARCHIVES OF INTERNAL MEDICINE.

AUGUST, 1914.

1. KING, J. H. *Studies in the Pathology of the Spleen.*
2. COLEMAN, W., AND DUBOIS, E. F. *The Influence of the High-Calory Diet on the Expiratory Exchanges in Typhoid Fever.*
3. KESSEL, L., AND TASCHMAN, M. *A Study of Twenty-Nine Cases of Advanced Pulmonary Tuberculosis Treated by Artificial Pneumothorax.*
4. PEABODY, F. W. *Studies of Acidosis and Dyspnea in Renal and Cardiac Disease.*
5. ROSENBLOOM, J., AND COHOE, B. A. *Clinical and Metabolism Studies in a Case of Myotonia Congenita—Thomsen's Disease.*
6. MUSSER, J. H., JR. *Study of a Case of Aplastic Anemia.*

1. King reviews the literature of splenic function, from which it is evident that the spleen has a very important influence in disease and experimental conditions associated with hemolysis. The writer reports the results of original investigations in which he sought to ascertain whether in such conditions unsaturated fatty acids could be demonstrated in the blood. He finds that after splenectomy there is an increase in the total fats and cholesterin in the blood and a reduction in their iodin-combining power (a lower iodin number). In clinical conditions associated with hemolysis, pernicious anemia, hemolytic jaundice, catarrhal jaundice and some forms of cirrhosis of the liver there is a decided increase in the value of the iodin number. Removal of the spleen reduces the iodin-combining value of the unsaturated fatty acids and renders the production of icterus by hemolyzing agents more difficult. It also greatly improves clinical conditions in which hemolysis is at work. Thus the spleen may be the central point in many diseases in which hemolysis and anemia are active, especially in pernicious anemia. The increase in the total fats and lipoids of the blood following splenectomy may explain the increased resistance to hemolysins and the increased resistance of the red blood cells found in asplenism. These substances have definite anti-hemolytic properties. Splenectomy is therefore indicated in pernicious anemia, hemolytic jaundice, some types of catarrhal jaundice and cirrhosis of the liver, where the hyperactive spleen unfavorably influences the anemia through its regulation of the highly hemolytic unsaturated fatty acids in the blood.

2. Coleman and DuBois report on an elaborate clinical study of the influence of the high-calory diet on the respiratory exchanges in typhoid fever. They find that the influence of a large ingestion of food is not of great importance in increasing heat production in the febrile stage of the disease. In other words, the large amount of food administered exhibits little or no specific dynamic action, thus removing the chief theoretical objection to the use of a liberal diet in typhoid. The patients examined had an average theoretical requirement of 38.5 calories per kilogram per day. This requirement, however, must be exceeded by from 50% to 100% in order to bring the patient into nitrogen and weight equilibrium. In the steep-curve period and during relapses some patients derived from 84% to 89% of their calories from carbohydrate, and in addition, transformed some carbohydrate into body-fat. The majority of the high-calory patients showed a sharp rise in the level of the respiratory quotients during the last days of the fever, which the writers interpret to mean that the regenerative processes of convalescence begin before the temperature reaches normal.

4. Peabody reports on a clinical study of the causes of dyspnea in cardiac and renal disease. Investigations have shown, he says, that the essential exciting stimulus to the respiratory centre is the hydrogen-ion concentration of the blood. The variations in the carbon dioxide content, and consequently of the alveolar air, are but the result of the attempt on the part of the organism to keep the hydrogen-ion concentration at a constant value. The carbon dioxide in the blood rises as the amount of non-volatile acid falls, and the carbon dioxide falls as the production of other acids rises. The writer concludes from his series of cases that the mild acidosis often associated with uncomplicated chronic nephritis is compensated for by the increased excretion of acids by the kidney. It is only in uremia that non-volatile acids accumulate in the blood in sufficient amount to cause depression of carbon dioxide tension in the alveolar air. The development of acidosis bears little relation to the ac-

cumulation of non-protein nitrogen in the blood or to the output of phenolsulphonephthalein. Acidosis is not the direct or sole cause of dyspnea in cardiorenal disease. A high grade of acidosis may exist without causing noticeable change in respiration, and in some cases the degree of acidosis is not sufficient to explain the dyspnea on the basis of increased stimulus to respiration alone. Increased excitability of the respiratory center is probably an important factor in the causation of cardiac dyspnea. Such an increase in excitability may well be caused by a lowering of the oxygen tension and be dependent on an inadequate blood-flow. [L. D. C.]

SURGERY, GYNECOLOGY AND OBSTETRICS.

DECEMBER, 1914.

1. *MAYO, W. J. *The Radical Operation for Cancer of the Pyloric End of the Stomach.*
2. DAVIS, G. G. *Laverenda's Ankle.*
3. *CUNNINGHAM, J. H. *The Operative Treatment of Carcinoma of the Penis.*
4. ARMSTRONG, G. E., AND MULLALLY, F. J. *Two Cases of Filariasis.*
5. *GRANT, S. G. *Surgical Myxorrhea Coli, Myxorrhea Membranacea and Myxorrhea Colica.*
6. FULLERTON, W. D. *Uterine Sarcoma.*
7. *BLAIR, E. G. *Dactylocostal (Osseous and Cartilaginous) Rhinoplasty.*
8. LIPPMAN, C. W. *The Duodenum: A Roentgen Study.*
9. *PHILLIPS, C. E. *Syndesmorrhaphy and Syndesmoplasty: The Operative Treatment of Ruptured Ligaments.*
10. *TRACY, S. C. *The Phenolsulphonephthalein Test from the Viewpoint of the Abdominal Surgeon.*
11. CONNELL, F. G. *The Chronic Abdomen: A Review of Nineteen Cases of Pericolitis and Ileal Kink in Which the Appendix Had Been Previously Removed.*
12. JONES, H. E. *Some Contraindications Which Determine the Extent of an Operation in Septic Invasion of the Lateral Sinus.*
13. BENNETT, C. E. *Polycystic Kidney.*
14. LEWIS, E. G. *Pseudomyxoma of the Peritoneum.*
15. SUDLER, M. T. *Enchondromata, with Special Reference to the Scapula.*
16. KRETSCHMER, H. L., AND MOODY, A. M. *Malignant Papillary Cystadenoma of the Kidney with Metastases.*
17. GARDNER, L. N. *A Study of the Efficiency of the Saliz-Gould Method of Testing Antiseptic Solutions.*

1. Mayo by beautiful plates shows the technic of his operation for gastrojejunostomy, using the stump of the stomach instead of closing this and doing gastroenterostomy, after excision for carcinoma.

3. Cunningham describes the radical operation for carcinoma of the penis and states that our operation should be much more radical than formerly in order to obtain cure.

5. Grant's article is of interest but not suited to abstract. He goes into considerable detail.

7. This article is well illustrated by photographs and text and shows excellent results.

9. Phillips' article is of very practical interest.

10. Tracy's article emphasizes the necessity of depending more on clinical signs and symptoms than on such a test as the phenolsulphonephthalein test to determine the actual function of the kidney.

[E. H. R.]

INDIAN MEDICAL GAZETTE.

SEPTEMBER, 1914.

1. HEHIR, P. *Remarks on Water Supplies of Troops in India.*
2. MATTHEWS, E. A. C. *The Treatment of Malignant New Growths by Dr. De Keating-Hart's Method of Fulguration and Thermo-Radio Therapy.*
3. WHITAMORE, V. N. *Some Observations on Anemia Occurring in Some Indian Troops Stationed in Singapore.*
4. NESFIELD, V. B. *The Clear Pupil after Cataract Extraction.*
5. *BAGCHI, K. P. *Devil Driving.*
6. GOBINDAN-NAIR, T. K. *Ascaris Lumbricoides Infection in Malabar District.*
7. BARRE, C. C. *Ruptured Extra-Uterine Pregnancy; Laparotomy; Delayed Chloroform Poisoning; Recovery.*
8. HARLAND, G. B. *A Note on the Surgical Treatment of Goitre in Tibet.*
9. PARK, S. *Anagnostakis' Operation for Trichiasis.*
10. NEWTON, D. C. *Emetine in Young Children.*

5. Bagshi presents a graphic account of the phenomenon of devil driving, representing the beliefs of villagers in Bengal and illustrating the ways of some village *kavirajs*. The panchoa devils, classified as silent and crying, are supposed to possess new born babies, causing them various maladies and symptoms. [R. M. G.]

NOVEMBER, 1914.

1. HEFFERNAN, P. *Asylum Dysentery.*
2. SHAW, W. S. J. *Some Generalization on the Scope, Construction and Administration of Central Asylums in India.*
3. HEFFERNAN, P. *Notes on Two Cases of Hysteria in Males.*
4. BHIDAY, B. S. *Two Cases of Anergic Stupor Treated with Thyroid Gland Extract.*
5. SMITH, H. *The Treatment of the Earlier Stages of Senile Cataracts.*
6. SUMNER, F. W. *Prevention and Treatment of Septic Wounds in Warfare.*

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 34. AUGUST 20, 1914.

1. GROBER. *The Treatment of Threatening Symptoms in the Hemorrhagic Diatheses in Leukemia and in Pseudo-leukemia.*
2. RIEDEL. *A Case of Thyroid Tuberculosis Operated upon Twenty-five Years Previously.*
3. *JULIUSBURGER, E. *The Coagulen of Kocher and Fonio.*
4. *V. MUTSCHENBACHER, T. *Prevention of Hemorrhage by the Coagulen of Kocher and Fonio.*
5. DREYER, L. *A Contribution to Vascular Surgery.*
6. SCHUB, M. *The Treatment of Ulcus Corneae Serpens with Aethylhydrocuprein.*
7. *SCHNEIDER, A., AND V. TEUBERN, F. *Studies on Occult Blood in Feces, Tested by the Phenolphthalein Method of Boas.*

3 and 4. Coagulen Kocher-Fonio is a preparation from blood platelets supposed to contain substances which stimulate the clotting of blood. 'It may be given by mouth but is readily soluble in saline solution, can be sterilized, and thus is suitable for intravenous injection. Juliusburger and v. Mutschenbacher have used coagulen to prevent bleeding of various types, whether occurring in phthisis, hemophilia or after operation. They have observed no ill effects and no tendency to intravascular clotting. They agree that the substance is a valuable hemostatic remedy.

7. Schneider and v. Teubern report comparative tests for occult blood in feces, using the methods of Weber-Boas, reported in No. 23 of this periodical, and the aloin test. They conclude that the phenolphthalein test of Boas is useful and practical and that

[illegible] is more delicate than the other tests. Thus its introduction marks a step forward in the methods of clinical diagnosis for gastrointestinal diseases.
[R. F.]

No. 35. AUGUST 27, 1914

1 [illegible], P. *The Treatment of Extra-uterine Pregnancy.*
2 [illegible], M. *The Value of the Wassermann Reaction.*
3 Gessell, O. *Amusia and Aphasia.*
4 Hoffmann. *Trauma of the Skull and Lumbar Puncture.*
5 Schiller, L. *Rupture of the Bladder.*
6 *Falk, A. *The Treatment of Tetanus with Subcutaneous Injections of Magnesium.*
7 *Trenkel, W. *The Progress in Immunization against Typhoid and Cholera.*

6. Falk has treated three cases of tetanus in children with subcutaneous injections of magnesium sulphate, as suggested by Meltzer. Falk discusses the advantages of this form of treatment and believes that it may be of great practical importance in war when it is impossible to obtain serum.

7. Trenkel quotes figures to show the importance of vaccination against typhoid and cholera. He mentions the various methods by which these vaccines may be prepared. Since vaccination has been proved harmless he advocates that it should be used generally among soldiers exposed to either of these diseases, and among nurses, physicians and hospital attendants.
[R. F.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 38. SEPTEMBER 22, 1914.

1 Hamm, A. *Resorption or Retention Fever.*
2 Magnus-Alsleben, E. *Edema in Nephritis.*
3 *Claudius, M. *The Colorimetric Estimation of Albumin in Autenrieth's Colorimeter.*
4 Lipp-Waldstetten, H. *A Simple Test for Bile and Hemoglobin in Urine.*
5 Glaser, W. *The Pathology of Paratyphoid Fever.*
6 Arnold, A., and Holzel, H. *Intravenous Injections of Arthoamin in Gonorrhea.*
7 Rentsch. *Collargol and Arthigomin in the Complications of Gonorrhea.*
8 Mebes, L. *On the Reporting of Venereal Disease.*
9. *Romberg, E. *The Treatment of Typhoid Fever.*
10 Schmidt, A. *The Differential Diagnosis between Dysentery and Similar Intestinal Diseases.*
11 Ribbinger, F. *The Treatment of Intestinal Prolapse in the Field.*
12 Reil. *A Litter for Use in the Field.*
13 v. Baeyer. *The Preparation of Plaster Splints.*
14 Zur Verth, M. *Sanitary Rules for Sailors.*
15 Hirchler, E. *Saline Solutions for Subcutaneous or Intravenous Use Prepared from Spring or Tap Water and Common Salt.*
16 Steinmann. *Reserve Hospitals and Beds.*
17 Klapp, R. *Surgical Experiences from the Balkan War.*

3. Claudius describes a colorimetric determination of albumin. The albumin is precipitated by trichloracetic acid and tannic acid, to which is added acid fuchsin. The albumin absorbs an amount of the dye which is in direct proportion to the amount precipitated, thus from the color of the filtrate a quantitative determination of both precipitated dye and albumin can be made. Claudius describes the different reagents and apparatus necessary for the test, and gives analyses which compare the quantitative estimation of albumin by several methods. He concludes that the colorimetric method, from its simplicity and accuracy, is an excellent clinical test.

9. Romberg emphasizes the important part that typhoid plays in war despite anti-typhoid inoculation, which he believes is too time-consuming to become a general measure. The appearance of the tongue, in the absence of rose spots and enlarged spleen, is one of the most characteristic physical signs of the disease. A sufficient diet is the most important single factor in treatment. A patient should receive at least 35 calories per kilo of body weight per day, and as much more as possible. Romberg inclines to a liquid diet, mainly, with milk sugar. He does not object to finely ground meat and vegetables, since they become a paste in the intestines, and cannot be mechanically injurious. Care of the mouth, absolute quiet and a comfortable bed are essential for the proper care of patients. Hydrotherapy is much less important in the treatment of typhoid than it was twenty-five years ago. Romberg believes that baths are useless unless a hyperpyrexia occurs or unless hydrotherapy in indicated to stimulate restlessness and consciousness. Caffein, camphor or strophanthin are used to best advantage as circulatory stimulants. For hemorrhage, absolute rest is indicated, starvation for a few days, opium and saline infusions in extreme cases. Perforation, of course, is a surgical complication.
[R. F.]

No. 39. SEPTEMBER 29, 1914.

1. Holzknecht and Lippman. *A Simplification of the Method for Examining the Duodenal Contents.*
2. Blumenthal, N., and Fränkel, E. *Studies with the Meiostagmin Reaction.*
3. Isenschmid, R., and Schmensky, W. *The Importance of Leucocytic Inclusion for the Diagnosis of Scarlet Fever.*
4. Beumer, H. *Thymus and Lymph-node Extracts in Abderhalden's Dialysis Method.*
5. *Ammenhaüser, W. *Abderhalden's Dialysis Method in Pulmonary Tuberculosis.*
6. Wolff, L. K. *A New Treatment for Conjunctivitis Caused by the Diplo-bacillus.*
7. Heine. *Eye Wounds.*
8. Süpfle, K. *Grotan and Festalkol as Hand Disinfectants.*
9. Straub, W. *Foreign Drugs.*
10. *Rosenthal, F. *The Prevention of Epidemics.*
11. Pürckhauser, R. *An Improvised Bandaging Table.*
12. Bruck, F. *The Nasal Dilator of Feldbausch and Roth.*

5. Ammenhaüser has applied Abderhalden's method to the diagnosis of tuberculosis, using as tissue extracts lung, lymph node, placenta, and the filtrate from tuberculosis sputum. His sixty observations were carefully controlled. His results show that in pulmonary tuberculosis or tubercular lymphadenitis, the blood contains specific anti-ferments to lung, lymph node or to albumin obtained from tubercle bacilli. In lung disease other than tuberculosis, extract of lung tissue only is affected by the blood ferments; in normal serum no specific ferments are found. In advanced pulmonary tuberculosis the specific ferments of the blood may disappear. This indicates an unfavorable prognosis. On the whole, Ammenhaüser concludes that Abderhalden's method may prove of great importance in the diagnosis of early tuberculosis, and in the prognosis of advanced tuberculosis.

10. Rosenthal emphasizes the constant exposure to epidemics which large bodies of troops suffer from. He believes that each individual should be forbidden to drink unboiled liquids or to eat green fruits and vegetables, should be made to avoid bodily or gastric excesses, and should be trained carefully to wash with soap and water before each meal. He advocates the immediate isolation of persons suffering from a violent acute diarrhea and suggests military control of the distribution of water and ices in cafés, restaurants and streets.
[R. F.]

Miscellany.

AN APPEAL FOR AID FOR BELGIAN PHYSICIANS AND SURGEONS.

A RECENT letter to a number of surgeons of the United States written by Sir Rickman Godlee of London, chairman of a committee organized in Great Britain in aid of their Belgian colleagues, in which Sir Rickman appeals to the profession of the United States for aid in relieving the distress in Belgium, has resulted in the organization of an American committee which will volunteer to accept subscriptions in money and surgical or pharmaceutical supplies, and distribute the same, to the best of their ability, among the Belgian sufferers.

The following stories, one by Professor C. Jacobs, of the University of Brussels, the other by Sir Gilbert Parker, in a recent letter to the *Chicago Tribune*, explain in a vivid way the needs of the Belgians:

THE POSITION OF BELGIAN DOCTORS AND PHARMACISTS.

BY PROFESSOR C. JACOBS, UNIVERSITY OF BRUSSELS.

Belgium, a blood-stained and ruined country in the horrors of despair, claims the help of her friends to whom her freely consented sacrifice has brought a ray of hope in the dreadful nightmare of the past three and a half months.

I raise my voice with a feeling of intense pity on behalf of thousands of our weeping brethren in their Calvary of suffering, but it is my pride to carry out this duty to my country. All the evils of war have been thrust upon us at the same time—a useless and cruel holocaust of human lives, a decimated, despairing, and starving population, ruined homes, and, far worse than all, our children—the only hope of our country—are being mown down by want and disease.

Our doctors have not been spared, they, too, are bearing a heavy share of the general suffering. And now long weeks—nay months—of trial stand before them, during which they know that they will have to bear a terrible burden. They will have to devote themselves untiringly, giving all their care and time, and even their lives, if need be, to the cause of their country; and yet many of them are homeless, deprived of their laboratories, instruments, and their medical stores. What will become of those that still remain of our people, threatened as they are by the grim havoc of war and by contagious disease, its constant follower?

In anticipation of these inevitable consequences it has become my duty, as the spokesman of my Belgian colleagues, to appeal to the medical and pharmaceutical world that an impulse of international fraternity may come to the aid of Belgian doctors and pharmacists. Is it realized that we in Belgium have suffered and are suffering? Duty, and duty only, has bound our doctors and pharmacists to their posts in the devastated localities; some of them are carrying on their profession in the ruined remains of destroyed buildings, whereas others have to improvise at haphazard any kind of shelter for their Samaritan work. Need I describe the manner in which they sustain themselves, and how they manage to nourish their wives and children?

I have witnessed such misery amongst them! Some have had to work as navvies in order to have a few pence in their pockets; others have told me that they had not seen bread for a fortnight, but had lived exclusively on potatoes. Others had a meager bunch of straw laid on the bare ground as a bedstead; the only pair of boots owned by one of them was falling to pieces in tatters. Men I have seen were dressed in torn garments and their children were in rags. One of my colleagues had to live on wayside herbs for three days and three nights, and his wife shared his fate! A professor of a university, bereft of everything, was, when I saw him, in dire want of a bed, and another of equal academic standard was wandering haggard over the countryside, searching in vain for a beloved family. And some of our ranks have been taken as hostages, others have been shot, and their widows and orphans have been left deprived of everything.

This description presents a genuine picture of the distress of the Belgian medical profession, but when these educated people are struck down by want they will never beg for charity; it must be brought to them. It is impossible to calculate how many of them are in this sore distress, and some have been so for days and weeks, but it is easy to see that the distress must be very widespread. Considering now the medical men only, Belgium contained 4800 doctors.

At least 1000 of the doctors are now absolutely poverty-stricken, and 2000 to 3500 doctors are suffering cruelly through this war. We had 1800 pharmacists all over the country, and at least 300 of them are unable to earn their living, and all of them, with very few exceptions, are deprived of the most necessary trading stock. I dare say that my estimate is below reality.

Consider the immense suffering that our medical brethren have gone through and are still going through. Their pathetic and lamentable distress should unite all in the desire to relieve it. These practitioners have given a lesson to the world of unfaltering energy, but now their breaking courage will have to be kept up. In this emergency I call on the medical profession to rally to our help. It will be for us a great debt of honor and of eternal gratitude.

Sir Gilbert Parker, who visited the frontier towns of Belgium and the camps of the refugees, for the purpose of making a personal investigation says:

Whoever or whatever country is to blame for this war, Belgium is innocent Her hands are free from stain. She has kept the faith. She saw it with the eyes of duty and honor. Her government is carried on in another land. Her king is in the trenches. Her army is decimated, but the last decimals fight on.

Many cities and towns have been destroyed; others, reduced or shattered, struggle in vain to feed their poor and broken populations. Stones and crosses mark the places where small communities lived their peaceful lives before the invasion. The Belgian people now live in the abyss of want and woe.

All this I knew in England, but knew it from the reports of others. I did not, could not know what the destitution, the desolation of Belgium was, what were the imperative needs of this people, until I got to Holland and to the borders of Belgian territory.

There at Maastricht I saw fugitives crossing the frontier into Holland with all their wordly goods upon their shoulders or in their hands, or with nothing at all, seeking hospitality of a little land which itself feels, though it is neutral, the painful stress and cost of the war.

I begin to understand what the sufferings and needs of Belgium are. They are such that the horror of it all almost paralyzes expression. I met at Maastricht Belgians, representatives of municipalities, who said they had food for only a fortnight longer. And what was the food they had? No meat, no vegetables, but

[illegible] a soldier's rations of bread for each [illegible]. At Liège as I write there is food [illegible] three days.

In [illegible] itself the misery of the populace is [illegible] that the misery of the Belgian fugitives in [illegible] as great as Holland, where there have [illegible] since the fall of Liège 1,500,000 fugitives. To [illegible] what that misery in Belgium is, think of what [illegible] the fugitives suffer. I have seen in a room [illegible] the walls damp, the floor without cover- [illegible] and straw, nine women and eight children, [illegible] tuberculosis and seriously ill. Their homes [illegible] were ruined with the ground.

Of all the great powers of the world the United States is the only one not at war or in peril of war. Of all the strongest nations of the world the United States is the only one that can save Belgium from extinction if she will. She was the only nation that [illegible] could allow a foothold for humanity's sake [illegible].

No such opportunity was ever given to a people; no such test ever came to a Christian people in all the records of time. Will the American nation rise to the [illegible] given to it to prove that its civilization is a real thing and that its acts measure up with its in- [illegible] and professed Christianity?

The price of one good meal for a family in an American home will keep a Belgian alive for a fort- [illegible].

Practically the United States has 18,000,000 homes. How many of them will deny themselves a meal for starving Belgium? The mass of the American people do not need to deny themselves anything to give to Belgium.

The average standard of living on the American continent, as the United States and Canada, is so much higher than the European standard that if they lowered the scale by one-tenth just for one six months, the Belgian problem would be solved.

This is the story of the condition of our profession in Belgium. It must appeal to the generous instincts of every medical man in our favored country. The medical men whose names are given below have consented to act as a committee, and will volunteer to see that all contributions of whatever kind that may be given to relieve the distress of the medical men of Belgium are promptly and economically distributed where they will do the most good. Dr. Frank F. Simpson, who has consented to act as treasurer of the committee, will place himself in touch with relief committees already organized and act in conjunction with them, or if necessary, will act independently if better results can be accomplished in that way. Money contributed will be converted into supplies, as cash, obviously, can be of little value in the devastated country.

The American committee will undoubtedly operate through the relief committees of this country that are now specially operating in Belgium, and will have its packages prepared by instrument dealers and pharmaceutical houses of the United States and shipped directly to their destination.

The committee of physicians who have consented to act as sponsors for these contributions is as follows:

William L. Rodman, president-elect of the American Medical Association.

Charles H. Mayo, president of the Clinical Congress of Surgeons of North America.

J. M. T. Finney, president of the American College of Surgeons.

George H. Simmons, editor of the *Journal of the American Medical Association.*

Thomas L. Stedman, editor of the *Medical Record.*

E. W. Taylor, editor of the *Boston Medical and Surgical Journal.*

Franklin H. Martin, editor of *Surgery, Gynecology and Obstetrics.*

Howard Canning Taylor, New York.

Frank F. Simpson, Pittsburgh (treasurer).

Contributions may be sent directly to Dr. Frank F. Simpson, 7048 Jenkins Arcade Building, Pittsburgh, Pa., or to the Belgian Physicians' Relief Fund, in care of the editors of the following journals: *Journal of the American Medical Association, Medical Record, Boston Medical and Surgical Journal, Surgery, Gynecology and Obstetrics.*

ANCIENT, MEDIEVAL, AND MODERN METHODS OF CARING FOR THE WOUNDED IN WAR.

The *British Medical Journal* has recently published an interesting sketch of the origin and development of the Red Cross Society, preceded by an account of methods of caring for those wounded in battle in classic antiquity and in the middle ages. Many of the statements in this article are derived from Withington's "Medical History from the Earliest Times."

"One of the oldest authentic records of Greek military medicine, according to Withington, belongs to the period of the Persian wars, about B.C. 450. This is an inscription found at Darli in Cyprus, which states that when the men of Idaliou went to repel an inroad of Persians and Kitians, Onasilos and his brothers went with them and tended the wounded free of charge. Their services were, however, generously rewarded afterwards. The story of the death of Epaminondas at Mantineia when the arrow was extracted from his chest shows that in 362 B.C. there were surgeons in the Theban army. Philip of Macedon and Alexander the Great both had doctors, and a detailed account is given by Quintus Curtius of the extraction of an arrow from Alexander's chest by the surgeon Critobulus. A Hippocratic writer advises the young surgeon to seek opportunities of following a military expedition, and refers to works specially devoted to army surgery. Diocles invented the graphiscus, a spoonlike instrument for extracting embedded weapons, afterwards much used by the Romans.

"The Egyptians had paid medical officers to look after their troops in war. Ptolemy Philometer, who defeated Alexander Balas, the pretender to the throne of Syria (B.C. 146), was

thrown from his horse and died while in the hands of the surgeons, who apparently tried to trephine: Ptolemaeus in caput graviter vulneratus, inter curationem, dum ossa medici terebrare contendunt, exspiravit.

"The Romans had a regular medical service with their armies, as is shown by many inscriptions. In his essay entitled 'Was the Roman Army Provided with Medical Officers?' Sir James Simpson collected a number of passages from ancient writers, showing that the Roman army as far back at least as the third century A.D. had physicians and surgeons serving in it. Vegetius, who wrote a treatise, *De Re Militari,* towards the end of the fourth century, devotes a chapter to the care of the health of an army and refers to the care of sick soldiers by medical art (*arte medicorum*). Before him Galen had said that the doctors employed in the German wars and having the opportunity of dissecting the bodies of the barbarians did not learn more than cooks know from handling dead animals. Each cohort, consisting of 1000 to 1500 men, was provided with four surgeons (*medicus militum* and *medicus cohortis*). The Pretorians had in addition *clinici,* or pure physicians. There was also the *medicus legionis,* an important rank, as each legion consisted of ten cohorts of about 6500 men. The surgeons ranked with the standard bearers and trumpeters, among the non-commissioned officers, and they wore the ordinary dress and arms of the legionaries. With the standing army came the stationary camps with *medici castrenses* and a *valetudinarium* or military hospital; the first definite mention of such a hospital is by Hyginus Gromaticus in his treatise *De Castrometatione,* written in the second century. When more than three legions were in the camp there were additional hospitals. This system was continued during the Byzantine Empire with the addition of *deputati,* who rode immediately behind the fighting line with drinks and dressings and picked up the wounded, and the *nosocomi,* or male nurses, attached to the military hospitals. The Roman navy was also provided with surgeons, and the epitaphs of several *medici* of triremes still survive.

"In the twelfth century Saladin had a regular medical staff with his army, which even comprised apothecaries. He also allowed the Knights Hospitallers to minister to the wounded Crusaders in the conquered city of Jerusalem without interference. In the earliest Middle Ages the wounded soldier was looked after first by women and afterwards by surgeons, who either formed part of the general levy or were attached to the person of the king or some great noble. Withington says the English were the first of Western nations to originate something like an army medical service. The first trace of a military medical service in the English army is in the fourteenth century, when Edward I took three physicians and four surgeons with him into the field. The two seniors received the pay of a knight, two shillings *per diem.* It seems possible that John of Arderne, who was acquainted with the Black Prince, was present with him at the battle of Crécy. Nicholas Colnet, physician, and Thomas Morstede, surgeon, went with Henry V to Agincourt. Both were attended by three mounted archers and Morstede had besides twelve assistants.

"In 1563 William Clowes was a surgeon in the army commanded by Ambrose, Earl of Warwick, and he afterwards served in the English fleet against the Armada in 1588. John Woodall, who was born in 1569, served abroad, and appears to have been the first to recommend lime juice in the treatment of scurvy. He was the author of *The Surgeon's Mate,* published in 1617, and of a companion treatise, the *Viaticum,* which appeared in 1628. These two books were long the text-books of naval surgeons. Richard Wiseman served as a surgeon on the King's side in the Civil War. He was for many months attached to the troops under the command of the Prince of Wales, afterward Charles II; later he was sergeant surgeon to the King.

"The first mention of ambulances seems to be in Hirstius's *De Bello Africano,* where he says that after the battle fought near Ruspina, Labienus ordered his wounded to be carried in wagons (*plostris*) to Adrumentum. But the credit for the establishment of field hospitals and ambulances on any considerable scale seems to be due to Isabella the Catholic of Spain. During the war of Granada (1483-87) the queen caused a number of large tents, known as 'the Queen's Hospitals,' to be always reserved for the sick and wounded, and furnished them with the requisite attendants and medicines at her own charge. Speaking of the siege of Alora in 1484, the Spanish historian, Hernando Del Pulgar, writes:

"'For the care of the sick and wounded the queen sent always to the camp six large tents and their furniture, together with physicians, surgeons, medicines and attendants, and commanded that they should charge nothing, for she would pay for all. These tents were called the Queen's Hospital.'

"On the surrender of Malaga, 1487, the Spanish army, on its entry, was followed by the Queen's Hospital in 400 wagons ('ambulancias'). At the siege of Baza, two years later, an eye-witness, Peter Martyr, wrote to the Archbishop of Milan as follows:

"'Four huge hospital tents, the careful provision of queenly piety, are a sight worth seeing. They are intended not only for the wounded, but for those laboring under any disease. The physicians, apothecaries, surgeons, and other attendants are as numerous, the order, diligence and supply of all things needful as complete as in your suburban Infirmary of the Holy Spirit, or the great Milan Hospital itself. Every sickness and casualty is met and provided for by the royal bounty, except where Nature's appointed day is at hand.'

The queen herself visited the wounded, and when her couriers hinted that this was contrary to Castilian etiquette, she is said to have replied: "Let me go to them, for they have no mothers here, and it will soothe them in their pain and weakness to find that they are not uncared for.'

"Pedro Bosca, in an oration delivered at Rome on Nov. 1, 1487, before the senate of Cardinals in celebration of the victory gained at Malabar, says:

"'The Queen's Hospital comprised nearly 400 waggons with awnings, and the wounded were nursed not by the highly improper persons who usually follow armies, but by most respectable matrons selected for the work.'

"The French army, which during the period of Richelieu's power rose from 12,000 men in 1621 to 150,000 in 1638, was without military hospitals. The first was established in 1639. Before that each company had a surgeon attached to it, and medical help was sometimes given by the priests who ministered to the spiritual needs of the soldiers. Disabled soldiers were quartered in monasteries, but the habits of military life did not tend to make them edifying inmates, and the monks were always glad to get rid of them as soon as they could. In the reign of Louis XIV Louvois tried to establish a regular military medical service, but without success. Disease raged in the army, and the condition of the sick and wounded was to the last degree wretched. In 1667 an inspector reported that he found sixteen men in four beds in huts so full of straw that it was dangerous to make a fire, and with muddy floors constantly damp. Apparently the attempt to establish hospitals in 1639 had not been followed up, for Louvois made another effort, which was also a failure. A report made in 1689 on the hospitals of Mont Royal and Sarrelouis stated that the soldiers were lying on straw closely packed together; at Strassburg they lay three in a bed. The surgeons are described as ignorant and negligent, doing nothing but cut off legs and arms without endeavoring to save them. Generally, all the wounded died of hemorrhage or sepsis. It would have been better for them if they had been dispatched in the summary fashion described by Ambroise Paré in his account of the campaign in Turin in 1537, in which he accompanied Monsieur de Montejan, Colonel-General of the Infantry, whose surgeon he was at the time. He says:

"'Being come into the city I entered into a stable thinking to lodge my own and my man's horse and found four dead soldiers and three propped against the wall, their features all changed, and they neither saw, heard, nor spake, and their clothes were still smouldering where the gunpowder had burnt them. As I was looking at them with pity, there came an old soldier who asked me if there were any way to cure them. I said, no. And then he went up to them and cut their throats gently (*tout doucement*) and without ill will towards them. Seeing this great cruelty I told him he was a villain; he answered he prayed God when he should be in such a plight he might find someone to do the same for him that he should not linger in misery.'

"If disabled soldiers were thus treated by their own side, it may be conjectured that as a rule the wounded and sick of the enemy were left to their fate. The dawn of a better state of things came in the eighteenth century.

"In the Austrian War of Succession a treaty was concluded to regard the hospitals as sacred from attack. In 1743 the Duc de Noailles and Lord Stair agreed that the hospitals, the wounded, and the military surgeons should be treated as neutrals. In the seven years' war Louis XV and Frederick II agreed to consider all the medical staff as neutrals, and as such exempt from capture. In 1759 a similar arrangement was made between the Marquis de Barail, commanding in Flanders, and the English general, Henry Seymour Conway. The idea of neutralization of the wounded and those who tended them was making progress, when the French Revolution rudely checked its growth. The Convention decreed the immediate execution of prisoners, whether wounded or not. In 1800 Moreau and the Austrian General Kray, however, agreed to take equal care of all wounded in their hands, whether friends or foes. These were but isolated displays of humanity. The work of Florence Nightingale in the Crimea was a powerful stimulus to the organization of help for the sick and wounded. But unity of international action was still lacking. It was not till some years after the middle of the nineteenth century that the Red Cross organization had its birth. The founder was Henri Dunant, a remarkable man whose name has been almost forgotten. In the last edition of the *Encyclopaedia Brittanica* he is dismissed in one line, in which he is wrongly described as a physician, and in the only mention of him in a leading London newspaper that we have seen since the outbreak of the present war his name was twice misspelt 'Durrant.' It may not be amiss, therefore, to give some account of a man who was one of the greatest benefactors of his fellow creatures in modern times.

"Henri Dunant was born at Geneva on May 8, 1828, of a family belonging to the magistracy of the Swiss Republic. He was the son of a member of the representative council, and received a very careful education, which included a training in philanthropy, from his mother, *née* Colladon. Her ancestors had been members of the nobility of the Berry before the Reformation, on the outbreak of which they left Bourges. One of Dunant's brothers was a distinguished doctor, long professor of hygiene in the University of Geneva, and organizer and general secretary of the International Congress of Hygiene held at Geneva in 1882. Dunant was greatly influenced by Florence Nightingale, Elizabeth Fry, and Harriet Beecher Stowe. With his mind full of

the work of Florence Nightingale, he visited the battlefield of Solferino, where he witnessed the sufferings of the wounded lying whole days on the ground. With the help of some women he organized a service of help in the little town of Castiglione, himself giving aid to the soldiers and dressing the wounds without regard to nationality. He was known as 'Le Monsieur en Blanc' (the 'Man in White') on account of his summer attire. These scenes of horror gave rise in his mind to the idea of volunteers trained in the work of stretcher drill and having a knowledge of first aid organized on a permanent basis, well disciplined and being, like the hospitals and their material, completely neutral. He thought that this result might be easily attained if nations by a special convention were to adopt a common symbol which should designate the character and function of such workers. In 1859 each nation indeed had for its field hospitals a special flag, but the colors were almost always unknown to the enemy, so that the ambulances were constantly fired on, the wounded taken prisoners and the surgeons arrested or killed at the very moment when they were looking after the wounded. This was the origin of a distinctive flag for ambulances and hospitals—the white flag with the red cross. The form of the flag was intended to be a compliment to Dunant's native country; it is the converse of the Swiss flag, which is a white cross on a red ground.

"Four days after Solferino Dunant went to Borghetto, and spoke to MacMahon of the lamentable state of the wounded, begging permission to use the Austrian surgeons who had been taken prisoners by the French. The marshal advised him to go to Cavriana to see the Emperor, who received him favorably, and on July 1 the following order was published:

"'The physicians and surgeons of the Austrian army who have been made prisoners while dressing the wounded shall be restored to liberty without condition on their request. Those who have ministered to the wounded at Solferino gathered in the ambulances of Castiglione will be allowed to go back first to Austria.'

"From that time Napoleon III interested himself in Dunant's scheme, and declared his adhesion to the principle of the neutralization of the wounded, of the ambulances, and their personnel. The Emperor himself suggested that inhabitants of the country who should give aid to the wounded should be treated as neutrals. On his return to Geneva, Dunant wrote his *Souvenir de Soférino*, which brought him the enthusiastic approval of many distinguished men, and was at once translated into nearly every European language. He did not, however, escape detraction or jealousy, but he was not discouraged and persevered with the work. One of his keenest critics was Marshal Randon, who in the true spirit of the old soldiers who resented the interference of Florence Nightingale, exclaimed, 'Why should these civilians mix themselves up with what does not concern them?' On the other hand he had the approval of MacMahon, Canrobert, and other soldiers. His book also interested the King of Prussia, whose attention was called to it by Queen Augusta; Princess Louis of Hesse (Princess Alice); the Crown Prince, afterwards the Emperor Frederick; Von Roon, then Prussian Minister for War; Oscar II, King of Sweden, and many other influential persons. Dunant spared no pains to secure support for his scheme. He went about from one country to another trying to enlist the active sympathies of those in power, and gained for himself the name of the new Peter the Hermit. A conference took pace at Geneva on Oct. 26, 27, 28 and 29, 1863, at which the following States were represented: Austria, Baden, Bavaria, Spain, France, Great Britain, Hanover, Hesse Darmstadt, Italy, Holland, Prussia, Russia, Saxony, Sweden and Norway, Switzerland, Wurtemburg. Besides these, Denmark, Mecklenburg-Schwerin, and Portugal sent official intimations that they would accept the conclusions of the conference."

It was this Geneva Conference which led to the organization of the Red Cross Society and its subsequent extension through all the civilized countries of the world.

NOTICE.

A Meeting for the Discussion of Hospital Efficiency, at the Boston Medical Library, at 8 P.M., January 6th, Under the Auspices of the Surgical Section of the Suffolk District Medical Society.

Up to the present time the public and the medical profession have regarded hospitals as places for the treatment of the sick, but not necessarily for their *efficient* treatment. Attention has been paid to the cleanliness of institutions, to the architectural arrangement of the buildings, to the kindliness of the staff and nurses, etc., but no attempt has ever been systematically made to determine whether the treatment so freely given has been efficient—that is, as successful as possible.

In most hospitals there has been no official or department whose duty it has been to ascertain the results of treatment at all, much less to compare the results attained by different members of the staff in any one institution, or even to make a collective comparison of the results attained by the whole staff with that of another similiar institution.

Evidently, trustees, as a rule, have felt that the best they could do was to appoint respectable men on their staffs and then to leave the degree of efficiency of treatment given the patients to the individual conscience and ability of the physician or surgeon on duty.

The terms of duty have been arranged by the calendar or by seniority.

Obviously, if there is any difference in the value of the services of one surgeon or physician and another —which the public seems to admit by its willingness to pay large fees—this difference must be capable of demonstration by some comparative test so that the distribution of the cases may be made more rationally than by the calendar or by seniority. No physician or surgeon nowadays can be expected to be proficieint in all the branches of even a single specialty.

[illegible] the time come when hospital organization can be based on the idea of giving the patients successful and effective treatment as well as care and kindness? Is it possible to compare therapeutic results in medicine and surgery or must we admit that no matter how much we read, study, practice and take notes, when it comes to a showdown of the results of our treatment, no one could tell the difference between what we have accomplished and results of some genial charlatan or some less painstaking and energetic colleague.

Comparisons are odious but comparisons are necessary in science. Until we freely make therapeutic comparisons, we cannot claim that a given hospital is efficient, for efficiency implies that the results have been looked into. Hospital efficiency is mainly therapeutic efficiency.

The meeting on January 6th is to stimulate thought on these questions. Has it occurred to you that no person or department in a charitable hospital is responsible for the medical and surgical efficiency?

The speakers will discuss the question of who should be responsible.

The following is the provisional program:

"Hospital Efficiency from the Standpoint of an Efficiency Expert," by Frank B Gilbreth, of Providence.

"Hospital Efficiency from the Standpoint of a Hospital Surgeon," by Robert L. Dickinson, M.D., Brooklyn, N. Y.

GENERAL DISCUSSION.

It is planned to have discussion of the subject by prominent men representing the three great divisions of hospital organization: trustees, staff, and administration.

Trustees of hospitals are cordially invited to attend.

The meeting on February 3, 1915 will be for the discussion of the treatment of Fracture of the Thigh.

The program will be arranged according to the material presented in response to the following notice.

Each hospital in Massachusetts is invited to send to the Secretary abstracts of all the cases of fracture of the shaft of the femur which have been under its care from January 1, 1900, to January 1, 1914. These abstracts are to be presented on End Result Cards, which will be supplied if requested

For noting the results on the reverse of the card the following suggestions are given: 1. Date of last examination. 2. How long after the injury did the patient return to work? (Answer: In less than 6 mos., 1 yr., 2 yrs., etc.) 3. Give objective signs of failure in the perfection of result (*e.g.* shortening, non-union, false limitation of motion, of knee or hip, etc.). 4. Give subjective symptoms (Pain in motion, undue sense of fatigue, habit of invalidism, etc.) 5. Make diagram of seat of fracture if x-ray has been taken. 6. State any complications from coincident accident or disease which in your opinion might rule out the case from a statistical estimation.

Any hospital which sends its statistics should include cases over ten year of age in which the fracture did not involve the femur above the lesser trochanter or below the condyles.

Include cases which were treated by other hospitals or practitioners and came to your hospital for correction of deformities. It is not necessary to give the name of the practitioner or surgeon in such cases.

The program of the meeting will be so arranged that those men who have done the work of looking up the cases will be able to give us their opinions on the [illegible] of the advisability of operative treatment. Every hospital staff is urged to appoint some of its members to look up their cases even if there are only a few of them, for it is probable that very few cases are treated in all the hospitals, the Massachusetts General Hospital having only 53 cases in 1913, and of these many will probably have to be excluded. If you will kindly let the Secretary know as soon as you can whether your hospital plans to do its share, sample "End Result Cards" will be sent you.

E. A. CODMAN, M.D., *Chairman,*
BETH VINCENT, M.D., *Secretary.*
(295 Beacon St., Boston)

NOTICES.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held at Peter Bent Brigham Hospital, Huntington Avenue, Tuesday, December 29, at 8 P.M. sharp. Telephone, Brookline 5260.

Business.

Communication: "The Principles of Radical and Palliative Treatment of Varicose Veins and Ulcer of the Legs. Illustrated." Dr. John Homans.

Refreshments after the meeting.

BRADFORD KENT, M.D., *Secretary,*
798 Blue Hill Ave., Dorchester.

THE BOSTON CITY HOSPITAL.—After January 1, 1915, public operations will be performed in the Surgical Amphitheatre each week, on Thursdays, Fridays and Saturdays, at 10 o'clock.

Thursday: First Surgical Service. Dr. Blake.

Friday: Third Surgical Service, Dr. Nichols, and Fourth Surgical (G-U) Service, Dr. Thorndike.

Saturday: Second Surgical Service. Dr. Lund.

Notice of these operations will be sent to anyone expressing his desire to receive it.

RECENT DEATHS.

DR. CHARLES PERIER, who died on Dec. 13 at Paris, was born in that city in 1836. He was educated at the Lycée Condorcet, and received the degree of M.D. in 1864. From 1866 to 1875 he was associate professor of the faculty of medicine of Paris, from 1872 to 1898 he was surgeon of hospitals, and from 1892 to 1898 a member of the committee of supervision of the public assistance. In 1893 he was president of the Society of Surgeons of Paris, and in 1903 was elected president of the sixteenth congress of French surgeons. He was an officer of the Legion of Honor. He is survived by his widow.

DR. CHARLES W. TRUEHART, who died on Dec. 15 at San Antonio, Texas, was born in 1837. He was for many years a health officer of Galveston.

DR. THOMAS W. FLOOD, who died of typhoid fever on Dec. 16, at Haverhill, Mass., was born at Nashua, N. H., in 1883. He received the degree of M.D. from Baltimore University in 1902 and since that time had practised his profession in Haverhill.

DR. PATRICK W. MURPHY, of Canton, Mass., who died on Dec. 16 at Framingham, Mass., was born in 1876. He graduated from Boston University in 1898 and from the Harvard Medical School in 1902. He was medical examiner of the Metropolitan Life Insurance Company. He is survived by his widow and by one daughter.

DR. JULIUS L. FRIEDLER of New York died on December 13, in his sixtieth year. He was a native of Cracow, Austria, and was graduated from Bellevue Hospital Medical College in 1889.

BOOKS AND PAMPHLETS RECEIVED.

A Text-book for Midwives, by John S. Fairbairn. Oxford University Press. 1914.

Addresses.

THE QUATERCENTENARY OF ANDREAS VESALIUS.

1514 — December 31 — 1914.

An historical club meeting of the Harvard Medical Society was held at the Peter Bent Brigham Hospital on Tuesday, December 8, 1914, in commemoration of the four hundredth anniversary of the birth of Andreas Vesalius, the Belgian anatomist. Dr. Harvey Cushing opened the meeting with a brief account of the life and work of Vesalius, and of the observance which it had been proposed to hold in the latter's honor during the current month at Brussels, but which has been unhappily prevented by the events of the European war.



André Vésale.
1514–1564 A.D.

Vesalius was a native of Brussels, a student at the Universities of Louvain and Paris, a teacher of anatomy at Louvain, Venice, Padua, Bologna, and Pisa. He was also a surgeon of considerable note. By his investigation, dissections, teaching and writing, he put an end to the Galenic tradition of anatomy, and exemplified the true scientific method in research. He created a new concept in medical education, that of original personal observation, and securely laid the foundations of anatomic science. The knowledge of human anatomy, before Vesalius, was scanty and largely inaccurate; after him it bore essentially its modern aspect. Vesalius justly deserves his title as the Father of Anatomy.

Dr. Cushing then introduced successively the next two speakers of the evening.

I.

Louvain and Its University.

By Robert M. Green, A.B., M.D., Boston.

When the successive waves of Teutonic invasion, which swept across Europe in the fifth, sixth and seventh centuries, had spent their force in the destruction of the Roman Empire, they left the land strewn with the wreckage of former civilization. Out of this ruin rose, under Charlemagne, the great empire of the Franks; and when, in its turn, this realm was broken up by the assault of fresh invaders, its fragments were for five centuries combined and recombined by the rulers of the kaleidoscopic kingdoms that sprang out of the chaos. Of all the territory which was thus tossed as a shuttlecock between ambitious monarchs, none had a more tumultuous history than that which we know as Belgium.

Caesar's Belgium, which extended westward to the Seine, and south as far as the Marne, had early been reduced to limits approximating those of today. During those five centuries of vicissitude, and indeed long afterward, the Belgian country was ruled, under the particular overlord of the moment, by counts, each of whom took his name from the county which he controlled. Among these several provinces of Belgium the ascendency was early gained by that of Brabant.

The first to assume the title, count of Brabant, was Godfrey Longbeard; but for several generations before him the nucleus of Brabantian territory was held by his family, who had their stronghold in the ancient city of Louvain.

The first historic mention of Louvain is in an old chronicle of the year 880 A.D., when a marauding party under Rolf the Dane came up the river Scheldt "as far as a place called Lovon,"— a word meaning literally forest and fen. Here they made their headquarters, and here on Sept. 10, 891, they were defeated by native Brabantians in a bloody battle. In the city which grew up at the site of this Danish camp Lambert Longbeard established himself in 1012 as count of Louvain. And when, in 1095, his descendant, Godfrey, took also the style count of Brabant, Louvain, or Looven as it was then called, remained the chief seat and capital of his possessions. By diplomacy and conquest these family domains were steadily enlarged, and in 1190, Henry the Warrior, great-grandson of Godfrey, became ruler of all central and northern Belgium and part of what is now Holland, and assumed the title Duke of Brabant.

Their ancestral seat of Louvain, however, was not forgotten by the family of Longbeard, even

after they had removed their place of government to the rapidly growing neighbor city of Brussels. Louvain remained the ecclesiastical and academic centre of Brabant. Nor was it a small city, for in 1360 its population numbered some 7,000, and it was rich in industries, commerce and social prestige. It remained only that Louvain should become also the educational and scientific centre of Brabant.



LOUVAIN: MODERN PANORAMA.

After the darkness of the ages which succeeded the barbaric extinction of the light of Rome, the revival of learning in Europe began gradually to restore the knowledge which the past had so previously won. Colleges and universities sprang up, first at Salerno in the ninth century, then at Bologna and Paris in the twelfth; at Oxford, Cambridge and Leipzig in the thirteenth; at Prague, Cracow, Vienna, Heidelberg, Cologne and Erfurth in the fourteenth. The people of Brabant had hitherto been too busy to attend schools of universities. Those of them who were so minded went usually to Paris. But as wealth and power increased, national ambition was excited as military as well as in conquest. In 1423 Duke John IV of Brabant, an educated, though weak minded and inefficient sovereign, first brought him of founding a university in Brussels his capital, but the project was opposed by the town officials, who dreaded the turbulence of the students. Accordingly Louvain, the ducal central city, was selected, and on Dec. 9, 1425, the new university was authorized by a bull of Pope Martin V. It was inaugurated on Sept. 7, 1426, and its courses of instruction began on Oct. 2 of that year. From the outset the university comprised the faculties of art, medicine, canon and civil law. And among the original medical professors at the university, in 1427, was Jan Vesal, ancestor of the great Andreas.

The early University of Louvain was unique among those of its time in that its professors were maintained and paid by the municipality, whose wealthy burgers thus to a great extent controlled its government. Their patronage long enabled Louvain to surpass all other institutions of learning in the continuous support it gave its officers of instruction. Other special privileges were conferred on members of the university, such as exemption from taxes, from military service, and from various provisions of the civil law.

The instruction in the medical school was naturally conventional and didactic; yet even thus early there seems to have been a marked progressive tendency away from the classic. Avicenna and Rhazes were preferred as authorities to Hippocrates and Galen; so much so that in 1443, Pope Eugene IV established two new professorships at Louvain to give sole instruction in ancient medicine.*

The first student to receive the doctorate in medicine from the University of Louvain was Jan Stockelpot in 1433, who subsequently, in 1445, became professor in ordinary at the medical school. Another noted member and professor of the medical faculty was Jan Spierinck, who about 1470 founded the library of medicine. This fifteenth century was the period of early, vigorous growth of the new university. Other gifts, foundations, and endowments followed, and at the beginning of the sixteenth century Louvain entered upon the heyday of its golden age.



LOUVAIN: THE HALLES IN 1606.

The immediate occasion for this rise of the University of Louvain, was the decline of the great Italian schools of medicine, which passed their climax in the *cinquecento*. This left Paris and Louvain the two best established medical schools on the continent, and Louvain now took and held a place in the world second only to that of her

* An interesting contemporary record of the customs of student life at Louvain in the fifteenth century is preserved by Molanus in the form of the following ducal ordinance for the government of the University in 1476.

"Omnibus rectores, ut scholares de mane surgant hora quinta et tunc ante lectionem quilibet per se legat et studeat leges in ordinaria lectione legendas, ita cum glosis. . . . Post lectionem vero ordinariam missa si volunt, celebrer audita, veniant scholares ad cameras suas et revidebunt lectiones hestas, commemorando et memoriae imprimendo ea quae tam vesperi quam sexpto a lectionibus reportarunt. Et inde ad prandium venient. . . . Prandio finito, libris ad mensam unicuique delatis, repetent omnes scholares unius Facultatis simul, tutore praesente, lectionem illam ordinariam, in qua repetitione servabit tutor illum modum, ut per discretas cujuscunque interrogationes concipere possit, an quilibet ipsorum lectionem bene audiverit et memoriae commendaverit, et ut tota lectio per partes a singulis recitandas reportetur; in quo si diligens cura adhibebitur, sufficiet tempus unius horae."

There follows preparation for the evening lecture, and then the lecture itself. The two hours before supper are devoted first to private study of the lecture, second to recitation with the tutor. After supper "interponet tutor jocum honestum per mediam horam et disputationem levem et jucundam per alteram mediam horam, et inde mittet ad dormiendum. Et diebus non lectibilibus, exceptis dominicis, fiet post prandium circularis disputatio in qualibet tutela et alia exercitia pro providentia et discretione tutorum."

elder sister and rival. Moreover, the city of Louvain was in this century commercially, economically, and industrially at the height of its wealth and power, and offered no inconsiderable social attraction to students. The university now consisted of 28 colleges, its professors were leaders in the science of their day, and during this century of its prime, the students numbered constantly from 6000 to 8000, coming from all parts of the then civilized world. It was at the zenith of such academic brilliance and prosperity that André Vésal entered upon his career at Louvain.

André, descendant of old Dr. Jan Vésal, was born at Brussels on Dec. 31, 1514. Of his early life we know little or nothing. As a boy he came for his education to the University at Louvain, and after graduating thence went in 1533 to pursue his medical studies at Paris under Jacques Dubois, then professor of anatomy at the College of Trinquet. This Dubois, under his Latin name of Sylvius, has become immortalized in anatomic nomenclature, but apparently the early genius of Vésal fully realized his instructor's deficiencies. Dubois was a rooted conservative and Galenist. He would teach nought but the authority of antiquity. "His manner of teaching," says Vésal, "was calculated neither to advance the science nor to rectify the mistakes of his predecessors. Without talent for original research or discovery, his envy and jealousy made him detest everyone who gave proofs of either." A human subject was never seen in his theatre, he taught solely from books and animals. Vésal's brilliant, empiric mind must have rebelled against the retrospective, barren method of Dubois. Nevertheless the young André finished his course at Paris, and went forth, perhaps the more firmly resolved on account of his own experience to recreate the science and teaching of anatomy on a sound basis of primary observation of the human body.

With this mission in his heart, Vésal returned to Louvain and lectured there for a short time. But human dissection was frowned upon there as at Paris, and in 1536 he went to continue his studies and instruction in the more favoring environment of Venice. His subsequent career in Italy and Spain, his scientific discoveries, the publication of his great work, "De Corporis Humani Fabrica," in 1543, and his tragic death by shipwreck on the island of Zante in October, 1564, will be told by others. The claim which Louvain has upon this, her most famous son, is slender perhaps, yet doubtless it was to Louvain that he always looked back as the source of his first inspiration.

Another great name is associated with Louvain in the days of Vésal, that of Erasmus, the reformer. Erasmus was a Dutchman, born at Rotterdam, and receiving his schooling at Paris and Oxford. But he knew well the merits of the University at Louvain and wrote in 1521 that it yielded to no other University save that of Paris, and was a rich and fecund centre of literary studies. Doubtless he spoke more particularly of the faculties of art and theology. Later he says, "No one could graduate at Louvain without knowledge, manners, and age." Erasmus probably visited Louvain several times. We know that in the fall of 1518 he lay there for four weeks ill with a carbuncle in the house of Martins, the printer. The physicians said he had the plague and would die, and a report of his death was actually carried to Cologne and received with joy by the monks there. But Erasmus did not die, and after a month was well enough to be removed to lodgings within the college precincts. For sheltering him thus in his time of affliction, Louvain deserves to claim Erasmus, as well as Vésal, among her foster-children.



Louvain: Corridor of the Halles.

Even in its palmiest days, evil was boding for Louvain and for all of Brabant. Once more Belgium was swept by hostile invasion; "the whiskered Spaniard smote the land"; and all the low countries groaned under the iron hand of the terrible Duke of Alva. Moreover, the plague ravaged Louvain at this time, and "augmented the lamentable situation." The city languished, the University shrank in fame and numbers. Time at last brought deliverance, but it was only to exchange the yoke of Spain for that of Austria. As the seventeenth was for Louvain a century of gradual decadence, so the eighteenth was one of ultimate dissolution. The old University, hopelessly outstripped by others now more favorably circumstanced, could never recover the prestige of its golden era, and in the storm of the French Revolution it ceased to exist.

The Napoleonic wars and the following period of reconstruction afforded little time to the distracted country to think of rebuilding old institutions. But with the final establishment of Belgian national independence, the possibility of a national university was restored, and on Dec. 13, 1833, the University of Louvain was refounded by a bull of Pope Gregory XVI. The new University is a modern institution of learning, with 2700 students, with its colleges of art and science and its professional schools. It has inherited, however, the great traditions of its medieval predecessor with which it is essentially in spirit continuous. Its medical school in par-

ticular has preserved rich memories of the past, and in its "Institut Vésale," founded on April 21, 1877, has perpetuated the name, the methods, and the glory of the Father of Anatomy.

The nineteenth century was for Louvain a period of rehabilitation. The twentieth has brought to city and university greater affliction than they have hitherto sustained. Yet whatever the future may have in store for them, their past is secure in the greatness of its achievement. And although, at this quatercentenary of her most famous son, the University is exiled on foreign, howbeit friendly, shores, the world will keep alive and celebrate, as we do tonight, the fame of Louvain and of André Vésal.

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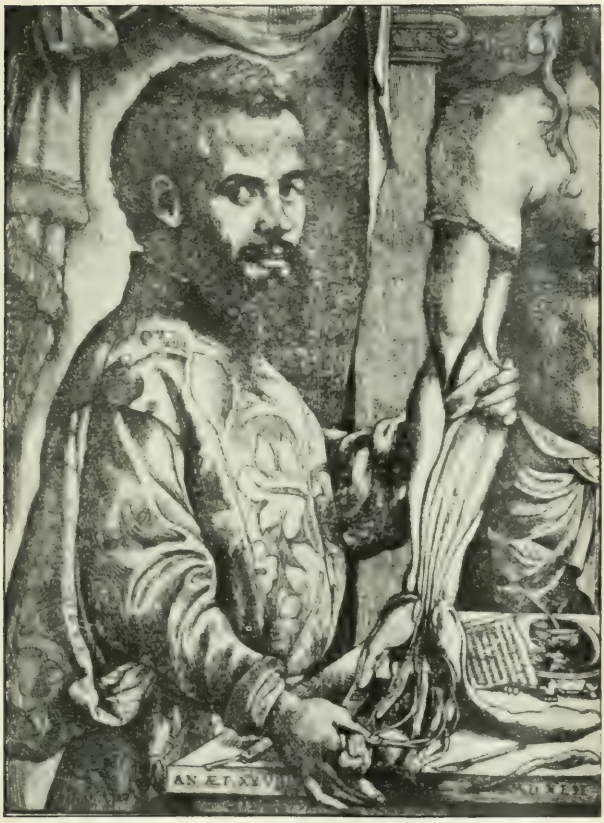
II.

The Vesalian Spirit.

By Dr. Francis Stephen Pilcher, M.D., Brooklyn, N. Y.

To most physicians of the present day Vesalius is a name and a shadow. Even though one may have a reverence for the past and an anxious desire to familiarize himself with the workers of former ages whose labors have furnished the foundations upon which the structures of the present have been laid, to but few is given the opportunity of gratifying their desire to become in any degree familiar with them as individuals, or to handle and know the volumes which embody their work. Such was my experience in 1880 when a fortunate conjunction of affairs made me a guest of Dr. George Jackson Fisher, of Sing Sing, New York. Fisher was then a man between fifty and sixty years of age. For thirty years he had been a practitioner of medicine in the village of Sing Sing, a beautiful suburb and residence town on the Hudson, some thirty miles above New York. Fisher united in a rare degree that thoroughness and kindliness and versatile capability of adapting himself to every emergency of life which we love to regard as characteristic of the American country doctor. He not only administered to the physical needs of the countryside, but was guide and authority in all the civic and domestic affairs of the vicinity. He was a man of wide sympathies and interest in every question which affected mankind. He had the faculty of being interested in everybody and everything, coupled with the rare faculty of making himself interesting to every one and every circle in which he mingled. An enthusiast himself in many lines, he never failed to awaken like enthusiasm in others. Fisher was a born collector and on his premises he erected a separate museum building in which he had assembled collections of various kinds, such as might come within the possibilities of a country doctor. The lower floor of this building was devoted to his library and here at the time when I first came into close contact with him I found that he had brought together a notably large and rich collection of the medical classics. Here, under the guidance of Fisher, I myself first became really acquainted with Vesalius. With pride and enthusiasm, he placed in my hands the magnificent folios of the Fabrica of Vesalius of 1543 and of 1555, and during the remaining years of his life, which were all too few, he remained as guide, mentor and friend to me in my excursions into the domain of medical antiquarian lore. I take great delight in paying this tribute to his memory at this time. For twenty-one years now he has slept with his fathers, and his books, after a brief stay in the possession of the Vassar Hospital of Poughkeepsie, have now received a final appropriate resting place in the magnificent library of the Medical Society of the County of Kings of Brooklyn. Since that time the cult of Vesalius has been one of unfailing interest to myself. One by one I have been able to gather upon my own shelves copies not only of the magnificent volumes which were planned and issued by Vesalius himself, but also of many of the less imposing publications of his immediate predecessors and contemporaries and of his successors and imitators. These Vesaliana to me form a most interesting group of books, illustrating the most important and fruitful epoch in the development of positive and accurate anatomical knowledge.

My visits to Fisher resulted in a series from his pen of most valuable and characteristic sketches of the old Masters of Anatomy and Surgery. The first of this series was devoted to *Andreas Vesalius.* The beginning of this first sketch and of each one of its successors in the series was marked by a reproduction of one of the most interesting initials with which each chapter of the immortal Fabrica of Vesalius himself was introduced. It was a plan of Fisher, in preparing these sketches, that ultimately they should be gathered together into a book, but death overtook him before he could carry out his plan. His successive sketches were devoted respectively to Vesalius, Parè, Eustachius, Colot, Fallopius, Tagliacozio, Columbus, Wiseman, Fabricius ab Aquapendente, De Chauliac, Harvey, Eucharius Rhodion, Hippocrates, Servetus, Herophilus and Erasistratus, Galen, Mondino, Rhazes, Celsus, Avicenna, Haly Abbas, Albucasis and Avenzoar. As the list is repeated, one appreciates at once the extent and value of the series. I have sometimes wondered whether the enterprise of some of our organizations devoted to medical history might not be wisely directed to the issuance of these sketches in an appropriate volume, a volume which not only would be of value for the information which it would place at the disposal of English-reading



The only authentic portrait of Vesalius
It was published in the original edition of his Fabrica.



Vesale auscultant un malade.
[illegible] — Brussels Museum.



the dissecting table.

physicians, but also would be an appropriate memorial of a typical American surgeon who was one of the most conspicuous leaders in developing a taste among American practitioners for medical antiquarian lore. In the same class of medical antiquarian virtuosi, among those no longer living, deserve to be mentioned Oliver Wendell Holmes and Hunt, of Boston, John Watson and Samuel S. Purple of New York, J. Foster Jenkins of Yonkers, Beriah A. Watson of Jersey City, Stockton Hough of Trenton, Samuel Lewis of Philadelphia, Nicholas Senn of Chicago and John S. Billings, of Washington. But *primus inter pares* stands the name of George Jackson Fisher.

It is interesting to note the ultimate fate of the collections of books which individual collectors gather together. The books of Holmes, are they not still preserved on the shelves of the Boston Medical Library, where they were placed by their collector while still in life? The books of Hunt were dispersed at auction. The books of the Library of the Surgeon-General's office at Washington constitute a great monument to the energy and breadth of vision of Billings. The collections of Lewis form an important part of the library of the College of Physicians of Philadelphia, and here too drifted the books gathered by Stockton Hough, presented to that library by John Wanamaker, by whom they were purchased from the estate of Dr. Hough after his death. The books of John Watson for many years were the most conspicuous ornament of the library of the New York Hospital, from which they were finally transferred to the library of the Academy of Medicine, where they now are. The books of Senn are preserved in the John Crerar library of Chicago. The travels of the Fisher collection, first to Poughkeepsie and later to Brooklyn have already been referred to. The value of the collection of Beriah Watson was entirely unappreciated by his heirs, and for years after his death they were hidden in neglected boxes in a basement, where at last they were discovered by one who knew their value, and were finally acquired by the library of the Medical Society of the County of Kings of Brooklyn. Purple's library was divided between the Academy of Medicine of New York and the library of the Medical Society of the County of Kings of Brooklyn. The library of J. Foster Jenkins was sent to the auction room after the death of that physician and scattered. In it there were copies of the 1543 edition of Vesalius, of the Epitome of 1543, and of the edition of 1555. The Epitome was purchased by Fisher. Gerrish, of Portland, got the 1555 Fabrica. My record does not tell me who obtained the 1543 edition. In each case, however, the books were sold at prices that were ridiculously low. I had already become the possessor of a magnificent copy of the 1555 Fabrica and had not yet become awakened to the value of the other editions, or I assure you that whoever obtained them would have been compelled to have paid many fold more than they did at that time. Fifty years ago the Medical Library of Dr. Anselme Davidson, of Breslau, was well known among bibliophiles as the most important private collection which had been made in the 19th century. Dr. Davidson lived to an advanced age, but in due time he was compelled to leave his beloved books behind him and they were sold at auction at Breslau in March, 1881. The sale occupied nine days and in the catalogue 5,450 titles were given. It will be observed that the breaking up of this library took place within a short time after my own interest in antiquarian books had been awakened, and I was fortunate enough to acquire at this sale a goodly number of books which formed the nucleus around which has been gathered subsequent accumulations.

My Mundinus of 1513, my Editio Princeps of Galen, the Aldine Edition of 1525, and a fine copy of Guillemau's Paré of 1594 are among these books. Most important of them, however, in my estimation was the magnificent copy of the 1555 Fabrica of Vesalius, in its original boards, covered with embossed hogskin, with leather clasps. This has been the chief ornament of my library, therefore, for over 30 years. I have already alluded to the manner in which I missed an opportunity to put by its side the copy of the 1543 edition at the Jenkins sale, and not until the last summer did I feel myself warranted in paying the price at which was held every other copy that has been offered from any source since that time.

In the 16th century authors enjoyed but little protection for their literary property. *Cum privilegio* meant an exceedingly local and transient protection from infringement. The unauthorized printing *in toto*, or *in parte*, of a book in another city or country was a common proceeding, a practice, indeed, which is not yet fully extinct. The extent to which this was done naturally depended upon the commercial sense of publishers as to whether such a reprint would pay or no. Judged by this standard, the work of Vesalius was considered desirable game by the publishers of his time and of the immediately succeeding years. To use the expression of Roth, the Fabrica of Vesalius was "admired, studied, followed and plundered." Vesalius issued as early as 1538 a half dozen of his plates at Venice under the title of *Tabulae Anatomicae*. These were quickly reproduced at Cöln. At Paris, also, the figures of the soft parts were reproduced soon afterwards, and from Strasburg was issued a set of poor and much reduced copies, while Dryander of Marburg copied into his 1541 edition of Mundinus two of Vesalius' plates of the skeleton.

Vesalius had hardly gotten back to Padua from Basle after the publication of the first edition of the Fabrica, when in London appeared copies of all his plates engraved on copper by one Thomas Geminus. The first edition of Geminus' book, *Compendiosa totius Anatomie delineatio, aere exarata*, appeared in London in 1545.

This was a frank and declared piracy of the work of Vesalius, and the Latin text which accompanied the plates was nothing but a copy of the Epitome of Vesalius. To these plates, however, attaches a special interest, since they are asserted by experts to be the first copper plate work executed in England. The book was dedicated to Henry VIII, following the example of Vesalius who dedicated his book to his Emperor, Charles V. In 1555 an edition of the Geminus plates was published, with an English translation of the text, thereby placing at the disposal of English students the anatomical teachings of the great Master. Already impressions from the same plates had been transferred to Germany, where they appeared at Nuremberg in 1551 with a German translation of the Epitome by Jacob Bauman. These Geminal plates continued to do further duty for some time. In 1564 a new issue was published at Antwerp with Latin text, and in 1569, having been acquired by André Wechel, the Parisian publisher, they again appeared, accompanied by the Epitome of Vesalius translated into French under the title of *Les Portraicts Anatomiques de toutes les Parties du Corps Humain.* Some years earlier, however, Ambrose Paré in his *Anatomie Universelle du Corps Humain*, which was published in 1561, copied the Vesalian figures and the Vesalian text. For these Paré gave Vesalius proper credit, speaking of Vesalius in terms of the highest commendation.

At the time that Paré was making the work of Vesalius accessible in the French tongue, the Spaniard, Valverde, was performing the same service for Spanish and Italian speaking students. Valverde also had the plates of Vesalius copied upon copper, but the engravings were much smaller and inferior from an artistic point of view to those of Geminus. The work of Valverde had no merits of its own, both plates and texts were almost identical with that of Vesalius. It had, however, the merit of widely enlarging the territory into which the work of Vesalius was translated. Valverde's original *Historia de la Composicion del Cuerpo Humano* was published at Rome in 1556. The Italian translation *Anatomia del Corpo Umano*, appeared in 1560, and in 1559 Columbo translated it back into Latin and published a new edition with additional plates. These plates of Valverde appeared again and again in subsequent books, often associated with republication of the Epitome of Vesalius as accompanying text.

Thus before Vesalius died his work had become the common possession not only of the learned of all Western nations, but also of the much larger body of men who knew nothing beyond their own vernacular. Truly, he was the Master of Anatomy as the real handmaid of Surgery and of Medicine. I do not mean to undertake here a critical appreciation of the work of Vesalius. It has been done many times. The scholarly volumes of Burggraeve, of Roth and the recent admirable tribute of Ball, are accessible to all and give in detail the conditions and results of the work of this remarkable man. Suffice it to say that he broke the Galenical fetters by which knowledge of the framework of the human body had up to that time been bound. The overshadowing influence of Galen in all things pertaining to medicine up to the time of Vesalius I suppose it is difficult or impossible for one living in the present day to understand. But Vesalius was an iconoclast: what his own eyes saw and his own hands dissected, that and that only was he willing to set down. How different his predecessors and his confrères, all of whom confined themselves largely to repetitions, or paraphrases, or commentaries upon what Galen had already recorded. If their own observations chanced to differ from what Galen taught, so much the worse for their observations, which must be made to agree with Galen. I do not wonder that his old teacher, Jacobus Sylvius, *"Medicae rei apud Parrhisios interpretem Regium"*—equivalent in these days to "Regius Professor of Medicine in Paris"—protested with vehemence against the vagaries of his old pupil, whose headstrongness and contempt for authority had probably given his teacher many a bad quarter of an hour when he had sat under him in Paris. It is recorded that Sylvius was both a very positive and a very bad tempered man and considered himself the High Priest of Galen! He made a full showing of his personal peculiarities in the diatribe which he issued in 1551,* against the teachings of Vesalius, whom he spoke of—making a play upon the spelling of his name, as Vaesanus-madman, instead of Vesalius. Poor old Sylvius (*Jacques Dubois*), he left nothing of any worth behind him, although he was a voluminous writer. We think of him now chiefly as the miser who kept himself warm in winter by playing handball to save himself the expense of a fire in his room. I am not sure, however ,that I do not sympathize somewhat with him in his feeling toward the young upstart in Padua. You can hardly expect an elderly man to see with equanimity a younger one, whom he has taught, abandon the teachings of his preceptor, and as the representative of a new learning supplant the old in the regard of men! Vesalius himself displayed the same trait of human nature toward his own pupil, Columbus, when he spoke of him as "an uneducated man," "a half knower," who had learned from himself something in anatomy,† because Columbus ventured to disagree with him in some things.

As we read the records of the time, we are struck by the new spirit which Vesalius exemplified. In him it seems to have been developed *de novo*, for he certainly did not imbibe it from his teachers or his fellows. The spirit of independence and of enthusiasm in the pursuit of an ideal was awakening in many places and among many classes of men in the first half of the six-

* Sylvius. *Vaesani cujusdam calumniarum in Hippocratis Galenique rem anatomicam depulsio. Basileae.* Ex officina Jacobi Derbilley, MDLVI. 16 mo, pp. 118.

† Roth, p. 182.

teenth century. The Erfurt monk, Luther (1483-1546), during the very years in which the Belgian youth, Vesal, was the most intensely interested at his work, was himself on fire with the flame of reforming zeal, as he denied the authority of Rome and preached justification by faith. In France, a young barber surgeon of Laval, Ambroise Paré (1517-1590), in 1543, when the first edition of the Fabrica was issued, had just come back from the wars to begin in Paris that illustrious career which was to continue among many vicissitudes for fifty years and to earn for him the title of the Father of French Surgery. At Florence and Rome, while Vesalius was doing his work at Padua, and during the later years while his spirit was rusting out under the influences of life at an imperial court, was raging and driving to the accomplishment of tasks of incredible magnitude and excellence, that incarnation of energy and varied ability, *Michel Angelo* (1475-1564), sculptor, painter, architect and poet. What a wonderful quartet is this—*Luther* in Religion, *Michel Angelo* in Art, *Paré* in Surgery, and *Vesalius* in Anatomy; all contemporaries, the products of the new birth of civilization which attended the close of the fifteenth and the beginning of the sixteenth centuries. To the modern physician, however, the peculiar qualities displayed by Vesalius must have a special charm and honor. To energy and enthusiasm he added a contempt for authority and a demand for personal demonstration, which is the foundation of the scientific method in all ages. No labor was too severe, no peril too great, to deter him from putting an alleged fact to the test of his own scalpel and of establishing or refuting by his own knowledge what claimed to be truth.

Vesalius, however, was a man as well as a scientist. I never have been able to form a clear idea of just what was the sequence of events in his career upon his return to Padua in 1544 from Basel after his absence of a year in superintending the publication of his Opus Magnum, the Fabrica. It would seem, however, that the Galenists who controlled the University were too powerful for him, and that Padua had no further use for him! During his absence his old pupil, Realdus Columbus, had become too firmly intrenched in the department of anatomy to be dislodged. Vesalius left Padua, and Padua lost the most brilliant star that ever shone in the firmament of its University. During the following year he gave a course of anatomy at Pisa and Bologna, but declined to accept the chair that was offered him at Pisa. Sick of disputes and arguments, in a moment of supreme disgust he threw his accumulated manuscripts into the fire and accepted the position of physician to the Emperor, Charles V, which was tendered him! Thus passed out Vesalius the Anatomist in the thirtieth year of his age.

Nearly twenty years later, after a career of success and distinction in attendance upon princes and nobles, he wrote to his friend, Fallopius, who now occupied his old chair at Padua, in acknowledging the receipt of a copy of Fallopius' *Observationes Anatomicae*, which the latter had sent to his old master, as follows:—

"Although now I have never a chance of dissecting and can scarcely obtain possession of a skull, nevertheless I still retain the hope that opportunity may yet be afforded me of perusing that work of truth, man's body.*

Alas, this hope was never to be realized. It was buried a few months later on the desolate island of Zante with the wasted body of a returning pilgrim from the Holy Land, all that was left of Vesalius, the enthusiast, the incarnation of energy, the seeker for truth, the beacon-bearer lighting up and pointing out the way in the investigation of the fabric of man's body, in which all later generations of men should follow.

We have met to celebrate the four hundredth anniversary of the birth of Vesalius. Men still cherish his fame; the farther the year of his birth recedes the greater in the perspective of the ages does his work loom up. But after all, it is not so much what he did,—other great anatomists have lived and worked since that time,—but the spirit which he exemplified and perpetuated, that counts. We do well to honor his memory by such assemblies as this. We do best of all if into our own work we incorporate somewhat of that spirit of inquiry, industry, boldness, zeal, energy, breadth of vision, doubt of dogma, insistence upon demonstration, which the world acknowledges to have been the peculiar characteristics of the Vesalian Spirit!

III.

Following Dr. Pilcher's address, Dr. Harvey Cushing discussed at length the iconography of Vesalius, with lantern slides representing many of his portraits. Three of these are reproduced as illustrations on the accompanying insert. Dr. Cushing also described most interestingly the life itinerary and various episodes in the career of Vesalius, with lantern slides of scenes in Louvain, several of which by his courtesy are reproduced as illustrations of Dr. Green's paper.

In conjunction with the meeting there was shown an exceedingly valuable exhibition of Vesalian and post-Vesalian editions, representing essentially the collection exhibited at the annual meeting of the American Medical Association in Atlantic City, N. J., on June 22-26, 1914, by Dr. Harvey Cushing, Dr. Edward C. Streeter, and the Boston Medical Library.

Among the Vesalian items shown were the following:—

(1) "The Paraphrase on the Ninth Book of Rhazes," 1537; the first work by Vesalius.

(2) "The Anatomical Tables." 1538. A facsimile, one of the thirty copies of the original work, of which only two copies are extant.

(3) The "Institutionum Anatomicarum," of

* Preface to *Examen. Fallop. Anat. Observat.* Venice, 1564.

Gualther von Andernach, edited by Vesalius, an excessively rare 16 mo., printed at Venice, 1538.

4) "Epistola. Docens Venam. . . Secandam," etc. Bale, 1539; the original edition.

5) The first and second editions of the "Fabrica," 1543 and 1555.

6) The two far rarer original editions of the "Epitome," 1543; one in Latin the other in German.

7) The "Opera omnia," cura Boerhaave. Leyden, 1725.

8) "The Epistle on China Root," Bale, 1546; the first edition. (Calcar's portrait.)

9) "The Review of Fallopius," Venice, 1564, original edition. (Casper Bauhin's copy.)

10) Many of the pirated editions; among these the most remarkable is that issued in London by Thomas Geminus, 1545, which contains some of the earliest copper plates to appear in England. Valverde's ed.; Rome, 1600, etc.

11) Three early "Artistic Anatomies," with plates stolen from Vesalius; in one case ascribed as Titian's.

12) One of the chief rarities shown was the tirade of Sylvius against his former pupil: "Vaesani cuiusdam. . . depulsio. . . " Paris, 1551.

Dr. Pilcher also showed an undescribed "Dedication to Vesalius" in a little known medical work; also a copy of the Dryander "Mundinus, the precious Marburg edition of 1541.

Original Articles.

ANALYSIS OF RECOVERIES AT THE PSYCHOPATHIC HOSPITAL, BOSTON.

II. A SECOND SERIES OF ONE HUNDRED CASES, CONSIDERED ESPECIALLY FROM THE STANDPOINT OF PSYCHOPATHIC NURSING OF BRIEF MANIC-DEPRESSIVE EXCITEMENTS AND OF HYSTERICAL AND OTHER DELIRIA.*

By THOMAS H. HAINES, M.D., PH. D., COLUMBUS, O.

Medical Director of Bureau of Juvenile Research, Columbus, O.; Formerly First Assistant Physician, Psychopathic Hospital, Boston.

INTRODUCTORY NOTE.

IT is planned to study the recoveries at the Psychopathic Hospital by hundreds (of which the present is the second series) until a sufficient basis is obtained for generalizations as to the various factors making for recovery and the advantages and disadvantages of psychopathic hospital treatment. It is to be noted that these studies do not deal with "improved" cases or with cases transferred to other hospitals and there recovered; nor do these studies deal with the "not insane" group, of which so large a part of the Psychopathic Hospital's work consists. For the latter part of the work reference may be made to contributions Number 52 (1914.18) of the Psychopathic Hospital Series, entitled "Progress of the Psychopathic Hospital on the Prophylactic Side of Mental Hygiene," published in BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. clxxi, No. 23, Dec. 3, 1914 and No. 22 (1914.2) of the State Board of Insanity Series, "Notes on Public Institutional Work in Mental Prophylaxis with Particular Reference to the Voluntary and Temporary Care, Admissions and the 'Not-Insane' Discharges at the Psychopathic Hospital, Boston, 1912-13," *Journal of the A. M. A.*, November, 1914. Special studies in psychoneuroses passing through the Psychopathic Hospital have been made by Dr. Donald Gregg, Psychopathic Hospital Contributions Number 56 (1914.22) entitled "Genetic Factors in 100 Cases of Psychoneurosis.'." E. E. S.)

The second one hundred recoveries comprised seventy males and thirty females.

The table below presents a comparison of average ages and duration of stay in the hospital of the first and second hundred recoveries.

AVERAGE AGE ON ADMISSION.

	M.	F.	Total.
First hundred.....	41.0 yrs.	36.0 yrs.	40.0 yrs.
Second hundred...	38.8 yrs.	38.0 yrs.	38.6 yrs.

LENGTH OF STAY IN HOSPITAL.

	M.	F.	Total.
First hundred	22 days	27 days	24.0 days
Second hundred...	16.9 days	21.6 days	18.3 days

Comparison of distribution of these one hundred cases by decades, with the first hundred, is shown below:

	11-20	21-30	31-40	41-50	51-60	61-70	71
First hundred..		18	34	25	15	2	1
Second hundred	3	21	36	26	11	2	1

It thus appears that forty persons above forty years of age recovered. There were three in the fifth decade who were not alcoholic, and four above fifty were not alcoholic.

It appears that the average age in this group is reduced one and one-half years and that the average stay in the hospital is reduced by nearly 25 per cent.

The list of the names of the second one hundred recoveries includes one hundred and eleven admissions and one hundred and six recoveries. Nine patients were admitted twice and one three times. One was not insane on second admission, being admitted for salvarsan. One was committed on his first admission and remained eleven weeks

* Read before a meeting of the Norfolk District Branch of The Massachusetts Medical Society, held at the Psychopathic Hospital, [illegible] 1914. The first series published under a similar title by [illegible] as Psychopathic Hospital Contributions Number 14 (1914.14), in the BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. clxx, No. 4, 1914. The present paper is Number [illegible] of the Psychopathic Hospital Contributions. *Bibliography.* The [illegible] contribution was Number 62 (1914.28), by H. M. [illegible], entitled "On the Systematic Control of Salvarsan Therapy Based on the Rapidity of Arsenic Excretion," published in the BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. clxxi, No. 24, Dec. 10, 1914.

in a state hospital, returning several months later to the Psychopathic Hospital, being diagnosed as delirium tremens, and recovering in sixteen days. Another recovered from a manic condition in 47 days and later returned and was committed. A fourth recovered from a manic depressive attack in 27 days, and was discharged from a subsequent admission as unimproved, and diagnosed as unclassified paranoid condition. A fifth recovered from alcoholic hallucinosis, in thirty days and later returning was committed, with the diagnosis of dementia precox.

Of these eleven readmissions—

3 came as voluntary patients both times.
3 were brought by the Boston police both times.
4 were brought by the Boston police the first time, and returned voluntarily the second time and one the third time.

Changes in diagnosis during a single period of observation:

From alcoholic hallucinosis to delirium tremens.... 3
From dementia precox to manic depressive insanity 1
From "not insane" (coming out of delirium tremens) to delirium tremens..... 1
From mixed phase, manic depressive insanity to manic phase, manic depressive insanity..... 1
From unclassified to unclassified paranoid condition 1

Confirmed diagnoses in the one hundred and eleven admissions:

Delirium tremens	51
Alcoholic hallucinosis	29
Alcoholic polyneuritis	1
Alcoholism	1
Drug hallucinosis	3
Exhaustion psychosis	1
Infection psychosis	1
Toxic delirium	1
Manic depressive insanity	8
Dementia precox	1
Cerebral hemorrhage	1
Hysteria	1
Not insane	1
Unclassified	11

Eighty-two of the total number of admissions are psychoses directly due to alcohol. The following table shows how the alcoholics are distributed in regard to sex, civil condition, and form of admission. Widowed and divorced are classed as married.

	Alcoholic Hallucinosis.[1]				Delirium Tremens.[2]				
	Male.		Female.		Male.		Female.		Total.
	M.	S.	M.	S.	M.	S.	M.	S.	
	8	14	7	0	29	21	22	8 0	51
Form of admission.									
From Boston police, Chap. 307[2]	2	8	6	0	11	14	7	0	48
7 days' temporary care, Chap. 395[3]	1	1	0	0	4	3	0	0	9
Voluntary	3	3	1	0	4	4	0	0	15
30 or 60 days' temporary care, Section 43 ...	0	1	0	0	0	1	0	0	2
Committed	2	1	0	0	2	0	1	0	6

The total number of *women* is small, being about 19% of the whole number. They are about equally distributed between alcoholic hallucinosis and delirium tremens, whereas there are twice as many of delirium tremens patients among men as there are of alcoholic hallucinosis. All the women are or have been married, while only 45% of the men are married, widowed, or divorced. All but two of the women were brought by the Boston police, one coming voluntarily and another being regularly committed. Sixty per cent. of all these 80 admissions were at the hands of the Boston police. But in relation to this it is to be noted that 19% of the total number came *voluntarily* seeking help at the hands of the hospital. Twenty-four per cent. of all the alcoholic hallucinosis cases came voluntarily, and 16% of the delirium tremens cases. The lower percentage in delirium tremens is consonant with the well known clouding of consciousness of delirium tremens.

In relation to the relatively slow recovery from alcoholic hallucinosis as compared with that from delirium tremens,[3] the average length of stay in the hospital for the two classes is significant.

	Average Stay in Days.	Mean Variation in Days.
51 cases delirium tremens.....	11.5	7.5
29 cases alcoholic hallucinosis....	20.5	11.6

Only seven cases diagnosed delirium tremens remained over twenty days. Many of these were syphilitic or feeble-minded. Only seven cases diagnosed alcoholic hallucinosis were discharged in less than ten days.

The three cases of *drug hallucinosis* were an actress aged 42, nurse aged 42, and a general utility man in a theatre aged 24. These remained 27, 25, and 31 days respectively. With good nursing and hydrotherapy, they passed the immediate and complete withdrawal of the drug with no great discomfort, and re-established the normal functioning of the metabolic processes. Normal physical condition was again established, the patients putting on weight rapidly in the hospital.

A group of *manic depressive cases, with short attacks*, exhibits a valuable function of the Psychopathic Hospital. These seven persons (eight admissions) had emotional disturbances from which they recovered during hospital residences ranging from two to four weeks in extent.

These were pretty clear cases of manic-depressive insanity. This diagnosis had doubt cast upon it in the case 11,332, sixth in above table, when two months after his "recovery" he returned and was discharged in six days to go to a private hospital with diagnosis of "unclassified paranoid condition."

Case 11,439, second in above table, had been committed four times to the Boston State Hospital. He was out on visit twice and returned both times, on the last commitment. He, therefore, had six attacks before coming here, three of which were about two months in duration and three were over six months each. Excessive use

Case No.	Sex	Age	Civil Condition	Previous Attacks	Character Present Attack	Duration Present Attack	Duration Before Admission	Wassermann Reaction
11,583	F.	36	M.	4	Manic	3 months	15 days	Serum
11,639	M.	41	S.	4	Manic	3 months	16 days	Serum
					Agitated depression	4 months	17 days	Serum
11,283	M.	41	M.		Depressed	6 months	14 days	
10,843	F.	56	S.					
11,678	M.	41	M.		Manic		29 days	Serum
11,332	M.	56	M.	1	Depressed	13 months	27 days	Serum
								Spinal fluid
12,203	F.	34	M.		Depressed	3¾ months	20 days	Serum

or alcohol accompanied his attacks, and this etiological factor colored the diagnosis in the third attack, when his psychosis was called "alcoholic insanity." It seems clear, however, from his history that over-indulgence in alcohol comes after the excitement begins. The patient returned voluntarily six months after this recovery and was committed and transferred to the Boston State Hospital.

Note.—In June, 1914, this patient was returned by the police. He was discharged "recovered" in ten days.

Three unclassified cases recovering in six, fourteen and eight days respectively, probably presented attacks of manic depressive insanity. A single woman of 53 years (case number 904) worried about things which happened years ago, complained that people were going to kill her, talked religion, fell in love with the chauffeur where she was cook, and had spells of "getting mixed up." All this passed with a week of rest.

A married man (case number 11,668) of 38 years was irritable and jealous of his wife. He had fears of being insane and of being a sexual pervert. He felt his nerves were going to pieces. He consulted dream analysts. Their treatment augmented his excitement. In the hospital he fought the attendants and acted as if demented. He was discharged as recovered in three weeks. He was a man of unusual talent and earning power, and he is reported since as doing quite as effective work as he had ever done.

The case (No. 12,460) diagnosed as "hysteria" and recovering in 23 days, was a man 33 years of age and divorced. He was brought in by the police. He was mute, confused, apprehensive, and appeared to be hallucinated and deluded. During his waking periods he continually moved both thumbs over the fingers in a way suggestive of cigaret-rolling. It was soon found that he was accessible and oriented and that his memory was intact. Upon giving him prolonged baths for several days and placing both hands on extensor splints for a few hours each day, the motor disturbance disappeared; and his memory became clear. The man had varied experiences with alcohol and women. His serum was negative to the Wassermann reaction. Alcohol may have been a factor in producing the condition in which he entered the hospital.

Note.—This patient was admitted again in July, 1914, and in much the same condition as before. He was over-fatigued at the time of the Salem fire.

The remaining *unclassified* cases may be briefly summarized:

Case 1. No. 1133, male, 18, single; brought in by the police in a dazed condition. Seemed to have amnesia for four days. Had run away from home many times. The first time was at ten years and because he had stolen some money. Had been on the point of marrying a girl and when he learned from her that she was already married, he wanted "to go to the dogs" and to "drink himself to death." He was discharged in three weeks. Psychopathic personality, alcohol and hysteric amnesia are mentioned in the discharge note. He was later heard from about to enter upon a jail sentence in Vermont.

Case 2. No. 12087, female, 20, single, colored. Patient showed no interest in surroundings, tried to escape, and exhibited many impulsive acts. Answered very few questions, and those with one or two words. Said a fortune-teller talked to her, especially at night. She had jumped from window at home. She had to be restrained. She thought she was the fortune-teller who had told her she must marry a certain "underworld" colored man, who himself had used undue influence upon her. In four days she had lost all these seeming hallucinations, and was no longer timid and impulsive. She mingled freely with other patients and was a useful helper. Hysteria and dementia precox are suggested in the discharge note.

Case 3. No. 10853, female, 37, married. Appeared frightened and suspicious. Was afraid to

drink anything her husband offered her for fear of poison, could not rest at night, heard people talking of killing her and throwing her out of the window. They said she was "dirty and had a disease so she was not fit to live with." She had been wandering about the city all day. She had been hearing the voices about one week when she came to the hospital. After a few days' active hallucinosis they gradually faded. After twelve days in hospital she seemed "entirely well." She used no alcohol. She had a nervous attack four or five years before. Diagnosis, unclassified hallucinosis. Paranoid dementia precox is suggested by the symptoms above.

Case 4. No. 945, female, 38, married. Found in a bewildered condition in the South Station. She thought she was to be put to death. She had auditory hallucinations. She was restless, confused and depressed. She was recently parturient. On clearing up she said she heard voices before leaving her home in Pennsylvania and for one day after coming to the hospital. Discharged to her husband to return to Pennsylvania. Diagnosis, "unclassified hallucinosis" with suggestions of "dementia precox" and "alcohol."

Case 5. No. 12011, male, 18, single. Was found hanging upon a tree in a park. Assigned as reason therefor that his mother was dying in a hospital. Had seen her lying on the floor praying, and he heard her calling patient's name. Appears to be worried. No mannerisms. Discharged in three weeks feeling that he had been crazy when he attempted suicide. Intelligence tests showed him to be a high-grade moron of 11 years plus. Diagnosis given as "emotional impulsive act with hallucinosis."

These short-time psychoses occurring in such numbers in the metropolitan district find in the Psychopathic Hospital an institution admirably adapted to their needs. Friends and physicians find it much easier to send them to a hospital for acute cases than to a regular state hospital. They need therapy rather than custody, and they are quite beyond being handled in a general hospital.[5] Such cases as the twelve referred to above constitute one special kind of situation which the Psychopathic Hospital has been organized to meet. These cases demand nursing and they demand care as of insane persons. Nursing of the insane is a special function of the Psychopathic Hospital, different both from that of the general hospital,[6] and from that of the custodial institution for the insane.[7] It is *nursing* and it is nursing of *the insane*.

The nursing problem, however, is further emphasized by the following cases:

Case 1. No. 11401, female, 24, married. Patient fainted in a theatre. Was dazed the next morning. Became wildly excited in the afternoon, complaining that people were looking after her and troubling her. She expressed a fear that she was to be put away. In the hospital, she lay in a stupid, confused state. Would answer repeated questions only briefly. Complained of the restraint she had experienced at home and said she would not go back to her husband. She was restless and noisy during afternoons and nights for several days, and stuporous and confused in the mornings. Rolled out of bed twice. Patient developed an albuminuria and had casts. She had a temperature of 101.2° at one time. Had a follicular tonsillitis and a leucocytosis of 11,200. Her serum was negative to Wassermann reaction. Both tubes, large and cystic, were removed four years before.

This patient had to be catheterized at times. She was given prolonged tepid baths and was tube-fed repeatedly. In less than two weeks she was talking rationally, improving rapidly in her general health, and was gaining in weight. She was still much confused with regard to her experience after fainting in the theatre and the first few days at the hospital. She was discharged on a six months' trial visit at the end of seventeen days, and definitely discharged six months later. Diagnosis, infection psychosis.

Case 2. No. 11429, male, 39, single. Case of toxic delirium sent from a general hospital where he had "an acute dilatation of the heart followed by a lighting up of an old infectious arthritis." He became wildly delirious and unmanageable. On examination after admission he was somnolent and stuporous, but could be aroused and seemed "quite rational." Knees, feet, fingers, hands and elbows were swollen and painful to touch. Respirations, 48, labored, and painful. Drooping of right side of mouth. Impaired resonance anteriorly and crepitant râles at left apex. Pulse irregular and dicrotic. Complained of a fire on his back. Said he supposed he "cut up at the Baptist Hospital." "There was a man there who would not let me get out of bed." "I saw things, talked through my hat, got out of bed, made a fool of myself, and sauced them."

He continued to have occasional "flights of imagination" for several days. He was given digipuratum, camphor oil, sodium salicylate, and caffein. The lungs cleared up, the cardiac dulness receded, the pulse improved in volume and regularity. The periarthritis subsided. He was discharged to a convalescent home in seventeen days.

Case 3. No. 10768, female, 23, married. Admitted two days after confinement. At times very much confused. Noisy and singing at times. Again thought she was going to die. Often laughed without occasion. Did not seem to be hallucinated. Recognized husband and physician at all times.

Temperature 102. Pale. Dilated pupils. Distended breasts and discolored areolae. Tenderness over entire abdomen. Profuse, sero-sanguinous, non-offensive lochia. Enteritis with loose greenish stool. Rapid pulse and respiration. No phlebitis or mastitis. Later patient lost control of anal sphincter and her breasts caked. No albumen in urine. Discharged recovered in thirty-four days. Diagnosis, "Exhaustion psychosis."

Nursing problems are further indicated by the following facts in regard to *temperatures*. Among these recoveries there were twelve cases showing temperatures of less than 98°, twenty-seven of more than 100°, and four persons had at different times while in the hospital temperatures above 100° and below 98°.

Urine examinations in these one hundred cases reveal:

Albumen in seventeen cases.
Nucleo-albumen in four cases.
Casts in eleven cases.
Mucous bands in two cases.
Sugar in six cases.

Turbid urates, urates, phosphates, triple phosphates, bile acids, diacetic acid, and bacteria, were found in one case each.

Such facts in regard to our recovered cases are evidence in favor of the point of view which is being forced upon the psychiatrist every day, namely that his patients are frequently suffering from serious disturbances of gastro-intestinal, respiratory, circulatory, secretory or excretory systems. And for such conditions the best of medicine and nursing is demanded by general humanitarian considerations. The recoveries here reported demonstrate the economic importance for providing the best of medicine and nursing for such cases.

INCIDENCE OF SYPHILIS.

Wassermann reactions on serum or spinal fluid or both are reported in eighty-one of these one hundred recoveries. One or the other (serum or spinal fluid) is "positive" or "doubtful" or "slightly positive" in seventeen of these eighty-one cases. This is a percentage of 20.9% as against 14.7% in all cases in which blood has been taken as a routine in this hospital for more than a year, about 2000 cases.[8] Such a percentage seems to prove too much. Certainly one may claim that syphilitic taint does not prevent apparent recoveries in a variety of cases. One must argue with much caution, however, as to what etiological significance the syphilitic infection may have had in the psychosis from which recoveries were made with no anti-syphilitic treatment. That there may be subtle and multiform effects, produced by the spirochete upon the cerebral cortex, very different from the classical general paralysis and cerebro-spinal syphilis perhaps no one will deny. These may take the form of temporary high susceptibility to other poisons such as alcohol.

The following table exhibits the *positive cases* with the sex, age, and diagnosis, and in some cases the reaction in the spinal fluid:

Number.	Sex.	Age.	Civil Condition.	Diagnosis.	Serum.	Spinal Fluid.
11,175	F.	43	Married	Unclassified hallucinosis		+
1,337	F.	34	Married	Unclassified psychosis	Slight	+
1,432	F.	30	Married	Alcoholic hallucinosis	Slight	+
11,122	M.	51	Married	Alcoholic hallucinosis	Suggestive Later —	+
1,849	F.	47	Married	Alcoholism	Suggestive	+
1,877	M.	42	Single	Delirium tremens	Slight	+
2,162	M.	33	Married	Delirium tremens	— Later —	+
2,262	M.	38	Married	Delirium tremens	—	+
2,311	M.	27	Single	Delirium tremens	Doubtful	+
2,306	F.	48	Widowed	Delirium tremens	—	+
2,321	F.	28	Divorced	Delirium tremens	Doubtful	+
11,428	M.	47	Married	Delirium tremens	—	+
12,086	M.	24	Single	Alcoholic hallucinosis	—	+
12,301	M.	48	Married	Delirium tremens and alcoholic deterioration	—	+
12,493	M.	25	Divorced	Delirium tremens	—	+
11,429	M.	39	Single	Toxic delirium	—	+
11,214	M.	49	Married	Cerebral hemorrhage	—	+

GROUPED BY DIAGNOSIS.

Nine delirium tremens.
Three alcoholic hallucinosis.
One alcoholism.
One unclassified hallucinosis.
One unclassified psychosis.
One toxic delirium.
One cerebral hemorrhage.

In the last case presented in the table above, No. 11,214, it seems highly probable that syphilis may be a very important etiological factor. The results from serum and spinal fluid examinations are unusual. The serum is negative, and the spinal fluid, while showing only two cells per cubic millimeter, no globulin and no increase in albumin, is positive to the Wassermann test.

The patient says he has had many sick headaches. Has never been in a hospital before, and has not been sick in bed for years. Two weeks ago he overslept. His wife tried to wake him. On attempting to get up he fell on the floor. Had no convulsive movements. He was not right all day. Did not answer questions. Would say "Something is wrong with me" and rubbed face and arms as if they were numb. Could not use his legs that day. Was rambling and confused in his talk. No speech defect. Some weakness of sphincters. Has been depressed and irritable since. He was unable to leave the house or to work. He would not let his wife tend the furnace fire. He locked her in the cellar when she tried to do it. This was on his mind day and night. When he came to the hospital he was fairly well orientated. Memory seemed clear except for the beginning of the attack. He was depressed, irritable and peevish. Complained of pain and chilliness in his back. He thought his mind was clear.

Physically he exhibited a blood pressure of 165 mm. systolic and 130 mm. diastolic, a slight systolic murmur at apex, and pulses which were synchronous, regular and of normal volume. Tongue

was protruded in the median line. Pupils were equal, regular and reacted normally to light and distance. There was no evidence of paralysis in face or extremities, and no subnormality of speech or writing. He did not then stumble on syllables or use wrong words. In two weeks, he was in excellent condition. He lost his irritability and was able to give a clear account of himself. He was dicharged with the diagnosis (cerebral hemorrhage with thrombosis and a question of claudication.) In such a condition the etiological factor may be the development of spirochetes and toxines in the cerebral perivascular spaces. The use of alcohol is denied by this patient's wife.

The other positive spinal fluid is that of No. 11,429, "arthritis and toxic delirium" already described above. Serum was negative in that case also.

Another less definitely classified case in which the spirochetic infection may have had etiological significance is the second in the above table.

No. 1337, female, 34, married. Patient attempted to throw herself from a window. Refused food Had hysteriform attacks. In these seemed to be unconscious, had rigid extremities, but no clonic movements and no frothing or loss of sphincter control. She had delusions of persecution. She had had six previous attacks. Present attack had already lasted three weeks when she was brought to hospital. She had a serum positive to the Wassermann test. Had been twice within a year treated with salvarsan. Used much alcohol and many headache powders. Diagnosis, hysteria, syphilis, and unclassified psychosis from drugs. One may say these are three guesses at diagnosis.

Four cases in the table of seventeen positive Wassermann's exhibit negative spinal fluids with positive sera, namely, 11,175, 1,732, 2,162, and 11,428.

No. 11175, female, 43, widow. Patient heard voices, was sleepless, and was sure people were following and slandering her. Men got "fresh" with her, and a pack of ruffians "blackmailed" her, ruined her character, and were going to "drive her to Ireland." She denied using alcohol for seven years, *i. e.* since her husband died. Neighbors said she did not drink. Serum positive and spinal fluid with two cells to c. m. m. negative to Wassermann reaction. Diagnosis, "unclassified hallucinosis" with questions of "menopause" and "dementia praecox."

It is true that the similarities are marked between this symptomatology and many which are diagnosed as paranoid dementia precox. Many analogies also exist with the fifth decade paranoid involutional cases of Southard and Bond.[9]

One cannot, however, leave lightly the suggestion that the toxic condition of the blood which gave the positive Wassermann reaction may have engendered cerebral conditions, which gave rise to the delusions of persecution, ideas of reference and hallucinations. At any rate we have a positive biologic fact, and it must be given weight in considering explanations of the mental pathology.

No. 11428, male, 47, married; occupation submarine sailor. Patient was very much confused. Very noisy and destructive. Made most absurd remarks and replies to questions. Very suggestible, and fabricated. Many hallucinations, mostly visual and somatic. Much tremor and some ataxia.

No paralysis. Pupils small, irregular and react well to light. Tendon reflexes active; some inequality between patellars and Achilles.

After being in the house ten days no one in staff meeting was willing to classify him. Delirium tremens and Korsakow's disease were the favorite suggestions. No one said definitely "It is delirium tremens." Thirty days after admission he was discharged with the statement that he had been "perfectly well for two weeks." Diagnosis was then given as "delirium tremens." He was discharged from visit six months later, having been seen at the out-patient department several times. This unusual combination of symptoms and the rapid clearing up is of special interest in that it presents a history of alcohol and a positive serum.

Note.—This patient came voluntarily to the hospital in June, 1914, and said he feared he was again getting delirium tremens. Diagnosis: Not insane. The serum June 9, 1914, was negative.

No. 1732, female, 30 married. Was actively hallucinated, both auditory and visual, not confused, oriented, tremulous, and had fair insight. She had an endometritis, salpingo-oöphoritis and appendicitis. She was discharged "recovered" in two weeks. Two weeks after discharge she was brought in by the police with the same symptoms. The abdominal condition and the positive serum, are the unusual features of this case. They seem to have little or nothing to do with the mental condition.

No. 12162, male, 32, married. Had been a heavy drinker for seven years. Visual hallucinations of sparkling things on his clothes, and saw a man in the street working the machine which gave him electric shocks. Heard the buzzing of this machine. Also heard much singing in a foreign language. Also the voice of a bar-tender with whom he had drunk. Tactile hallucinations of pricks in his arms and legs when "the current was put on him." Systematic delusions of persecution in relation to these hallucinations. Well oriented. No memory loss. Restless. No insight.

Pupils unequal and reaction to light very poor. No paralysis. Much tremor. Reflexes, both deep and superficial, were normally active and equal on the two sides. No speech or gait disturbance. Serum +, spinal fluid —.

Though diagnosed as delirium tremens, the patient was committed and transferred to another hospital. He was discharged therefrom as recovered in a few weeks.

One year after his first admission he came again with very similar mental and physical symptoms. Systematic delusions of a man poking fine wires into him from behind a wall. Serum + with new antigen and — with old. Spinal fluid —. Discharged "recovered" in 16 days.

In these three last mentioned cases the most striking feature of the mental symptomatology

is the rapid clearing up of symptom complexes which in the first instance was like Korsakow's syndrome, and in the last two were much like alcoholic hallucinosis. The duration of all three was more like that of delirium tremens. In the last two the positive serum persisted with negative spinal fluid on the second admission. It is possible the pathological serum has a causal part in the mixtures of symptoms, that alcohol and syphilis each mark the symptoms of the other.

TREATMENT AND AFTER-CARE.

Beside the nursing already emphasized and the clinical care, fourteen of these cases had prolonged baths[10] for several days, in thirteen cases drugs[11] were administered, and twenty-five cases were examined and discussed in a meeting of the whole staff.[12]

Forty-one of those discharged "recovered" reported at the out-patient department.[13,14,15] Three others have been heard from. Eighteen reported once, twenty-two reported twice and thirteen were still reporting in April, 1914. One had been committed.

SUMMARY.

1. Compared with the first one hundred recoveries, the average on admission is eighteen months less, and the average residence in the hospital is five and three-fourths days less, *i.e.* eighteen and one-quarter.

2. Of the alcoholics only twenty-one per cent. were females, and all these were married, while only forty-five per cent. of the alcoholic males were married.

3. Alcoholic hallucinosis requires, on the average, twice the time necessary for delirium tremens to clear up.

4. 18.7% of all "recoveries" among alcoholics came voluntarily to the hospital.

5. Twenty-six of these one hundred and six "recoveries" or 24%, are from psychoses not attributable to alcohol.

6. The large number of patients suffering from serious disturbances of metabolism and at the same time insane but recoverable, as shown by the outcome, demonstrates the unique field of service of psychopathic nurse and psychopathic hospital.

7. Anomalous Wassermann reactions, in some cases where the psychoses seem in no wise attributable to syphilitic infection, raise interesting problems in psychiatry. Others, where alcohol and syphilis seem to work together, open up problems in the permutations of the symptoms of two groups.

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SUB-NORMAL TEMPERATURE IN TUBERCULOSIS.*

By Arthur K. Stone, M.D., Boston.

The occurrence of persistent sub-normal temperature in tuberculosis cases has attracted my attention for a long time, and I have been in the habit of calling the attention of my students to the fact that at a certain period of the disease, usually succeeding the active febrile stage, there is often a period when the temperature curve shows marked excursions in the sub-normal, the temperature at no time rising above 98.6 degrees, and rarely fully reaching this point. The patients during this period of sub-normal temperature are usually improving and making distinct gains, but it takes very little to give them exacerbations of real febrile temperature, lasting for a few hours to a few days. This period of sub-normal temperature may last for weeks, the curve becoming less and less irregular if the improvement continues, and finally becoming a continuous straight line at 98.6 degrees. Until this latter condition is found, I do not allow

*Read at the meeting of the American Climatological Society at Atlantic City, June 19, 1914.

my patients much more latitude in their movements than I do while in an active febrile stage. Incidentally, I do not like the term sub-febrile often used to denote a range of temperature from normal or 99 degrees to 100 degrees. In talking to patients, we may feel justified in stating that such ranges are of little importance. If, however, they persist, I believe that they are of the greatest importance, and that it is our duty to find a cause. It may be the part of good practice in a very few cases to ignore such a temperature and to smash the thermometer, and say that no attention is to be paid to slight changes in the body temperature; but I feel that we must be very, very sure that such a procedure is correct, and that we are not deceiving ourselves, as well as our patients, when we say that "sub-febrile" temperatures are of no consequence. To my mind, when there is a constant variation of the temperature from the normal, it means that there is a pathological process going on in the body, which we may not be able to account for; that, however, is our ignorance, and not because the patient is in a truly normal condition.

The persistent sub-normal temperature has become to me a part of the regular course of a case of tuberculosis that is on the whole progressing favorably. It does not have prognostic value, as a patient may from this stage again become febrile; although on the whole the tendency is, under favorable conditions, for the temperature curve to become a practically straight line.

Mild tuberculosis infections frequently show a rapid change from a febrile condition to this sub-normal condition. This is graphically exemplified in some charts in a short paper recently (1913) published by Rundle, demonstrating the beneficial effects of tuberculin. The temperature in these cases became sub-normal and remained so, although he called it "practically normal."

One finds the same condition occurring in tuberculous pleurisy. The fluid is withdrawn or simultaneously disappears; the fever disappears, and is replaced by this sub-normal condition. All told, I have come to consider this persistent sub-normal temperature as so constant an accompaniment of tuberculosis becoming quiescent that it may be considered of diagnostic importance.

During the past year, it has become impressed upon me that these facts which I knew so well were not generally appreciated. I was asked by house officers to explain sub-normal temperatures, and receiving looks of incredulity when I replied that they meant tuberculosis. They rejoined that they thought from their reading that sick cases of tuberculosis always had fever.

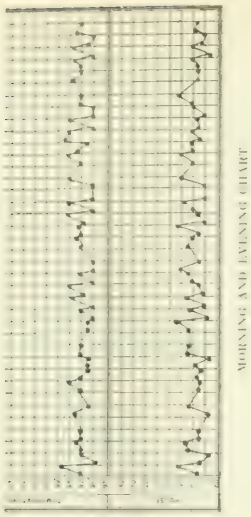
Later, a patient whom I saw in consultation gave me the following history:

She was an over-worked mother. She had had a "cold" in the spring, which had persisted. For a month or two, she had had a persistent fever, often over 100 degrees. Her physician had not been able to demonstrate bacilli or any definite lesion in the lung. After a time, the cough had become less, and she developed a persistent sub-normal temperature, and all the time felt so tired and worn out that she could keep about with difficulty. She had been told that, because of the sub-normal temperature, she could not have tuberculosis. Not having tuberculosis, she had not stopped and rested, neither had the physician insisted upon rest, as he would have had he made this diagnosis. There was little in the lungs on which to render a diagnosis, but the picture to my mind was typical of a mild infection overcome by fine climatic surroundings, with the consequent depressed physical condition and the manifestation of sub-normal temperature, which was persisting and calling loudly for further rest to enable the cure to become complete. The persistence of the temperature in the sub-normal to my mind was the typical thing to be expected, and not the condition to make the case perplexing.

The books on tuberculosis, I find, practically do not mention persistent sub-normal temperature as a common symptom to be found in the course of the disease. Pottenger of course has made note of the fact. He says (page 54), "There are types of temperature which persistently remain below normal, 97 degrees to 99 degrees. (He gives temperature charts to illustrate.) Such cases seem to do well, and in my experience I have been unable to account for the condition." Also, in his paper on "The Study of Fever in Tuberculosis," read at Los Angeles in 1911, he states, "The continuously sub-normal temperature we associate with both chronic fibroid tuberculosis and chronic tuberculosis of the ulcerative type during the stage of quiescence."

This is all the reference which I have been able to find to a state of affairs which I had come to look upon as commonplace until Hawes' book, *Early Pulmonary Tuberculosis*, appeared in which he calls attention to the importance of a sub-normal temperature combined with a high pulse rate as very suggestive of a probable diagnosis of tuberculosis. I entirely agree with him, that a rapid pulse and the low temperature usually go hand in hand, although a number of my charts show a much lower range for the pulse rate that he suggests as the usual.

Practically all writers have noted that persons with tuberculosis may have a normal temperature while disclosing signs of activity on physical examination. Also, all have noted the fact that morning sub-normal temperatures are common, but they assert that by afternoon the temperature rises to 100 degrees or more. Minor in Klebs' *Handbook* calls attention to the diagnostic importance of the persistence of sub-normal morning temperature in early cases. Incidentally he has some charts where there are persistent sub-normal temperatures or broken only by occasional rises above normal. Pottenger calls attention to the fact that many persons unfamiliar with the details of the care of tuberculosis pa-



MORNING AND EVENING CHART
Note low pulse rate.

tients are frequently alarmed at low sub-normal morning temperatures, citing the case of a surgeon who felt he had saved his patients from desperate collapse because he had found, accidentally, a morning temperature of 96 degrees.

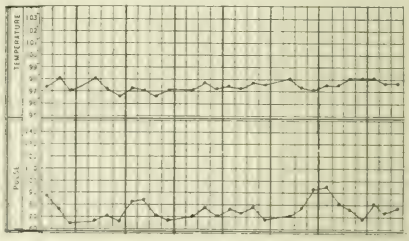
With all of these observations I fully agree, and further I wish to emphasize that the continuance of a sub-normal temperature, lasting often over weeks, is not at all an infrequent condition in the course of improvement in a patient with tuberculosis.

To make sure of the number of cases that occur, I have been over the records of the House of the Good Samaritan since 1907. During that time, we have had 378 cases of tuberculosis, many of them being brought here at the very end of life. Many had had steadily progressing disease, and only a few were in a really early stage, or in spite of advanced progress on entrance, became arrested. Of the 378 cases treated, I found that 58 of them for two to four weeks at a time, and some for eight or more weeks, ran a sub-normal temperature.

At the day-camp at the House of the Good Samaritan, the patients were for the most part early cases; a large proportion of them, however, having well marked signs and bacilli of tuberculosis present in the sputum. I have looked over the four hundred and six cases treated, and found 98, or 24% had periods of sub-normal temperature, several of them showing the condition for several months at a time; others for periods of a couple of weeks broken by periods of fever for a few days to a week, and again returning to a sub-normal range.

The question may be asked: What is a normal temperature, and what do we mean by fever and by sub-normal temperature? Is there not a variation in temperature in health that is greater than what we are accustomed to consider as the normal variation? Personally, I do not believe so. The physiologists tell us that there is some variation in temperature in the healthy person. This diurnal swing is usually considered to be confined to about one degree centigrade, being lowest during the early morning hours, and highest in the late afternoon. The temperature is stated, also, to be affected by food, and at times by exercise.

In order to be sure that the temperatures of patients were persistently sub-normal when so appearing on a daily morning and evening chart, I have from time to time had a number of cases tested by having the temperatures verified, by having them taken at three hourly intervals, and later at two hourly intervals, to conform to the strictest requirements which I have found set forth as desirable.



THREE-HOUR CHART.

Many times when I have seen sub-normal temperatures registered, I have requested the head nurse to look into the methods of the nurses recording the temperatures, and have been assured that the observations recorded were correct. The sub-normal temperatures were found to occur equally in the heat of summer and the cold of winter.

On the whole, I am quite sure that so far as the observations go, the maximum sub-normal are correct; that the minimum may be occasionally lower than recorded, I am not so sure.

However subsequent investigations shall decide in such cases, for the practical clinical man, when there is no special condition leading to a persistent rise in temperature or to a persistent sub-normal temperature either of these conditions observed over a long period of time, makes the diagnosis of tuberculosis probable.

It has surprised me, since I have been interested in this matter, how few of the conditions where there is general depression, were accompanied by sub-normal temperature. The most marked persistent sub-normal temperatures are in my experience found in mitral disease of the heart, especially stenosis with moderate failure of compensation.

Renal cases of severe enough type to require hospital treatment often show this condition. Cancer in its later stages may or may not; while

in my experience, tired women and those whom we sometimes call neurasthenics rarely show the sub-normal even during the periods of prolonged rest.

Of the other forms of tuberculosis, especially tuberculous peritonitis may or may not have sub-normal temperature. In the cases I have followed, I have not been impressed with its frequency as a special sign to be depended upon in diagnosis.

Cases of bronchiectasis and fibroid phthisis, and cavity formation after non-tubercular infections, all of these interfering with the action of the lung, can give rise to prolonged sub-normal conditions; but these are not the cases where this range of temperature comes into active play as a help in diagnosis.

Dr. B. G. R. Williams of Paris, Ill., has reported that he had observed a form of "grip" where there was a persistence of temperature of from 94 degrees to 97 degrees, with marked depression. In the cases usually called "grip" or "influenza," my general experience has been that the return to normal has been moderately rapid. In correspondence with Dr. Williams, he states that he has not noticed so far that the cases in which he has noted sub-normal temperature have developed active tuberculosis.

It goes without saying that in doubtful cases everything must be taken into consideration when one sees the patient and makes his diagnosis. Cardiac and renal conditions must not be allowed to escape notice and must be surely eliminated before the sub-normal temperature alone assumes special importance; and then it must be held in mind that there is the possibility that convalescence from various bacterial infections may be found to have periods of sub-normal temperature, which must make us careful in our diagnosis; although personally, I do not believe that they enter into consideration to any great extent. And I say this in spite of the statement in Krehl's *Clinical Patholog*, that "Sub-normal temperatures are more common than is generally supposed. They are often seen during convalescence from infectious diseases; and in such instances, they are generally due to a diminished production of heat with an inefficient heat regulation." (Hewlett's translation.)

COCCYGODYNIA: CAUSES AND TREATMENT.

By Ralph Duffy, A.B., M.D., Tampa, Florida.

Coccygodynia is not a common disorder nor a very grave one, but it is one which may cause great suffering and considerable disability. I should like in this paper to discuss the condition briefly, and to cite one case, with my method of treatment.

In the first place I should like to differentiate those vague and indefinite pains around the region of the coccyx which we see in various nervous conditions, from true coccygodynia. In neurasthenia often, in tabes at times, in hysteria, and in traumatic neurosis pains in the sacral and coccygeal region are complained of. But such pains are indefinite, they are dull rather than sharp, and there is not much tenderness of the coccyx. The same may be said of the reflex or neuralgic pains in the coccyx encountered in pelvic or anal disease, especially in the female.

True coccygodynia, however, though it has no definite known pathology, has very definite symptoms and signs. The pain is always sharp and lancinating and caused by movements of the body or anus, or by pressure. As long as the patient is still in bed and lying on the side, there is no discomfort. Again, the coccyx is always exquisitely tender on rectal palpation. The pain, too, is definitely located in the coccyx and does not radiate.

Etiology. I will venture the statement that true coccygodynia is always of traumatic origin; at least that has been my observation in the cases I have seen. The trauma is either external—falls, kicks or blows, or internal—in childbirth. It seems to me that the etiology which best explains the symptoms is injury to the sacrococcygeal articulation or to the nerves in and around that articulation, this injury causing chronic inflammatory change. Fracture or caries of the coccyx may account for some cases. Some writers contend that subluxation of the coccyx can always be demonstrated (Hamant and Pigache[1]).

Reflex coccygodynia is much more common in women than in men due to pelvic trouble. It may be said hardly to occur in the male. True coccygodynia however occurs in both sexes. It is much more common in females, however, due possibly to injuries to the coccyx in parturition. It has been observed at all ages, even in little girls.

Symptoms and Diagnosis. The chief symptom as said before is sharp pain in the coccyx, occurring with pressure, with movements of the legs, or with defecation, that is, with any movement of the coccyx. The muscles attached to the coccyx are the gluteus maximus, in small part, which contracts on any movement of the leg, and the levator ani, sphincter ani, and coccygeus which contract during defecation. The patients often present a very woe-begone appearance. The obstinate character of the pain drains health and nerves. Neurasthenia of varying grades is a not uncommon result. Owing to pain in defecation, the patients refrain from going to stool as far as possible, and constipation is the natural consequence. The chief and indeed the only physical sign in most cases is extreme tenderness of the coccyx on rectal palpation. Pinching the coccyx between the rectal finger and thumb causes the patient to wince with pain. Deviations of the coccyx, subluxa-

[illegible] and irritation in the region of the sacrococcygeal articulation are mentioned by some writers. The diagnosis should present no especial difficulty. The rectum and pelvis should be examined for local lesions (hemorrhoids, fissure, intussusception, etc.) which might account for reflex pain in the coccyx. Spinal lesions and sciatica must be excluded.

Treatment. Nervous or reflex coccygodynia calls for appropriate treatment of the underlying condition, along with local remedies. Radical surgical treatment is out of place. For true coccygodynia medical treatment is only temporizing. There are two forms of surgical treatment. The best is excision of the coccyx. Most writers from Nott[2], who performed the first excision, testify to the efficacy of this operation. Simpson[3] advocated section of the muscle-insertions on the coccyx, but this plan was discarded as being unsatisfactory. Whitehead[4], Odell[5], of early writers, and Fullerton[6], more recently, advocate the method of excision.

Excision will probably cure every case of true coccygodynia, if the assumption that the lesion is in the bone or the sacrococcygeal articulation be correct. It will not cure reflex or neuralgic coccygodynia. The operation is extremely simple. A linear incision is made over the coccyx and the end of the sacrum, and with rongeur and elevator the coccyx is disjointed and peeled out. The only drawback to the operation is that the muscle insertions in the coccyx are of value to the perineum, so that the loss of the coccyx weakens that structure.

The other form of surgical treatment is the injection of alcohol. De Vésian[7], in 1907, first used this method in an obstinate case of reflex coccygodynia, getting the idea from the treatment of facial neuralgia by the injection of alcohol.

De Vésian's case was that of a woman of 43. There was no history of injury to the coccyx, external or obstetrical. There were inflammatory masses in the pelvis, which De Vésian considered the cause of the coccygodynia. Operation was refused by the patient. Under local treatment the pelvic condition ameliorated, but the pain in the coccyx was still very severe.

After trying other forms of local treatment for the coccygodynia, De Vésian determined to try the injection of alcohol. He used 60% alcohol. With the index finger of the left hand in the rectum, the needle was inserted back of the rectum and anterior to the coccyx. At the depth of 3 cm., 2 c.c. of alcohol were injected along the sacrococcygeal articulation and the needle withdrawn. Two cubic centimeters of the alcohol were then injected along the posterior surface of the coccyx. But one injection was necessary and the relief was immediate. The patient was under observation for four months, during which time she had no pain.

F. C. Yeomans[8] has treated seven cases by this method. His technic is as follows: with the patient on the left side, the right index finger in the rectum determines the point of greatest tenderness. This, he has found, is just below the tip of the coccyx. The needle of the syringe is introduced to this point of maximum tenderness, and 10 to 20 minims of 80% alcohol are injected slowly. The pain is severe but lasts but a few minutes.

Yeomans has found in general three to five injections necessary for a cure. The interval is from three to five days. He reports no recurrence, the time of observation varying from one month to four years.

In the past two years I have had several opportunities to use Schlosser's treatment for neuralgia. I have in that time seen but one case of coccygodynia. This case was treated by me with alcohol injections, so far (eight months) with no return of the pain. The case was as follows:

MRS. MARY M.; aged 33, in September, 1913, fell from the hammock to the porch (a fall of probably 18 inches) striking the sacrum against a child's toy. The patient says the pain was not during the ensuing days extremely severe. She was not at any time compelled to keep her bed. Several weeks after the injury, the pain became sharper and localized in the region of the coccyx. It has persisted up to the time of observation (Feb. 11, 1914), and is severe enough to be a constant source of distress.

Examination shows no pelvic or rectal disease, except a slight laceration of the perineum. The coccyx seems abnormally movable and bent forward, but not apparently dislocated. It is exquisitely tender to palpation. No treatment has been instituted except salves and liniments.

Having done almost all my minor rectal and perineal work in the last two years under novocain, it occurred to me to infiltrate the anterior surface of the coccyx with that drug before using the alcohol. The patient was placed on her back in an exaggerated lithotomy position, using Clover's crutch. The index finger was inserted in the rectum for a guide, the whole anterior surface of the coccyx was then infiltrated with 10 c.c. of 1% novocain solution with suprarenin. Leaving the needle *in situ*, the syringe was then partially filled with 80% alcohol, and 4 c.c. injected along the sacrococcygeal articulation, and the needle withdrawn.

There was considerable soreness for several days following the injection. This gradually disappeared and with it the pain. This patient has been seen by me several times in the last eight months. She says she feels well and has no pain.

The alcohol treatment is so simple that it can be employed by any practitioner. It can be used in any case of coccygodynia, independent of its origin, and has this great advantage, that it offers promise of relief in those cases of neuralgic coccygodynia which resist excision.

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ADDENDUM.—CONCLUSION OF ARTICLE "ON THE MARGIN OF ERROR IN PSYCHOPATHIC HOSPITAL DIAGNOSES."

By E. E. Southard, M.D.,
and
A. Warren Stearns, M.D.

(From the Journal, Vol. clxxi, No. 24, pp. 895-900.)

SUMMARY.

The writers discuss the difference between insanity and mental disease. Studies of similar scope at Danvers (general paresis, senile dementia, psychoses in general) and at Worcester (general paresis) are mentioned, and a table is offered showing the high accuracy which the diagnosis of general paresis had obtained even before the Wassermann reaction was available. They remark upon the frequency of "unclassified" cases at Danvers Hospital and show a similar frequency at the Psychopathic Hospital, Boston.

It is shown that about one in five cases get no diagnosis at the Psychopathic, and that, of those cases that do achieve a diagnosis, one in four has its diagnosis altered upon removal to a state hospital. Not all of those removed receive a definite diagnosis. There is, in fact, a residuum of about 6% that have as yet remained unclassified.

Some analysis is made of the figures for five hospitals receiving the majority of the Psychopathic Hospital patients. Possible bias in diagnosis is considered, but largely discarded. The most difficult field of diagnosis is shown to be that of dementia precox and manic-depressive psychosis. It is thought that the excited or agitated patients of these groups form the largest and best subject of diagnostic and theoretical investigation. Examples of interesting alterations of diagnosis are offered, including a case in which the terminal phase of an alcoholic hallucinosis together with incoherence (perhaps due to attention-disorder) and maniacal symptoms was the basis of a diagnosis of dementia precox, whereas the true diagnosis was very probably manic-depressive psychosis combined with alcoholic psychosis.

Book Reviews.

Child Training as an Exact Science. By George W. Jacoby, M.D. With full bibliography and thorough index. pp. 384; 15 full-page illustrations. New York: Funk and Wagnalls Company. 1914.

Dr. Jacoby has rendered a distinct service in bringing together modern theories of child training. Any successful scientific training of children must depend upon a knowledge of individual mental capacity. Each child becomes, thereby, a special study and in this fact appears to lie the secret of modern methods—differentiation in place of uniformity of educational methods. To bring the subject into compact compass, the author, after a brief historical survey, in which he pays tribute to Seguin as the forerunner of Montessori, discusses the psychology of childhood, beginning with a statement of the functions of the nervous system, and from that going on to a discussion of the mental development of the child. The third section of the book is concerned with childhood abnormalities, physical and mental; the fourth with prophylactic training, first of the parents and secondly of the children. The fifth section concerns itself with therapeutic training, and certain conclusions with literature references and an index conclude the book. Dr. Jacoby is amply equipped to write a book of this character and he has done it well. Like many books of the present day, written by men of science, it is entirely adapted to intelligent popular reading. Its chief value is, no doubt, the relation which it demonstrates between medicine and pedagogics. It should, therefore, be of particular service to the teacher. We commend the book both to lay and professional readers.

Food Products. By Henry C. Sherman, Ph.D., Professor of Food Chemistry, Columbia University. New York: The Macmillan Company. 1914.

This volume aims to combine a general study of foods with the results of recent advances in food legislation and the scientific investigation of certain important aspects of the composition and value of food. A chapter is devoted to each important type of food, its production, preparation, economic importance, proximate composition, inspection, standard of purity, digestibility, nutritive value, and place in the dietary. At the close of each chapter is a bibliography of appropriate references. Five appendices contain respectively the federal rules and regulations for the enforcement of the food and drugs act, a series of food inspection decisions, the methods and standards adopted by the American Association of Medical Milk Commissions for the production and distribution of certified milk, the federal meat inspection law and regulations of the bureau of animal industry of the United States Department of Agriculture, and an alphabetic table of 100-calorie portions of the principal food materials. The work is adequately illustrated with 36 figures in the text. This book should prove of value and assistance to teachers, students, and intelligent practitioners of domestic science.

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ANNOUNCEMENT.

On January 1, 1915, the Boston Medical and Surgical Journal will transfer its editorial and business offices to larger and more convenient quarters at 126 Massachusetts Avenue, on the corner of Boylston Street. This change of address is called to the attention of subscribers, contributors, exchange editors, advertisers, and other friends of the Journal, with a cordial New Year's greeting to them and to all members of the medical profession, whose interests the Journal hopes to continue to serve in the future, as in the past, with increasing efficiency and fidelity.

THE QUATERCENTENARY OF VESALIUS.

Just four centuries ago today, on December 31, 1514, there was born at Brussels André Vésal, who, under his scholastic Latin name, Andreas Vesalius, was destined to be known by after generations as the Father of Anatomy. Vésal derived his patronymic from the town of Wesel where his ancestors had lived, and in the same field his family arms bore the representation of three weasels. Nothing authentic is known of André's boyhood. Tradition loves to relate, in evidence of his precocious taste for anatomy, that it was his delight to procure from the butcher a bullock's heart or sheep's kidney to carry home for dissection; wherein he was encouraged by his father, then apothecary to Charles V. In time, André went to the neighboring University of Louvain, and thence to Paris for his education. Medicine was his chosen faculty and anatomy his special domain. He returned to teach for a time at Louvain, and then passed to the broader fields of Italy, Austria, and Spain for his life career. He died by shipwreck off the island of Zante in the Ionian Sea on October 15, 1564.

It had been purposed to hold an elaborate celebration during the current month at Louvain and Brussels of this quatercentenary of Vesalius, but the unexpected events of the European war made this impossible. The Father of Anatomy, however, was not forgotten in other lands. In Boston a commemorative observance of his four hundredth anniversary was held at the Peter Bent Brigham Hospital on December 8. In another part of this issue of the Journal we have the pleasure of publishing the papers and proceedings of this meeting, with reproductions of several portraits of Vesalius and of scenes in Louvain prior to its destruction. These papers present in detail the story of Vesalius and his times, an account of his works, and an estimate of the spirit and significance of his scientific achievement.

In human anatomy, the accomplishment of Vesalius was momentous. He found the subject a mass of inaccurate statement, based on Galenic tradition and on the imperfect study of animals; he left it a science, essentially in its modern condition, based on accurate dissection and observation of the human body. He wrote the first good description of the sphenoid bone, showed that the sternum consists of three bones and the sacrum of five, and described accurately the interior of the temporal bone. He described the azygos system of veins, and discovered the ductus venosus in the fetus. "He described the omentum and its connections with the stomach, spleen, and colon; gave the first correct views of the structure of the pylorus; remarked the small size of the cecal appendix in man; gave the first good account of the mediastinum and pleura, and the fullest description of the anatomy of the brain yet advanced" (William Turner).

His greatest contribution, perhaps, was to the anatomy of the circulatory organs. "He determined the position of the heart in the chest; he studied its structure, pointing out the fibrous

rings at the bases of the ventricles; he showed that its wall consists of layers of fibres connected with the fibres of the rings; and he described these layers as being of three kinds. From the disposition of the fibres he reasoned as to the mechanism of the contraction and relaxation of the heart. . . He showed that the pores of Galen, in the septum between the ventricles, did not exist, so that there could be no communication between the right and left sides of the heart, except by the pulmonary circulation. He also investigated minutely the internal structure of the heart, describing the valves, the *columnae carneae*, and the *musculi papillares*. He described the mechanism of the valves with much accuracy." (J. G. McKendrick.) His work on the vascular system was thus the real precursor and foundation of the final discovery of the circulation by Harvey.

Vesalius was not only the foremost anatomist of his day, but also a surgeon of daring, skill, and distinction, the first whose work was founded on a thorough knowledge of anatomy. He was for some years surgeon to Charles V and later to Philip II. He is known to have practised trephining, and was the first to operate for empyema. It was well that Ambroise Paré, his younger contemporary, the celebrated French military surgeon, termed Vesalius "un grand anatomiste, je dis grand et celebre, duquel les livres reparent aujourd'huy les estudes des hommes doctes."

In connection with the projected official celebration of the Vesalian quatercentenary at Brussels, it had been proposed to issue a memorial volume, the first part to be devoted to the iconography of Vesalius,—a collection of all the extant portraits, with descriptive and critical text,—and the second to his biography and scientific works. It had also been proposed to erect a monument to his memory on the wave-swept rocks of wooded Zante, the classic Zacynthus* among the Ionian Isles, off the coast of Elis, where he perished on his return from a pilgrimage to the Holy Land. It is sincerely to be hoped that both these pious projects may not have to wait until his five hundredth anniversary for their fulfilment. Yet, whatever their ultimate fate, the name and fame of Vesalius remain unforgotten, so long as anatomy remains the foundation of medical science.

* The ὑλῆεις Ζάκυνθος of the *Odyssey*, mentioned also in the *Iliad* (in the Catalogue of Ships) as held by the great-hearted Kephallenians, subjects of Odysseus. Zacynthus, with Ithaca and Samè, constituted his island kingdom.

NARCOTIC DRUGS. LEGISLATION REGARDING PHYSICIANS AND OTHERS.

Dr. Walter P. Bowers, Secretary of the Massachusetts Board of Registration in Medicine has recently sent the following letter to the secretaries of the District Societies:—

"By reason of the law passed by the last Legislature, which goes into effect January 1, 1915, (Chap. 694, of the Acts of 1914) it is quite possible that some of our physicians may become involved in suspicion and litigation.

"Please notify all members of your society of the passage of the above mentioned Act, and request them to study the law, giving especial attention to the provisions of Sect. 2; also the exemptions, as provided in Sect. 3, requiring every physician, veterinarian, and dentist to keep a record in a suitable book of the names and addresses of all patients to whom he dispenses narcotics.

"The violation of the provisions of the Act shall be punishable by a fine of not less than fifty nor more than one thousand dollars, or by imprisonment in the house of correction or jail, for a term not exceeding one year, or by both such fine and imprisonment.

"The two sections especially referred to read as follows:—

"'Section 2. It shall be unlawful for any practitioner of veterinary medicine or surgery to prescribe any of the drugs mentioned in Section 1 of this act for the use of a human being, and it shall be unlawful for any physician or dentist to prescribe, sell, give away or deliver any opium, morphine, heroin, codeine, cannabis indica, cannabis sativa, or any preparation thereof, or any salt or compound of said substance to any person known to such physician or dentist to be an habitual user of those drugs.'

"'Section 3. The provisions of this act shall not be construed to prevent any lawfully authorized practitioner of medicine or of veterinary medicine or of dentistry from prescribing, administering or dispensing any drug that may be indicated for any patient under his care: *provided*, that such prescribing, administering or dispensing is not for the purpose of evading the provisions of this act; and *provided, further*, that every physician, veterinarian and dentist shall keep a record in a suitable book of the names and addresses of all patients to whom he dispenses narcotics.'

"Your coöperation in this matter will be greatly appreciated."

The importance of this communication is obvious and it is herewith called to the personal attention of individual physicians throughout the state for their own safeguarding and interest and to enlist the coöperation of the profession in carrying out the provisions of this important piece of medical legislation.

A QUESTION OF FEDERAL OR LOCAL CONTROL.

The question of transferring the quarantine station of the port of Boston from municipal to federal control was first raised earlier during the present year and at that time was editorially discussed in the issue of the JOURNAL for May 14, 1914. It is known that the United States Public Health Service is ready to take over the administration of the station, which now costs the city about $25,000 a year. The method of federal control has apparently worked well in other large seaport cities where it has been adopted, and has the advantage of uniformity in the administration of so important a matter as that of national immigration. A public hearing will be held at City Hall on Jan. 1, 1915, at 4 p.m., at which the proposed transfer will be discussed, after which the subject will be referred to the City Council for decision. It is highly important that members of the medical profession, and all others interested and concerned, should attend this hearing to assist the decision of this important matter by expression of their opinions and judgment.

A similar question of federal or local control is involved in the proposed transfer of the Massachusetts state leper colony by the sale of Penikese Island to the national government. This leper settlement now costs the state about $28,000 a year. Its administration by the United States Public Health Service would not only relieve the state of this expense, but would secure uniformity of method and policy in dealing with the national problem of the control of leprosy. The public expression of opinion by members of the medical profession is in this instance also highly desirable to secure the wise decision of this problem in the best interests of efficiency and community service.

PROPOSED REORGANIZATION OF THE BOSTON BOARD OF HEALTH.

Following the reorganization of the Massachusetts State Board of Health into a health commission under a single administrative head, it is now proposed similarly to reorganize the Boston Board of Health into a health department under a single chief. To this end the following ordinance, drafted by the corporation counsel, was submitted on Dec. 28 to the City Council for its consideration.

"Section 1. The health department shall be under the charge and control of a health commissioner, who shall be appointed by the mayor under the provisions of Sections 9 and 10 of Chapter 486 of the Acts of the year 1909, and who shall receive an annual salary of $7500.

"Sect. 2. The health commissioner shall exercise the powers and perform the duties conferred or imposed by law upon the board of health of the city of Boston or upon the chairman thereof.

"Sect. 3. The health commissioner shall establish the following divisions of the health department: Medical division, sanitary division, food inspection divison clerical division and quarantine division. Each division shall be in charge of a deputy commissioner, qualified by education, training or experience, who shall be appointed by the health commissioner. The salaries of the deputy commissioners shall be fixed by the health commissioner, subject to the approval of the mayor.

"Sect. 4. All ordinances and parts of ordinances inconsistent herewith are hereby repealed.

"Sect. 5. The provisions of this ordinance relating to the appointment of the health commissioner shall take effect upon its passage and all other provisions shall take effect when such appointment becomes operative."

The principle underlying this proposed measure, that of a highly paid responsible head, supported by an advisory board, has already been recognized in the reorganization of the state board of health. It should be as desirable in the one case as in the other. If it is established, however, in the case of the municipal board, it should mean the appointment, to the important post of health commissioner, of the most competent expert obtainable, regardless of political or other affiliations. This places the mayor, who holds the appointing power, under a serious public duty and responsibility to which the public and the medical profession should hold him strictly accountable.

In this connection, the following vote, passed at a recent meeting, is of interest and significance:—

"Voted, That the executive committee of the Boston Association for the Relief and Control of Tuberculosis approve of the reorganization of the health department of the city of Boston, provided that the commissioner is a man of such education and training as to enable him to deal with the intricate problems of the public health of the city of Boston. The importance of this post deserves a man of national reputation.

"We also favor the transfer of the quarantine station to the federal government."

THE NORMAL CHILD: ITS PHYSICAL GROWTH AND MENTAL DEVELOPMENT.

Under the above caption, Professor Bird I. Baldwin (*Popular Science Monthly*, December, 1914) presents the results of a study of the relation existing between the physical growth and pedagogical age (school standing) of a group of boys and girls from six to eighteen years old. The data comprise 43,840 measurements on approximately 1000 boys and 1000 girls, and 21,683 final quarterly marks for 135 of these same boys and girls.

The study gives valuable information concerning the proper method of classifying children, and emphasizes the fact that neither chronological age nor mental age are in themselves sufficient criteria to determine the child's proper school age. It appears that height and weight offer excellent objective criteria for teachers and parents in determining the probable onset of mental maturity. This statement is graphically illustrated by many charts which accompany the article and which must be studied individually in order fully to appreciate their significance. However, the gist of the whole study appears to be that the smaller child should be treated as the younger individual. This would require that tall, healthy children of accelerated physiological age, should be encouraged to proceed through school as rapidly as possible within the limits of thoroughness, and that the small, light-weight children of retarded physiological development be encouraged to stay in the lower grades doing supplementary work until the body development approaches the normal for age. Although the short and underweight pupils often appear precocious, a careful analysis of their mental faculties shows that this is usually nothing but a *precosity of brightness*, their mental development being in reality as immature as their physiological. The educational corollary which logically follows from this study would require that our school system be graded on the physiological age and the accompanying stage of mental maturity, in place of the chronological age.

MEDICAL NOTES.

Election of Dr. Langlet.—On Nov. 10 Dr. Langlet, professor and director of the medical school of Rheims, was elected a national associate of the Paris Academy of Medicine.

Research in Tropical Medicine.—It is announced that Dr. Richard P. Strong, professor of tropical medicine in the Harvard Medical School, has been appointed director of the hospitals, laboratories, and research work of the United Fruit Company. In a letter to the University on this subject, the Company says:—

"Through a desire to coöperate with Harvard University in its investigation of tropical diseases we have properly equipped our hospitals with laboratories and have ample material constantly available in our wards, which we desire to place at your disposal for research in connection with the prescribed study of tropical diseases embodied in your tropical school."

Investigation of Infant Mortality.—The recently published second annual report of the children's bureau of the United States department of labor records its activities for the year ended June 30, 1914. The work has been chiefly concerned with infant mortality and child labor. Regarding the first field investigation into the social significance of infant mortality at Johnstown, Pa., the report says:—

"The reading of the first field study will show a coincidence of underpaid fathers, overworked and ignorant mothers, and those hazards to the life of offspring which individual parents cannot avoid or control. This points toward the imperative need of ascertaining a standard of life for the American family. The study of infant mortality involves finding how far the essentials of such a standard may be secured by communities, how far they rest upon better conditions of work and pay, and how far they depend upon the individual rectitude of fathers and mothers. Toward the ascertainment of this standard it is hoped that the Bureau's continued studies into infant mortality may contribute."

The Epizoötic of Foot and Mouth Disease.—On Dec. 21 an order was issued by the United States department of agriculture raising the quarantine of livestock for foot and mouth disease in Wisconsin, with the exception of Brown, Dane, Green, Jefferson, Kenosha, Langlade, Lincoln, Milwaukee, Racine, Rock, Walworth, and Waukesha counties. The order also provides that livestock may be shipped into Milwaukee county and out, for immediate slaughter, with the exception of the stockyards at Milwaukee and Cudahy, Wis.

Report of the Surgeon-General of the United States Army.—The recently published annual report of Dr. William C. Gorgas as surgeon-general of the United States Army records a study of the health and sanitary conditions of the army for the calendar year 1913. During this period the hospital admission rate was only 671.18 per 1000, the lowest on record and a reduction of 18% over the previous year. The rate of disease was highest in the Philippines and lowest in Alaska. In a total mean strength

[illegible] 72 men there were only four cases and no deaths of typhoid fever. Two of these patients had not received antityphoid prophylactic, another had had only one inoculation, and the fourth had been immunized two years before. The rates for malarial fevers were the lowest since 1898, when American troops were first permanently stationed in the tropics.

Dr. Gorgas points out that, if its efficiency is to be preserved, the hospital corps should be reorganized and made more attractive. The shortage of mobile sanitary units is a glaring defect in its present organization. The present personnel "permits only one-half of the regular army in the field to be served by the sanitary units prescribed by field service regulations. In view of the great battle losses to be expected in modern wars, it is a serious responsibility to rely upon improvised units that must serve at the front." The adoption is urged of a comprehensive scheme for the training of medical officers, and for their coöperation with the Red Cross during great public disasters.

EUROPEAN WAR NOTES.—Report from Dunkirk states that Dr. Alexis Carrel, who has been making an extended tour of inspection of the French military hospitals, recently traversed the northwest portion of Belgium on his way to Calais.

Report from Paris on Dec. 22 states that of 489,733 wounded in French hospitals between Sept. 15 and Nov. 30, only 2½% have died, 1½% have been so crippled as to be unfit for further service, 17% are still in hospital, 25% will be fit for service after 3 months' convalescence on furlough, and 54% had already returned to the front before Dec. 12. The low percentage of mortality and serious disability is due partly to the nature of the wounds, chiefly to the perfection of antiseptic surgery. Accounts in the English, French, and German medical journals agree that ordinary pyogenic wound sepsis is practically unknown. Tetanus and gas-bacillus infections are more common, on account of the highly fertilized character of the cultivated soil of Belgium and northern France, where the fighting in the West has taken place. These infections, however, are largely controlled by the use of antitoxin and of peroxide irrigations respectively.

Under date of Nov. 29 Dr. William H. Potter, of Boston, professor of operative dentistry at the Harvard Dental School, has written from Paris, where he was spending his sabbatical year, to Dr. E. E. Smith, of this city, describing the dental department at the American Ambulance Hospital. He says in part:—

"Nothing has ever been seen in the way of fractured jaws, upper and lower, like what you can see every day here. The injuries come mostly from the explosion of shrapnel, which strikes the men in the trenches from above, and so is very hard upon their heads. I attended the autopsy of a French soldier today who had been struck on the body and the left side of the lower jaw. The bullet or fragment of iron perforated his tongue, larynx and lodged back of the apex of the lung. He died from hemorrhage into the larynx.

"This is the place to be. I am on duty at the hospital from 9 to 4 every day, and shall work on all kinds of cases: Fractured jaws, extracting, cleaning, removal of aching pulps—everything and anything to add to the comfort of the wounded and assist their recovery.

"The fractured jaws as a rule are so compound that splints cannot be applied at once. The teeth are cleaned, the parts are regularly syringed out and a bandage is applied. When all or most loose pieces are out and inflammation reduced, then some sort of splint is devised."

On Dec. 19 three more American surgeons sailed from New York for Red Cross hospital service abroad. Dr. P. A. Smith, who sailed on the steamer *Potsdam* for Rotterdam, is a graduate of Cornell University Medical College (1905) and has since practised surgery in Enid, Okla. He will be third assistant staff officer at the Imperial and Royal Reserve Hospital, No. 8, at Vienna.

"Two surgeons who sailed on the steamer *Dwinsk* for Russia are Dr. John Mann and Dr. T. Lyle Hazlett. Dr. Mann is a graduate of the Medical College of Virginia, and has had experience in New York City and Norfolk, Va., hospitals. He has been practising since 1897 in Petersburg, Va. Dr. Hazlett has been practising medicine in Pittsburgh since his graduation from the university of that city and is a member of the staff of the South Side Hospital."

Report from Washington, D. C., on Dec. 19 states that preparations are being made for the establishment of another Red Cross hospital near Metz in Lorraine for sick and wounded soldiers whose condition is too serious to permit their safe removal to base hospitals more distant from the battle line.

On Dec. 21 the New York Belgian relief fund amounted to a total of $710,908.00, the New York Red Cross fund $411,233.00, the American Ambulance Hospital fund $223,534.00, and the Austro-Hungarian fund $68,601.37.

Miss Louisa P. Loring, secretary of the Massachusetts Red Cross has issued the following statement of recent activities of the organization:—

"Constant appeals are being received by the American Red Cross to relieve the great distress that exists in the many countries involved or affected by the war. The State Department has just forwarded to the Red Cross a cable from the American ambassador at Constantinople quoting one addressed to him by the consul at Jerusalem relative to conditions in Palestine. Mr. Morgenthau adds in his cable: 'Inform Red Cross am convinced from additional information that needs in Palestine are very great.'

"Appeals have been received by the Red Cross for relief in Albania. The reports state that

300,000 people are facing famine, and 30,000 have already died of starvation.

"Innumerable villages have been destroyed in Galicia and in Poland, and great numbers of unfortunate refugees are destitute and facing winter with little or no aid.

"As the national director of the American Red Cross, Mr. Bicknell has been loaned to the Rockefeller Foundation for the special study and planning of relief measures in these districts, the Red Cross is ready to coöperate in all this greatly needed relief work. Mr. Bicknell will report what local and reliable relief committees in these districts are doing and in what way we can supplement their work. Any persons desiring to contribute for such relief work through the American Red Cross may do so and such contributions will be used for the aid of these unfortunate people.

"The American Red Cross shipped recently a total of 401 cases of hospital garments, hospital supplies, blankets, shawls and clothing for the women and children in the European war zone.

"To France were sent forty cases of hospital garments, forty cases of women's and children's clothing and 5,000,000 cigarettes. Another shipment, which goes via the Mediterranean to France, consisted of nine cases of absorbent cotton and hospital garments and several cases of iodine and bichloride tablets.

"To the Austrian and Hungarian Red Cross Societies, 71 cases of hospital garments and women's and children's clothing, and twenty bales of absorbent cotton.

"To Rotterdam for Belgian refugees in Holland, 94 cases containing clothing for men, women and children; sweaters, overcoats, 3000 blankets and 1400 shawls; and 65 cases containing nearly 4000 blankets for the Belgian relief committee for Belgium.

"To Russia, on the steamer *Dwinsk* were sent 2000 pounds of pure chloroform, 2000 doses of tetanus antitoxin, 4000 pounds of absorbent cotton, 10 cases of gauze, 20 pounds of iodine crystals, 20 gallons of kresol, 50 pounds of quinine sulphate, and one barrel of alcohol, all for use in alleviating the suffering of the wounded.

"During the last 10 days, the American Red Cross has increased its force of skilled surgeons and nurses in the European war zone from 189 to 192.

"American Red Cross hospital units are now stationed in Budapest, Hungary; Vienna, Austria; Gleiwitz and Kosel, Germany; Belgrade, Servia; Kiev, Russia; Paignton, England, and Pau, France."

Report from New York on Dec. 19 says:—

"The Red Cross has shipped this week 267 cases of hospital garments and supplies. This consignment included 100,000 yards of gauze, 2000 pounds of chloroform, 22,000 pounds of absorbent cotton, 10 gallons of iodine and 7 cases of tetanus antitoxin. More than 4000 towels, 1700 pillow cases, 1000 sheets and 370 surgical shirts were also sent to the British Red Cross on the same steamship."

On Dec. 24 the total of the New England Belgian relief fund amounted to $148,617.63; the Massachusetts Red Cross fund to $90,973.18; the Jewish relief fund to $20,000; the Russian relief fund to $8,165.00; and the Polish relief fund to $7,676.81.

BOSTON AND NEW ENGLAND.

The Epizoötic of Foot and Mouth Disease in Massachusetts.—On Dec. 21 permits were issued by the bureau of animal industry to Massachusetts farmers, granting the right to move cattle in 200 towns of this state which were not affected by the recent epizoötic of foot and mouth disease. At present in this Commonwealth there is only one known case of the disease, at Rehoboth, Mass.

A Centenarian.—Mrs. Ebenezer Carpenter, whose great longevity has frequently been chronicled in the Journal, died at Worcester, Mass., on Dec. 20, 1914. She was born on Aug. 26, 1806, at Warwick, R. I., the daughter of a Revolutionary soldier, and eldest of a family of 13 children. She was descended from Oliver Cromwell, and, it is reputed, from Rollo of Normandy. Her health was always excellent, and at her advanced age, she still retained her faculties and her keen concern in current events. The present European war interested her as intensely as the Napoleonic campaigns of her early childhood. She was married in 1834 but had been a widow since 1882. She is survived by three aged children.

Massachusetts Society of Examining Physicians.—At a meeting of the Massachusetts Society of Examining Physicians, held in Boston last week, Dr. W. J. Brickley, of the Boston City Hospital, presented a paper on "Alcohol and Accidents."

Other speakers were Dr. David L. Edsall, on "The General Scope of Industrial Disease," and Dr. E. A. Codman on "Hospital Efficiency in Relation to Workingmen's Compensation." The papers were discussed by Dr. Francis D. Donoghue and Dr. F. J. Cotton of Boston, Dr. F. W. Anthony of Haverhill, and others.

The following officers were elected for the ensuing year: President, Dr. F. W. Anthony of Haverhill; vice-presidents, Dr. Timothy Leary, Dr. L. Vernon Briggs, Dr. Frederic J. Cotton; secretary, Dr. J. H. Stevens; treasurer, Dr. John S. Phelps; council, Dr. Francis D. Donoghue, Dr. Frank E. Allard, Dr. Edward B. Lane, Dr. H. H. Hartung, Dr. Francis J. Hanley of Whitman.

Boston Milk and Baby Hygiene Association.—It is announced that the Boston Milk and Baby Hygiene Association, which has made fre-

quent recent appeals to the public for funds, still lacks itself $7000 short of the amount necessary to carry on its work during the winter. Unless this sum is presently subscribed, it will be inevitably obliged to close some of its milk stations.

MASSACHUSETTS PUBLIC HEALTH COUNCIL.—The first meeting of the new Massachusetts public health council was held in Boston on Dec. 22. At this meeting the health department was formally organized, and it was voted that the eight new district health officers should be obliged to give all their time to the work.

"In a form of application decided upon by the council, the prospective applicant is asked to state that he will cease all private practice and not act as an examiner for a life insurance or other company."

TWO OUTBREAKS OF TYPHOID IN MASSACHUSETTS.—The recently published monthly bulletin of the Massachusetts health department for October records as follows the history of two typhoid outbreaks this fall at Weymouth and Leominster, Mass.:—

"From September 27 to October 26, 19 cases of typhoid fever were reported to the board of health of Weymouth. An investigation of the cases showed that all were taken sick the latter part of September. Cases reported later were those in which the diagnosis was delayed. An investigation made immediately upon the report of the first cases showed that they were all on one milk supply, and suspicion was directed to that supply as the source of the infection. This suspicion was later confirmed by the fact that all cases reported subsequently were on the same supply. An investigation of the milk farm, although not revealing the source of the infection, showed conditions incompatible with the safe handling of milk. In accordance with suggestions made to the local board of health, a new milk room was constructed and provided with facilities for the proper washing and sterilization of all milk utensils. All the milk is pasteurized now in the individual containers.

"Twelve cases of typhoid fever were reported to the board of health of Leominster between Oct. 6 and Oct. 31, 1914. All of the cases were confined to the French district of the city, 5 being inmates of the French convent. The remaining 7 cases were in 5 families, and were taken sick within a few days of each other. They suggested a common source of infection, an investigation of the milk supply showing that all the cases took their supply either entirely or in part from milk dealer A. Suspicion was therefore directed to that supply as the source of the infection. An examination of the premises of A and of all the people who handled the milk revealed the fact that a son of A, who had been in Montreal during the summer, had returned on September 12. He gave a history of having been ill for five or six weeks prior to his coming home. Two positive Widals were obtained from his blood. Although bile cultures from his stools were negative it is highly probable from the positive Widal that his recent illness was typhoid fever and that he was the source of the infection. Recommendations were made to the local board of health to prohibit this suspect from coming in contact with the milk supply, and to have a thorough sterilization of all milk utensils. These measures were carried out and no new cases appeared."

DIPHTHERIA IN BROCKTON.—Four cases of diphtheria were discovered among schoolchildren in Brockton, Mass., on Dec. 18, and 3 on Dec. 19. The school where they occurred was temporarily closed.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending Dec. 22, 1914: Diphtheria, 79, of which 4 were non-residents; scarlatina, 76, of which 8 were non-residents; typhoid fever, 6, of which 1 was non-resident; measles, 86; tuberculosis, 65, of which 6 were non-residents. The death-rate of the reported deaths for the week was 14.52.

NEW YORK.

AN UNFORTUNATE DECISION.—A decision has been rendered by Justice Nott of the Court of General Sessions which promises greatly to impede the work of the Department of Health in prosecuting violations of the Sanitary Code, as well as to increase the work of the already overburdened Court of Special Sessions. Arrested for selling heroin, in violation of Section 182 of the code, two men were sentenced in the City Magistrates' Court to serve three months in the workhouse and pay a fine of $500 each. They appealed from the magistrates' decision, on the ground that Section 95 of the Inferior Criminal Court Act, which confers upon a city magistrate the power to summarily try and convict a defendant for violations of the Sanitary Code, is unconstitutional. They contended that the constitution distinctly guarantees either a trial by jury or, in the case of misdemeanors, trials in the Court of Special Sessions. Upsetting the procedure followed for years, Justice Nott, who heard the appeal, upheld this contention and declared that the magistrates' courts have no jurisdiction over cases of the kind. Unless it is reversed by a higher authority, this decision practically means that hereafter all prosecutions conducted by the health department for violation of the Sanitary Code will have to be tried in the Court of Special Sessions; which will add an intolerable burden to the work of that court. It is stated by officials of the department that it will also add unjustly to the inconveniences occasioned violators of minor health ordinances, such as those referring to smoking in the subway, spitting on the street, failure to muzzle dogs, etc.; since persons summoned to court on such charges must be held, in bail,

for trial in the Court of Special Sessions. This kind of procedure in effect constitutes a punishment far greater than that contemplated by the lawmakers, and will undoubtedly give rise to serious complaints.

Investigation of Meningitis.—Heretofore all cases of death from meningitis, of whatever character, have been referred to a medical inspector of the Bureau of Infectious Diseases for investigation. The health department now announces, however, that where the nature of the case is clearly stated (especially as to the type of bacterial organism causing it), and where the department requires no further detailed information, no such investigation will in future be made.

Conditions at Sing Sing Prison.—In speaking recently at a meeting in Brooklyn on conditions in Sing Sing prison, Thomas Mott Osborne, the new warden of that institution, said: "Some of the cells are only three feet four inches wide, and two human beings are crowded into them. There are cells which never see the daylight, and some of them are so damp that water can be scraped off the walls with the hand. It is a crime against humanity to put men into such cells. In them we are breeding tuberculosis so rapidly that it is really an unthinkable menace to the society into which the prisoners must some day return. It is society that we who hope to reform prison life want to protect. If I had any choice, I would dynamite the block cells at Sing Sing tomorrow. At any rate, we ought to build a new prison just as soon as the legislature will let us."

American Ambulance Hospital.—On Dec. 22 Myron T. Herrick, lately Ambassador to France, attended a meeting of the committee having in charge the raising of funds for the American Ambulance Hospital in Paris, and spoke of the organization and admirable work of the hospital. He went on to say that while the work was not begun as a diplomatic measure, he could not too strongly emphasize the great diplomatic value it had proved to possess, for it was of the highest international importance.

Mortality for Week Ending December 19, 1914.—The mortality during the past week was noteworthy for the extremely low level reached, the death-rate being 13.09 per 1000 of the population as compared with a rate of 13.97 during the corresponding week in 1913.

The number of deaths from measles, scarlet fever, typhoid fever and the diarrheal diseases was considerably below the average. Tuberculosis of the lungs showed a slightly increased mortality. The number of deaths from organic heart and kidney diseases combined was somewhat below that of the corresponding week in 1913.

All the age grouping of the population showed a decreased mortality, with the exception of infants under one year of age, the increase at this age grouping being rather small.

The death-rate for the first fifty-one weeks of this year was 13.41 per 1000 of the population as against 13.78 during the corresponding period of 1913, a decrease of .37 of a point. If this decrease be maintained during the remaining week of this year a saving of 2056 lives will be recorded.

Hospital Bequests.—The will of the late Mrs. Henry Draper, of New York, made public on Dec. 19, contains bequests of $50,000 to the New York Polyclinic Hospital, and $25,000 each to the New York Skin and Cancer Hospital, the New York Association for the Blind, the New York Association for Improving the Condition of the Poor, and the Dobb's Ferry Hospital Association.

Gift to Columbia University.—It is announced that Dr. and Mrs. Frederic S. Lee have given $20,000 to Columbia University to establish a fund for the endowment of the department of physiology. For the present, the income will be used to maintain the departmental library.

Diphtheria in Hoboken.—Report from Hoboken, N. J., on Dec. 22 states that over 100 cases of diphtheria have occurred in that city during the current month, in consequence of which all the local public schools have been ordered closed until Jan. 4, 1915.

Current Literature

Medical Record.

December 12, 1914.

1. Baruch, S. *Management of the Pneumonia Patient.*
2. Nammack, C. E. *Progressive Lenticular Degeneration.*
3. Climenko, H. *Dystonia Musculorum Deformans, with Report of a Case.*
4. Gordon, A. *Extra-pyramidal Hemiplegia.*
5. Burnham, A. C. *Compression Fracture of the Upper Extremity of the Tibia.*
6. Rockwell, A. D. *The Diathermic Treatment.*
7. Montgomery, D. W. *Herpes Buccalis Recidivus of the Fournier-Emery Type.*
8. Fedde, B. A. *Retropharyngeal Abscess.*

New York Medical Journal.

December 12, 1914.

1. Friedman, H. M. *Abnormal Mental States.*
2. Wiseman, J. R. *Changing Tendencies in Disease.*
3. Taylor, J. M. *The Treatment of Pectus Excavatum (Funnel Breast).*
4. Boggs, R. H. *Radium and Mesothorium in Conjunction with Roentgen Therapy.*
5. Crothers, T. D. *Some New Potentialities Associated with Electrical Energies.*
6. Boston, L. N., and Rumbuage, L. C. *Hemiplegia Complicating Thoracic Aneurysm.*
7. Dougherty, D. S. *Colon Bacillus Infection in Middle Ear Disease.*

[illegible] J. N. *Puerperal Sepsis.*
[illegible] L. M. *Pneumococcus Peritonitis.*
[illegible] L. B. *Vegetation and Growth.*

[illegible] pneumococcus peritonitis and its [illegible] and reports a case. This condition, he [illegible] the events different pneumonia. In the infec[illegible] the pneumococcus there are [illegible] the acute diffuse peritonitis and [illegible] the localized abscess formation. Nothing is [illegible] operation during the height of the diffuse peritonitis; in this stage the effort should be to support [illegible] and assist localization of the infec[illegible]. The time for operation is after the formation [illegible] abscess. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

DECEMBER 19, 1914

1. [illegible] E. P. *The Social Status of Medical Practice.*
2. *HESS, A. F. *The Neglect to Provide for the Infected in the Antituberculosis Propaganda.*
3. WILLIAMS, R. N. *The Heart in the Acute Infections.*
4. BYNUM, C. M. *The Intradural Administration of Mercurialized Serum in the Treatment of Cerebrospinal Syphilis.*
5. *HESS, E. F. *Morphological and Chemical Study of the Double Refractive Fats of the Adrenals in Delicate Tremens.*
6. *WEIL, H. *Autogenous Serum in the Treatment of Psoriasis.*
7. *HOGUET, J. P. *Observations on Military Surgery in the Early Weeks of the War.*
8. *OSGOOD, R. B. *The Relation of Posture and Intestinal Derangements to Coxitis.*
9. WILLIAMS, T. A. *The Syndrome of Adrenal Insufficiency.*
10. SCOTT, H. *Papilloma of the Larynx.*
11. *GERAGHTY, J. T. *The Treatment of Chronic Pyelitis.*
12. *FABE, C. B. AND KRUMBHAAR, E. B. *The Relation of Urea to the Total Nitrogen of the Blood in Nephritic Disease.*
13. STEVENS, M. J. *Latent Atypical Malaria Complicating the Puerperium.*
14. [illegible] L. L. *A Method of Diminishing Hemorrhage after Suprapubic Prostatectomy.*
15. [illegible], R. H. *The Treatment of Hydrocele, with Special Reference to Phenol Injections.*
16. [illegible] I. M. *Sonorous Vibrations in the Treatment of Eye Diseases.*
17. *MAYO, J. L. BUNTING, C. H., AND KRISTJANSON, H. T. *The Etiology of Splenic Anemia or Banti's Disease.*
18. *NICOLL, H. K. *The Use of Antistreptococcus Serum in Chronic Arthritis.*

2. Hess [illegible] on a very weak link in the anti-[illegible] campaign and infant welfare work, in the [illegible] lack of precaution taken to safeguard [illegible] infants of tuberculous parents.

4. Bynum believes that he has proved that mercurialized serum is equally, if not more, efficacious than [illegible] serum in the treatment of syphilis of the central nervous system. The immediate [illegible] reaction are as a rule not as severe by the salvarsan method. Since preliminary [illegible] is not required, the blood may be obtained at any time and can be prepared and used at [illegible] with greater stability of the preparation. He thinks the method has promise of future [illegible] of all intraspinal therapy.

6. Weil's article on autogenous serum in psoriasis is of [illegible] interest. He does not believe that autogenous serum used alone is of value, but when used in conjunction with chrysarobin it is of decided value. Intravenous injection, when properly done is devoid of danger. The technic of preparation is simple. The illustrative plates in this article are as convincing as the text.

7. Hoguet's article on war surgery is of interest particularly in describing the type of bone lesions encountered. It is a well presented paper.

8. Osgood in a well presented paper sets forth the suggestiveness of the inter-relation of faulty posture and intestinal derangements in their relation to coxitis. He makes no assertions that these relations do exist.

11. Geraghty sets forth the value of pelvic lavage in pyelitis. He considers urotropin of questionable value when renal infection occurs. He begins his injections with a 0.5% silver nitrate solution and increases up to 5% if necessary. In long standing cases of low grade infection he expresses doubt of the benefit of lavage.

12. These authors believe they have proved that there is no support to the view that the percentage of urea in the blood is reduced in destruction or severe functional derangement of the liver.

17. These authors think that their investigations have proved that splenic anemia or Banti's disease and Hodgkin's disease are closely related if not only variations in manifestation of a simple type of infection. Banti's disease may be Hodgkin's of the spleen.

18. Nicoll believes that the use of antistreptococcic serum in the treatment of chronic arthritis is neither justifiable or advisable. [E. H. R.]

THE LANCET.

NOVEMBER 28, 1914.

1. DUCKWORTH, D. *An Address on the Patient and the Disease.*
2. *STEWART, M. J. *Observations on Myeloid Sarcoma, with an Analysis of Fifty Cases.*
3. NAISH, A. E., AND KENNEDY, A. M. *Heartblock in Acute Rheumatic Carditis.*
4. OVEREND, W. *On the Localization of Bullets and Shrapnel.*

2. Stewart analyzes 50 cases of what he calls myeloid sarcoma. He considers this condition to be locally malignant only, and that it does not undergo dissemination. It is to be clearly distinguished, both clinically and pathologically from malignant giant-cell sarcoma, in which death with visceral dissemination is the rule, even after the most radical operative treatment. The histological diagnosis is based on the morphological characters of the giant cells, especially as regards their nuclei. In myeloid sarcoma the nuclei are numerous, uniform, small, and without mitoses; in malignant giantcell sarcoma they are few, sometimes single, irregular, and often very large, while mitotic figures are frequent. He urges the conservative treatment of myeloid sarcoma, advocating thorough curettage as the operation of choice in some cases; failing this a local resection of the growth. Amputation should be the last resort, and only after the failure of less radical measures. [J. B. H.]

BRITISH MEDICAL JOURNAL.

NOVEMBER 28, 1914.

1. *OSLER, W. *The War and Typhoid Fever.*
2. BOWLEY, A. A., AND ROWLAND, S. *A Report on Gas Gangrene.*
3. MUMMERY, P. L. *Injuries to the Bowel from Shell and Bullet Wounds.*
4. SHIPLEY, A. E. *Leeches.*
5. ARMSTRONG, W. E. M. *A Rapid Method of Vaccinating against Smallpox.*
6. BENNETT, F. D. *Sudden Death (Rupture of Aorta).*
7. FLEMING, A. *A Case of Coal-gas Poisoning; Recovery.*

1. Osler discusses typhoid fever and the war. He considers the importance of the individual case as a factor in infection, the importance of discovering typhoid carriers, and presents statistics showing the value of immunization. He mentions briefly symptoms following inoculation, and details certain cases with untoward effects, local or general. For recommendations in the present situation in Europe, he urges army medical officers to watch the common ailments of the troops in their charge. Every recruit should be asked whether he has had typhoid fever or if during the previous twelve months he has lived in a house with a case of fever. An affirmative answer should mark the man for laboratory study. Mild cases of enteritis obscure forms of bronchitis and pneumonia, and mild cases of fever should be watched with care. Every typhoid patient should be regarded as a focus of infection. No typhoid patient should receive a clean bill of health until he has been shown by bacteriological examinations to be harmless.

[J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 42. October 20, 1914.

1. Kaufman. *The Treatment of Obesity with the Colloidal Hydrate of Platinum (Leptinol).*
2. Heine. *The Elevation of Intracranial Pressure in Certain Diseases of the Eye.*
3. Fränkel and Thiele. *The Inhibition of Coagulation of Syphilitic Serum and the Chemical Nature of the Ferment.*
4. Hering. *A Case of Rhythmically Rapid Auricular Systolic and Continuously Irregular Pulse.*
5. Rauke. *The Diagnosis of Tuberculosis in Children.*
6. Weygandt. *Mental Diseases in the Army.*
7. Lange. *Orthopedics in War Time.*
8. Schede. *Open Treatment of Suppurating Wounds.*
9. Dublacher. *Treatment of Tetanus.*
10. Kreitinair. *Dumdum Bullet Wounds.*
11. Lermé. *Dumdum Bullet Wounds.*
12. Brunner. *Lint as a Dressing Material.*
13. Williger. *Economy with Cotton Dressing Material.*
14. Kraus. *Transverse Sections of Arm and Leg at Various Levels.*
15. Nocht. *Combating Contagious Diseases in the Field.*

No. 43. October 27, 1914.

1. Jaffé and Pribram. *Experimental Research into the Specificity of Protective Ferments with the Help of Optical Methods.*
2. Kastan. *The Importance of the Casein Splitting Ferments.*
3. John. *The Question of Bromine Therapy.*
4. Rohmer. *The Recognition of Cardiac Asthma in Children.*
5. *Nonnenbruch. *The Treatment of Edemas Not Cardiorenal in Origin by Withholding Fluid.*
6. Stehmann. *A Critical Contribution to the Treatment of Basedow's Disease with X-rays.*
7. Reudiger. *Isolated Perichondritis of the Ensiform Process.*
8. Rauke. *The Diagnosis of Tuberculosis in Children.*
9. Enderlen. *Bullet Wounds of the Intestines.*
10. *Voelcker. *Treatment of Tetanus.*
11. Eunike. *Tetanus from Bullet Wounds.*
12. Kolb. *The First Injuries of the War in the Schwermingen Hospital.*
13. Thomalla. *Experiences and Observations in the Field.*
14. Weygandt. *Mental Diseases in the War.*
15. Lange. *Orthopedics in the War.*

5. In cases of lymphatic leukemia or malignant disease where there is edema, and where there is no evidence of renal or cardiac insufficiency, this edema is due to the fact that there is an optimum content of fluid which the circulation will take care of, and amounts beyond this are left in the tissue. Simply limiting the liquid intake will correct this.

10. In the treatment of tetanus, the writer uses (*a*) antitoxin, (*b*) carbolic acid, (*c*) narcotics, and (*d*) local applications. He believes the intradural or endoneural injection is best, though it should be used near the wound also. He does not think the use of magnesium sulphate is justified because of the danger. He does use, however, subcutaneous injections of 2% carbolic acid, starting with one or two a day, and working up to five or six, watching the urine all the time. He uses chloral-paraldehyd and morphin as narcotics. Locally he either excises the wound or opens freely and uses concentrated carbolic freely.

[E. L. Y., Jr.]

DEUTSCHES ARCHIV FÜR KLINISCHE MEDIZIN.

Band 116, Heft 3 and 4. August 18, 1914.

1. *Goldberg, J., and Hertz, R. *Influence of Sodium Bicarbonate and the Excretion of Chloride and Milk Sugar Introduced in the Vein.*
2. *Borelli, L., and Girardi, P. *Investigations on Sodium Chloride and Water Excretion in Healthy Men.*
3. Hewlett, A. W. *Reflexion of Primary Pulse Waves in the Human Arm.*
4. Major, R. H. *Influence of Anaphylaxis on Nitrogen Metabolism in Rabbits.*
5. Weiser, E. *Communication on the Disturbances of Cardiac Automaty.*
6. de Nunno, R. *Effect of Micrococcus of Bruce and Its Toxin on the Peripheral and Central Nervous System.*
7. Landé, L. *Palpability of Arteries.*
8. Grafe, E. *Cause of Albumin Destruction in Fever.*
9. Marawitz, P., and Zahn, A. *Investigations on Coronary Circulation.*
10. Straub, H. *Dynamics of the Mammalian Heart.*

1. These authors have studied the action of the kidneys after the administration of bicarbonate of soda by mouth. They have found that milk sugar introduced intravenously is excreted by the kidneys more slowly after the taking of the soda bicarbonate than when the soda is not taken. Although the excretion of the lactose is considerably delayed in the urine, the total amount is eventually put out. They conclude that soda bicarbonate exerts an inhibitory effect upon the kidney. They feel that also an earlier observation on the lowering of the sodium chloride concentration in the urine after the use of soda bicarbonate is due to this same diminished renal activity.

2. These authors have studied the action of sodium chloride and water exchange in healthy men and have drawn a long number of conclusions from their work. Among them is the fact that added NaCl and water lead to a retention of both elements and increase in body weight. Increase of NaCl without added water causes a retention of NaCl, but a diuresis. The ability to concentrate salt in the urine varies in different healthy individuals and the rate with which they put it out is in proportion. Irrespective of when the NaCl is taken, it is put out chiefly in the urine after meals. If there is a tendency to retention the larger amount of salt comes out on the second day often. With repeated water ingestion of increased amounts over the normal the sodium chloride output increased. In general the quantity, specific gravity and percentage of sodium chloride keep a relationship in the urine. If the amount goes down the solids increase and vice-versa.

[C. F., Jr.]

BULLETTINO DELLE SCIENZE MEDICHE.

AUGUST, 1914.

1. GNUDI, A. *Syphilis of the Cardiovascular Apparatus.*
2. *PINCHERLE, M., AND LORENZINI, A. *Clinical and Anatomo-Pathologic Contribution to the Study of Infantile Hypothyroid Syndromes.*
3. SANGUINETTI, A. *Clinical and Hematologic Syndrome During the Last Four Months of Life of a Patient with Chronic Myeloid Leukemia.*

2. The authors report two cases of infantile hypothyroidism, one with necropsy, from a study of which they describe what they regard as a new clinical type characterized by absolute aplasia of the thyroid gland, complete anatomic and functional integrity of the parathyroid apparatus, and hyperplasia with probable hyperfunction of the hypophysis.

[R. M. G.]

Obituary.

ANGELO CELLI, M.D.

DR. ANGELO CELLI, professor of hygiene at the University of Rome and chief of the Italian national board of health, died unexpectedly at Monza on November 3, 1914. He was born at Cagli in Pesaro in 1857, and graduated in medicine at the University of Rome. In 1886 he was appointed professor of hygiene at the University of Palermo, where in 1887 he founded the local Pasteur Institute. He became professor extraordinary in 1888 at the University of Rome, where he also established a Pasteur Institute in 1889. In 1890 he succeeded Tommaso Crudeli as professor of hygiene at Rome.

The scientific labors of Dr. Celli were numerous and important. He investigated the epidemics of Asiatic cholera at Ripi in 1886, in Calabria and the province of Naples in 1887, and at Rome in 1893. He was associated with Crudeli in numerous studies on the etiology of malaria, and shared with Marchiafava the demonstration of the etiology of epidemic cerebrospinal meningitis. He made numerous interesting researches on amebae, found a means of cultivating them artificially, and in 1895 went to Egypt to study an epidemic of amebic dysentery. He was among the first to study the properties of rabic virus and to call attention to the importance of flies and milk as vehicles of infection. He likewise made early and valuable contributions to the knowledge of normal human metabolism.

In 1898, after the final discovery of the transmission of malaria, Celli concerned himself with efforts to apply the new knowledge to the treatment and prophylaxis of the disease among the Italian peasantry. In 1904 he occupied himself in finding a form for administering quinine to children, and recognized as the best the tannate of quinine prepared in chocolate.

Dr. Celli had numerous literary activities. In 1889 he founded the *Annali d'Igiene*. He was author of a manual of hygiene, and with Tamburini published a treatise on social medicine. In 1890 he founded a society of tropical medicine and hygiene.

In politics Dr. Celli had been a member of the Italian national parliament since 1892, and was prominent in all matters pertaining to the public health and welfare.

Miscellany.

THE SYRIAC BOOK OF MEDICINES.

DR. WALTER BUDGE, of the British Museum, London, has recently edited from an original manuscript, and published with an English translation, the text of the great Syriac Book of Medicines,[1] and his publication was reviewed at some length in the issue of the *British Medical Journal* for July 11 as follows:—

"The work is in three sections, the first of which consists of lectures translated from Greek into Syriac by a Syrian physician who may have been attached to one of the great medical schools which existed at Edessa (Urfa), Amid (Diarbekir) and Nisibis in the early centuries of the Christian era. Neither the name of the author nor that of the translator is given and some of the lectures are missing. The system of medicine expounded is fundamentally that of Hippocrates, whose actual words are quoted in several places. The author regarded disease as the result of natural causes, and lays great stress on a knowledge of symptoms and on prognosis, diagnosis, etiology, and diet. He insists on the importance of suitable food, in health as well as in disease, and strongly condemns overeating and overdrinking. In most diseases he advocates the use of purging and bleeding. The enema was in frequent use, and fomentations, poultices, and baths were largely employed. Suitable food, a cool, airy dwelling-place, proper clothing, water from a swiftly running stream, absence of all mental and physical fatigue, and sufficient sleep are recommended as means of health. The prescriptions given number nearly 1000. Many of them are attributed to Galen, Dioscorides, and others of the older physicians, while many are of Egyptian, Persian, and Indian origin. They resemble in form those found in the Ebers Papyrus. Throughout, the author insists on the independence of the art of healing and its freedom from magic and priestcraft.

[1] *Syrian Anatomy, Pathology and Therapeutics; or the Book of Medicines.* By E. A. Wallis Budge, M.A., Litt.D., Keeper of the Egyptian and Assyrian Antiquities in the British Museum. Published under the direction of the Royal Society of Literature of the United Kingdom. Vol. i, Introduction, Syriac Text. Vol. ii, English Translation and Text. Humphrey Milford, Oxford University Press, London, New York, Toronto, Melbourne, and Bombay. 1913. (42s. net.)

"In the second section astrology comes on the scene; this was evidently introduced into the manuscript by another author or compiler whose mind was held in bondage by omens, portents, spells, divinations and planetary forecasts. The third section contains 400 prescriptions composed by ignorant and superstitious men; they have, however, a value of their own as illustrating the folklore of a part of Mesopotamia and preserving a number of popular beliefs and legends about birds, animals, magic roots, and so forth—parallels to which may be found in medieval Bestiaries. Many of the diseases mentioned Dr. Budge has been unable to identify, and for a number of the names he has found no exact English equivalents. This difficulty is one that is met by every student of ancient medical literature in which the description of symptoms is so vague that the diseases resemble nothing known to modern nosology. The Syriac text is edited from an Ms. copied at Dr. Budge's own expense; he thinks it was written in the twelfth century. During the short examination of the original which he was permitted to make, he found nothing to indicate when, where, and by whom it had been written. Its size and general appearance suggest that it had been copied in some monastery at or near the Tigris. He thinks the parts missing probably contained theories or statements not acceptable to the monks; the later chapters, dealing with the organs of reproduction and their diseases, may have been torn out as unsuitable and unnecessary for ascetics.

"We need not follow the writer of the first or Hippocratic section through the exposition of his theories, which are familiar to all students of old medical literature, and which have left a deep impress visible to this day in popular pathology. A few points may, however, be noted. A chapter is devoted to the strangles, a dangerous disease which would appear to have included tonsillitis, post-pharyngeal abscess, ulceration of the gums and tongue, and, possibly, diphtheria. The treatment of that, as of a great many other conditions, consists in getting rid of excess of chyme, which forms the nourishment of the abscesses. Insufflations of powders, gargles, and so forth are mentioned, and amputation of the uvula was performed in certain cases. Innumerable remedies for toothache are recommended, including one or two by means of which the teeth were loosened and extracted without pain. In speaking of the stomach and its diseases, the author has something to say as to the evil effects of intemperance. The 'abominable lust' for drink in men is said to be due to the noxious salt or bilious chyme, collected in the coats of the belly. Some men, we are told, crave for foul drinks, just as they do for foul meats, and in others the longing is so unquenchable that they drink themselves to death. Men have been known to eat the vipers called 'danpasdês,' because they produce thirst, and others drink wine wherein a viper of this class has been drowned. In regard to diseases of the liver and digestion the author makes the prudent remark that 'we must never assign causes to a disease unless we are certain of our facts, and we must never misread symptoms.'

"Nothing need be said as to the section which deals with divination, forecasts, omens, the influence of the planets and the signs of the zodiac on the characters and dispositions of men and human affairs in general. The third section contains prescriptions representing a belief some traces of which still survive, for instance, among people who carry about potatoes as a preventive of rheumatism. The good which a man derives from carrying about with him the heart or some other part of the eagle, vulture, hawk, white falcon, falcon, partridge, hare, crab, frog, ox, fox, bear, weasel, hedgehog, pelican, black crow, besides a number of magical roots, are fully set forth. A useful hint to candidates for official appointments may be found in the following recommendation:

"If a man wishes to stand well with the governing powers, let him cause the head of a crow to be hung up over him, and if he wishes to stand well with his neighbors let him cause the heart, eye, and skin of a wolf to be hung up over him.

"The reader who is not an Oriental scholar may get a good idea of the contents of the Syriac Book of Medicines from the very learned and interesting introduction contributed by Dr. Budge. A particularly interesting part of this introduction is that dealing with medicine among the Egyptians, Greeks, and Syrians. The Egyptians were the founders of the chief systems, which were, with modifications, in use throughout Greece, Arabia, Syria, and many other parts of Western Asia down to the Middle Ages. He refers to the medical papyri preserved in the museums of London, Berlin, Leipzig, and Philadelphia. The London (eighteenth dynasty) was first described by Birch, who pointed out that some of the prescriptions contained therein are said to date from the time of King Khufu, the builder of the first pyramid. Dr. Budge thinks it may be assumed that a large part of the contents of these papyri is taken from older ones, and is the work of physicians who flourished under the ancient and middle empires. According to tradition, the Egyptians in the earlier centuries of dynastic civilization were familiar with the use of plants as medicines. The number of vegetable medicines used by them was very great, among them being aloes, dates, figs, opium, and hyoscyamus. Many of the ingredients were of animal origin—lizard's dung; the blood, fat, dung, semen and testicles of the ass; bat's blood; the blood, dung, and vulva of the dog; the fat, dung, and uterus of the cat; the dung of crocodile and of antelope, and so forth. Our own ancestors used ingredients just as nauseous. In one of his letters we find Martin Luther complaining that the medicine, a mixture of garlic and horse-dung, which his wife had recommended to him, did him no good. Metallic preparations, such as oxide of zinc, lead, and copper,

sulphate of iron, and so on, were also used by the Egyptians. Medicines were given in the form of ointment, liniments, plasters, poultices, pills, tablets, boluses, tinctures, decoctions, extracts, juices, and powders. Inhalation was used, and the beneficial effects of massage were well known.

"In all periods of Egyptian history, medicine and magic went hand in hand, the incantation probably being looked upon as the more important of the two. A rigid conservatism prevented the development of medicine into a scientific system. In the treatment of disease the Egyptians were satisfied to be guided by the wisdom of their ancestors; they made no experiments, and went on using prescriptions that had served for hundreds, if not thousands, of years. This was probably due to the fact that the prescriptions had become, as it were, sacred formularies. If the patient died and it was proved that the treatment had been in accordance with that sanctioned by custom, the physician was held blameless. If otherwise, he was liable to be called to account.

"How far, says Dr. Budge, the knowledge of Egyptian medicine penetrated into Eastern Mesopotamia is unknown, but in the seventh century before Christ the prescriptions inscribed in cuneiform on tablets from the Royal Library at Nineveh show many points of resemblance with those of Egypt. The Assyrians derived a great deal of their medical knowledge from the Babylonians. Very few fragments of medical tablets have come down from the time of Khammurabi, about B. C. 1950. But magical texts of that period have been unearthed in Lower Babylonia. Dr. Budge thinks it impossible that a nation so highly civilized as the Babylonians had no system of medicine, and equally impossible that the Sumerians before them had none. In the prescriptions found on Assyrian tablets, many of the names of plants or medical preparations are Sumerian, and these, he thinks, can only have come to the Assyrian scribes who copied the tablets for the royal library from Babylonian or Sumerian originals."

APPOINTMENTS.

TULANE UNIVERSITY.—*Dr. Robert Bennet Bean* has been appointed professor of gross anatomy, and *Dr. Arthur S. Schochet* and *Mr. Charles W. Barrier* instructors in anatomy.

NOTICE.

The trustees of the Fenger Memorial Fund announce that the sum of $600 has been set aside for medical investigation in 1915. The money will be used to pay all or part of the salary of a worker, the work to be done under direction in an established institution, which will furnish the necessary facilities and supplies free of cost. It is desirable that the work undertaken should have a direct clinical bearing. Applications giving full particulars should be sent to L. Hektoen, 629 S. Wood St., Chicago, before January 15, 1915.

RECENT DEATHS.

DR. EDWARD RUSSELL COGSWELL, who died on Dec. 22 at Cambridge, Mass., was born in 1841. He received the degree of A.B. from Harvard in 1864 and that of M.D. in 1867. He was a trustee of the Cambridge Hospital. He is survived by three sons, two of them also physicians, and by one daughter.

DR. WINFIELD SCOTT SMITH died at his home in Brookline, Mass., on December 16, 1914, aged 53 years. He was born in Chatham, Mass., on Feb. 11, 1861. He was graduated from the English high school in Boston in 1879, and from the Boston University school of medicine in 1883. He pursued post-graduate work in various European schools. Until 1896 he had a general medical practice in Boston, but had devoted himself exclusively to surgery since that time. He was a surgeon at the Massachusetts Homeopathic Hospital, the Westboro Insane Hospital and the Leonard Morse Hospital in Natick. He was professor of operative surgery at the Boston University medical school and consulting surgeon at the Emerson Hospital. He was a member of the American Institute of Homeopathy, the Massachusetts Homeopathic Medical Society, the Massachusetts Surgical and Gynecological Society, and the Boston Homeopathic Medical Society He is survived by his widow.

BOOKS AND PAMPHLETS RECEIVED.

The Effects of Goitre Operations upon Mentality. By William S. Bainbridge, M.D. Reprint.

The Question of Anesthesia in Goitre Operations. By William S. Bainbridge, M.D. Reprint.

The Present Status of the Surgery of Systematic Goitre. By William Seaman Bainbridge, M.D. Reprint.

Public Health Reports. Vol. 29, No. 51, December 18, 1914.

Intestinal Stasis. By Beverley Robinson, M.D. Reprint.

The Tangent Curtain. By A. Duane, M.D. Reprint.

Convergence Insufficiency. By Alexander Duane, M.D. Reprint.

The Convergence Index as a Measure of the Converging Power. By Alexander Duane, M.D. Reprint.

Differential Diagnosis, Vol. II. By Richard C. Cabot, M.D. W. B. Saunders Company, 1914.

The Clinics of John B. Murphy, M.D., at Mercy Hospital, Chicago. W. B. Saunders Company, 1914.

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